

MINISTRY OF ENVIRONMENT, SCIENCE, TECHNOLOGY & INNOVATION (MESTI)

ANNUAL PROGRESS REPORT 2014

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LIST OF ACRONYMS

BDC	Bulk oil Distribution Company
CEP	Corporate Environmental Policy
COMSATS	Commission of Science and Technology for Development in the South
CRP	Coordinated Research Project
CSIR	Council for Scientific and Industrial Research
DP	Development Partners
EI	Executive Instrument
EIA	Environmental Impact Assessment
EMP	Environmental Management Plans
EPA	Environmental Protection Agency
EPRD	Environmental Performance Rating and Public
F&A	Finance and Administration
FRISMO	Food Research Institute Smoke Oven
GAEC	Ghana Atomic Energy Commission
GCNet	Ghana Community Network Services Limited
GDP	Gross Domestic Product
GE	Green Economy
GET Fund	Ghana Education Trust Fund
GoG	Government of Ghana
GRAC	Ghana Radio Astronomy Club
GSGDA	Ghana Shared Growth and Development Agenda
GSTDTP	Ghana Skills and Technology Development Project

GTUC	Ghana Telecom University College
IAEA	International Atomic Energy Agency
IAS	Invasive Alien Species
IGF	Internally Generated Funds
LCG	Low Carbon Growth
LI	Legislative Instrument
M&E	Monitoring and Evaluation
MAB	Man and Biosphere
MASTESS	Mathematics, Science and Technology Scholarship Scheme
MDA	Ministries, Departments and Agencies
MEST	Ministry of Environment, Science and Technology
MESTI	Ministry of Environment, Science, Technology and Innovation
MMDAs	Metropolitan, Municipal and District Assemblies
MoU	Memorandum of Understanding
MWRWH	Ministry of Water Resources Works and Housing
NAMA	Nationally Appropriate Mitigation Measures
NDPC	National Development Planning Commission
NDT	Non Destructive Testing
NGO	Non-Governmental Organisation
NM	Nuclear Material
NRA	Nuclear Regulatory Authority
NREG	Natural Resources and Environment Governance
NREG-TA	Natural Resources and Environment Governance Technical Assistance

NWWCC	National Water Weed Control Committee
OHCS	Office of the Head of the Civil Service
OMC	Oil Marketing Company
PEA	Preliminary Environmental Assessment
PPA	Public Procurement Act
PPME	Policy Planning, Monitoring and Evaluation
R&D	Research and Development
RS	Radioactive Sources
RWHS	Rain Water Harvesting System
SDAP	Sustainable Development Action Plan
SDG	Sustainable Development Goal
SEA	Strategic Environmental Assessment
SLWMP	Sustainable Land and Water Management Project
SMTDP	Sector Medium Term Development Plan
SNAS	School of Nuclear and Allied Sciences
SONA	State of Nation's Address
STI	Science, Technology and Innovation
TCPD	Town and Country Planning Department
TRC	Technical Review Committee
UAV	Unmanned Area Vehicle
UNESCO	United Nations Educational, Scientific and Cultural Organization
VOC	Volatic Organic Compound
WACEE	West Africa Clean Energy and Environment Exhibition and Conference

1. INTRODUCTION

1.1 Background

The Ministry of Environment, Science, Technology and Innovation (MESTI) forms part of the Central Management Agencies of government machinery. It was created in 1993 as the Ministry of Environment and Science and abolished in 2006 (the Environment portfolio was added to the Local Government Ministry; and Science, added to the Education Ministry). The Ministry was reconstituted in January 2009, and named Ministry of Environment, Science and Technology (MEST); under Executive Instrument (E.I.) 7 Civil Service (Ministries) Instrument, 2009. However in 2013, the Ministry was renamed Ministry of Environment, Science, Technology and Innovation (MESTI), under Executive Instrument (E.I.) 1 Civil Service (Ministries) Instrument, 2013.

1.2 Mission

The Ministry of Environment, Science, Technology and Innovation (MESTI) exists to promote sustainable development by deepening and strengthening market driven Research and Development (R&D) for sound Environmental Governance, Science, Technology and Innovation through intensive awareness creation, collaboration and partnership.

1.3 Vision

The Ministry of Environment, Science, Technology and Innovation (MESTI) envisages to attain sustainable development through the utilization of Science, Technology and Innovation for wealth creation and sound environmental governance in a modern and competitive economy.

1.4 Sector Goal

The Ministry of Environment, Science, Technology and Innovation (MESTI) seeks to ensure accelerated socio-economic development of the nation through the formulation of sound policies and a regulatory framework to promote the use of appropriate environmentally friendly, scientific, and technological practices.

1.5 Objectives

The adopted policy objectives of the Ministry are to

- Strengthen institutional and regulatory frameworks for sustainable natural resource management;
- Reduce loss of biodiversity;
- Enhance capacity to adapt to climate change impacts;
- Promote green economy;
- Promote the application of Science, Technology and Innovation in all sectors of the economy;
- Strengthen the institutional framework to promote the development of research and its application;
- Strengthen policy formulation, development planning, and M&E processes for equitable and balanced spatial and socio- economic development; and
- Promote a sustainable, spatially integrated and orderly development of human settlements.

1.6 Functions

The core functions of the Ministry are to:

1. Provide leadership and guidance for Environment, Science, Technology and Innovation within the broad sector of the economy through sound policy formulation and implementation;
2. Ensure the establishment of the regulatory framework and setting of standards to govern the activities of science and technology and the management of the environment for sustainable development;
3. Promote activities needed to underpin the standards and policies required for planning and implementation of sound scientific and technological development activities;
4. Ensure the coordination, supervision, monitoring and evaluation of activities of Environment, Science, Technology and Innovation while fulfilling national benefits-sharing commitments;
5. Set out the parameters required for programmes on environment, science, technology and human settlement in consultation with the National Development Planning Commission (NDPC) in guiding the Districts Assemblies as the planning authorities at the local level;
6. Analyse and coordinate all planned programmes as well as budgets in the environment, science, technology and innovation sector of the economy for purposes of achieving a single integrated management system;

7. Initiate, simulate and coordinate research including the continuous development and review of policies, laws, rules and regulations in the environment, science, technology and innovation sector of the economy; and
8. Ensure effective environmental management and governance, in line with the functions of the Act 490, with the Environmental Protection Agency (EPA) as the main implementing agency and the MESTI playing an oversight, coordination and facilitating role.

1.7 LIST OF SECTOR DEPARTMENTS AND AGENCIES

1.7.1 Council for Scientific and Industrial Research

The Council for Scientific and Industrial Research (CSIR) is the foremost national science and technology institution in Ghana. The CSIR traces its ancestry to the erstwhile National Research Council (NRC) of August 1958, which was re-established in its present form by NLC Decree 293 of October 10, 1968 to organize and co-ordinate scientific research in Ghana for accelerated national development. The Council is broadly mandated by the CSIR Act, 1996 (Act 521), to pursue the implementation of government policies on scientific and technological research for national development and commercialize appropriate technologies, in partnership with the private sector and other stakeholders, for the development of Industry, Agriculture, Agro-processing, Fisheries, Forestry, Water Resources, Building and Road Construction, Environment, Health, Natural Resources and Social Services. The specific functions of the CSIR are:

- a. To encourage in the national interest, scientific and industrial research of importance for the development of agriculture, health, medicine, environment, technology and other service sectors of the economy;
- b. To co-ordinate all aspects of scientific research nationwide and ensure that the Council, the research institutes of the Council and other organizations engaged in research in Ghana coordinate and cooperate in their research efforts;
- c. To advise the sector Minister (MESTI) on scientific and technological advances likely to be of importance to national development;
- d. To assist government in the formulation of S&T policies for the realization of its development objectives;
- e. To encourage coordinated employment of scientific research for the management, utilization and conservation of the natural resources of Ghana for national development;
- f. To commercialize appropriate technologies in partnership with the private sector and other stakeholders; and
- g. To develop, package and disseminate S&T information.

The CSIR currently consists of a Head Office and thirteen (13) Research Institutes spread nationwide. Each Institute has a specific mandate to conduct Research and Development (R&D) activities, which are coordinated by the Head Office, for scientific and technological development in the broad areas of agriculture, industry, agro-processing, fisheries, Forestry, water resources, building and road construction, environment, health, natural and social sciences. The CSIR Research Institutes are:

- i. Animal Research Institute (ARI), Accra;
- ii. Building and Road Research Institute (BRRI), Kumasi;
- iii. Crops Research Institute (CRI), Kumasi;
- iv. Food Research Institute (FRI), Accra;

- v. Forestry Research Institute of Ghana (FORIG), Kumasi;
- vi. Institute of Industrial Research (IIR), Accra;
- vii. Institute for Scientific and Technological Information (INSTI), Accra;
- viii. Oil Palm Research Institute (OPRI), Kusi-Kade;
- ix. Plant Genetic Resources Research Institute (PGRI), Bunso;
- x. Savannah Agricultural Research Institute (SARI), Nyankpala, Tamale;
- xi. Science and Technology Policy Research Institute (STEPRI), Accra;
- xii. Soil Research Institute (SRI), Kwadaso, Kumasi; and
- xiii. Water Research Institute (WRI), Accra.

1.7.2 Ghana Atomic Energy Commission

As determined by the Atomic Energy Commission Act, 2000 (Act 588) the Commission (Board) is responsible for the governance of the Ghana Atomic Energy Commission (GAEC). It consists of a Chairman, the Director-General and five other members all appointed by His Excellency the President of the Republic of Ghana acting in consultation with the Council of State based on their suitability to serve in such positions. The Commission is answerable to the Ministry of Environment, Science, Technology and Innovation (MESTI).

The Secretariat is responsible for the day-to-day administration of the Commission and is headed by the Director-General who is the Chief Executive Officer of the Commission. The Director-General is assisted by a Deputy who has been delegated oversight responsibility of all Scientific and Technical matters of the Commission.

Functions and Activities

The functions of the Commission as prescribed by the new Act, 2000 (Act 588) are:

- a. To make proposals to the Government for Legislation in the field of nuclear radiation and radioactive waste management;
- b. To advise the Government on questions relating to nuclear energy, science and technology;
- c. To establish, for the purpose of research and in furtherance of its functions, Institutes of the Commission and to exercise control over the boards of management of the Institute;
- d. To encourage and promote the commercialization of research and development results through its Institutes;
- e. To supervise the carrying out of all requirements designed to secure the safety and health of radiation workers and the environment;
- f. To engage in research and development activities, as well as in the publication and dissemination of research findings and other useful technical information;
- g. To oversee and facilitate the development of human resources in the fields of nuclear science and technology, and to promote the training of scientific, technical and non-scientific personnel of the Commission;
- h. To maintain relations with the International Atomic Energy Agency and other similar international and national organizations on matters of research and development of nuclear energy and nuclear technology; and
- i. To collaborate with Universities and Research Institutes for the purpose of conducting research into matters connected with the peaceful uses of nuclear energy and technology.

Currently, GAEC has six (6) Institutes namely:

- i. National Nuclear Research Institute (NNRI);
- ii. Biotechnology and Nuclear Agriculture Research Institute (BNARI);
- iii. Radiation Protection Institute (RPI);
- iv. Radiological and Medical Sciences Research Institute (RAMSRI);
- v. Graduate School of Nuclear and Allied Sciences (SNAS); and
- vi. Ghana Space Science and Technology Institute (GSSTI).

1.7.3 Environmental Protection Agency

The Environmental Protection Agency (EPA) was established by the Environmental Protection Act 1994 (Act 490). It is the leading public body for protecting and improving the environment in Ghana. A 12-member Board of Directors, appointed by the President of Ghana, supervises its operations. However, the management and operations are supervised by an Executive Director and seven divisional heads (Directors).

EPA seeks to:

- a. Create awareness to mainstream environment into the development process at the national, regional, district and community levels;
- b. Ensure that the implementation of environmental policy and planning are integrated and consistent with the country's desire for effective, long-term maintenance of environmental quality;
- c. Ensure environmentally sound and efficient use of both renewable and non-renewable resources in the process of national development;
- d. Guide development to prevent, reduce, and as far as possible, eliminate pollution and actions that lower the quality of life;
- e. To apply the legal processes in a fair and equitable manner to ensure responsible environmental behaviour in the country;
- f. Continuously improve EPA's performance to meet changing environmental trends and community aspirations; and
- g. Encourage and reward a commitment by all EPA staff to a culture based on continuous improvement and on working in partnership with all members of the Ghanaian community.

The field operations of the Environmental Protection Agency are undertaken in all ten (10) administrative regions of Ghana.

1.7.4 Town and Country Planning Department

The Town and Country Planning Department (TCPD) performs the following key functions as spelt out in its establishment mandate:

- a. Planning and management of physical development and growth of human settlements in the country;
- b. Preparation of spatial and land use plans;
- c. Monitoring settlement growth and controlling development to ensure that human settlements function as healthy places for residence, work, and recreation;
- d. Facilitating the processing of development and building permits; and
- e. Provision of general land use planning and urban development advice.

The TCPD however performs the following specific functions at the various levels of its operation, namely, the national, regional and district levels.

National Office/Town and Country Planning Authority (TCPA)

- a. Researching into spatial planning and urban management issues;
- b. Formulation of human settlements policy;
- c. Formulating and reviewing laws on human settlement development, land use planning and management matters;
- d. Setting Spatial Planning Standards;
- e. Preparation of spatial planning guidelines and development of permitting procedures;
- f. Provision of technical advisory services on human settlements to Government, the local government service, public organisations, private sector and the general public;
- g. Monitoring and Evaluating performance of Regional and District level spatial and land use planning;
- h. Management of special projects;
- i. Public education and awareness on spatial and land use planning issues; and
- j. Human resource planning and capacity building for effective town and country planning.

Regional Level

- a. Ensuring that the land use plans prepared by the District Physical Planning Departments reflect the Medium Term Development Plans (MTDPs);
- b. Ensuring the harmonization of spatial plans of the MMDAs;
- c. Leading the process of preparing Regional Spatial Development Frameworks;
- d. Monitoring and ensuring quality control of spatial and land use plans at the District level;
- e. Overseeing operations of the districts without established physical planning offices or professional planners; and
- f. Providing technical guidance for both public and private institutions and individuals.

District Level

- a. Preparation of District Spatial Development Framework Plans;
- b. Preparation of Structure Plans for urban settlements;
- c. Preparation of Local Plans or detailed planning schemes;
- d. Processing of planning schemes and development applications for consideration of the District Assemblies;
- e. Monitoring urban development processes and recommending for management by the District Assemblies;
- f. Contributing to the preparation of the District Medium Term Development Plans (DMTDP); and
- g. Providing technical guidance for both public and private institutions and individuals.

1.7.5 NATIONAL BIOSAFETY AUTHORITY (NBA)

Ghana became a Party to the Cartagena Protocol on Biosafety after ratifying it in May 2004 with the aim of ensuring the safe use, transfer and handling of Genetically Modified Organisms (GMOs) in the country. This objective draws its strength from the 1992 constitution which identifies science and technology as one of the modes to be employed to drive the socio-economic development of Ghana.

Based upon this, a comprehensive biosafety framework was developed which proposed the Biosafety Bill which was eventually passed into law in December, 2011. The Biosafety Act, 2011 (Act 831) established the National Biosafety Authority (NBA) to receive, process, respond to and making decisions on applications under the Act; to establish an administrative mechanism to ensure the appropriate handling and storage of documents and data in connection with applications and other matters covered under the Act. Again, to act as the National Focal Point responsible for liaising with any other agencies or international organizations concerned with biotechnology and biosafety and lastly to promote public awareness, participation and education concerning the activities of the Authority under the Act.

To ensure an integrated approach to the regulation of modern biotechnology and its products, the Act enjoins the Authority to operate in conjunction with other regulatory agencies such as the Food and Drugs Authority (FDA), Ghana Standards Authority (GSA), Customs Division of the Ghana Revenue Authority, the Environmental Protection Agency (EPA), Veterinary Division, the Plant Protection and Regulatory Services Division (PPRSD) and the Ministry of Local Government and Rural Development. In addition, the Authority is represented by certified Institutional Biosafety Committees (IBCs) in research and academic institutions conducting research on Genetically Modified Organisms (GMOs) in Ghana. The Act has also established a Technical Advisory Committee to support the Authority in conducting risk assessment and management of GMOs and also to provide scientific advice to the Authority on issues under the Act. Furthermore, the Authority is supported by an Appeals Tribunal which deals with concerns of aggrieved persons on issues regarding applications and other matters under the Act.

Strategic Objectives of the NBA

- a. To establish a biosafety system that ensures safe use, handling and transport of Genetically Modified Organisms in Ghana.
- b. To produce professionals at all levels of biosafety through tailored formal and non-formal practical training.
- c. To effectively educate and inform the public on activities under the Biosafety Act to promote confidence and participation in biosafety activities.
- d. To provide an opportunity to the public to make informed choices among variety of products in the area of nutrition, health and the environment.

1.8 Purpose of the M&E for 2014

MESTI in partnership with its Development Partners dedicates considerable funds to implement its development interventions as spelt out in the Sector Medium Term Development Plan (2014-

2017). The Sector Medium Term Plan was prepared in accordance with the Ghana Shared Growth and Development Agenda -2014-2017 (GSGDA II).

As a result, the 2014 Progress Report seeks to track the implementation of planned activities contained in the Sector Medium Term Development Plan. The main aim of the Report is to monitor the implementation of the SMTDP and also ensure that set goals and objectives are achieved.

The Report will help the MESTI

- Assess whether SMTDP developmental targets are being met.
- Identify achievements, constraints and failures so that improvements can be made to the SMTDP and project designs to achieve better impact.
- Collate information for effective coordination of environmental, science, technology and innovation interventions.
- Provide government, development partners and the general public with information on lessons learnt.
- Reinforce ownership of the SMTDP and build M&E capacity within the Sector.
- Promote joint monitoring and evaluation of Sector projects and programmes and provide data and information for policy formulation and design of future projects and programmes; and
- Provide information for evidence based decision making.

1.9 Process Involved and Difficulties Encountered

The following steps were followed in the preparation of the MESTI Progress Report:

- The Ministry obtained the NDPC format for the preparation of the Annual/Yearly Progress Reports
- Going by the format, the PPME Directorate drew up a reporting format and template to obtain the required inputs from the Directorates/Department/Agencies
- The reporting format and template were distributed to the Directorates/Department/Agencies with deadlines for submission of inputs
- The PPME Directorate then compiled inputs into the first draft
- The Directorates/Department/Agencies were given copies of the draft for their comments
- The PPME Directorate finalised the report and submitted to NDPC.

The difficulty in putting this Report together had to do with the late submission of inputs from the various Directorates/Department/Agencies.

2 M&E ACTIVITIES REPORT

2.1 Programme/Project Status for 2014 (Performance in 2014)

The status of implementing the various programmes/projects of the Ministry are provided, based on the four (4) budget programmes of the Ministry, namely Management and Administration, Research and Development, Environmental Protection & Management and Spatial Planning & Human Settlement.

2.1.1 Programme 1 - Management and Administration

- In July 2014, H.E. the President launched the National Climate Change Policy and the National Environmental Policy to demonstrate the country's commitment to sustainable development devoid of pollution, environmental degradation and deforestation.
- Under the implementation of the Policy on the Use of the local Building Materials in the Construction Industry, the National local Material Resource Training Centre was completed and launched at the CSIR-BRRI, 50 masons were trained in the use of clay bricks and tiles as well as related local materials, a sensitization seminar for about 100 Architects and professionals of the built environment on the use of local building materials was held.
- The Ministry of Environment, Science, Technology and Innovation (MESTI), collaborated with Apex Pollution Control Company Limited (Apex-PCCI) to undertake a programme to test vehicles emissions under a Public Private Partnership (PPP) arrangement.
- Reviewed and monitored the Coastal Zone Sanitation Programme in all four (4) coastal regions
- Prepared and validated Green Economy scoping study report (final draft)
- Planned and celebrated various international Scientific and Environmental Days

2.1.2 Programme 2 - Research and Development

- The Council for Scientific and Industrial Research (CSIR) developed pest management strategies using seeds extract of Jatrofa and Neem plants to protect groundnut pods from insects damage for a storage period of six months to reduce post-harvest losses.

- The CSIR developed technologies to improve post-harvest management of cassava and yam to reduce physical losses and enhance their economic value through value-added processing and valorisation of waste products.
- CSIR trained rice farmers, processors and millers in the Northern and Volta Regions and assisted in capacity expansion and improvement of parboiling vessels to upscale stakeholders' processing capacity in the rice value chain.
- The Council has successfully conducted post-harvest surveys on 22 rice mills in the Greater Accra Region aimed at providing technical assistance on rice post-harvest handling, milling, marketing and development of new rice-based products.
- The CSIR also developed potentially cost effective feed packages for small ruminants to improve productivity of sheep and goats as well as using root and tuber crop by-products to develop feed for livestock production, specifically for pigs; as well as having developed feed packages for commercial rearing of grass cutters to enhance meat production and livelihood of small-scale farmers.
- The Council has successfully determined that improved health management and supplementary feeding of small ruminants in the Upper East and Upper West Regions in the rainy season increase their production by 4 to 6% and improves farmers' incomes and livelihoods.
- The CSIR promoted the utilization of Biochar among farmers to improve soil fertility and crop productivity by improving soil structure, water holding capacity and reduce the leaching of nutrients into the soil.
- The Council also established that combined rainwater management and soil fertility improvement techniques have better effect on seed and biomass yields of maize and soybeans in the three Northern Regions.
- CSIR organized training workshops to transfer composite flour baking technology to small holder food processors; to enhance better access to growth markets for High Quality Cassava flour.
- CSIR sensitized policy makers and some smallholder farmers in Ghana on the impacts of Climate change in smallholder agricultural productivity in the bread basket regions of Ghana.
- The Ghana Atomic Energy Commission (GAEC), in its efforts to integrate nuclear power into the Country's energy mix, has carried out preliminary studies to zone out areas for the determination of candidate sites for nuclear power plant operation; a Nuclear Power Unit

has been created at the Ministry of Energy and Petroleum to coordinate all nuclear power planning issues.

- A Nuclear Regulatory Authority (NRA) Bill has been drafted and submitted to Parliament for approval; and a MoU between Ghana's Ministry of Energy and Petroleum and the State Atomic Energy Corporation of Russia (ROSATOM) on cooperation on the peaceful uses of atomic energy including the construction of a nuclear power plant in Ghana has been signed.
- To reduce post-harvest losses and preserve agricultural produce, GAEC intensified public sensitisation on using the Gamma Irradiation Facility (GIF) and contacted five (5) stakeholders in the food sector and fifteen (15) stakeholders in the medical sector. Soya powder, moringa powder and some flour products (Banku Mix, and Kokonte powder) were irradiated on a pilot basis to extend their shelf lives.
- In a bid to control the fruit fly menace associated with fruits such as mangoes and citrus being exported, GAEC developed local bait for the control of the invasive mango fruit fly; funds have been secured and equipment procured to produce protein bait locally on a large scale for mango and citrus farmers; and the fabrication of plant components almost complete, awaiting the boiler.
- The GAEC also carried out an assessment of cracks and corrosion on aircrafts for the Ghana Air force; and completed on Atuabo Gas plant as a key service provider to Sinopec Ghana and the Ghana Gas Company; through the use of Non-Destructive Testing (NDT).
- Two visits were undertaken by International Atomic Energy Agency (IAEA) experts and arrangements for securing funds for the Nuclear Imaging Facility are on-going. One medical doctor and one medical physicist are under training in South Africa to be able to manage the facility.

2.1.3 Programme: 3-Environmental Protection and Management

- Government has shown commitment to climate change issues over the years and has regularly featured on United Nations Framework Convention on Climate Change (UNFCCC) meetings and engaged in various climate change negotiations.
- The Environmental Protection Agency (EPA), under the Sustainable Land and Water Management Project (SLWMP), developed individual knowledge and skills in sustainable land management practices, crop and livestock production techniques including good animal husbandry; and increased economic opportunities that enhanced the productive

capacities of poor farmers through the provision of parent stock of improved breeds of livestock, materials to construct livestock housing, tree seedlings for establishing plantations and woodlots, certified seed varieties for food crop production and leguminous seeds to enhance and increase soil fertility.

- The MESTI and Ministry of Finance, have signed an Agreement on Strengthening Environmental Management of the Oil and Gas Sector in Ghana, (SEMOG). The EPA organized awareness creation on oil spill contingency planning and response in the six (6) coastal districts in the Western Region, specifically in Ellembelle, Jomoro, Sekondi-Takoradi (STMA), Nzema East, Ahanta West and Shama Districts; and completed the Strategic Environmental Assessment of the oil and gas sector.
- The EPA trained 163 agricultural input dealers and 100 Agricultural Extension Assistants in Pesticide regulations, safe handling of pesticide and the proper management of pesticide retail outlets. Agricultural scientists and pesticide importers were also trained and awareness created on the use of the ECOWAS harmonized pesticide bio efficacy trial protocols and the pesticide registration manual. Also, a national capacity building project for the elimination of PCBs is being implemented by the EPA, the Electricity Company of Ghana (ECG), Volta River Authority (VRA) and Ghana Grid Company (GRIDCo).
- The EPA developed a National Environmental Education Strategy to assist in teaching and learning in schools. Work is progressing on changing the metal grills on perimeter fencing, horticultural and paving at the Head Office. The EPA continues to monitor air quality on specific locations on the BRT route.
- A SEA Report on Strategic Environmental Assessment of the Rural Sanitation Model and Strategy (RSMS) was prepared for and submitted to the Ministry of Local Government and Rural Development in April 2014. A final draft on Strategic Environmental Assessment of the Corporate Social Responsibility (CSR) has been prepared for and forwarded to the Ministry of Trade and Industry for further review. The Agency organized a workshop which developed a draft waste regulation to regulate the waste management institutions in Ghana.
- National Environmental quality standards review stakeholder/ technical committee spearheaded by Ghana Standards Authority was formed to develop Regulations for water, air, noise and vehicular emissions
- Mine effluent samples was collected and analysed to check on the compliance of companies to the EPA Effluent and WHO Water Quality Guidelines. Key pollutant parameters were

assessed for the mining companies besides the general physical parameters were arsenic, cyanide, chromium, cadmium, copper and zinc

- Green House Gas (GHG) Central Database: As part of the reforms introduced into the national system for climate reporting under the Third National Communication (TNC) a database hub and project registry has been developed for GHG inventories for the Climate Change unit. Currently it is being hosted in the department
- Organized of 2014 World Environment Day (WED) and World Day to Combat Desertification and Drought
- The Agency has given Environmental Assessment Permit to 294 companies operating in the energy, hospitality and health industries. A total of 6663 chemical licensing applications were permitted through the GCNet
- As part of the implementation of the Economic Community of West African States (ECOWAS) Environmental Policy, particularly Axes 3 and 4 respectively on the prevention of environmental pollution, nuisance, urban waste and the control of trans boundary movements of hazardous waste/products and the promotion of information, education and communication for a healthy environment, the Ministry of Environment, Science, Technology and Innovation (MESTI) tasked the Environmental Protection Agency (EPA) to coordinate and support the ECOWAS Commission through the gathering of materials through filmed interviews, documents or draft documents on strategy discussions, field visits to some recycling plants and landfills to help address the challenge of plastic waste in the region.

2.1.4 Programme 4 - Spatial Planning and Human Settlement

- The Town and Country Planning Department (TCPD) collected data from 20 MMDAs on permitting indices and baseline data on the state of development and building permitting.
- In addition, 25 stakeholders were trained in Geographic Information Systems (GIS) applications related to street addressing.
- The National Spatial Development Framework is about 70% complete and comments on the Land Use and Spatial Planning Bill have been submitted to the AG's Department for consideration.

Table 1: Programme/Project Status

Programme	Broad operations /Project	Key Targets	Status (Jan. – Dec) 2014)	Challenges/ Remarks
Programme 1	OIL & GAS MANAGEMENT PROGRAMME	Establish a petroleum department.	(100%) complete Establishment of Petroleum Department at EPA	
		Develop framework for oil & gas sector in Ghana	(100%) complete Establishment of Governance and Legal framework for addressing challenges related to the oil and gas sector in Ghana	
		Develop spatial plans for the western corridor.	(100%) complete Development of Spatial and Land Use Plans for the Western region which has gained both national and international recognitions	
			Organized an awareness creation on oil spill contingency planning and response in the six (6) coastal districts in the Western Region: – Ellembele, Jomoro, Sekondi-Takoradi (STMA), Nzema East, Ahanta West and Shama Districts.	
	CLIMATE CHANGE	Develop and launch the National Environment Policy	The National Environmental Policy was approved by Cabinet and launched by H.E. the President.in June	
		Develop and launch the National Climate Change Policy	The National Climate Change Policy was developed and launched by H.E. the President	
	GREEN ECONOMY	Develop Green economy training manual	(100%) complete	

Programme	Broad operations /Project	Key Targets	Status (Jan. – Dec) 2014)	Challenges/ Remarks
			Green economy training manual developed	
		Develop Green economy assessment report	(100%) complete Green economy assessment report done.	
		Develop Green economy fiscal report	(100%) complete Green economy fiscal report prepared	
	BIODIVERSITY	Review biodiversity strategy	(100%) complete Biodiversity strategy reviewed to include action plan	
		Establish biodiversity information system	(100%) complete A clearing house website designed for biodiversity sharing.	
	GHANA ENVIRONMENTAL MANAGEMENT PROJECT (GEMP)	improve community livelihoods in the 3 northern regions of Ghana	74 sub-projects to improve community livelihoods in the 3 northern regions of Ghana implemented under the GEMP Project	
	SUSTAINABLE LAND AND WATER MANAGEMENT PROJECT (SLWMP)	Implement SLWMP in the three (3) Northern Regions.	<ul style="list-style-type: none"> • 14 community watershed and management plans were finalized and a GIS based monitoring and evaluation system developed under the SLWMP. • Developed individual knowledge and skills in sustainable land management practices, crop and livestock production techniques including good animal husbandry; ▪ Increased economic opportunities and enhanced productive capacities of poor farmers through provision of: parent stock of 	

Programme	Broad operations /Project	Key Targets	Status (Jan. – Dec) 2014)	Challenges/ Remarks
			improved breeds of livestock, materials to construct livestock housing, tree seedlings for establishing plantations and woodlots, certified seed varieties for food crop production and leguminous seeds to enhance and increase soil fertility.	
	CHEMICAL BIOLOGICAL RADIOLOGICAL NUCLEAR WEAPONS (CBRN)	Review draft legislation for Biological and Chemical weapons	40% complete	Non-release of funds
	IMPLEMENTATION OF THE MATHEMATICS SCIENCE AND TECHNOLOGY SCHOLARSHIP SCHEME (MASTESS)	Award 3,000 scholarships to mastess beneficiaries.	Yet to commence.	Delay in release of funds.
	IMPLEMENTATION OF THE POLICY ON THE USE OF LOCAL BUILDING MATERIALS IN THE CONSTRUCTION INDUSTRY.	Complete phase II of the implementation.	Phase II yet to be completed (50%) <ul style="list-style-type: none"> The construction of the National Local Material Resource Training Center was completed and launched at the CSIR-BRRI. 50 masons were trained in the use of clay bricks and tiles as well as related local materials. Sensitization seminar organised for about 100 Architects and professionals of the built environment held on the use of local building materials. 	Delay in release of funds.
	ESTABLISHMENT OF A RESEARCH AND DEVELOPMENT AGENCY.	Submission of Cabinet Memorandum to Parliament	One stakeholder workshop organized	Non-release of funds
Research and Development	The council for scientific and industrial research (CSIR) to develop high yielding, disease	Promote commercial Agriculture	<ul style="list-style-type: none"> On-farm testing of improved crop varieties and production technologies in Ashanti, Brong Ahafo and the 3 Northern Regions of Ghana. Field demonstrations and farmer field daysheld 	

Programme	Broad operations /Project	Key Targets	Status (Jan. – Dec) 2014)	Challenges/ Remarks
	and pest tolerant varieties of vegetables, fruits, certified seeds and improved planting materials for the local and export markets.		<p>in 3 regions (AR, BA & NR) of Ghana to demonstrate new technologies to farmers, processors and other stakeholders.</p> <ul style="list-style-type: none"> • Supply of breeder seed to the Ministry of Food and Agriculture for production of foundation and certified seeds. • CSIR has participated in at least two exhibitions to promote crop varieties to farmers and other stakeholders. • Establishment of Research-Extension-Linkage Committees (RELC) in all regions of Ghana to: <p>(i) Enable the Ministry of Food and Agriculture to offer feedback to scientists on farmer's perspective of technologies that are delivered for adoption and</p> <p>(ii) Create the platform for famers to present their problems and challenges to the Researchers to their interventions.</p> 	
	The Council will develop and promote technologies to increase meat and egg production.	Promote animal and poultry production	<ul style="list-style-type: none"> • Develop feed packages for commercially produced Grass cutters to enhance meat production and improve the livelihoods of farmers in the Greater Accra region of Ghana. • CSIR through Animal Research has acquired a new 30,000 egg capacity per circle hatchery. The institute is currently running three poultry lines; the AROBRO – the breeding stock, commercial broilers and the layers. Through the support of a project , CClear , they are training poultry farmers • A proposal has been submitted to La-Nkwantanang and Abokobi Municipalities to offer training on poultry as well as that in Pig rearing under the support of COTVET Skills Development Fund (SDF) • The CSIR poultry farm is able to provide 	

Programme	Broad operations /Project	Key Targets	Status (Jan. – Dec) 2014)	Challenges/ Remarks
			one third of the eggs needed by the hatchery while the two thirds are imported. The target is that 10,000 broilers will be produced by the hatchery by the end of this year. Currently, the layer stock has been increased from 1,500 to 3,000 birds and then producing 15- 20 crates of eggs per day. A target of 5,000 birds by December, which will produce about 35 to 45, crates of eggs per day all things being equal.	
	The Council to continue with the promotion of the utilization of lesser known wood species	Promote the use of lesser known wood species in the construction industry	<ul style="list-style-type: none"> CSIR Research Projects have increased Ghana's timber resource base through processing, utilization and promotion of some lesser-used timber species. Lesser known wood species such as <i>Colagigantea</i> and <i>Ficussur</i> from dry semi-deciduous forest zone in Ghana have been identified and the technological properties have been determined. Appropriate processing techniques and prototype products for the efficient utilization of <i>Cola gigantean</i> and <i>Ficussur</i> from dry semi-deciduous forest zone in Ghana have also been developed. 	
	CSIR to harness its Science and Technology expertise for the development of sustainable agricultural production, water and sanitation, rural electrification, road construction and housing	Water and sanitation	<ul style="list-style-type: none"> The CSIR in collaboration with SINTEF is promoting the Rain Water Harvesting Systems (RWHS) in the GA Rural Community (rural poor), where the owner of every newly constructed house pays 25% of the total cost of construction and the project takes up the 75% cost for the construction of the RWHS on the new building. The CSIR has conducted research on the "Impact of small-scale mining (Galamsey) on the water resources of the Pra River basins" 	

Programme	Broad operations /Project	Key Targets	Status (Jan. – Dec) 2014)	Challenges/ Remarks
			and held a press conference on it. A position paper is yet to be produced out of the results obtained.	
	Enhancement of mango production to provide grafted mango seedlings and certified planting materials to farmers and other stakeholders and train them on good agricultural practices for increased productivity	Promote crop production	<ul style="list-style-type: none"> CSIR has raised improved planting materials of Mango for supply to commercial mango farmers and small holder farmers. CSIR has entered into an agreement with Ghana Rubber Estate Limited (GREL) to produce improved planting materials of plantain for establishment and expansion of Rubber plantation (mixed cropping system) in the Western Region of Ghana. 	
ENVIRONMENTAL PROTECTION AND MANAGEMNT	Cover Environmental issues in national and local media	Media coverage of environmental issues increased by 30%	EPA continues to work with the media to increase coverage of environmental issues. A Study conducted shows that media coverage of environmental issues has increased by 25% in every year.	
	Develop and implement Environmental Education Strategy	Environmental Education Strategy developed	Strategy finalized and training on the use of the document conducted for some staff	
	Celebrate International Environment Days	World Environment Day and World Desertification Day celebrated	<p>World Environment Day celebrated on 5th June 2014 on the theme, " Greening Our Environment To Save Ghana" at Adoteiman in the Adentan District.</p> <p>The World Desertification Day was held on 17th June 2014 on the theme 'Land belongs to the future, let's protect and preserve it' at Lawra in the Upper West Region</p>	
	Develop and implement plan to establish specialized environmental courts	Prosecutors trained and environmental courts established	Over 70 EPA Officers trained as prosecutors. Process for establishment of environmental courts to commence in 2015	

Programme	Broad operations /Project	Key Targets	Status (Jan. – Dec) 2014)	Challenges/ Remarks
	Create an enabling legislative environment for effective environmental management	Current laws of the Agency (Act 490, LI 1652) reviewed for better compliance and enforcement to address current and emerging environmental challenges	Draft law produced and awaiting approval by the Board and review by Attorney Generals' Department	
	Create an enabling policy and legislative environment for effective management of pesticides and Hazardous Waste	First draft pesticide policy produced	Commenced preparation of pesticide policy and a first draft is completed. The final draft is expected be ready by March 2015	
		Draft regulations on pesticides finalized	5 Draft regulations on pesticides (registration, licencing, advertisement, packaging, transport, storage and disposal completed for submission to the Attorney General Department for reformatting	
		Finalize Hazardous Waste control and management Bill	Bill submitted to MESTI for comments and onward transmission to parliament	
	Create enabling policy environment for management of invasive species	Policy and legal framework for alien invasive species developed	Draft invasive species policy prepared	
	International treaties, and convention and agreements domesticated	Third National Communication to the UNFCCC prepared	The preparation of the Third National Communication to the UNFCCC is about completion. All technical work is completed. The overall report is being drafted, after which technical and stakeholder review will begin. Financial support is from GEF through UNEP	
	40% of permitted projects monitored for compliance	Over 1000 industrial undertakings to be monitored	A total of 795 undertakings were visited out of which 284 were in default	
		Undertake field monitoring of 18 mining firms	50 field verification and compliance enforcement monitoring visits to mining firms were undertaken (a 250% increase in the projected number contained in	

Programme	Broad operations /Project	Key Targets	Status (Jan. – Dec) 2014)	Challenges/ Remarks
			the work plan for the year)	
		Ensuring compliance to standards in the built environment	Restraining Order preventing the AMA from discharging raw (untreated) liquid waste into the sea (Lavendar Hill) obtained in the law court	
	Coverage of EIA administration in emerging sectors	EIA permit conditions incorporated into Ghana Commercial Agricultural Project (GCAP)	On-going (Sensitization undertaken for stakeholders, with some farmers having acquired Permits and others in the process)	
	Ensure effective management of Ghana's on and offshore environment	Operationalise the National Oil Spill Contingency Plan (NOSCP)	As part of the effort to operationalise the National Oil Spill Contingency Plan (NOSCP), a steering committee was inaugurated to take responsibility for effective improvement and implementation of the NOSCP	
		Acquire logistics for monitoring Ghana's maritime waters	Rigid Inflatable Boat was commissioned for the purposes of monitoring, inspecting and emergency rapid response in case of reports about discharge of pollutants in Ghana Maritime waters.	
	Akoben Environmental Performance Rating and Public Disclosure (EPRD) integrated into permitting process	50 Manufacturing Industries to be trained in on-line data entry system	100 Manufacturing Industries on the Akoben Programme were trained in on-line data entry system. Number of participating industries increased from 100 to 150 for the 2014 Akoben Programme	
	Initiate appropriate action to address the effects of climate change at the national level	Development of three Nationally Appropriate Mitigation Action (NAMA)	Three (3) NAMAs are being developed in a full scale development proposal in collaboration with Energy Commission. The NAMAs are in this areas (a) cleaner cooking stove solutions, (b) off-grid electrification and access and (c) sustainable charcoal supply chain NAMA.	

Programme	Broad operations /Project	Key Targets	Status (Jan. – Dec) 2014)	Challenges/ Remarks
	Scale-up areas under Biosphere management reserves nationwide	Three (3) Biosphere Reserves under effective management	Songor Ramsar Site and the Bia Reserve are being managed as Biosphere Reserves whilst Lake Bosomtwi has been nominated for consideration as a Biosphere Reserve	
	Reduction in weed infestation of Kpong Head Pond	3000m3 of aquatic weed harvested from Kpong Head Pond	2, 465m3 of water weeds harvested from the Kpong head pond resulting in reduced aquatic weed infestation in the vicinity of Kpong wharf	
	Intensify Desertification Control activities especially in the northern savanna zone	2000 hectares of land under sustainable land and water management practice in 200 communities in the 3 northern regions	1500 hectares of land under sustainable land and water management practice in over 300 communities in the 3 northern regions under the GSLWMP and the GEMP	
		20 strategic tree nurseries established and operational across the 3 northern regions	22 strategic tree nurseries established across the 3 northern regions producing over 600,000 tree seedlings annually for planting in beneficiary communities and sale to other communities and project areas under the GEMP	
		Adequate response to disasters and emergencies	Report on the beaching of dead whale has been prepared after thorough investigation. In addition a communication plan to help address the issue of beaching of dead whales has also been prepared for dissemination	
	National Source Waste Separation Programme (NSWSP) implemented in EPA & Ministries	All MDAs within the Ministerial enclave to be part of the NSWSP	250 no. of 240 litre capacity bins has been distributed to some participating institutions within the Ministry as part of NSWSP	
	Effective control of ozone depleting	Undertake compliance monitoring in 10 regions	A total of three hundred and seventy six kilograms (376 kg) of different refrigerants (R12, R134a, R407, R410 and R510) were seized in six (6) regions	

Programme	Broad operations /Project	Key Targets	Status (Jan. – Dec) 2014)	Challenges/ Remarks
	Awareness and training conducted on the safe use of pesticides	Leaflets, flyers, posters and training materials on pesticides and industrial / chemicals developed	Over 3000 pieces of two different posters and 400 safety cards on the safe use of pesticides were published	
		Extension Officers and farmer groups from 5 regions trained on safe use of pesticides	A total of eighty three (83) regional agriculture extension officers and supervisors drawn from the 10 regions of Ghana trained on the safe use of pesticides	
		Appoint and train 50 EPA Officers as Pesticide Inspectors	A total of about 50 EPA pesticide inspectors appointed under the EPA Act 1994 (Act 490) were trained and equipped to improve on efficiency and delivery regarding pesticide related activities	
	Monitoring of air quality levels	Trends in Air quality data in Accra established	<p>-Out of the 96 sets of data collected at 4 monitoring stations, 46 (48%) exceeded the EPA 24hr. PM10 Guideline (70µg/m3)</p> <p>-72 (75%) out of the 96 data sets collected exceeded the WHO 24hr PM10 guideline of 50µg/m3</p>	
		Trends in Air quality data on the Bus Rapid Transit (BRT) corridor Accra established	<p>-Out of the 173 data sets of PM10 concentrations recorded for the five BRT monitoring stations, 151 (87%) exceeded the EPA 24hr. ambient PM10 Guideline value of 70µg/m3</p> <p>-160 (92%) out of the 173 data sets of PM10 concentrations collected exceeded the WHO 24hr ambient PM10 Guideline value of 50µg/m3</p>	
	Monitoring and analysis of effluent quality from hotels/industries	Industrial point sources of pollution and events monitored	<p>54 effluent samples were collected from 54 industries in Accra and Tema and analysed.</p> <p>Mainly, the COD and BOD concentrations recorded in most of the industries monitored exceeded EPA</p>	

Programme	Broad operations /Project	Key Targets	Status (Jan. – Dec) 2014)	Challenges/ Remarks
			sector-specific effluent quality guidelines. None of the Industries monitored was compliant with all the parameters measured.	
	Ensuring supportive infrastructure, including at decentralized levels	Ten zonal offices to be established and operationalise	Zonal Offices opened in Damongo and Wulensi in the northern, and Nkwanta in the volta regions. Arrangement are far advanced for offices to be opened in Konongo and Obuasi in the Ashanti, Nandom in the Upper West and Gambaga in the northern regions	
Spatial Planning & Human Settlement	GIS training for planners and other stakeholders at the Metropolitan, Municipal and District Assembly (MMDA) level	200No. Planners and other stakeholders trained in GIS application for street naming, plan preparation, development control and property tax administration	150No. Planners and other stakeholders at the MMDA level trained in GIS application for street naming	Inadequate financial resources
	Formulate the National Spatial Development Framework	Complete the National Spatial Development Framework (NSDF) by October 2014.	Draft final report on the NSDF submitted	difficulty in consulting all stakeholder groups within the stated timeline
	Sponsor 5 staff for relevant courses in settlement planning	5No. staff of TCPD commence courses in settlement planning by September 2014	Not done	Lack of resources
	Review and disseminate the development permitting procedures and guidelines	Review of Business Processes Manual on permitting completed by December 2014	Draft Business Processes Manual on permitting produced by December 2014	Delay in release of funds
	Process the Land Use and Spatial Planning Bill for passage	Finalize all stakeholder consultations and process the Land Use and Spatial Planning Bill through Cabinet and Parliament by December 2014.	All stakeholder consultations on the Land Use and Spatial Planning Bill completed and ready for submission to Cabinet by December 2014.	
	Undertake public education and awareness creation on spatial	Undertake 2No. Public education and awareness creation on spatial planning through events such	Not done	Lack of financial resources

Programme	Broad operations /Project	Key Targets	Status (Jan. – Dec) 2014)	Challenges/ Remarks
	planning (world Town Planning Day, Radio Discussions, Policy fairs)	as world Town Planning Day celebration and Policy fairs.		
	Undertake monitoring of key performance indicators	Collect data from all 216 MMDAs on development permitting	Data collected on development permitting from 20MMDAs	Inadequate financial resources and delays in release of funds

2.2 Review of key National indicators and targets

Indicator Description	Unit of Measurement	Baseline		Latest Status		Target	
		Year	Value	Year	Value	Year	Value
Reduction in climate change vulnerability: Number of sectors with climate change mitigation and adaptable strategy priorities integrated	No of industries using methods to assess carbon stocks using REDD concepts, based on research	2013	n/a	2014	n/a	2015	n/a
	No. of sectors with climate change mitigation and adaptation strategy priorities integrated	2013	4	2014	5	2015	7
Global Green Economy index for Ghana	Provides a ranking of countries and cities perform in the global green economy and how expert practitioners perceive this performance. The GGEI performance index uses quantitative and qualitative indicators to measure how well each country performs on four key dimensions: leadership & climate change, efficiency sectors, markets & investment and environment & natural	2013	n/a	2014	44.5 55 th out of 60 countries	2015	n/a
Proportion of companies compliant with EA and EMP permit conditions(to be considered an appropriate programme)	The number of companies issued with EA and EMP permit as a percentage of all companies	2013	2,644	2014	3,422	2015	n/a
PM ₁₀ (Particulate Matter) Pollution Level	It measures level of Particulate Matter in the air at selected locations in Accra	2013	1. BRT Route (Mallam Market/kasoa =Min: 14 µg/m ³ /Max:71 5µg/m ³) 2. Shangri La/La T. Junction =Min: 69 µg/m ³ /Max: 393 µg/m ³ 3. Dansoman South Industrial Area/Odorkor = Nil	2014	1. BRT Route (Mallam Market/kasoa =Min: 140µg/m ³ /Max:407µg/m ³) 2. Shangri La/La T. Junction =Min: 112 µg/m ³ /Max: 393 µg/m ³ 3. Dansoman South Industrial Area/Odorkor = Min: 141µg/m ³ /Max: 227 µg/m ³	2015	Particulate matter (PM10) values cannot be targeted or projected

Research adaptation by industries	Number of research findings adopted by industry	2013	0.05%	2014	0.32%	2015	1%
	Number of research findings adopted by industry	2013	0	2014	1	2015	3
	Rate of adoption of improved locally-packaged technologies by MSMEs (%)	2013	n/a	2014	20%	2015	28%
Human Settlements Policy formulated and adopted	Statement of intent on spatially integrated hierarchy of urban and rural settlements	2013	Baseline studies for policy formulation completed	2014	Review of baseline report for policy completed	2015	Baseline report validated and adopted
The Land Use and Planning Bill passed into law	A law to harmonise all legal provisions on land use planning and provide guidance for spatial planning in Ghana	2013	Bill ready for submission to Cabinet	2014	Bill approved in Cabinet	2015	Bill sent to Parliament for discussion and adoption
Establishment of the Land Use and Spatial Planning Authority	An overarching policy and supervisory body in charge of providing guidelines, standards, policy and capacity building for spatial planning countrywide.	2013	Land Use and Spatial Planning Authority not established. Legal backing for establishment 80% done.	2014	Relevant law establishing Authority not passed	2015	Business Plan for Authority formulated

2.3 Update on Disbursements from Funding Sources

The budget of the Ministry is funded by the Government of Ghana (GoG), Development Partners (DP) and Internally Generated Funds (IGF). Below is a summary of the financial performance of the Ministry in 2014.

Table 5: Disbursements

<i>Description</i>	<i>Budget</i>	<i>Amount Received</i>	<i>Expenditure</i>
Compensation	147,319,619.00	163,357,925.57	163,357,925.57
Use of Goods and Services	12,501,300.00	3,485,526.76	3,169,544.88
Capex	2,194,795.00	0	0
Donor/Other funds (NREG)	40,797,873.00	16,708,299.46	13,997,382.98
IGF	43,141,720.00	42,241,828.38	37,476,910.67
Total	245,955,307.00	225,793,580.17	218,001,764.10

2.4 Challenges

A number of factors have been identified as being responsible for the non-attainment or partial accomplishment of some key deliverables. The main challenges encountered in the year during the implementation of planned activities include the following:

- Non release of funds for capital investments
- Inadequate funds for
 - Recruitment of technical staff
 - Office space
 - Implementation of projects and programmes
 - Monitoring of budgeted projects and programmes
 - Logistics (equipment, computers and vehicles) to facilitate smooth operational work

2.5 Expected Benefits

The effective implementation of activities in section 2.1 will among others result in the following:

- Promote the Use of the Local Building Materials in the Construction Industry

- Upgrade the ICT labs of Senior High, Technical and Vocational Schools accredited by the Ghana Education Service.
- Support five (5) research institutions to implement market-oriented research and technology transfer programmes.
- Ensure that oil and gas management practices are constituent with international environmental standards.
- Reduce loss of biodiversity.
- Increase crop production for food security
- To control the fruit fly menace currently associated with fruits
- improved Sustainable Land Management practices in selected communities in the Upper East and Upper West regions towards enhancing agricultural productivity and restoring ecosystem integrity,
- Sustainable water, soil and forest management
- Enhance income levels of smallholder farmers
- Create opportunities for productive employment.
- Less polluted and more cleaner air
- Less polluted water bodies
- Increase in tree cover (vegetal cover)
- Integrating nuclear power into the country's energy mix
- To ensure that the telecommunication industry operate within acceptable international standards
- Ensure Nuclear safety and security in the country
- Restore spatial/land use planning system in Ghana
- Facilitate ongoing institutional, technological and legal reforms in support of land use planning
- Strengthen the human and institutional capacities for effective land use planning and management through science and technology

3. THE WAY FORWARD

3.1 Recommendations

Key recommendations for consideration in resolving the challenges encountered during the year are as follows:

- Facilitate the timely release and or transfer of funds and resources to the Ministry and its Department and Agencies for executing planned activities
- The Ministry should liaise with the Ministry of Finance for extra budgetary allocation for recruitment and replacement of staff, especially for the Council for Scientific and Industrial Research (CSIR) and Ghana Atomic Energy Commission (GAEC).
- Seek Donor support in addition to Government Funding

- Construction of District and zonal offices by the EPA and also the construction of STI building at the Ministry.
- The Ministry, with EPA and other collaborating MMDAs should embark on several environmental awareness campaigns throughout the country to sensitize the public.