



**United Nations Development Programme  
Country: Ghana**

**PROJECT DOCUMENT**

**Project Title:** Low Emission Capacity Building Project - Ghana

**UNDAF Outcome**

**Outcome 3:** National systems and existing institutional arrangements for Climate Change mitigation and adaptation and for disaster risk reduction, as defined in the Hyogo Framework for Action, at the district, regional and national level are functional.

**Expected UNDAF Outputs**

- Output 3.1: Capacity of the National Climate Change Committee (NCCC) for policy development, participation in international negotiations, coordination and harmonization of sectoral strategies on climate change strengthened by 2016
- Output 3.2: Mitigation strategies and practices integrated into climate resilient development policies, plans and programmes
- Output 3.3: The capacity of the Ministry of Finance and Economic Planning (MOFEP) and private sector (like banks and industries) to mobilize and access international funds on climate change mitigation and adaptation developed.

**Executing Partner:** UNDP Ghana.

**Implementing Partner:** Ministry of Environment, Science, Technology and Innovation (MESTI)

**Responsible Partner:** Environmental Protection Agency (EPA)

**Brief Description**

1. Ghana's low emission capacity building (LECB) project will be catalytic and complementary to existing efforts on low carbon development transition. The project will focus on strengthening Ghana's capacity to align its economic development to a low carbon path. In doing so, the project will seek to support the following activities, which are all aimed at further enabling Ghana's readiness capabilities: (i) develop up to 2 financeable energy-related NAMAs and the associated MRV plans; (ii) finalise and promote the Ghana NAMAs Investor Guide among the business community; and (iii) further improve upon on the national systems for greenhouse gas inventories. It is expected that the implementation of the LECB project activities will contribute to reduce GHG emissions, directly or indirectly in the economic development of Ghana. Not only would the implementation of the LECB project help achieve the relevant low carbon development objectives in the national climate change policy, it will also contribute to the overall mainstreaming of climate change into national development. The project will therefore have three outcomes. These are: (1) Up to Two NAMAs formulated in the energy sector, in the context of national development priorities, including the associated MRV systems, (2) Ghana's NAMAs Investor Guide promoted with the business community, and (3) National system for preparation of GHG inventories strengthened.



2. The work package on NAMAs will focus on preparing up to 2 energy-related financeable NAMAs and the associated MRV system. The development of the NAMAs will not only serve as good learning experience for private businesses and investors that are interested in developing similar projects, it would also have turn-key value. The MRV design will address technical and financial M&E requirements for the selected NAMAs and at the same time contribute to framing the national MRV system.
3. For the second outcome on the finalisation and promotion of the NAMAs Investor Guide, emphasis will be given to identifying enabling conditions to attract private capital into the NAMAs investment sectors. Through this work package, the LECB project will support the finalisation and promotion of the draft NAMAs investor guide that was started by the Environmental Protection Agency with support from the UNDP country office. As part of the activities to promote the investor guide, key frontline investment organisations such as Ghana Investment Promotion Centre, Ministry of Trade, Private Enterprise Foundation, Forestry Commission, Minerals Commission, Ghana National Petroleum Corporation etc. will be extensively engaged to create the necessary awareness about the potential NAMA investment opportunities.
4. To realise the GHG national inventory system outcome, the project will seek to build on the experience in designing of project-based MRV for CDM and, where possible, catalyse greater synergies with the national inventory system reforms that are taking place under the Third National Communication (TNC). The LECB project will not seek to duplicate what is already on going under the TNC but rather complement the work to ensure that maximum benefits are derived from the two initiatives and at the same time, where there are gaps, the LECB project contributes to filling them.
5. It is important to note that the LECB project implementation is consistent with the objectives that have been articulated in various key national policies and plans. Hence strong value addition will be realised following the implementation of the project to the national priority of transiting to low carbon status.

Programme Period:	2013-2014	Total resources required (incl 7% GMS):	\$642,000
Atlas Award ID:	00065880	Total allocated resources:	\$642,000
Project ID:	00082218	• Regular	\$642,000
PIMS #	5063	• Other:	
Start date:	January 2013	○ Government	_____
End Date	December 2014	○ In-kind	_____
Management Arrangements	NIM	○ Other	_____
PAC Meeting Date	14 March 2013		



Agreed by (Executing Entity/Implementing Partner):

---

Date/Month/Year

Agreed by (UNDP):

---

Date/Month/Year



## TABLE OF CONTENTS

<b>1. SITUATION ANALYSIS</b> .....	<b>7</b>
1.1. CONTEXT AND SIGNIFICANCE: ENVIRONMENTAL, POLITICAL, AND INSTITUTIONAL .....	7
1.1.1 <i>Alignment with Current UNDAF Cycle</i> .....	7
1.1.2 <i>National policy context</i> .....	8
1.1.3 <i>Linkages to Planned, Implemented and On-going Carbon Emission Reduction Programs</i> .....	8
1.1.4 <i>Sub-Regional Policy Context</i> .....	9
1.1.5 <i>Significance to Ghana's Ability to meeting Reporting Obligation under UNFCCC</i> .....	10
1.2. ENERGY SECTOR ANALYSIS .....	10
1.2.1 <i>Biomass energy: Reducing Emissions from Deforestation and Forest Degradation (REDD+) from Fuel wood and Charcoal Production and Use</i> .....	13
1.2.2 <i>Modern Forms of Renewable Energy Penetration in National Energy Mix</i> .....	13
1.2.3 <i>Biomass Energy from Waste Management</i> .....	14
<b>2. STRATEGY</b> .....	<b>16</b>
2.1. PROJECT RATIONALE .....	16
2.2. PROJECT SCOPE .....	17
2.3. OBJECTIVES/OUTPUTS AND OUTCOMES .....	18
2.3.1 <i>Outcome 1: Up to 2 financeable energy-related NAMAs formulated in the context of national development priorities, including the associated MRV system</i> .....	18
2.3.2 <i>Outcome 2: NAMAs investor guide promoted among core business community</i> .....	19
2.3.3 <i>Outcome 3: National system for preparation of GHG inventories strengthened</i> .....	19
<b>3. COUNTRY OWNERSHIP</b> .....	<b>19</b>
<b>4. PROJECT RESULTS FRAMEWORK</b> .....	<b>21</b>
<b>5. PROJECT BUDGET</b> .....	<b>24</b>
<b>6. WORK-PLAN</b> .....	<b>26</b>
<b>7. MANAGEMENT ARRANGEMENTS</b> .....	<b>28</b>
<b>8. MONITORING AND EVALUATION FRAMEWORK-</b> .....	<b>32</b>
8.1 PROJECT INCEPTION: .....	32
8.2 QUARTERLY PROGRESS REPORT .....	32
8.3 PERIODIC MONITORING: .....	33
8.4 END OF PROJECT: .....	33
8.5 LEARNING AND KNOWLEDGE SHARING: .....	33
8.6 MONITORING & EVALUATION WORKPLAN .....	34
<b>9. APPENDICES</b> .....	<b>36</b>
APPENDIX A: TECHNICAL COMPONENTS OF THE PROJECT PROPOSAL .....	36
APPENDIX B: VISIBILITY & OUTREACH UNDER THE LECB PROJECT .....	47
APPENDIX C: TERMS OF REFERENCE .....	49
PROJECT SUPERVISOR, MEST (IMPLEMENTING PARTNER) .....	49
APPENDIX D: SUMMARY OF LOW CARBON AND MITIGATION RELATED ACTIVITIES IN GHANA .....	52
<b>REFERENCES</b> .....	<b>53</b>



## ACRONYMS

CCA	Country Common Analysis
CCS	Climate Change Secretariat
CDM	Clean Development Mechanism
CDM-POA	Clean Development Mechanism Programme of Activities
CP	Country Programme
CPAP	Country Programme Action Plan
CPD	Country Programme Document
CSO	Civil Society Organisation
ECOWAS	Economic Community of West Africa
EU	European Union
GHG	Greenhouse Gas
GHGI	Greenhouse Gas Inventory
GPG	Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories
GNPC	Ghana National Petroleum Corporation
HDR	Human Development Report
IISD	International Institute for Sustainable Development
INC	Initial National Communication to UNFCCC
IPCC	Intergovernmental Panel on Climate Change
AGI	Association of Ghana Industries
GNPC	Ghana National Cleaner Production Centre
GSGDA	Ghana's Shared Growth and Development Agenda
LECB	Low Emission Capacity Building
LED	Low Emission Development
LULUCF	Land Use, Land Use Change and Forestry
MEAs	Multilateral Environmental Agreements
MTEF	Medium Term Expenditure Framework
MTDPF	Medium Term Development Policy Framework
SMTDP	Sector Medium-Term Development Plan
MESTI	Ministry of Environment, Science, Technology and Innovation
MOU	Memorandum of Understanding
MRV	Measuring, Reporting and Verification
NAMAs	Nationally Appropriate Mitigation Actions
NCCPF	National Climate Change Policy Framework
NCCC	National Climate Change Committee
NDPC	National Development Planning Commission
NFP	National Focal Point
EPA	Environment Protection Agency



NGO	Non Governmental Organisation
NM VOC	Non-Methane Volatile Organic Compounds
PM	Project Manager
PPR	Project Progress Report
PSC	Project Steering Committee
QA/ QC	Quality Assurance/Quality Control
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SBAA	Standard Basic Assistance Agreement
SNC	Second National Communication
TNC	Third National Communication
TWG	Technical Working Group
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNSE4ALL	United Nations Sustainable Energy for All
UNFCCC	United Nations Framework Convention on Climate Change



## 1. Situation analysis

### 1.1. Context and significance: environmental, political, and institutional

1. In the last decade, Ghana has continuously demonstrated her commitments to tackle the threats climate change poses to the socio-economic development of the country. Climate change is therefore one of the priority development challenges receiving significant attention from Government of Ghana and its development partners. Because climate change is a major development issue for government, several attempts are afoot to ensure greater mainstreaming into the national medium term development policy framework, which is currently being implemented as the Ghana Shared Growth and Development Agenda (GSGDA) from 2010 to 2013. The strategic objectives in the GSGDA that seek to address climate change challenges have been translated into action points in the 2012 National Climate Change Policy (NCCP). Low carbon economic growth and development, effective and adequate adaptation to protect its people, and social development are the three central themes of the NCCP.
2. The LECBP will therefore seek to strengthen the technical and institutional capacities of Ghana to be able to facilitate greater alignment to low carbon pathway without compromising its core poverty reduction objectives. The LECBP will therefore build on the initial low carbon developments efforts that have taken place with support from UNDP and other development partners and further, consolidate the readiness of the country to implement effective GHG mitigation actions. The emphasis of the LECBP project will be in the following three aspects of low emission development: (i) identify and develop up to 2 financeable energy-related NAMAs and its MRV, (ii) finalise and promote Ghana's NAMAs Investor Guide and (iii) further strengthen the national systems for GHG inventory.

#### 1.1.1 Alignment with Current UNDAF Cycle

3. Ghana's LECBP is consistent with the current 2012-2016 United Nations Development Assistance Framework (UNDAF), signed between Government of Ghana and the United Nations system in April 2011. The UNDAF presents coherent vision and collective programme results the UN system seeks to achieve in support of key priorities of the Government's development agenda. The relevant outcome under the UNDAF thematic area 2 on sustainable environment, energy and human settlements, which are directly derived from 4 of the 7 thematic priorities of the GSGDA is Outcome 3 (National systems and existing institutional arrangements for climate change mitigation and adaptation and for disaster risk reduction, as defined in the Hyogo Framework for Action at the district, regional and national level are functional). The specific outputs of the outcome 3: capacity of the national climate change committee (NCCC) for policy development, participation in international negotiations, coordination and harmonization of sectoral strategies on climate change strengthened by 2016; mitigation strategies and practices integrated into climate resilient development policies, plans and programmes and; the capacity of the Ministry of Finance and Economic Planning and private sector to mobilize and access international funds on climate change mitigation and adaptation developed.
4. The UNDAF identifies specific capacity building programs to implement low emissions growth path for sustainable development, namely (a) developing and implementing technical support to NCCC to operationalize policies, policy reforms and plans approved under the national climate change policy framework to promote green economy, (b) Institutionalizing a national system for GHG inventory in relevant institutions, (c) Integrating low emissions development strategies and best practices into climate



resilient development policies, plans and programs, and budget guidelines for climate change in Medium Term Expenditure Framework (MTEF); (d) implementing selected NAMAs to increase renewable energies generation in national energy mix and drive penetration of modern renewable energy technologies (solar, wind, biogas, mini hydro) to about 10% by 2015, and promoting programs of Energy Commission and Ministry of Energy for innovation, deployment and diffusion of energy efficiency and renewable energy technologies. As part of the current implementation of UNDAF, support is being provided to Government of Ghana to undertake number of low carbon development readiness activities including NAMAs. So far, the readiness activities which have been coordinated by the EPA focussed on undertaking analytical work on the list of 55 NAMAs submitted to the UNFCCC by the Government of Ghana, designing the institutional arrangement for GHG MRV and preparation of NAMAs investor guide. The LECBP will therefore build on these country efforts in order to make significant impact.

### 1.1.2 National policy context

5. Ghana has taken number of steps to address socio-economic development challenges pertaining to environment and climate change. The GSGDA seeks to integrate sectoral sustainable development actions contained in the national environment policy and can potentially contribute to low emissions development growth as well as climate resilient growth. Ghana has also undertaken extensive consultation to formulate the national climate change policy, which was approved in 2012. The LECB project is thus aligned to Ghana's commitment to low carbon growth development that is prioritised in the national climate change policy. The NCCP is anchored on the GSGDA and contains specific strategies that could contribute to limiting emissions in key economic sectors. The GSGDA therefore recognises that low carbon growth agenda as an integral effort towards the realization of Ghana's commitment to a green economy. The LECBP is also consistent with the objectives that have been articulated in various specific sectoral policies, particularly; national energy policy; national action plan on Sustainable Energy For All by 2030; the forest and wildlife policy, Sanitation for ALL 2015, national transport policy, and the national REDD+ strategy.

### 1.1.3 Linkages to Planned, Implemented and On-going Carbon Emission Reduction Programs

6. The project will draw lessons from planned, on-going and implemented low emissions development projects supported by multilateral and bilateral donor agencies in the dominant carbon emissions in energy and land use change and forestry in Ghana. The Energy Sector programs include renewable energy-based electricity for rural, social and economic development in Ghana (RESPRO), promoting of appliance energy efficiency and transformation of the refrigerating appliances market in Ghana (UNDP/GEF), energy development and access project (GEDAP), integration of renewable energy sources into the national energy grid mix to drive penetration, and the Bus Rapid Transit under Ghana Urban Transport. The Forestry and land use Change sector involves growing forest partnership (GFP), forest resources use management project (FORUM), Ghana Readiness Preparation Proposal (R-PP), REDD+ R-PP Implementation and the Chainsaw Milling Project. Synergies will also be sought with the recently launched Facilitating Implementation and Readiness for Mitigation (FIRM) project of UNEP Risoe.
7. Three programmes are of particular relevance:
  - **Forest Carbon Partnership Facility (FCPF):** Ghana is one of the countries piloting the FCPF Programme and participating in Forest Improvement Program (FIP) under a REDD+ project. Carbon stock assessments and MRV are critical components of a REDD+ project. The LECB project will build on the methodologies and procedures being documented in GHG inventory in land use and land use change





sector under a REDD+ project for the estimation of the contribution of Charcoal production and use in emissions from deforestation and forest degradation as well as the impact that would be attained in emissions reduction through the NAMAs for sustainable charcoal production and use.

- **CDM Programme of Activities (POAs):** Ghana is already developing and participating in CDM-POAs in selected categories of the energy and waste sectors. The LECB Project's MRV component could draw practical learning lessons from MRV methodologies of the CDM-POAs approved by the CDM Board of the UNFCCC in energy-related categories that are being considered for the formulation of NAMAs proposal under the LECB project, including the CDM projects developed in Ghana and submitted for registration including the utilization of natural gas for low intensity power generation by the Volta River Authority (VRA) as project owners.
  - **Technology Needs Assessment:** The sectoral NAMAs to be developed under the LECBP have considered the outcomes of technology needs assessment (TNA) under the Convention conducted in 2006 and updated in 2011. In particular, a technology registry will be created to match technology needs of the proposed NAMAs based on the first TNA (2006) and the findings of the updated TNA, which will among other things, provide a long term climate change technology scenarios.
8. The project will also build on other on-going low emissions development relevant initiatives, namely:
- The National Climate Change Policy and Implementation Strategy funded by the UNDP
  - Third National Communication (2011-2014) funded by GEF
  - Renewable energy, Ghana Energy Development and Access Project GEDAP (formerly) Development of Renewable Energy and Energy Efficiency, 2007-2013 funded by IDA, Africa Catalytic Growth Fund, AFDB, Switzerland, and Global Partnership on output based aid.
  - Renewable energy, Solar PV Systems to Increase Access to Electricity Services in Ghana, Government of Ghana, 2008-2011, Global Partnership on output based aid
  - Forestry and land use inventories and carbon accounting under Ghana Readiness Preparation Proposal (R-PP), Forestry Commission, 2010, funded by the World Bank Forest Carbon Partnership Facility (FCPF)
  - Forestry and land use, Ghana Readiness Preparation Proposal (R-PP), Forestry Commission, funded by the World Bank

For an illustration of how these various initiatives link together, please refer to Appendix D.

#### 1.1.4 Sub-Regional Policy Context

9. Regionally, the project supports the collaboration within the Economic Community of West Africa (ECOWAS) to develop programmatic NAMAs in the sub-region. The collaboration between Ghana and ECOWAS seeks to explore possibilities to leverage opportunities in sectors that are promising to demonstrate and implement NAMAs successfully at the sub-regional scale. The initiative is beginning to resonate strongly among member countries following an inception meeting to evolve a roadmap for the exercise. The roadmap is expected to translate into NAMAs framework (ECOMA), which will be a sub-regional blueprint on enhanced mitigation actions.



### **1.1.5 Significance to Ghana's Ability to meeting Reporting Obligation under UNFCCC**

10. Ghana signed the UNFCCC on 13 June 1992 and ratified on 8 September 1993. In response to Article 4 and Article 12 of the Convention, Ghana compiled its Initial National Communication and national GHG Inventory from 1990-1996 and submitted to the UNFCCC in 2000. Ghana subsequently developed and submitted its Second National Communication (SNC) to the UNFCCC in 2011 and has commenced the enabling activities for the preparation of its Third National Communication (TNC). The SNC improved on the INC and recalculated the GHG emissions for the period 1990-2006. The national system for GHG inventories, which includes institutional arrangements, roles and responsibilities of institutions, and the underpinning collaborative mechanism, has seen progressive improvement from the INC to the TNC. Ghana envisions that in the near future, its national system for GHG inventories will become robust, strengthened and has adequate capacity to respond to its reporting obligations, particularly the emerging biennial update reporting (BUR) by non-Annex-1 Parties to the Convention.
11. Reforms to the national inventory system under the TNC will seek to address the three elements of the national system for GHG in an integrated manner. These elements are: decentralised institutional arrangements, clear institutional roles and responsibilities, and underpinning collaborative mechanisms. Although the design of the new national system is in place, much more support is needed to translate it into implementation. It is anticipated that the LECBP project will help address some of the capacity constraints that have been identified as priority by government of Ghana. Thus, the LECBP will respond to the critical capacity-building needs essential to enable Ghana, to participate in, and to implement effectively, its commitments under the Convention.
12. Furthermore, the long-term cooperative action under the Convention encourages developing country parties to develop low-emission development strategies, recognizing the need for financial and technical support by developed country Parties for the formulation of these strategies. Ghana has opportunities to make use of international support provided under the LECBP for shifting towards a lower carbon economic growth path.

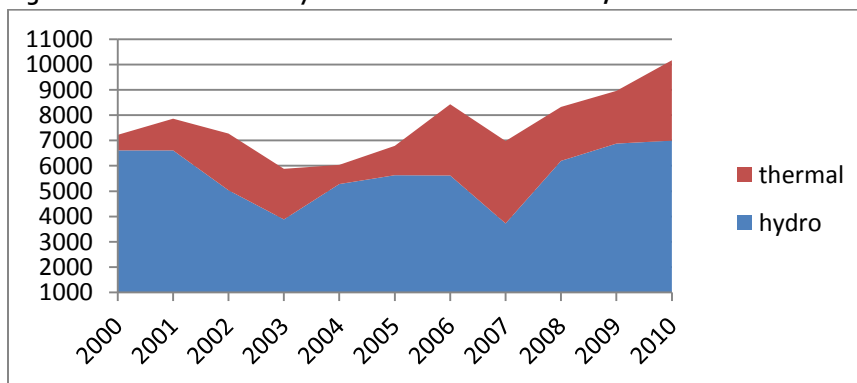
### **1.2. Energy Sector Analysis**

13. The main sources of electricity generation in Ghana are hydropower plants and thermal power plants and a limited proportion of renewable energy (figure 1). The installed capacity of hydropower and thermal power generation were 1,180MW and 989.5MW as at 2010 with average capacity utilization of about 88%. Additional 400MW and 350MW from hydro power and thermal plants respectively will be added by the end of 2013. It is expected that the promulgation of the Renewable Energy Act (Act 832) and the subsequent designing of feed-in-tariff scheme will facilitate greater uptake of more renewable energy technologies onto the public electricity grid. Ghana's energy strategy (2010) identified potential mini-hydro power generation sites. However, the share of hydropower generation on the national grid has reduced significantly over the years from 92% in 2000 to 69% in 2010. Thermal power generation, initially with light crude oil and substituted later with natural gas, has increased steadily from 613GWh in 2000 to 3171GWh in 2010, representing a 35% increase of thermal power generation. The total electricity has increased from 7,223 to 10,166GWh over the same period representing 40.7% increase towards meeting the projected rate of energy generation at 10% per year.



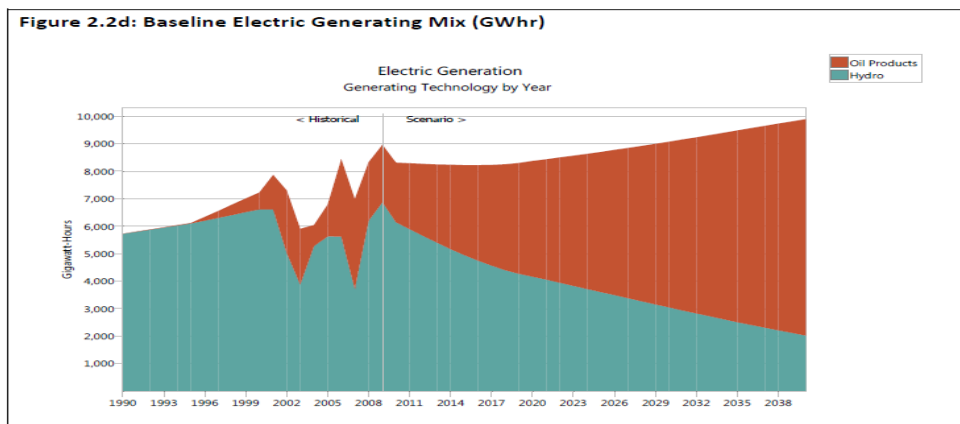
14. The increasing share of thermal generation from 8% in 2000 to 31% in 2010 is the result of increasing power demand to meet the economic growth, and the commitments of the Government of Ghana to Sustainable Energy for All, 2030 (SE4ALL2030). Ghana has set targets for achieving universal access to electricity by 2020, in line with its national energy strategy of 2010. As at 2008, 66.7% national coverage had been achieved, covering 4,070 communities with a total population of 16 million. The coverage increased to 72 % by 2011, and is projected to reach 100% by 2020. Another major driver of increasing thermal generation has been the need to diversify power generation from hydro-based due to the observed impact of climate change on water resources that has resulted in the increased frequency of drought and reducing precipitation and stream flows in the Volta Basin. In 2007, the lowest water level was recorded in the Akosombo Dam. This was as a result of reduction in hydropower generation to 53% of installed capacity and complemented with emergency national strategic reserve plants. The share of electricity supplied to the industrial sector has decreased since 2000 and was severely affected during the load shedding in 2003/2004 and 2007. This led to drastic reduction of power supply to the country's aluminium smelter and eventual closure of the plant, as well as other relevant industries and economic activities.

Figure 1-Trend of Baseline Hydro and Thermal Generation, 2000-2010



Source: UN SE4ALL, Ghana Action Plan (Energy Commission, 2020)

15. The LECB Programme Global Support Unit commissioned a study by the Stockholm Environment Institute to develop country data sets using the LEAP software for energy planning and climate change mitigation. The data sets for the study have been based on readily available and regularly maintained international sources of data. The output of the study thus represents energy sector historical emissions (1990-2009) and a basic draft Business-As-Usual Baseline Scenario from 2010-2040. The outcome of the analysis for baseline energy demand by electricity generation mix is presented in figure 2 below. The results reinforce increasing thermal power production from 2013-2040 based on the trend in power generation shares since 1995. This provides the unique opportunity for Ghana to maximize the utilization of the natural gas to switch from current high-carbon intensity light crude oil application in power generation to natural gas with relatively lower emission intensity.



16. The GSGDA, the national action plan for Sustainable Energy For All 2030, and the national energy policy projections include increase in total power generation capacity from 2000 MW to 5,000 MW by 2015; gas-based power generation of at least 50% of thermal power plant production by 2015; increased participation of IPPs in the Power Sector for the sub-regional power market to maintain Ghana's dominance as a major exporter of power to the neighbouring countries (Togo, Benin, Burkina Faso and Cote d'Ivoire) for employment and foreign exchange. The GSGDA envisions meeting the demand with the utilization of natural gas from the Jubilee Oil and Gas infrastructure development. The development and utilization of the NG-power generation is also substantially driven by West Africa Power Pool (WAPP), an extensive interconnection grid system initiated by ECOWAS Energy Ministers and championed by the ECOWAS Department of Infrastructure. The project has attracted investment and donor support from key multi-lateral partners and bilateral aid institutions, namely the World Bank, and the African Development Bank, Agence Française de Développement (AFD), the French Ministry of Foreign Affairs, and the Japanese International Cooperation Agency (JICA) and the USAID. The others are implementing partners working with ECOWAS and national utility corporations including PA Consulting, Nexant, Associates for International Resources, and Development, Purdue University, and the U.S. Energy Association. The LECBP NAMAs will therefore have a very high probability of funding and uptake by through a public-private partnership or independent power producers (IPPs).
17. The country target of thermal power generation and supplementation of the hydropower is indeed an adaptation strategy to compensate for projected hydropower decline due to observed and predicted impacts of climate change, and vulnerability of the water resources in the long term. The emerging oil and gas infrastructure based on Ghana's own fields with crude oil production averaging about 70,000 barrels per day from the Jubilee field in 2011 and estimated to reach 120,000 by end of 2012, and Ghana's zero-flaring policy provides opportunity for fuel switching from light crude oil to lower carbon intensity, and the use of higher efficiency technology for natural gas power generation compared to light crude oil. The Jubilee Oil field and the West Africa Pipeline would provide the required natural gas application for the transition to low emissions development path and slowing down of carbon emissions per GDP growth. The Government is already committed to developing 450 MW natural gas plant off-shores from the Jubilee fields that will respond to its low carbon and low emissions development and growth agenda.



18. Ghana is in the process of developing a CDM project proposal for the use of natural gas in power generation to realize its adopted policy of “zero flaring” at the Jubilee Oil and Gas fields. The LECBP will build on the country’s effort to maximize the utilization of natural gas for low emission development of the power sector. The project will also build on CDM project methodologies for low carbon intensity power generation from construction and operation of new grid connected fossil fuel fired power plants using a less GHG intensive natural gas and low emission technologies such as combined cycle gas turbines as well as methodologies for emissions reduction in manufacturing industries from generation of low carbon intensive electricity and heat by fuel switching from high carbon intensive heating fuel oils to on-site natural gas-based cogeneration or combined heat and power plants for own use.

#### **1.2.1. Biomass energy: Reducing Emissions from Deforestation and Forest Degradation (REDD+) from Fuel wood and Charcoal Production and Use**

19. Fuel wood and charcoal are major sources of energy in Ghana. In 2009, Ghana’s fuelwood consumption was estimated at 20 million metric tonnes. Wood fuel provides 70% of Ghana’s total annual energy demand. More than 80% of households use firewood or charcoal for cooking and about 60% in urban areas, even when there is an alternative energy source. Fuel wood support most informal enterprises including bread-baking, processing oil palm, local brews, traditional textiles, traditional soap making, fish smoking and traditional food services. 90% of fuel wood is derived from the forest. The demand for woodfuel has for the past years been on the increase. It is estimated the consumption will reach more than 25 million tonnes by the year 2020.

20. Most of the woodfuel supply will be obtained from 15 million tonnes from standing stock and the rest 10 million tonnes from regeneration or yield. The implication is a direct depletion of standing stocks and consequent increase in the rate of deforestation. Woodfuel resources are depleting at a faster rate as a result of unsustainable practices in the production and marketing of the product that incurs high levels of waste. According to the UN Food and Agriculture Organisation (FAO), the rate of deforestation in Ghana is 2% per annum (FAO, 2002). Ghana has about 18.3Mha representing three quarters of land area under tree cover. The climatic and soil conditions are very suitable not only for large-scale production of agricultural products, but also energy crops and sustainable woodfuel production. The Renewable Energy Policy and the enabling legislation, the Renewable Energy Act, 2011 (Act 832), support sustained regeneration of woody biomass resources through legislation, fiscal incentives and attractive pricing and promote the establishment of dedicated woodlots for woodfuel production. Furthermore, through the Renewable Energy Act 832 (2011), Government seeks to promote the production and use of improved and more efficient biomass utilisation technologies. The project will therefore build on the REDD+ project, which is generating GHG Inventory data for national forest carbon accounting system.

#### **1.2.2. Modern Forms of Renewable Energy Penetration in National Energy Mix**

21. Ghana is well endowed with renewable energy resources, particularly solar and wind energy. The development and use of renewable energy resources have the potential to ensure adaptation to impacts of Climate change on Ghana’s water resources for hydropower generation and energy security in the long-term to replace hydropower sources while contributing to reducing GHG emissions. Ghana has enacted the enabling legislation, Renewable Energy Act, 2011 (Act 832), to drive the utilisation, sustainability and adequate supply of renewable energy for electricity and heat generation. The



objective is to increase the share of renewable energy in the energy mix from current level of 0.13% (2010) (derived from solar PV and co-generation plants of oil palm and wood processing mills) to 10% in 2020. The Renewable Energy Act, 2011 (Act 832), also provides the enabling legal framework for Government to institute a licensing regime for renewable energy producers, a feed-in tariff scheme feed into electricity and a renewable energy development fund. The Government is also committed to improving the cost-effectiveness of solar and wind technologies by addressing the technological difficulties, institutional barriers, as well as market constraints that hamper the deployment of solar and wind technologies. Consequently, the Volta River Authority is developing a 50MW wind farm and power project.

### **Solar Energy**

22. Solar radiation and sunshine duration data have been collected by the Ghana Meteorological Services Agency for over 50 years. The monthly average solar irradiation in different parts of the country ranges between 4.4 and 5.6kWh/m<sup>2</sup> /day (16-20 MJ/m /day). Over 4,500 solar pilot systems, estimated at 853kW have been installed in over 89 communities throughout the country. The applications include: Solar Home heat and power, Schools for classroom lighting and television for distance education; Street light System, Water Pumping System for the provision of rural water and off-grid irrigation; Solar Battery Charging for TV and radios in rural communities; centralized solar system for providing AC power into the grid.

### **Wind Energy**

23. Ghana has about 2,000MW potential of wind energy. Satellite data provided by the National Renewable Energy Laboratory of USA under the UNEP SWERA Project indicates that the annual average wind speed along the Ghana-Togo border is above 8m/s. It is currently reliably projected that over 300MW capacity of wind farm exist for development. Wind speed data collection has been undertaken at 13 sites along the coast at 12 metres or more above ground level. The maps of wind power, solar power and mini-hydropower resources are developed.

### **Mini-Hydro**

24. Ghana has two large hydroelectric plants, Akosombo and Kpong, on the Volta River with a total installed generation capacity of 1,180 MW. Currently the Bui hydroelectric plant of capacity 400MW is near completion on the Black Volta, and it expected to be commissioned in 2013. Potential min-hydropower plants of over 10 MW are identified on 17 sites on the Black Volta, White Volta, Oti River, Tano River, Pra River and Ankobra River.

#### **1.2.3. Biomass Energy from Waste Management**

25. The National Environmental Sanitation Strategy and Action Plan (NESSAP) presents the state of the environmental sanitation infrastructure and services and resources required and implementation packages covering all the components of environmental sanitation. The NESSAP therefore provides the basis for MMDAs to commence incremental improvements for all aspects of environmental sanitation that can be measured and tracked towards Government of Ghana's attainment of MDG -7 by 2015. The critical environmental and sanitation services, which can deliver potential NAMAs, and at the same time create jobs while minimizing pollution of the environment from poor disposal of refuse, sewage, and discharge of liquid include a) Composting of biodegradable organic fraction of municipal





solid waste, which constitutes 60-70% depending on the level of development of the communities; and b) Decentralised treatment, re-use and recovery systems (DTRRS) for sewage management in bio-digesters; and aerobic composting of sewage developed in Ghana and currently being piloted in peri-urban communities. The DTRRS technologies are already being promoted in Ghana. Several have been installed in institutions, hospitals, schools and in hotels to address the sanitation and water problems associated with uncontrolled discharge of septic and faecal sludge, contributing to land-based sources of polluting the beaches, rivers and water courses – a main cause of public-health related diseases such as cholera and typhoid outbreak.

26. The bio-digester will have co-benefits of capturing and reducing methane emissions from generation and recycle of nutrient-rich treated wastewater for irrigation in urban agriculture to replace polluted water being used for irrigation in urban agriculture. It is estimated 47 -162 ha of vegetable production and up to 800 ha of Maize in Accra can be supported. The other significant co-benefit of bio-digestion is generation of renewable energy, biogas for cooking and heating as potential substitute for charcoal use to contribute to reducing deforestation and forest degradation by charcoal production. DTRRS can provide the solution to improve tourism along beaches and the coast by providing sewage treatment for large number of people - more than 20,000 households of which 5,200 are in Accra alone - rely on banned pan latrines. Close to 5.2 million people can benefit from the environmentally sound technologies to improve household sanitation to meet Ghana's commitment to UN Sanitation for All and MDG-7 by 2015.



## 2. Strategy

### 2.1. Project Rationale

27. The green growth agenda is central to Ghana's development for the next decade and beyond. This is because green growth agenda is expected to greatly accelerate the promotion of socially inclusive growth and, at the same time, ensure environmental sustainability. In the last couple of years, Ghana has consistently pursued number of policies that seek to reforms the economic development fundamentals and align to the axis of sustainability. One of the pillars upon which Ghana's green growth agenda is anchored is low carbon development. It is a development agenda that seeks to promote economic growth in a low carbon way. It is in this light that government of Ghana has committed to making sure that specific interventions are put in place to help realise its green growth agenda at all levels. At the international level, the country has joined the global community within the framework of the UNFCCC and other initiatives (including the SE4ALL by 2030) to finding solutions to mitigate future climate change. For example, the Copenhagen Accord, among others, entreated parties to submit its list of NAMAs to the UNFCCC for potential support. Ghana, in response to the Copenhagen Accord and the Cancun Agreements, submitted a list of 55 NAMAs to the UNFCCC secretariat. Ghana has also been able to meet its obligations under articles 4 and 12 of the UNFCCC by submitting its first and second national communications.
28. As noted earlier, the LECBP will respond to the critical capacity-building needs essential to enable Ghana, to participate in, and to implement effectively, its commitments under the Convention. The project will also help facilitate access to international climate funding. Overall, the LECBP will strategically contribute to building capacities in the following areas:
- Formulation of up to two energy-related NAMAs, including submission to seek further implementation support.
  - Reporting requirements under the Convention, especially the increased frequency of reporting through the National Communication and Biennial Update Report. The portions of both reporting mechanisms, which will be relevant for this project, include GHG inventories, mitigation assessments, and institutionalizing data documentation and archiving that facilitate update and recalculation to ensure time series consistency.
  - Regular updates of information on national greenhouse gas inventories including a national inventory report and information on mitigation actions, needs and support received, in both national communication and biennial update reports.
  - Design of Ghana's MRV system for NAMAs, in accordance with guidelines to be developed under the Convention.
  - Increase awareness of the potential of NAMAs in the investor community.
29. Several efforts have been undertaken both at the levels of policy and implementation to facilitate prioritization of the mitigation actions. The Environmental Protection Agency in collaboration with other partners have been subjected the list of 55 NAMAs to prioritization. The LECBP stakeholder consultation, building on the NAMAs processes and the respective outcomes as well as the consistency with the TNA, identified the following key sectoral NAMAs to be considered under the LECBP (the final 2 NAMAs will be decided during project launch phase):
- Natural gas (NG) infrastructure development and Fuel switching to NG in the power generation.





- Increase renewable energy (solar, wind and geothermal) penetration in national energy mix.
- Improving efficiency of charcoal production within the implementation of REDD+

30. In order to facilitate greater private investments into the NAMAs sector; government of Ghana with support from UNDP has initiated the development of NAMAs investor guide. The investor guide aims to promote, disseminate and drive private sector participation in the NAMAs sectors in order to help realize Ghana's green growth agenda. The national GHG inventory process has been an integral part of the national communications to the UNFCCC. Because Ghana has committed to institutionalising of GHG inventories, in the preparation first and second national communications, Ghana has therefore gain considerable experience. Although certain reforms are being implemented in the third national communication, the national system for the preparation of the national inventories is still challenged within the following aspects: further streamlining of the national system including the underpinning collaborative mechanism, missing and non-existing activity data and emission factors for key categories, lack of central database for archiving and documentation, non-existing QA/QC plan and inability to undertake uncertainty assessment and management. These challenges have been coupled with the fact that, the frequency for reporting to international obligations is becoming intense with associated review. Therefore the need to further strengthen national system for GHGI is critical to the ability of Ghana meeting international obligations and at same help to build a system MRV.
31. Because this project is focussed on capacity building, much emphasis will be laid on learning-by-doing approaches and, at the same time, ensuring that the interest of the private sector is stimulated and sustained to participate in the project. These elements are will be fundamental to making project more relevant to national development priorities while making sure that the decision-making process by the private sector to invest in the NAMAs sector are aided with the needed information.

## 2.2. Project Scope

32. The consultation workshop conducted as part of the national stocktaking exercise for the development of the LECB Project document identified three capacity building priority outcomes:
- **Outcome1:** Up to 2 financeable energy-related NAMAs formulated in the context of national development priorities, including the associated MRV system.
  - **Outcome2:** Ghana NAMAs Investor Guide reviewed and promoted among the business community.
  - **Outcome3:** National system for preparation of GHG inventories strengthened.

## Sector selection

33. Participants at the national consultative meeting considered and prioritised some of the interventions for further analysis and development into NAMAs. The potential emission reduction opportunities in energy-sector were discussed as follows. Ghana's public energy mix composition is estimated to compose of fuelwood and charcoal (65.6%), petroleum (26%) and 8.4% of modern electricity generation from hydro and thermal power plants. Renewable energy (Solar PV) penetration is reported as 0.1%. In the past 20 years, there has been significant reduction in hydropower production due, principally, to higher frequency of droughts and reduced stream flow in the river basins attributed to the impacts of climate change.



34. Thermal generation for annual supplementation has thus increased from 23.2% to 46% from 2000 to 2010. The total power generation has increased from 8,429GWh in 2006 to 10,116GWh in 2010, representing 20.6% increase. The generation capacity has been projected to increase from the current 2,190MW to reach 5,000MW in 2015<sup>1</sup>. The projected generation capacity is expected to constitute 50% thermal sources with maximize use of natural gas from emerging oil and gas sector as well as 10% renewable energy. This policy goal to expand the generation capacity will not only contribute to achieving Ghana's energy security vision but will also help to reduce the overall carbon intensity of the electricity sub-sector. The increased inclusion of sustainable energy generation sources into the national energy mix will, undoubtedly, help accelerate the transition to low carbon growth. This will be done through the opportunities of switching fuels from high carbon intensity light crude oil to natural gas for combined generation.
35. This is because in the current public electricity generation mix, the use of light crude oil is dominant in the thermal electricity generation installations although it is not cost-effective because of high prices in the international market. With the increasing visibility of the domestic natural gas market, availability and reliable supply, thermal generation plants that predominantly use light-crude oil will have the option of switching to natural gas because of its competitive pricing with less retrofitting. Increasing thermal generation will be further driven economically by increasing power demand through the West African Power Pool by neighbouring countries in the sub-region that depend on Ghana for their electricity supply. The analysis implies that, the economic growth of Ghana and the neighbouring countries can lead to significant increase electricity generation. Ghana's ability to meet the growing demands of electricity will not only depend on the cost but also efforts to shift cleaner to forms of modern energy production. There is therefore the need of making choices that would contribute to increasing the electricity generation and at the same time help reduce the GHG footprint of power sub-sector in a cost-effective way. These sets of policy measures will ultimately inure to achieving the policy of pursuing sustainable energy vision. The LECBP is therefore considered timely in shaping the development choices of NAMAs in the key energy sector categories based on low emissions development strategies that limit carbon emissions.

### 2.3. Objectives/Outputs and Outcomes

#### 2.3.1 Outcome 1: Up to 2 financeable energy-related NAMAs formulated in the context of national development priorities, including the associated MRV system

36. The following Outputs will be pursued:
- Initial consultation and stakeholder analysis undertaken and the governance structure of the selected NAMAs instituted.
  - Capacities of project participants, including potential investors, strengthened through the formulation of up to two energy NAMAs.
  - MRV systems designed to support the implementation and evaluation of the selected NAMAs; and the scaling-up of the LECBP MRV to the national MRV system supported.

---

<sup>1</sup>National Energy Policy, 2010



### **2.3.2 Outcome 2: NAMAs investor guide reviewed and promoted among core business community**

37. The following Outputs will be pursued:

- a. Ghana NAMAs investor guide reviewed, finalized and disseminated
- b. The publication (electronic and hard formats) of the NAMAs investor guide supported.
- c. NAMAs investor guide integration into business activities of relevant investment promotion institutions (e.g. Ghana Investment Promotion Centre) facilitated

### **2.3.3 Outcome 3: National system for preparation of GHG inventories strengthened**

38. The following outputs will be pursued:

- a. Establish and operationalize the "GHG inventory central database "for the documentation and archiving of all inventory data/information supported
- b. GHG inventory manual of procedures, QA/QC manual and tier-1 uncertainty assessment for selected sectors developed.
- c. Training and competence building of key inventories specialist supported, particularly for new and emerging UNFCCC/IPCC guidance or guidelines.

## **3. Country Ownership**

39. The LECBP complements a number of on-going climate change activities in Ghana, which will ensure its ownership by the country. These processes and their linkages with the Project are:

40. **National Communications** - National Communications to the UNFCCC are required under the Convention. The GHG inventory constitutes a major component of the National Communications, both in terms of identifying the key categories of sources and sinks of GHGs. The GHG inventories also provide essential emissions and carbon sequestration data for mitigation assessment. Ghana has prepared and submitted its INC and SNC. The process of preparing the TNC has started. Ghana has therefore gained considerable experience in the preparation of greenhouse gas inventories and mitigation assessments. Notwithstanding, there is the need to meet the increasing national reporting frequencies that will be responsive to the emerging reporting requirements of the biennial update inventory cycle in the preparation of national communications under UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention (decision 2/CP.17, paragraphs 39-42 and annex III of decision 2/CP.17). The project will therefore complement the on-going efforts to strengthen the national system for GHG and nationally appropriate mitigation planning and thus position Ghana in a manner that it is able to deliver its GHG inventories on sustainable basis. The LECBP will contribute to enabling Ghana to meet the overall budget for preparing GHG inventories and mitigation assessment for the TNC, which will also be relevant to the selected NAMAs.

41. **Domestic MRV Framework** - Ghana has started conceptualising its domestic MRV framework. The concept explores the possibility of anchoring domestic MRV on the existing national development monitoring and evaluation system and expenditure framework. The MRV system will have three elements; tracking and registry system, impacts assessment, and disclosure system. The MRV system would also require set of new institutional orientation and arrangements, which are critical to its successful implementation. Outcome 1 of the LECBP will contribute to setting up the domestic MRV framework for Ghana.



42. As has been mentioned above, the LECB Project will feed into and build on the NCCP and its programs of action completed and submitted to Cabinet. The NCCP program of actions addresses minimization of emissions, particularly in the energy, transport, and waste sectors, consistent with the low emissions development strategies to be developed by Ghana. The LECBP will thus support the implementation of the NCCP programme of action based on climate change PaMs in the MTDPF.
43. Key ministries, departments and agencies and private sector relevant to the project have been engaged in the stakeholder consultation process to ensure the Project's acceptability with the Government of Ghana as Implementing Partner. The following institutions and private sector enterprises were consulted, among others: the Chief Director and other officials in the Ministry of Environment, Science, Technology and Innovation (MESTI), Focal Point and Coordinator of the national climate change committee (NCCC), where the Project will be anchored; Ministry of Finance and Economic Planning (MOFEP), Energy Commission (EC), Forestry Commission (FC), Institute of Industrial Research (IIR), representatives of the UNDP; and the private sector companies relevant to the selected energy and waste sectors for the NAMAs projects, namely Volta River Authority (VRA), Kosmos Energy, Zoom Lion Ghana Limited.
44. Sustainability: By building on the SNC and complementing the TNC and the NCCP-PoAs, the national institutional framework for this Project will be directly linked to the existing national climate change teams responsible for greenhouse gas inventories (under the TNC) and NAMAs (under the Focus Area 1 and 2 of the NCCP- PoAs). The national institutions forming the national systems for the GHG Inventory and the MRV under the TNC, NCCP, and selected NAMAs, particularly academic and research institutions as well as experts from these institutions, will be used in this Project. Targeting institutional capacity development and relevant national experts within the institution's will contribute to the sustainability of the project by ensuring institutional memory of the GHG Inventories and Mitigation programs and projects.
45. Replicability: The Project Logical Framework below reflects a programmatic approach that can be applied to any sector, subject to consideration of sector-specific issues and modifications to reflect sectoral circumstances. The development of national manuals for GHG Inventory and NAMAs will ensure consistency of methodological improvements and timely update for effective monitoring, reporting and verification of impacts of the low emissions development strategies implementation.



#### 4. Project Results Framework

This project will contribute to achieving the following UNDAF Outcome as defined in UNDAF Action Plan: Outcome 3 National systems and existing institutional arrangements for Climate Change mitigation and adaptation and for disaster risk reduction, as defined in the Hyogo Framework for Action at the district, regional and national level are functional

##### UNDAF Action Plan Outputs:

1. Output 3.1: Capacity of the National Climate Change Committee (NCCC) for policy development, participation in international negotiations, coordination and harmonization of sectoral strategies on climate change strengthened by 2016
2. Output 3.2 Adaptation and mitigation strategies and practices integrated into climate resilient development policies, plans and programmes
3. Output 3.3 The capacity of the Ministry of Finance and Economic Planning (MOFEP) and private sector (like banks and industries) to mobilize and access international funds on climate change mitigation and adaptation developed by 2013

Primary applicable Key Environment and Sustainable Development Key Result Area: Catalysing environmental finance

	Indicator	Baseline	Targets End of Project	Source of verification
<b>Project Objective</b>	<p>Capacity built to develop and drive investment in NAMAs, including definition of the associated MRV procedures</p> <p>Specific capacities in GHGI built to contribute to creating a robust National System for GHG inventory</p> <p>NAMA engagement platform for private sector created through promotion and dissemination of Ghana NAMAs Investor Guide and formulation of 2 energy sector NAMAs</p>	<ul style="list-style-type: none"> <li>• NAMAs identified in SNC and long list of 55 NAMAs submitted to UNFCCC</li> <li>• Strategies for low carbon growth and low emission development integrated in national MTDPF-GSGDA 2010-2011, the country's accelerated economic growth framework</li> <li>• TNA conducted in 2008 and revised in 2011 to identify mitigation and adaptation technologies and technology transfer mechanisms</li> <li>• Institutional arrangement for INC and SNC has not delivered a system for continuous updates GHG inventory. TNC has initiated reforms.</li> <li>• Monitoring and evaluation system exists that can be adapted to MRV for NAMAs</li> <li>• Draft NAMAs investor guide developed.</li> </ul>	<ul style="list-style-type: none"> <li>• Sustainable national system for GHG inventory strengthened and database infrastructure created</li> <li>• Funding gap bridged for capacity enhancement in GHG inventory national system development under TNC</li> <li>• Concrete financeable NAMA proposals formulated, with definition of associated MRV systems</li> <li>• National NAMA Investor Platform established</li> </ul>	<ul style="list-style-type: none"> <li>• National system for GHG inventory documented</li> <li>• Key sectoral GHG Inventory manuals and NAMAs procedures published</li> <li>• UP to 2 NAMA proposals, including description of MRV plans, formulated</li> <li>• NAMA Investor Guide and promotional materials, MOUs</li> </ul>



	Indicator	Baseline	Targets End of Project	Source of verification
<p><b>Outcome 1</b> Up to 2 financeable energy-related NAMAs formulated in context of national development priorities, including the associated MRV system</p>	<ul style="list-style-type: none"> <li>NAMA scope and objectives established.</li> <li>Analytical tools and methodology for development NAMAs selected.</li> <li>Analytical work for the development NAMAs such as emission scenarios, additionality, project scenario undertaken.</li> <li>Dynamic MRV for the selected NAMAs described.</li> <li>Implementation strategy and strategies for seeking funding determined.</li> <li>Consultation and capacity improvement of project participant undertaken.</li> </ul>	<ul style="list-style-type: none"> <li>55 NAMAs submitted to UNFCCC and further analysis carried out for facilitating NAMAs prioritization.</li> <li>NAMA implementation plan to be developed under TNC.</li> <li>Inadequate technical expertise in analytical tools</li> <li>No base year and timeframe have been determined for long listed NAMAs</li> <li>Inadequate technical expertise in scenario modelling</li> <li>Private Sector not involved in the capacity building on NAMAs</li> <li>No or inadequate technical expertise in investment and financial flows (I&amp;FF) estimation</li> <li>No MRV system established</li> <li>No performance indicators available</li> </ul>	<ul style="list-style-type: none"> <li>NAMA scope with objectives including emission reduction targets established.</li> <li>Technical expertise in analytical tool usage, scenario modelling, I&amp;FF, etc developed</li> <li>A clear and transparent system for MRV of data and emissions defined, which specifies assumptions made, sources of information and data, related uncertainties, etc</li> </ul>	<ul style="list-style-type: none"> <li>2 NAMA proposals</li> <li>Project documentation</li> <li>External expert review of MRV plan</li> <li>LECBP NAMAs integrated in National Action Plan of NAMAs</li> </ul>
<p><b>Outcome 2</b> Ghana NAMAs investor guide reviewed and promoted among core business community</p>	<ul style="list-style-type: none"> <li>On-going framework of National investor Guide promotion strategy reviewed</li> <li>Private sector and national development bank capacity built in evaluation of NAMA project investment</li> <li>Private sector capacity built in NAMA project development</li> <li>Investor guide sectoral implementation briefs developed.</li> </ul>	<ul style="list-style-type: none"> <li>Draft NAMAs investor guide to developed with UNDP support</li> <li>NAMAs investment information and opportunities in energy security, agriculture and food security, transport, forestry, housing, highlighted in Investor guide</li> <li>Limited dissemination and awareness of NAMAs investment opportunities the private sector.</li> <li>Potential sources of funds highlighted in the investor guide.</li> <li>Low private sector appreciation of multilateral processes and project funding sources.</li> </ul>	<ul style="list-style-type: none"> <li>NAMAs project investment opportunities adequately disseminated to key stakeholders in all sectors (energy, transport, industry, forestry and logging, agriculture and food security, waste)</li> <li>Awareness of criteria and capacity needs for participation in NAMAs created</li> <li>Information on potential sources of funds disseminated.</li> <li>Potential NAMA investor's capacity built in development of bankable NAMA project for Green Climate Funds.</li> </ul>	<ul style="list-style-type: none"> <li>Sectoral Investment briefs</li> <li>NAMAs investment evaluation criteria</li> <li>Number of NAMAs investment promotions organised.</li> <li>Capacity assessment</li> </ul>



	Indicator	Baseline	Targets End of Project	Source of verification
<b>Outcome 3</b> National system for GHG inventories strengthened	<ul style="list-style-type: none"> <li>Central database for documenting and archiving established</li> <li>GHG inventory and QA/QC manual of procedures for selected sectors developed.</li> <li>Training of key inventories staff on new and emerging topics contained any UNFCCC/IPCC guidance or guidelines documents strengthened</li> </ul>	<ul style="list-style-type: none"> <li>Constraints and gaps in GHGI identified in previous national communications.</li> <li>Means for data collection for GHG inventory remains informal and based on relationships.</li> <li>No improvement strategy in place.</li> <li>Sectoral manuals for annual improvement not documented</li> <li>Documentation of GHG data and information not readily available to new Inventory teams</li> </ul>	<ul style="list-style-type: none"> <li>Central GHG inventory database established</li> <li>Data measurement and analysis is institutionalized and continuously delivered for annual updates.</li> <li>Capacity of inventory staff strengthened</li> <li>GHG inventory manual and QA/QC manual developed and in use.</li> </ul>	<ul style="list-style-type: none"> <li>Manual of procedures and QA/QC plan</li> <li>Institutional agreements/MO US</li> <li>Database guidance</li> <li>Training reports, including capacity assessments</li> </ul>





## 5. Project Budget

<b>Award ID:</b>				00065880			<b>Project ID(s):</b>	00082218
<b>Award Title:</b>				Low Emission Capacity Building Project – Ghana				
<b>Business Unit:</b>				GHA10				
<b>Project Title:</b>				Low Emission Capacity Building Project – Ghana				
<b>PIMS no.</b>				5063				
<b>Implementing Partner (Executing Agency)</b>				Ministry of Environment Science, Technology and Innovation (UNDP Ghana)				
<b>Outcome/Atlas Activity</b>	<b>Responsible Party/Implementing Agent</b>	<b>Fund ID</b>	<b>Donor Name</b>	<b>Atlas Budgetary Account Code</b>	<b>ATLAS Budget Description</b>	<b>Amount Year 1 (USD)</b>	<b>Amount Year 2 (USD)</b>	<b>Total (USD)</b>
<b>Outcome 1</b> Up to 2 financeable energy-related NAMAs formulated including the associated MRV system	Ghana EPA/MESTI	30079	EU and German Govt.	71200	International Consultants	13,000	12,000	25,000
				71300	Local Consultants	60,000	45,000	105,000
				72100	Contractual Services /Companies	35,000	35,000	70,000
				72205	Information Technology Equipment	10,000	0	10,000
				71600	Travel	5,000	5,000	10,000
				74500	Equipment	7,000	3,000	10,000
					<b>Total Outcome 1</b>	<b>130,000</b>	<b>100,000</b>	<b>230,000</b>
<b>Outcome 2</b> The Ghana NAMAs investor guide reviewed and promoted among core business community	Ghana EPA/MESTI	30079	EU and German Govt.	71200	International Consultants	20,000	0	20,000
				71300	Local Consultants	20,000	10,000	30,000
				72100	Contractual services – Companies	20,000	15,000	35,000
				71600	Travel	5,000	5,000	10,000
				74500	Miscellaneous Exp	3,000	2,000	5,000
					<b>Total Outcome 2</b>	<b>68,000</b>	<b>32,000</b>	<b>100,000</b>
<b>Outcome 3</b> National system for GHG inventories strengthened	Ghana	30079	EU and German Govt.	71200	Information technology /Central Database	35,000	25,000	60,000
				71300	Local Consultants	45,000	45,000	90,000
				72100	Contractual services –	10,000	10,000	20,000





	EPA/MESTI				Companies					
				71600	Travel	3,000	2,000	5,000		
				74500	Printing of GHG manuals	5,000	5,000	10,000		
					<b>Total Outcome 3</b>	<b>98,000</b>	<b>87,000</b>	<b>185,000</b>		
Project Management, including Monitoring and evaluation	Ghana MESTI/EPA/UNDP	30079	EU and German Govt.		Contractual Services – Individual	30,000	30,000	60,000		
				71405						
				72200	Equipment and furniture	2,000	1,000	3,000		
				72505	Offices Supplies	1,000	1,000	2,000		
				74500	Monitoring and reporting	7,000	8,000	15,000		
		72205	Information Technology Equipment	5,000	0	5,000				
					<b>Total Management</b>	<b>45,000</b>	<b>40,000</b>	<b>85,000</b>		
<b>PROJECT TOTAL</b>						<b>341,000</b>	<b>259,000</b>	<b>600,000</b>		
<b>GMS (7%)</b>								<b>42,000</b>		
<b>GRAND TOTAL</b>								<b>642,000</b>		



## 6. Work-plan

Outcomes/Activities	Year 1 (2013)				Year 2 (2014)			
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
<b>Implementation arrangements and project inception</b>								
1. Establish project team selected from MESTI, EPA and Energy Commission	X							
2. Identify and form technical working teams	X							
3. Procure and purchase necessary equipment	X							
<b>Outcome 1: Up to 2 financeable energy-related NAMAs formulated in context of national development priorities, including associated MRV system</b>								
<b>1.1: Initial consultation and stakeholder analysis undertaken and the governance structure of the selected NAMAs instituted</b>								
1.1.1 Review existing programmes and strategies, and outcome of NAMAs analysis.			X					
1.1.2 Conduct initial consultation on NAMA selection and governance structure				X				
1.1.3 Establish governance structure and processes for the formulation of the selected NAMA.				X	X			
<b>1.2: Capacities of project participants including potential investors strengthened through the formulation of up to 2 selected NAMAs</b>								
1.2.1 Obtain data from key institutions for the development of selected NAMA(s).					X	X		
1.2.2 Review existing projections and models and gather data for GHG emission scenarios.					X			
1.2.3 Organise NAMA training using the selected NAMAs as case studies.					X			
1.2.4 Organise high-level strategy meeting on NAMAs investment options for the selected NAMAs based on I&FF analysis and financial planning					X			
1.2.5 Formulate NAMA concepts into full NAMA project proposals for funding.					X	X	X	
<b>1.3: MRV systems designed to support the implementation and evaluation of selected NAMAs; and the scaling-up of the LECBP MRVs to the national MRV system supported</b>								
1.3.1 MRV systems designed to support the implementation and evaluation of selected NAMAs							X	X
1.3.2 LECBP MRVs scaling-up to the national MRV system supported							X	X
<b>Outcome 2: The Ghana NAMAs investor guide reviewed and promoted among the business community</b>								
<b>2.1. Ghana NAMAs investor guide reviewed, finalized &amp; disseminated</b>								
2.1.1. Complete the technical review and editing of NAMAs Investor Guide	X							
2.1.2 Organise final validation workshop		X						
<b>2.2. Publication (electronic and hard format) of NAMAs investor guide supported</b>								
2.2.1 Publish 300 NAMAs investor guide in hard and electronic copies			X					
2.2.2 Develop NAMAs Investor guide promotion products including briefs, brochures and information sheets for dissemination			X					
2.2.3 Review Investor Guide and develop sector –specific briefs for Thermal Power, Oil & Gas and Industry, Biomass Energy and Agroforestry; Agriculture and Food security, Waste and Housing, Renewable Energy (solar, wind, mini-hydro).			X					

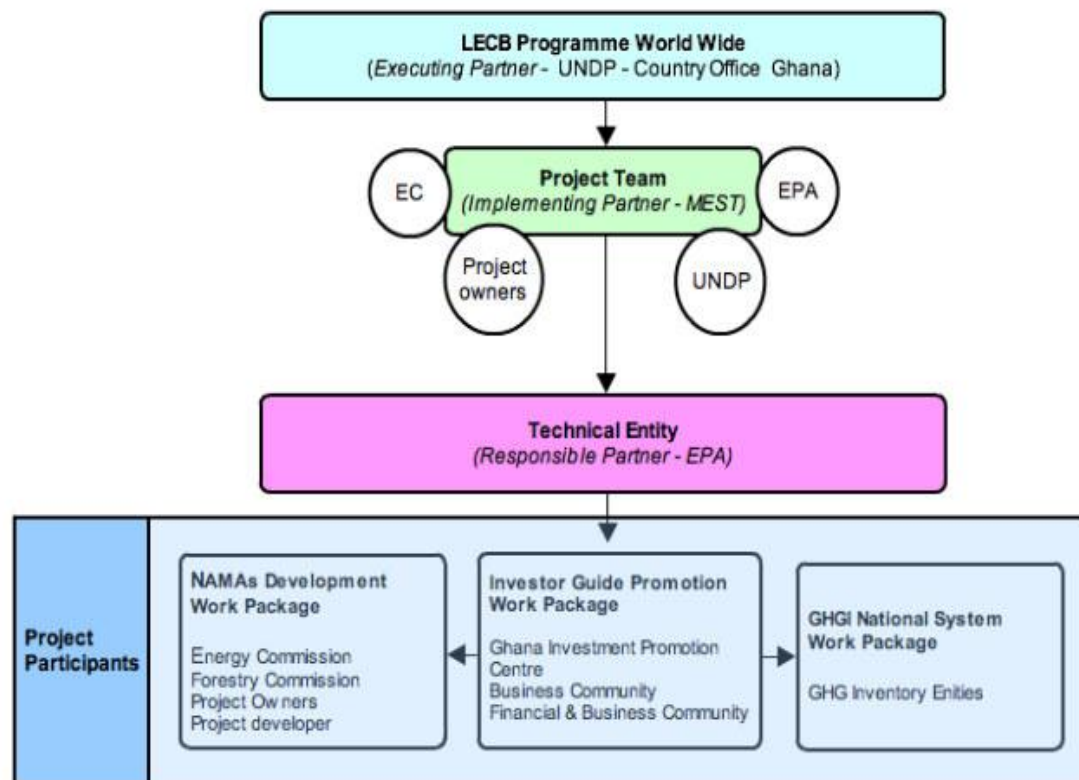




## 7. Management Arrangements

46. The institutional arrangements for implementing the Project is as shown in figure 3 below:

Figure 3: Management Arrangements for Implementing the Project



### PROJECT STEERING COMMITTEE (PSC)

The Project Steering Committee will be responsible for supervising project execution. This will include evaluating project outputs to ensure that project activities are being carried out in a timely manner and to acceptable levels of quality, and reviewing the status and needs of each of the three project's components throughout project implementation. The PSC will be co-chaired by the Director of Environment, MESIT and the Ministry of Energy and Petroleum. The Energy and Climate Change Unit of the EPA, the Technical Support Unit, will serve as the Secretary to the team and will be responsible for technical work. It is envisaged that the PSC will meet four times a year, or during national exchange workshops. The PSC will comprise:

#### Standing Members

1. Ministry of Environment, Science, Technology and Innovation (Implementing Partner) – Co-chair



2. Ministry of Energy of Energy and Petroleum (MOEP) – Co-Chair
3. Ministry of Trade and Industry
4. Ministry of Finance and Economic Planning
5. Environmental Protection Agency (Secretariat, Technical Responsible Partner)
6. United Nations’ Development Programme (UNDP – Executing Partner)
7. National Development Planning Commission (NDPC)
8. Energy Commission (Partner)
9. Ghana Investment Promotion Centre (Partner)
10. Private Enterprise Foundation (PEF)
11. Forestry Commission
12. Climate Action Network (umbrella CSO)
13. Umbrella Banking Institution

Non-standing members

14. Selected Banks
15. Project Owners

The PSC responsibilities will include the following:

- Monitoring and reviewing the progress of the project against its stated outputs, including progress reports prepared by the Technical Entity;
- Reviewing and approving the project Workplan;
- Reviewing and approving the monitoring and evaluation timetable;
- Making modifications, as necessary, to the number and scope of national workshops being organized under the project;
- Making modifications, as necessary, to activities and outputs in order to achieve the project's objectives.

The roles of the PSC Members and other collaborating institutions are summarised in Table 1 below.

**Table 1: LECBP Steering Committee**

Name of institution / stakeholders	Reasons for inclusion	Role in the stakeholder consultation process
Ministry of Environment, Science, Technology and Innovation (MESTI)	<ul style="list-style-type: none"> <li>✓ Project’s Implementing Partner</li> <li>✓ Government lead agency in environmental matters</li> <li>✓ Environment Directorate, coordinating NCCPF and NCCP Implementation</li> <li>✓ Will provide secretariat services to the Project Team and coordinate overall LECB project</li> </ul>	<ul style="list-style-type: none"> <li>✓ Provided high-level government support during the project development phase through the offices of the Environment Directorate and the Chief Director (the latter being the chair and secretary of the proposed PSC)</li> </ul>
UNDP Country Office	<ul style="list-style-type: none"> <li>✓ Is the Project’s Executing Partner</li> <li>✓ Expertise in the Project’s thematic areas</li> <li>✓ Overall project execution and oversight</li> <li>✓ Handles contractual agreements with Projects’ consultants, as needed</li> </ul>	<ul style="list-style-type: none"> <li>✓ Recruited national consultant to prepare project document</li> <li>✓ Provided liaison function with donors via UNDP HQ global support unit</li> <li>✓ Provided substantive and logistical support for stakeholder consultations and during project document development</li> </ul>



Name of institution / stakeholders	Reasons for inclusion	Role in the stakeholder consultation process
Energy Resources and Climate Change Unit (ERCCU) of the EPA – <i>Lead, Mitigation, GHG and Reporting</i>	<ul style="list-style-type: none"> <li>✓ Responsible for the technical implementation and support to the LECB project and report progress to the project coordinator at MEST and the PSC.</li> <li>✓ The Unit coordinated the SNC and currently responsible for the technical coordination of the TNC.</li> <li>✓ To ensure close collaboration of the Project Working Groups with those of the relevant Sub-Components of the TNC Implementation Plan to ensure the two processes inform and complement each other as well as avoid duplication of efforts.</li> <li>✓ National entity for coordination of GHG inventories and Lead institution for Waste and Industrial process.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Participated in the stakeholder consultations to develop the project document, providing key advisory services</li> <li>✓ Provided linkages with other government departments and agencies during the development of the project document.</li> </ul>
Energy Commission	<ul style="list-style-type: none"> <li>✓ A commission under Ministry of Energy, a policy adviser to the Minister of Energy on reliable and sustainable energy provision and a Regulator of efficient utilization of all energy forms in Ghana.</li> <li>✓ Developed the Country Action Plan for UN Sustainable Energy for ALL 2030 (SE4ALL2030) and contributed to Ghana's Energy Sector Strategy and Development Plan</li> <li>✓ Lead institution of GHG inventory for Energy Sector for SNC and TNC, responsible for planning, preparation and reporting and Trends</li> </ul>	<ul style="list-style-type: none"> <li>✓ Participated in the stakeholder consultations to develop the project document</li> </ul>
Ghana Statistical Service (GSS)	<ul style="list-style-type: none"> <li>✓ Service Unit of the Ministry Finance and Economic Planning. Has legal mandate to archive all national data.</li> <li>✓ Responsible for national economic statistics, social and demographic statistics and data Services.</li> <li>✓ Institution designated to host the platform in conjunction with EPA's environmental data and information management unit for documenting and archiving all inventory-related data for all sectors of the national GHG Inventory within the national system being developed under TNC</li> </ul>	<ul style="list-style-type: none"> <li>✓ Participated in the stakeholder consultations to develop the project document</li> </ul>
Forestry Commission Climate Change Unit/REDD+ Project Secretariat (CCU/RS)	<ul style="list-style-type: none"> <li>✓ Host the LULUCF emissions inventory for Deforestation and Forest Degradation under the World Bank REDD+ project</li> <li>✓ Sector lead for LULUCF/AFOLU Inventory of the TNC,</li> <li>✓ Responsible for planning, preparation and reporting of the LULUCF/AFOLU emissions under TNC.</li> <li>✓ Data manager for the REDD+ carbon accounting system</li> </ul>	<ul style="list-style-type: none"> <li>✓ Participated in the stakeholder consultations to develop the project document</li> <li>✓ Consulted on NAMAs development process</li> <li>Strongly advocated for the need to include agroforestry and charcoal production category for consideration in the NAMAs priorities.</li> </ul>
GHG Inventory Entities	<ul style="list-style-type: none"> <li>✓ All GHG inventory task designated to be decentralised to the level of the inventory entities</li> <li>✓ Inventory entities will be directly responsible for the specific aspect of the national GHG inventory system.</li> </ul>	



Name of institution / stakeholders	Reasons for inclusion	Role in the stakeholder consultation process
Ghana Investment Promotion Centre	<ul style="list-style-type: none"><li>✓ One-stop centre for investment promotion in Ghana.</li><li>✓ Will lead investment promotion of NAMAs</li></ul>	✓
MoFEP	<ul style="list-style-type: none"><li>✓ Key government ministry</li><li>✓ In charge of national resource allocation under the national medium term expenditure budgetary framework.</li></ul>	✓ Participated in the stakeholder consultations to develop the project document



## 8. Monitoring and Evaluation Framework-

47. The project will be monitored through the following monitoring & evaluation (M&E) activities.

### 8.1 Project inception:

48. A Project Inception Workshop will be held within the first 2 months of project start-up with those with assigned roles in the project organization structure, the UNDP CO and, where appropriate/feasible, regional technical policy and programme advisors, as well as other stakeholders. The Inception Workshop is crucial for building ownership regarding the project results and to prepare the Year 1 annual work plan. The Inception Workshop will address a number of key issues including:

- a) Assist all partners to fully understand and take ownership of the project. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff can be discussed again as needed.
- b) Based on the Project Results Framework (Section 3), finalize the Year 1 annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
- c) Provide a detailed overview of reporting, monitoring and evaluation requirements. The M&E work plan and budget should be agreed and scheduled.
- d) Discuss financial reporting procedures and obligations.
- e) Plan and schedule Project Steering Committee meetings. Roles and responsibilities of all project organisation structures should be clarified and meetings planned. The first Project Steering Committee meeting should be held within the first 12 months following the Inception Workshop.

49. The inception workshop also provides an excellent opportunity to introduce and discuss key cross-cutting issues that will consider within the LECB programme. In order to help introduce these topics we strongly encourage inviting important actors from cross-practice groups including gender, governance and poverty. Specifically because gender should be considered a key consideration under any UNDP project, we suggest identifying country-level women's networks that can help better incorporate gender concerns into climate change strategies and decision-making and further identifying opportunities to incorporate into project designs local knowledge that strengthens the roles of women.

50. An Inception Workshop Report is a key reference document and will be prepared and shared with participants to formalize various agreements and plans decided during the meeting. It will be a key deliverable of the project.

### 8.2 Quarterly Progress Report

51. Progress shall be monitored in the UNDP Enhanced Results Based Management Platform. Based on the information recorded in Atlas, a Project Progress Report (PPR) can be generated in the Executive Snapshot. Other ATLAS logs can be used to monitor issues, lessons learned, etc. Short progress reports





(1-2 pages) will be submitted to the Global Support Unit for inclusion in quarterly reports to the overarching LECB Programme Steering Committee.

### **8.3 Periodic Monitoring:**

52. A detailed schedule of project reviews meetings will be developed by the project management team, in consultation with project implementation partners and stakeholder representatives and incorporated in the Inception Workshop Report. Such a schedule will include: (i) tentative time frames for Steering Committee Meetings, (or relevant advisory and/or coordination mechanisms) and (ii) project-related M&E activities.
53. Day to day monitoring of implementation progress will be the responsibility of the Project Coordinator, Director or CTA (depending on the established project structure), based on the project's Annual Workplan and its indicators. The Project Coordinator will inform the UNDP CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.
54. Periodic monitoring of implementation progress will be undertaken by the UNDP CO through quarterly meetings with the project proponents, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

### **8.4 End of Project:**

55. During the last three months, the project team will prepare a brief terminal report. The terminal report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

### **8.5 Learning and knowledge sharing:**

56. Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums at the sub-national, national, regional, and global levels. The national management unit will work closely with the Programme's Global Support Component in this context.
57. The project team will also identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned.
58. It is also proposed to establish regular (monthly or quarterly) information sharing opportunities among the Project's 3 technical working groups and the TNC teams. Other key stakeholders that should be included in these information-sharing opportunities include private sector stakeholders, as appropriate.
59. The project will identify, analyse, and share lessons learned that might be beneficial in the design and implementation of similar future projects. There will be a two-way flow of information between this project and other projects of a similar focus, supported by the Programme's Global Support Unit.



60. Specific agreed activities for ensuring visibility of the project, and uptake of lessons learned and best practices are detailed in Appendix B.

## 8.6 Monitoring & Evaluation Workplan

Type of M&E activity	Responsible Parties	Time frame
Inception Workshop and Report	<ul style="list-style-type: none"><li>Technical Entity</li><li>UNDP CO, UNDP EEG</li></ul>	Within first two months of project start up
Quarterly report (Atlas and ERBM)	<ul style="list-style-type: none"><li>UNDP CO</li><li>Project team</li></ul>	Quarterly
Periodic status/ progress reports	<ul style="list-style-type: none"><li>Project team</li></ul>	Every six months
Project Terminal Report	<ul style="list-style-type: none"><li>Project team</li><li>UNDP CO</li></ul>	At least three months before the end of the project
Audit	<ul style="list-style-type: none"><li>UNDP CO</li><li>Project team</li></ul>	End of project

### LEGAL CONTEXT

This document together with the UNDAF Action Plan (UAP) signed by the Government and UNDP which is incorporated by reference constitute together a Project Document as referred to in the SBAA and all UAP provisions apply to this document. Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner. The implementing partner shall:

- put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- Assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement. The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via <http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm>. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

This project forms part of an overall programmatic framework under which several separate associated country level activities will be implemented. When assistance and support services are provided from this



Project to the associated country level activities, this document shall be the “Project Document” instrument referred to in: (i) the respective signed SBAAAs for the specific countries; or (ii) in the Supplemental Provisions attached to the Project Document in cases where the recipient country has not signed an SBAA with UNDP, attached hereto and forming an integral part hereof. This project will be implemented by the agency (name of agency) (“Implementing Partner”) in accordance with its financial regulations, rules, practices and procedures only to the extent that they do not contravene the principles of the Financial Regulations and Rules of UNDP. Where the financial governance of an Implementing Partner does not provide the required guidance to ensure best value for money, fairness, integrity, transparency, and effective international competition, the financial governance of UNDP shall apply.

The responsibility for the safety and security of the Implementing Partner and its personnel and property, and of UNDP’s property in the Implementing Partner’s custody, rests with the Implementing Partner. The Implementing Partner shall: (a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried; (b) assume all risks and liabilities related to the Implementing Partner’s security, and the full implementation of the security plan. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement. The Implementing Partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via <http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm>. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.



## 9. Appendices

### Appendix A: Technical Components of the Project Proposal

#### Description of project outcomes and key activities

This project has three outcomes, namely:

1. Up to 2 financeable energy-related NAMAs formulated, in the context of national development priorities, including the associated MRV systems.
2. NAMAs investor guide reviewed and promoted among the business community.
3. The national system for GHG inventories further strengthened.

**Outcome 1: Up to 2 financeable energy-related NAMAs formulated, in the context of national development priorities, including the associated MRV systems.**

#### Scope of Work

The key outcome will involve formulation of up to 2 financeable energy-related NAMA proposals, including the associated MRV systems. The MRV will be relevant to the development of the national MRV scheme. The UNDP has supported technical and consultative analysis of the energy sector NAMAs<sup>2</sup>. The strategic criteria for assessing the NAMAs included: *contribution to sustainable development, emission reduction potential, market and technology potential, alignment to national development policy and sector goals, impacts and response actions, financial feasibility and capacity building*. The criteria also considered measurable indicators for assessing the performance and co-benefits such as *potential job creation, maintenance of environmental quality, improved public health*. Table 1 lists the criteria and the indicators considered. The outcome of the desktop study were 5 NAMAs prioritised in energy sector: (1) Developing and improving facilities for public transport system; (2) Promoting the use of LPG; (3) Promoting the use of energy efficient cooking devices; (4) Switching to natural gas (combined cycle) and (5) Establishment of sustainable agro-forestry for woodlots plantations and charcoal production.

The prioritised energy NAMAs are consistent with the outcome of Ghana's Technology Needs Assessment (TNA), conducted 2006 and reviewed in 2011. The stakeholder consultation process considered various NAMAs analysis and outcomes as well as recent Ghana's Policies and Action Plans to respond to the SEA<sub>4</sub>ALL 2030, and UN Sanitation<sub>4</sub>ALL 2015 to identify and prioritize technologies predominantly in energy-related categories for further prioritization under the LECBP.

---

<sup>2</sup>Further Work On Ghana's List Of Nationally Appropriate Mitigation Actions (NAMAs) for Energy, Transport And Infrastructure Sectors Submitted to The UNFCCC Final Report Submitted To The Environmental Protection Agency, Accra, Ghana December, 2010  
Further Work on Ghana's List of Nationally Appropriate Mitigation Actions (NAMAs) For Agriculture, Forestry and Waste Sectors Submitted to The UNFCCC final Report Submitted to the Environmental Protection Agency, Accra, Ghana. December, 2010



**Table 1: NAMAs Prioritization and Screening Criteria**

No	Criteria	Indicators
1	Emission Reduction Potential Level of CO <sub>2</sub> equivalent reduced	<ul style="list-style-type: none"> <li>• Cost/ CO<sub>2</sub> equivalent reduced</li> <li>• Ease of implementation of mitigation action</li> <li>• Contribution to sustainable development</li> <li>• Level of employment created</li> <li>• Improved health of the people</li> </ul>
2	Contribution to sustainable indicators	<i>Social</i> <ul style="list-style-type: none"> <li>• Level of employment created</li> <li>• Improved health of the people</li> </ul>
		<i>Environmental</i> <ul style="list-style-type: none"> <li>• Maintenance of environmental quality</li> <li>• Biodiversity consideration</li> </ul>
		<i>Economic</i> <ul style="list-style-type: none"> <li>• Perpetuity of goods and services</li> <li>• Cost of mitigation action</li> <li>• Improved livelihoods of people</li> </ul>
3	Alignment with National medium term development policy framework (MTDF) and sector goals	<ul style="list-style-type: none"> <li>• Existence of policy framework on Actions</li> <li>• Coverage of the policy framework on the Mitigation action</li> </ul>
4	Market and Technology potentials	<ul style="list-style-type: none"> <li>• Availability of environmentally sound technologies</li> <li>• Ease of transfer of technology</li> <li>• Is the technology affordable</li> <li>• Is the investment in the technology sustainable</li> </ul>
5	Impact and response actions	<ul style="list-style-type: none"> <li>• Impact of mitigation action on society</li> <li>• Effectiveness of response actions</li> </ul>
6	Financial feasibility	<ul style="list-style-type: none"> <li>• Availability of credit facilities</li> <li>• Availability of funds</li> </ul>
7	Capacity Development	<ul style="list-style-type: none"> <li>• Number of people with expertise in climate</li> <li>• Change mitigation actions</li> <li>• Training programmes organised to develop</li> <li>• Capacity for dealing with mitigation actions</li> <li>• National commitment to building capacity in</li> <li>• Climate change mitigation actions</li> </ul>

### Methodological Approach

There is yet, no official UNFCCC guideline on the preparation of NAMAs or low emission development strategies (LEDS). Countries that are designing LEDS or NAMAs are therefore adopting a learning-by-doing approach, combined with conceptual frameworks and guidance developed by organisations and/or individuals with expertise in these or related fields. This project will take the same approach. The emission reduction potential assessment methodologies shall reliably depend on mitigation assessment tools used for CDM projects. The CDM methods and the IPCC Guidelines will provide guidance for choice of activity data, emission factors, methods, emission trends and projections and potential emission reduction. The 2010 UNDP guidebook, *How-to Guide: Low Emission Development Strategies and Nationally Appropriate Mitigation Actions: Eastern Europe and CIS*, will be a very useful tool. It is designed to help policy makers and experts determine opportunities for low emission development and design NAMAs or LEDS. In addition,



best practices from MRVs of CDM POAs could also be used to set up an MRV system for NAMAs. The Long-Range Energy Alternatives Planning System (LEAP) model continues to be reliable analytical tool for energy sector reference and mitigation emission scenarios. Training in LEAP will therefore be provided. Although not recommended by the UNFCCC, MARKAL training will also be conducted and will be used to confirm results of the LEAP model. For estimating the investment costs of the identified NAMAs, UNDP's 2009 "*Methodology Guidebook for the Assessment of Investment and Financial Flows to Address Climate Change*" will be used.

### **Activities to be undertaken**

The key activities will involve:

1. Activity-1.1: Undertake initial consultation and stakeholder analysis and institute governance structure for selected NAMAs
2. Activity-1.2: Capacities of project participants including potential investors strengthened through formulation of up to two energy NAMAs.
3. Activity-1.3: Design MRV system to support the implementation and evaluation of the selected NAMAs and support the scaling-up of the LECBP MRV to the national system for MRVs.

#### ***Activity 1.1* Undertake initial consultation and stakeholder analysis and institute the governance structure for selected NAMAs**

Ghana's national system for NAMAs has been proposed<sup>3</sup>. The initial governance structure has been built around the existing Designated National Authority (DNA) and Carbon Trading Committee of MESTI. The DNA/CDM and the UNFCCC focal Point in the EPA were designated as the Co-Chair of the NAMAs. The CDM/DNA and the members of the Carbon Trading Committee constitute the National Self Screening Committee (NSSC). The members will be drawn from Mining and Minerals Commission, Ghana Investment Promotion Council, Ghana gas company, Volta River Authority, Ghana Chamber of Mines and Industry and Private Enterprises Foundation. The key role assigned is to conduct initial screening of proposed NAMAs Intervention. The LECBP, in supporting the establishment of the national system for NAMAs, will among others, review the existing governance structure taking into account the institutional arrangements required for a national MRV System to be built on the policy, planning, monitoring and evaluation (PPME) mechanism of the MTEF process. The new governance structure will incorporate an arrangement to mandate participating data provider to collect and make available data sets that would be defined for the performance assessment of the NAMA projects in the context of the medium term expenditure framework (MTEF) budgetary process.

---

<sup>3</sup>Nationally Appropriate Mitigation Actions: Ghana's Investor Guide (EPA)



## **Activity 1.2: Strengthen capacities of project participants, including potential investors to formulate up to two energy NAMAs.**

The key areas of capacity building for the development of detailed NAMAs proposals are:

- **Baseline and Emission Scenarios modelling**

The key activities in the development of emission scenarios for the selected sector and categories will involve

- Review existing projections and models and gather data for GHG emission scenarios
- Build capacity in modelling emission scenarios for selected sectors
- Develop reference (baseline) and emission scenarios

The key outputs are detailed NAMA proposals. The analysis will be based on the guidance provided in the UNDP *How-to-Guide: Low Emission Development Strategies and Nationally Appropriate Mitigation Actions: Eastern Europe and CIS and the UNFCCC guidance on NAMAs preparation (in prep.)*. The analysis will cover the development of baseline and low-emission scenarios<sup>4</sup> and the sub-activities will include: review of existing models for the whole economy or the given sector, review existing information to see whether it is sufficient to develop Business-as-Usual (BAU) scenarios for the sector, choosing and training in analytical tools such as the Long Range Energy Alternatives. It would also entail the determination of base year and timeframe of analysis, the development of BAU scenario and the mitigation scenario. The detailed NAMA proposals would provide would describe, among others financing details, detailed baseline and interaction with other instruments (other overlapping NAMAs, carbon instruments etc.), stakeholder analysis and final list of potential donors and partners including key support criteria, MRV and Plan of action as part of the national NAMAs plan of Action. The detailed proposals will be submitted to the UNFCCC registry and for support

- **Investment analysis of selected NAMA proposals (I&FF approach)**

The investment & financial flows (I&FF) analysis will assist policy makers to understand the key investment entities for the selected NAMAs. Also consider potential co-benefits to environment, health, safety nets, impacts on poverty reduction, contribution to the attainment of MDGs.

The key financing models will be determined for the selected NAMAs. The analysis will help identify financing needs of the proposals, and determine that can be financed through internal means and those, which will require external support. The key issues to be addressed " the cost to implement this mitigation measure, the cost effectiveness (cost per CER) and the source of the investment flows?"; identification of the domestic opportunities for financing, i.e. autonomous NAMAs; determination of the need for external support; identification of external support sources; and submitting request for support to potential financiers. Determination of the costs of the selected/priority mitigation options will also involve not only the investment costs associated with installing new technologies or improvements to the existing equipment, but also costs associated with setting up the programmes and policies, monitoring,

---

<sup>4</sup>As mentioned above the existence of robust PoAs to build on would facilitate and speed up this evaluation process. In that case the suitability of scaling up in terms of baselines and emission scenarios should be assessed as described on page 51 of this document.





enforcement costs, data collection, studies, research, training and other capacity building and awareness programmes that will be incurred in order to implement the chosen measures. These will be undertaken through the use of a tool on *Investment and financial flows (I&FF)*. Training programs will be organised for the members of the national system and the mitigation assessment groups including the private sector in the application of the tool. A 2009 UNDP guidebook, *"a Methodology Guidebook for the Assessment of Investment and Financial Flows to Address Climate Change"* will be used.

### **Activity 1.3: MRV systems designed to support the implementation and evaluation of NAMAs; and scaling-up of the LECBP MRVs to the national MRV system supported**

Ghana has prepared and submitted INC and SNC to the UNFCCC in 2000 for the period 1990-2000, and in 2006 for the period 1990-2006. The country is planning to submit its TNC by 2014. The TNC activities include limited support to develop a national MRV system to support and drive NAMA framework in the country. The LECBP project will therefore support and complement the designing of the requisite MRV systems, particularly building capacity that also define clear and transparent roles and responsibility in the national system for monitoring reporting and verification (MRV) of certified emissions reduction (CER) and co-benefits that accrue to NAMA projects. The LECBP will consider potential co-benefits of the selected NAMAs to environment, health, safety nets, impacts on poverty reduction, contribution to the attainment of MDGs. The project will also support the determination and evaluation methodologies of key performance indicators for policy impact analysis and justification of policy-decision making with regard to low emissions development impact on the economy and other sustainability indicators such as the MDGs, SE4ALL 2030, and Sanitation4ALL2020, which are aimed breaking poverty cycles, as relevant.

This will be done by establishing appropriate indicators for monitoring mitigation actions, as well as by helping to create conditions necessary to support future investment in mitigation measures. The focus will be on establishing scope, metrics/indicators, reporting mechanisms, verification mechanisms, and time frames. An improved MRV system will take into account whether NAMAs are to be implemented autonomously, through support from developed countries, or through an international crediting mechanism. It also depends on the sector the NAMAs cover, as well as the type of action (i.e. capacity building, investment project, sector strategy etc.). Suggested criteria for the MRV systems include: credibility, cost-effectiveness, timeliness, and a simple and clear procedure, which provides enough flexibility for, a wide range of mitigation actions.

#### **Scope**

MRV at this stage will only be developed for the NAMAs that would seek external funding. The project MVR plans will be scaled up to a national system of MVR to complement the development of national NAMA Implementation plan under the TNC.

#### **Methodological approach:**

New methodologies are being developed by different organizations for the development and adoption of MRV. Although there are still no formally adopted guidelines on MRV, the outcome of the LECBP project assumes that there will be some overarching principles of good practice, such as using the GHG estimation and reporting processes described in the IPCC good practice guidance materials for GHG inventories. The LECBP support for the establishment of a robust national system will help meet these criteria for TNC and subsequent biennial inventory preparation. The first pillar of the MRV strategy will be the work undertaken under Outcome 3 of this project, which will provide the framework for a clear and transparent system of





GHGI archiving and documentation in a central data base for accounting, recording, monitoring data and emissions, as well as underlying assumptions and data/information sources. However, additional measurements and/or indicators will be needed for NAMAs beyond GHG emission data. These may be quantitative such as:

- Technical: built units/capacity, number of vehicles, passenger km, households
- Financial: funds granted, investment triggered, private sector/household investments leveraged
- Process: number of workshops conducted, studies completed, number of officials trained etc.

Or qualitative such as:

- Content: policy defined, adopted, enforced, PPAs honoured
- Process: stakeholder processes in place
- Institutions: institutions appointed, created, capacity increased<sup>5</sup>

The capacity development in project indicators monitoring, verification and reporting will take into account methodological issues such as double counting and the netting of impacts. Identification and avoidance of double counting will be addressed and avoided. Methodologies for identification of differentiated impacts in carbon emission reductions shall be emphasized particularly for cases of implementation of several NAMAs simultaneously or several projects or actions are part of one NAMA proposal. It is recognized that GHG impacts are difficult to link to one single action or that one action may reduce emissions in one sector but may generate emissions in other sectors, the phenomena of cross-system transfer.

#### **Activity 1.4.1: Design MRV system to support the implementation and evaluation of selected NAMAs, with linkages to the GHG inventory system**

This will include the selection of methodologies and monitoring protocols for measuring and reporting on NAMA implementation been established including timeframes and frequency at which data is submitted and QA/QC system if feasible and linked to the GHG inventory QA/QC system. Trainings will also be organized on the use of the protocols and tools in conjunction with other training activities under the GHG national inventory system outcome. The M&E Departments of all relevant MDAs reporting under MTEF will be included in the system. Others will also be identified and/or selected. The outputs under this component will be fine-tuned as international agreement is achieved on MRV. The actions include: Select appropriate methodologies and monitoring protocols; Training in the use of protocols and tools; establish and organize a reporting process, and Identify and/or select verification bodies.

#### **Activity 1.4.2: Scaling-up of the LECBP MRVs to the national MRV system supported**

The activity will create awareness and understanding in MRV-related activities in order that high government officials can support NAMAs and LEDS. The activity will target strategic Ministries such as National Development Planning Commission (NDPC), MESTI, EPA, Energy, Local Government and Rural Development, Agriculture, Transport, and the Ministry of Finance and Economic Planning, and their respective MDAs as well as the Bank of Ghana. The Monitoring and Evaluation (M&E) Department of the NDPC and Ministry of Finance and Economic Planning will be critical in the process. NDPC has developed guidelines for a national M&E system integrated in the national medium term-long-term expenditure framework. The project will draw on this system

---



and the mandate from the MTDPF to mainstream the MRV in the national planning and budgetary process and support the creation of National MRV system, as appropriate.

### **Institutional and political considerations**

It is clear that NAMAs will need to be embedded in national development policies and within the existing institutional framework at the national level. The challenge will be to build and sustain high-level stakeholder support (both public and private). Working arrangements will have to be planned so as to encourage cross-sectoral cooperation and the involvement of stakeholders from outside the government. Besides adequate project management arrangements, effective linkages to existing economy-wide objective and sectoral plans will be explored and reinforced.

Political barriers are not anticipated in the design and implementation of NAMAs. Ghana has integrated low carbon growth and LEDS in the national medium term policy framework (MTDPF). Subsequently, Ghana has published its commitment to green economy in the *Ghana Goes Green* document disseminated at the Conference of Parties. Further, the government has submitted a list of 55 NAMAs to the UNFCCC. Ghana has been supported by the UNDP to develop the National Climate Change Policy and Programs of Actions. Among the policy focus, consistent with the MTDPF, Programs of Actions developed include minimizing GHG emissions in all the policy focus areas in the MTDPF. The LECB project is therefore aligned with the national climate change policy. The LECB project will also help evaluate the impact of low emissions development choices on the implementation of Ghana's Sustainable Energy for All 2030 Action Plan and National Environmental Sanitation Strategy Action Plan (NESSAP) towards the attainment of MDGs 7 and low carbon growth agenda. The question of potential institutional barriers regarding data availability is being addressed under the TNC whereby the national inventory system would have memorandums of understanding integrated in the data collection process to ensure institutional collaboration and benefits. Further, the integration of the potential NAMAs in the MTDPF facilitates its mainstreaming in the national budgetary process and the national system for monitoring and evaluation. The development of the national MRV system within the context of the national system for policy planning, monitoring and evaluation (PPME), will be facilitated by the Medium term expenditure framework (MTEF) process.

### **Outcome 2: NAMAs investor guide reviewed and promoted among the business community.**

The UNDP has supported the development of *Ghana Investor Guide to nationally appropriate mitigation actions (NAMAs)*. The development of a national NAMAs governance structure to provide the enabling environment has been initiated. The CDM Designated National Authority (DNA) and the Carbon Trading Committee constitute the National Self Screening Committee. Members are drawn from relevant MDAs and private sector and civil society organizations. The goal of the Investor Guide is to promote, disseminate and drive private sector participation in NAMAs towards realizing the objectives of Ghana's commitment to low emissions development growth strategy and green growth agenda. The Investor Guide provides overview of investment decision-making information on potential emission reduction and carbon removal opportunities, environmentally sound technologies (ESTs), market potential, and sources of funding in energy, transport, building and home appliances, agriculture and food security, forestry and logging, and waste sector. An LECBP private sector platform for NAMAs will share the investment driving information on NAMAs and concrete bankable projects that would be developed under the LECBP in energy and waste sectors. The LECBP platform will contribute to awareness creation; build capacity of private sector in



NAMAs readiness and investment under the Cancun Agreements of the UNFCCC that can leverage multilateral, bilateral and private capital in Climate Finance. The program is aimed at triggering critical investments in the development and implementation of NAMAs, particularly the NAMA to be formulated under LECBP.

### **Scope**

The project will organize education, training and public awareness conferences and high-level NAMAs platform Investment fora and conferences to drive investment in NAMAs, using the Investor Guide as a key resource. The target group will emphasize the Executive Parliament, Specialized Commercial Courts, Private Sector, Investment Banks, the business Community, The Chamber of Mines and Industry, and The Chamber of Commerce, Bank of Ghana, Ministry of Finance and Economic Planning, and the Members of the proposed NAMAs governance structure, industry groups, potential investors, development partners, and civil society organizations. Sector-specific NAMAS Investor Concept Notes developed under the LECBP for the Investor Guide and Carbon Finance Initiatives will be the major tools for dissemination on the NAMA Investor platform.

### **Methodology**

The strategies to disseminate, promote and drive Ghana's Investor Guide will include:

1. Review of the on-going strategies to develop private sector interest,
2. Disseminating NAMAs investment information and opportunities in GIG in energy security, agriculture and food security, transport, forestry, housing, highlighted in Investor guide
3. Building capacity of private sector and national development banks in evaluation of NAMA project development and evaluation for investment
4. Involving private sector in the implementation of the national action plan for NAMAs,
5. Communicate potential sources of funds (multilateral and bilateral sources)
6. Addressing the potential barrier of low private sector appreciation of multilateral processes and project funding sources using country viable projects such REDD+ which addresses deforestation and forest degradation while increasing the profitability of forestry and logging operations
7. Disseminate investment opportunities in all sectors (energy, transport, industry, forestry and logging, agriculture and food security, waste)
8. Building capacity to attract climate finance, including access to the Green Climate Fund
9. Encouraging integration of NAMA-specific investment evaluation criteria in Investment Banks project appraisal and lending mechanisms

The following activities will be implemented:

- NAMAs investor guide reviewed, finalised and disseminated
- Support the publication (electronic and hard format and in any format appropriate) of the NAMAs investor guide.
- NAMAs investor guide integration into business activities of relevant investment promotion institutions (e.g. Ghana Investment Promotion Centre) facilitated

The need for the endorsement by the Ministry of Finance and Economic Planning and potential private sector investors shall be key to the success of the LECBP. The concept notes and policy briefs as well as the



NAMAs Investor Guide shall therefore be used to disseminate and drive the acceptance of Government and Investor Community. The activities will aim at:

- Endorsement by government and potential sources of support
- Support to negotiation of financing and develop a financing matrix for NAMA implementation

### **Outcome 3:**

#### **National System for preparation of GHG inventories strengthened**

##### **Scope of Work**

The LECBP activities will complement the work under the TNC of the GHG inventory system and the forthcoming ICI-funded GIZ project, Information Matters, which will further strengthen national system for GHGI, which is critical to the ability of Ghana meeting its international obligations and the same time help to build a system for MRV. The primary focus will be the energy sector.

##### **Linkages to Other Relevant Initiatives**

National GHG inventories constitute a major component of the National Communications of non-Annex I Parties such as Ghana and are a fundamental source of information for mitigation estimates and projections. This Outcome is therefore very relevant to the on-going preparation of the TNC to the UNFCCC. A national report will be submitted to UNFCCC in 2014 under the emerging biennial update report cycle, in line with recent developments in international climate change policy that require developing countries to provide biennial update reports on GHG emissions every two years (see, e.g., 60(c) of the Cancun Agreements). The BUR will thus feed into the TNC. By strengthening institutional capacity to prepare inventories and establishing a trained, sustainable inventory team, and establish a national system anchored in reputable national institutions, the LECBP will help Ghana to reduce uncertainties and improve the quality of inventories for subsequent National Communications.

The LECBP project will support the capacity building of the Ghana Statistical Service (GSS) as a national documentation and archiving centre of excellence under the national system to be responsible for proper documentation and archiving of all inventory data, information, reports and network data providers and inventory agents. The project will thereby ensure focus on medium-long term issues of strengthening and institutionalizing the inventory process in the key sector institutions; promote transparency and facilitate internal and external reviews for every biennial inventory. It will also facilitate the attainment of other key quality requirements of GHG inventory, namely transparency, consistency in time series, comparability, and accuracy with low uncertainties in data collection and estimation. The project will further address the key improvement recommended in INC and SNC to establish a national system that deliver subsequent inventory submissions effectively (meeting Transparency, Consistency (in time series), Comparability, Completeness, and Accuracy TCCCA criteria and efficiently (on-time), even if the inventory teams do change. Because of the increasing demands for making the inventory conforms greatly to the TCCCA principles under the biennial inventory cycle, entire GHG inventory under the TNC and the subsequent ones shall be grounded on detailed documentation and archiving. Documentation and archiving shall specifically cover storage of data, assumptions and choice of methodologies, estimate and reporting. This will increase the financial requirements of setting up a sustainable archiving and documentation system.



### Methodological Approach

It is recommended that the Inventory Technical Working Group review and integrate aspects of the *IPCC 2000 Good Practice Guidance* and the *2006 Revised Guidelines for Greenhouse Gas Inventories that improves accuracy and more transparent methodologies* to improve the robustness of the national system.

### Activities to be undertaken

The following activities will be undertaken:

- Support the establishment and operationalization of “GHG inventory central database” for documentation and archiving of all inventory data/information.
- Develop GHG inventory manual of procedures, QA/QC manual and tier-1 uncertainty assessment for selected sectors.
- Support continuous training key inventories staff especially on new and emerging topics contained any UNFCCC/IPCC guidance or guidelines documents.

#### **Activity 3.1.: Support the establishment and operationalization of “GHG inventory central database” for documentation and archiving of all inventory data/information**

Lack of country-specific activity data in some categories and the use of predominantly IPCC default emission factors which may not be suitable for national circumstances are two key issues INC and TNC identified and should be addressed in TNC. However, developing new emission factors is usually a lengthy and expensive undertaking requiring, specific engineering and/or scientific expertise. Thus, to overcome this emission factor constraint, this LECBP activity will focus on the following components: The first step will be to improve the reliability of existing emission factors by documenting the selection processes, methods and assumptions. The IPCC online emission factor database ([www.ipcc-nggip.iges.or.jp/EFDB/main.php](http://www.ipcc-nggip.iges.or.jp/EFDB/main.php)) will be useful in this regard. Academic research, especially in the form of peer-reviewed journal articles, will also be a potential source of emission factors. This activity will therefore involve capacity building of the GSS, which has been selected as the national documentation and archiving institution under the national system adopted for GHG inventory in TNC. The capacity support will strengthen archiving of relevant data (e.g. activity data, emission factors and conversion factors); documentation of the selection process of national activity data and related parameters used in the inventory preparation process; documenting the methods and assumptions used; and documenting the data collection methods and data providers. Archiving will consist of both electronic and paper documentation, all organised in a logical fashion and with back-ups of electronic files. The single most important reason for archiving inventory data, methods and procedures is to ensure sustainability of the national inventory system and institutional memory, so that changes in inventory teams will not have significant effect on the preparation and delivery of subsequent inventors submissions.

#### **Activity 3.2: Develop GHG inventory manual of procedures, QA/QC manual and tier-1 uncertainty assessment for selected sectors**

An inventory improvement strategy will be prepared in accordance with UNDP’s 2005 handbook, *Managing the National Greenhouse Gas Inventory Process*. An awareness-raising package will also be developed as part of the inventory improvement strategy. There will be two audiences for the package, namely national policy-makers and data providers as a way of strengthening government and institutional support for future inventory procedures, and donors who could assist in financing future activities after the end of this project. Results will also be exchanged with the other countries participating in the LECB programme to share ideas



and experiences that could improve the project's outcome. A manual of procedures for preparing a national GHG inventory will also be developed for the energy sector. Such sector specific manuals are essentially the national blueprint for the inventory. A QA/QC plan and tier 1 uncertainty assessment will also be undertaken.

***Activity 3.3: Support and competence building of key inventories specialists, particularly for new and emerging UNFCCC/IPCC guidance or guidelines***

This activity will be implemented during the start-up phase of the project (ideally within the first 2-3 months), and will involve training experts in the IPCC's good practice guidance and, where appropriate, the 2006 IPCC Guidelines for inventory preparation in the energy sector. This training will provide the basis for creating a sustainable institutional framework; will involve developing long-term national strategies to improve inventory preparation and identify the national institutions and organisations to be targeted for long-term involvement in the inventory process. A website, expert database and information exchange network will be integrated in the GSS website for information dissemination and enhancement of sustainability of the inventory system.

**Institutional and political considerations**

The major challenge lies in institutional arrangements necessary for effective compiling, archiving, and updating and managing inventory data as specified in the IPCC good practice. The implementation of the INC and SNC were based on ad-hoc committees. Because of the non-sustainability of the management of past national communications, institutional memory has been lost, particularly with changes of national inventory teams, data acquisition, especially from other line ministries and government agencies, as well as from the private sector, posed major problems to the INC and SNC. Informal relationships were exploited for data collection. In order to lay the foundations for a sustainable inventory system and to ensure the LECB Project, especially the Inventory component, benefits from past similar projects, and the following institutional arrangement is proposed:

1. The Project will be anchored within the Environment Directorate of the Ministry of Environment, Science, Technology and Innovation (MESTI), which is responsible for coordinating programs of the NCCP. This is a new institution in the Ministry that did not exist when SNC was prepared and submitted in 2010. The vision for the Directorate, among others, is an effective coordination of *focused and functional climate change governance system, guided by appropriate policies and legislation*. Its core function is to coordinate climate change activities in the country.
2. The Environmental Protection Agency shall provide the technical coordination of project. In addition, the department has equipment (e.g. super processors) needed to carry out inventory work and mitigation assessments, as well as experts trained in IPCC Guidelines. The EPA is the designated national entity legally responsible for producing the greenhouse gas inventory. The Agency coordinated the INC and the SNC. The EPA Energy Resources and Climate Change Unit, the coordinator of the TNC, will collaborate with a national consultant for the coordination of the LECBP to ensure the effective use of the opportunity to achieve the medium-long-term goal such a sustainable national system for GHG inventory in Ghana.





3. MESTI will ensure the development and signing of MOUs with data providers as well as preparation of templates for data provision will also be covered under this activity will ensure data acquisition from relevant ministries, departments and agencies (MDAs). By ensuring the establishment of the institutional responsibilities and roles in the national system to deliver data. The EPA would also obtain data from the private sector (e.g. industries' emissions data, Elias, annual Environmental Reports). This is in line with the EPA's mandate as the government's lead agency in environmental permitting under the Environmental Assessment Regulations, 1999 (LI 1652).

## **Appendix B: Visibility & Outreach under the LECB Project**

### **Context**

The Low Emission Capacity Building Programme is considered by its donors as an innovative pathfinder project – allowing national governments to build capacities to plan their own low-emission development pathways within the context of national circumstances and national development goals. National teams are in the best position to identify on-the-ground experiences that can be collated and disseminated. As such, national LECB project teams are encouraged to program approximately 5% of their budget for learning, knowledge sharing, communication and outreach activities and materials<sup>6</sup>. Visibility is a major criterion from donors for measuring success and national teams are encouraged to develop an outreach strategy the beginning of the project that is regularly monitored. At times, national teams may be called upon to provide updates on their project progress for featuring in donor publications.

### **Required Visibility Products**

#### **National Fact Sheet/Case Study**

Each national team is expected to prepare a National Factsheet/Case study that can be used at the national and global levels (via the LECB Programme's global website, newsletter, and other outreach tools) to promote national project results and activities.

#### **Lesson Learned/Best Practices Documents**

Each national team is expected to produce a lessons learned/best practices document at the completion of each project component to showcase their results and impacts. The Global Support Unit will provide guidance on how to develop these best-practice documents, which will also be used as guidance for other developing countries embarking on a LEDS/NAMA process.

#### **Contributions to LECB Programme newsletter**

The Global Support Unit will prepare a quarterly newsletter. National teams are required to contribute with at least one newsletter article during the life of the project.

### **Recommended Visibility Products**

#### **National web page**

---

<sup>6</sup>It is noted that these funds may be embedded in other activities, such as producing a Lessons Learned document at the end of a project component, or developing a joint webpage with the government ministry implementing the project and need not appear as a separate budget line or activity.





National teams are requested to develop a web page or, at minimum, post relevant project activities on the most appropriate institutional website. The Global Support Unit will link to the national page from the global programme site, [www.lowemissiondevelopment.org](http://www.lowemissiondevelopment.org), and encourages similar linkages to the global site wherever programme promotion is featured.

#### **National media reports**

National teams are requested to liaise with the communications focal point in the UNDP Country Office regarding any media produced by or about the project, and to share media reports with the Global Support Unit for global promotional efforts, including featuring on the programme website, [www.lowemissiondevelopment.org](http://www.lowemissiondevelopment.org).



## Appendix C: Terms of Reference

### Project Supervisor, MESTI (Implementing Partner)

The project supervisor at MESTI will be responsible for the overall coordination and overall management of the project. The Director of Environment, MESTI would act as the project supervisor and would perform the following tasks:

- Co-ordinate all project activities with the technical implementer, and a range of institutions and agencies.
- Make sure that deliverables of the LECBP are consistent with the project outcomes, meet the good quality standards and are on time.
- Ensure that the project is anchored on implementation of the National Climate Change Policy and are consistent with any other relevant policies
- Foster and establish links with related national and regional projects, and other international programmes.
- Work closely with the UNDP CO, especially in relation to disbursement of funds for project activities
- Identify long-term strategies for scaling up and ensuring that project deliverables become visible and linked with other interventions.
- Supervise the project management staff, and international and regional consultants who are recruited to provide technical assistance

### Project Technical Lead, EPA (Responsible Partner)

The Lead, Mitigation, GHG and Reporting at EPA, will be lead the technical implementation of the project under the supervision of MESTI and the UNDP CO. Under the directives of the Project supervisor, he will be responsible for the day-to-day management for the technical aspects of the project and provide technical assistance to the teams working on GHG inventories, NAMAs and the investor guide. He will perform the following technical functions:

- Prepare a detailed workplan for the project activities to be carried out, in close consultation with the UNDP CO, MESTI and the Project Steering Committee.
- See to the prioritisation, implementation and monitoring of project activities under the guidance of the project supervisor.
- Prepare TORs, contracts and schedules for approval and finalisation by MESTI and UNDP.
- Prepare a monitoring and evaluation plans to ensure adequate and timely assessment of project activities.
- Ensure that that approaches and tools used for developing NAMAs, GHG inventories and investor guide are consistent with the programme document and are acceptable to the standards.
- Provide assistance to technical teams in the use of the IPCC Good Practice Guidance and in the selection and application of approaches to improve upon the national system for GHG.
- Ensure the publication and dissemination of the reports identified as project outputs.
- Attend the UNFCCC Conference of the Parties to give a side event on presentation on the project, as described in the project document.



## Working Teams

### **GHG Inventory working team**

The inventory team will be responsible the implementation of GHG inventory activities of the Project as described in the Workplan. The team will be constituted from experts and the national institutions involved in the GHG inventory development within the national system being developed under the TNC. The GHG inventory team leader will head the team In order to build on previous similar exercises, the inventory team members will be drawn from those engaged in the in the on-going Third National Communication. Representatives of potential project owners will be co-opted where necessary.

The specific duties of the GHG inventory working team are as follows:

- Prepare a monitoring and evaluation programme to ensure timely assessment of project activities
- Prepare monthly progress reports for the Technical Entity and for the Project Steering Committee
- Ensure all activity outputs are sent to the Technical Entity for dissemination to relevant stakeholders and fora
- Adequate collaboration with relevant national institutions and government ministries to ensure that project activities are distinct and fully complementary to other national initiatives, particularly the TNC and NCCP.
- Prepare programme for archiving and documenting all project outputs
- Identify training needs at contracted national institutions and for other project stakeholders, as described in the project document, and prepare a training programme
- Ensure that the contracted national institutions are familiar with the application of IPCC Good Practice Guidance and with the approaches to be used for developing emission factors
- Review all national inventory information generated during the project
- Ensure peer review and integration of any technical materials generated from regional project activities, as requested by the Technical Entity
- \* Attend national validation workshops and contribute with preparation of technical papers
- Produce the GHG Inventory component of the publication and dissemination of the national outputs identified in the project document.

### **NAMAs & MRV Working Team**

The NAMAs working team will be responsible the implementation of activities for NAMAs development as described in the workplan. The team will be constituted from experts and the national institutions involved in the NAMAs development.

The specific duties of the NAMAs Working Team are as follows:

- Prepare a detailed Workplan for national activities, consulting with the Technical Entity and all participating institutions and experts on the timing of compulsory project activities
- Prepare a monitoring and evaluation programme to ensure timely assessment of project activities
- Prepare monthly progress reports for the Technical Entity and for the National Project Steering Committee
- Ensure all activity outputs are sent to the Technical Entity for dissemination to relevant stakeholders and fora

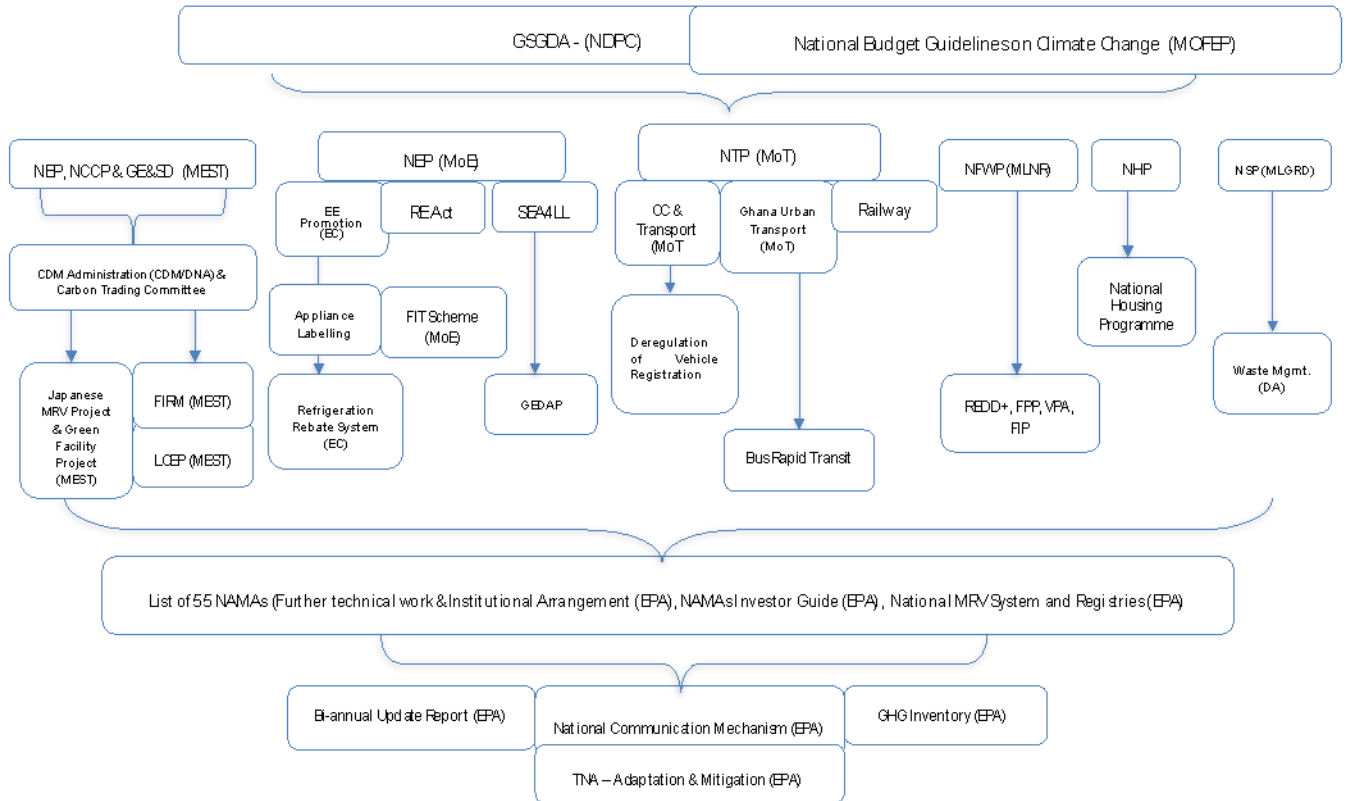


- Adequate collaboration with relevant national institutions and government ministries to ensure that project activities are distinct and fully complementary to other national initiatives, particularly the TNC and NCCP- Program of Actions
- Prepare programme for archiving and documenting all project outputs
- Submit training needs of contracted national institutions and for other project stakeholders, as described in the project document, and prepare a training programme
- Review existing data, projections and models on emissions.
- Organise a participatory workshop on emission scenarios modelling involving training in different modelling tools-the pros and cons of each in order build consensus on the tool to be adopted.
- Participate in national validation workshops and contribute with preparation of technical papers
- Produce the NAMA component of the publication and dissemination of the national outputs identified in the project document.



## Appendix D: Summary of Low carbon and Mitigation Related Activities in Ghana

*Summary of Low Carbon and Mitigation Related Activities in Ghana (Tutu Benefoh, 2012)*





## REFERENCES

Further Work on Ghana's List of Nationally Appropriate Mitigation Actions (NAMAs) For Energy, Transport and Infrastructure Sectors Submitted to the UNFCCC, Final Report Submitted to the Environmental Protection Agency, Accra, Ghana December, 2010

Further Work on Ghana's List of Nationally Appropriate Mitigation Actions (NAMAs) For Agriculture, Forestry and Waste Sectors Submitted to The UNFCCC final Report Submitted to the Environmental Protection Agency, Accra, Ghana. December, 2010

Ghana Action Plan for Sustainable Energy for All by 2030 (Energy Commission, June, 2012)

Medium-Term National Development Policy Framework (MTDPF) -Ghana Shared Growth and Development Agenda (GSGDA), 2010-2013, Volume I: (NDPC, 2010)

Ghana Country Study: Implementation of Renewable Energy Technologies –Opportunities and Barriers- (Kite, 2001)

Strategic National Energy Plan 2006 – 2020, *ENERGY SUPPLY TO THE ECONOMY*  
*Electricity Energy Commission July, 2006-2020*

Guide to Electric Power in Ghana, Resource Centre for Energy Economics and Regulation, (Institute of Statistical, Social and Economic Research University of Ghana, July 2005

Ghana Vehicular Emission Inventory *Vehicular Inventory Sub-Programme under the DANIDA Transport Sector Programme Support (TSPS 2)* GHANA, EPA Climate Change UNIT,

Report on Basic Reference Emissions Scenarios for Ghana, (UNDP LECBP)