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Number and date of this
Letter should be quoted.*

**Ministry of Environment, Science &
Technology
P.O. Box M232
Accra**



Our Ref: MEST/IA/006/V.3

Your Ref:

February 15, 2010

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**The Secretariat of the United Nations Framework
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Dear Sir,

SUBMISSION OF APPENDIX II OF THE COPENHAGEN ACCORD


In furtherance to our notification of willingness to be associated with the 18th December 2009 Copenhagen Accord, Ghana is pleased to submit a list of what it considers as nationally appropriate mitigation actions (NAMAs) as per the annex to this letter .

This initial list of NAMAs requires further detailed analysis, in particular as it relates to the actual levels of emissions reductions as a result of the implementation of these actions.

Moreover the analysis will provide further indications as to what actions can be undertaken domestically and which of these actions will require international support in terms of technology, finance and capacity building for the purpose of fulfilling the measurability, reportability and verifiability of actions and support.

We will communicate to the Secretariat as we develop further our mitigation actions.

The Government of Ghana avails itself of the opportunity to renew to the Secretariat of the UNFCCC, the assurance of its highest consideration.


**HON. SHERRY AYITTEY (MS)
MINISTER**

List of Nationally Appropriate Mitigation Actions in Response to "Article 5" of Copenhagen Accord

Appendix II of Copenhagen Accord (COP 15)

Non-Annex 1 Party – Ghana

Sector	Sub-sector	Category	Business As Usual Situation	List of Mitigation Actions		
Energy	Electricity	Supply	Thermal generation using light crude oil	Switch to natural gas (Combined cycle)		
			Hydro generation	Retrofit existing hydro dams Build more hydro dams		
			Off-grid/ independent generation using diesel and gasoline	Improve reliability of electricity supply by improved maintenance, timely expansion and upgrading Expand grid access to discourage the need for off-grid generation		
				Generation from conventional sources	Promote electricity generation from renewable energy sources to increase the share of renewable to 10-20 percent by 2020	
				Transmission	Reinforce transmission systems to reduce transmission losses to 3%	
				Distribution	Balance the generation and transmission system Standardise transformers Expand and maintain distribution systems timely basis	
				End-Use	Develop and enforce standards and labels for appliances Intensify public education on energy conservation	
					Inefficient appliances and practices	
					Total distribution system losses (26%)	
					Transmission losses (5% – 6%)	

			Use of kerosene for lighting and cooking	Promote and support Solar PV Lighting Increase rate of rural electrification
Transport	Infrastructure/Modes		Inadequate transport network	Expand road, and developed infrastructure for and promote rail, maritime, air, and inland water transportation systems
			Poor road conditions	Improve road conditions by increasing the percent of paved road.
			Limited infrastructure for non-motorised transport	Expand infrastructure for non-motorised transport
			Inefficient public transport system	Develop and improve facilities for public transport system
			High preference for use of private vehicles	Incentivise the use of public transport and promote car pooling
Fuel Use			Poor maintenance Practice	Enforce road worthiness certification requirements.
			High proportion of vehicle population use metallic-based gasoline	Retrofit existing refinery infrastructure and ensure that new refinery produce non-metallic based gasoline
			Predominant use of gasoline and diesel fuels	Substitute the use of gasoline with CNG, LPG, and electricity for public transport Promote the production and use of bio-fuels as transport fuel
Residential	Cooking		Predominant use of Conventional - Euro II vehicles (manufactured before 2004)	Promote the use of Euro III and above as well as use Flexi Vehicles. Institute measures to promote and switch from the use of gasoline and diesel fuels to use of CNG, LPG, and electricity for public transport
			High percentage of wood fuel (Charcoal and firewood) use	Promote the use of LPG
			Use of inefficient cooking device	Promote the use of energy efficient cooking devices
			Inefficient carbonisation technology	Promote the use of efficient and clean carbonisation

			Unustainable harvesting of wood	technologies Establish more woodlots Promote the re-use of wood residues
	Industrial	Manufacturing industries	Low power factor and inefficient energy and other resource utilization	Improve power factor correction across industries and institute energy efficient measures in industrial operations Improve on resource efficiency in industries to promote sustainable production and consumption
	Liquid and gaseous Fuels	Oil and Gas production	Fugitive and other greenhouse gas emissions associated with oil and gas production and utilization	Promote zero fugitive emissions Assess, promote and incorporate carbon capture and storage in oil and gas production and utilization
Industrial Processes	Metal Production	Aluminium Production	Carbon dioxide is generated in association with aluminium smelting as a result of anode paste used as reducing agent	Reduce carbon dioxide emissions from anode reactions
Agriculture	Crop Production	Land Preparation	Uncontrolled burning	Promote spot and zero burning practices
			Mechanised land preparation	Promote minimum tillage Incentivise use of bio-fuels for mechanised agriculture
			Use of nitrogen-based fertilizers	Promote the use of organic fertilizers Promote integrated use of plant nutrients
			Predominant cultivation of rice in low lands	Promote the cultivation of high yielding upland rice cultivation
			Burning of crop residues	Promote the recycling of crop residues
		Harvest to post-harvest	High post-harvest losses	Improve storage facilities and promote the use of post-harvest technologies

Waste	Forestry	Land Conversions	High decline in natural forest estates	Promote sustainable forest management
				Implement REDD+ mechanism
Solid Waste Disposal	Landfill	Degraded forest lands	Low rate of rehabilitation of degraded forest lands	Implement various forest governance initiatives (Voluntary Partnership Agreement and Forest Law Enforcement Governance and Trade, Non-legally binding Instrument)
				Rehabilitate degraded wetlands
Waste water handling	Domestic and industrial	Inadequate and poorly maintained waste water treatment plants	Net methane emission due to improper management of waste	Develop and enforce land use plans
				Enhance rehabilitation of degraded forest lands
Waste water handling	Domestic and industrial	Inadequate and poorly maintained waste water treatment plants	Improper disposal of sludge	Promote Small Afforestation/reforestation activities at the community level
				Establish commercial plantations
Waste water handling	Domestic and industrial	Inadequate and poorly maintained waste water treatment plants	Irregular operation and maintenance	Promote waste separation and composting
				Support waste-to-energy initiatives (sawdust, oil palm waste and other agricultural waste /residue)
Waste water handling	Domestic and industrial	Inadequate and poorly maintained waste water treatment plants	Irregular operation and maintenance	Capture and utilise methane gas from landfill sites
				Institute measures to minimise waste generation
Waste water handling	Domestic and industrial	Inadequate and poorly maintained waste water treatment plants	Irregular operation and maintenance	Build, operate and maintain waste water treatment plants