

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

ANNUAL CORPORATE REPORT 2015/2016







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NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA) ANNUAL CORPORATE REPORT 2015/16

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Front cover page photos: Some of NEMA's key outputs in FY2015/16.

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TABLE OF CONTENTS

	NYMSiii WORDv
1.0	BACKGROUND1
1.1	The focus of the FY2015/16 Performance Review1
2.0	KEY ACHIEVEMENTS IN FINANCIAL YEAR 2015/16
KEY R	ESULTS AREAS (KRA) 1: Environmental Compliance, Integrity and Productivity Enhanced
2.1	Enhance legal recourse functions, policy and legal reforms
2.2	Review and approve Environmental Assessment Reports, Licenses and Permit.4
2.2	Licensing of activities capable of causing pollution
2.4	Registration and Certification of Environmental Practitioners
2.5	Strengthen compliance to environmental laws, regulations, standards
2.5	and guidelines
2.6	Trends in performances in environmental inspections and audits
2.7	Strengthen Environmental Information management
2.8	Undertake and support restoration, protection and conservation of critical,
	fragile and degraded/threatened ecosystems15
2.9	Strengthen and build capacity of NEMA, Lead Agencies and Loca Government20
	2.9.1 Implementation of the Strategic Environmental Assessment (SEA)
	2.9.2 Development of Regulatory Capacity with respect Environmental
	2.9.3 Development of Environmental data collection and information systems22
	2.9.4 Implementation of the Albertine Graben Environmental
	2.9.5 Development of a National Oil Spill Contingency Plan24
KEY R	ESULTS AREAS (KRA) 2: Green Economy Approach to ENR Management Developed and Promoted25
KEY R	ESULTS AREAS (KRA) 3: Strategic Environment Literacy, Access to Information and popular participation strengthened
3.1	Support public education programs to mobilize the pubic to participate in ENR management
3.2	Support to public education and awareness programs to enhance
	environmental literacy
KEY R	ESULTS AREAS (KRA) 4: Human and Financial Capacity of NEMA Strengthened to Perform its Mandate and Statutory Functions43
KEY R	ESULTS AREAS (KRA) 5: National, Regional and International Partnerships for Sustainable Development Strengthened44
5.1.	Participation in key MEAs, regional and global obligations and fora45

i

5.2	MEAS project coordination and coordination	45
	Convention on Biological Diversity (CBD) BIOFIN Project CBD Project on Integrated Implementation of the Cartagena Protocol on Biosafety Mainstreaming Biodiversity in Development Policy and Planning Conservation and sustainable use of the threatened savannah woodlands in the	45 46 46
	Kidepo Critical Landscape (KCL) in North Eastern Uganda (Kidepo project) Upcoming projects Projects under development Civil Society and the Private Sector participation	48 48
	The Minamata Convention on Mercury Mercury Initial Assessments (MIA) Project (Uganda)	
	Kyoto Protocol - Clean Development Mechanism (CDM) Municipal Solid Waste Composting Project	
	The Vienna Convention on Protection of the Ozone and the Montreal Protoco on Substances that Deplete the Ozone Layer	
3.0 3.1	STRATEGIC PERFORMANCE CHALLENGES AND RECOMMENDED STRATEGIES FOR CONTINUOUS IMPROVEMENT Strategic challenges	
3.2	Recommended strategies for continuous improvement	
LIST C	OF TABLES	
Table1: Table 2	during FY2015/16	

Tuble 2:	Total holiber of LIA-related documents reviewed doring 11 2013/10	
Table 3:	Total number of Certificates of Approval issued, by quarter and by category of	
	projects, during FY 2015/16	5
Table 4:	Total number of inspections (baseline verifications and post-EIA inspections)	
	undertaken during the FY 2015/16, by Quarter	6
Table 5:	Overall summary for FY 2015/16	6
Table 6:	Pollution Licensing Summary for Q4 Type of License	7
Table 7:	Certification and Registration considerations for 2016 Category	8
Table 8:	Results of analysis of effluent from selected industries	9
Table 9:	Environmental Compliance documents received during the year	9

LIST OF FIGURES

Figure 1:	5-year trends in the approval of ElAs	6
Figure 2:	5-year trends in Environmental Inspections and Audits	12
Figure 3:	Geo-referencing and mapping of degraded sites that required restoration	17
Figure 4:	The Environmental Information Network (ERIN) Portal on Oil and Gas	22
Figure 5:	Map of Shea Butter growing areas in Uganda	49

ACRONYMS

AG	-	Albertine Graben
AGEMP	-	Albertine Graben Environmental Monitoring Plan
AMESD	-	African Monitoring of the Environment for Sustainabl Development
BOD	-	Biological Oxygen Demand
BU	-	Busitema University
CAIIP	-	Community Agricultural Infrastructure Improvement Programme
CAO	-	Chief Administrative Officer
CCTs	-	Centre Coordinating Tutors
CEP	-	Committee of Environmental Practitioners
CHEIN	-	Clearing House for Environment Information Network
Cl	-	Chlorides
COD	-	Chemical Oxygen Demand
CPFs	-	Central Processing Facility
Cr	-	Chromium
CSO	-	Civil Society Organisation
DECs	-	District Environment Committees
DLG	-	District Local Government
DTPC	-	District Technical Planning Committee
DWRM	-	Directorate of Water Resources Management
EA	-	Environmental Audit
EIA	-	Environmental Impact Assessment
EIN	-	Environmental Information Network
ENR	-	Environment and Natural Resources
EO	-	Earth Observation
EPPU	-	Environmental Protection Police
ERA	-	Environmental Risk Assessment
ESD	-	Education for Sustainable Development
ESMP	-	Environment and Social Management Plans
EU	-	European Union
FY	-	Financial Year
GIS	-	Geographical Information Systems
GoU	-	Government of Uganda
IEC	-	Information Education Communication
IGAD	-	Intergovernmental Authority for Development
IMP	-	Integrated Management Plan
IRCU	-	Inter-Religous Council of Uganda
KPAs	-	Key Performance Areas
KRA	-	Key Results Areas
LAs	-	Lead Agencies
LC	-	Local Council
LDIM	-	Land Degradation Index Map
LDM	-	Land Degradation Monitoring
LECs	-	Local Environment Committees
LGs	-	Local Governments
MAAIF	-	Ministry of Agriculture Animal Industry and Fisheries

MC	_	Municipal Council
MDAs	_	Ministries, Departments and Agencies
MEAs	_	Multilateral Environmental Agreements
MEMD	_	Ministry of Energy and Mineral Development
MESA	_	Monitoring For Environment and Security In Africa
MLGSD	-	Ministry of Labour, Gender and Social Development
MoPS	_	Ministry of Public Service
MTEFs	_	Medium Term Expenditure Frameworks
MTWA	_	Ministry of Tourism, Wildlife and Antiquities
MUST	_	Mbarara University of Science and Technology
MWE	_	Ministry of Water and Environment
NBSAP	_	National Biodiversity Strategy and Action Plan
NDP	_	National Development Plan
NEA	-	National Environment Act, Cap 153
NEF	_	National Environment Fund
NEMA	-	National Environment Management Authority
NEMP	-	National Environment Management Policy
NFA	-	National Forestry Authority
NHC	-	National Forestry Authority Natural Habitat Conservation
NOSCP	-	National Oil Spill Contingency Plan
NSC	-	National Steering committee
OfD	-	Oil for Development
OSCA	-	Oil Spill Contingency Analysis
PCE	-	Policy Committee on Environment
RDC	-	Resident District Commissioner
SADC	-	
RCEs	-	Southern African Development Community Africa Regional Centres of Excellence
SEA	-	-
	-	Strategic Environmental Assessment
SEEP	-	School Environment Education Programme
SDGs SMOG	-	Sustainable Development Goals
SNOG	-	Strengthening the Management of the Oil and Gas Programme Suspended solids
SCP	-	
TC	-	Sustainable Consumption and Production Technical Committee
TC	-	Town Council
	-	
TCPL	-	Technical Committee on Pollution Licensing
Tons	-	Tonnes
ToRs TP	-	Terms of Reference
	-	Total Phosphorous
TWG	-	Technical Working Group
UEGCL	-	Uganda Electricity Generation Company Limited
UETCL	-	Uganda Electricity Transmission Company Limited United Nations
	-	
UNEP	-	United Nations Environment Programme
	-	United Nations Educational, Scientific and Cultural Organization
	-	Uganda National Commission for UNESCO
UNU- IAS	-	United Nations University Institute of the Advanced Study of Sustainability
	-	Uganda Wildlife Authority
WED	-	World Environment Day
WMP	-	Waste Management Plan

FOREWORD



Dr.Tom .O. Okurut

The National Environment Management Authority (NEMA) is a semi-autonomous institution, established in May, 1995, under the National EnvironmentAct, Cap. 153, and became operational in December, 1995, as the principal agency in Uganda, charged with the responsibility of coordinating, monitoring, regulating and supervising environmental management in the country. The mandate and statutory functions of NEMA requires that the authority work in partnership and synergies with other stakeholders (lead agencies, local governments and other partners) to ensure effective environment management for sustainable development in Uganda.

NEMA,s 5-year Strategic Plan which focuses on five (5) Key Results Areas (KRAs) in relation with the institution's mandate and statutory functions aligned to the National Development Framework; the National Vision and the National Development Plan (NDP). The Strategic Plan is also linked to the Multilateral Environmental Agreements (MEAs), regional and global commitments on sustainable development including the Sustainable Development Goals (SDGs). Notably, the Strategic Plan is reviewed annually through planning and production of Annual Corporate Reports which enable the authority to provide information on its achievements; outputs and outcomes based on the institutional Annual Work plan. The Annual Report is used to assess and identify issues that need to be addressed, and provides appropriate recommendations for continuous improvement for effective environment management in Uganda. Besides, the Annual Corporate Report is an accountability and transparency tool that is statutorily required by Government of Uganda but also designed to meet stakeholders' expectations.

ThisAnnual Report highlights the implementation status of the planned activities, key achievements, outputs, outcomes, challenges, lessons learned relating to the FY2015/16. NEMA recognises and appreciates the support given by Government of Uganda, the Policy Committee on Environment (PCE), the Minister of Water and Environment, the NEMA Board; Ministries, Agencies and Local Governments (MALGs), the Private Sector, Development Partners, Civil Society, the Media and communities. The contributions from Government of Uganda and other partners have had positive impacts on NEMA's efficiency and effectiveness. The Annual Report will also be disseminated to inform and create awareness among decision-makers and the general public on the importance of enhancing environment management for sustainable development in Uganda.

Lastly, NEMA will continue to strive for improved institutional relevance, efficiency, effectiveness, impacts and sustainability within the ambit of its mandated functions of coordinating, supervision and monitoring environment management in Uganda. Such performance improvement strategy is only possible through increased support to NEMA and MALGs for the enhancement of environment management capacity building at both central and local governments, including the private sector.

Dr. Tom .O. Okurut EXECUTIVE DIRECTOR, NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

National Environment Management Authority (NEMA) Annual Corporate Report 2015/16

Map of Uganda watersheds



National Environment Management Authority (NEMA) Annual Corporate Report 2015/16

1 BACKGROUND

1.0 BACKGROUND

he National Environment Management Authority (NEMA); referred to here as the Authority, is a semi-autonomous institution established in 1995. The Authority is a principal Agency with the responsibility of coordinating, monitoring, and supervising environmental management in Uganda. Besides, the Authority advises Government and spearheads the development of environmental policies, laws, regulations, standards and guidelines for sound environment management in Uganda. Moreover, NEMA builds environment management capacity of other Government Ministries, Departments and Agencies (MDAs) and other stakeholders.

1.1 The focus of the FY2015/16 Performance Review

The performance review of NEMA for FY2015/16 focused on the organization's mandate and statutory functions while taking into cognizance of the National Development Plan,Water and Environment sector goals, Environment and Natural Resources (ENR) platinum indicators; ENR Sub-Sector Performance Measurement Framework and the Key Results Areas (KRAs) in NEMA's 5-year Strategic Plan (2015/16-2019/20). These KRAs are the performance pillars that are embedded in the Strategic Plan, which emphasizes continuous performance improvement to meet the new and emerging environmental issues, which among others include oil and gas, urban waste management, electronic waste, green economy pathways and initiatives, biodiversity loss, biotechnology and bio-safety, invasive species, and climate change.

The five strategic performance pillars or Key Results Areas are:

- I. Environmental compliance, integrity and productivity enhanced;
- 2. Green economy approach to ENR management developed and promoted;
- 3. Strategic environment literacy, access to information and popular participation strengthened;
- 4. Human and financial capacity of NEMA strengthened to perform its mandate and statutory functions; and,
- 5. National, regional and international partnerships for sustainable development strengthened.

The above KRAs are implemented through Key Performance Areas (KPAs) according to Annual Work plans and Budgets for five years with funding from Government of Uganda, National Environment Fund (NEF) Donors, United Nations Organizations, Agencies and Programs, Bilateral Partnerships, Multilateral Environmental Agreements (MEAs) and Development Partners.

A section of the restored Akadot wetland

2 KEY ACHIEVEMENTS IN FY2015/16

2.0 KEY ACHIEVEMENTS IN FINANCIAL YEAR 2015/16

KRA 1: Environmental Compliance, Integrity and Productivity Enhanced

2.1 Enhance legal recourse functions, policy and legal reforms

Planned Output Targets

- I) The National Environment Management Policy (NEMP) reviewed; and,
- 2) The National Legal Framework for environmental management reviewed.

Achievements

- I) The NEMP has been reviewed while taking into account the new and emerging environmental issues and management challengers; a draft policy document has been produced and to be reviewed by the Top Policy Committee at the Ministry of Water and Environment (MWE) for subsequent adoption by the Policy Committee on Environment (PCE).
- 2) NEMA has coordinated the revision of the National Environment Act Cap. 153 (NEA) with input from various Government institutions, the Private Sector and Civil Society.
- 3) NEMA has also spearheaded the revision of key regulations regarding Environment Impact Assessment (EIAs), audits and inspections, waste, effluents, and noise, with relevant inputs from Government institutions, the Private Sector and Civil Society.
- 4) NEMA has developed new regulations regarding Air Quality and Oil Spill Management.
- 5) NEMA has developed new sector specific regulations and guidelines regarding Petroleum waste as per the provision of the Petroleum Exploration and Production Act.
- 6) Significant progress has been made in the Review of Environment Assessment and Audit Regulations; Refinement of the EIA Regulations; Review of Waste Management Regulations; Review of the Effluent Regulations; and, and Oil Spills Regulations. Besides, the Hazardous Waste Guidelines were developed and the Draft Guidelines are in place.
- 7) Other regulations including effluents, noise and air quality have been reviewed/ developed.
- 8) NEMA supported six districts (Moroto, Nakapiripirit, Napak, Mbale, Dokolo and Oyam) to develop Byelaws and Ordinances on Environment and Natural Resources Management to enhance decentralized environment management.

Unachieved output targets and explanation on performance variance

All laws except Oil Spills are on track. Delays in Oil Spills regulations were due to delays in development of the Oil Spills Contingency Plan that should take precedence.

Achieved/expected outcomes

Notably, the achieved outcome has been the incorporation of the new and emerging environmental issues, management challenges and institutional roles and responsibilities in the draft policy, National Environment Bill and the reviewed/new regulations.

Challenges

The approval of the new policy and enactment of the new law have lagged behind time due to administrative and bureaucratic procedures and the parliamentary elections and emergence of new members of Parliament and Cabinet Ministers who needed orientation and induction on the policy and institutional frameworks, and legal regime.

2.2 Review and approve Environmental Assessment Reports, Licenses and Permits

Planned output targets for FY2015/16

- I) 500 Environment Impact Assessment (EIA) reports approved.
- 2) The National Legal Framework for environmental management reviewed. Facilities and activities capable of causing pollution licensed.

Achieved outputs in FY2015/16

- 995 EIAs were approved against the planned target of 500 (180%) due to improved on internal and external efficiency and effectiveness like the introduction of online reviewing of EIAs and the timely review and submission of the key Lead Agencies.
- 2) The details of the EIAs reviewed and approved in FY2015/16 are as below:

Table1: Total number of EIA-related documents received by NEMA from Developers, during FY 2015/16

Year / Quarters	Project Briefs (PBs)	Environmental Impact Statements (EISs)	Total Number of Submissions	
Year 2015				
July - September	153	130	244	
October - December	87	135	222	
Year 2016				
January - March	104	101	205	
April - June	93	132	225	
Grant Total			896	

Year / Quarters	Total Number of Approvals Prepared	Total Number of Certificates Prepared/Issued		
Year 2015				
July – September	238	214		
October – December	212	142		
Year 2016				
January – March	272	109		
April – June	273	207		
Grant Total	995	672		

Table 2: Total number of EIA-related documents reviewed during FY 2015/16

Table 3: Total number of Certificates of Approval issued, by quarter and by category of projects, during FY 2015/16

Category of Project	Year 2015		Year 2016		Total	Percent
	Jul – Sep	Oct - Dec	Jan - Mar	Apr- Jun	Certificates	
Information Communication						
Technology	105	23	4	4	136	20.2
Infrastructure - Roads, Housing,	37	52	29	58	176	26.2
Renovations						
Fuel Service Facility	11	32	32	38	113	16.8
Processing, Manufacturing	24	13	25	43	105	15.6
Industries						
Energy Production/Distribution	7	7	2	12	28	4.2
Minerals, Mining, Quarry	8	7	9	13	37	5.5
Education Facility	6	-	4	19	29	4.3
Wildlife, Hotels, Leisure, Tourism	6	2	2	5	15	2.2
Oil/Gas	-	-	-	-	-	-
Waste Management & Infrastructure	2	1	-	6	9	1.3
Land-use change, agriculture, forestry and livestock	7	4	-	7	18	2.7
Water Supply/Sanitation	-	1	1	1	3	0.5
Water Resources, Wetlands, Fisheries	1	-	1	1	3	0.5
Grand Total	214	142	109	207	672	100%

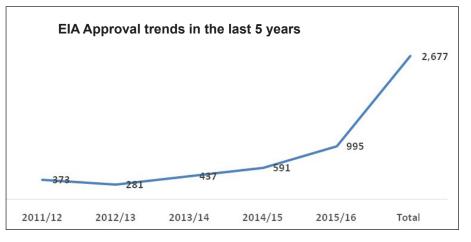
Table 4: Total number of <u>inspections</u> (*baseline verifications and post-EIA inspections*) undertaken during the FY 2015/16, by Quarter

Inspections	Year 2015		Year 2016	Grand	
	Jul – Sep Oct – Dec		Jan - Mar	Total	
Number of Baseline Verifications and Post-EIA Inspections	53	95	26	43	217

Table 5: overall summary for FY 2015/16

Year / Quarters	Total Number Handled	Total Number of Approvals prepared	Total Number of Certificates Issued	Total Pending (Awaiting completion of review) (Cumulative Total for FYs 2014/15 and 2015/16)
Year 2015				
July - September		238	214	
October - December		212	142	
Year 2016				
January - March		272	109	
April - June		273	207	
Grand Total	1,212 (995 approvals plus 35 rejected)	995	672	182

Figure 1: 5-year trends in the approval of EIAs



2.3 Licensing of activities capable of causing pollution

In accordance with Section 58 of the National Environment Act, Cap 153, the Authority issues licenses waste management activities (waste Storage, Waste Transportation, Waste treatment, and Waste disposal) capable of causing pollution. The issuance of licenses is expected to regulate such activities. The Technical Committee on Pollution Licensing (TCPL) is mandated to review and consider applications for pollution licenses among other things. Against this background, the secretariat within NEMA undertook inspections on behalf of the TCLP to verify and obtain the status of each applicant and generate reports to advise the TCLP at its meetings. During the financial year 2015/2016, the committee reviewed 61 applications, of which 43 were approved in the various categories; transportation of waste, storage of hazardous waste, license to own/operate a waste treatment and disposal facility. Table 6 provides details of the license applications handled.

	Category of License	New	Renewal of	Approved	Differed	
		Applications	License			
1	Transportation of Waste	24	10	(19)	(15)	
2	Storage of Hazardous Waste	05	01	(02)	(04)	
3	Own/operate Waste Treatment Facility	06	08	(06)	(08)	
4	Own /operate Waste Treatment & Disposal Facility	01	04	(04)	(01)	
5	Operate Waste Treatment & Disposal Facility (waste composting site)	00	12	(12)	(00)	
	Total	36	25	43	28	

 Table 6: Pollution Licensing Summary for Q4 Type of License

The committee meetings are held as and when applications have been submitted, and the applicants/projects verified by the secretariat. Two meetings were held during the financial year.

2.4 Registration and Certification of Environmental Practitioners

In accordance with the National Environment (Conduct and Certification of Environmental Practitioners) Regulations, 2003, a meeting of the Committee of Environmental Practitioners (CEP) of Uganda, was held in April 2016. The meeting of the CEP oversaw the process of registration and certification of Environmental Practitioners for the year 2016 Environmental practitioners renewed their registration (Environmental Impact Assessment and/or Environmental Audit practice) for individuals and partnerships in 2016. The list of practitioners is on the Authority's website.

Category of registration	Applications	Number	
of practitioners	received	Approved	
EIA (Renewal)	137	137	
Audit (Renewal)	68	68	
Partnerships	6	6	
New EIA applicants	19	12	
New Audit applicants	10	6	
New Partnerships	4	2	
Foreign Applicants	15	12	
Total	259	243	

Table 7: Certification and Registration considerations for 2016 Category

2.5 Strengthen compliance to environmental laws, regulations, standards and guidelines

Planned output targets for FY2015/16

- 1) 1,200 environmental inspections, audits and compliance follow-ups undertaken.
- 2) The ban on polyethylene carrier bags (Kaveera) operationalized (enforcement).
- 3) 100 gazetted environmental inspectors trained across sectors (MDAs).
- 4) Operations of a multi-sectoral project monitoring committee (quarterly) supported.
- 5) Monthly operations of Environmental Protection Police Unit (EPPU) in enforcement of environmental compliance supported.

Achieved outputs in FY2015/16

1) During the financial year 2015/2016, at 1,261 (105%) inspections were undertaken against a planned target of 1200 inspections These were undertaken for facilities and activities in the green and brown environments which included hydropower projects, oil and gas exploration and appraisal activities, industry, waste management, mining and quarrying; 343 inspections were undertaken for industry, waste management, hydro-power projects, mining and quarrying and oil and gas activities. Special inspections were undertaken to monitor compliance of wastewater from industrial establishments against the national standards. Inspections were carried out in the various districts in Eastern, Western and Central of Uganda to among others, establish the level of compliance to the National Environment (Effluent Discharge) Standards. The general conclusions drawn from the results of these inspections (refer to Table 8) is that there is a form of pollution generally from most industries especially as illustrated by the high Chemical Oxygen Demand (COD) figures beyond the standard.

Industry	рН	Electrical	Total	Turbidity	Total	Chemical	Biological	Chromium	Chlorides	Suspended
(inspected		conductivity	Dissolved		Phosphorous	Oxygen	Oxygen	(Cr)	(CI)	solids
facility)			solids		(TP)	Demand	Demand			(SS)
						(COD)	(BOD)			
Discharge	6.0 -8.0	1500	1200	300	10	100	50	0.05	500	100
standard										
Sunbelt textile	5.9	112	78	39	0.21	96	6.3	0.001	10	52
industries										
Nyanza Textiles	7.2	861	603	32	0.66	250	NA	0.001	117	NA
Nile Agro industries	8.0	10600	7420	1000	5.75	3680	330	<0.001	NA	2050
Skyfat Leather	8.0	1320	9247	0.001	2.87	2100	330	2.295	NA	150
Jambo Tannery	8.4	22100	15470	NA	3.62	3550	580	NA	NA	580
Hoopoe Trading	7.7	27600	19320	NA	3.05	605	5	NA	NA	NA
Global Paper	7.1	245	172	NA	0.08	605	5	NA	NA	NA
industries										
Riley Packaging	6.9	1930	1351	NA	0.94	23400	10	NA	NA	NA
Paper Toils	6.5	940	658	NA	1.98	8240	0.5	0.0017	NA	NA
Britania industries	6.3	1135	795	0.035	0.15	2680	6.0	0.0346	NA	NA
Crown Beverages	7.6	1136	795	0.036	5.6	54	4	NR	NA	NA
Nile Breweries	7.8	1480	1036	NA	5.5	38	1.0	NA	NA	NA
Fish Packers	6.2	705	494	0.034	4.89	285	3	NA	NA	NA
Lake Bounty	6.3	1960	1372	NA	0.43	1065	1.0	NA	NA	NA
Ngege Fish	6.4	705	494	0.036	5.54	470	130	0.0003	NA	NA
Fishways	6.5	395	277	0.042	0.69	54	50	NA	NA	NA

 Table 8: Results of analysis of effluent from selected industries

2) Environmental Audits are a compliance tool provided for in the National Environment Act, Cap 153, the National Environment (Audit) Regulations, and the National (Environment ImpactAssessment) Regulations. Mandatory Environmental Audits are undertaken for facilities and the reports submitted to NEMA for review. In this regard, 232 Environmental Audit (EA) reports were received during the FY 2015/16, 169 were reviewed and responses provided to the regulated community (refer to Table 9). Responses include administrative letters and compliance agreements.

Table 9: Environmental Compliance documents received during the year.

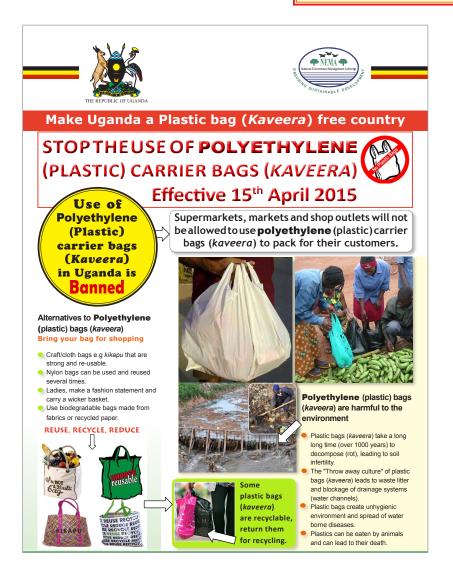
Document type	Q1	Q2	Q3	Q4	Total
Audit	79	52	40	61	232
Environment and Social Management Plans (ESMP)	7	25	33	7	72
ToRs for Audit	30	40	41	43	154

3) The Government of Uganda imposed a total ban on polyethylene (plastic) carrier bags (*Kaveera*) in the 2009/2010 National Budget. The Finance Act, 2009 was subsequently passed by Parliament to give legal effect to the ban. The purpose of the ban was to rid the country off the eminent danger it faces because of the adverse and irreversible impacts of plastic waste on the environment. Despite the various constraints, NEMA resumed the implementation of the ban on 15th April 2015. At the commencement of the Financial Year (July 2015) activities had stalled due to processes instituted to prevent NEMA from

implementing the ban. Following a cabinet decision requiring NEMA to implement the ban, enforcement activities were undertaken in Eastern and Western Uganda during which **18.5 tons** of polyethylene carrier bags were impounded from districts in eastern Uganda, more than a half of which was from Victoria Nile Plastics located in Njeru, Buikwe District; and **8.5 tons** from Western Uganda. The stock of *Kaveera* has since been stored at NEMA premises awaiting appropriate disposal.

Notably, the Uganda Plastics Manufacturers and Recyclers Association Ltd filed a court case against the enforcement activities by NEMA on 29th January 2016 in relation to the ban on the polyethylene carrier bags. The court case was ruled in favour of NEMA on 30th March 2016. After the court ruling, the Ministry of Trade, Industry and Cooperatives presented another paper to cabinet which aim was to have the Cabinet reverse the ban on kaveera, however, due to more submissions of information and briefs by NEMA, the Cabinet maintained the ban and advised NEMA to continue with the enforcement.

After the court ruling, the Ministry of Trade, Industry and Cooperatives presented another paper to cabinet which aim was to have the Cabinet reverse the ban on kaveera, however, due to more submissions of information and briefs by NEMA, the Cabinet maintained the ban and advised NEMA to continue with the enforcement.



4) 375 public officials were designated and gazetted as Environmental Inspectors in June 2014. Many of these inspectors were new to the field and in much need of training/ orientation. It that was planned that 100 Environmental Inspectors would be trained during the year, the target was exceeded and 150 (150%) Environmental Inspectors were trained during three separate training workshops held in Mbale, Fort Portal and Gulu Municipalities.

5) The Multi-sectoral Environmental Monitoring Committee for Karuma and Isimba Hyro power plants was established comprising representatives from; Uganda Electricity Transmission Company Limited (UETCL), Uganda Electricity Generation Company Limited (UEGCL), Ministry of Tourism, Wildlife and Antiquities, Uganda Wildlife Authority (UWA), National Forestry Authority (NFA), Ministry of Agriculture Animal Industry and Fisheries (MAAIF), Directorate of Water Resources Management (DWRM), Ministry of Energy and Mineral Development (MEMD), Ministry of Labour, Gender and Social Development Department of Occupational Health and Safety, Kayunga, Buikwe, Jinja, Kiryandongo and Nyoya District Local Governments, and Academia (Kyambogo University Department of Civil and Building Engineering; Makerere University) and the National Environment Management Authority (NEMA) as the secretariat. The committees undertook meetings and inspections of the two projects which are under construction, however, due to limited funding, no activities were undertaken during the last half of the financial year.



The Karuma Hydro Power Multi Sectoral Monitoring Committee undertaking routine monitoring. The committee comprises Government Ministries, Departments and Agencies; Academic Institutions; and Civil Society Organisations.

6) The Environmental Protection Force was facilitated to monitor and undertake surveillances, compliance and enforcement actions on activities related to degradation of the environment (wetland/lakeshore/riverbank degradation), noise, pollution including illegal dumping of waste, and quarrying activities. In this regard, 10 criminal cases were instituted for wetland degradation in areas along the shores of L.Victoria in Kasenyi and Nakibizi wetland in Lugazi, Buikwe District, 29 illegal activities related to environmental degradation were halted.

Unachieved output targets and explanation on performance variance

Inspections by the multi-sectoral committee for Karuma and Isimba hydropower projects were only undertaken for one quarter due to limited funding.

2.6 Trends in performances in environmental inspections and audits

The graph in Figure 2 shows 5-year trends in Environmental Inspections and Audits.

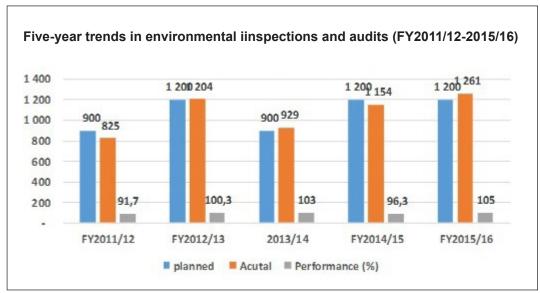


Figure 2: 5-year trends in Environmental Inspections and Audits

Challenges

- Expensive costs of laboratory services by other agencies of Government Agencies should be strengthened to get accurate and reliable data and information of samples and specimen from inspected facilities.
- 2) Whereas Environment and Social Management Plans (ESMP) development was an administrative measure established to facilitate compliance towards the already existing developments, which were not subjected to EIA, they are not substitutes for EIA. It is worth noting that under the current laws, ESMP is not explicitly catered for as an independent submission against which approval should be granted. The EIA process is a critical process and more comprehensive than ESMPs, thus it should not be substituted with any other option.

- 3) The polyethylene carrier bags confiscated during the enforcement exercise have not been disposed-off. The disposal process was initiated through identification of appropriate technologies and facilities for disposal. Several inspections and pretesting activities were carried out at the Epsilon incinerator located in Zirobwe, Luweero District, the results and recommendations of which were documented and forwarded for initiation of the procurement process so as to embark on the disposal process in accordance with the PPDA guidelines. It was however noted that the disposal was costly and thus the budget constraints have delayed the disposal process. Such disposal issues affect the effectiveness in the enforcement of the ban.
- 4) Some developers or investors still degrade the environment with impunity amidst the efforts by NEMA to ensure maximum compliance to the environmental legislation and EIA approval conditions.



A Sand Excarvator in Lwera wetland.

Recommendations for continuous improvement

- Strengthen the laboratory function of NEMA to be able to undertake regular sampling and analysis of effluents to obtain independent results that can be compared against results submitted through regular self- monitoring undertaken by the regulated community.
- 2) Conduct continuous sensitization of and compliance assistance to the developers/ investors to ensure effective compliance to the environmental laws, standards, guidelines, and the EIA approval conditions.

- Increase institutional (technical and financial) support to MDAs especially Local Governments in the review of EIAs, audits, permits and other compliance documents to ensure process efficiency and effectiveness.
- 4) Funding should be out-sourced to dispose-off the current stock of *Kaveera* and establishment of regional/circuit collection centres for the confiscated *Kaveera*.
- 5) Continuous public education and awareness programs on the adverse impacts and particular soil productivity and health dangers of producing and using *Kaveera* should be undertaken to increase public participation.

2.7 Strengthen Environmental Information management

Monitoring For Environment and Security In Africa (MESA) uses space-based and in-situ data to enable an improved management of the environment and food security at continental, regional and national levels in Africa. MESA consolidates and widens the operational environmental services developed in the AMESD (African Monitoring of the Environment for Sustainable Development) programme, and is a contribution to the GMES-Africa initiative of the EU-Africa Joint Strategy.

The purpose of the MESA programme is to increase the capacity in information management, decision making and planning of African continental, regional and national institutions mandated for environment, climate and food security. This has been achieved by enhancing access to reliable, timely and accurate land, marine and climate data and information for Africa. MESA is exploiting Earth Observation (EO) data and technologies to promote socio-economic progress towards achieving the Sustainable Development Goals.

The overall objective of the MESA programme in the IGAD region is to enhance land degradation and natural habitats assessment and Forest Monitoring for sustainable management of environmental resources.

There are six specific results from the above objective; namely:

- Improved access to existing basic EO, field and ancillary data ensured for users in the IGAD region.
- 2) Consolidation of existing operational information services established to improve policy and decision-making processes in Land Degradation Monitoring (LDM) and Natural Habitat Conservation (NHC) and development of a new Forest Monitoring (FM) service. The services will produce and distribute regularly:
 - (i) land degradation index maps;
 - (ii) land cover change indicators on IGAD selected Natural Habitats areas; and,
 - (iii) Forest degradation, deforestation extent, vulnerability index map over the whole IGAD region.

- 3) Cross-fertilization in agriculture monitoring from the MESA SADC Thema.
- 4) Political and policy development frameworks strengthened to ensure an active and sustainable participation of IGAD member states in global environmental surveillance initiatives.

- 5) Adequate technical capacity of MESA IGAD stakeholders.
- 6) Efficient and effective management of the Project

Planned Activities

- I) Establishment a National steering committee for MESA.
- 2) Establishment of a MESA Technical Working Group.
- 3) Hold two steering committee meetings each year.
- 4) Production of bulletins on environment and MESA activities.
- 5) Training technical working group members on earth observation data produced by the station.
- 6) Land Degradation index, forest degradation and natural habitat conservation maps validation.
- 7) MESA station upgrade to receive high and medium resolution images.

Achieved outputs in FY2015/16

The following are the key achievements made by the MESA Project;

- Assessment of land slide prone areas in Mount Elgon region, identification of emerging cracks and community sensitization on the dangers of living in mountainous areas.
- 2) Installation of MESA low and medium resolution data receiving station. Products received include forest cover, NDVI, LSAF, rainfall, among others.
- 3) One National Steering Committee (NSC) meeting held.
- 4) Formation of MESA Technical Working Group (TWG)
- 5) One training workshop of the Technical Working Group members on the use of station products held.
- 6) IGAD land degradation Index map (LDIM) produced.
- 7) IGAD National Habitat Conservation (NHC) map produced.

2.8 Undertake and support restoration, protection and conservation of critical, fragile and degraded/threatened ecosystems

Planned output targets for FY2015/16

- Restoration of ecosystems services and functions within Lake Kyoga and Lake Wamala undertaken.
- 2) One green belt in Kapchorwa Municipality undertaken.
- 3) Special environmental inspections to enhance compliance and restoration of the degraded fragile ecosystems undertaken.

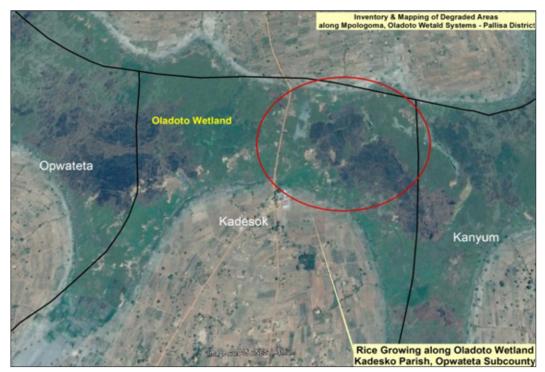
Achieved outputs in FY2015/16

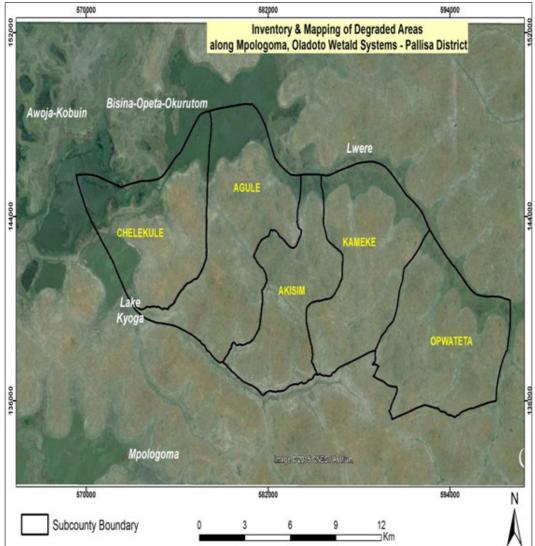
- NEMA initiated a series of community driven interventions geared towards restoration of fragile ecosystem and behavioural change targeting Lake Kyoga and its catchment. A number of activities were undertaken and these include:
 - (i) Inventory activities to identify and document actual encroachers and degraders within Limoto and Mpologoma wetland system; 3,609 degraders were identified, recorded and validated. The purpose of documentation of encroachers was to establish and confirm the actual people involved in the degradation activities to facilitate direct engagement for voluntary compliance as well as support necessary litigation efforts and compliance enforcement.
 - (ii) NEMA undertook Geo-referencing and mapping of degraded sites and produced GIS maps for hotspot areas that require restoration and compliance enforcement (see Figure 3).
 - (iii) NEMA issued 2,450 Environmental Restoration Orders to degraders who were engaged for a long time without much change in their attitudes. Although these Orders were served, degraders were still given chance for a voluntary compliance to minimize the use of force and also to avoid litigation costs where necessary.



NEMA's engagement with Pallisa and Kibuku Local Governments in Wetland ecosystems management.

Figure 3: Geo-referencing and mapping of degraded sites that required restoration.





National Environment Management Authority (NEMA) Annual Corporate Report 2015/16



Issuance of Environmental Restoration Orders (EROs) to degraders.



- 2) NEMA initiated activities to green Kapchorwa Municipal Council as part of greening process through funding from NEF. Stakeholders' meeting was held in order to ensure effective participation of the people in the project and establish a sense of ownership. A total of 22,450 of assorted tree seedlings and tree planting materials were procured and planted.
- 3) Thirty five (35) special wetland/riverbank/lakeshore inspections in districts of Mayuge, Jinja, Buikwe, Mukono, Kamuli, Kiruhura, Mpigi, Wakiso and Kalangala; and Jinja Municipal Council, were undertaken to assess compliance with the Environment law and standards and provide technical back stopping to the District Local Governments especially concerning the restoration of the degraded fragile ecosystems.

Achieved/expected outcomes

- 1) The inventory list of 3,609 encroachers was generated as well as details of the nature of the activities being undertaken and specific locations affected to facilitate compliance enforcement. A database containing a list of encroachers has been established to facilitate compliance enforcement; degraded sites were geo-referenced and maps showing critically degraded areas and the specific locations produced; consequently, over 1000 encroachers have appreciated and moved out of the wetlands of Limoto and Mpologoma voluntarily.
- 2) Restored wetlands have re-generated and re-gained their ecological functions, products and services like flora, fauna, flood and draught control, provision of water and local materials for human and livestock needs. This is expected to revitalize human survival and livelihood through activities like fishing, grazing, hunting, art and crafts which contribute to livelihood improvement (food security, water, shelter and income).
- 3) Grassing and tree planting in Kapchorwa Municipality is expected to improve greening and better environmental conditions and the beauty of the municipality. Council's appreciation is expected to facilitate the integration of environmental concerns into the development planning process of the Municipal Council.
- 4) Compliance assistance was given to developers and local governments to improve compliance with environmental law. This is expected to increase the level of environmental compliance and restoration programs at local government level

Challenges

- Inadequate and inconsistent funding affects sustainability of restoration interventions. Besides, such funding constraints contribute to the failure to executing all the planned activities.
- 2) Political interference by local leaders through conflicting statement and misinformation affects compliance interventions.

Recommendations for continuous improvement

- 1. There is an urgent need for appropriate planning (prioritization) and resource allocation for the restoration interventions and their sustainability.
- 2. Regular engagement with all categories of community and district leadership to appreciate the importance of the compliance and restoration interventions is required.

2.9 Strengthen and build capacity of NEMA, Lead Agencies and Local Governments

Strengthening the Management of the Oil and Gas Programme (SMOGP) in Uganda is supported by the Royal Norwegian Government under Oil for Development (OfD). As a continuation from the previous phase, the second phase of SMOGP was renewed in June, 2015. The funding is a grant provided both in technical and financial support to the Government of Uganda for a period of three years from July, 2015.

The implementation mechanism involves both the Uganda Government and the Royal Norwegian Government emphasizing institutional cooperation aimed at institutional capacity development. The project focuses on six key result areas/components, namely;

- I) Implementation of the SEA recommendations;
- 2) Update of the legal framework for environmental management;
- 3) Development of Regulatory Capacity with respect to Environmental Issues in the Oil and Gas Sector;
- 4) Development of Environmental data collection and information systems;
- 5) Implementation of the Albertine Graben Environmental Monitoring Plan (AGEMP); and,
- 6) Development of a National Oil Spill Contingency Plan.

Status of achievement of outputs

2.9.1 Implementation of the Strategic Environmental Assessment (SEA) recommendations

Planned Outputs

Developed from the first phase of SMOGP, the SEA was approved by the cabinet in July 2017 and plans to implement the recommendations of the report made thereafter as follows;

- I) Constitution of the SEA Implementation Committee;
- 2) Developing an Integrated Management Plan (IMP) for the Albertine Graben; and,
- 3) Developing Waste Management Plan (WMP) for the Albertine Graben.

Achieved outputs in FY2015/16

- 1) The SEA Implementation Committee was constituted and the first meeting convened form all stakeholders in Government in December 2015.
- 2) Consultations between Norwegian and UNEP experts on implementation of SEA

were done in relation to Capacity Needs Assessment and training on Integrated Management Plan and Waste Management.

Unachieved output targets and explanation on performance variance

Actual development of an Integrated Management Plan (IMP) and Waste Management Plan (WMP) for the Albertine Graben due to delayed funding. This necessitated out-sourcing funding partnership with UNEP which has delayed the development of the IMP.

Achieved/expected outcomes

The recommendations of the SEA have been integrated into the National Development Plan (NDPII) and the identified environmental and socio-economic concerns are addressed by the mandated institutions.

Challenges

Not all the planned activities were implemented due to delays in accessing funding. However, with adequate preparations and availability of funding, activities are now ready to take off.

2.9.2 Development of Regulatory Capacity with respect Environmental Issues in the Oil and Gas Sector

Planned Outputs

- I) NEMA and relevant agencies receive raining to improve EIA approvals, permits and licenses for oil and gas activities to ease compliance monitoring.
- 2) Capacity of NEMA and relevant lead agencies built, by way of on-the-job-training, to carry out compliance monitoring of oil and gas activities: (including exposure to operations of Refineries, pipelines, Central Processing Facility-CPFs, among others)
- 3) Implementation of the Enforcement and Compliance Monitoring strategy.
- 4) Development of the online EIA system, upload old projects into the system, systems user trained on the utilization of the database and new functionality.

Achieved outputs in FY2015/16

- Capacity building was built in areas of ESIA through joint review; on-job training on compliance monitoring was carried out in November, 2015; a monitoring checklist was developed. This was followed by facilitating one officer to undertake the 8-weeks PETRAD course in Norway and two officers were facilitated to participate in the IAIA in Japan.
- 2) EIA database and system developed and operationalized at NEMA for online EIA, audit and permit review and approval processes; four NEMA Top Management officials were trained in Norway in June, 2016 on the use and functionality of the EIA database while the rest of NEMA staff were trained internally on use of the database.

Achieved/expected outcomes

The project is expected to contribute to institutional capacity enhancement for efficient and effective management of the environmental aspects of oil and gas in Uganda in accordance with the legal framework.

2.9.3 Development of Environmental data collection and information systems

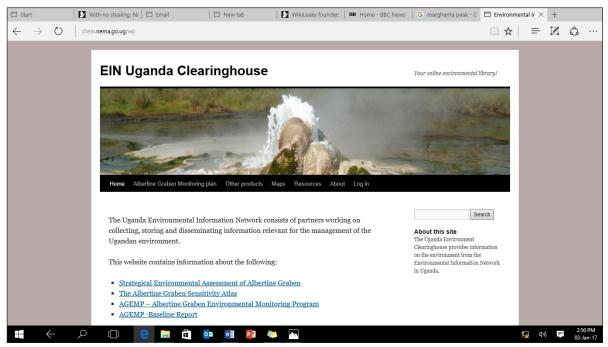
Planned Outputs

- 1) Capacity building training on environmental data collection, management and reporting for both Central and Local Governments.
- 2) A complete technical framework for data collection, storage and dissemination is in place in NEMA.
- 3) Training of Environmental Information Network (EIN)and NEMA staff on the use of CHEIN and MAPS web portals (internal data prioritization and training in desktop GIS) (see Figure 4).

Achieved outputs in FY2015/16

- I) EIN and NEMA technical officers were trained on the use of CHEIN and MAPS web portals (internal data prioritization and training in desktop GIS) ongoing;
- 2) A complete technical framework for data collection, storage and dissemination is in place in NEMA; and,
- 3) Competent Amazon Services to host the data in cloud have been procured.

Figure 4: The Environmental Information Network (EIN) Portal on Oil and Gas



Unachieved output targets and explanation on performance variance

The following planned outputs were not realized due to delays in accessing funds;

- Capacity building training on environmental data collection, management and reporting for both Central and Local Governments; and,
- 2) Implementation of the technical framework for data collection, storage and dissemination; data not collected for analysis to generate information for dissemination.

Achieved/Expected outcomes

The above interventions are expected to enhance institutional capacity in data/information management and knowledge transfer through technical infrastructure and protocols for collecting, sharing, collating and disseminating environmental data and information in a harmonized manner.

2.9.4 Implementation of the Albertine Graben Environmental Monitoring Plan (AGEMP).

Planned Outputs

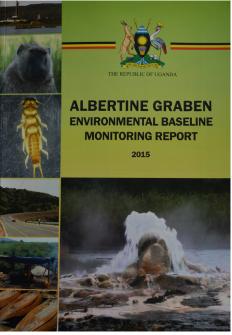
- I) Operationalize the Steering committee for AGEMP to oversee implementation of the AGEMP.
- 2) Complete Baseline survey and finalize the Albertine Graben Environmental Baseline Monitoring Report (AGEBMR), launch the AGEBMR together with the Clearing House Mechanism (CHM) facility.
- 3) Complete, review, print and disseminate data collection manuals.

Achieved outputs in FY2015/16

- Operationalized the Steering committee for implementation of the AGEMP.
- 2) The Albertine Graben Environmental Baseline Monitoring Report (AGEBMR) was finalized and launched together with the Clearing House Mechanism (CHM) facility.

Unachieved output targets and explanation on performance variance

Completion, review, printing and dissemination of data collection manuals were not done due to delays in accessing funds for the activity.



The Albertine Graben Environmental Baseline Monitoring Report.

Achieved/expected outcomes

This activity is focused on building capacity of environmental authorities in Uganda to monitor the status and trends of environmental conditions, including socio-economic conditions, the health of ecosystems and biodiversity status in the presence of oil and gas activities in the Albertine Graben.

2.9.5 Development of a National Oil Spill Contingency Plan

Planned Outputs

- 1) A Steering Committee and Technical Committee (TC) for Oil Spill Contingency established and coordinated.
- 2) National Stakeholder Consultations on the development of a National Oil Spill Contingency Plan (NOSCP) undertaken.
- 3) Draft National Oil Spill Contingency Plan developed.

Achieved outputs in FY2015/16

- I) A technical committee for NOSCP constituted; and
- 2) Draft NOSCP developed based National Oil Spill Contingency Analysis (OSCA) and Environmental Risk Assessment (ERA).

Unachieved output targets and explanation on performance variance

National Stakeholder Consultations on the development of NOSCP not yet done due to delays in accessing funding caused by delayed approval of workplan.

Achieved/expected outcomes

The expected outcome of this intervention was to build institutional capacity in Uganda to efficiently and effectively manage oil spills and their impacts.



Oil Rig at Jobi D in Murchison Falls National Park.

KRA 2: GREEN ECONOMY APPROACH TO ENR MANAGEMENT DEVELOPED AND PROMOTED

Planned output targets for FY2015/16

- Build capacity of 30 Planners at Local Government on green economy initiatives and their roles and responsibilities in supporting the transition to a Green Economy.
- 2) Hold Annual Environment Officers meeting.
- 3) Carryout inspections and support supervision to 8 Central and Local Government initiated projects in districts.
- 4) Build the capacity of District Environment Committees (DECs) and Local Environment Committees (LECs) in thirty 30 districts.
- 5) Support 18 Sub counties in Pallisa and Kibuku Districts to pilot the carrying out of NEMA delegated functions.
- 6) Promote the use of improved cook stoves in educational institutions.

Achieved outputs in FY2015/16

1) 41 Planners and other key District Technical Planning Committee (DTPC) of Otuke, Lira, Bududa, Kole, Apac, Amoltar, Kaberamaido, Serere, Buyende, Pallisa, Ngora, Kumi, Katakwi, Napak, Soroti, Dokolo, Amuria, Abim, Kibuku, Budaka, Bukedea, Sironko, Bulambuli, Iganga, Luuka, Namutumba, Buteleja, Tororo, Manafwa, Mbale, Kamuli and Kaliro were trained at Soroti Municipal Council on Green Economy initiatives and their responsibilities in supporting the transition to the Green Economy in Local Government Development processes.

2) One of the key tasks for the Environment Officers is to assist the districts/municipalities incorporate environmental and land use concerns into overall development plans. The development planning process is expected to include integration of green economy concepts and practices into policies, plans, programmes and budgets. However, Green Economy concepts and practices are new and not well understood by the Environment Officers. To address the gaps in understanding and promoting Green Economy initiatives and practices, a two-day capacity building training workshop was organized for 56 District Environment Officers targeting relatively newly recruited Environment Officers across the country. The actual attendance was 52 (93% attendance). The theme for the meeting was **"Enhancing the capacities of the environmental managers to initiate and promote Green economy practices in Local Governments"**.

3) NEMA carried out support supervision and inspections in Central and Local Government initiated projects in 40 Local Governments out of 60 planned. The monitored Local Governments in the reporting period were Busia, Tororo, Bukedea, Katakwi, Mbale, Mbale Municipality, Kaliro, Kibuku, Namayingo, Namutumba, Luuka and Iganga Municipal Council, Kakira Town Council, Mukono, Lugazi Municipal Council, Buyende, Kapchorwa Town Council and Buikwe in the Eastern Region; Ibanda, Kamwenge, Kyegegwa, Mubende, Kibaale and Kyenjojo,Gomba, Butambala,Mityana, Mpigi, Sheema and Buwheju, Kabarole, Bundibugyo, Ntoroko and Kasese Districts in the Western Region; and Maracha, Nebbi, Yumbe, Koboko, Arua Municipality and Zombo in the Northern Region; respectively.

4) A total of 802 District Technical Planning Committees (DTPCs) headed by the Chief Administrative Officers or their representatives, Sub county Environment Focal Point Persons and representatives of projects were sensitized and mentored on effective decentralized environment management, environmental mainstreaming and implementation of Environmental Management Plans of projects.

5) 154 Local Governments and Central Government initiated development projects and environmental hotspots were inspected and guided on the implementation of mitigation measures where there were gaps. Compliance assistance provided for improvement and reports produced for follow- up purposes.

6) A total of 65 Amudat District Councilors, DTPC members, selected science teachers, Sub county chiefs and LC III Chairmen were trained on aspects of environment management from 29th-30th June 2016. The training was aimed at sensitizing the participant on the institutional roles in environment management, practical aspects of sound environment management and environmental mainstreaming. The workshop was organized by Amudat District Local Government and facilitated by NEMA.

7) NEMA provided technical support to Ministry of Local Government in implementation of the CAIIP project in environmental and social management plan implementation and monitoring for twenty-three (23) CAIIP-III projects undertaken in the districts of Ibanda, Mbarara, Buhweju, Mbarara, Ntungamo, Kabale, Kisoro, and Isingiro.

8) The planned support to 18 Sub counties of Pallisa and Kibuku to carry out NEMA delegated functions have not been completed due to several steps required. However, all the required preparatory activities such as engagement with the district leadership and development of instruments have been completed; the actual delegation of function will be executed in the FY 2016/17.

Unachieved output targets and explanation on performance variance

1) The initiative to support education institutions with improved energy saving stoves was not implemented due lack of funding.

2) Build the capacity of District Environment Committees (DECs) and Local Environment Committees in 30 Districts; In order to increase the districts' capacity to plan and implement environmental programmes leading to better economic and social development of the districts/ municipalities, while maintaining and/or improving the environment and natural resources base, Districts and Lower Local Governments are mandated to put in place environmental management institutions. Specifically the National Environment Act, Cap 153, Sections 14 and 16 created District Environment Committees (DECs) and Local Environment Committees (LECs) respectively. These committees were created to coordinate, monitor and oversee mainstreaming of environment issues into development plans, production of Environment Action Plans, reporting on the state of the environment and management of Local Forest Reserves, Wetlands, Riverbanks, Soils, waste, control of noise, etc., and formulate ordinances and byelaws. While the country went through elections, new councils are in place and DECs and LECs were set up. It was imperative that LGs councils were trained so as to enhance their decentralized functions in ENR management. However, the activity was not implemented due to electioneering period in the FY and the fact that the new councils were not yet in place.

Achieved/expected outcomes

 The capacity of Planners and Environment Officers has been developed with focus on the Green Economy. As result there is an expected improvement in environmental planning and management at both local and central government levels.

- 2) There is an expected increase in green economy initiatives as well as improved integration of green economy concerns into the sector and local government plans and budgets.
- 3) The annual engagement with the District and Municipal Environment Officers has helped to improve their capacity to handle emerging issues such as oil and gas, climate change and e-waste among others.
- 4) There is increased compliance level with environmental mitigation measures and conditions of approval for Local Government projects.
- 5) Due to regular engagement with district technical planning committees, there is improved monitoring and inspection leading to reduced degradation in some areas.

Trends in performances

- The capacity development for Environment Officers has been ongoing. This has resulted into increased skills and knowledge for effective environment management.
- There has been an increased level of environmental planning and budgeting which is a contribution to effective decentralized environment management.
- Due to regular support supervision of Districts and Municipalities, there is increased funding for environment and natural resources from 1% in FY2008/9 to 8% in FY2015/16 in some districts.
- There is increased environmental compliance with Local Government projects through regular screening, inspection and monitoring.

Due to regular support supervision of Districts and Municipalities, there is increased funding for environment and natural resources from 1% in FY2008/9 to 8% in FY2015/16 in some districts.

Challenges

- Inadequate funding to develop the capacity of all the Planners and Environment Officers and annually hold the District/Municipal Environment Officers' meetings as well as undertake regular monitoring and inspection.
- 2) Non-functionality of the established structures such as Local Environment Committees due to their elective nature and lack of resources for operation. Local Environment Committees are largely politicians and their elective nature affects their performance. This has created environment management gaps at the lower Local Government level.
- 3) Limited resources by the District Local Governments to facilitate regular monitoring and inspection as well as making timely compliance decisions.
- 4) Political interventions by some local leaders which at times affect compliance efforts.

Recommendations for continuous improvement

- Need for increased funding to develop the capacity of all the Planners and Environment Officers in all the districts and municipalities.
- 2) Regularly hold annual district and municipal environment officers meetings to enhance effective decentralized environment management.
- 3) Provide research information to support promotion of value addition to ENR goods and services.
- 4) Support the promotion of sustainable consumption and production (SCP) in sectors (including Local Governments), the private sector, schools and tertiary academic institutions and the community.
- 5) Enhance the technical capacity for climate change early warning system response.
- 6) Support the implementation of the National Biodiversity Strategy and Action Plan (NBSAP) in sectors (including local governments), the private sector and community.

KRA 3: STRATEGIC ENVIRONMENT LITERACY, ACCESS TO INFORMATION AND POPULAR PARTICIPATION STRENGTHENED

3.1 Support public education programs to mobilize the pubic to participate in ENR management

Planned output targets for FY2015/16

- I) Quarterly/periodic public education and awareness programs implemented to mobilize the public to participate in ENR management initiatives.
- 2) Community awareness on the protection of River Rwizi carried out.
- 3) Community awareness on the protection of Upper Nile organized.
- 4) Community awareness on the Lake Wamala and its catchments carried out.
- 5) Training and awareness raising on ecosystems integrity and productivity within Lake Kyoga catchment undertaken.

Achieved outputs in FY2015/16

1) 200 community members and sub county leaders in the three Sub Counties of Nazigo, Busana and Kangulumira were sensitized and engaged to develop catchment management action plans for the management of fragile ecosystems for the protection of Upper Nile in Kayunga District.

2) Over 450 Community members and leaders from the catchments of River Rwizi particularly from the four sub counties of Bugamba, Ndeija, Rugando and Nyakayojo targeting the wetland systems of Konjolo, Ihohe, Kinyaaza and Ibaare in Mbarara District mobilized and sensitized on fragile ecosystems management.

3) The meetings helped to raise awareness and formulate community action plans aimed at mitigating or reducing the current degradation rate within the River Rwizi catchment covering wetlands systems of Konjolo, Ihohe, Kinyaaza and Ibaare in Mbarara District were held. In addition to development of action plans, participants were sensitized on; the role of wetland conservation in poverty eradication and sustainable development, alternative livelihood interventions and best practices, community approach to environmental restoration, compliance enforcement versus voluntary compliance, regulated use of fragile ecosystems and the legal frame for environment management.

4) Over 250 Community members and leaders from the catchments of Lake Wamala particularly from the four Sub counties of Kanamukwiri, Myanzi, Kampanzi, Kagasha, Rwentunda, Kagasha and Kyai were mobilized and sensitized on the need to protect fragile ecosystems such as the lakeshores and wetlands.

5) The key outputs of the sensitization meetings included the development of community action plans and formulation of committees to facilitate compliance monitoring and enforcement as well as inventory of degraders undertaking activities within the protected zones.

6) 4,653 community members and leaders were mobilized and sensitized on the protection of Lake Kyoga and its catchment particularly targeting Mpologoma and Limoto wetland systems.

7) A total of 312 participants in the districts of Apac, Dokolo, Kayunga, Kamuli and Buyende were trained on the integration of fragile ecosystems in the district development planning process. The five districts were prioritized due to severe encroachment and degradation of Lake Kyoga and the surrounding ecosystems which involves communities and investors. The training involved outdoor excursions particularly targeting practical processes for demarcation of buffer zones for different fragile ecosystem zones and the various legal measurements.



NEMA undertook restoration of Rushanje wetland located in Bugamba Sub county, Mbarara District, in December 2015, together with the Mbarara District Natural Resources Department and communities in the area. The wetland had been highly degraded and is now recovering with aquatic vegetation and clean water as evidenced in the picture above.

Achieved/expected outcomes

- Due to community engagement on wetlands management, the level of awareness amongst the communities has increased and as a result over 1000 encroachers have voluntarily vacated and stopped activities within the wetlands.
- 2) There is increased interest among the communities to restore degraded environment through tree planting and greening practices.
- 3) As a result of engagement with the District Authorities (specifically LC-V, RDC and CAO), there is now sustained political and technical support for the planned interventions.

Challenges

- I) Limited funding to undertake routine and massive community driven interventions such as community restoration micro projects and demonstration projects.
- 2) Behavioural and attitude change takes time and requires continuous engagement. This requires involvement of several stakeholders who at times do not play their roles.
- 3) Political interference at times frustrate community level interventions.

Recommendations for continuous improvement

- I) Community driven restoration projects should funded and implemented; and,
- 2) Regular and continuous community awareness programs should be planned and implemented.

3.2 Support to public education and awareness programs to enhance environmental literacy

Planned output targets for FY2015/16

- I) Environment education programs carried out in schools, universities and other tertiary institutions.
- 2) World Environment Day National celebrations organized .
- 3) Quarterly and project-based production of Information Education Communication (IEC) and planning materials and distribution to target stakeholders.
- 4) QuarterlyTV/Radio programs on key environmental issues developed and disseminated.
- 5) Quarterly public dialogue organized on key thematic environmental issues.
- 6) Baseline information acquisition, pre-testing, and monitoring conducted for knowledge acquisition, impact and public participation.

Achieved outputs in FY2015/16

1) Capacity building training workshops were conducted in 9 districts of Mbale (Mbale Municipality) Bukedea, Ntoroko, Kyegegwa, Sheema, Mitooma, Kamwenge, Kayunga and Nakasongola targeting Environment Officers, Education Officers, Inspectors of schools, CCTs, Head Teachers, Teachers in charge of Environmental Education activities in schools to mainstream Environment and sustainability issues into academic and non-academic programmes; a total of 450 educators were trained.

2) 10,000 *P. carribeae* seedlings were provided to Wanyange Girls Secondary School, Jinja District to establish a demonstration woodlot at the school.

3) School monitoring and documentation of environmental education practices were undertaken in 9 Districts of Mpigi, Lyantonde, Mityana, Kayunga, Nakasongola, Kamwenge, Kyenjojo, Ntungamo and Rukungiri. The activity aimed at tracking progress of the implementation of the School Environment Education Programme (SEEP) and on spot mentoring. 108 schools were monitored; schools mentored will continue to promote and ensure sound environment management practices in schools resulting into producing a balanced and environmentally literate society.

4) NEMA undertook Community Education for Sustainable Development (ESD) programmes through outreach activities that included training in four districts namely, Kibaale, Kamwenge, Mbarara and Kasese 300 participants were trained on sound environment management and prudent use of natural resources. The participants were mainly Sub county technical staff, community members especially farmers, opinion leaders, faith based representatives, CSO representatives, and political leaders at sub county levels.

5) Environmental education public lecturers were conducted and reached over 900 students in 4 mainstream universities of Mbarara University of Science and Technology (MUST), Bishop Stuart University, Mountains of the Moon University, and Uganda Wildlife Training Institute, Kasese.

6) Awareness on environment management; waste management was created to over 500 university community members with over 700 information leaflets on key themes like conservation of wetlands, river banks and mountainous areas, waste management were distributed.

7) 10 Campaigns on electronic media (TV and Radio) and in newspapers and other publications carried out on key issues like the ban on ban on polyethylene carrier bags, Miss Earth, conservation of wetlands, River Banks, lakeshores, hilly and mountainous areas and sustainable use of environment among others.

8) Community mobilization and sensitization campaigns, public dialogues carried out in the Kyambogo University and the surrounding communities. Over 10,000 people reached, 1000 information materials on key messages on several themes including ban on polythene carrier bags, effect of increasing population on environment, the decentralized environment management among others; over 1000 ambassadors under the environment association of

Kyambogo were enlisted to influence change in their communities.

9) Awareness on environment and biodiversity conservation was carried out on World Environment Day (WED) and the activities during the environment week to over 50,000 people participated, 15,000 trees planted in Oyitino River catchment, St. Joseph's College Layibi, Diocese of Northern Uganda, Ocer Champion Jesuit College, the Roman Catholic Archdiocese of Gulu and others along the Kampala - Gulu highway. Over 50 media educational and promotional programs emphasizing the national theme; **"Conserve wildlife, sustain livelihoods"**



A NWSC Worker holds tree seedlings to plant at the Oyitino River catchmentin Gulu Municipality.



The Chief Guest at the World Environment Day National celebrations, Hon. Flavia Nabugere Munaaba *(centred)* plants a tree at Pece Stadium on 6th June 2016, as NEMA Board Members, the UNDP representative Mr. Onesimus Muhwezi, District Officails, and NEMA ED Dr. Tom Okurut look on.



A cross-section of guests who graced the occasion during the World Environment Day National celebrations held at Pece Stadium in Gulu Municipality.



NEMA was among the stakeholders that participated in the exhibitions during the World Environment Day National celebrations.



Communities participate in the clean up activities as part of the WED celebrations.

were implemented in all regions of Uganda.

10) Consultative and awareness meetings carried out with Kampala Business Community members, Religious leaders under IRCU and CSOs on the implementation of environment management activities through enforcement of the legislation; the main purpose of these meetings was to enhance inclusive and participatory approach in environmental compliance and enforcement within the business community.

11) NEMA organized the 5thAfrica Regional Centres of Excellence (RCE) Conference held from 26th-28th August 2015 at Entebbe under the theme "Building stronger RCE networkfor transforming communities". The Conference was hosted by NEMA incollaboration with United Nations University Institute of the Advanced Study of Sustainability (UNU- IAS), Uganda National Commission for UNESCO (UNATCOM), and Ugandan RCEs with lead universities which included Busitema University (BU) and Mbarara University of



Particpants of the 5thAfrica Regional Centres of Excellence (RCE) Conference held from 26th-28th August 2015 at Entebbe



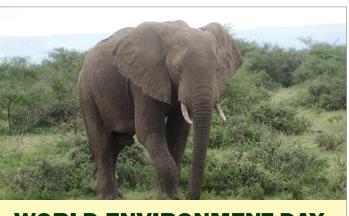
Science and Technology(MUST).

Various IEC materials were produced and widely disseminated including on the NEMA 12) website to enhance environmental information and education among target stakeholders and support different activities. Key thematic highlighted included the Polyethlelene (plastic) carrier bags (Kaveera) ban under the theme "Make Uganda a Plastic bag (Kaveera) free country: Stop the use of Polyethlelene (plastic) carrier bags (Kaveera) effective 15th April 2015" – Use of Polyethlelene (plastic) carrier bags (Kaveera) in Uganda is Banned; NEMA Corporate Report 2014/2015 published; operationalisation of the NEMA Communication Strategy 2014/2017; EIA certification; Education for Sustainable Development (ESD); World Environment Day National celebrations highlighting the global namely,"35 Million People. Limited Resources. Consume with Care". The celebrations were held at Sacred Heart Kiteredde SSS, Kyotera Town Council, Rakai District, materials and exhibitions were produced focusing on the theme; and, the development and production process of the Uganda Wetlands Atlas Volume Two highlighting watersheds in Uganda. Detailed outputs and quantities included: 2000 NEMA Brochures; WED materials: 500 posters, 300 Information jackets/folders, 2000 Stickers, 2000 Fact sheets, 6 Tear drops, 4 Pop-up stands, 6 Banners, 1,000 T-shirts and 500 Paper caps 500 produced and distributed; 1500 posters, 1300 stickers, 1000 pamphlets were produced and distributed; 1200 posters highlighting the Kaveera ban were produced and distributed; 220 reams of EIA Certificates-Conditions page were produced to cater for the increasing demand for EIA Certification by developers; 1800 leaflets were developed and distributed to promote environmental education in tertiary

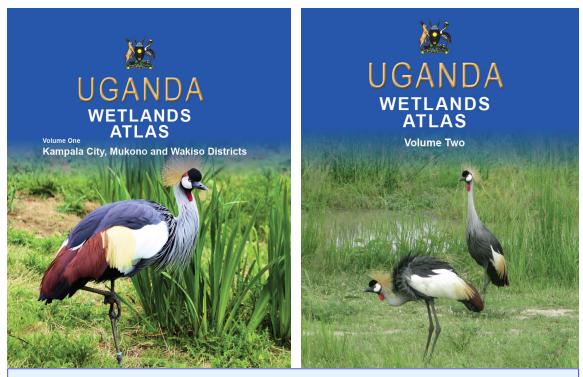
FACTS ABOUT PLASTIC BAGS (KAVEERA) IN THE ENVIRONMENT

- Millions of plastic bags (kaveera) end up in the environment and are responsible for causing pollution.
- Plastic bags are persistence in the environment (they are nonbiodegradable and they do not rot - takes about 400 years).
- Because of their inability to breakdown (decompose) in the environment and their varied application range, it makes them a more highly visible, ugly component of litter in the environment.
- Littering of plastic bags especially the more lighter ones (gauge below 100microns) becomes more of a nuisance and a challenge since they are easily transported to wider extents even by wind.
- Once the plastic bags litter enter water streams and drainages; clogging of these public and municipal drainages is chief character which in turn results into localized flooding.
- Plastics damage and ruin soil productivity by hindering the flow of air, water and movement of vital micro-organisms.
- Plastic bags are made of various chemicals (especially additives for improved performance and colour) which are well documented to be toxic and harmful to human health.
- The heated chemical derivatives from plastics once inhaled eaten or deposited into the surfaces; are scientifically proven to harm not only humans but other organisms in the environment.
- Plastic bags are dangerous to animals; they are commonly mistaken for food by animals, especially when the bags carry food residues, are brightly coloured or are animated by the movement of water.









The Uganda Wetlands Atlas is an essential tool for policy makers, planners and legislators that resolve some long-standing questions on accurate facts, figures and statistics. The Uganda Wetlands Atlas Volume One provides evidence-based assessment of the rapid changes taking place in the country's critical wetland ecosystems in urban areas. Using earth observation systems to underpin scientific analysis of the country's wetlands ecosystems, the assessment spanned a period of 10 years in the 29 urban and peri-urban wetlands traversing Kampala, Mukono and Wakiso.

The Uganda Wetlands Atlas Volume Two presents a comprehensive overview of the state of pressures on the wetlands in various parts of the country. Satellite and other visual presentations provide compelling evidence on the changes taking place in the wetlands as a result of human activities. The Atlas identifies key hotspots where wetland degradation is proceeding at such a rapid pace that it now threatens to undermine the security and social fabric of communities. The Atlas sets the context by providing an introductory overview of wetlands management in the country, as well as the institutional, policy and legal framework. The visual analysis is then clustered in seven different wetland systems and basins, namely, Lake Victoria Basin, Lake Kyoga Basin, Lake Edward Basin, Albert Basin , Achwa, and, Victoria Nile. The Atlas also proposes a series of options to remedy the current degradation and ensure a sustainable use of the country's wetlands.

Flooding at the Kinawataka washing bay.

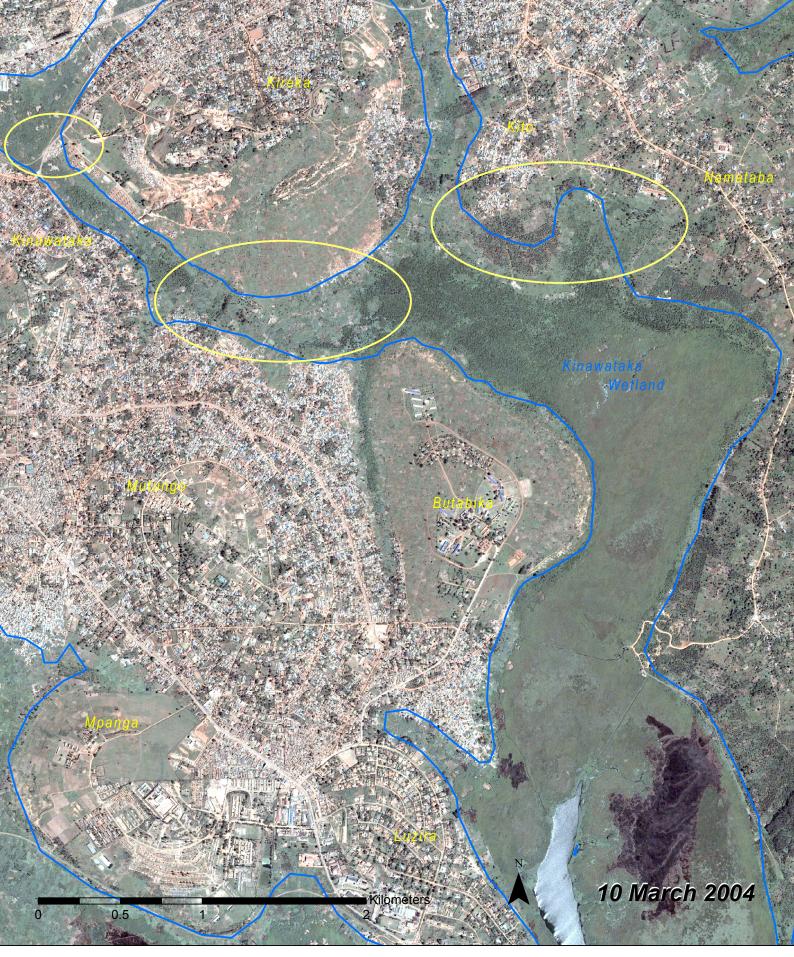
National Environment Management Authority (NEMA)

Annual Corporate Report 2015/16



UNEP Executive Director Achim Steiner (*right*) launches Volume One of the Uganda Wetlands Atlas covering Kampala City, Mukono and Wakiso Districts, on 23rd August 2015 at Kampala Serena Hotel, The function was presided over by Prof. Ephraim Kamuntu, Minister of Water and Environment (*middle-front*) and graced by the FAO Country Representative in Uganda and Acting UN Representative, Alhaji Momodou Jallow (*extreme left*), among other dignitaries.

A panoramic view of the Albertine Graben.



One of the images in the Uganda Wetlands Atlas showing changes in the Kinawataka wetland system between 10 March 2004 (*left*) and 10 March 2014 (*right*).



institutions; and I Office Cabinet procured for IEC materials storage.

13) Quarterly NEMA Newsletter produced and widely disseminated including on the NEMA website to enhance environmental information and education among target stakeholders with specific emphasis on sustainable actions, NEMA activities/outputs and plans as well as partners' and/ or stakeholders' environment related issues. The publications focused on key thematic issues such as the implementation of the ban on polyethylene carrier bags (Kaveera), climate change as both development and environmental challenge, management of the environmental aspects of Oil and Gas, Green Economy, World **Environment Day National celebrations** key messages and actions, among others. Outputs and quantities included 3 issues were produced; 7000 copies of 2 issues (3500 copies each) published, while the



other 2 issues were not printed due to budgetary constraint; soft copies of the documents were circulated.

14) Monitoring and pre-testing exercise was conducted in Buliisa, Hoima and Nwoya Districts to evaluate and update Oil & Gas IEC draft educational materials and related issues in the Albertine Graben. The exercise also was geared towards ascertaining their relevance and/or need for improvement in order to enhance knowledge and understanding of Oil & Gas related activities, benefits, economic and social issues, among others. The exercise was implemented in collaboration with the respective Environment Officers and target stakeholders at grass root level. Additionally, an information monitoring database was developed taking into account stakeholders' views, comments and recommendations. A follow-up data management and verification/pretesting exercise was conducted at NEMA to obtain further input on the drafts; hence documentation and production of the materials.

15) World Environment Day National celebrations organized. Outputs included production and distribution of IEC materials and exhibitions of environmentally friendly materials and technologies by NEMA, Government institutions, the Private sector and CSOs at National and Local Government levels.

Unachieved output targets and explanation on performance variance

The following IEC materials were produced but not printed for dissemination due to funding constraints; soft copies of the mentioned materials were produced and circulated: 600 copies of the NEMA Wall Calendar 2016;650 copies of the NEMA customized Diary 2016; 1,000 copies of the NEMA Christmas card 2015;200 copies of the NEMA Corporate Report

for FY2014/2015; 3,500 copies of the October-December Quarterly NEMA Newsletter; 3,500 copies of brochures on various environmental issues; 2,000 copies of pamphlets/fact sheets; 3,000 copies of branded Biro pens; and,3,000 copies of branded writing pads.

Notably, a high level educational workshop with Buganda Kingdom executive did not take place because of schedule challenges from the Buganda Kingdom.

Achieved/expected outcomes

I) Increased awareness and understanding of sound environment management and ambassadors of sound environment management created in university colleges.

2) As a result of the support given to the National Curriculum Development Centre, environmental issues have been integrated into both academic and non-academic school and university programs. This has facilitated environmental education in schools and universities as entry points for public and community education and participation.

3) Over 100 educational adverts and programs run in print & electronic media have created awareness on key salient environmental issues like the ban on plastic carrier bags, waste management, biodiversity conservation, collective responsibility on environment management, management of fragile ecosystems like wetlands, among others.

4) Increased access to NEMA information and understanding of the environmental laws, NEMA's role and activities and public participation in ENR management like the WED preparations and participation by the key stakeholders especially local governments, civil society, the private sector, local communities, women and youth groups, institutions, schools, government ministries, departments and agencies, development partners, the media, churches, among others. Other initiatives where key stakeholders have participated effectively, and which have increased access to environmental information include school education programs (SEEPs), education for sustainable development (ESD) programs, production and dissemination of IEC materials, and public dialogues on thematic and policy issues that are related to environment and development in Uganda.

5) There has been improved decision making with the help of the produced geo- maps, and the Uganda Wetland Atlas.

6) ESD activities in the beneficiary Universities and communities have had positive outcomes like community out-reach programs like community forestry, soil, energy and water conservation practices, community recognition of the values of fragile ecosystems like wetlands, lakeshores and riverbanks through both conservation and value addition practices.

7) Provision of IT equipment for information management and dissemination has positive impacts on staff productivity (efficiency and effectiveness).

Trends in performances

World Environment Day (WED) is celebrated every 5th of June globally and nationally; in different districts in collaboration with Local Governments and other stakeholders with focus on national themes which are usually derived from the global themes on environment management in relationship to socio-economic dynamics. The annual WED themes usually emphasize environmental sustainability in relation to sustainable production and consumption, sustainable use of fragile ecosystems (wetlands, forests, water resources), conventions

and treaties, biodiversity loss, combating climate change, health, food security and society wellbeing, management systems technologies, practices, strategies and actions in ensuring sustainable development.

A cross-section of stakeholders always participate in the preparations and celebrations of WED especially local governments, MDAs, institutions, civil society, civil society, the media, communities, women and youth groups, churches and development partners.

Key performance challenges

- Society attitude takes time to change as a response to environmental education and awareness programs.
- 2) Time-consuming and delays in procurement processes environmental information are required on real-time business; limited incorporation of action officers' technical input as well.
- 3) The Ugandan media does not prioritize environmental publicity unless it makes news.
- 4) Schools and universities have inadequate funding for environment education programs.
- 5) Lack of research activities (research initiation and coordination) due to limited budget.

Recommended continuous performance improvement strategies

- Vigorous resource mobilization for environmental education and awareness programs by NEMA and other stakeholders in environment management especially civil society, the private sector local governments and institutions.
- 2) Continuous an all-inclusive and strategic environmental education and awareness programs; there is a need for a holistic and integrated education and awareness program that is multi-sectoral and multi-disciplinary that involves key players including the Government, Civil Society, the Private sector, local leaders (civil, religious and cultural leaders), and the media.
- 3) NEMA needs to invest in research through the academia and other partners in order to address the new and emerging environmental and socio-economic challenges more effectively.

KRA 4: HUMAN AND FINANCIAL CAPACITY OF NEMA STRENGTHENED TO PERFORM ITS MANDATE AND STATUTORY FUNCTIONS

Planned output targets for FY2015/16

- I) The Board and PCE functions supported.
- 2) Statutory functions for financial management strengthened.
- 3) The Human Resource development function strengthened.
- 4) Resources to support programme activities mobilized.
- 5) Internal Audit functions supported.
- 6) Monitoring and evaluation functions supported.

Achieved outputs in FY2015/16

- All the Board functions (meetings, training and field trips) fully supported by Management as planned.
- 2) NEMA Management supported the PCE functions like the planned cancellation of land tittles in wetlands.
- 3) Financial management systems are fully functional.
- 4) Statutory and project financial reports are produced and submitted as required.
- 5) NEMA Management recruited personnel to fill in all the vacant posts of staff who left NEMA in the course of the financial year.
- (vi) Management submitted a list of 74 posts to by Ministry of Public Service (MoPS) to be included in NEMA's payroll to address the staffing gaps. However, however, MoPs approved only 35 posts which are awaiting funding from Ministry of Finance, Planning and Economic Development.
- (vii) Internal audit tasks carried out and quarterly reports produced.
- (viii) Monitoring and evaluation activities carried out and the required statutory, periodic and project reports produced.



One of the NEMA Board routine field visits to Mbale Municipal MWSC/CDM site.

Challenges

NEMA faces the following challenges in ensuring efficiency and effectiveness in its management operations (see Table 10);

- Inadequate funding for its activities, management operations and support to Lead Agencies, including local governments;
- 2) Staffing gaps to ensure that the functions of the authority are fully operationalized effectively in response to the increasing stakeholders' expectations; and,
- 3) Limited number and low quality of tools and equipment for efficient and effective operations and activities (laboratory equipment, communication and information facilities, transport among others) for both NEMA and Lead Agencies including Local Governments.

Budget	Approved			% budget	%budget	%
category	budget	Released	Spent	released	spent	release spent
Wage	3,775	3,609	3,507	96	93	97
Non-wage	4,221	2,328	2,341	55	55	101
Development	1,050	583	583	56	56	100
Total	9,046	6,520	6,431	72	71	99

Table 10: NEMA GoU FY 2015/16 Budget (MTEF) Performance (billion) as at 30th July, 2016

Recommended continuous performance improvement strategies

- Government of Uganda should consider increasing the MTEFs for NEMA and Lead Agencies (including local governments) to ensure effective environment and natural resources management;
- 2) Ministry of Finance, Planning and Economic Development should consider and provide salaries for the 35 staff approved by MoPS in FY2016/17 as NEMA Management strives to operationalize the new structure (staffing) in phases; and,
- 3) Specialized tools and equipment are required for NEMA and the Lead Agencies to facilitate the management of the new and emerging environmental aspects related to oil and gas, electronic wastes, pollution (air, soil and water), among others.

KRA 5: NATIONAL, REGIONAL AND INTERNATIONAL PARTNERSHIPS FOR SUSTAINABLE DEVELOPMENT STRENGTHENED

Planned output targets for FY2015/16

- 1) Participation in Multi-lateral Environmental Agreements (MEAs) processes and other regional and global obligations and fora.
- 2) MEAs project coordination and implementation functions enhanced.

5.1. Participation in key MEAs, regional and global obligations and fora

NEMA Management participated in the following MEAs, regional and global obligations in the course of FY2015/16;

- The United Nations Framework Convention on Climate Change (UNFCCC); COP21 in Paris, France.
- 2) Fora and meetings supported by Convention on Biological Diversity (CBD).
- 3) Fora and meetings of Stockholm Convention on Persistent Organic Pollutants (POPs).
- 4) Vienna Convention and Montreal protocol on Ozone depleting substances and products.
- 5) Minimata Convention on Mercury.
- 6) Kyoto protocol on greenhouse gas emissions (GHGs); Clean Development Mechanism (CDM) which supports municipal solid waste management and composting in Uganda.
- 7) UN meetings on the Sustainable Development Goals (SDGs) in New York.
- 8) The African Ministerial Conference on Environment (AMCEN), in Cairo, Egypt.
- 9) IGAD meetings on environment and natural resources management.
- 10) Bilateral meetings within EAC and AU on environment and natural resources management.

5.2 MEAS project coordination and coordination

NEMA coordinates the implementation of a number of MEAs project with participation of the key project stakeholders, which include local governments, MDAs, civil society, communities, academia, and development partners. NEMA coordinated the following MEAs projects in FY2015/16.

1. Convention on Biological Diversity (CBD)

a) **BIOFIN Project**

The Biodiversity Finance Initiative (BIOFIN) project commenced in July 2015 and is implemented by NEMA on behalf of Government through a Direct Implementation Modality with UNDP. To date the global project now has 30 countries participating from the previous number of 19. These countries include; Belize, Brazil, Botswana, Bhutan, Chile, Colombia, Costa Rica, Cuba, Ecuador, Fiji, Georgia, Guatemala, India, Indonesia, Kazakhstan, Kyrgyzstan, Malaysia, Mexico, Mongolia, Mozambique, Peru, Philippines, Rwanda, Seychelles, South Africa, Sri Lanka, Thailand, Uganda, Vietnam and Zambia. The BIOFIN project will enable Government build a sound business case for increased investment in the conservation, sustainable use and equitable sharing of benefits of ecosystems and biodiversity, with a particular focus on identifying and filling finance needs at the national level.

Achieved/expected outcomes

- The major outputs of the BIOFIN project are: the Policy and Institutional Review (PIR), the Biodiversity Expenditure Review (BER), the Finance Needs and Gap Analysis and the Biodiversity Finance Plan (BFP).
- 2) The expected outcome of the BIOFIN project will led to the establishment of the resource mobilisation unit that NEMA will use to carry out is mandated function as an institution to mobilise, expedite and monitor resources for environmental management.

b) CBD Project on Integrated Implementation of the Cartagena Protocol on Biosafety

The CBD Small Scale Funded Agreement project (SSFA) commenced in March 2016 to build capacity, promote integration and implementation of the Cartagena protocol on biosafety and the Convention on Biological Diversity in Uganda. The overall objective of the project is to develop and test practical actions to promote integrated implementation of the Cartagena Protocol on Biosafety and the Convention on Biological Diversity. Ten pilot countries are participating in the project namely Burkina Faso, Malawi, **Uganda** (**Africa**);China, Malaysia (Asia); Colombia, Ecuador and Mexico (Latin America); and Belarus and Moldova (Central and Eastern Europe).

The project is supported by the Japan Biodiversity Fund through the Secretariat of the Convention on Biological Diversity.

The overall aim of the project is strengthening the capacity to develop and test practical measures to promote integrated implementation of the Cartagena Protocol on Biosafety (CPB) and the Convention on Biological Diversity (CBD) in Uganda Specifically, the project intends to;facilitate the integration of biosafety into national biodiversity strategies and action plans (NBSAPs) and other sectoral and cross-sectoral policies, plans and programmes, strengthen and national inter-sectoral biosafety coordination mechanisms.

A report indicating progress of integrated implementation of the CBD and the CPB as well as the extent of mainstreaming biosafety into NBSAP and sectoral plans and programmes have been completed. The report has proposed recommendations which NEMA will use to further strengthen integrated implementation of the CBD and CPB at the national and local government levels. The report will feed into reports of the ten pilot countries for the project and will be presented at the 8th meeting of the Conference of the Parties to the Cartagena Protocol on Biosafety in Cancun, Mexico in December 2016.

c) Mainstreaming Biodiversity in Development Policy and Planning

The National Environment Management Authority (NEMA) received financial support from the International Institute for Environment and Development (IIED) for the Mainstreaming Biodiversity in Development Policy and Planning. This is a follow-up of the NBSAPS 2.0: project on Mainstreaming Biodiversity and Development project which involved Botswana, Namibia, The Seychelles and Uganda.

The follow up project involves Botswana, Namibia, The Seychelles, Ghana, Malawi, Zambia, Zimbabwe and Uganda. Under the project NEMA is working with Ministry of Energy and Mineral Development to mainstreaming biodiversity into plans and programmes of the Ministry to ensure ecosystem services that are vital for the long-term sustainability of investment in the sector are protected. The project is supported by International Institute for Environment and Development (IIED).

d) Conservation and sustainable use of the threatened savannah woodlands in the Kidepo Critical Landscape (KCL) in North Eastern Uganda (Kidepo project)

National Environment Management Authority (NEMA) on behalf of the Government of Uganda (GoU) is implementing the Kidepo project with funding from the Global Environment Facility (GEF) through the United Nations Development Programme (UNDP) Uganda Country Office. The broad aim of the project is to "Improve sustainability of Protected Area (PA) system". In addition it seeks to strengthen protected area management within a landscape of 655,700 ha of savannah woodland in the KCL of North Eastern Uganda and reduce threats to biodiversity in the landscape by putting in place sustainable use management practices for wild resources.

The project supports Government of Ugandato implement activities on biodiversity conservation stated in the National Development Plan (NDP) II and National Biodiversity Strategy and Action Plan (NBSAP). It focuses on strengthening management effectiveness of the Kidepo Critical Landscape (KCL) protected area system (comprising Kidepo Valley National Park, Community Wildlife Areas and Central forest reserves) and integrating protected area management in a wider landscape approach. This is to be achieved through conservation of biodiversity inside and outside protected areas in KCL.

Achieved outcomes

In this reporting period, the project has achieved the following outcomes:

1) The cost benefit analysis study on the use options for shea butter trees was undertaken and it established that shea butter oil production is a sustainable use option for shea butter trees in Kidepo critical landscape. This findings were disseminated to the communities resulting into the realization of the importance and value of shea butter trees in shea butter oil production and the willingness of the communities to conserve the tree and not cut it down for charcoal burning (a one-off use of the tree) including increase of the tree's acreage through planting of 7ha (4ha in Oliduro – Otuke district and 3ha in KitgumMatidi – Kitgum District).

2) The skills of the Local Government staff on enforcement of laws on sustainable use of shea butter tree products have been enhanced through involvement in the inter district task force enforcement activities. These enforcement activities have led to increased awareness on the values and importance of shea butter trees among the communities in Kidepo critical landscape.

3) The study on value chain analysis of shea butter tree products established sale of shea butter tree nuts within the landscape as a viable venture for women groups collecting and processing shea nuts. Based on this finding, skills of 100 women in post-harvest handling of shea butter tree nuts were enhanced through training. In addition, the 100 women were linked to Blessed Organic Release, a private company that buys and processes shea butter tree nuts.



Challenges

A selection of Shea Butter tree products.

- 1) High expectations from communities, for example, communities had expected the project to help in restocking and road construction.
- Capacity of some community groups to handle grants is inadequate. For instance, CBOs from Karamoja region were not able to write fundable proposals and did not know basic financial management.

e) Upcoming projects

Mainstreaming biodiversity into the heart of government decision-making. The development goal of this project is to help achieve sustainable development by bringing biodiversity information to the heart of government decision making using actionable biodiversity information. The project objective is to ensure biodiversity is taken into account in decision making across government sectors by improving development decision makers' access to and use of biodiversity information and embedding biodiversity information within national development decision making processes. The project will enable the pilot countries (Ghana, Mozambique and Uganda) to:

- I) Clearly understand the in-country demands for, and the barriers to using,
- biodiversity information within government decision making including clarifying the format, timing and packaging required;
- 2) Mobilise and repackage existing biodiversity data and information from a range of sources (national and international) to meet a number of the above demands; and,
- 3) Strengthen the connection between government decision makers and biodiversity and ecosystem services data providers in order to sustainably provide policyrelevant, spatially explicit information to meet ongoing national needs.

f) Projects under development

 Institutional Capacity strengthening for Implementation of the Nagoya Protocol on ABS and Awareness on Biosafety in Uganda (USD3.3 million) to be supported by GEF under GEF6). The objective of the project is to strengthen institutional capacity



Figure 5: Map of Shea Butter growing areas in Uganda

for effective implementation of the Nagoya Protocol and to conduct an effective awareness campaign on ABS in Uganda.

- 2) Phase two of the Afforestion of Barehills in Ruhaama County, Ntungamo District (USD300,000). The project is being developed in collaboration with UNEP Regional Office for Africa (UNEP ROA). It is a follow up to the first phase of the project which was supported by UNEP ROA.
- 3) A national project reforestation/afforestation are to developed in consultation with NFA and other key stakeholders to support implementation of the NDPII and Vision 2040 in addressing deforestation in the country.
- 4) A pilot project on offsetting the potential impacts of infrastructure development on biodiversity/ecosystems is to be developed.

g) Civil Society and the Private Sector participation

I) The BIOFIN project has engaged the civil society and private sector during the review of the policy, institutions and biodiversity expenditures. The results indicate that more engagement is required in order to increase public education and awareness as well as environmental literacy in biodiversity conservation.

- 2) The findings also suggest gender responsive identification of projects that will ensure inclusive participation of both men and women in project development and implementation.
- 3) Blessed Organic Release is a private company involved in value addition to shea butter tree nuts. The company produces skin oil and soap from shea butter oil. The project uses this company to train women groups in the project districts on post- harvest handling of shea butter tree nuts and has negotiated with it to provide a market for shea butter nuts collected by the women groups. Negotiations with the company are in advanced stages for it to train women groups in soap production locally in their homes, which will pave way to innovations of the work with this company.

2. The Minamata Convention on Mercury

Mercury Initial Assessments (MIA) Project (Uganda)

The National Environment Management Authority (NEMA) on behalf of the Government of Uganda is implementing a Regional project on: **"The Development of the Minamata Convention on Mercury Initial Assessment (MIA) in Africa"**. The main objective of the project is to facilitate ratification and early implementation of the Minamata Convention. It is founded by the Global Environment Facility (GEF) through the United Nations Environment Program (UNEP) as the implementing Agency and Groundwork South Africa as the Executing agency.

Key Performance Areas (KPAs)

- 1) Enabling Activity component 1: Establishment of Coordination Mechanism and organization of process.
- 2) Enabling Activity Component 2: Assessment of the national infrastructure and capacity for the management of mercury, including national legislation.
- 3) Enabling Activity Component 3: Development of a mercury inventory using the UNEP mercury tool kit and strategies to identify and assess mercury contaminated sites.
- 4) Enabling Activity Component 4. Identification of challenges, needs and opportunities to implement the Minamata Convention on Mercury.
- 5) Enabling Activity Component 5. Preparation and validation of National MIA reports and implementation of awareness raising activities and dissemination of results.
- 6) Enabling Activity Component 6. Information exchange, capacity building and knowledge generation.

Planned output targets for FY2015/16

- Enabling Activity component 1 outputs: Technical support provided for the establishment of National Coordination Mechanisms and organization of process for the management of mercury.
- 2) Enabling Activity component 2 outputs: Assessment prepared of the national infrastructure and capacity for the management of mercury, including national legislation.

- Enabling Activity component 3 outputs: Mercury inventory developed using the UNEP mercury tool kit and strategies to identify and assess mercury contaminated sites.
- 4) Enabling Activity Component 4 outputs. Technical support provided for identification of challenges, needs and opportunities to implement the Minamata Convention on Mercury.
- 5) Enabling Activity Component 5 outputs: Technical support provided for preparation and validation of National MIA reports and implementation of awareness raising activities and dissemination of results.
- 6) Enabling Activity Component 6 outputs: Information exchange undertaken and capacity building and knowledge generation for mercury management provided.

Achieved outputs in FY2015/16

- Enabling Activity component 1 outputs: Technical support provided for the establishment of National Coordination Mechanisms and organization of process for the management of mercury.
 - A national workshop to raise awareness and define the scope of the Mercury Initial Assessments was held on 3rd December 2015 and attended by over 70 participants.
 - ii) On 12th November 2015, the 1st National Coordination Committee for the Development of the Minamata Convection on Mercury Initial Assessments (MIAs) project has held in NEMA Boardroom with participants representing MoWE, GAL, MoFPED, URA, NEMA, MAK, CSOs (EWAD), Mubende and Busia DLG, MoTIC, MoEMD, MAIIF, Biodiversity pro-NGO.
 - iii) The National Project Consultant was procured on 2nd February 2016 to undertake various studies on the assessment of the existing sources of information/studies on mercury.
 - iv) The Project Assistant was recruitment on 1stApril, 2016.
 - v) A Local Purchase Order (LPO) was issued to procure 1 laptop and 1 scanner by 31st July, 2016.
 - vi) On 14th June 2016, the 2nd National Coordination Committee (NCC) meeting was held in NEMA house to review the progress of the implementation of the Mercury Initial Assessments (MIAs)project including the first draft report on the **"National assessment of the existing sources of information/studies on mercury and mercury management in Uganda"** which was submitted by the National Consultant on the 31st March, 2016. The meeting was attended by 19 participants.
 - vii) The final report on the "National assessment of the existing sources of information/studies on mercury and mercury management in Uganda" was submitted by the National Consultant to the secretariat for review.
- Enabling Activity component 3 outputs: Mercury inventory developed using the UNEP mercury tool kit and strategies to identify and assess mercury contaminated sites.
 - i) Reconnaissance visits were undertaken at six (6) Artisanal Scale Gold Mining sites (ASGM) in Districts of Mubende (Mukapya camp, Lujinji village,

Longongwe parish, Kitumbi Sub county, and Mukikadde camp, Lujinji village, Longongwe parish, Kitumbi Sub county), Namayingo (Nsango B camp, Budde village, Gifuyo parish, Buyinja Sub county, Bukooli South, and Nakudi camp, Nakudi village, Bujwanga parish, Banda Sub couty, Bukooli South) and Busia (Jacob camp, Ajuket B village, Ajuket B parish, Sikuda Sub county, Samiya Bugweri North, and Greenstone Resources camp, Tirra village, Tirra parish, Sikuda Sub county, Samiya Bugweri North), from 15th to 17th June 2016 to get acquainted to mercury use at ASGM sites and focus baseline inventories for mercury quantification. In Namayingo District, gold ore was mined from alluvial unlike in Mubende and Busia where gold ore is majorly hard rock.

- Sector teams/working groups represents MDAs, including, Health, Trade & Industry, Agriculture, Fisheries & Animal Husbandry, Energy & Minerals, Water & Environment, NEMA have been constituted (17 members) to collect data on mercury usage. The teams will be contracted by the national consultant under the guidance of NEMA secretariat to undertake baseline inventories of mercury quantities using the UNEP tool kit.
- iii) Training of the Project Assistant and Coordinator on conducting baseline inventories of mercury quantities and use at Artisanal Small Scale Gold Mining (ASGM) sites in Districts of Mubende (Rubali camp; Kagaba camp,) and Busia (united small scale association-Tiira village, Sikudasubcounty; Sanyonja artisanal miners alliance in Siyanyonja village, Busitema Sub county) was conducted by consultants from COWI Dar es Salaam from 21st to 24th June 2016.

Achieved/expected outcomes

 Enabling Activity component 1: Participating countries make full use of enhanced existing structures and information available dealing with mercury management to guide ratification and early implementation of the Minamata Convention.



A Reconnaissance visit undertaken at one of the 6 Artisanal Scale Gold Mining sites in Mubende Districts.

- 2) Enabling Activity component 2: Full understanding of comprehensive information on current infrastructure and regulation for mercury management enables participating countries to develop a sound roadmap for the ratification and early implementation of the Minamata Convention.
- 3) Enabling Activity component 3: Enhanced understanding on mercury sources and releases facilitated the development of national priority actions.
- 4) Enabling Activity component 4: Improved understanding on national needs and gaps in mercury management and monitoring enabled a better identification of future activities.
- 5) Enabling Activity component 5: Participating countries and key stakeholders made full use of the MIA and related assessments leading to the ratification and early implementation of the Minamata Convention on Mercury.
- 6) Enabling Activity component 6: Enhanced communication, support and training facilitate the development of the Minamata Initial Assessment by participating countries and build the basis for future cooperation and regional approaches for mercury management.

Challenges

- I) Limited implementation of project activities by National Consultant-MIAs.
- 2) Late release of funds from the funding Agency.
- 3) Late procurement of office equipment.

Recommendations for continuous improvement

- I) Need for timeliness in the consultancy processes and outputs by the consultants.
- 2) The funding agency should expedite disbursements for project activities.
- 3) Expeditious procurement processes and outputs by both the procurement department and the suppliers.

3. Kyoto Protocol - Clean Development Mechanism (CDM)

Municipal Solid Waste Composting Project

The Municipal Solid Waste Composting (MSW Composting) project was initiated in Uganda in 2005 as a project under the National Environment Management Authority (NEMA) with financial and technical support from the World Bank under the **"Environment Management and Capacity Building Project-II (EMCBPII)"**. The first phase consisted of nine (9) composting facilities that after construction were handed over, and are being operated by the urban authorities of Kabale, Mbarara, Kasese, Fort Portal, Mukono, Jinja, Mbale, Soroti and Lira. The second phase includes Municipalities of Hoima, Masindi, Mityana, Arua, Gulu, Tororo, Busia and Entebbe. Three (3) Urban Councils of **Hoima, Masindi** and **Arua** of the second phase, are now on board and are composting municipal solid waste. The authorities are supposed to manage the facilities to ensure that effective solid waste composting is carried out as per the Operations and Monitoring Plan, with NEMA playing a continuous monitoring role and providing technical guidance.

Objectives of the project

The general concept of the project is to support composting operation that converts municipal solid waste into marketable manure. The activity also aims at strengthening the collection and transportation of municipal solid wastes in the project towns.

Other objectives

- Reduction in the emission of greenhouse gases to the atmosphere which would contribute to global warming and contribute to climate change;
- 2) Improve solid waste management in towns; to have clean and healthy towns; and,
- 3) Control and protection of water catchments from water source pollution as has been before the project.

Planned output targets for FY2015/16

- I) Quarterly project monitoring and supervision carried out.
- 2) CDM project values, activities and outputs promoted; 4 (four) Market promotion initiatives for CDM products carried out.
- Capacity building and support supervision undertaken in 12 selected CDM project Municipal Councils.

Achieved outputs in FY2015/16

NEMA Undertook capacity building of 45 project staff, and quarterly support supervision and monitoring undertaken in the 12 selected CDM project Municipal Councils in the Municipal Councils of Hoima, Masindi, Arua, Mukono, Jinja, Mbale, Soroti, Lira, Kasese, Fort Portal, Mbarara and Kabale. Staff were appraised in performance, monitoring and implementation of work undertaken using funds accrued from carbon trading was monitored.
 2) 4 (four) Market promotion initiatives for CDM products carried out. 3 (three) market promotion initiatives for compost manure were undertaken in the municipal Councils of Hoima, Masindi and Arua, and 1 (one) market promotion initiative in the Municipal Councils of Mukono, Jinja, Mbale, Soroti, Lira, Kasese, Fort Portal, Mbarara and Kabale through verifying emission reductions for trading of carbon under the CDM EB under the Kyoto protocol. This enhanced public knowledge and participation in Clean Development Mechanism (CDM)/Solid Waste Composting (MSWC) processes, benefits, community participation and responsibility.



The Lira CDM/MSWC plant.

Achieved/expected outcomes

- 1) The daily waste collection in the 12 Municipalities has increased to 60-70% during the project implementation from 25-40% before the plants were established; and,
- 2) Mature compost manure is available in all the participating Municipalities and farmers applying it have reported improved crop production. Each composting plant has the capacity to generate an average of 60 75 tons of compost manure produced per month. This is in comparison to damping of waste without resource recovery. The compost manure therefore is applicable in gardens to improve soil fertility and enhance agricultural production.

Challenges

- I) Untimely release of funds by the municipal councils to purchase fuel for the wheel loaders, and this affects composting operations since it is the wheel loaders, which turn the waste to enable aeration to support aerobic decomposition of MSW and expose rejects for sorting and sieving by the sorting team. This is due to the Municipal Councils having competing priorities.
- 2) High composting plant staff turnover, and this in way means that the trained personnel are always lost, an aspect attributed to late payment of salaries and wages to the staff by the Municipal Councils.
- 3) The compost has not attracted several buyers in the Municipalities yet a lot more is produced causing accumulation on site; this may in future choke the plants if not bought off. The farmers claim that their soils are fertile, while NEMA and the Municipal Councils have to improve on marketing strategies.

Recommendations for continuous improvement

- The respective Municipal Councils should make the necessary budget estimates and timely procurement of fuel and other required operational items such as fuel and protective gear.
- 2) The Municipal Councils should pay staff salaries and wages in a timely manner for the composting plant staff to reduce on the high turnover.
- 3) The Municipal Councils and NEMA should carry out adequate marketing for the compost manure to avoid over stocking of the same including value addition, amongst others.
- 4) NEMA should continuously undertake quarterly support supervision and monitoring of the municipal compositing plants to ensure their compliance with operational manuals and standards.
- 5) The Municipal Councils should procure, maintain and service equipment in a timely manner to enable smooth operation of project activities.

4. The Vienna Convention on Protection of the Ozone and the Montreal Protocol on Substances that Deplete the Ozone Layer

Uganda is Party to both the Vienna Convention on Protection of the Ozone, and the Montreal Protocol on Substances That Deplete the Ozone Layer.; and, subsequently ratified all the Amendments to the Montreal Protocol, namely, the: Copenhagen Amendment (in 1989); London Amendment (in 1990); Montreal Amendment (in 1992), and Beijing Amendment (in 2008). Each Amendment imposes controls on specific categories of ozone depleting substances (ODSs).

The main sectors of Uganda's economy which have over the years been associated with the phase-out of ozone depleting substances (ODs) controlled under the Montreal Protocol are: (a) Refrigeration and Air-Conditioning (RAC) Sector – that use Chlorofluorocarbons (CFCs) as refrigerants; (b) Aerosols Sector – containing CFCs as propellants; (c) Solvents Sector – Carbon tetrachloride used mainly as laboratory solvents in science laboratories, dry-cleaning facilities, among others; (d) Halons Sector – for fire-fighting; (e) Foam Sector – the manufacture of flexible polyurethane foam (mattresses, among others); and, (f) Floriculture – use of Methyl bromide in the cut-flower sector to control soil-borne pests.

The National Environment Management Authority (NEMA) has been collaborating with some key stakeholders to implement the said Convention and Protocol, namely: the owners of flower farms, the Uganda National Association for Refrigeration and Air-conditioning (UNARA), Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), Ministry of Trade, Industry and Cooperatives (MTIC) (formerly Ministry of Tourism, Trade and Industry), Uganda National Bureau of Standard (UNBS), Customs Department of Uganda Revenue Authority, and the Criminal Investigations Department of Uganda Police; and, three Implementing Agencies – the United Nations Industrial Development Organisation (UNIDO) in phasing out MeBr, GTZ of Germany (now GIZ) in phasing out of ODSs in the RAC sector, and United Nations Environment Programme (UNEP) in training and awareness targeting technicians and Customs Officers, UNBS and MTIC.

Achieved outputs in FY2015/16

1) Four Vocational Training Schools were identified and selected in 2014 in collaboration with UNIDO to receive RAC maintenance tool kits and training kits, namely: Uganda Technical College Bushenyi, Uganda Technical College Elgon, Uganda Technical College Kichwamba, and Uganda Technical College Lira – with the objective to initiate and integrate training in RAC for students interested in undertaking studies related to RAC. The tool kits were procured by UNIDO using funds allocated to Government of Uganda by the Multilateral Fund Secretariat of the Protocol. In early November, 2015, the tools were handed over by the Vice Chancellor of KYU to the Heads of the four VTSs.

2) A local (Ugandan) entrepreneur and owner of Gayaza Electronics and TV Services (GETS) Company located in Ndeeba, Kampala has since 2012 been making/assembling and selling RAC fridges and coolers dependent on Hydrocarbon refrigerant (which do not deplete the Ozone Layer and do not contribute to global warming). He is being supported by one of the national experts in RAC based at and training students in RAC at Kyambogo University of Kampala. This enterprenure is a member of UNARA and is one of the first technicians trained in the country under a programme jointly implemented by NEMA and UNEP since the 2004. The GETS Company may begin exports to countries in the East Africa region and beyond in the very near future, once standardisation and certification of the RAC equipment/model has been completed by UNBS.



An exmple of ozone depletion activity.

The UN Sustainable Development Goals



The Kampala-Entebbe Expressway under construction shows NEMA's efforts to ensure that the design of the road does not affect critical ecosytems especially wetlands, while taking into account development initiatives.

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National Environment Management Authority (NEMA) Annual Corporate Report 2015/16

3 STRATEGIC PERFORMANCE CHALLENGES AND RECOMMENDED STRATEGIES FOR CONTINUOUS IMPROVEMENT

3.0 STRATEGIC PERFORMANCE CHALLENGES AND RECOMMENDED STRATEGIES FOR CONTINUOUS IMPROVEMENT

3.1 Strategic challenges

The following are the strategic challenges which are facing NEMA in ensuring effective environment management in Uganda;

- I) Inadequate staffing levels at NEMA, Lead Agencies (MDAs) and Local Governments. Stakeholders' expectations for effective environment management by NEMA and Lead Agencies have continued to grow amidst the new and emerging environmental challenges related to oil and gas, climate change, electronic waste, chemical management, among others, which require improved or new skills and more personnel. However, NEMA and the Lead Agencies, including Local Governments have low staffing levels which have significantly affected their performances.
- 2) Low funding for planned environment management activities for NEMA, MDAs and Local Governments; notably most MDAs do not have budgets for environment management while the budget performances for environment management in Local Governments are as low as 2% on average.
- 3) General apathy towards environment management characterized by lack of coresponsibility, inadequate co-management and irresponsiveness among stakeholders. Most stakeholders assume that the responsibility of ensuring clean, healthy and productive environment in Uganda solely rests on NEMA as a single entity; on the contrary, all stakeholders and the public are expected to be responsive to environmental concerns in the country and participate effectively to support the course of ensuring environmental quality.
- 4) Uncoordinated and conflicting policy implementation by other MDAs; some Government ministries, departments and agencies have conflicting policies, plans, projects, activities and management frameworks which do not support environmental sustainability in Uganda; these among others include issuance of land tittles in fragile ecosystems like wetlands, lakeshores, riverbanks and forest reserves, poor physical planning, and poor infrastructure planning, designs and development which do not take care of environmental values.

4.2 Recommended strategies for continuous improvement

The following strategies would contribute to continuous improvement in environment management in Uganda;

- Constant and consistent engagement with Ministry of Public Service and MOFPED to achieve 100% optimum size of staffing as per the approved new structure of NEMA, and recruitment of staff in MDAs and Local Governments;
- 2) Lobbying the MOFPED, the Parliament and other relevant parties to create a Conditional Grant for environment management in all districts or provide a proportion of the environmental levy (NEF) collected by URA as conditional grant to NEMA, and increase the MTEF for NEMA to bridge the current funding gaps.
- 3) Approval of the new National Environment Management Policy, the National Environment Act and the regulations to enhance institutional coordination and synergies for effective environment management in Uganda.
- 5) There is need for more support for continuous environmental education, awareness programs, increased access to environmental information, and increased public/popular participation in environment management activities to break through the current public apathy and enhance environmental literacy among all the key stakeholders and the public.



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