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Amref Health Africa in Kenya - APHIAplus IMARISHA PROGRAMME

Annual Environmental Audit Report 2015



Alakara community shallow well, Isiolo County



Kisima Maternal Shelter, Samburu County

SUMMARY REPORT

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PROJECT SUMMARY PAGE

Project Title:	Environmental Audit (Self) for Amref Health Africa in Kenya - APHIAplus IMAARISHA Programme
Project Contact Persons:	Mr. Denge Lugayo ó WASH Manager, APHIAplus IMARISHA Peter Omangi- WASH Officer, APHIAplus IMARISHA.
Location:	Six Counties; <ul style="list-style-type: none"> - Turkana - Isiolo - Samburu - Marsabit - Garissa - Tana River
Project Proponent:	Amref Health Africa in Kenya/ APHIAplus IMARISHA
Scope:	<ol style="list-style-type: none"> 1) Review of the baseline environmental conditions of the area 2) Description of the on-going activities 3) Engagement of the provisions of the relevant environmental laws 4) Identification and discussion of any adverse impacts to the environment as a result of the on-going APHIAplus IMARISHA activities 5) Appropriate mitigation measures; and 6) Provision of an Environmental Management/Monitoring Plan outline.
Duration:	1 month
Period:	October 2014 to Sept 2015

ACKNOWLEDGEMENTS

The Environmental Audit (EA) team for **APHIAplus IMARISHA programme** would like to give special acknowledgement to the following for their assistance and untiring efforts towards the completion of the audit exercise:-

- 1) Daniel Kurao ó Project Manager, WASH KCO
- 2) Denge Lugayo ó WASH Manager, APHIAplus IMARISHA.
- 3) Peter Omangi ó WASH Officer, APHIAplus IMARISHA.
- 4) County Environment Directors
- 5) Administration, APHIAplus IMARISHA.
- 6) Amref Health Africa in Kenya /APHIAplus IMARISHA Logistics - KCO
- 7) Projects beneficiaries
- 8) School Heads/Teachers.
- 9) CBOs/Groups

We also like to highly appreciate the Management and Staff of APHIAplus IMARISHA both at the Headquarters - Kenya Country Office (KCO), County Officers, as well as in the field and all the stakeholders interviewed in the course of the study.

Special mention goes to Assisting Experts; Sheila Okal, Paul Ngosi, Lyne Agingu, Clement Obongó Mrs Faith Mango and Ms. Rosebella Ojwangó who worked tirelessly in making the Audit exercise and this Summary Report a success.

Any person(s), and/or organization(s) that we did consult and/ or contributed in any way to make the EA Report a success, but have not been mentioned herein are highly appreciated at an equivalent level.

ACRONYMS

APHIA	AIDS, Population, Health Integrated Assistance
AIDS	Acquired Immune-Deficiency Syndrome
ASAL	Arid and Semi-arid lands
BH	Borehole
CU	Community Unit
CRS	Catholic Relief Services
CLTS	Community Led Total Sanitation
CCC	Comprehensive Care Clinic
ECD	Early Childhood Development
EIA	Environmental Impact Assessment
EMMP	Environmental Management and Monitoring Plan
FGD	Focus Group Discussion
IGA	Income Generating Activities
IEE	Initial Environmental Examination
IEA	Initial Environmental Audit
IPM	Integrated Pest Management
KEMRI	Kenya Medical Research Institute
KEPH	Kenya Essential Package of Health
KEMSA	Kenya Medical Supplies Agency
KCO	Kenya Country Office
KII	Key Informant Interview
LIP	Local Implementing Partner

MCH/FP	Maternal and Child Healthcare/Family Planning
MOH	Ministry of Health
MCC	Mother and Child Clinic
NEMA	National Environment Management Authority
OHS	Occupational Health and Safety
OVCs	Orphans and Vulnerable Children
PMCT	Prevention of Mother To Child Transmission
USAID	United States Agency for International Development

SUMMARY OF FINDINGS AND RECOMMENDATIONS SUMMARY

APHIAplus IMARISHA is a USAID-funded programme aimed at transforming the health status of the people of Northern Arid Lands of Kenya over a five year period (March 2012 - March 2017), by supporting Government of Kenya (GoK) efforts through a country-led, country-owned and country-managed approach. The programme is implemented by a team of six partners (Amref Health Africa in Kenya, FHI360, Catholic Relief Services, and University of Maryland at Baltimore, Broad Reach Health Care and Land O'Lakes).

Under health facilities, APHIAplus IMARISHA has partnered with level P1 (County/Referral hospitals), level P2 (Health centres), and level P3 facilities (Dispensaries) by way of assisting in the supply of basic public health commodities. The commodities are supplied directly to the health facilities after conducting a needs assessment that identifies the priorities for interventions. All the six counties where the EA exercise was conducted have varied activities ranging from health interventions programmes and social determinants of health.

These projects implemented are at different levels of implementation; some are at initiation stage, others progressively towards completion while others have been handed over to the beneficiary communities. This in effect means that environmental issues being looked at were also varied, and can be addressed at different levels (partially planning, implementation, operations and monitoring and evaluation). The following issues were noted as the key findings during the exercise conducted from the six counties:

Generation, Storage, Treatment and disposal of hazardous and highly hazardous biomedical waste: Both level 2 and 4 in facilities audited generate hazardous and highly hazardous waste but what differs is the magnitude. The health facilities audited had bins for waste segregation placed at the source point although in some health facilities they were not adequate. It was also noted that in some hospitals and dispensaries, hazardous and highly hazardous waste were mixed due to shortage of waste management facilities, some hospitals were being facilitated by the government through the County offices, i.e. Isiolo Referral hospital and Marsabit Hospital. It was alleged that in some cases, the disbursement of funds or provision of the new containers takes longer time to reach the health facilities thus affecting the waste management system therein.

Recommendations: APHIAplus IMARISHA needs to give more support and emphasis towards ensuring that:

Construction of modern standard incinerators are in place, for instance, plans are underway to construct a standard incinerator at St. Patrick Health Centre located in Turkana County, in addition, the programme also plans to install a major incinerator at TB Manyatta compound found within Isiolo county.

EIA and NEMA approval and licenses should be obtained for the incinerators before construction; in this regard, an EIA has already been done for the proposed site at St. Patrick health centre in Turkana County.

Incinerators already built should be upgraded to meet the requirements of the third schedule, waste management regulations of 2006; this may also serve on resources.

Health care facilities have a central system in place for tracking and quantifying the amount of chemicals purchased, dispensed and disposed off;

The inventory system minimizes the amount of waste that will be generated due to over purchasing;

Records are kept of chemicals, medical supplies and equipment beginning with their arrival, the history of their use and final destination;

Materials and drugs are used on first-in first-out order to avoid expiration of their shelf life;

The facilities have minimal waste, reusable, recyclable, or returnable packaging containers when possible; and an inventory of all waste streams is performed on a regular basis.

Small-scale construction and rehabilitation of health facilities: The programme supports construction and rehabilitation of health facilities after carrying out needs assessment; most of the activities were found to be at their planning stage and final phases like Eremet Dispensary in Isiolo County. The program has carried out need assessment for all the facilities in consultation with management teams.

Recommendations: It is hereby proposed that:

All constructions should be undertaken within the guiding laws and principles of building and construction code, and as per specific requirements in the sector. Special attention should also be given to the local culture and tradition, local material and site to enhance usage and technological knowhow for adaptability and viability. The acquisition of relevant permits and licenses should also be an important aspect for any construction for health related provision.

All the construction sites should have relevant record/account of the types, quantities and source of construction materials, e.g., quarries, borrow pits and amongst others for ease of reference and maintenance. In addition, the quarries should be those registered by NEMA as they comply to the pertinent NEMA laws and policies.

Construction workers should receive all necessary public health education, including information about HIV/AIDS and the local culture and tradition especially for expatriate or long distance workers, in addition, Workers safety and welfare during construction is key and the Occupational Health and Safety Rules should be actively engaged.

Small- scale water supply and sanitation activities: This project involves rehabilitation of shallow wells, roof harvesting and construction of sanitation facilities such as VIP latrines. The small scale water projects have increased accessibility of clean safe drinking water to the community members as noted in all the Six Counties visited. The projects have been implemented in various sites within the counties and through the programme, the

communities have been trained for the purposes of sustainability and ownership. In some projects, women have been trained in Operations and Maintenance and this has equipped them with the necessary skills to attend to simple breakdowns or malfunctions. One prominent group that women were trained under the APHIAplus IMARISHA program is the Alakara Water project located in Isiolo County amongst others.

Recommendations: under this sector, it is advised that:

A record be made of how much water (liters/sec) can be drawn from the water source/pumping test, to establish the amount available for the purposes of referencing and to guide on any future development.

Water quality analysis to be undertaken on all water sources being developed before they are commissioned for use; let the record be easily available for ease of reference and for any future development.

Precautions be undertaken to guard against unnecessary leakage/evaporation;

There be established a Water Resource Users Association (WRUA) per each water source as provided for in Water Act (2002), Water Rules 2007;

The exchange programme offered under the APHIAplus IMARISHA programme should be enhanced so that the local communities may be fully equipped.

Local artisans should be identified and trained so that their capacities/expertise are improved as far as water management is concerned.

Test pumping records should be available with the project management committee again for the purposes of referencing and to guide on any future development.

Small-scale irrigation agriculture: This program involves giving support to local communities to improve their livelihoods through irrigation. APHIAplus IMARISHA programme has implemented this through provision of various supports to the farmers, i.e. networking and providing linkages with line County Government Officers/departments and LIPs for further supports like pest and disease control remedies amongst others, some County funds may also be availed to such groups through such networks. Supports have also been availed through provision of water facilities to the groups/farmers, they use the water facilities for storage purposes, in some groups, drip kits have been provided for use in the farms.

Green houses also do well in these areas and the programme has supported through provision of water facilities and even provision of seedlings and irrigation kits to the farmers.

For existing irrigation schemes under the programme, they were observed and considered as micro-irrigation schemes which do not have significant impact on the environment. Even with the low environmental risk, there is still need to balance water needs between irrigation and domestic use to avoid conflicts.

Recommendations: Depending on the water source, the quality and quantity should be established to prevent possible stalling of the project. In case water is being sold to the group/farmers, sustainability strategy should be well considered to ensure continuous availability of the water. For sustainability and peaceful co-existence, livestock water consumption should be well captured to limit any possible conflict.

Water conservation technologies should be applied in all irrigation schemes; Extension support should be given to farmers to ensure they maintain the fertility of their irrigated plots, and carry out soil conservation measures within the scheme;

There should be developed operations and maintenance requirements of the irrigation schemes whereas the locals should be fully involved for ease of management.

In conclusion, there is compliance to environmental regulations and promotion of environmental sound practices at the various project sites. However, there is still need to adhere to pertinent environmental laws and policies for a sustained environment, this shall also include acquisition of relevant permits and licenses for the newly proposed projects i.e. the proposed construction of a delivery unit at St. Patrick's Dispensary, the Proposed Construction of Incinerator at St. Patrick's Dispensary and at the Manyatta TB Centre.

CHAPTER ONE

1.0 INTRODUCTION

The summary presented in this report provides an overview of issues considered important for fulfilling the requirements of a clean, sustained and healthy environment as postulated in Kenya's legal acts especially Environmental Management and Coordination Act of 1999 (EMCA).

As regards, the Rural Water and Sanitation Organization (WATERSAN) was contracted to carry out an Environmental Audit of all APHIAplus IMARISHA programmes contained herein. The WATERSAN team was led by Mr. Francis Asunah; NEMA Lead Expert (EIA/EA, Reg No. 0107) to carry out the Environmental Audit for her Projects for the year 2015 in Turkana, Garissa, Tana River, Isiolo, Samburu and Marsabit Counties. The projects implemented under this programme are Health care provision especially through level P1, P2 and P3 health facilities within the Counties, Small scale irrigation projects, Roof catchment and construction of VIP latrines, drilling/rehabilitation of boreholes, water pipeline extensions and construction of shallow wells and Household Economic Strengthening and Nutrition.

The Environmental Audit (EA) process, which is hereby followed, is in compliance with relevant regulations and the Environmental Management and Coordination Act of 1999 (Act No. 8 of 1999) ó EMCA.

1.1 Objectives and Scope of Environmental Audit

1.1.1 Scope

The Audit exercise for 2015 covered the following:

- 1) Review of the baseline environmental conditions of the area
- 2) Description of the on-going activities
- 3) Engagement of the provisions of the relevant environmental laws
- 4) Identification and discussion of any adverse impacts to the environment as a result of the on-going APHIAplus IMARISHA activities
- 5) Appropriate mitigation measures; and
- 6) Provision of an Environmental Management/Monitoring Plan outline

1.1.2 Objectives of the Environmental Audit

- 1) To assist APHIAplus IMARISHA programme (Proponent) prepare a Project Report based on the on-going activities.
- 2) To examine and seek views on health and safety issues from beneficiaries, the local and other potentially affected parties as pertains the project.
- 3) To examine records of incidents and accidents and the likelihood of future occurrence of the same.
- 4) To examine and advise on the APHIAplus IMARISHA programme compliance with environmental legislation and regulations with regard to the management of solid and liquid wastes and as well as on aerial emission (smoke from incinerators)

- 5) To document the current environmental implications of production activities and Environmental Management Plans (EMP) and procedures, including the Emergency Response Planning, monitoring and reporting systems as well as strategic planning for future changes in trade sector;
- 6) To prevent damage and/ or the tendency for environmental damage;
- 7) To improve resource use through a reduction in material use, minimization of wastes and identification of recycling opportunities;
- 8) To develop an EMP for the proponent

1.2 Objectives of the APHIAplus IMARISHA programme

The specific objectives of the APHIAplus IMARISHA are as follows:

- 1) Operation of an environmentally sound and sustainable project aimed at enhancing sustainable development and sound environment.
- 2) Supporting the local communities with sustainable projects that can improve their livelihood.
- 3) Introduction of viable and simple technologies which can easily adopt to the local environment and user friendly
- 4) Improvement of the living standards of the populace through sustained service provision and stimulation of formal and informal sector growth segments and other sectoral linkages to the advantage of the locals.
- 5) Partnerships with the LIP both at the County and National level, Governmental and Nongovernmental, and engaging key stakeholders in order to enhance effectiveness, service delivery and scope.

1.3 Terms of Reference (TOR) for the EA Process

In line with the above objectives, Mr. Francis Asunah and his team of independent environmental specialists, managers and environmental assessors were commissioned by APHIAplus IMARISHA programme to conduct the annual Environmental Audit of the project for the year 2014/2015.

The audit study aimed at, obtaining sufficient information on the on-going plant's bio-physical, physical (including civil and electro-mechanical) and socio-economic environment, amongst other issues.

The Audit did include assessments to provide the following:

- 1) Applicable National environmental, legislative and regulatory frameworks on ecological and socio-economic matters;
- 2) A brief on the surrounding environment (ecology and socio-economic aspects);
- 3) A prioritization of all past and ongoing concerns of the project;
- 4) An opinion on the efficacy and adequacy of the existing Environmental Management/ Audit Plan (EMP/ AP);
- 5) Detailed plans for environmental compliance, budgets, schedules and methods for their implementation;

- 6) A summary outline of the key findings, conclusions and recommendations of the audit including discussions on the following:
 - a) Ecological considerations;
 - b) Changes necessary to the existing Environmental Management/ Audit Plan (EMP/AP);
 - c) Actions prescribed in the EMP/AP for the prevention of foreseeable accidents and hazardous activities;
 - d) An enhanced Environmental Management Plan (EMP/AP) to ensure that trends for specific parameters are tracked and thus forming the basis for corrective action and modification of the activities within the Environmental Management Plan(EMP/AP), if and where necessary;
 - e) The Macro-economic, social and cultural assessment of the proposed plant's existence.

1.4 Project Background

APHIAplus IMARISHA is a USAID-funded programme aimed at transforming the health status of the people of Northern Arid Lands of Kenya; currently the projects are spread across the counties i.e. Turkana, Isiolo, Wajir, Mandera, Samburu, Marsabit, Garissa and Tana River. Some areas are however facing some serious social challenges like conflict and thus are not fully penetrated and some programmes have been put on halt. The program is a five year period (March 2012 - March 2017), and is implemented through a country-led, country-owned and country-managed approach. The programme is implemented by a team of six partners (Amref Health Africa in Kenya, FHI360, Catholic Relief Services and University of Maryland at Baltimore, Broad Reach Health Care and Land O'Lakes).

The Environmental Audit being carried is to determine the level of compliance in regard to the National Environmental Laws, EMCA (1999) and USAID Environmental Guidelines on small scale projects in Africa and identify the progress in the implementation of EMP/EMMP.

It looks at the effects of the implemented projects on the biological, economic, social and physical environments and the way to mitigate the adverse impacts.

Thematically, the audit looked at two key areas i.e. Result 3 (*increased use of quality health services, products and information*) and Result 4 (*Social Determinants of Health*) areas under the APHIAplus IMARISHA programme.

The following are the service delivery areas under the programme;

- Maternal and Child Health/Family planning
- Facility-based Nutrition activities
- Child Welfare
- Infection Prevention and Control
- Household Economic Strengthening
- Food Security and Nutrition at Household level
- Procurement, Storage, Management & Disposal of Hazardous Biomedical Waste.
- Provision of Water, Sanitation and Hygiene (WASH)
- Small scale Construction & Rehabilitation of Health facilities
- Small scale Water and Sanitation activities

1.5 Project Components:

APHIAplus IMARISHA programme is the proponent, the programme covers the NAL and concentrates on the following key thematic areas;

- Maternal and Child Health/Family planning
- Nutrition
- Child Welfare
- Infection Prevention Interventions
- Agriculture
- Procurement, Storage, Management & Disposal of Hazardous Biomedical Waste.
- Provision of Water, Sanitation and Hygiene (WASH)
- Small scale Construction & Rehabilitation of Health facilities
- Small scale Water and Sanitation activities

1.6 Project Justification

APHIAplus IMARISHA operations are in line with the Millennium Development Goals (MDGs) as well as the Vision 2030, as the programme is geared towards transforming the health status of the people of Northern Arid Lands of Kenya, as well as improving the well being of the community by strengthening the social determinants of health.

The region is underdeveloped due to several factors i.e. increasing pressure on arable land, disparities in human development indicators, unfavorable climate amongst others, as such the government and the international organizations have developed a new policy on development for the region with a view to reverse the narrative, proposing a range of initiatives that could see the country turning to the arid, hitherto considered unproductive and less-endowed, for growth.

APHIAplus IMARISHA programme operations with her key thematic areas have made tremendous improvements in the region and transformed the dry areas into productive land, thereby reducing extreme poverty and hunger.

The Vision 2030 under her Second Medium Term Plan (2013-2017), intends to implement policies, programmes and projects in order to deliver amongst others, better education, accelerated and inclusive economic growth and higher living standards, in a more secure and clean environment;

1.8 Environmental Compliance and Vision 2030

1.8.1 USAID Environmental Compliance

USAID promotes environmentally sound design by requiring that all USAID funded activities undergo an environmental impact assessment. This is accomplished through an Initial Environmental Examination (IEE), an Environmental Assessment (EA) or a Request for a Categorical Exclusion, all in accordance with Title 22 of the Code of Federal Regulations Part 216, commonly known as 22 CFR 216 or "Reg 216. This is a very positive progress that when

upheld and practiced also with other international development partners then will leverage on effective environmental conservation. The USAID Guideline on Environment is thus in line with the government strategies and policies that is working towards a Sustainable environment by the year 2030.

1.8.2 Vision 2030

1.8.1.1 Vision 2030: Development Strategy for Northern Kenya and other Arid Lands

The purpose of this document is to complement and deepen Vision 2030 by explaining how its goals will be realized in the specific context of Northern Kenya and the country's arid and semi-arid lands.

The dream of a just, equitable and prosperous nation set out in Vision 2030 is as relevant to people in the arid and semi-arid lands as it is to those in any other part of Kenya. Vision 2030 acknowledges the special circumstances of previously marginalized communities, and places a premium on reducing poverty and inequality and re-balancing regional development.

In this respect it offers a chance to turn history on its head. Until recently the distribution of investment in Kenya favoured the so-called high-potential areas – those which, in the words of Sessional Paper Number 10 of 1965, have abundant natural resources, good land and rainfall, transport and power facilities, and people receptive to and active in development. Vision 2030 imagines a future which is the polar opposite – one where the hopes and dreams of all Kenyans can be realized.

1.8.1.2 National Policy for the Sustainable Development of Northern Kenya and other Arid Land

The Policy outlines the following key concerns;

- 1) Reinforces Constitutional provisions on Inequality and marginalization.
- 2) Recognizes the value of pastoralism and domesticates the African Union Policy Framework for Pastoralism in Africa.
- 3) Emphasizes the region's contribution to national development, which will be achieved by accelerating investment in the foundations for poverty reduction and economic growth (such as roads, security, and human capital)
- 4) Opens the way to new approaches to service delivery and governance
- 5) Establishes a stronger institutional framework for multi sectoral and multi-stakeholder ASAL development.

1.8.2 The Vision 2030: Second Medium Term Plan (2013-2017)

The theme of the Second Medium Term Plan of Kenya Vision 2030 is "Transforming Kenya: Pathway To Devolution, Socio-Economic Development, Equity and National Unity". The Plan covers the period 2013-2017 and emphasizes on the full implementation of devolution in the context of a rapidly growing economy, promoting equity, inclusiveness, and employment to meet

the needs of our youth.

Since its promulgation in 2010, the Kenya constitution has altered Kenya's governance framework fundamentally by creating a two-tier government; one at national and the other in the 47 counties.

The realization of the objectives and targets of the Second MTP hinges on successful implementation of the enablers or foundations. These include: infrastructure (roads, rail network, sea ports airports and pipeline); Information Communication and Technology (ICT); Science Technology and Innovation (ST&I); Land Reforms; Human Resource Development, Labour and Employment; Security; Public Sector Reforms; National Values and Ethics; and Ending Drought Emergencies (EDE).

The Second MTP also aims to build on the successes of the first MTP (2008-2012), particularly in increasing the scale and pace of economic transformation through infrastructure development, and strategic emphasis on priority sectors under the economic and social pillars of Vision 2030.

Priority Areas being addressed under the Second Medium Term Plan (2013-2017) related to the APHIAplus IMARISHA programme;

Equity in access to opportunities and lower cost of living: The government will lay emphasis on implementation of affirmative action in employment opportunities in public sector, and ensure resource distribution addresses regional imbalances. Another key priority will be to reduce the cost of living through lowering the cost of food and other basic needs. The government will therefore support expansion of production of food through irrigation, use of local competitively priced supply chains to deliver food to consumers more cheaply and improved management of the marketing systems.

With regards to small scale irrigation, APHIAplus IMARISHA have supported various small scale irrigation projects targeting groups in the project areas, this has resulted to increased food production, increased income and improved living standard at the household level. Most irrigation systems used is drip irrigation where APHIAplus IMARISHA programme have provided relevant facilities i.e. drips, water facilities and trainings to the farming groups.

Education: Significant progress was made under First MTP but several challenges persist and in particular, quality. The Government will therefore focus on addressing low enrollment in areas that remain below the national average, retain students in school up to 18 years, provide education more effectively through a digital platform, and match education and training with the demand for the skills required in the workplace. In addition, the Government will hire additional teachers in order to lower pupil-teacher ratio and improve quality as well as ensure that teachers devote the required time to teaching and learning.

For effective service delivery, APHIAplus IMARISHA programme has taken part in implementing projects in schools with an aim of increasing enrollment and pupils' retention, for example, under the programme, water and sanitation facilities have been provided in some schools and these have resulted to good performance due to high concentration in class.

Drought Emergencies and Food Security: The Government will prioritize implementation of the Ending Drought Emergencies (EDE) plan as an integral part of this MTP. Priority will also be given to increasing investment in irrigation to reduce the country's dependence on rain-fed agriculture. Strategies to mechanize agriculture, revive cooperatives and farmers unions and subsidize farm inputs will be undertaken. Additionally, emphasis on value addition in the production and supply chain will be prioritized.

APHIAplus IMARISHA has under the livelihood projects, supported farmers with irrigation facilities, provision of small scale farming facilities and linking the groups with the existing LIP, through this the groups have secured seeds and necessary skills which they apply at the farms.

Health: Kenya has made major gains in health care especially in tackling communicable diseases such as HIV/AIDs, T.B and Malaria, however, a lot still needs to be done to improve the overall health care system. The Government will put emphasis on universal access to health care, preventive and primary health care, clean water, management of communicable disease, maternal and child health, and non-communicable diseases. It will also invest in medical research, pharmaceutical production and health tourism as a means of diversifying external revenue sources and serve as a regional.

Under Health, APHIAplus IMARISHA programme has provided various services geared towards strengthening the health care provision within the counties, these have been done by improving access to healthcare services by way of for example provision of health care facilities to various health facilities (P1, P2 & P3), and supporting MCH/FP, CCC and laboratory departments through provision of relevant equipments including personnel. A lot of WASH facilities have also been provided in the health facilities and as such have improved the infection reduction cases.

CHAPTER TWO

2.0 LEGAL AND INSTITUTIONAL FRAMEWORK

It is imperative that a concise description of the National environmental legislative and regulatory framework related to the ongoing concern is reviewed and incorporated into the 2014/2015 APHIAplus IMARISHA EA report, since it is currently expected that development projects must now not only be economically viable and socially acceptable, but also environmentally sound.

In Kenya, policies and legal statutes are vital in ensuring sustainable development and environmental protection. This Chapter therefore describes and assesses the effectiveness of the existing environmental policy and legal protocols as well institutional and administrative frameworks with a view to recommending remedial measures to the issues that concern the APHIAplus IMARISHA programme.

2.1 Legal framework

2.1.1 Environmental Management and Coordination Act

Environmental Management and Co-ordination Act No. 8 of 1999, provides a legal and institutional framework for the management of the environmental related matters. It is the framework law on environment, which was enacted on 14th January 1999 and commenced in January 2002. Topmost in the administration of EMCA is National Environment Council (NEC), which formulates policies, set goals, and promotes environmental protection programmes. The implementing organ of EMCA is the National Environment Management Authority (NEMA). EMCA comprises of the several parts covering all aspects of the environment.

Part VIII, Section 72 of the Act prohibits the discharging or application of poisonous, toxic, noxious, radioactive or any other pollutants into aquatic environment. Section 73 requires that operators of projects which discharge effluent or other pollutants into the environment must submit to NEMA, accurate information about the quantities and quality of the effluent. Section 74 demands that all effluent generated from point sources are discharged only into the existing sewages system upon issuance of prescribed permit.

The main objective of the Act is to:

- Provide guidelines for the establishment of an appropriate legal and institutional framework for the management of the environment in Kenya;
- Provide a framework legislation for over 70 statutes in Kenya that contain environmental provisions;
- Provide guidelines for environmental impact assessments, audits and monitoring as well as environmental quality standards and environmental protection orders.

The Second Schedule to the Act specifies the projects for which an EIA and environmental audit must be carried out. According to the Act, Section 68, all projects listed in the Second Schedule of the Act must undertake an environmental audit, keep accurate records and make annual reports to NEMA or as NEMA may, in writing, require.

The Environmental (Impact Assessment and Audit) Regulations, 2003, provides the basis and procedures for carrying out Environmental Impact Assessments (EIAs) and Environmental Audits (EAs).

2.2 Introduction

To guarantee adequate environmental oversight and ensure that environmental considerations are integrated into decision making all APHIAplus IMARISHA projects have to integrate Title 22 of the Code of federal regulations, part 216-Environmental procedures (22CFR 216, as well as the local legislation, laws and policies on environment. In Kenya, Waste Management Regulations, 2006 require-All waste generator to collect, segregate and dispose such waste in a manner provided for under these regulations; All waste transporters to be licensed according to the act (Environmental Management and Coordination Act, 1999;-All vehicles used to transport waste to be labeled in such a manner as may be directed by the Authority (NEMA);

According To Part VI: Biomedical Wastes

36. No person shall own or operate any institution that generates bio-medical waste without a valid Environmental Impact Assessment license issued by the Authority under the provisions of the Act

38. Any person who generates biomedical waste shall at the point of generation and at all stages thereafter segregate the waste in accordance with the categories provided under the Seventh Schedule to these Regulations.

SEVENTH SCHEDULE

(Regulation 38)

Categories of Biomedical Waste 1.		
	Infections Waste	Waste suspected to contain pathogens e.g. laboratory cultures, waste from isolation wards, tissues (swabs), materials, or equipment that have been in contact with tubing, catheters, IGS toxins, live or attenuated vaccines, soiled plaster casts and other materials contaminated with blood infected patients, excreta.
2.	Pathological waste	Human and animal tissues or fluids. e.g. body parts blood and other body fluids, fetuses, animal carcasses.
3.	Sharps	Sharp waste. e.g. needles, infusion sets, scalpels, knives, blades, broken glass that may cause puncture and cuts. This includes both used and unused sharps.
4.	Pharmaceutical waste	Waste containing pharmaceutical e.g. pharmaceuticals that are expired or no longer needed; items contaminated by or containing pharmaceuticals (bottles, boxes).
5.	Genotoxic Waste	Waste containing substances with Genotoxic properties. e.g waste containing cytostatic drug (often used in cancer therapy), Genotoxic chemicals.
6.	Chemical waste	Waste containing chemical substances e.g laboratory reagents; film developer, disinfectants, (disinfectants) that are expired or no longer needed solvents
7.	Waste with high content of heavy metals	Batteries, broken thermometers, blood-pressure gauges, etc
8.	Pressurized containers	Gas cylinders, gas cartridges, aerosol cans.
9.	Radioactive waste	Waste containing radioactive substances e.g unused liquids from radiotherapy or laboratory research, contaminated glassware, packages, or absorbent paper, urine and excreta from patients treated or tested with unsealed radionuclides, sealed sources.

10.	General solid waste	Waste generated from offices, kitchens, packaging material from stores.
11.	Microorganisms	Any biological entity, cellular or non-cellular capable of replication or of transferring genetic material.

38. All biomedical waste shall be securely packaged in biohazard containers which shall be labeled with the symbols set out in Part I and II of the Eighth Schedule to these Regulations

EIGHTH SCHEDULE

PART I

(Regulation 39)

Colour code for Biomedical adopted from the WHO colour code Type of Waste		Colour of Container and Markings	Type of Container
1.	Infectious	Yellow	Strong leak proof-plastic bag with biohazard
2	Pathological	Yellow	Strong leak proof-plastic bag with biohazard symbol
3	Sharps	Yellow – (marked sharps)	Puncture proof
4	Chemical and Pharmaceutical	Brown	Plastic bag or container
5	Non-infectious/non hazardous (Non-clinical)	Black	Plastic bag or container
6	Radioactive waste	Lead box, labeled with radioactive symbol	
7	Non-infectious/non hazardous (Non-clinical)	Black	Plastic bag or container

39. Any person who generates waste shall treat or cause to be treated all biomedical waste in the manner set out in the Ninth Schedule to these Regulations, before such biomedical waste is stored or disposed of.

40. The relevant lead agency shall monitor the treatment of all Bio medical waste to ensure that such waste is treated in a manner that will not adversely affect public and the environment.

41. No person shall store biomedical waste above 0° C for more than seven days without the written approval of the relevant lead agency, provided that untreated pathological waste shall be disposed of within 48 hours.

42. (1) No person shall transport biomedical waste without a valid permit issued by the Authority in consultation with the relevant lead agency.

(2) No person shall transport or allow to be transported biomedical waste save in a specially designed vehicle or other means of conveyance so as to prevent scattering, escaping, flowing, spillage or leakage of the waste

45. No person shall own or operate a biomedical waste disposal site or plant without an Environmental Impact Assessment license issued by the Authority under the provisions of the Act and an operating license issued by the Authority.

47. No person shall be issued with a license to operate a biomedical waste disposal site or plant unless such site or plant complies with the requirements set out in the Third and Tenth Schedule to these Regulations.

2.3 The Environmental Management and Coordination (Water Quality) Regulations, 2006

The regulations protect all water resources. Relevant features of this regulation as far as this study is concerned include:

“ Every person shall refrain from any act which will directly or indirectly cause pollution and it shall be immaterial whether or not the water resource was polluted before the enactment of these regulations.

“ Water abstraction must only be done after approval of an Environmental Impact Assessment study;

2.4 Physical Planning Act (CAP 286)

Section 24 of the Physical Planning Act gives provision for the development of local physical development plan for guiding and co-coordinating development of infrastructure facilities and services within the area of authority of municipal, and town council and for specific control of the use and development of land. The plan shows the manner in which the land in the area may be used.

Section 30 states that any person who carries out development within an area of a local authority without development permission shall be guilty of an offence and the development shall be invalid. The act also gives the local authority power to; compel the developer to restore the land on which such development has taken place to its original conditions within a period of ninety days. If no action is taken, then the council will restore the land and recover the cost incurred thereto from the developer.

2.5 The Water Act (The Water Resources Management Rules), 2007

Application of rules:

- (1) These Rules shall apply to all policies, plans, programmes, and activities that are subject to the Water Act, 2002.
- (2) These Rules shall apply to all water resources and water bodies in Kenya, including all lakes, water courses, streams and rivers, whether perennial or seasonal, aquifers, and shall include coastal channels leading to territorial waters.

2.5.1 Part IV – Groundwater

Groundwater development authorization

- (1) All applicants intending to abstract ground water shall make an application for the approval of the Authority in the prescribed Form WRMA 001 set out in the Twelfth Schedule.
- (2) Upon receipt of the application, the Authority shall determine the category of the application. (3) Where the Authority determines that the application falls under Category A for a well, and the method of abstraction does not include motorized pumping, the Authority shall, after considering the application, approve upon such conditions as it may deem necessary or refuse the application.
- (4) Where any borehole or well is intended to be equipped with a motorized pump the application shall be accompanied by a hydrogeological assessment report in the prescribed form set out in the Second Schedule.
- (5) Before any well or borehole is replaced, deepened or widened, the owner of the well or borehole, or his duly authorized representative, shall file with the Authority an application for the authority to carry out such replacement, deepening or widening of an existing well or borehole, for any water use category.
- (6) Any well or borehole which encounters, in the course of drilling, collapse, loss of tools, or other associated drilling problems, hereinafter referred to as down hole problems, but exclude a dry borehole, the owner of such a well shall drill, without further reference to the Authority a replacement borehole, whose site shall not more than 15 metres, from the previously approved site.
- (7) Before any well or borehole, after encountering down hole problems, is moved to a new site of more than 15 metres from the previously approved site, the owner of the borehole or well, or his or her duly authorized representative, shall file with the Authority an application for authority to move to the new site.
- (8) Any person who contravenes the provisions of this rule shall be guilty of an offence and shall be liable to a fine not exceeding ten thousand shillings or imprisonment for a term not exceeding three months or both.

2.5.2 Regulation of Groundwater development

(1) For the regulation of the groundwater development, the Authority will determine in the allocation plan for a given aquifer or part thereof, the spacing of boreholes, or wells to be equipped with motorized plant and will be guided by ó

(a) Existing borehole or well spacing;

(b) Individual aquifer characteristics, including water quality;

(c) Existing aquifer use; and

(d) Existing bodies of surface water

(2) The allocation plan shall be available and accessible to the public during normal working hours from any of the Authority offices.

2.5.3 Borehole and Well test pumping

(1) All new boreholes, and wells to be equipped with motorized plant, shall be subjected to test pumping.

(2) The test pumping shall compromise a continuous and constant pumping rate of not less than twenty four hours duration and recovery duration of not less than twenty hours, or as otherwise stipulated by the Authority.

2.5.4 Supervising of Works

All boreholes and wells to be equipped with motorized plant shall be constructed under the supervision of a qualified water resource professional.

2.5.5 Borehole of well completion record

Upon the completion of the construction of a borehole, or well to be equipped with motorized plant, the applicant shall submit to the Authority a borehole or well completion record in the prescribed WRMA Form 009A or 009B set out in the Twelfth Schedule, respectively, in conjunction with the completion certificate, within thirty days of completion of works.

2.5.6 Award of Permit or approval

(1) The approval to abstract groundwater under Category A for a well shall be issued on receipt of the application or, as determined by the Authority on verification of the details provided in the application.

(2) In the event that Authority determines that verification on site is necessary, the Authority shall undertake the verification within twenty eight days.

(3) Approval to abstract groundwater from a borehole, in Category A, as defined in the Fifth Schedule shall not be issued until after the authority has analysed the data

provided in the prescribed borehole completion record Form WRMA 009A set out in the Twelfth Schedule, where applicable.

(4) A permit to abstract groundwater from a borehole, in Category A, as defined in the Fifth Schedule shall not be issued until after the Authority has analyzed the data provided in the prescribed borehole completion record Form WRMA 009A set out in the Twelfth Schedule, where applicable.

(4) A permit to abstract groundwater from boreholes, or wells intended to be equipped with motorized pumps in Categories B, C, or D, as defined in the Fifth Schedule shall not be issued until after the Authority has analyzed the data provided in the borehole or well completion record Form WRMA 009A or 009B, respectively.

2.5.7 Monitoring data

The Authority may, from time to time and in carrying out its responsibilities towards groundwater resources management require any person or entity, permit holder or operator, to provide it with abstraction, water levels, water quality or any other specified information within a reasonable time or on a regular basis.

2.5.8 Groundwater data

The Authority shall maintain a groundwater database from which data shall be accessible during normal office hours to any person upon the payment of the prescribed fee set out in the First Schedule.

2.5.9 Water Resources Users Association

- (1) For a WRUA to be considered for registration by the Authority, it should be legally registered, have a constitution conducive to collaborative management of the water resources of a particular resource and which promotes public participation, conflict mitigation, gender mainstreaming and environmental sustainability.
- (2) Any WRUA that meets the prescribed conditions may seek to register with the Authority, by submitting the prescribed Form WRMA 018 set out in Twelfth Schedule.
- (3) The Authority shall respond in writing within thirty days of the receipt of the application by the WRUA;
- (4) Upon registration the Authority shall issue the WRUA with a certificate of registration.
- (5) The Authority shall maintain a Register of WRUAs as per Form Register 001 set out in the Twelfth Schedule.
- (6) Whenever the particular details of the WRUA change the prescribed Form WRMA 018 set out in the Twelfth Schedule should be re-submitted.
- (7) The Authority may enter into a Memorandum of Understanding with a WRUA for the purposes of collaborative water resource management of the water resources; (8) The Memorandum of Understanding may provide for administrative, technical or financial support to the WRUA by the Authority in respect of activities related to the collaborative water resource management;

2.6 The Public Health Act (Cap 242)

Part IX, section 115 of the Act states that no person/institution shall cause nuisance or condition liable to be injurious or dangerous to human health. Section 116 requires Local Authorities to take all lawful, necessary and reasonably practicable measures to maintain areas under their jurisdiction clean and sanitary to prevent occurrence of nuisance or condition liable for injurious or dangerous to human health.

Such nuisance or conditions are defined under section 118 waste pipes, sewers, drains or refuse pits in such a state, situated or constructed as in the opinion of the medical officer of health to be offensive or injurious to health. Any noxious matter or waste water flowing or discharged from any premises into a public street or into the gutter or side channel or watercourse, irrigation channel or bed not approved for discharge is also deemed as a nuisance. Other nuisances are accumulation of materials or refuse which in the opinion of the medical officer of health is likely to harbor rats or other vermin.

2.7 The Food, Drugs and Chemical Substances Act

This Act makes it an offence to use or dispose of chemical substances in a manner likely to cause contamination of food and water for human consumption (section.24).

CHAPTER THREE

3.0 METHODOLOGY

3.1 Data Source

During the audit, both secondary and primary sources of data were utilized. The secondary sources of information involved a review of documented data i.e. EIA/ EA reports and guidelines, as well as related national and international environmental statutes. On the other hand, primary data involved consultation with the APHIA^{plus} IMARISHA programme team and personnel at the various project sites, project beneficiaries and other key stakeholders and partners through Key Informant Interviews (KIIs), questionnaire, Focus Group Discussions (FGDs), site observation and photography.

3.1.1 Environmental Site Visits

This process involved physical inspection of projects under APHIA^{plus} IMARISHA programme i.e. health facilities, water and sanitation facilities, occupational health and safety issues, household economic strengthening, water storage among others, observable issues of environmental concerns were noted and analysed for appropriate documentation.

3.1.2 Questionnaires

This involved the administration of a standard questionnaire based on the various project sites.

The instrument was helpful in gauging attitude and knowledge of the personnel and the beneficiaries/users of the said facilities. The attitude and level of awareness was sought on environmental legislation and policies concerning activities carried out at the various project sites. Again issues of safety and health, and environmental concerns were also sought in order to determine and verify the level of preparedness in cases of incidents and accidents, maintenance amongst other aspects.

3.1.3 Key Informant Interviews (KII)

A part from questionnaires, KII was also another method of data collection that was utilized during the Audit exercise; this majorly involved the key leaders and the contact persons for the projects or the facilities under APHIAplus IMARISHA programme i.e. the chairpersons, and group leaders. They represented concerns and views which could have been raised by individual beneficiaries of the respective facilities. In general, their views and concerns and level of knowledge with regards to environmental management, legislation and policies were gauged, this was necessary in order to ensure total compliance with pertinent environmental regulation and to identify areas of adjustments or improvements especially from the previous audit.

3.1.4 Observations

This involved walking around and making observations on environmental issues of concerns. These ranged from precautions put in place at the various facilities to curb minor and major injuries/accidents and strategies in place to enhance sustainability of the projects. Through observation, the audit team also identified the range of technologies applied from the facilities available e.g. for health facilities and the level of applicability and adaptability to the local users and the environment. It is however important to mention that even though the facilities does not belong to APHIAplus IMARISHA programme, the team do provide technical support from time to time. These observations were made and analyzed as stated in chapter six and the EMP.

3.1.5 Checklist

Checklists is a tool used as a guideline to give more emphasis to specified issues of concern for study, it was developed and used during the audit exercise and it varies from one project to another due to difference in scope per project activities.

3.1.6 Focus Group Discussion

This method was employed during the audit exercise at the various project sites and facilities. A group of between (7-12) members were used, it consisted of people of similar background or experiences as this was critical in the discussion of some sensitive issues of the facilities and projects with regards to environmental importance.

3.2 Scoping

The auditing process for the organization started with scoping. Scoping focused on identifying the key issues of concern encompassing all of the significant policy, legal, technical, economic and social implications.

3.3 Audit Procedure

The Audit was conducted in accordance with the general practice code of environmental auditing protocol. A brief summary of the three stages of the Audit Protocol is described and presented as follows:

3.3.1 Pre-Audit Activities

These included a visit by the Audit Team to the different institutions to familiarize itself with the activities at the site, discuss the audit objectives and develop a work plan. This stage is also referred to as the scoping stage

3.3.2 Actual Auditing Activities

These included various visits to the facility and its environs so as to understand and assess the strengths and weaknesses of the activities within the organization. This was done by gathering of audit evidence through meetings, site inspection, and interviews with the staff and management and the evaluation of available documentation and licenses. An exit interview was also conducted.

3.3.4 Post-Audit Activities

From the findings during pre-audit and actual auditing activities, a report was prepared, discussed and reviewed by both the Audit Team and the Client. A final report incorporating identified non-compliance issues, mitigation measures, suggestions and recommendations and follow up strategies was prepared

CHAPTER FOUR

4.0 BASELINE INFORMATION AND FINDINGS

4.1 Description of Project Areas and General Findings

TURKANA COUNTY

DATE	NAME OF INSTITUTION	LOCATION	SUPPORT OFFERED UNDER APHIA PLUS IMARISHA	FINDINGS RELATED TO EA	MITIGATION MEASURES
9/09/2015	St. Patrick's Dispensary	Lodwar location, Turkana County	10,000litres plastic Tank, Underground water tank, 1block 2door latrines, fridges, fans, MNCH, Lab	Inadequate latrines against the no. of patients, this doesn't support effective environmental management, safety and hygiene practices.	Partnership with both government and LIP is of essence to increase support.
10/09/2015	Nadooto shallow wells and sanitation facilities	Nadooto Sub-Location, Kerio Location, Turkana Central Sub-County, Turkana County	1 block 2door latrines and 10,000litres water tank for Nadooto dispensary, 1 block 2door and 1block 1door latrines for Nadooto Primary School, 2 shallow wells; one for community and one for the school.	Broken water pump for the community, no latrine for community leading environmental health concerns, salty water which may cause some long-term illnesses. The water management team need	Continuous capacity building of the beneficiaries is of essence; this will enhance their skills to handle O&M challenges. Partnership with some entrepreneurs is necessary for ease of access of the spare parts.

				more training and difficulty in accessing spare-parts in case of breakdown.	
11/09/2015	KIA Greenhouse Project	Lodwar location, Turkana County	5000 and 10,000litres water tanks, grow tomatoes, kales, spinach and water melons, trainings, greenhouse structure and drip irrigation kits.	Salty water being used thus frequent replacement of the pipes will lead to wastage of resources, no records for referencing, Inadequate Personal Protection Equipment thus exposure to occupational and safety illnesses, group access water at very high cost from the dioceses hence project may not be cost effective, marketing strategy lacking, lifespan of greenhouse polythene cover, youths not fully involved thus need for sensitization.	Partnership with government through the relevant county offices is of essence to allow for trainings on the management of small scale agriculture as per the standards required. Improved water storage facilities should be provided to allow for continuous water supply. Appropriate alternative source of water should be provided

DATE	NAME OF INSTITUTION	LOCATION	SUPPORT OFFERED UNDER APHIAPLUS IMARISHA	FINDINGS RELATED TO EA	MITIGATION MEASURES
18/9/2015	Rafiki Primary School	Tana River County near Hola town	3M ³ elevated tank, Drip and Canal irrigation, Crops Papaws, Maize, Zambarau	Farming management not well practiced, cleanliness not well maintained within the farms.	Partnership with line County government officers in order to provide relevant training.
	Bura Sub District Hospital	Bura	Renovations - CCC, Lab and Maternity	Waste management and sanitation facilities ó very poor.	Increase funding base to cater for more needs.
18/9/2015	Chewele Primary School	Bura irrigation scheme.	VIPS 2door 2blocks	VIP Insufficient hence additional blocks may be of essence.	Construction of standard VIP
18/9/2015	Chwele Dispensary	Bura irrigation scheme- Chewele In Tana River	Renovation of Building, 10m ³ Water Harvesting facility & VIP Latrines.	Coded waste bins should be provided to enhance waste management within the facility.	Enhanced waste management procedures within the facility.
17/9/2015	Makere Dispensary	Bura irrigation scheme in Bura Sub County	Rain water harvesting - 10m ³ tank, Renovation- Painting of the building.	, shortage of drugs observed, no incinerator, and no placenta pit for appropriate waste	More support in the PMTCT is needed Provision of standard Waste management facilities is of

				disposal.	essence.
17/9/2015	Wachakone Primary School	Bura irrigation scheme in Bura Sub County	WASH (Rain water harvesting 10m ³ tank, Girls latrine 1 block @ 4 door, Boys latrine 1block @ 3 doors , Teacher latrine 1 block @ 1 door).	Old dilapidated structures Water scarcity observed	Source funds from other partners to take care of other needs. Alternative water source appropriate to minimize on shortage.
17/9/2015	Rhoka Dispensary	Bura irrigation scheme in Bura Sub County	WASH (VIP Latrine 1 Block@ 2 door, 10m ³ upvc tank)	Lack segregated bins for proper waste disposal	Provision of appropriate waste management facilities.
17/9/2015	Pumwani Dispensary	Ndura location, Bondeni sub location	WASH (VIP 1 block @ 2 doors, Tank 10m ³ , Renovation of the facility -painting	Lack coded bins, Delay in drug supplies	Provision of appropriate waste management facilities.
17/9/2015	Fanjua Primary School	Fanjua village, Tana River County	Wash (Girls latrine 1 block@ 2 door, Boys latrine 1 block @2 door, Teachers latrines 1 block @1 door, Rain water	Water shortage/ unreliable rainfall	Alternative water source is recommended to minimize on shortage.

			harvesting 10,000litre PVC tank.		
16/9/201 5	Hola District Hospital	Hola	WASH, Renovation- Lab, CCC	Leaking water tank, Shortage of sanitation facilities, Shortage of drug supplies, No incinerator, No drainage system hence more support is required.	Networking with government through the county offices. Addition of more sanitation facilities Installation of standard incinerator
15/9/201 5	GK Prisons Dispensary Garissa	Township Division- Garissa	10m ³ water tank, Drug supplies	Water shortage, Shortage of drug supplies, Shortage of latrines and equipments for data storage, no fire extinguishers .	Provision of an alternative source of water Addition of sanitation facilities Provision of ICT equipments and emergency facilities i.e. fire extinguishers.
15/9/201 5	Simaho-Sister Maternity Home	Township location Garissa	OVC and drug supplies	No placenta pit/blood fluids disposal- taken to General hospital. Need to improve record keeping	Provision of appropriate waste management equipments

14/9/2015	Police-line Dispensary		10M ³ water tank, Drug supplies	No incinerator, No waste segregation containers	Provision of appropriate waste management equipments
14/9/2015	Al-farouq Center and Green House,		OVC care and green house	Lack of farm management training, water too scarce, Training on farm management.	Liaison with officers from the County government to offer trainings on small scale farm management. Additional water storage facilities for continuous supply of water to the crops.

ISIOLO, MARSABIT AND SAMBURU COUNTIES

Date	Location	Project Description	Findings/Challenges	MITIGATION MEASURES
13th Sep,2015-15thSep,2015	ISIOLO COUNTY	Wabera Primary School (a) Roof catchment 10,000L 1no. (b) VIP latrine 1 block 2 door for girls	- Inadequate VIP - Intensify routine cleaning of the latrine	More VIP Latrine needed Provision of Hand washing facilities
		IDH a)Laboratory department b)MCH & FP Department	-Emergency equipments like First Aid box missing -Waste handling equipments are inadequate -Files shortage for data storage -Broken sinks/drainage -	Provision of First Aid box Provision of appropriate waste handling equipments i.e. incinerator Provision of Files for data storage Networking with other

			partners to help in renovation of the sewer lines
		TB Manyata Hosp.	-Proposed Incinerator Construction underway The proposed incinerator should be done as per the required standard and specification for effective environmental management.
		Alakara Shallow well	-Functioning, women trained on O&M This should be encouraged and duplicated in other project
		Burat/Naretate CBO -OVC caregivers -Water kiosk -Drip irrigation -Water tank	- ICT equipments and emergency tool kit like first aid missing -CHVs lacks Financial support needed Provision of necessary ICT equipments like those assisting in documentation. Roll out sustainable projects that can support the CHV Liaison and partnership with other development partners.
		Emerti Camp a)Emerti CHWø -m-leaning -drip irrigation b)Emerti dispensary -maternity renovation -PMTCT equipments -Water tank/roof catchment Installed	-Inadequate capacity to perform some duties. -Water supply ongoing Continuous capacity building of the CHVs is paramount for effective service delivery. Partnership with other

				developing partners.
16th Sep,2015-18th Sep,2015	SAMBURU COUNTY	Bahawa School <ul style="list-style-type: none"> ▶ Orphans support ▶ Poultry through support of LIP(Kiba) 	-Poultry rearing community pilot project -PPEø for handling poultry noticed to be missing.	Provision of PPEs in order to avoid spread of diseases. Sensitization and awareness creation about the project to the larger community. Liaison with the government through the county Agricultural Office is necessary for transfer of skills
		Ilkiloriti BH -10,000L water storage tank -Solar pump	-No latrine -Current BH yield insufficient and hence may result to conflict due to rationing.	Encourage community through the management committee to built own latrine using locally available resources. Alternative source of water would be necessary to supplement the existing source.
		Kisima Modern HC -Maternity Shelter	-The CHV are fewer compared to cases being handled -PPEø for emergency cases inadequate	Addition of more CHVs in order to meet the rising demand

			-Lack skills on some areas	Addition of adequate PPEs Continuous capacity building on maternity related matters to enhance effectiveness and efficiency.
		Maralal Pri.School -VIP Latrine 1 block 2doors for ECD	-Inadequate tanks and VIP Latrine	-Add more tanks and VIP Latrine
		Kelele Shallow well ▶ Hand pump	-Functioning well however, spare parts of afridev pump not available most of the time thus hindering continuous supply..	-Networking should be encouraged to allow group access spare parts easily & within reach.
		Samburu County Referral Hospital -VIP Latrine 1 block 2doors	-Completed	
19th Sep,2015-22nd Sep.2015	MARSABIT COUNTY	Merile Primary School -1.5m pipeline from Merile primary school to Muger village -10000L tank and drawing point	-Water drawing point vandalized - - No Latrine within the site	More training to the community through the Management Committee Committee to enhance security of the facilities Community to built a latrine
		Mercy primary School -10,000L water tank -VIP Latrine 1block 2 doors	-Completed	
		Dirib gobo WG -Poultry	- -Group lacks some	Intensify linkage,

		-Vegetables growing -Fodder growing (pastures)	skills - poultry	exchange programmes The Group should initiate some more projects for better income.
		Marsabit DH MCH/FP Department -10,000L water tank -Guttering system for roof catchment and connected to the main pipe Lab Department -10,000L water tank -Guttering system for roof catchment and connected to the main pipe -Purchase of cabinets, files and computers for data storage purposes. OVC Department -Files and Cabinets for data storage -Computers and other data storage devices. -Tracking of those under medication	MCH/FP lacks running tap -No standard incinerator for waste management -Difficulty in follow-ups especially those on medication during conflicts.	Provision of running taps in MCH/FP department Construction of standard Incinerator for effective waste management Increase human resource and tracking devices to enhance tracking of those on drugs.

4.2 Specific Findings

4.2.1 Trainings

APHIAplus IMARISHA has conducted capacity building on biomedical waste management particularly on pharmaceutical waste, categories of wastes and their destination as well as procedures of waste segregation. This has been done at Isiolo and Marsabit District Hospitals, AIC Nadoto & Kerio Dispensaries, SIMAHO, Medina and Garissa Mother and Child

Dispensary in Garissa County. Training was offered to the Heads of the facility only. No trainings were done at Tana River County (Pumwani and Chewani dispensaries) Garissa County (Bura district Hospital, Masalani District Hospital).

4.2.2 Provision of Bins and simple flow charts showing waste management.

In order to achieve the gaps identified in health-care waste management in the assessed health facilities, Waste Bins of different colour codes had been supplied at Isiolo County (AIC dispensary and Isiolo District Hospital and Marsabit County (Marsabit District Hospital). The bins were however inadequate. In Turkana County (Nadoto and Kerio Dispensaries) there were no colour coded bins, there was a sharps container separate and one universal bin where all biomedical waste was mixed. In Tana River County Pumwani Dispensary had different bins for different categories of wastes lined in 3 different coloured paper bags. Chewani Dispensary did not have proper waste management as all waste was dumped and burnt outside in the open including sharps. Charts were displayed in some departments while others did not have.

In Garissa County, there were efforts to segregate and dispose off waste by use of improvised bins. There were no colour coded bins to aid in this effort.

4.2.3 Treatment of Waste

In Turkana County, Nadoto after one month collection sharps were transported for incineration at level 4 facilities; Lodwar Sub county hospital. by a non licensed biomedical waste handler. with no clear record as per the collection.

. In Kerio valley a new incinerator had been constructed for Biomedical Waste treatment The incinerator did not meet the specifications listed in the third schedule of Waste management regulations, 2006. There were no licenses from the Authority (NEMA) considering that an incinerator is listed as one of the projects requiring an Environmental Impact Assessment (EIA) in the Environmental Management and Coordination Act (EMCA) of 1999.

In Isiolo District Hospital the incinerator was not up to standard and therefore ineffective for proper hazardous waste handling. A new incinerator was proposed and an Environmental Impact Assessment had been conducted awaiting for commencement of the project.

In Marsabit District Hospital the incinerator was not fully functional i.e. sharps waste was not partially burnt.

In Tana River county Pumwani and Chewani Dispensary Bio medical waste were openly burnt in open pits. It was observed that sharps did not burn and remained in the open pits thus causing an environmental concern.

4.3 Key issues of Environmental Concern from the Audit Exercise

4.3.1 Operation and Maintenance

The Audit team observed that even though APHIAplus IMARISHA programme have tried to incorporate O&M package into the project, spare parts were not be easily accessed such that in case of a breakdown, the committee has to wait for more than two weeks, t thus compromises on sustainability.

4.3.2 Technical Viability

Projects being implemented were technically viable to the users as well as the environment. A project or a facility were working within a given set of design thus quality, efficiency and effectiveness realization.. It is thus recommended that more emphasis be put on the projects designs i.e. the VIP latrines should conform to WHO guideline as well as capture the cultural norms of the residents.

4.3.3 Training and Capacity Building

This is vital in any project implementation, as the users needs particular and specific trainings in order for the project to be sustainable. In addition, Training Needs Assessment may help identify the weaker areas for capacity building. As regards, it is noteworthy to mention that the APHIAplus IMARISHA programme have incorporated training components right from project inception phase to the completion phase. however, follow up of the trainings should also be firmly incorporated for better result i.e. components like O&M, Managerial skills and Conflict management should be appropriately incorporated for the Management Committees.

4.4 Mitigation measures already put in place by the APHIAplus IMARISHA programme to curb some negative impacts associated with the Programme operations

4.4.1 Training and Capacity building;

APHIAplus IMARISHA programme has offered a number of trainings to the community members through the project beneficiaries. This has gone a long way to enhance sustainability and ownership. The committees in particular have been great achievers when it comes to trainings and as such, have enhanced efficiency in the management of their projects i.e. water projects, small scale agriculture, green house management, groups offering care and support services to OVCs and health facilities amongst others. The groups who have benefitted from such trainings are Alakara Shallow Well Water Project in Isiolo, Kelele Shallow Well Water Project in Samburu, Mugur Water Project in Marsabit, Dirib Gombo Women Group ó Marsabit, Nadooto Community Water Project ó Turkana and KIA group in Turkana.

4.4.2 Location of the Projects

APHIAplus IMARISHA programmes are located in areas that can be accessed by the community members, however, some sites which are far such as Nadooto should be visited regularly due to network problems, and also the need to put up some important health facilities such as the delivery units e.g. as needed in St. Patrick's Dispensary in Lodwar town, Turkana County.

4.4.3 Networking and Collaboration;

APHIAplus IMARISHA programme has continued to partner with LIP and CBOs in bid to strengthen ties and to enhance effective service delivery. In Samburu for example, the APHIAplus IMARISHA programme has partnered with KIBA, Catholic Relief Services, Catholic Diocese of Samburu, and Shepherd of life and SCAP, amongst other key stakeholders.

The partnership has also allowed for capacity building and strengthening of both technical and managerial structures of the local stakeholders thereby enhancing their development impact.

4.4.4 Women Empowerment and Integration into the Projects;

Women's role in the management of water facilities is outstanding, they also constitute major users and beneficiaries of the facilities, hence can detect systems' malfunctions early enough for timely correction. Under the APHIAplus IMARISHA Programme, women from the water facilities have been recognized and taken through a series of trainings to capacity built them in order to manage minor breakdown eg the Alakara Shallow Well Water Project in Isiolo County.

4.4.5 Integration of health and social aspect;

The programme under APHIAplus IMARISHA programme applies a holistic approach in their projects implementation, and this is where every aspect that influences development is considered valid in order to achieve the ultimate desirable change. As such, the projects take into account both the health and social aspects of the community to bring about change. In this respect it is important to mention that APHIAPLUS IMARISHA programme constructed a community Maternity Centre for the community called Kisima Model Health Maternity Shelter.

4.4.6 Empowering Local Artisans;

The APHIAplus IMARISHA programme in their programme has been able to empower the local artisans especially with regards to water and sanitation projects, and such a move has been able to enhance sustainability since in case of any breakdown the trained artisans are easily reached to solve the problem. This was witnessed in various water projects renovated by the programme i.e. the Alakara Shallow well.

APHIAplus IMARISHA Kenya has maintained and complied with the various laws and statutes that protect the environment and the general public too.

The organization has adhered to the recommendations from the previous environmental audit by observing the EMP key areas of concern, such as waste management, safety rules, and health and hygiene standards, and the same should be carried out for effective environmental management and improvement with addition of more sanitation facilities such as pit latrines. As a means of monitoring and evaluating environmental performance, the organization needs to create more awareness on environmental protection and care to both the users and the beneficiaries.

CHAPTER FIVE

5.0 ENVIRONMENTAL MANAGEMENT PLAN (EMP)/ AUDIT ACTION PLAN (AP)

5.1 Introduction

The past, present and future negative and positive impacts of the project in terms of the facilities so far established are outlined in this Chapter. In addition, the Chapter also highlights the measures that are already in place or should be put in place, to mitigate the negative impacts associated with the project to this level. In addition, the EMP/AP assigns responsibilities of actions to various actors and provides a timeframe within which mitigation measures and monitoring can be done. EMP/AP is a vital output of an Environmental Audit as it provides a checklist for project monitoring and evaluation.

The EMP/AP therefore examines issues that affect the surrounding community members, as well as any other stakeholders, with special regards to:

- i) Environment
- ii) Health
- iii) Safety and
- iv) Social needs

ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP)

7.1: THE Management Programme for APHIAplus IMARISHA programme for the Year 2014/2015

Impact	Source of Impact	Mitigation Measures	Time frame	Responsibility	Annual Cost (Kshs.) – Per County	Remarks
Solid Waste Generation and Management	-Improper labeling and handling -Medical waste not decontaminated before disposal thus posing a potential for environmental pollution -Medical waste disposed indiscriminately thus posing potential for transmitting diseases -Medical waste not incinerated as per set standards	-Use coated bins -Ensure sorting out is done -Have an expert or a well trained staff in charge of biomedical waste collection - All medical wastes should be incinerated -Waste transportation to the incinerator should be handled with outmost care i.e. use specialized BMW to transport waste (specialized courier)	-Continuous	-Hospital Management/ Facility Manager -County health Coordinators -Water, Sanitation/ OHS Specialists	1.5m	Proper disposal of especially BMW is paramount for effective environmental management.
Liquid waste	From the health facilities	-Have septic tanks	Continuous	-Hospital	300,000	- Proper disposal is

		<ul style="list-style-type: none"> -Regular maintenance of wastewater fittings and pipes -Screened channels to trap solids from liquid wastes. -Connection to an existing sewer -Proper treatment before releasing to a natural environment -Regular water analysis should be carried out to ascertain the waste water in conformity to the NEMA, WHO, and EMCA guidelines -Minimize water usage in as much as possible 		<ul style="list-style-type: none"> Management/ Facility Manager -County health Coordinators -Water, Sanitation/ OHS Specialists 		necessary
	<ul style="list-style-type: none"> -Liquid effluents from the domestic activities i.e. washing hands, cleaning surfaces, washing cloths e.t.c. 	<ul style="list-style-type: none"> -Have septic tanks -Regular maintenance of wastewater fittings and pipes -Screened channels to trap solids from liquid wastes 	Continuous	<ul style="list-style-type: none"> -Hospital Management -Development partners like AMREF HEALTH AFRICA IN KENYA APHIA 	100,000	<ul style="list-style-type: none"> - Septic tanks are available for domestic wastes - Maintenance cost of waste system

		-Fitting of taps to drain wastes appropriately		Plus		Required
Impact	Source of Impact	Mitigation Measures	Time frame	Responsibility	Annual Cost (Kshs.) – Per County	Remarks
Procurement, Storage, Management and Disposal of Public Health Commodities	-Improper storage of commodities (HIV test kits, ARVs and Opportunistic Infections drugs, Contraceptives, condom, nutrition supplements) -Improper disposal of commodities, chemicals or expired drugs (ARVs, OI drugs, contraceptives) -Improper disposal of commodities packaging	-Provide technical assistance and train facility in- charges and other health workers on safe storage procedures of various commodities -Educate, give technical assistance and train facility in- charges and other health workers on safe and appropriate waste disposal including destruction of obsolete drugs and chemical -Sensitization and training about safe handling, storage and	Quarterly	-County Facility Managers/ County health Coordinators	500,000	- Training - Increase proportion of Health facilities with or linked to Incinerators

	materials -Improper disposal of used items like Condoms and HIV Test kits	disposal of wastes -Facilitation and support Sub Grantees on appropriate disposal of wastes -Re-orient health workers and partners on universal safe waste disposal guidelines -Support establishment of linkages between health facilities to available incinerators				
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Education, Technical Assistance, or Training etc.	-Improper disposal of training materials such as Condoms and waste paper used during training	-Sensitization and education of community members and trainees on associated risks and appropriate disposal -Mentorship support on mitigation where applicable	-Annually	-County Health Coordinators -Health Facility Managers -Mentors and Technical Assistance teams	200,000	- Training is mandatory for Effective Implementation
Small Scale Rehabilitation of Hospitals, Clinics,	-Ground excavation during renovations resulting to interfering with area ecosystem	-Sensitize contractors on the need to conserve the environment -Ensure all constructions	Quarterly	-County Health Coordinators -County Health Facility	Contract Sum	-Supervisory site Visits -Review of rehabilitation/ren

<p>laboratories,</p> <p>VCT or</p> <p>Training Centers</p>	<p>-Potential pollution from</p> <p>insanitary drainages, dust and noise as well as physical injuries</p> <p>-Indiscriminate disposal of wastes/ construction materials affecting aesthetics, harboring disease vector and vermin</p> <p>-Contamination of ground water and surface water through improper disposal on toxic materials used in construction materials e.g. paint and solvents</p>	<p>adhere to relevant laws (public health Act, EMCA, building code etc)</p> <p>- Sensitize contractors to safely dispose construction waste materials</p>		<p>Managers/</p> <p>-Water and Sanitation/ OHS Specialists</p>		<p>ov</p> <p>ation contract</p> <p>Documents</p>
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Impact	Source of Impact	Mitigation Measures	Time frame	Responsibility	Annual Cost (Kshs.) – Per County	Remarks
Small Scale Water and Sanitation	-Digging of new wells/ boreholes could result into depletion of aquifers and pollution of ground water sources -Contamination of ground water due to improperly constructed sanitation facilities	-Implement interventions in accordance with principles of USAID Environmental Guidelines for Small-Scale Activities in Africa as well as GOK guidelines (e.g. NEMA and WRMA guidelines). -Develop checklist to ensure adherence to the above guidelines and principles	Quarterly	Water and Sanitation Specialist	Contract Sum	-Site monitoring & Evaluation visits and review of project documents
Small-Scale Agricultural Activities	- Overgrazing could lead to land degradation - Deforestation as a result of clearing of sites for farming. - Poor farming methods	- Sensitize and train the project partners and beneficiaries on eco-friendly animal husbandry and farming methods. - Promote reforestation and agro-forestry	Quarterly	County Health Coordinators/ Line Government Ministries	300,000	-Regular site monitoring visits - Review of reports

	<p>could cause erosion and siltation of water bodies</p> <ul style="list-style-type: none">- Inappropriate use of agricultural chemicals may cause negative health effects	<ul style="list-style-type: none">- Train farmers and pastoralists on proper use of agricultural chemicals				
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Impact	Source of Impact	Mitigation Measures	Time frame	Responsibility	Annual Cost (Kshs.) – Per County	Remarks
Use of Pesticides	-Environmental pollution arising from use of pesticides for control of termite during renovation and construction of facilities. -Improper use and handling of pesticides for agricultural activities causing negative health effects - Improper disposal of expired pesticides may polluting the environment	-Implement interventions in accordance with principles of e above USAID Environmental Guidelines for Small-Scale Activities in Africa and GOK guidelines. -Develop checklist to ensure the above guidelines are adhered to. - Sensitize and train project partners and beneficiaries on proper handling and use of pesticides -Sensitize partners and beneficiaries on integrated pest management control	Quarterly	County health coordinators	Contract Sum/70,000	-Records review - Site monitoring and evaluation visits

Greenhouse

Impact	Source of Impact	Mitigation Measures	Time frame	Responsibility	Annual Cost	Remarks
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					(Kshs.)	
No accountability of farm produce	Lack of book keeping	<ul style="list-style-type: none"> - Offer trainings on how to keep records - Sensitization on the importance of book keeping - Engaging qualified personnel from time to time 	continuous	Management	120,000/=	<p>Efforts have been made on trainings;</p> <p>but more should continue</p>
Accidents and injuries in the greenhouse	<ul style="list-style-type: none"> -Affected while on farm e.g. when spraying chemicals -Human error -Lack of protective devices. 	<ul style="list-style-type: none"> -Protective clothing and safety gadgets to be provided during the exercise -Take milk after spraying exercise -Provision of a well equipped first Aid kits -Trained First Aider should be on site at all times -Put warning notices in unsafe areas -Carry out regular risk assessment at the Workplace 	Continuous	Management	120,000/=	<ul style="list-style-type: none"> - A lot has been achieved, however, adequate and more effective protective clothing and accessories should be offered to workers. - The workers also to be sensitized on the importance of wearing

		<ul style="list-style-type: none"> -Workers should be fully covered by insurance as stipulated in the workman's compensation Act/ WIBA. -Ensure provision for reporting accidental and dangerous incidents, accidents and any other occurrences during operation at the greenhouse - Old materials and equipment should be replaced 				protective clothing.
Insecurity and safety at the Premises	-Unauthorized people within the premises	<ul style="list-style-type: none"> -Construct perimeter or fence all around site and unsafe areas -Contract reputable security firm to man all entrances and exits and provide surveillance as appropriate. -Install adequate security lights and alarms. 	Continuous	Management	Project cost/ 120,000/=	-Achieved, but need to be maintained

Air pollution	- Chemical and gas emission from the greenhouse	-Plant trees around to absorb the carbon emissions -Grass and pave outside ground surfaces and wet clean inside areas to minimize emissions	Continuous	Management	120,000/=	Most of the outside locations are grassed
Unemployment	- Unemployment to the locals	-Prioritize the employment of locals in the greenhouse -Enhance development of skills through periodic training programs where the locals are engaged	Continuous	Management	60,000/=	Being practiced, but training should be maintained
Water shortages	-Dependent on water from the parish -Salty water	-Installation of adequate storage tanks - Turn off taps when not in use to avoid wastage -Provision of strategic water sources by way of well sited borehole drilling -Practice water harvesting	Continuous	Management	Project Sum/ 300,000/=	Installation of storage tanks done
Environment	Environmental degradation	- Formulation of Environmental Policy within the Facilities - Planting of crops, grass	Once-off/ Continuous	Management	160,000/=	This policy will be a guideline to the Facility on all

		and paving of surfaces (including maintenance) to prevent the soil from being bare				issues affecting the environment. Paving of outside surfaces has to a large extent been done
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CHAPTER EIGHT

8.0 CONCLUSIONS AND RECOMMENDATIONS

APHIAplus IMARISHA programmes audited during this exercise have fairly complied with USAID environmental guidelines for small scale activities in Africa as well as legal requirements as per Environmental Management Coordination act, 1999, EIA/EA regulations 2003 and Waste Management regulations 2006. It is therefore thus strongly recommended that these measures be aggressively implemented to ensure the sustainability of the said projects. A compliance rating from the review of Initial Environmental Examination is quite commendable and therefore agrees that projects should be granted the necessary compliance approvals as appropriate.

8.1 Recommendations

Recommendations for each project have been outlined in the main documents and the recommendations under this section are just more or less generalized.

- All the implementing partners should integrate environmental mitigation and monitoring plans in their work plans.
- Networking and linkages are key for sustainable development in the project areas
- County directors of health to ensure the new incinerators are licensed under the waste management regulations 2006
- APHIAplus IMARISHA programme to support training of key field staff on how to conduct environmental screening of projects.
- More training/refresher courses should be conducted to all the projects beneficiaries under APHIAplus IMARISHA programme.

RERERENCES

1. Agriculture Act 2012
2. Constitution of Kenya 2010
3. Environmental Management and Coordination Act No. 8 of 1999
4. Land Titles Act Cap 282 - Section 10 (1)
5. Malaria Prevention Act Cap 246 (Section 6 and 8)
6. Occupation Safety and Health Act 2007 (No. 10 of 2007)
7. Public Health Act 2002
8. Registration of Titles Act Cap 282 (Section 34)
9. 2013 Environmental Audit Summary Report
10. Kenya Vision 2030
11. Kenya Vision 2030 ó Second Medium Term Plan (2013-2017)

ANNEXES

ANNEX 1: LIST OF CONSULTANTS

NAME	COMPANY/INSTITUTION
Francis Asunah	Lead Expert(EIA/Audits) – WATERSAN
Ms. Sheila Okal	Assisting Expert (Sociologist)- WATERSAN
Clement Obong'	Assisting Expert (Civil Engineering) – WATERSAN
Faith Obura	Assisting Expert (Community Development)- WATERSAN
Paul Ngosi	Assisting Expert (Water Engineer) – WATERSAN
Lyne Agingu	Assisting Expert (Environmentalist) – WATERSAN
Rosebellah Akinyi	Assisting Expert (Community Development) – WATERSAN

ANNEX 2: LEAD EXPRT EIA/ EA NEMA CERTIFICATE (2014 & 2015)

FEBRUARY 6, 2014



National Environment Management Authority
P. O. Box 67839 - 00200
Nairobi, Kenya
Tel: 020 600 55 22/3/6/7 Fax: 020 600 19 45
www.nema.go.ke Email: dgnema.go.ke

Receipt No: 38014 Date: 02/02/14 Time: 11:00:01

Account Code: EIA Registration Fee

Name: FIVE TONS LEAD EXPORT

Amount in words: 5,000.00

Cash Amount: EIA Registration Fee Cheque

Being Payment of

Your account has been credited with the value of this receipt.

With Thanks Signature For NEMA - Kenya

Amount to Total Amount Change

ANNEX 3: PHOTO GALLERY



*Waste bins seen in CCC department ,
Marsabit DH*



Water tank at Muger



Water tank at Chewele Dispensary



Latrines at Chewele Primary School



*Alakara community shallow well
renovated by APHIAplus IMARISHA*



*Drip irrigation supported by
IMARISHA in Eremet camp*



*EA team, APHIAplus IMARISHA
staffs and IDH staffs in a consultative
meeting – Isiolo Referral Hospital*



*Kisima Model Health Centre Maternal
Shelter*

Annex 4: Waste Management Checklist For Healthcare Wastes, Agriculture And Water systems

Location.....Monitoring Officer.....			
Date.....Check.....			
	Yes	No	Remarks
1. Procurement of Commodities and Services			
Does the health care facility have a central system in place for tracking and quantifying the amount of chemicals purchased, dispensed and disposed off			
Does the current inventory system minimize the amount of waste that will be generated due to over purchasing			
Upon arrival of purchased materials, is a central receiving department or person in charge for verifying that the order is correct			
Are records kept of chemicals, medical supplies and equipment beginning with their arrival, the history of their use and final destination			
Are materials and drugs used on first-in first-out order to avoid expiration of their shelf life?			
Does the health care facility use a standard procedure for the labeling of chemicals and wastes			
Does the facility have minimal, reusable, recyclable, or returnable packaging containers when possible?			
Does the facility have a system for monitoring chemical inventories and waste?			

Are unopened, surplus, obsolete, outdated supplies returned to supplier unused drugs returned?			
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Do you perform an inventory of all waste streams on a regular basis?			
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2. Medical Waste Incinerators			
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Does the facility have an incinerator?			
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Is there mercury, lead and hydrochloric acid pollution from the incinerator or does it have effective air pollution control device?			
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What other form of waste treatment is applied?			
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Are these other methods regulated?			
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Has the staff been informed of the environmental and human health impacts of improper waste segregation and disposal of waste that can lead to toxic releases?			
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Can the health care facility determine how much of its waste stream is incinerated? Kgs per month/year?			
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Has the health care facility taken steps to eliminate the non essential incineration of medical waste			
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Is there a placenta pit in place			
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3. Hazardous and Solid Waste			
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Has the health care facility assessed whether nontoxic alternatives exist for each hazardous material utilized?			
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Has the quantity of hazardous waste being generated each month been determined?			
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Have all waste water discharges been identified and evaluated to determine whether they are managed properly (Do they meet the NEMA effluent discharge standards?)			
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Have employees been trained in the hazardous waste regulations (e.g., labeling, storage, spill prevention and manifesting requirements)?			
Does the facility have a written spill prevention plan?			
Have employees been trained in spill reporting requirements?			
Are spill and cleanup kits available nearby?			

Have employees been trained in identifying waste types and appropriate waste segregation?			
Are all waste streams properly segregated and labeled?			
Are chemicals stored in accordance with OSH Act, 2007 and manufacturers' recommendations?			
Are chemical containers returned to the supplier for reuse?			
Are hazardous wastes stored in a central location?			
Are mechanical aids used in handling drums to reduce spills?			
Is one person responsible for tracking the waste that is generated?			
Has the health care facility investigated the utilization of sterilization methods/ solvents safely?			
Do the virgin/waste materials storage areas have a berm and sump drain to contain spills and leaks?			
Have you sealed all floor drains in areas that are used for the storage of hazardous materials?			
Does the health care facility store all hazardous materials and empty containers separate from nonhazardous materials and containers?			
Is the use of alternative products in place of PVC material encouraged? (e.g. catheters, bed pans)			
Has the health care facility implemented a PVC free purchasing policy?			

Have all of the products which contain PVC plastic been identified?			
Have PVC products been replaced by non-PVC products where possible?			
Have alternatives to PVC plastics products been explored? Has the health care facility considered switching from vinyl gloves to nitrile gloves?			

Does the health care facility recycle unused PVC plastic apparatus? (i.e., wash bins, water Pitchers, cups, etc.)			
Are sharps containers PVC-free (i.e., polyethylene or reusable)?			
If not, have these alternatives been considered?			
4. Solvents			
Are pollution prevention strategies used to eliminate solvent use by using nontoxic alternatives, or to reduce both the toxicity and the quantity of spent solvents?			
Are aqueous reagents/ simple alcohols and ketones instead of petroleum hydrocarbons?			
Are different solvent waste streams segregated so that they can be recycled?			
Are waste solvents being recycled off-site?			
If different solvents are used for cleaning, can they be replaced with a multipurpose solvent that can be used for a variety of applications?			
Can nontoxic alternatives to solvents be used where possible?			
Can less-toxic and less-flammable solvents be used where possible?			

Does the health care facility have a Mercury Management Program?			
Is mercury containing medical devices being replaced with mercury free less toxic alternatives?			
Have equipment and supplies that contain mercury been identified?			
Does the health care facility completely drain and recycle all residual mercury from thermometer and other medical devices prior to discarding the equipment?			

Is there a regular inspection of sewer traps and catch basins to prevent release of mercury to the environment?			
Have employees been trained in the hazards of mercury, spill cleanup and the proper handling and reporting of mercury waste?			

5. Chemotherapy			
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Are chemotherapy wastes placed into a leak proof, rigid container and kept segregated from other wastes?			
Are drug containers purchased in amounts that minimize the amount of out-of-date material?			
Are drugs purchased in container sizes that permit formulation of daily dosages with the least quantity of excess product leftover?			
Can chemotherapy compounding stations be centralized to improve management of chemotherapy waste?			
Are appropriate personnel trained to transport and handle chemotherapy waste in a safe manner to prevent exposure?			

Are chemotherapy drugs prepared under a biological safety hood?			
Have employees been trained in chemotherapy drug handling, safety, waste minimization and, spill containment and clean up procedures?			
Are spill cleanup kits available in the compounding area that contain both small and large absorbent devices			
6. Agricultural Related Products			
Which types of chemicals do you use in your farms/greenhouse			
What is the strategy you employ in the disposal and management of wastes from the farms/green house			
Do you have an expert in your farm that is charged with waste management!			
How often do you spray your farm/greenhouse			
How do you do recycling of wastes within the farm/greenhouse if at all you practice!			
7. Water Supply Systems			
How often do you replace the spare parts			
How available and accessible are the spare parts			
Was the committee trained and on what components			
Was there training offered to the local artisans, if yes how many people were trained! How many can attend to any operational problem/malfunctions of the water supply system			

