REPUBLIC OF GHANA

MINISTRY OF ENVIRONMENT, SCIENCE, TECHNOLOGY AND INNOVATION

MEDIUM TERM EXPENDITURE FRAMEWORK (MTEF)

FOR 2017-2019

2017 BUDGET ESTIMATES

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PART A: STRATEGIC OVERVIEW OF THE MINISTRY OF ENVIRONMENT, SCIENCE, TECHNOLOGY AND INNOVATION (MESTI)

1. GSGDA II POLICY OBJECTIVES

The GSGDA II contains a number of policy objectives, out of which eight (8) have been adopted by the Ministry of Environment, Science, Technology and Innovation.

These are as follows:
- 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.

2. 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.

3. CORE FUNCTIONS

The core functions of the Ministry are:
- Provide leadership and guidance for Environment, Science, Technology and Innovation within the broad sector of the economy through sound policy formulation and implementation;
- 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;

- Promote activities needed to underpin the standards and policies required for planning and implementation of sound scientific and technological development activities;
- Ensure the coordination, supervision, monitoring and evaluation of activities of Environment, Science, Technology and Innovation while fulfilling national benefits-sharing commitments;
- 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;
- 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;
- 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
- Ensure effective environmental management and governance, in line with the functions of the Act 490, with the EPA as the main implementing agency and the MESTI playing an oversight, coordination and facilitating role.

4. POLICY OUTCOME 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		13	2016	14	2019	16
	No. of sectors with climate change mitigation and adaptation strategy priorities integrated	2015	5	2016	7	2019	8
Number of companies compliant with EA and EMP permit conditions	The number of companies issued with EA and EMP permit as a portion of all companies	2015	3,700	2016	2,555	2019	4,500
Research adaptation by industries	Number of research findings adopted by industry	2015	105	2016	85	2019	115
	Number of businesses /industries assisted to adopt R&D in production	2015	12	2016	12	2019	17
	Rate of adoption of improved locally-packaged technologies my MSMEs (%)	2015	28	2016	22	2019	35

5. EXPENDITURE TRENDS FOR THE MEDIUM-TERM

The Ministry over the period 2015 and 2016 fiscal years was allocated an amount of **GH¢245,955,307.00** and **GH¢243,399,83**3 respectively. However, in 2016, fifty-four per cent (54%) of the allocated amount for Goods and Services was released. In addition, there were no releases for Capex in 2015 and 2016. As at December 2016, payment for Compensation of Employees stood at 88% of the approved budget.

The Sector over the Medium Term (2017-2019) has ceilings that fall short of the requested budgets. With the limited budgets however, the Sector hopes to establish the Science and Technology Theme Parks, continue the implementation of the Action Plan for the utilisation of local building materials in the construction industry; continue the implementation of the Oil and Gas Management Programme: reduce loss of biodiversity, transition Ghana into a Green Economy; continue research in all sectors of the economy to enhance productivity, ensure sustainable development and improve the standard of living in spatially integrated and orderly human settlements.

6. SUMMARY OF KEY ACHIEVEMENTS IN 2016

Management and Administration Programme

- The *Hazardous and Electronic Waste Control and Management Bill*, 2016 was passed into law. This Act will provide for the control, management and disposal of hazardous waste, electrical and electronic waste and for related purposes.
- The *Land Use and Spatial Planning Bill* was also passed into an Act. It has paved the way for establishment of the Land Use and Spatial Planning Authority and provided legal backing for spatial planning at the regional level. A draft final Business Plan (90% complete) has been produced for the Land Use and Spatial Planning Authority (LUSPA)
- The Ministry also established the *Nuclear Regulatory Authority* (NRA) to regulate the use of radiological and nuclear activities to fulfill national and international obligations. Currently, regulations on Basic radiation protection, radioactive waste management, Transport of radioactive sources, nuclear materials and Nuclear Safeguards have been drafted.
- The Ministry through the implementation of the *Sustainable Land and Water Management Project (SLWMP)* in the three (3) Northern Regions in Ghana provided input based support to **3,350 farmers** covering **2,900ha of land**. Additionally, 220ha of land was reforested in the two (2) reserves. Training was also conducted for farmers, selected NGO's and extension providers within the project area on SLWM practices.
- To assist in the global efforts to address Climate Change issues, the Parliament of Ghana ratified the *Paris Climate Agreement* on 4th August 2016, pledging to reduce Ghana's Green House Gases emission by 45% below BAU emission levels of 73.9 MTCO2e by 2030. The ratification of the Paris Agreement will create

opportunities for the flow of technical and financial support to Ghana. The Ministry is also putting in place systems to access the Green Climate Fund (GCF).

- Additionally, The Ministry has secured *US$8 million* from the Adaptation Fund to implement the *Adaption Fund Project* in the three Northern Regions. The Project is aimed at restoring degraded river Basins (black and white Volta).

- The Ministry together with the KFW successfully appraised a €10 Million Grant project on *Recycling and Disposal of Waste of Electrical and Electronic Equipment in an Environmentally Sound Way*. The Financing and Separate Agreements were prepared for signature by both parties. Discussions were also held with GIZ for a €5 Million Grant for a Technical Cooperation component to complement the project.

- In order to reduce loss of biodiversity, a zero draft of the National Biodiversity Policy was developed. The Policy will guide the conservation and use of biological resources. Additionally, the Ministry reviewed the National Biodiversity Strategy and Action Plan (NBSAP) and submitted it to the Convention on Bio Diversity (CBD) Secretariat

- The Ministry successfully organized the *National STI Fair*, in order to exhibit a diverse array of Scientific Technological inventions from Research Institutions and Ghanaian Industries as well as individual innovators across the country, The STI Fair exhibited a diverse array of Scientific Technological inventions from Research Institutions and Ghanaian Industries as well as individual innovators across the country. It also provided a platform that brought together researchers, relevant stakeholders and students to interact for advancing and understanding the Scientific Technological innovation lifecycle of research and development, Technology Transfer, financing and commercialization.

- The Ministry distributed about *1,404 laptops* to first year students to encourage the study of Mathematics Science and Technology related courses by providing laptops to first year students studying Mathematics, Science and Technology related courses. Additionally, eighty (80) Laptops have been supplied to support the research into the adoption and implementation of the TV white Space technology for rural internet connectivity.

Research and Development Programme
- The Ministry through the CSIR trained 3,150 farmers in 20 communities in the three (3) Northern Regions in Good Agriculture Practices (GAP) for local rice production. Additionally, over 3,000 small holder rice farmers were introduced to the Sawah technology for rice production. This expected to enhance local rice production and promote Commercial Rice production.

- A nursery of tomato has been established by the CSIR in a greenhouse for research and demonstration to farmers. Planting has taken place at Ada and Kumasi. Harvesting of matured tomatoes has taken place at Kwadaso, Kumasi. This will help develop high yielding disease and pest tolerant varieties of vegetables, fruits, certified seeds and improved planting materials for the local and export markets.

- The CSIR in collaboration with the Ministry of Food and Agriculture (MoFA) supplied improved seedlings of oil palm and coconut to over 500 individual farmers, out-growers and commercial farmers. This is expected to enhance Oil Palm and Coconut production.
- To ensure the integrity of welds of pipes and storage tanks for oil and Gas/Mining industries, the Ministry through **GAEC** established a Welding and Non-Destructive Testing (NDT) Training Institute to certify welders and NDT personnel in Ghana.

- As part of the efforts of using Science, Technology and Innovation to address challenges facing the Country, Ghana has successfully piloted the borehole disposal for radioactive waste in the sub region sponsored by the International Atomic Energy Agency (IAEA) Additionally, there has been the pproduction of lead (Pb) embedded building blocks for the telecommunication and health facilities (e.g. Ex-Ray, MRI and walling of masts) using disused television sets and monitors.
- In order to ensure the protection of humans and environment from the radiation hazards, the Ministry through the Nuclear Regulatory Authority (NRA) has developed two (2) draft regulations to serve as a regulatory framework for control of radiation in Ghana.
- Additionally, one hundred (100) radiation emitting facilities have been monitored to ensure compliance with regulatory requirements.

Environmental Protection and Management Programme
- As part of the process of continuous devolution of the EPA's functions to the districts, residential and office accommodation for the following area offices were secured: Konongo, Techiman, Tumu, Nandom, AkimOda, Adidome, Atebubu and Mpraeso
- To ensure environmental compliance, the EPA issued a total of two thousand five hundred and fifty-five (2,555) permits for various sectors. This included five permits issued to ENI and one (1) to Tullow Ghana Limited for oil and gas exploratory process. In addition, 28,447 clearance permits were issued through the GCNET for various chemicals and other products. As part of the process of reducing the use of ozone depleting substances, 28 clearance permits were issued for refrigerant
- The EPA held four (4) public hearings, comprising three (3) gold mine projects and one (1) on coal fired plant. About 220 complaints were also received out of which about 40% has been addressed. The 60% are being addressed. A total of 54 projects covering various sectors were specially monitored for compliance. Additionally, five (5) enforcement notices were issued to various companies within the Accra West Operational area. The Agency is in court litigating 15 cases to ensure enforcement.
- The Agency conducted field audit as part of the AKOBEN Performance rating for 21 mining Companies. As part of the process of conducting Strategic Environmental Assessment (SEA) on Voltaian Basin for Oil and Gas Exploration,

a stakeholder's workshop was organized, leading to the production of a Scoping report for SEA of the Onshore Voltaian.

- Ministry through the EPA continued the Implementation of Ministerial Directive on the Use of Oxo-Biodegradable Additives continued with 21 out of 25 factories monitored, using biodegradable additives. The EPA also initiated action on the development of the Ghana Flexible Plastics and Oxo-biodegradable Additives Standards. In addition, five (5) Regional offices (Western, Ashanti, Eastern, Central and Northern Regions) have been directed to collect data on all factories in the regions producing flexible plastics and the use of Oxo-biodegradable additives.

- In order to raise awareness and capacity on proper handling of Agrochemicals for stakeholders, the EPA organized a training workshop in pesticide regulations and safe handling for 90 pest control operators nationwide. Additionally, a training Workshop in Faking/ Counterfeiting/Adulteration of Agrochemicals and GCNet Chemical Clearance Procedures was conducted for fifty (50) GRA/CD Border Post Officers in Brong-Ahafo Region to improve on the quality of pesticide products placed on the market.

- Ambient air quality monitoring undertaken at 27 monitoring sites located in Residential, Commercial, and Industrial areas as well as along some major roads in Accra. Samples collected were analysed to determine the concentrations of Particulate Matter (PM_{10} and $PM_{2.5}$) Sulphur dioxide (SO_2), Nitrogen dioxide (NO_2) Carbon monoxide and Ozone (O_3) in the ambient air. Forty-one (41) PM_{10} and thirty (30) PM_{25} date sets were collected and analysed. In both cases, the results showed that the $PM10$ and PM_{25} were above the WHO and EPA levels. On the other hand, the results indicated that Carbon monoxide (CO), Ozone (O_3), Nitrogen dioxide (NO_2) and Sulphur dioxide (SO_2) were lower than the EPA recommended levels.

- MESTI through EPA has introduced the biogas technology – Gas and manure as by-product with improved sanitation. This has led to the construction Bio-sanitation toilets in Ankaful Prisons to produce bio-gas for their kitchen and manure for their farms.

Spatial Planning and Human Settlement Programme
- To ensure that efficient traffic flow in Accra, the T&CPD is collaborating with the Department of Urban Roads has planned and demarcated a 94-km outer ring road for the Greater Accra Metropolitan Area. Work is currently on-going to acquire the proposed road reservation for future development of the road.

- The Town and Country Planning Department has completed the development permitting reforms aimed at reducing the turnaround time for permitting from 90 to 30 working days. A Business Processes Manual for permitting has also been developed to facilitate the process of building permitting.

Biotechnology Development Programme

- The National Biosafety Authority (NBA) also developed guidelines on release of Genetically Modified Organisms (GMOs) into the environment. This is expected to guide applicants in submitting applications to the Authority and also increase Public Confidence in the NBA. To promote public education and participation in biosafety matters, a draft biosafety communication plan was developed. Additionally, the NBA has developed its website as one of the tools to educate the public. This will serve as an information tool on Biosafety and biotechnology in Ghana.

- Draft biosafety Regulations have also been developed and are yet to be passed by Parliament for the full implementation of the Biosafety Act. The Authority has acquired equipment and reagents for the establishment of a GMOs detection laboratory. This is to ensure that GMOs are easily detected and their adventitious presence in shipments and consignments do not exceed acceptable limits. The Ministry believes that all these will increase the confidence of stakeholders and the general public in the NBA.

1.5. Appropriation Bill

Summary of Expenditure by Sub-Programme, Economic Item and Funding

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Year: 2017 | **Currency:** Value
Version 1

	GoG				IGF				Funds / Others			Donors			Grand Total
	Compensation of employees	Goods and Services	Capex	Total	Compensation of employees	Goods and Services	Capex	Total	Statutory	ABFA	Others	Goods and Services	Capex	Total	
017001 - Management And Administration	**1,448,356**	**4,480,156**	**3,000,000**	**8,928,512**								**46,351,921**	**51,146,124**	**97,498,045**	**106,426,557**
0170011 - General Administration	1,448,356	2,598,490	3,000,000	7,046,846								46,351,921	51,146,124	97,498,045	104,544,891
0170012- Finance		537,619		537,619											537,619
0170013- Human Resource		313,611		313,611											313,611
0170014 - Policy, Planning, Budgeting, Monitoring and Evaluation		672,023		672,023											672,023
0170015- Statistics; Research; Information and Public Relations		358,412		358,412											358,412
017002 - Research And Development	**163,689,973**	**3,920,137**	**2,100,000**	**169,710,110**		**7,557,939**	**2,907,391**	**10,465,330**							**180,175,440**
0170021- Scientific And Industrial Research	113,096,457	1,680,060	900,000	115,676,516		5,467,871	2,343,373	7,811,244							123,487,760
0170022- Nuclear Science And Space Science Technology	50,593,517	2,240,078	1,200,000	54,033,594		2,090,068	564,018	2,654,086							56,687,680
017003 - Environmental Protection And Management					**11,066,514**	**20,959,596**	**14,196,681**	**46,222,791**							**46,222,791**
0170031- Environmental Compliance And Enforcement						18,819,596	14,196,681	33,016,277							33,016,277
0170032 - Environmental Education Information And Communication					11,066,514	2,140,000		13,206,514							13,206,514
017004 - Spatial Planning And Human Settlement	**12,548,262**	**1,680,059**	**600,000**	**14,828,321**											**14,828,321**
0170041- Human Settlement and Land Use Research and Policy	12,548,262	1,680,059	600,000	14,828,321											14,828,321
017005 - Biosafety Development	**78,995**	**1,120,039**	**300,000**	**1,499,034**											**1,499,034**
0170051 - Biotechnology Regulation	78,995	1,120,039	300,000	1,499,034											1,499,034
Grand Total	**177,765,586**	**11,200,390**	**6,000,000**	**194,965,976**	**11,066,514**	**28,517,535**	**17,104,072**	**56,688,121**				**46,351,921**	**51,146,124**	**97,498,045**	**349,152,142**

PART B: BUDGET PROGRAMME SUMMARY

PROGRAMME 1: MANAGEMENT AND ADMINISTRATION

1.   Budget Programme Objectives

- To formulate policies and legislations that would facilitate the sustainable development of the country through the application of science, technology and innovation and the adoption of international standards/protocols and conventions that relate to the environment, science, technology and innovation sector of the country.
- To strengthen the coordination of activities of the Ministry, its Agencies/Department and other stakeholders (MDAs, MMDAs, CSOs, DPs, Private Sector) on the issues that relate to the environment, science technology and innovation sector.
- To strengthen policy planning, monitoring and evaluation within the Ministry and to ensure the effective implementation of sector polices programmes and projects.

2.   Budget Programme Description

The Management and Administration programme provides the cross-cutting services required in order that the other programmes undertaken by the sector can succeed in achieving their objectives. This programme is responsible for:

- Formulating, coordinating, monitoring and evaluation of environmental policies and legislations that will ensure and promote sustainable environmental development;
- Formulating, coordinating, monitoring and evaluation of science, technology and innovation policies to promote the development and application of research to enhance sustainable development of the country;
- Strengthening human capacities to adequately deal with environmental management, science, technology and innovation issues; and
- Preparing the sector budget and pursuing the interest of the Ministry in all financial transactions.

2.9. Budget by Chart of Account

9 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017│**Currency:** GH Cedi
Version 1

	Budget	Indicative Year	Indicative Year
017001 - Management And Administration	**106,426,557**	**106,426,557**	**106,426,557**
017001 - Management And Administration	**106,426,557**	**106,426,557**	**106,426,557**
21 - Compensation of employees [GFS]	1,448,356	1,448,356	1,448,356
211 - Wages and salaries [GFS]	1,448,356	1,448,356	1,448,356
Goods and Services	50,832,077	50,832,077	50,832,077
22 - Use of goods and services	50,832,077	50,832,077	50,832,077
31 - Non financial assets	54,146,124	54,146,124	54,146,124
311 - Fixed assets	54,146,124	54,146,124	54,146,124

BUDGET SUB-PROGRAMME SUMMARY

PROGRAMME 1: MANAGEMENT AND ADMINISTRATION

SUB-PROGRAMME 1.1: General Administration

1. Budget Sub-Programme Objectives

- To effectively coordinate the activities of the various Directorates of the Ministry; and its Agencies/Department;
- To ensure the provision of adequate resources/logistics for the smooth operations of the Ministry;
- To promote the application of Science, Technology and Innovation in all sectors of the economy; and
- To promote the integration of environmental issues in all sectors of the economy.

2. Budget Sub-Programme Description

This sub-programme looks at coordinating the activities of the Ministry and its Agencies through the office of the Chief Director. It issues directives that are consistent with the policy direction of the Ministry; provides required resources and logistics (e.g. human, transport, stationery, office equipment) for effective running of the Ministry.

This sub-programme is also responsible for ensuring that the sector projects and programmes are in line with national development agenda by developing appropriate policies, programmes and projects that relate to the environment and Science, Technology and Innovation; as well as ensures the successful implementation of all activities that relate to the environment, Science, Technology and Innovation.

This sub-programme is also responsible for implementing national priority projects such as MASTESS, Science and Technology Theme Parks, which seek to create jobs, reduce poverty and make science, technology and innovation accessible to all economic sector players.

Operations undertaken include, to:

- Manage the properties of the Ministry through procurement and maintenance works;
- Ensure the timely provision of resources/logistics for the efficient operations of the Ministry;
- Climate Change and Green Economy related activities;
- Reduce loss of biodiversity
- Construct and operationalize Science and Technology Theme Parks;
- Implement Biogas Technology;
- Implementation of the Mathematics, Science and Technology Scholarship Scheme;

- Ensure cohesion and successful implementation of the environment and STI related programmes and projects in the Sector Medium Term Development Plan.

3. Budget Sub-Programme Results Statement

The table indicates the main outputs, its indicators and projections by which the Ministry measures the performance of this sub-programme. The past data indicates Budget performance whilst the projections are the Ministry's estimate of future performance.

Main Outputs	Output Indicator	Past Years		Projections		
		2015	2016	Budget Year 2017	Indicative Year 2018	Indicative Year 2019
Land area where Sustainable Land and Water Management Practices have been adopted as a result of the project	Size of land (in Hectares)	3,090 ha	5,579.8 ha	7,000 ha	10,000 ha	14,000 ha
Land users adopting Sustainable Land and Water Management Practices as a result of the project	No. of farmers adopting the practices	9,388	14,109	14,000	20,000	28,000
Direct project beneficiaries	No. of farmers % of which are women	24,224 40%	34,213 40%	36,000 40%	45,000 40%	52,000 40%
Oil and Gas environment policy developed	Level (%) of completion of policy	n/a	Zero draft prepared	Finalization to cabinet	Approval by Parliament	Implementation Strategy
Develop legislation for Chemical Weapon Convention	Draft legislative Instrument	n/a	Stakeholder consultations	Review of zero draft	Parliamentary approval	implementation
National Biodiversity policy developed	Level (%) of completion of policy	n/a	Draft Policy developed	Approval by Parliament	Implementation strategy	Implementation of Policy
Development of Master Plan for GH(I)NDC	Master Plan for GH(I)NDC	n/a	Stakeholder consultations	Draft Master Plan	Validation of Plan	Implementation of Plan
Implementation of 3year GG-SA Bilateral No of projects implemented	No. of projects / activities implemented	n/a	n/a	4	5	6

Main Outputs	Output Indicator	Past Years		Projections		
		2015	2016	Budget Year 2017	Indicative Year 2018	Indicative Year 2019
Organise STI fair	STI Fair organized by	August	14 – 16 Sept.	September	September	September
Award MASTESS scholarships	No. of beneficiaries	4,180	-	8,180	10,000	12,000
Establishment of the science and Technology Theme Parks	Level of establishment of STI Parks	n/a	Stakeholder workshop on strategies for establishing S&T Parks	Feasibility studies	Study tour	Study tours
Establishment of the STI Bill	STI Bill approved by Cabinet	Draft Legislative Scheme for the Bill prepared	Organized meeting with MoF on sources of funding the STI Fund	STI Bill approved by cabinet	n/a	n/a

4. Budget Sub-Programme Operations and Projects

The table lists the main Operations and projects to be undertaken by the sub-programme.

Operations	Projects
Internal management of the organisation	
• Local & international affiliations	
• Procurement of office supplies and consumables	
• Maintenance, rehabilitation, refurbishment and upgrading of existing	
• Management of assets register	
• Cleaning and general services	
• Disposal of government assets	
• Environmental policy integration and management	
• Climate change policy and programmes	
• Green Economy activities	
• Natural Resource and Environmental Governance Activities	
• Development and promotion of the application of science and technology	

2.7 Budget by Chart of Account

7 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017 │ **Currency:** GH Cedi
Version 1

	Budget	Indicative Year	Indicative Year
0170011 - General Administration	**104,544,891**	**104,544,891**	**104,544,891**
0170011 - General Administration	**104,544,891**	**104,544,891**	**104,544,891**
21 - Compensation of employees [GFS]	1,448,356	1,448,356	1,448,356
22 - Use of goods and services	48,950,411	48,950,411	48,950,411
31 - Non financial assets	54,146,124	54,146,124	54,146,124

BUDGET SUB-PROGRAMME SUMMARY

PROGRAMME 1: MANAGEMENT AND ADMINISTRATION

SUB-PROGRAMME 1.2: Finance

1.   Budget Sub-Programme Objective

To improve resource mobilization, financial management and reporting (financial reports/statements) and the judicious use of financial resources as per the budgetary provisions.

2.   Budget Sub-Programme Description

This sub-programme focuses on ensuring that the financial management practices of the Ministry are consistent with laid down procedures and consistent with the appropriate laws. This sub-programme is delivered by the Finance and Internal Audit Units of the Ministry.

This sub-programme seeks to safeguard the interest of the Ministry in all financial transactions relating to revenue and expenditure management and ensure proper allocation and use of the Ministry's budget. It also ensures effective financial transactions relating to revenue and expenditure management and reporting of the Ministry and its project accounts. It also ensures the provision of an effective and efficient system of internal controls (checks and balances) and the practice of proper and accountable administration.

Activities undertaken include, to:
- Identify other revenue streams apart from GoG;
- Strengthen revenue generation machinery;
- Ensure compliance with accounting/auditing procedures and timely reporting; and
- Ensure budgetary control and management of assets, liabilities, revenue and expenditures.
- Ensures that internal control systems are in place;
- Ensures accountable records are accurate including purchases and payments;
- Identifies any accounting errors, cases of fraud and initiate investigations;
- Reviews and recommending strengthening of internal systems.
- Financial, managerial and operating information reported internally and externally is accurate, reliable and timely;
  Ensuring that the financial activities of the Ministry are in compliance with applicable laws, regulations, policies, Laws, standards and procedures;

3. Budget Sub-Programme Results Statement

The table indicates the main outputs, its indicators and projections by which the Ministry measures the performance of this sub-programme. The past data indicates budget performance whilst the projections are the Ministry's estimate of future performance.

Main Outputs	Output Indicator	Past Years		Projections		
		2015	2016	Budget Year 2017	Indicative Year 2018	Indicative Year 2019
Internal Audit reports	Number of audit reports submitted per year	4	4	4	4	4
	Number of ARIC meetings held	-	3	4	4	4
Financial reports/statement	Number of financial reports submitted	12	12	12	12	12
	Number of financial statements prepared	1	1	1	1	1

4. Budget Sub-Programme Operations and Projects

The table lists the main operations and projects to be undertaken by the sub-programme

Operations	Projects
Internal Audit operations	No Projects
External audit operations	
Special Audit assignments	
Treasury and Accounting activities	
Preparation of Financial Reports	

2.7 Budget by Chart of Account

7 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017 | **Currency:** GH Cedi
Version 1

	Budget	Indicative Year	Indicative Year
0170012- Finance	**537,619**	**537,619**	**537,619**
0170012- Finance	**537,619**	**537,619**	**537,619**
22 - Use of goods and services	537,619	537,619	537,619

2.7 Budget by Chart of Account

7 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017 | **Currency:** GH Cedi
Version 1

BUDGET SUB-PROGRAMME SUMMARY

PROGRAMME 1: MANAGEMENT AND ADMINISTRATION

SUB-PROGRAMME 1.3: Human Resource

1. Budget Sub-Programme Objective

To facilitate the recruitment, replacement, placement, retention and improvement in the capacity and welfare of employees.

2. Budget Sub-Programme Description

The Human Resource sub-programme identifies human resource needs of the Ministry and provides the requisite personnel by recruiting, training and building the capacity of staff as well as other sector related MDAs and relevant stakeholders (such as private sector) to enhance productivity. This sub-programme is delivered by the HRM Directorate of the Ministry.

This sub-programme develops sector-wide policy on HR Planning, Succession Planning, Training and Development and Performance Management. It also ensures that there is in place an effective and stable management framework consistent with the overall manpower needs of the Sector.

It also facilitates the process of recruitment and placement, employee orientation and induction, retraining, motivation and staff development on a continuing basis for the efficient discharge of their duties. Moreover, it ensures that there is in place an effective and stable HR policy and management framework consistent with the overall manpower needs of the Sector.

3. Budget Sub-Programme Results Statement

The table indicates the main outputs, its indicators and projections by which the Ministry measures the performance of this sub-programme. The past data indicates Budget performance whilst the projections are the Ministry's estimate of future performance.

Main Outputs	Output Indicator	Past years		Projections		
		2015	2016	Budget Year 2017	Indicative Year 2018	Indicative Year 2019
Organize workshop on Civil Service Rules and Regulations	Number of Workshops	-	-	1	1	1
Organize HR Forum/ workshop with sector Agencies/Departments to discuss HR issues	Programme undertaken and report generated	-	1	1	1	1

Main Outputs	Output Indicator	Past years		Projections		
		2015	2016	Budget Year 2017	Indicative Year 2018	Indicative Year 2019
Undertake Scheme of Service Training programmes for all categories of staff	Number of staff trained and reports produced	9	9	25	25	25
Organize workshop on Cabinet Memo for the Leadership of the Ministry	Workshop undertaken and report available	-	-	-	1	1
Organize promotion and recruitment interviews	Recruitments and promotions interview reports available	9	9	15	15	15
Preparation of Sector Annual Performance Report	Report submitted to OHCS by	February	31st March	28th Feb	31st January	31st January
Human Resource policy	Number of Human Resource Policy developed	-	-	1	-	-
	Number of programmes and projects developed and implemented from the Human Resource policy	-	-	2	3	3

4.   Budget Sub-Programme Operations and Projects

The table lists the main Operations and projects to be undertaken by the sub-programme.

Operations	Projects
Staff audit	No Project
Human Resource database	
Scheme of service training	
Recruitment, placement and promotions	
Personnel and staff management	

2.7 Budget by Chart of Account

7 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017 | **Currency:** GH Cedi
Version 1

	Budget	Indicative Year	Indicative Year
0170013- Human Resource	**313,611**	**313,611**	**313,611**
0170013- Human Resource	**313,611**	**313,611**	**313,611**
22 - Use of goods and services	313,611	313,611	313,611

BUDGET SUB-PROGRAMME SUMMARY

PROGRAMME 1: MANAGEMENT AND ADMINISTRATION

SUB-PROGRAMME 1.4: Policy, Planning, Budgeting, Monitoring and Evaluation

1. Budget Sub-Programme Objective

To strengthen the capacity for planning, policy analysis, budgeting, monitoring and evaluation, data collection and analysis for the sector.

2. Budget Sub-Programme Description

This sub-programme is responsible for ensuring that the sector projects and programmes are in line with national development agenda by developing appropriate policies, programmes and projects. PPBME ensures internal information dissemination, the compilation of the sector budget as well as monitoring and evaluating the effective implementation of policies, programmes and projects of the sector.

It is responsible for the development of comprehensive and sustainable policies, legislations, plans, programmes and resource flow to the sector in collaboration with relevant stakeholders.

It caters for the design and application of monitoring and evaluation systems for purposes of assessing the operational effectiveness of the Ministry, its implementing departments and agencies as well as the activities of other key stakeholders in meeting the sector's short, medium and long-term objectives and targets.

The sub-programme activities include:
- Strengthen capacity for effective policy planning, budgeting, monitoring and evaluation of the sector activities;
- Ensure effective implementation of the sector programmes and projects in the Sector Medium Term Development Plan (SMTDP);
- Prepare, coordinate and manage the approved sector budget;
- Prepare the sector strategic, medium term and action plans; and
- Ensure cohesion and successful implementation of all projects and programmes.

3. Budget Sub-Programme Results Statement

The table indicates the main outputs, its indicators and projections by which the Ministry measures the performance of this sub-programme. The past data indicates Budget performance whilst the projections are the Ministry's estimate of future performance.

Main Outputs	Output Indicator	Past Years		Projections		
		2015	2016	Budget Year 2017	Indicative Year 2018	Indicative Year 2019
Annual monitoring and evaluation report	Annual M&E report produced and disseminated by	-	31st March	31st March	31st March	31st March
MDA Annual Action Plan preparation	Annual MESTI Sector plan prepared by	January	January	January	January	January
Review of Performance	Performance indicators updated and reported on to NDPC by	June 2016	June 2016	June 2016	June 2016	June 2016
	Prepare Annual Performance Report to OHCS by	15th January	15th January	15th January	15th January	15th January
	Number of quarterly progress reports produced	4	4	4	4	4
Prepare sector budget	Sector budget prepared, presented and approved by	December 2014	December 2015	March 2017	December 2017	December 2018

4. Budget Sub-Programme Operations and Projects

The table lists the main Operations and projects to be undertaken by the sub-programme

Operations	Projects
Planning and Policy Formulation	No Project
Policies and Programme Review Activities	
Management and Monitoring Policies, Programmes and Projects	
Evaluation and Impact Assessment Activities	
Budget Preparation	
Budget Performance Reporting	

2.7 Budget by Chart of Account

7 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017 | **Currency:** GH Cedi
Version 1

	Budget	Indicative Year	Indicative Year
0170014 - Policy, Planning, Budgeting, Monitoring and	**672,023**	**672,023**	**672,023**
0170014 - Policy, Planning, Budgeting, Monitoring and Evaluation	**672,023**	**672,023**	**672,023**
22 - Use of goods and services	672,023	672,023	672,023

BUDGET SUB-PROGRAMME SUMMARY

PROGRAMME 1:   Management and Administration

SUB-PROGRAMME 1.5: Statistics, Research, Information and Public Relations

1.   Budget Sub-Programme Objective

To improve and strengthen access to and apply ICT in data management and disseminate sector relevant information to stakeholders and the general public.

2.   Budget Sub-Programme Description

3. This sub-programme conducts research relevant to the sector to inform policy formulation and disseminates research finding on environment, science and technology research and to act as liaison between the Ministry and its partners/collaborators.

It is responsible for the design, use, maintenance and development of research and statistics as input into a central database for service-wide use. It coordinates all activities relating to information gathering, processing and dissemination for all the Ministry's organizations and stakeholders. Its main functions include the following;

- To protect the good image of the sector, within and outside the country, by disseminating sectoral information on its policies, activities and procedures;

- To create favourable atmosphere for the effective functioning of the sector by promoting and maintaining cordial working relationships with the other directorates in the sector and with its clients and stakeholders;

- To provide a system of feedback to stake-holders, and clients of the sector;

- To create and maintain a data bank of information on the sector for decision-making; and

- To conduct research into sectoral activities with a view to remove bottle-necks and enhancing its service delivery standards.

4.   Budget Sub-Programme Results Statement

The table indicates the main outputs, its indicators and projections by which the Ministry measures the performance of this sub-programme. The past data indicates Budget performance whilst the projections are the Ministry's estimate of future performance.

Main Outputs	Output Indicator	Past Years		Projections		
		2015	2016	Budget Year 2017	Indicative Year 2018	Indicative Year 2019
Dissemination of sector information to the general public	Number of public fora on environment and STI held	2	2	4	4	4
Annual Monitoring and evaluation report dissemination	Reports disseminated by	-	31st March	31st July	31st July	31st July
Response to petitions from the general public	Response provided within	20 days	15 days	20 days	20 days	20 days
Development and update of database	Number of periodic updates on MESTI's website	-	-	9	12	12

5.   Budget Sub-Programme Operations and Projects

The table lists the main Operations and projects to be undertaken by the sub-programme

Operations	Projects
Development and management of database	
Software acquisition and development	
Software licensing and support	
Media Relations	
Information, Education and Communication	
Publication, campaigns and programmes	

2.7 Budget by Chart of Account

7 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017 **│Currency:** GH Cedi
Version 1

	Budget	Indicative Year	Indicative Year
0170015- Statistics; Research; Information and Public	**358,412**	**358,412**	**358,412**
0170015- Statistics; Research; Information and Public Relations	**358,412**	**358,412**	**358,412**
22 - Use of goods and services	358,412	358,412	358,412

BUDGET PROGRAMME SUMMARY
PROGRAMME 2: RESEARCH AND DEVELOPMENT

1. Budget Programme Objective

To promote and develop Science, Technology and Innovation in all sectors of the economy for socio-economic development.

2. Budget Programme Description

This programme involves the promotion of nuclear technology, scientific and industrial research. The Council for Scientific and Industrial Research (CSIR) and the Ghana Atomic Energy Commission (GAEC) harness science and technology expertise for sustainable agricultural production, meat and fish preservation, irrigation, good water supply, environmental management, housing, road construction, information packaging and dissemination. The programme also involves the application of space science technology.

In addition, Science and technology is utilized to promote the peaceful use of nuclear science and technology research including health and medical research, training and development, regulation of radioactive materials and installations.

2.9. Budget by Chart of Account

9 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017│**Currency:** GH Cedi
Version 1

	Budget	Indicative Year	Indicative Year
017002 - Research And Development	**180,175,440**	**180,175,440**	**180,175,440**
017002 - Research And Development	**180,175,440**	**180,175,440**	**180,175,440**
21 - Compensation of employees [GFS]	163,689,973	163,689,973	163,689,973
211 - Wages and salaries [GFS]	163,689,973	163,689,973	163,689,973
Goods and Services	11,478,076	11,478,076	11,478,076
22 - Use of goods and services	11,348,076	11,348,076	11,348,076
27 - Social benefits [GFS]	100,000	100,000	100,000
28 - Other expense	30,000	30,000	30,000
31 - Non financial assets	5,007,391	5,007,391	5,007,391
311 - Fixed assets	5,007,391	5,007,391	5,007,391

BUDGET SUB-PROGRAMME SUMMARY

PROGRAMME P 2: Research and Development

SUB-PROGRAMME 2.1: Scientific and Industrial Research

1. Sub-Programme Objective

Promote the application of Science, Technology and Innovation in all Sectors of the economy.

2. Budget Sub-Programme Description

CSIR utilises Science and technology expertise for the development of Sustainable agricultural production. Research is conducted to improve the cultivation of high yielding crops and for food preservation (i.e. rice, maize, oil palm, cowpea, plantain, roots and tubers and vegetables). CRI, SARI, PGRRI, OPRI, FRI and SRI undertake such research.

Poultry, Livestock, Fisheries and Aquaculture: The Animal, Food, Industrial and Water Research Institutes under the CSIR develop technologies for increasing meat, egg and fish production to sustain food and nutrition for the population. These Institutes also develop technologies and expertise for meat and fish preservation and management of post-harvest losses.

Water and sanitation: The Water, Industrial and Soil Research Institutes under the CSIR develop technologies for the siting of dams for irrigation and good water supply and management as well as reduction of water pollution and improved sanitation to enhance the health status of communities. These institutes utilize their capabilities for groundwater exploration, watershed management and protection of water bodies.

Rural Electrification and Bio Fuels: The CSIR through the Forest Research Institute of Ghana (FORIG) and Institute of Industrial Research (IIR) develop appropriate processing techniques for efficient utilization of Ghanaian lesser-known wood species. These institutes also promote the use of lesser known species for poles for rural electrification and production of bio fuels for generators.

Housing and Roads: The CSIR through FORIG and Building and Road Research Institute (BRRI) develops technologies for affordable housing delivery. They also provide expertise in road design and construction, and identification and analysis of all accident prone locations (black spots), on road in the five main cities, namely Accra, Kumasi, Sekondi-Takoradi and Tamale.

Information Packaging and Dissemination, and ICT and STI policy: The CSIR facilitates policy research, packaging and dissemination of scientific information for national development through the Institute of Scientific and Technological Information

(INSTI), Science and Technology Policy Research Institute (STEPRI), Commercial Unit at the Head Office (CCID-H/O) and other CSIR Institutes.

3.   Budget Sub-Programme Results Statement

The table indicates the main outputs, its indicators and projections by which the Ministry measures the performance of this sub-programme. The past data indicates Budget performance whilst the projections are the Ministry's estimate of future performance.

Main Outputs	Output Indicator	Past Years		Projections		
		2015	2016	Budget Year 2017	Indicative Year 2018	Indicative Year 2019
High yielding rice varieties developed	Number of yielding rice varieties developed	5	7	7	-	-
Early maturing mango varieties developed	Number of varieties developed	12	12	15	-	-
Quality of fresh fruits stored under various freight environmental conditions evaluated.	Number evaluated	50	60	70	80	100
Increased supply of improved breeds of varieties of tilapia and catfish fingerlings for fish farmers	Percentage increase in supply	50%	50%	50%	80%	80%
Technologies developed for increasing meat and egg production to sustain food and nutrition security for the population	Number of technologies developed	16	18	20	25	30
Accident prone (black spots) locations on roads in the five cities (Accra, Kumasi, Sekondi-Takoradi and Tamale) identified, analysed and investigated.	Number of accident prone (black spots) locations	140	144	144	150	160
Promote the use of pozzolana-lime technology in stabilizing rural types roads and extending their lifespan	Percentage increase in clients for pozzolana (technology) cement	20%	25%	30%	40%	45%
Promote the construction of wooden bridges by using lesser known species	Number of lesser known wood species developed	15	15	15	18	20

Main Outputs	Output Indicator	Past Years		Projections		
		2015	2016	Budget Year 2017	Indicative Year 2018	Indicative Year 2019
Develop technologies for soil conservation and plant water requirement, Soil and water body pollution monitoring and management, reclamation of degraded land and mine sites and climate change mitigation.	Number of Technologies developed	12	15	18	20	25

4. Budget Sub-Programme Operations and Projects

The table lists the main Operations and projects to be undertaken by the sub-programme

Operations	Projects
Development and promotion of the application of science and technology	**Acquisition of Movable and Unmovable Assets**
Food Security and Poverty Reduction	
Climate Change, Environmental Management & Green Technology	
Biomedical and Public Health	
Material Science and Manufacturing	
Energy and Petroleum	
Electronics and ICT	
Science and People	
Commercialization activities	

2.7 Budget by Chart of Account

7 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017 | **Currency:** GH Cedi
Version 1

	Budget	Indicative Year	Indicative Year
0170021- Scientific And Industrial Research	**123,487,760**	**123,487,760**	**123,487,760**
0170021- Scientific And Industrial Research	**123,487,760**	**123,487,760**	**123,487,760**
21 - Compensation of employees [GFS]	113,096,457	113,096,457	113,096,457
22 - Use of goods and services	7,147,930	7,147,930	7,147,930
31 - Non financial assets	3,243,373	3,243,373	3,243,373

BUDGET SUB-PROGRAMME SUMMARY

PROGRAMME 2: Research and Development

SUB-PROGRAMME 2.2: Nuclear and Space Science Technology

1. Budget Sub-Program Objective

To develop and promote the utilization of nuclear, biotechnology, space science and other related technologies for socio-economic development through research, training and commercialization.

2. Budget Sub-Program Description

This sub-program involves the promotion of science, technology and innovation through research and development in nuclear science and space science technologies in various sectors of the economy. The activities of this sub-program are carried out by the Ghana Atomic Energy Commission through its six (6) institutes and the Graduate school of Nuclear and Allied Sciences (SNAS). The activities of the institutes and the Graduate School are co-ordinated at the Head office with four hundred and eighty (480) staffs.

National Nuclear Research Institute (NNRI), the Radiation Protection Institute (RPI) and the Biotechnological and Nuclear Agriculture Research Institute (BNARI) were created earlier. Since then, three other institutes; Radiological and Medical Science Research Institute (RAMSRI), Space Science Technology Institute (GSSTI), the Nuclear Power Institute (NPI) in addition to the Graduate School of Nuclear and Allied Sciences (SNAS) have been created by the Commission. These are the Radiological and Medical Sciences Research Institute.

National Nuclear Research Institute (NNRI)

NNRI was established to promote and strengthen Nuclear Science and technology research, and training for the socio-economic development of Ghana. The programmes of the institute are carried out by one hundred and forty-four (144) staffs. Some of the researches and commercial activities carried out in Centres under the Institute include:

- Collaborate with Water Resources Commission to use isotopic techniques in assessing Recharge areas, sources of water and pollution in the 3 Northern Regions and the Central Region. This may be intensified to cover other parts of the country.
- The National Data Centre (NDC) receives and uses data for the verification to provide technical advice and support on matters pertaining to the verification of the Comprehensive Nuclear Test Ban Treaty (CTBT).
- Provides training in the use of a pelletron accelerator and a nuclear reactor to conduct studies and researches to address socio-economic problems.

- The Non-destructive Testing Centre- checks the integrity of mineral processing tanks, distillation columns at the Oil Refinery, and performs thickness gauging for corrosion assessment of LPG Storage Vessels.

Radiation Protection Institute (RPI)

RPI was established to provide an effective national regulatory framework for the protection of people, property, and environment, safety and security of radioactive materials and nuclear installations. The programmes of the institute are carried out by forty-eight (48) staff. Some of their activities include:

- Personnel monitoring by ensuring safe working conditions in the nuclear and related industries. E.g. medical x-ray diagnosis and mining Industries.
- Conducting Safety assessment of Base Stations before and after installation as well as monitoring of Radio frequencies for FM Stations and Mobile Phone companies.
- Transports nuclear waste for registration, processing and storage and also provides technical services to organisations on management of disused radioactive sources across the country.

Biotechnology and Nuclear Agriculture Research Institute (BNARI)

BNARI was established to research, develop and implement activities on safe applications of biotechnology and nuclear agriculture and transfer these technologies to end-users in order to enhance agricultural productivity, health delivery and industrialization. The programmes of the institute are carried out by one hundred and forty-one (141) staff. Some of their activities include:

- Irradiation of food products to reduce postharvest losses and increase shelf-life of agricultural produce.
- Development of integrated pest management (IPM) strategies for pests and vectors of Agricultural, medical and veterinary importance by using the sterile insect technique (SIT) for the control of insect pests.
- Rapid production of improved planting materials of food crops and ornamentals as well as training farmers in the production and use of organic compost.

Radiological and Medical Science Research Institute (RAMSRI)

The RAMSRI was established to carry out medical research, applying nuclear techniques to promote human health and nutrition. The programmes of the institute are carried out by thirty-three (33) staff. Some of their activities are:

- Provide Research-based technical advice for Cancer Management and Treatment Studies for improving complication-free survival rates after radio-therapy.
- Researches into early detection, treatment and management of cancer and other degenerative conditions.

- Conducts research by using radiation and nuclear medicine Technologies to diagnose and manage diseases as well as monitor and evaluate health conditions like tuberculosis and other communicable diseases in Ghana.

School of Nuclear and Allied Science (SNAS)

The SNAS was established as a collaborative venture with the International Atomic Energy Agency (IAEA) and the University of Ghana to train Nuclear Scientists to sustain skills in science in Nuclear Technology for the sub-Region Apart from training Scientist at the Graduate and the PhD levels,

The programmes of SNAS are carried out by thirty-six (36) staff. SNAS collaboratively with the IAEA organises a Post Graduate Education Course (PGEC) in Radiation Protection for radiological professionals in the sub-region.

Space Science Technology Institute (GSSTI)

The GSSTI is converting a 32-m dish from a communication antenna to a radio telescope at Kuntunse and assessing critical indicators of radio astronomy capabilities. It is planning to acquire a ground receiving station to enable the country capture relevant satellite images for that could be used by the aviation, meteorological, security and environmental protection agencies. The programmes of the institute are carried out by twenty-four (24) staff.

Nuclear Power Institute (NPI)

The Nuclear Power Institute was created to research and facilitate the introduction of nuclear power into the country's energy mix. The programmes of the institute are carried out by twenty-one (21) staff.

The institute continues to organise stakeholder and public sensitisation on adoption of nuclear energy while conducting research to locate candidate sites and to conduct comparative studies on the economic benefits of introducing nuclear power.

3. Budget Sub-Programme Results Statement

The table below indicates the main outputs, its indicators and projections by which the performance of this sub-programme is measured. The past data indicates Budget performance whilst the projections are the Agency's estimate of future performance.

Main Outputs	Output Indicator	Past Years		Projections		
		2015	2016	Budget Year 2017	Indicative Year 2018	Indicative Year 2019
Quality of foodstuffs ensured and shelf life of food extended by irradiation.	Number of agricultural products preserved by irradiation. (to be disaggregated by weight.)	3	5	8	10	15
Farmers trained in composting and organic farming.	Number of farmer/groups trained in composting.	N/A	2	10	20	25
Baits produced for farmers to control the fruit fly menace in the country.	Fruit fly menace among famers reduced by	N/A	N/A	30%	45%	60%
Rapid production of disease-free planting materials of food crops and ornamentals.	Varieties of plant materials/ Plant mutants developed using nuclear techniques and multiplied.	5	7	7	8	10
Stakeholder and public sensitisation on adoption of nuclear energy organised.	Level of stakeholder/public sensitization.	35%	40%	60%	75%	90%
Research into sustainable use and protection of water and water-related ecosystems.	Number of Ground water resources (sites) studied with Isotopic Technique.	12	18	25	35	50
Establishment of a Welding and NDT Training facility	Number of welders/NDT personnel certified.	N/A	N/A	5	10	15
Scientific assessment of the environmental and human health impact of e-waste management in Ghana	Number of researches /reports on the health impact of e-waste management in Ghana	N/A	1	3	5	7
Siting and feasibility studies towards introduction of nuclear energy in Ghana	Level of studies done	20%	40%	60%	75%	100%

Main Outputs	Output Indicator	Past Years		Projections		
		2015	2016	Budget Year 2017	Indicative Year 2018	Indicative Year 2019
Waste water from industry treated by Radiation Technology for reuse.	Number of industries having their waste water treated for reuse.	N/A	N/A	N/A	2	5
Safety assessment of base stations before installation	Number of Base Stations Assessed.	400	500	700	1000	1000
Post graduate Education Course (PGEC) in Radiation Protection organised.	Number of radiation workers trained.	20	20	20	25	25
Satellite converted into radio telescope for astrological studies.	Level of conversion	50%	95%	100%	N/A	N/A
Establishment of earth observation data centre	Ground/direct receiving station procured and installed for earth observation.	Sourcing for fund	Sourcing for fund	Sourcing for fund	Procurement and installation	Ground receiving station in operation
Developing Ghana Space Policy	Level of developing the Ghana Space Policy	N/A	20% completed	60% completed	100% completed	N/A
Acquire and operate an Unman Area Vehicle project (UAV / Cropcam).	Unman Area Vehicle (UAV / Cropcam) acquired and in use.	N/A	UAV acquired	UAV in use	UAV in use	UAV in use
Astronomy Clubs established in Senior High Schools in Ghana	Number of established clubs in senior high schools.	N/A	5	10	25	50
Use of radiation and nuclear medicine Technologies to diagnose and manage diseases as well as monitor and evaluate health conditions like tuberculosis and other communicable diseases.	Number of researches conducted towards diagnosing, managing and evaluating communicable diseases using radiation and nuclear technologies.	2	5	8	12	15
Research conducted to improve radiotherapy and cancer treatment.	Number of researches conducted towards improving cancer treatment.	2	3	5	5	6

4. Budget Sub-Programme Operations and Projects

The table lists the main Operations and projects to be undertaken by the sub-programme

Operations	Projects
Development, promotion and commercialisation of nuclear research and technology	Acquisition of vehicles and refurbish laboratories for institutes
Training of Centre Managers and supporting staff	Upgrade the Gamma Irradiation Facility (GIF) to at least 500kCi
Sensitize decision makers, media and policy makers on the benefits of nuclear power and nuclear applications	Establish at least Gamma Irradiation Facility (GIF) in one of the ten (10) Regions
Site selection, economic and feasibility studies to integrate nuclear energy into the country's energy mix	Establish one (1) Radiotherapy Centre, in either the Northern, Western, Brong-Ahafo or Volta Region.
Payment of subscriptions and other financial obligations	Acquisition new laboratory equipment to improve income generation and research activities
Recurrent Expenditure for the 6 Institutes the Head office and the SNAS	Implementation of the borehole disposal concept for disused sealed radioactive sources in Ghana
Development of mosquito mass rearing model to control malaria	Establishment of the Ghana Institute of Welding and NDT
Multiplication of quality planting materials for supply to farmers towards improved food production using biotechnology	Building of factory to start producing and supplying vegetable and fruit farmers with baits control the fruit fly menace.
Establish a training school to train professionals on determination of leakages and integrity of welds using non-destructive techniques (NDT)	Establish a specialised training facility for Professional; medical doctors, medical physicists, radio-pharmacists, nurses to handle radiological emergencies
Application of stable, radioactive isotopes and geochemistry in water resources management	Scientific assessment of the environment and human health impact of e-waste management in Ghana
Train farmers in the production and use of organic compost	Procure tractor and equipment for waste treatment
Setting up a factory to produce baits for farmers to control the fruit fly menace in the country.	Construction of State of the Art Nuclear Medical Imaging Centre to research into treatment of various cancers
Use of radiation and nuclear medicine Technologies to diagnose and manage diseases as well as monitor and evaluate health conditions like tuberculosis and other communicable diseases.	Purchase of four (4) vehicles and equipment to be used for Safety assessment of base stations and monitoring of radio frequencies for FM stations and mobile phone companies.
Siting and feasibility studies towards introduction of nuclear energy in Ghana Economic and Feasibility Studies of Nuclear Power plant.	Establish the Ghana Space Agency to develop and operationalize a fully functional space programme for Ghana Site selection,

2.7 Budget by Chart of Account

7 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017 | **Currency:** GH Cedi
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	Budget	Indicative Year	Indicative Year
0170022- Nuclear Science And Space Science Technology	**56,687,680**	**56,687,680**	**56,687,680**
0170022- Nuclear Science And Space Science Technology	**56,687,680**	**56,687,680**	**56,687,680**
21 - Compensation of employees [GFS]	50,593,517	50,593,517	50,593,517
22 - Use of goods and services	4,200,146	4,200,146	4,200,146
27 - Social benefits [GFS]	100,000	100,000	100,000
28 - Other expense	30,000	30,000	30,000
31 - Non financial assets	1,764,018	1,764,018	1,764,018

BUDGET SUB-PROGRAMME SUMMARY

PROGRAMME 2: Research and Development

SUB-PROGRAMME 2.3: Commercialisation of Research

1.   Budget Sub-Programme Objectives

- To commercialize and transfer research results and technologies to end-users in order to enhance agricultural productivity, health delivery and industrialization.
- To generate revenue, to supplement government of Ghana funds for research.

2.   Budget Sub-Programme Description

The CSIR is mandated by ACT 521 to pursue the implementation of scientific research and development and commercialisation of appropriate technologies in partnership with the Private Sector and other stakeholders for national development. Act 588 (2000) mandates the Ghana Atomic Energy Commission to pursue the commercial application of nuclear research in the areas of health, agriculture, industry and commerce.

This sub-programme promotes the commercialisation and application of scientific research in partnership with the Private Sector and other stakeholders for national development.

3. Budget Sub-Programme Results Statement

The table indicates the main outputs, its indicators and projections by which the Ministry measures the performance of this sub-programme. The past data indicates Budget performance whilst the projections are the Ministry's estimate of future performance.

Main Outputs	Output Indicator	Past Years		Projections		
		2015	2016	Budget Year 2017	Indicative Year 2018	Indicative Year 2019
Nuclear Technologies commercialized	Number of technologies developed	17	19	21	-	-
Other Scientific Technologies commercialized	Number of technologies adopted	152	167	174	-	-
S & T products and services including consultancy commercialized	Number of S & T products/ services offered	74	73	97	-	-
Nuclear products and services including consultancy and training commercialized	Number of products, services offered	16	17	20	-	-

4. Budget Sub-Programme Operations and Projects

The table lists the main Operations and projects to be undertaken by the sub-programme

Operations	Projects
Create public awareness for Scientific and Technological products and services	Establishment of sale centres
Undertake Science and Technology outreach programmes	Purchase of distribution vans
Develop contacts with potential users of S&T products and services	Establishment of product processing centres
Create awareness about the benefit of nuclear energy and potential hazards of radioactive materials and installations	Establishment of sale centres
Create public awareness for Scientific and Technological products and services	

2.7 Budget by Chart of Account

7 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017│**Currency:** GH Cedi
Version 1

BUDGET PROGRAMME SUMMARY
PROGRAMME 3: ENVIRONMENTAL PROTECTION AND MANAGEMENT

1.   Budget Programme Objectives

- To ensure better use of ecosystem services and natural resources, for purposes of poverty reduction and sustainable development; and
- To enhance the application of Act 490 and its regulations, to reduce environmental impacts, control environmental degradation and enhance restoration of degraded resources.

2.   Budget Programme Description

This programme aims at protecting and improving the environment in Ghana by ensuring that air, land and water are protected by everyone in today's society, so that tomorrow's generation inherit a cleaner and healthier world. In achieving the overall aim of managing and governing the environment this programme outlines activities and programmes that seek to:

- Create awareness to mainstream environment into the development process at the national, regional, district and community levels;
- 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;
- Ensure environmentally sound and efficient use of both renewable and non-renewable resources in the process of national development;
- Guide development to prevent, reduce, and as far as possible, eliminate pollution and actions that lower the quality of life;
- Apply the legal processes in a fair and equitable manner to ensure responsible environmental behaviour in the country; and
- Continuously improve EPA's performance to meet changing environmental trends and community aspirations.

The programme is delivered by Environmental Protection Agency through its Departments and Units in collaboration with various government funded organizations, Development Partners and the Ministry of Environment, Science, Technology and Innovation.

The programme is funded from the Government of Ghana, Internally Generated Funds and Development Partners.

2.9. Budget by Chart of Account

9 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017│**Currency:** GH Cedi
Version 1

	Budget	Indicative Year	Indicative Year
017003 - Environmental Protection And Management	**46,222,791**	**46,222,791**	**46,222,791**
017003 - Environmental Protection And Management	**46,222,791**	**46,222,791**	**46,222,791**
21 - Compensation of employees [GFS]	11,066,514	11,066,514	11,066,514
211 - Wages and salaries [GFS]	10,238,386	10,238,386	10,238,386
212 - Social contributions [GFS]	828,128	828,128	828,128
Goods and Services	20,959,596	20,959,596	20,959,596
22 - Use of goods and services	18,939,596	18,939,596	18,939,596
27 - Social benefits [GFS]	1,250,000	1,250,000	1,250,000
28 - Other expense	770,000	770,000	770,000
31 - Non financial assets	14,196,681	14,196,681	14,196,681
311 - Fixed assets	14,196,681	14,196,681	14,196,681

BUDGET SUB-PROGRAMME SUMMARY

PROGRAMME 3: ENVIRONMENTAL PROTECTION AND MANAGEMENT

SUB-PROGRAMME 3.1:   Environmental Compliance and Enforcement

1.   Budget Sub-Programme Objective

To undertake environmental assessment and ensure compliance with Act 490 and its regulations in order to avoid pollution and environmental degradation as well as stimulate sustainable development.

2.   Budget Sub-Programme Description

This sub-programme is coordinated and implemented by the Environmental Protection Agency through the Environmental Quality, Manufacturing Industries, Mining, Natural Resources, Environmental Assessment and Audit, Petroleum, Built Environment and legal Departments as well as Chemicals Control and Management Centre. This sub-programme is undertaken in collaboration with other stakeholders such as MDAs, MMDAs, Civil Society Organizations and the private sector. The Core areas of this sub-programme are:

- Providing technical advice on assessments;
- Compliance monitoring;
- Support identification and dissemination of best practices;
- Coordinating -activities associated with Environmental Assessment, compliance and enforcement;
- Environmental research and monitoring of air and water quality; and
- Management of chemicals, hazardous wastes (chemical and e-waste), pesticides and ozone depletion.

3. Budget Sub-Programme Results Statement

The table indicates the main outputs, its indicators and projections by which the Ministry measures the performance of this sub-programme. The past data indicates Budget performance whilst the projections are the Ministry's estimate of future performance.

Main Outputs	Output Indicator	Past Years		Projections		
		2015	2016	Budget Year 2017	Indicative Year 2018	Indicative Year 2019
Improved compliance with sector specific EA guidelines and standards.	Percentage of sectors covered by EA: - oil and gas exploration, - agriculture	60% 60%	80% 70%	85% 75%	90% 80%	90% 80%
Undertake annual compliance monitoring	Number of Annual compliance monitoring events: Accra Other Regions	250 500	300 500	300 510	350 550	350 350
Monitoring of environmental indicators - air quality	Number of monitoring locations (Accra + regions)	11	15	15	20	20
Develop register on pesticides and industrial and consumer chemicals for proper handling and labelling	Copy of a completed Register	1	1	1	1	1
Monitor and prevent imports of unregistered and banned chemicals	Number of monitoring reports	1	1	1	1	1

4. Budget Sub-Programme Operations and Projects

The table lists the main Operations and projects to be undertaken by the sub-programme

Operations	Projects
Environmental compliance and enforcement	Office and residential Buildings
Environmental quality monitoring	Vehicles
Development of adequate legal framework for environmental management	Office equipment & Office supplies
Natural Resource and Environmental Governance Activities	

2.7 Budget by Chart of Account

7 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017 | **Currency:** GH Cedi
Version 1

	Budget	Indicative Year	Indicative Year
0170031- Environmental Compliance And Enforcement	**33,016,277**	**33,016,277**	**33,016,277**
0170031- Environmental Compliance And Enforcement	**33,016,277**	**33,016,277**	**33,016,277**
22 - Use of goods and services	16,799,596	16,799,596	16,799,596
27 - Social benefits [GFS]	1,250,000	1,250,000	1,250,000
28 - Other expense	770,000	770,000	770,000
31 - Non financial assets	14,196,681	14,196,681	14,196,681

BUDGET SUB-PROGRAMME SUMMARY

PROGRAMME 3. ENVIRONMENTAL PROTECTION AND MANAGEMENT

SUB-PROGRAMME 3.2 Environmental Education, Information and Communication

1. Budget Sub-Programme Objective

To enhance understanding on environmental issues through awareness creation in the media, and also through environmental education and community-based initiatives.

2. Budget Sub-Programme Description

The EPA as part of its core mandates as stated in Act 490 is enjoined to create awareness on environmental challenges facing the nation thereby ensuring that the environment is mainstreamed into every development process either at the national, regional, and district or community level. This sub-program is aimed at sensitizing citizens to take charge of their environment in order to promote sustainable use of every natural resource. The core areas of this sub-programme are:

- Stimulate environmental education in formal & non-formal education systems;
- Develop supportive materials for educational institutions;
- Stimulate community environmental initiatives and programmes; and
- Ensure effective use of available environmental information and data.

These activities are coordinated under the auspices of the Environmental Protection Agency with the following departments as the key implementers:

- Education Department;
- Environmental Information and Data Management Department;
- Public Affairs Department;
- Chemicals Control and Management Centre; and
- EPA Training School.

The Media, Academic and Research Institutions collaborate with these departments in executing the above activities.

3. Budget Sub-Programme Results Statement

The table indicates the main outputs, its indicators and projections by which the Ministry measures the performance of this sub-programme. The past data indicates Budget performance whilst the projections are the Ministry's estimate of future performance.

Main Outputs	Output Indicator	Past Years		Projections		
		2015	2016	Budget Year 2017	Indicative Year 2018	Indicative Year 2019
Staff of Regional or District levels trained to deal with environmental assessment	Number of staff at Regional and District level trained	35	35	40	50	50
Environmental issues covered in national or local media	Number of environmental issues covered	1,400	1,450	1,500	1,500	1,500

4. Budget Sub-Programme Operations and Projects

The table lists the main Operations and projects to be undertaken by the sub-programme

Operations	Projects
Environmental protection and Education	Computer and accessories
Environmental Education and awareness raising	Vehicles
Natural resource and environmental governance activities	

2.7 Budget by Chart of Account

7 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017│**Currency:** GH Cedi
Version 1

	Budget	Indicative Year	Indicative Year
0170032 - Environmental Education Information And	**13,206,514**	**13,206,514**	**13,206,514**
0170032 - Environmental Education Information And Communication	**13,206,514**	**13,206,514**	**13,206,514**
21 - Compensation of employees [GFS]	11,066,514	11,066,514	11,066,514
22 - Use of goods and services	2,140,000	2,140,000	2,140,000

2.7 Budget by Chart of Account

7 - Sub-Programme and Natural Account

BUDGET SUB-PROGRAMME SUMMARY

PROGRAMME 3. ENVIRONMENTAL PROTECTION AND MANAGEMENT

SUB-PROGRAMME 3.3 Enforcement and Compliance of Ionizing and Non-Ionizing Radiation

1. Budget Sub-Programme Objective

To ensure the protection of humans and the environment from the harmful effects of radiation.

2. Budget Sub-Programme Description

The NRA Act 895, established the Nuclear Regulatory Authority in 2016 to provide for the regulation and management of activities and practices for the peaceful use of nuclear material or energy, radioactive material or radiation;

This sub-programme seeks to provide for the protection of persons and the environment against the harmful effects of radiation hazards; to ensure the effective implementation of the country's international obligations and for related matters. Core functions include;

- Regulate the introduction of radiation sources, nuclear materials, equipment or practices that expose workers, patients, the public and the environment to radiation.

- Issue, modify, suspend or revoke authorization and determine conditions for authorization.

- Regulate research on radiation and nuclear safety and security, and of radioactive waste matters.

- Regulate the use of radioactive materials in the exploration, exploitation and extraction of oil and gas, and the mining and milling of radioactive ores and other ores associated with radioactive and nuclear materials.

- Define the detailed obligations to be placed on persons who possess radiation sources and nuclear materials, including financial conditions.

- Establish and maintain a national register of radiation sources and of persons authorized to carry out any activity or practice related to a source of radiation.

- Collect information, documents and views from private and public organizations or persons as may be necessary and appropriate for the discharge of its functions.

- Collaborate with agencies responsible for emergency to establish plans and procedures for coping with any radiological emergency and abnormal occurrence involving a nuclear material, radiation source or any other radioactive source.

- Ensure that the operators provide training, information and guidance on nuclear safety, security and safeguards and radiation protection of the public.

- Educate the public on nuclear and radiation matters.

- Establish regional and other offices as it may consider necessary for the proper performance of its functions.

- Facilitate the conduct of inspections by designated inspectors of the International Atomic Energy Agency to verify design information, inspections and complementary access as provided for in the safeguards agreement and the additional protocols.

- Collect, collate and provide information to the International Atomic Energy Agency in accordance with the safeguards agreement and any additional protocols to the agreement.

- Exchange information and co-operate with regulatory authorities of other countries and relevant international organizations on matters of nuclear safety, nuclear security and safeguards.

- Collaborate with the Environmental Protection Agency to identify activities and practices that may require Environmental Impact Assessment and develop environmental guidelines for those activities and practices.

- Ensure that the polluter pays principle is applied in the management of nuclear and radioactive waste in the country.

- Review nuclear safety assessment and safety analysis reports from authorized persons;

3. Budget Sub-Programme Results Statement

The table indicates the main outputs, its indicators and projections by which the Ministry measures the performance of this sub-programme. The past data indicates Budget performance whilst the projections are the Ministry's estimate of future performance.

Main Outputs	Output Indicator	Past Years		Projections		
		2015	2016	Budget Year 2017	Indicative Year 2018	Indicative Year 2019
Development of draft regulations for the control of the use of radiation sources and devices in Ghana	Number of Regulations for the control of the use of radiation sources and devices developed	-	2	3	4	4
Inspection of ionizing radiation facilities to ensure compliance with regulatory requirements	Number of ionizing radiation facilities inspected	-	100	200	250	300
Authorisation of ionizing radiation facilities to ensure compliance with regulatory requirements	Number of ionizing radiation facilities and practices authorised	-	300	350	360	370
Monitoring and inspection of base stations compliance with regulatory requirements	Number of base stations monitored	-	-	500	1000	1500
Drafting of regulations for basic non-ionising radiation protection	Regulations for basic non-ionising radiation protection	-	-	2	2	2
Development of Regulations on Safeguards and Non-Proliferation	Number of Safeguards and Non-Proliferation regulations drafted	-	1	2	2	2
Organize meetings/workshops for internal and external organizations to ensure implementation of Ghana's international obligations	Number of Meetings/workshops with internal and external organizations held	-	4	8	10	10

4. Budget Sub-Programme Operations and Projects

The table lists the main Operations and projects to be undertaken by the sub-programme

Operations	Projects
Compliance, Monitoring and Enforcement	Acquisition of laboratory equipment for inspection and monitoring
Recruitment, Training and Development of Competent and qualified human resource	Cross Country Vehicles
Development of Regulations and Guidance documents	Acquire architectural design for Office and Laboratory accommodation
Sensitization of the public on the benefits and hazards associated with the use of radiation	
Training and Certification of technical staff	

2.7 Budget by Chart of Account

7 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017│**Currency:** GH Cedi
Version 1

BUDGET PROGRAMME SUMMARY
PROGRAMME 4: SPATIAL PLANNING AND HUMAN SETTLEMENT

1.   Budget Programme Objective

To promote efficient and effective planning and management of human settlements and ensure compliance with guidelines, standards and regulations to support socio-economic development.

2.   Budget Programme Description

This programme relates to promoting orderly development of human settlements through preparation and management of the requisite spatial plans and backed by adequate research and capacity building. Key interventions under this programme relate to:

- Planning and management of physical development and growth of human settlements in the country. This is to ensure that all organised human activities within our cities, towns and villages are undertaken in a planned manner and managed properly;
- Preparation of spatial and land use plans. This involves preparation of Spatial Development Frameworks, Structure and Local Plans to help distribute people and activities in space and human settlements of various scales;
- Monitoring settlement growth and controlling development to ensure that human settlements function as healthy places for residence, work and recreation. This is facilitated through efficient and effective development permitting regimes;
- Undertaking continuous research with the aim of improving national planning, zoning guidelines and standards, as well as planning policy and legislation;
- Building capacity for effective planning and management of human settlements; and
- Ensuring compliance with planning regulations on human settlements and land use plans through public education and awareness creation.

2.9. Budget by Chart of Account

9 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017 | **Currency:** GH Cedi
Version 1

	Budget	Indicative Year	Indicative Year
017004 - Spatial Planning And Human Settlement	**14,828,321**	**14,828,321**	**14,828,321**
017004 - Spatial Planning And Human Settlement	**14,828,321**	**14,828,321**	**14,828,321**
21 - Compensation of employees [GFS]	12,548,262	12,548,262	12,548,262
211 - Wages and salaries [GFS]	12,548,262	12,548,262	12,548,262
Goods and Services	1,680,059	1,680,059	1,680,059
22 - Use of goods and services	1,680,059	1,680,059	1,680,059
31 - Non financial assets	600,000	600,000	600,000
311 - Fixed assets	600,000	600,000	600,000

BUDGET SUB-PROGRAMME SUMMARY

PROGRAMME 4: SPATIAL PLANNING AND HUMAN SETTLEMENT

SUB-PROGRAMME 4.1: Human Settlements and Land Use Research and Policy

1.   Budget Sub-Programme Objectives

- To undertake research and formulate appropriate policies aimed at enhancing the planning and management of land use and human settlements in Ghana.
- To collect baseline information on land use and human settlement development trends to facilitate project impact monitoring.

2.   Budget Sub-Programme Description

This sub-programme focuses on data gathering and appropriate research and policy required to enhance land use planning, urbanization management and general human settlement development. Key interventions under this sub-programme relate to:

- Data gathering and research on human settlements and urban development;
- Development and revision of zoning guidelines and planning standards;
- Preparation of manuals for the preparation of spatial plans;
- Review of permitting processes with the view to enhance turn-around times and client services;
- Formulation of human settlement policy;
- Review and passage of requisite legislation on spatial planning; and
- Institutional reforms for town and country planning in Ghana.

3. Budget Sub-Programme Results Statement

The table indicates the main outputs, its indicators and projections by which the Ministry measures the performance of this sub-programme. The past data indicates Budget performance whilst the projections are the Ministry's estimate of future performance

Main Outputs	Output Indicator	Past Years		Projections		
		2015	2016	Budget Year 2017	Indicative Year 2018	Indicative Year 2019
Requisite data sets on all spatial and human settlement development themes gathered	Percentage of data collected on all ten regions of Ghana	35%	37%	43%	45%	48%
National zoning regulations and planning standards reviewed and published	Number. of published guidelines on zoning regulations and planning standards distributed	70	70	200	300	350
Manuals for spatial plan prepared	Number of spatial planning manuals distributed	70	50	100	150	200
Development permitting procedures reviewed and reports published	Number of manuals distributed	-	-	100	150	300
Human settlement policy formulated and published	Number of human settlement policy guidelines distributed	-	-	-	200	300
	Number of stakeholders sensitized on the use of the policy	-	-	-	-	10
The land use and spatial planning bill passed into law	Date of Presidential Assent to the law	-	31st December	-	-	-
Land Use and Spatial Planning Authority established	Availability of scheme of service and Business Plan for the Authority	-	-	31st Dec	-	-
	Date of appointment of staff	-	-	-	30th June	-

4.   Budget Operations and Projects

The table lists the main Operations and projects to be undertaken under the programme

Operations	Projects
Land use and Spatial Planning	**Acquisition of Movable and Unmovable Assets**
Formulate a business plan for the Land Use and Spatial Planning Authority	Construction of the office building for the Land Use and Spatial Planning Bill
Operationalization of the Land Use and Spatial Planning Authority	

2.7 Budget by Chart of Account

7 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017 | **Currency:** GH Cedi
Version 1

	Budget	Indicative Year	Indicative Year
0170041- Human Settlement and Land Use Research and	**14,828,321**	**14,828,321**	**14,828,321**
0170041- Human Settlement and Land Use Research and Policy	**14,828,321**	**14,828,321**	**14,828,321**
21 - Compensation of employees [GFS]	12,548,262	12,548,262	12,548,262
22 - Use of goods and services	1,680,059	1,680,059	1,680,059
31 - Non financial assets	600,000	600,000	600,000

BUDGET SUB-PROGRAMME SUMMARY

BUDGET PROGRAMME 4: Spatial Planning and Human Settlement

SUB-PROGRAMME 4.2: Geographic Information Systems Development

1.   Budget Sub-Programme Objective

To enhance efficiency in land use planning and human settlement management.

2.   Budget Sub-Programme Description

This sub-programme is about upgrading and expanding the application of the Land Use Planning and Management Information System (LUPMIS) and integrating it into the National Spatial Data Infrastructure (NSDI) of Ghana. The sub-programme also looks at intensive and coordinated capacity building to ensure that human settlement planning and management becomes efficient and clients are well served. The main elements of this sub-programme are:

- Upgrading of LUPMIS;
- Integration of the LUPMIS with the NSDI;
- Development of additional GIS applications for enhanced spatial planning and management;
- Training in the application of LUPMIS for stakeholders at various learning levels e.g. advanced, intermediate and basic training.

3.   Budget Sub-Programme Results Statement

The table indicates the main outputs, its indicators and projections by which the Ministry measures the performance of this sub-programme. The past data indicates Budget performance whilst the projections are the Ministry's estimate of future performance.

Main Outputs	Output Indicator	Past Years		Projections		
		2015	2016	Budget Year 2017	Indicative Year 2018	Indicative Year 2019
Land Use Planning and Management Information System (LUPMIS) upgraded and integrated into the NSDI	Full upgraded version of LUPMIS	-	-	31st Dec	-	-
	Fully upgraded & integrated version of LUPMIS	-	-	-	31st Dec	
Key stakeholders in spatial planning and human settlement management trained in the use of LUPMIS	Number of stakeholders trained	150	150	150	200	300

4.   Budget Operations and Projects

The table lists the main Operations and projects to be undertaken under the programme

Operations	Projects
Train district spatial planning committee members on the revised permitting procedures	**Acquisition of Movable and Unmovable Assets**
Train 100No. stakeholders in GIS applications related to property tax administration, street addressing and development permitting	

2.7 Budget by Chart of Account

7 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017│**Currency:** GH Cedi
Version 1

BUDGET PROGRAMME SUMMARY

PROGRAMME 4: Spatial Planning and Human Settlement

SUB-PROGRAMME 4.3 Spatial Plan Preparation

1.   Budget Sub-Programme Objectives

- To implement the new spatial planning model involving preparation of spatial development frameworks, structure and local plans;
- To integrate spatial planning into the national and local development planning process facilitated by NDPC;
- To promote orderliness in the development of human settlements as places of residence, work and recreation.

2.   Budget Sub-Programme Description

This sub-programme looks at the logical model for spatial planning and development of urban and rural settlements. The main levels of spatial plans required ensuring an orderly and coordinated delivery of infrastructure and services are:

- Preparation of Spatial development frameworks for the national as well as the ten regions and some sub-regional enclaves;
- Preparation of structure plans for all major settlements in the country;
- Preparation of local plans for all developing sections of towns and villages;
- Building capacity for preparation of spatial plans

3. Budget Sub-Programme Results Statement

The table indicates the main outputs, its indicators and projections by which the Ministry measures the performance of this sub-programme. The past data indicates Budget performance whilst the projections are the Ministry's estimate of future performance.

Main Outputs	Output Indicator	Past Years		Projections		
		2015	2016	Budget Year 2017	Indicative Year 2018	Indicative Year 2019
National Spatial Development Framework	National Spatial Development Framework prepared by	-	-	31st Dec	-	-
Regional Spatial Development Frameworks	Number of RSDF's prepared	1	1	1	4	5
Sub-regional Spatial Development Frameworks for the SADA region, Eastern Corridor, Western Corridor etc. prepared	Number of sub-regional SDFs prepared	-	-	-	3	3
Structure Plans for major settlements prepared	Number of Structure Plans prepared	6	6	7	20	20
Local Plans prepared for communities' country-wide.	Number of local plans prepared		10	20	30	40
Stakeholders in the preparation and management of various levels of spatial plans trained	Number of stakeholders in the spatial plan preparation and management process trained		50	150	250	400

4.   Budget Operations and Projects

The table lists the main operations and projects to be undertaken under the programme

Operations	Projects
Land use and spatial planning	**Acquisition of Immovable and Movable Assets**
Procure consultants for the preparation of spatial plans	Vehicles
Collect requisite data for spatial plan preparation	Refurbishment of office buildings
Organize training programs for staff on data capture	
Stakeholder consultation meetings on draft plans	
Prepare spatial plans (SDF's, SP's and LP's)	
Undertake monitoring and evaluation exercises	
Train staff and stakeholders on spatial planning and management processes	
Recruit additional staff into the Department	
Sensitize stakeholders on the land use planning and development control systems and processes	

2.7 Budget by Chart of Account

7 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017 | **Currency:** GH Cedi
Version 1

BUDGET PROGRAMME SUMMARY
PROGRAMME 5: BIOTECHNOLOGY DEVELOPMENT

1. Budget Programme Objectives

- To promote public awareness, participation and education concerning the activities of the Authority
- To liaise with any other agency or international organisations concerned with biotechnology and biosafety
- To receive, process, respond to and to make decisions on biosafety applications.

2. Budget Programme Description

The Biotechnology Development programme ensures an adequate level of protection in the field of safe development transfer, handling and use of genetically modified organisms resulting from biotechnology that may have an adverse effect on health and the environment. This programme is responsible for:

- Receiving, processing, responding to and to make decisions on biosafety applications;
- Establishing administrative mechanisms to ensure the appropriate handling and storing of documents and data in connection with the processing of applications and any other matters;
- Acting as the national focal point responsible for liaising with any other agency or international organisations concerned with biotechnology and biosafety; and
- Promoting public awareness, participation and education concerning the activities of the Authority.

2.9. Budget by Chart of Account

9 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017│**Currency:** GH Cedi
Version 1

	Budget	Indicative Year	Indicative Year
017005 - Biosafety Development	**1,499,034**	**1,499,034**	**1,499,034**
017005 - Biosafety Development	**1,499,034**	**1,499,034**	**1,499,034**
21 - Compensation of employees [GFS]	78,995	78,995	78,995
211 - Wages and salaries [GFS]	78,995	78,995	78,995
Goods and Services	1,120,039	1,120,039	1,120,039
22 - Use of goods and services	1,120,039	1,120,039	1,120,039
31 - Non financial assets	300,000	300,000	300,000
311 - Fixed assets	300,000	300,000	300,000

BUDGET SUB-PROGRAMME SUMMARY

PROGRAMME 5: Biotechnology Development

SUB-PROGRAMME 5.1: Biosafety Regulation

1. Budget Sub-Programme Objectives

- To effectively regulate the production and transfer of genetically modified organisms; and
- To educate the general public on biosafety issues.

2. Budget Sub-Programme Description

This sub-programme looks at regulating agencies and organisations that apply the principles of biosafety. This sub-programme is also responsible for implementing the Biosafety Act.

Major Operations to be undertaken include, to:

- Regulate the production and transfer of genetically modified organisms; and
- Educate the general public on biosafety issues.

3. Budget Sub-Programme Results Statement

The table indicates the main outputs, its indicators and projections by which the Ministry measures the performance of this sub-programme. The past data indicates Budget performance whilst the projections are the Authority's estimate of future performance.

Main Outputs	Output Indicator	Past Years		Projections		
		2015	2016	Budget Year 2017	Indicative Year 2018	Indicative Year 2019
Research institutions conducting trials according to laid down guidelines	No. of visits undertaken by M&E team	4	4	4	4	4
Provision of guidance and support for research institutions	Reports of decisions taken to guide research institutions in conducting research	3	2	2	4	4

4. Budget Sub-Programme Operations and Projects

The table lists the main Operations and projects to be undertaken by the sub-programme.

Operations	Projects
Development and Promotion of The Application of Science and Technology	**Acquisition of Immovable and Movable Assets**
Public awareness creation and education of stakeholders: policy makers, members of Parliament, TV and Radio discussions, editors, journalists, etc.	Acquire office equipment, computers and accessories, photocopiers
Training and development of staff and inspectors (from the regulatory agencies), including Technical Advisory Committee and Institutional Biosafety Committees on biosafety management	Acquire two vehicles.
Development and implementation of guidelines, rules and regulations, biosafety plans and framework, training manuals and any other relevant documents to aid the activities of the NBA in accordance with the Act	Acquire furniture and air conditioners
Granting of permit, monitoring and inspection of confined field trials	Do landscaping of compound.
Establishment of GMO detection lab	Prepare the signage.
Inaugurate Appeals Tribunal	Develop internet system and intercom.
Sign MOU with Regulatory Agencies	
Initiate the process to recruit for the Authority.	

2.7 Budget by Chart of Account

7 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017 | **Currency:** GH Cedi
Version 1

	Budget	Indicative Year	Indicative Year
0170051 - Biotechnology Regulation	**1,499,034**	**1,499,034**	**1,499,034**
0170051 - Biotechnology Regulation	**1,499,034**	**1,499,034**	**1,499,034**
21 - Compensation of employees [GFS]	78,995	78,995	78,995
22 - Use of goods and services	1,120,039	1,120,039	1,120,039
31 - Non financial assets	300,000	300,000	300,000

2.7 Budget by Chart of Account

7 - Sub-Programme and Natural Account

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Funding: All Source of Funding
Year: 2017 | **Currency:** GH Cedi
Version 1

1.6. Appropriation Bill

Summary of Expenditure by Cost Center, Economic Item and Funding

Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
Year: 2017 **| Currency:** Value
Version 1

	GoG				IGF				Funds / Others			Donors			Grand Total
	Compensation of employees	Goods and Services	Capex	Total	Compensation of employees	Goods and Services	Capex	Total	Statutory	ABFA	Others	Goods and Services	Capex	Total	
017 - Ministry of Environment Science, Technology and Innovation (MESTI)	**177,765,586**	**11,200,390**	**6,000,000**	**194,965,976**	**11,066,514**	**28,517,535**	**17,104,072**	**56,688,121**				**46,351,921**	**51,146,124**	**97,498,045**	**349,152,142**
01701 - Headquaters	**1,448,356**	**4,480,156**	**3,000,000**	**8,928,512**								**46,351,921**	**51,146,124**	**97,498,045**	**106,426,557**
0170101 - Finance and Administration	1,448,356	2,329,681	3,000,000	6,778,037									51,146,124	51,146,124	57,924,161
0170101001 - Finance and Administration	1,448,356	2,329,681	3,000,000	6,778,037									51,146,124	51,146,124	57,924,161
0170102 - Science and Technology Directorate		448,016		448,016											448,016
0170102001 - Science and Technology Directorate		448,016		448,016											448,016
0170103 - Policy, Planning, Monitoring and Evaluation		672,023		672,023											672,023
0170103001 - Policy, Planning, Monitoring and Evaluation		672,023		672,023											672,023
0170104 - RSIM Directorate		358,412		358,412											358,412
0170104001 - RSIM Directorate		358,412		358,412											358,412
0170105 - Human Resource Directorate		313,611		313,611											313,611
0170105001 - Human Resource Directorate		313,611		313,611											313,611
0170106 - Environment Directorate		358,412		358,412								46,351,921		46,351,921	46,710,333
0170106001 - HeadquatersEnvironment Directorate		358,412		358,412								46,351,921		46,351,921	46,710,333
01702 - Environmental Protection Agency					**11,066,514**	**20,959,596**	**14,196,681**	**46,222,791**							**46,222,791**
0170201 - Head Office					11,066,514	20,959,596	14,196,681	46,222,791							46,222,791
0170201001 - Head Office					11,066,514	20,959,596	14,196,681	46,222,791							46,222,791
01703 - Town and Country Planning Department (T.C.P.D)	**12,548,262**	**1,680,059**	**600,000**	**14,828,321**											**14,828,321**
0170301 - Greater Accra Regional Office	1,870,214	68,000		1,938,214											1,938,214
0170301001 - Greater Accra Regional Office	1,870,214	68,000		1,938,214											1,938,214
0170302 - Volta Regional Office	805,302	68,000		873,302											873,302
0170302001 - Volta Regional Office	805,302	68,000		873,302											873,302
0170303 - Eastern Regional Office	1,921,422	68,000		1,989,422											1,989,422
0170303001 - Eastern Regional Office	1,921,422	68,000		1,989,422											1,989,422
0170304 - Central Regional Office	1,146,264	68,000		1,214,264											1,214,264
0170304001 - Central Regional Office	1,146,264	68,000		1,214,264											1,214,264

1.6. Appropriation Bill
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Entity: 017 - Ministry of Environment Science, Technology and Innovation (MESTI)
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	GoG				IGF				Funds / Others			Donors			Grand Total
	Compensation of employees	Goods and Services	Capex	Total	Compensation of employees	Goods and Services	Capex	Total	Statutory	ABFA	Others	Goods and Services	Capex	Total	
0170305 - Western Regional Office	898,547	68,000		966,547											966,547
0170305001 - Western Regional Office	898,547	68,000		966,547											966,547
0170306 - Ashanti Regional Office	1,919,107	68,000		1,987,107											1,987,107
0170306001 - Ashanti Regional Office	1,919,107	68,000		1,987,107											1,987,107
0170307 - Brong Ahafo Regional Office	1,187,448	68,000		1,255,448											1,255,448
0170307001 - Brong Ahafo Regional Office	1,187,448	68,000		1,255,448											1,255,448
0170308 - Northern Regional Office	1,014,423	68,000		1,082,423											1,082,423
0170308001 - Northern Regional Office	1,014,423	68,000		1,082,423											1,082,423
0170309 - Upper East Regional Office	406,310	68,000		474,310											474,310
0170309001 - Upper East Regional Office	406,310	68,000		474,310											474,310
0170310 - Upper West Regional Office	469,776	68,000		537,776											537,776
0170310001 - Upper West Regional Office	469,776	68,000		537,776											537,776
0170311 - Head Office	909,449	1,000,059	600,000	2,509,508											2,509,508
0170311001 - Head Office	909,449	1,000,059	600,000	2,509,508											2,509,508
01704 - Ghana Atomic Energy Commission (G.A.E.C)	**46,546,776**	**1,680,058**	**900,000**	**49,126,834**		**2,090,068**	**564,018**	**2,654,086**							**51,780,920**
0170401 - Head Office	34,806,588	806,428	900,000	36,513,015		815,127	350,000	1,165,127							37,678,142
0170401001 - Head Office	34,806,588	806,428	900,000	36,513,015		815,127	350,000	1,165,127							37,678,142
0170402 - National Nuclear Research Institute (N.N.R.I.)	4,032,103	252,009		4,284,112		250,808	80,000	330,808							4,614,920
0170402001 - National Nuclear Research Institute (N.N.R.I.)	4,032,103	252,009		4,284,112		250,808	80,000	330,808							4,614,920
0170403 - Biotechnology and Nuclear Research Institute (B.N.R.I)	3,176,923	126,004		3,302,927		167,205	34,018	201,223							3,504,151
0170403001 - Biotechnology and Nuclear Research Institute (B.N.R.I)	3,176,923	126,004		3,302,927		167,205	34,018	201,223							3,504,151
0170404 - Radiation Protection Institute (R.P.I)	1,307,821	252,009		1,559,830		250,808	80,000	330,808							1,890,638
0170404001 - Radiation Protection Institute (R.P.I)	1,307,821	252,009		1,559,830		250,808	80,000	330,808							1,890,638
0170405 - School of Nuclear and Allied Sciences	921,106	75,603		996,709		313,510		313,510							1,310,219
0170405001 - School of Nuclear and Allied Sciences	921,106	75,603		996,709		313,510		313,510							1,310,219
0170406 - Radiological and Medical Sciences Research Institute	979,432	50,402		1,029,834		83,603	20,000	103,603							1,133,437

1.6. Appropriation Bill
Summary of Expenditure by Cost Center, Economic Item and Funding

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	GoG				IGF				Funds / Others			Donors			Grand Total
	Compensation of employees	Goods and Services	Capex	Total	Compensation of employees	Goods and Services	Capex	Total	Statutory	ABFA	Others	Goods and Services	Capex	Total	
0170406001 - Radiological and Medical Sciences Research Institute	979,432	50,402		1,029,834		83,603	20,000	103,603							1,133,437
0170407 - Nuclear Power Institute	633,491	67,202		700,693		125,404		125,404							826,097
0170407001 - Nuclear Power Institute	633,491	67,202		700,693		125,404		125,404							826,097
0170408 - Ghana Space and Tech. Inst.	689,313	50,402		739,715		83,603		83,603							823,317
0170408001 - Ghana Space and Tech. Inst	689,313	50,402		739,715		83,603		83,603							823,317
01750 - Council for Scientific and Industrial Research (CSIR)	113,096,457	1,680,060	900,000	115,676,516		5,467,871	2,343,373	7,811,244							123,487,760
0175001 - Head Office	9,655,875	218,407	900,000	10,774,282			2,343,373	2,343,373							13,117,655
0175001001 - General Administration	9,655,875	218,407	900,000	10,774,282			2,343,373	2,343,373							13,117,655
0175002 - Crops Research Institute	10,756,888	100,804		10,857,692		174,692		174,692							11,032,384
0175002001 - General Administration	10,756,888	100,804		10,857,692		174,692		174,692							11,032,384
0175003 - Animal Research Institute	8,517,447	100,804		8,618,251		104,220		104,220							8,722,470
0175003001 - General Administration	8,517,447	100,804		8,618,251		104,220		104,220							8,722,470
0175004 - Soil Research Centre	1,185,446	33,601		1,219,047											1,219,047
0175004001 - General Administration	1,185,446	33,601		1,219,047											1,219,047
0175005 - Building , Road and Research Institute	9,473,394	117,604		9,590,998		1,201,480		1,201,480							10,792,478
0175005001 - General Administration	9,473,394	117,604		9,590,998		1,201,480		1,201,480							10,792,478
0175006 - Council for Scientific and Industrial Research (CSIR)	6,414,673	117,604		6,532,277		357,664		357,664							6,889,942
0175006001 - General Administration	6,414,673	117,604		6,532,277		357,664		357,664							6,889,942
0175007 - Institute of Industrial Research	5,324,896	100,804		5,425,700		202,346		202,346							5,628,046
0175007001 - General Administration	5,324,896	100,804		5,425,700		202,346		202,346							5,628,046
0175008 - Water Research Institute	8,717,086	117,604		8,834,690		1,724,771		1,724,771							10,559,461
0175008001 - General Administration	8,717,086	117,604		8,834,690		1,724,771		1,724,771							10,559,461
0175009 - Oil Palm Research Institute	8,154,194	117,604		8,271,798		580,921		580,921							8,852,719
0175009001 - General Administration	8,154,194	117,604		8,271,798		580,921		580,921							8,852,719
0175010 - Savana Agricultural Research Institute	10,411,456	100,804		10,512,260		589,540		589,540							11,101,800
0175010001 - General Administration	10,411,456	100,804		10,512,260		589,540		589,540							11,101,800

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	GoG				IGF				Funds / Others			Donors			Grand Total
	Compensation of employees	Goods and Services	Capex	Total	Compensation of employees	Goods and Services	Capex	Total	Statutory	ABFA	Others	Goods and Services	Capex	Total	
0175011 - Science & Tech Policy Research Institute	2,505,515	67,202		2,572,717		92,833		92,833							2,665,550
0175011001 - General Admin	2,505,515	67,202		2,572,717		92,833		92,833							2,665,550
0175012 - Forestry Research Institute of Ghana	9,179,554	100,804		9,280,358											9,280,358
0175012001 - General Admin	9,179,554	100,804		9,280,358											9,280,358
0175013 - Plant Genetic Resource Research Institute	4,398,778	84,003		4,482,781		164,046		164,046							4,646,827
0175013001 - General Administration	4,398,778	84,003		4,482,781		164,046		164,046							4,646,827
0175014 - Institute of Science and Technology Information	2,914,676	84,003		2,998,679		158,888		158,888							3,157,566
0175014001 - Institute of Science and Technology Information	2,914,676	84,003		2,998,679		158,888		158,888							3,157,566
0175015 - Soil Research Institute	6,326,233	134,405		6,460,638		116,471		116,471							6,577,109
0175015001 - General Administration	6,326,233	134,405		6,460,638		116,471		116,471							6,577,109
0175016 - Ghana Grains and Development Project	7,372,286	84,003		7,456,289											7,456,289
0175016001 - General Administration	7,372,286	84,003		7,456,289											7,456,289
0175017 - Roots and Tuber Project	1,788,060			1,788,060											1,788,060
0175017001 - General Administration	1,788,060			1,788,060											1,788,060
01751 - National Biosafety Authority (NBA)	78,995	1,120,039	300,000	1,499,034											1,499,034
0175101 - General Admin	78,995	1,120,039	300,000	1,499,034											1,499,034
0175101001 - General Admin	78,995	1,120,039	300,000	1,499,034											1,499,034
01752 - Nuclear Regulatory Authority	4,046,740	560,020	300,000	4,906,760											4,906,760
0175201 - Gen. Admin	4,046,740	560,020	300,000	4,906,760											4,906,760
0175201001 - Gen.Admin	4,046,740	560,020	300,000	4,906,760											4,906,760