



*READINESS PREPARATION PROPOSAL*  
*GHANA*

*Submitted to Forest Carbon Partnership  
Facility (FCPF)*

*FINAL*  
*January 2010*

## Ghana R-PP

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### List of Acronyms

ASM	Artisanal and Small-scale Mining
CDM	Clean Development Mechanism
DBH	Diameter at Breast Height
DDE	Deforestation, Degradation, and Enhancement
D&D; DD	Deforestation and forest degradation
ECOWAS	Economic Community Of West African States
EPA	Environmental Protection Agency
EU	European Union
FAO	Food and Agriculture Organization
FC	Forestry Commission, Ghana
FCPF	Forest Carbon Partnership Facility
FLEGT	Forest Law Enforcement Governance and Trade
FORIG	Forestry Research Institute of Ghana
FRA	Forest Resource Assessment
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIS	Geographical Information Systems
GoG	Government of Ghana
GOFC-GOLD	Global Observation and of Forest and Land cover Dynamics
GPS	Global Positioning System
HFZ	High Forest Zone
IPCC	Intergovernmental Panel on Climate Change
IPCC-GPG	Intergovernmental Panel on Climate Change - Group Practice Guidance
Landsat ETM	Landsat Enhanced Thematic Mapper

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LULUCF	Land Use, Land-use Change and Forestry
MDAs	Ministries, Departments and Agencies (of the Government of Ghana)
MEST	Ministry of Environment Science and Technology
MLG	Ministry of Local Government and Rural Development
MLNR	Ministry of Lands and Natural Resources
MODIS	Moderate Resolution Imaging Spectroradiometer
MoE	Ministry of Energy
MoFA	Ministry of Food and Agriculture
MoFEP	Ministry of Finance and Economic Planning
MRV	Monitoring Reporting and Verification
MSD	Multi Stakeholder Dialogue
MTI	Ministry of Trade and Industry
NLBI	Non Legally Binding Instrument
NREAC	Natural Resources and Environment Advisory Council
NREG	Natural Resources and Environmental Governance Development Policy Operation
NRSC	National REDD Steering Committee
NSZ	Northern Savannah Zone
PDA	Personal Digital Assistant
QA/QC	Quality Assurance / Quality Control
REDD	Reduced Emissions from Deforestation and Degradation
REL	Reference Emission Level
RMSC	Resource Management Support Center
R-PIN	REDD Readiness Plan Idea Note
R-PP	REDD Readiness Preparation Proposal

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RS	Remote Sensing
SESA	Strategic Environmental and Social Assessment
SLC	Standard Line Corrector
SRTM	Shuttle Radar and Topography Mission
SSL	Small Scale Lumbering
TZ	Transition Zone
UNFCCC	United Nations Framework Convention on Climate Change
VPA	Voluntary Partnership Agreement

## Forest Carbon Partnership Facility (FCPF)

Readiness Preparation Proposal (R-PP)

## Ghana

Date submitted (expected): 10<sup>th</sup> January 2010

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## ***Executive Summary***

### ***The R-PP***

The Readiness Preparation Proposal (R-PP) aims to assist Ghana to prepare itself for reducing emissions from deforestation and forest degradation (REDD), and become 'ready' for the implementation of an international mechanism for REDD. The document provides a roadmap of preparation activities needed and will remain a living document throughout the preparation process. In this R-PP, REDD is taken to include all the elements mentioned in the Bali Action Plan, Section 1 (b), and officially known as 'REDD plus', namely 'policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.'

### ***The Ghanaian Context***

The condition of Ghana's forests has been in decline for many years, particularly since the 1970s. Many forest reserves are heavily encroached and degraded, and the off-reserve stocks are being rapidly depleted.

By and large, the problem is one of gradual 'degradation' rather than 'deforestation', and is incremental rather than dramatic, with no single dominant driver. The underlying causes involve a complex of demographic, economic and policy influences. The immediate drivers include: forest industry over-capacity; policy/market failures in the timber sector; burgeoning population in both rural and urban areas; increasing local demand for agricultural and wood products; high demand for wood and forest products on the international market; heavy dependence on charcoal and woodfuel for rural and urban energy; limited technology development in farming systems and continued reliance on cyclical 'slash and burn' methods to maintain soil fertility and fire as a tool in land management.

Arresting deforestation and forest degradation is an important priority for the country, and Ghana has already embarked on a series of forest and natural resource governance initiatives to address these challenges. The most prominent of these are the Forest Law Enforcement, Governance and Trade (FLEGT) Initiative, and the multi donor sector budget support through the Natural Resources and Environmental Governance Program (NREG).

### ***Ghana and REDDplus***

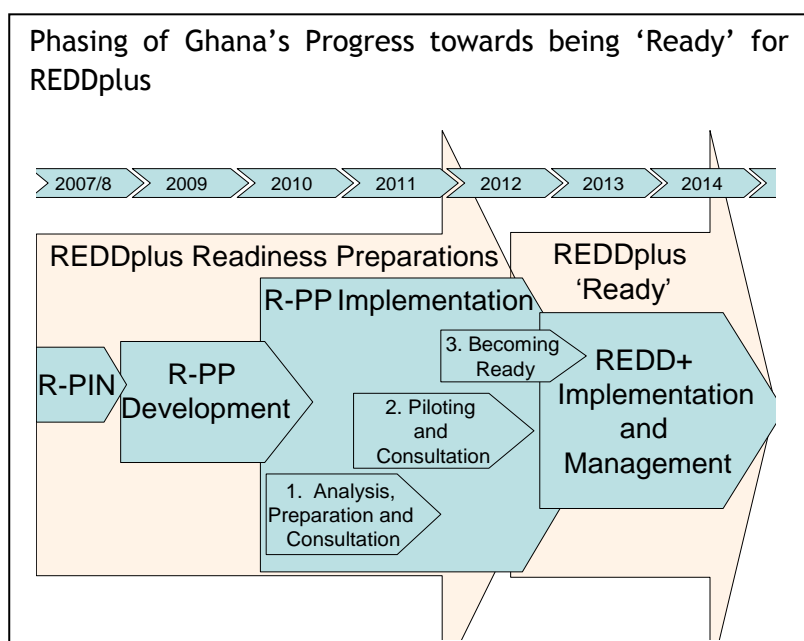
Stakeholders within and outside of the Government of Ghana have very different expectations with respect to the benefits and risks associated with REDDplus. This is partly due to mechanisms for REDDplus still awaiting definition by the UNFCCC and the funds currently available for REDDplus preparations remaining limited. As such Ghana seeks to explore REDDplus as a potential additional reward mechanism for sustainable forest protection and land-use, in support of existing policies including FLEGT and NREG.

### ***Phasing of Ghana's Progress towards REDDplus Readiness***

The progression between expressing an interest in and fully implementing REDDplus mechanisms is challenging. It requires cross sectoral planning and coordination, as well as the revision of existing, and development of new laws, policies and institutions.



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Within the context of Ghana and the FCPF, this process has been divided in two core phases (shown below and in adjacent diagram). These phases are made up of a series of stages and within these a number of steps. This phasing is intended to provide an overview of the anticipated process and should not be seen as fixed with different aspects of preparations potentially occurring at different speeds. It must also be noted that while the FCPF represents a key contributor to readiness preparations it should not be seen as the only mechanism to engage in future mechanisms for REDDplus.

National planning processes will incorporate existing activities being undertaken as well as those anticipated within the near future. As such REDDplus preparations will be part of, complement and add to the existing efforts towards environmentally sustainable development planning within Ghana.

## Phase 1: REDDplus Readiness Preparations

Within the context of the FCPF this includes three stages:

### *Stage 1: The development and Submission of the R-PIN (2007)*

The Government of Ghana submitted its REDD Readiness Plan Idea Note (R-PIN) to the Forest Carbon Partnership Facility (FCPF) in 2007 and received approval in July 2008.

### *Stage 2: R-PP Development (2009)*

Following acceptance of the R-PIN, institutional structures for the further development of national REDDplus readiness preparations were put in place by the REDDplus Secretariat which included a National REDD Steering Committee (NRSC). The R-PP Development Stage was formally initiated in May 2009 with a week-long mission engaging key actors within the forest sector. Based on the outcomes of this May mission, a four step work plan for Ghana's R-PP development was elaborated and has subsequently been implemented:

Step 1: Information sharing - May to mid July 2009

Step 2: Continued Information Sharing and Initial Consultation - July 2009

Step 3: Expert Consultation - August 2009

Step 4: Validation - Late August early September 2009

Over 200 individuals were engaged during these activities encompassing the main stakeholder groups. The majority of these participants were involved more than once in the process.

The broader consultative process has been formative to the development of all components

presented here, providing key inputs to the Consultation and Participation Plan; the identification of key drivers of deforestation and potential activities to address these and identification of the potential impacts of these activities on different stakeholder groups. The NRSC and expert working groups have provided input to and revisions of R-PP draft documents.

### ***Stage 2: R-PP Implementation Phase (2010-2013)***

This R-PP document represents Ghana's ongoing efforts to get 'ready' for a future mechanism for REDDplus. It presents a three-step approach to REDDplus strategy development and establishment of the technical, policy, legal, management and monitoring arrangements necessary to enable Ghana to fully participate in a mechanism for REDDplus. Implementation of the R-PP is anticipated to continue through until early 2012/2013.

The steps of this stage will include:

#### **Step 1: Analysis, Preparation and Consultation**

- Detailed analysis of REDDplus policy, legal and technical requirements
- Setting of the Reference Emissions Level (REL)
- Confirmation of institutional roles, responsibilities and oversight for REDDplus
- Establishment of the entity responsible for MRV
- Selection of potential pilots / demonstration activities
- Continued consultation, information sharing and awareness raising on REDDplus strategy, legislative and institutional proposals
- Finalisation of REDDplus strategy (to progress towards REDDplus readiness)

#### **Step 2: Piloting and Testing**

- Initial capacity building for pilots
- Establishment of pilots / demonstration activities
- Establishment of carbon accounting registry
- Testing of carbon measurement, accounting and MRV procedures
- Consultation around demonstrations and pilots
- Consultation on potential REDDplus policies, decisions and actions
- Training Needs Analysis for full REDDplus implementation

#### **Step 3: Becoming Ready**

- Approval of any new legislation (e.g. carbon rights) and legal texts (as required)
- Finalised financing mechanisms, procedures, audit and controls
- Finalised operating procedures for MRV entity
- Recruitment of staff
- Training and capacity building on the development and technical aspects of REDDplus
- Operational plan to scale up REDDplus in Implementation Phase

The **Consultation and Participation Component** of this R-PP (section 1b) describes how consultation has been carried out during R-PP development and presents a plan to help guide the elaboration of the REDDplus readiness preparation activities. A complete Consultation and Participation Plan is included in the Annex 1b - 5.

The C&P Plan emphasizes increased awareness raising and broad involvement in implementation to help ensure effective communication and decision making. The R-PP as a living document will react to these consultations and evolve during the process of REDDplus readiness preparation to better fit the changing needs of stakeholders within the REDDplus process.

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Potential components of a REDDplus strategy to control deforestation and degradation (components 2a/2b) are proposed for further analysis, elaboration, consultation and validation and fit in two themes: i). forest policy, legislation and governance and ii) carbon enhancement activities.

The REDDplus Management Arrangements (2c) outline the types of entities and institutions that be needed for policy definition, implementation, and management- ranging from civil society proposed inter-ministerial bodies. A process is defined to identify the resources needed implementation and to help bolster capacities. Next steps are defined for laying the ground work financial and legal arrangements needed in the subsequent REDDplus Implementation and Manager Phase.

Social and Environmental Standards Assessment (SESA) is recommended as part of the Implementation and REDDplus readiness preparation to promote due diligence in the design of the strategy (Component 2d). The SESA will identify the likely social and environmental impacts (negative/positive) of proposed REDDplus strategies; assess the potential additional benefits of REDDplus (e.g. biodiversity conservation and poverty alleviation); and to inform the design of the national REDDplus strategy so that it avoids or mitigates negative social/environmental impacts and encourages positive ones. A strong SESA analysis (for which a Terms of Reference is provided) will take place during the upcoming R-PP implementation, and promote integration of social and environmental issues in the upstream policy-making process, thereby promoting more sustainable and equitable REDDplus policies.

Constructing the Reference Scenario (Component 3) begins with an assessment of available data and concludes that data for estimating historic emissions in Ghana are sorely lacking. It then describes how activity data can be acquired to map land cover change, what data are needed and how to obtain emission factors, and how to combine both data sets to develop a historic emissions scenario. Specific activities to evaluate uncertainties in the reference scenario and define a future trajectory are core elements of the work plan presented in the R-PP.

Components 4, 6 and 2c describe the Monitoring Arrangements needed during the REDDplus readiness preparation and during future REDDplus implementation and management. These include a National Working Group that helps design a Monitoring Framework and Data Archiving system, as well as training and capacity building for carrying out the monitoring, and a process for system review and verification.

Overall Costs estimated for R-PP Implementation (Component 5) are summarized in the table below:

Summary of REDDplus Readiness Preparation Budget						
Component	Sub-Component	Estimated Cost				
		(in USD \$ thousands)				
		2010	2011	2012	2013	Total
1. Organise and Consult						

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1.a National Readiness Management Arrangements	687	219	251	286	1443
1.b Stakeholder Consultation and Participation	288	178	254	104	824
<b>2. Prepare the REDDplus Strategy</b>					
2.a Assessment of Landuse, Forest Policy and Governance	50	50	50	50	200
2.b REDD Strategy Options	265	270	240	240	1015
2.c Arrangements for REDD Implementation	45	80	25	15	165
2.d Social and Environmental Impact Assessment	87	30	30	30	177
3. Develop a Reference Scenario	1370	790	215	115	2490
4. Design a Monitoring System	150	130	210	100	590
<b>5. Schedule and Budget</b>					
6. Design a Program Monitoring and Evaluation	90	70	80	190	430
<b>Total</b>	<b>3032</b>	<b>1817</b>	<b>1355</b>	<b>1130</b>	<b>7334</b>
Government	771.96	314.57	320.57	297.51	1704.61
FCPF	2237.24	1502.43	1034.43	832.49	5606.59
UN-REDD Programme (if applicable)	\$	\$	\$	\$	\$
Gordon & Betty Moore Foundation	22.80	\$	\$	\$	22.80
Other Development Partner 2	\$	\$	\$	\$	\$
Other Development Partner 3	\$	\$	\$	\$	\$

## ***Introduction and Objective***

This Readiness Preparation Proposal (R-PP) outlines the process by which the Government of Ghana will develop its national strategy for participating in and implementing an international mechanism for reducing emissions from deforestation and forest degradation, conserving and enhancing stocks and sustainably managing its forests (REDDplus).

An international REDDplus mechanism is anticipated to emerge from the current negotiations for a post-2012 climate regime under the UN Framework Convention on Climate Change (UNFCCC). The international community has agreed to create appropriate incentives for REDDplus as a developing country mitigation strategy. The details of the mechanism are still under development and it remains unclear exactly how emission reductions will be rewarded. Consequently, the development of the R-PP has to build in flexibility and take into account the evolving nature of REDDplus. The process will also need to carefully manage expectations regarding such matters as REDDplus compensation mechanisms.

The present document confirms the commitment of the Government of Ghana to assess appropriate policies and measures to protect its remaining forest resources, reduce degradation and enhance forest stocks. The Government is committed to the REDDplus readiness process, is participating actively in international REDDplus negotiations, and will communicate the lessons learned from the Readiness Process within Ghana, as well as to the FCPF and the broader international community.

This Readiness Preparation Proposal is a living document and does not preclude any future policies or anticipate any outcomes. Rather, it presents a process that will lead to a strategy and implementation framework for REDDplus in Ghana. In the Readiness Preparation Phase, Ghana will benefit from national and international best-practice and expertise. The Government of Ghana's priority is the implementation of environmentally and socially sustainable land-use and forest policies. REDDplus provides the country with a chance to secure funding and international recognition for to support this aim.

### **Definition of REDDplus phases**

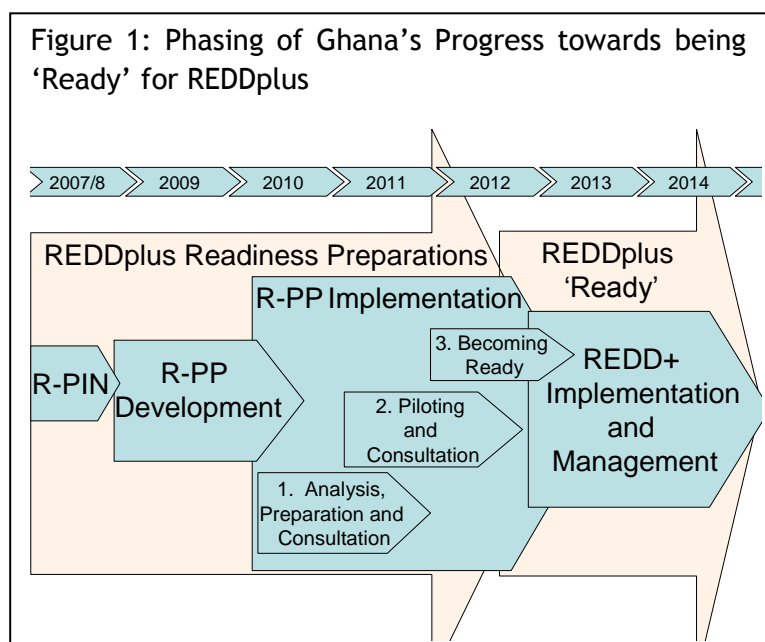
The progression between expressing an interest in and fully implementing mechanism on REDDplus is a challenging task and requires cross sectoral planning and coordination, as well as the revision of existing and development of new laws, policies and institutions. Within the context of Ghana and the FCPF this process has been divided in two core phases made up of a series of stages and steps. This phasing (shown below and figure 1) is intended to provide an overview of the anticipated process and should not be seen as fixed. A country may progress at different speeds within different aspects of preparations for and the implementation of mechanisms for REDDplus. It must also be noted that while the FCPF represents a key aspect of readiness preparations it should not be seen as the only mechanism and national planning

must incorporate existing activities being undertaken as well as those anticipated within the near future. As such REDDplus preparations must be part of, complement and add to the existing efforts towards environmentally sustainable development planning within Ghana.

**Phase 1. The REDDplus Readiness Preparation Phase** this phase covers the transition between a country's initial interest in REDD to a point at which a country is 'ready' to implement and manage a mechanism for REDDplus payments. It includes the development of different candidate strategies, developments of appropriate legal and institutional structures as well as widespread consultation and participation on the means, mechanism, and principles of REDDplus implementation. Within the context of Forest Carbon Partnership support steps within this phase include:

**Stage 1. R-PIN Development and Submission** - The R-PIN (Project Idea Note) is the initial statement of a country's interest in REDDplus and the FCPF. It provides an overview of landuse patterns, stakeholder engagement within the forest sector and potential institutional arrangements for REDDplus.

**Stage 2. R-PP Development Phase** - During this a more detailed overview of landuse patterns, stakeholder engagement within the forest sector and potential institutional arrangements for REDDplus are developed. More extensive consultation occurs and there is a more detailed



assessment of existing technical capacity for the development of a reference emission level and subsequent monitoring reporting and verification of changes.

**Stage 3. R-PP Implementation** - The R-PP seeks to set out a number of next steps and areas of investigation that can be undertaken during R-PP implementation. The objective of this is to identify key elements of a strategy for REDDplus implementation, the technical, legal, and institutional changes required, and to make these changes so that a country will be 'ready' for REDDplus. The process involves extensive consultation with a wide range of stakeholders and requires strong cross sectoral link and working. Within Ghana this has been divided into three constituent steps:

**Step 1: Analysis, Preparation and Consultation**

- Detailed analysis of REDDplus policy, legal and technical requirements,
- Setting of the Reference Emissions Level (REL)
- Confirmation of institutional roles, responsibilities and oversight for REDDplus
- Establishment of the entity responsible for MRV
- Selection of potential pilots / demonstration activities

- Continued consultation, information sharing and awareness raising on REDDplus strategy, legislative and institutional proposals
- Finalisation of REDDplus strategy (AS ABOVE)

### **Step 2: Piloting and Testing**

- Initial capacity building for pilots
- Establishment of pilots / demonstration activities
- Establishment of carbon accounting registry
- Testing of carbon measurement, accounting and MRV procedures
- Consultation around demonstrations and pilots
- Consultation on potential REDDplus policies, decisions and actions (AS ABOVE)
- Training Needs Analysis for full REDDplus implementation

### **Step 3: Becoming Ready**

- Approval of any new legislation (e.g. carbon rights) and legal texts (as required)
- Finalised financing mechanisms, procedures, audit and controls
- Finalised operating procedures for MRV entity
- Recruitment of staff
- Training and capacity building on the development and technical aspects of REDDplus
- Operational plan to scale up REDDplus in Implementation Phase

**Phase 2. The REDDplus Implementation and Management Phase.** Developments during the preceding phases are anticipated to result in a country becoming ready for initial implementation of a mechanism on REDDplus. This phase thus involves public and private actors actively managing emissions reductions in line with selected national REDDplus strategies. By this time a complete monitoring, reporting and verification (MRV) framework will need to be in place as well as legal and institutional arrangements.

Developments in the mechanisms for REDDplus are however likely to continue and will respond to changes in both national and international circumstances.



### **Component 1: Organize and Consult**

#### ***1a. National Readiness Management Arrangements***

The Government of Ghana is progressing towards engagement in the emerging mechanism to Reduce Emissions from Deforestation and Forest Degradation (REDD). This engagement is occurring at three levels: a) participation in international negotiations under the auspices of the UNFCCC to define and reach an international agreement on REDDplus; b) preparation to participate at a national level in and benefit from a future financing mechanism such as REDDplus and c) building the capacity of local communities and other key stakeholders to participate actively in readiness and implementation activities of REDDplus.

Ghana is well placed for engagement with a future mechanism for REDDplus due to its existing commitments to a number of forest governance initiatives, including a forest law enforcement, governance and trade/voluntary partnership agreement with the European Union (FLEGT/VPA), and its cross sectoral approach to Sector Budget Support on environment, lands and natural resources under the Natural Resources and Environmental Governance (NREG) programme and Non Legally Binding Instrument (NLBI) of FAO/UNFF. The Ministry of Lands and Natural Resources (MLNR) is currently reviewing the existing (1994) Forest and Wildlife Policy as well as the (1996) Forest Development Master Plan. REDDplus activities and the institutions required for them will be aligned with such on-going reforms.

#### **Existing Activities for Climate Change and Sustainable Development**

The National Climate Change Committee (NCCC) under the auspices of the Ministry of Environment, Science and Technology is developing national strategies on Climate Change Mitigation and Adaptation for forestry, agriculture and energy as part of the national climate change policy development. The NCCC is a multi-stakeholder committee composed of government, civil society (NGOs), and development partner representatives. An overview of the coordination structure and composition of various institutions and working groups within Ghana in the context of REDDplus and the R-PP is provided in Figure 2.

The Budget Statement and Economic Policy of the Government of Ghana (GoG) for the 2009 Financial Year that was presented to Parliament on 5<sup>th</sup> March 2009 stated the need for collaborative efforts among Ministries, as well as for Departments and Agencies to develop and implement programmes to address environmental issues including climate change and the negative effects of human activity on the environment and vice versa. The Environmental Protection Agency has initiated a consultative process for mainstreaming climate change in



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GoG development planning by preparing policy briefs for dissemination to Parliamentarians, Cabinet, Ministers and the Council of State members.

At Cabinet level, a national inter-ministerial advisory body, the Natural Resources and Environment Advisory Council (NREAC), has been established to provide guidance and direction on policy coordination regarding critical national issues, priorities and the strategies necessary for sustainable development related to the environment and natural resources.

Ghana's R-PP outlines the process by which the Government of Ghana will develop its national strategy for participating in and implementing an international mechanism for reducing emissions from deforestation and forest degradation, conserving and enhancing stocks and sustainably managing its forests (REDDplus).

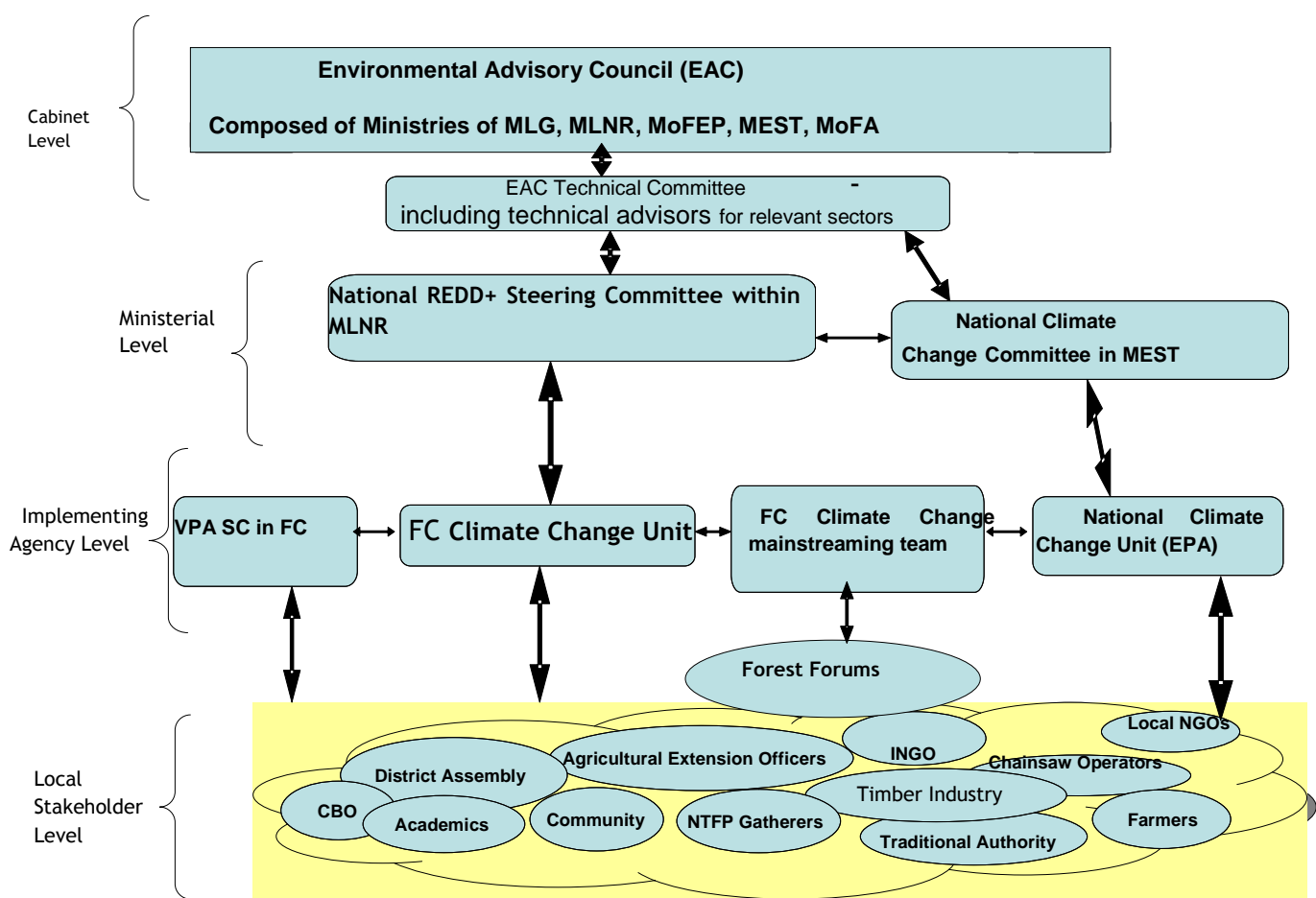


Figure 2. Institutional Linkages for REDDplus readiness preparation

## REDDplus Management Arrangements

At the Ministerial level, a National REDD Steering Committee, a multi-stakeholder body, chaired by the Deputy Minister of MLNR has also been established to advise the Minister of

MLNR on REDDplus issues. The Climate Change Unit of the Forestry Commission serves as the Secretariat. The MLNR recognises that activities that result in reduced GHG emissions from deforestation and degradation will require the commitment of efforts and resources by a wide range of actors, stakeholders and an active civil society. The Ministry also recognizes the limited capacity of the Forestry Commission in terms of climate change work. As such the Ministry intends to further support the FC in developing the Climate Change Unit and the Unit's capacity to manage activities relating to REDDplus.

The National REDD Steering Committee (NRSC) is composed of Ministries, Departments and Agencies (MDAs), private sector, civil society groups, local communities, landowners and other relevant stakeholders to share knowledge and experience on REDDplus initiatives in order to inform policy formulation and develop projects and programmes. The NRSC is an advisory body, and will seek to ensure that the cross-cutting nature of REDDplus is adequately recognised and addressed at all times in the activities of the stakeholders and other processes overseen in the NCCC. The members of the Steering Committee are listed in Table 1 of Annex 1a-1 and the terms of reference in Annex 1a-2.

During the development of the R-PP three multi-stakeholder working groups have been formed by the NRSC to support the delivery of outputs required. Steering Committee members were nominated to coordinate and lead discussions, and members in the Working Groups were confirmed at the Steering Committee Meeting of August 4<sup>th</sup>, 2009. Please see Annex 1a-5 for Working Group Participants.

In light of the growing importance of Climate Change and REDDplus issues to the forestry sector, the Forestry Commission has also set up a committee to examine and make recommendations for the mainstreaming and integration of climate change and REDDplus activities within the Forestry Commission. Please see Annex 1a-3 for the composition of this climate change mainstreaming committee.

The terms of reference for the Climate Change Mainstreaming Committee (see Annex 1a-4) include examining and recommending measures and programmes which will ensure training on climate change and REDDplus issues for a wider group of Forestry Commission staff, with a view to creating a critical mass of expertise in the Forestry Commission.

### **Sector Coordination**

There are a large number of initiatives currently operating within the forest sector including FLEGT, the Non Legally Binding Instrument on forests (NLBI), REDDplus and the Clean Development Mechanism (CDM). The coordination and transparent management of these initiatives is crucial to progress within the sector. It is thus recommended that the National Forest Forum is strengthened to advise the FC Board and support efforts at coordination and facilitate transparent sector governance. While critical decisions on sector development will remain in the hands of the Government and the appropriate MDAs the group will provide input into decisions and policy recommendations based on a broader multi-stakeholder platform. This will increase the capacity of civil society and the private sector to observe and comment on the central coordination being conducted by the Government and will help support the

inclusion of wider agreements such as CITES and the CBD within Forest Sector decision making process.

### **Conflict Resolution Structures**

The principle of subsidiarity will be used in establishing conflict resolution structures, with conflicts being addressed at the lowest or most localized level appropriate. Relevant structures include traditional authorities and land and central courts.

Should a large number of conflicts specific to REDDplus occur or it prove difficult for issues to be resolved at lower or localized levels, conflicts can be escalated to higher levels. This escalation should be in accordance with the existing principles and practices of the Government terminating at the level of President and parliament. Support and advice on conflicts will, however, also be provided by the NRSC, and REDDplus Secretariat.

### **Initial Activities**

Among the early activities that the Government intends to implement are:

**Activity 1a.1: Strengthening of the REDDplus Secretariat.** The REDDplus Secretariat will require increased capacity if it is to play its role in coordinating REDDplus activities within Ghana. It is proposed that an extra two persons join the team and take full time positions dedicated to REDDplus. The additional personnel should have an understanding of both the technical aspects of REDDplus and the participatory methods needed to effectively engage a wider audience on REDDplus. They will be the staff responsible for overseeing the implementation of each activity described in the components of the RPP, working with the NRSC and other indicated decision makers. (Part of Step 1 of REDDplus Readiness Preparation Phase).

**Activity 1a.2: Strengthening of National REDD Steering Committee.** The remit of the NRSC will be finalized and opportunities to strengthen the committee through a revision of its membership and / or its amalgamation with other Steering Committees including that of the VPA will be considered. (Part of Step 1 of REDDplus Readiness Preparation Phase)

**Activity 1a.3: Forest Forum.** Strengthening the capacity of the Forest Forum to work as a coordinated body to support policy development, and to enable them to become less directly dependent on the FC. (Part of Step 1 but ongoing through step 2 and 3 of REDDplus Readiness Preparation Phase)

**Activity 1a.4: Formal Establishment of the Natural Resource and Environment Advisory Council.** The NREAC will act as an important body for high level policy coordination and coherence for environment, natural resources, climate change and sustainable development. This body will also engage with the Ministry of Food and Agriculture and the Ministry of Local Government to improve cross sectoral planning (Part of Step 1 but ongoing through step 2 and 3 of REDDplus Readiness Preparation Phase). This body should also look to evaluate the existing institutional arrangements for addressing climate change within the sector to support coordinated and coherent working.

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Table 1a: Summary of National Readiness Management Arrangements Activities and Budget						
Main Activity	Sub-Activity	Estimated Cost in USD (in thousands US\$)				
		2010	2011	2012	2013	Total
Activity 1a.1: Strengthening of REDDplus Secretariat	Salaries for Climate Change Staff(3)	22	24	26	28	100
	Office Construction	300 (Covered within NREG)				300
	Capacity Building	10	15	20	25	70
	Vehicles (1 4WD, 2 pick-ups)	200 (Covered within NREG)				200
	Vehicle running and Maintenance	50 (Covered within NREG)	60	70	80	260
	Office running	5	6	7	8	26
Activity 1a.2: Strengthening of REDDplus Steering Committee	Regular & Emergency Meetings	20	24	28	30	102
	Field Visits	30	35	40	50	155
Activity 1a.3: Strengthening of National Forest For a	Regular & Emergency Meetings	50	55	60	65	230
Activity 1a.4: Formal Establishment of the Environment Advisory Council		Covered within NREG				0

## Ghana R-PP

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<b>Total</b>	<b>687</b>	<b>219</b>	<b>251</b>	<b>286</b>	<b>1443</b>
Domestic Government	583.33	165.12	190.48	217.28	1156.21
FCPF	103.67	53.88	60.52	68.72	286.79
UN-REDD Programme (if applicable)	\$	\$	\$	\$	\$
Other Development Partner 1 (name)	\$	\$	\$	\$	\$
Other Development Partner 2 (name)	\$	\$	\$	\$	\$
Other Development Partner 3 (name)	\$	\$	\$	\$	\$

### **1b. Stakeholder Consultation and Participation**

This Sub-component presents:

- The consultation and participation (C&P) activities undertaken since May 2009 during the development of the R-PP. (These include principles for consultations for the R-PP implementation, and lessons for REDDplus consultation and participation processes);
- A Work Plan for the R-PP implementation.

The Annexes to this component include the complete C&P Plan for the phase which ended in September 2009, and the full Consultation and Participation Plan for the upcoming Readiness Preparation Phase starting at the end of 2009/early 2010. The Annexes also provide a list of individuals and organizations who contributed to the R-PP development process.

#### ***Expectations and REDDplus***

The Consultation and Participation process on Ghana's preparations for REDDplus Readiness will be conducted with care. Stakeholders within and outside of the Government have very different expectations with respect to the benefits and risks associated with REDDplus. Local stakeholders are concerned about fair benefit sharing, while the Government confronts the challenge of enacting broad policy reforms without the assurance of eventual rewards from emission reductions or other environmental benefits. Mechanisms for REDDplus are still under definition by the UNFCCC and the funds currently available for REDDplus are limited. The modalities for implementation REDDplus are yet to be defined, and no decision has yet been taken as to whether industrialized countries will make available the expected funds. The risks associated with engaging in REDDplus for Ghana are enhanced further because the country has relatively low remaining forest cover and associated deforestation emissions. The "plus" of REDD - relating to conservation and enhancement of forest carbon stocks - may therefore be as or more important for Ghana as the reduction of emissions from deforestation and degradation.

In summary, stakeholders within and outside the Government of Ghana must embrace REDDplus as a potential additional reward mechanism for sustainable forest protection and land-use, in support of existing policies on these issues.

#### ***Consultation and Participation during R-PP Development (May-Sept 2009)***

Structured consultations on the R-PP began in May 2009 with an FCPF-supported Mission and continued through to early September 2009. The main objective of the May mission was to reach agreement among key local partners from government, civil society, the private sector, and development partners on a coordinated work plan for R-PP development.

An outline consultation plan was developed that identified principles of consultation, key areas for consultation, and stakeholders to be engaged in consultation (See Annex 1b-1). The key areas identified for consultation were:

1. Scope and nature of REDDplus (information sharing)
2. Potential Components of REDDplus
3. The R-PP Process, including
  - REDDplus Consultation & Participation Plan
  - Consultation Structures
  - Responsibilities for consultation and participation
4. Coordination with other land-use management programmes' consultation processes
5. Cross-cutting Issues including
  - Land Use Rights / Land Tenure Systems
  - Forest Governance
  - Benefit Sharing systems
6. Coherence with other initiatives (VPA, NLBI, GFP, etc)

A staged approach to consultation and participation was adopted during the period May-September 2009, as described below.

Two challenges identified during the May inception mission were: (i) the general lack of access to information on Ghana's REDDplus process, and (ii) the large number of concurrent forest-related consultation processes taking place in the country in 2009. Efforts were therefore made to address these challenges by utilizing a variety of information sharing tools and coordinating where possible information sharing and consultation events with others ongoing in the sector.

### ***Consultation and Participation during R-PP Development***

Information sharing and consultation were programmed in four stages during R-PP development. Over 200 stakeholder representatives encompassing the main stakeholder groups were engaged during these stages. The majority of these individuals were involved more than once in the process, which helped to develop a more comprehensive understanding of REDDplus, the R-PP and the issues that surround them.

#### ***Step 1: Information sharing***

- Collaboration with the Growing Forest Partnership (GFP) Forest Sector People's Diagnostic Study (4<sup>th</sup> - 12<sup>th</sup> June)

Information sharing took place via a presentation and a question and answer session. Focus areas included:

- What is REDDplus?
  - Where does REDDplus Come From?
  - What is Ghana currently doing on REDDplus? (Including what is the R-PP and aspects of the R-PP development process)
- Development of a REDDplus Web Page and other outreach formats(end of June)

Web page developed to provide information on REDDplus, as well as useful links and details on upcoming and previous consultations.

<http://www.fcghana.com/programmes/nrmp/redd.html>

The Secretariat has also been able to include an article on REDDplus and the R-PP in the June edition of the FC internal newsletter (Annex #1b.2)

- Individual and small group meetings (May 15<sup>th</sup> - ongoing)

Individual and small group meetings were held throughout R-PP development in order to; provide information on REDDplus to key stakeholders, gain information on existing and ongoing initiatives within and outside the sector to gain view points on actions for REDDplus.

Annex #1b-3 highlights some partners and entities with whom the team met.

### ***Step 2: Continued Information Sharing and Initial Consultation***

Three Zonal workshops were held during July 2009 to provide further information to stakeholder groups and to consult on aspects of R-PP development. Areas covered within workshops included:

Information sharing, presentations and questions and answer sessions on:

- What is REDDplus and where does it come from
- What is Ghana doing on REDDplus

Consultation on:

- Key drivers of deforestation
- Actions to address drivers and the potential impacts of those drivers and the stakeholdersto be involved

Annex #1b-4 lists the participants attending these meetings.

### ***Step 3: Technical Consultation***

- Technical Working Group Consultations

Small multi-stakeholder working groups were established by the National REDD Steering Committee (NRSC) to review specific aspects of R-PP development. Working groups covered:

- Strategy
- Consultation
- Methodology

Participants in these Working Groups are listed in section 1a.

### ***Step 4: Validation***

- Stakeholder Validation

It was intended that this process of validation would focus on relevant Government agencies, the private sector and key actors within civil society who are already engaged within discussions on forest policy. Representatives within these areas were provided with a final draft version of the R-PP and asked to provide comments. A subsequent workshop then



worked through the R-PP section by section discussing points of issue and identifying modifications to be made.

A process of broad consultation on REDDplus and the subsequent validation of Ghana's national strategy on REDDplus will occur during R-PP Implementation as part of REDDplus readiness preparations. The proposed plan for this process of consultation is outlined below in the R-PP Consultation Plan.

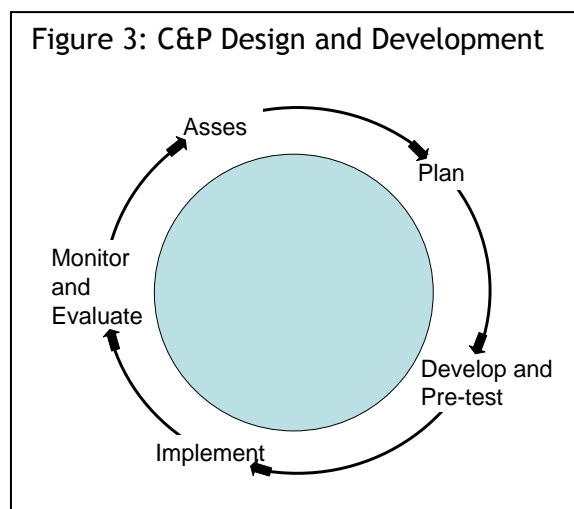
This consultation processes has played a key part in the R-PP Development Phase, and contributed to the following outcomes:

1. Development of an outline C&P Plan for the Preparation Phase
2. Support to the identification of key drivers of deforestation
3. Identification of potential activities to address drivers with stakeholder mapping conducted to identify groups impacted
4. Support to the revision and editing of R-PP drafts

### R-PP Consultation and Participation Plan: Underlying Principles

The Consultation and Participation Plan set out in Annex 1b 5 will be the key work plan guiding the Government of Ghana, assisted by the REDD Steering Committee and other stakeholders in developing a REDDplus Strategy during R-PP Implementation.

The process of consultation and participation is integral to the development of an effective strategy for REDDplus. In its design and implementation, the Consultation and Participation Plan draws on many contributions provided by stakeholders during the R-PP development process as well as lessons learned from the development of the FLEGT, VPA and the NREG programme. Implementation will also follow a process of continual learning and evolution as outlined in Figure 3.



Consultations during the R-PP development identified some key principles for future REDDplus consultations. These included the need to:

- i. Engage all stakeholders significantly affected by, involved in the implementation of, or otherwise interested in REDDplus, regardless of sector
- ii. Build on existing consultation & participation achievements and structures. (e.g. the review of the Forest Development Master Plan, civil society platforms established for contribution to the VPA, a range of Forest Forums that are already in place, and platforms established by civil society organizations and NGOs, such as Forest Watch Ghana, Tropenbos and others.)
- iii. Be sensitive to stakeholders' needs for time and other resources (including capacity building & feedback processes - effective planning and spearheading of consultations and information sharing are critical in this area)
- iv. Be tailored in providing information that is accessible and enables participation
- v. Be sensitive to the need for continuous evaluation at multiple levels

- vi. Be participatory and focused in the determination of goals
- vii. Be sensitive to the need for conflict resolution and management process
- viii. Be sensitive to the need to manage expectations

It is intended that these principles be followed by implementing a series of process objectives also identified through consultation and technical discussion. These are:

- Increased Awareness

REDDplus requires extensive information sharing and awareness raising prior to effective consultation. Currently the uncertainty over the scope and shape of REDDplus, is a challenge to wide-ranging consultation. However, once agreements have been reached in the COP-15 meetings in Copenhagen, December 2009, more concrete information will be available. Information needs to be provided in the most appropriate manner for the constituent groups it reaches. As such, REDDplus should be included within existing discussions on forest governance and improved forest management. Early integration and collaboration will facilitate a clear understanding of linkages between different initiatives and reduce the number of information sharing activities conducted.

- Participatory approach to decision making

Participatory approaches to decision making allow for the integration of inputs received from a wide range of stakeholders, thus increasing levels of ownership of the resulting product.

As outlined in section 1a, multiple stakeholders will be represented throughout the decision making process managed by the government. The involvement of these groups will support the dissemination of information as well as provide transparency not only on decisions taken but on how those decisions were made, while permitting the government to retain leadership.

- Involvement in implementation

Stakeholder involvement combined with the above decision-making process allows for broad ownership to be developed. It is suggested that following the successful utilization of existing structures during the VPA process a similar format is developed for disseminating information and conducting consultations, the results of which can then be discussed within broader multi-stakeholder forums.

Clear responsibilities should be identified for participants within these forums to ensure that levels of communication and consultation are representative both within groups and between them.

- Integration with safeguards measures (SESA)

It is critical that safeguards are put into place to prevent adverse impacts on stakeholders that may be affected by activities for REDDplus. Section 2d sets out a specific tool - the World Bank's Strategic Environmental and Social Assessment (SESA)- to help avoid negative impacts ("do no harm") and to enhance positive or "additional" REDDplus benefits. Part of

the SESA process includes consultations which these will be integrated into the overall consultation process.

### ***Work plan for Consultation and Participation Activities during R-PP Implementation***

**Goal:** To achieve collective ownership of the process to develop strategies that reduce emissions through deforestation and degradation (REDD) and to support conservation, sustainable forest management, and the enhancement of forest carbon stocks (the + in REDD plus).

**Purpose:** To ensure that all stakeholder groups have a better understanding of REDDplus, how it relates to Ghana and what roles, responsibilities and opportunities they have within Ghana's efforts.

**Key Stakeholders:** Stakeholder groups identified for engagement within consultation included:

- Government - State level and statutory level with a focus on cross sectoral linkages
- Private Sector - predominantly those within the timber industry and wood workers associations but also those involved in charcoal production, agriculture, and finance
- Civil Society - a broad range of civil society actors were identified for inclusion, with a focus on forest fringe communities
- Development Partners

Further information of the stakeholders identified is provided in Annex 1b-5.

### **Content:**

Areas requiring information sharing and consultation include:

- What is REDDplus (basic information sharing)
  - Where does REDDplus come from
  - What are the issues being negotiated internationally
  - What are the implications at national level
  - What are other countries doing on REDDplus
- Incentives from REDDplus
  - Ways for Ghana to engage in a REDDplus mechanism
  - What benefits could be available to different stakeholders
- Land Use Rights / Land Tenure Systems
  - What would be potential implications of REDDplus benefits within the existing legal context
  - Would elements need to be included in a functioning REDDplus mechanism within the Ghanaian context
  - What impacts could potential revisions have
- Forest Governance
  - Design of REDDplus to be complimentary with existing initiatives in forest governance
- Benefit Sharing systems
  - Evaluation of existing benefit sharing systems
  - How could REDDplus make use of existing benefit sharing agreements
  - What systems of benefit sharing could be appropriate and provide maximum benefits
- Potential REDDplus projects and activities
  - What activities could be included under REDDplus

- What are the benefits/limitations of different activities (output from stage 1 consultations)

### **Institutional Arrangement for Future Consultations:**

The Government of Ghana through the REDDplus Secretariat, and with the guidance and advice of the NRSC, are the responsible entities for ensuring that the C&P Plan is followed during the R-PP Implementation. Roles and interactions with other groups, who can participate in ensuring the Consultation and Participation Plan is followed, are further described in component 1a, and 2b and 2c. These should support open consultation platforms at community, district, regional, and national levels as part of the overall sector management and governance.

Further progress is required particularly with regard to coordination within the Forestry Commission and across sectors as well as strengthening of existing structures including both REDD Steering Committee and Secretariat.

### ***Tools and Methods to be used in Consultation and Participation during R-PP Implementation***

To conduct effective information sharing and consultation, a range of tools will be used to ensure a broad reach and effective engagement. Such tools include:

#### **1. Information Sharing and Awareness Raising**

- Maintain & continuously update FC and other websites to post information & solicit input
- Production of policy briefs and information notes appropriate to different audiences that can be distributed in both hard and soft copy
- News bulletin of the FC
- Propagate through local FM & Community Radio
- Stakeholder group managed information sharing

#### **2. Consultation**

Consultations will occur at different levels from small scale expert consultations to broader national consultations. Key tools within this process will include:

- Formal and Semi Structured Interviews
- Focus Group Meetings with Stakeholder groups
- Self Administered questionnaires that anyone can complete and submit
- Workshops
- Stakeholder group managed consultation

#### **a) Participation**

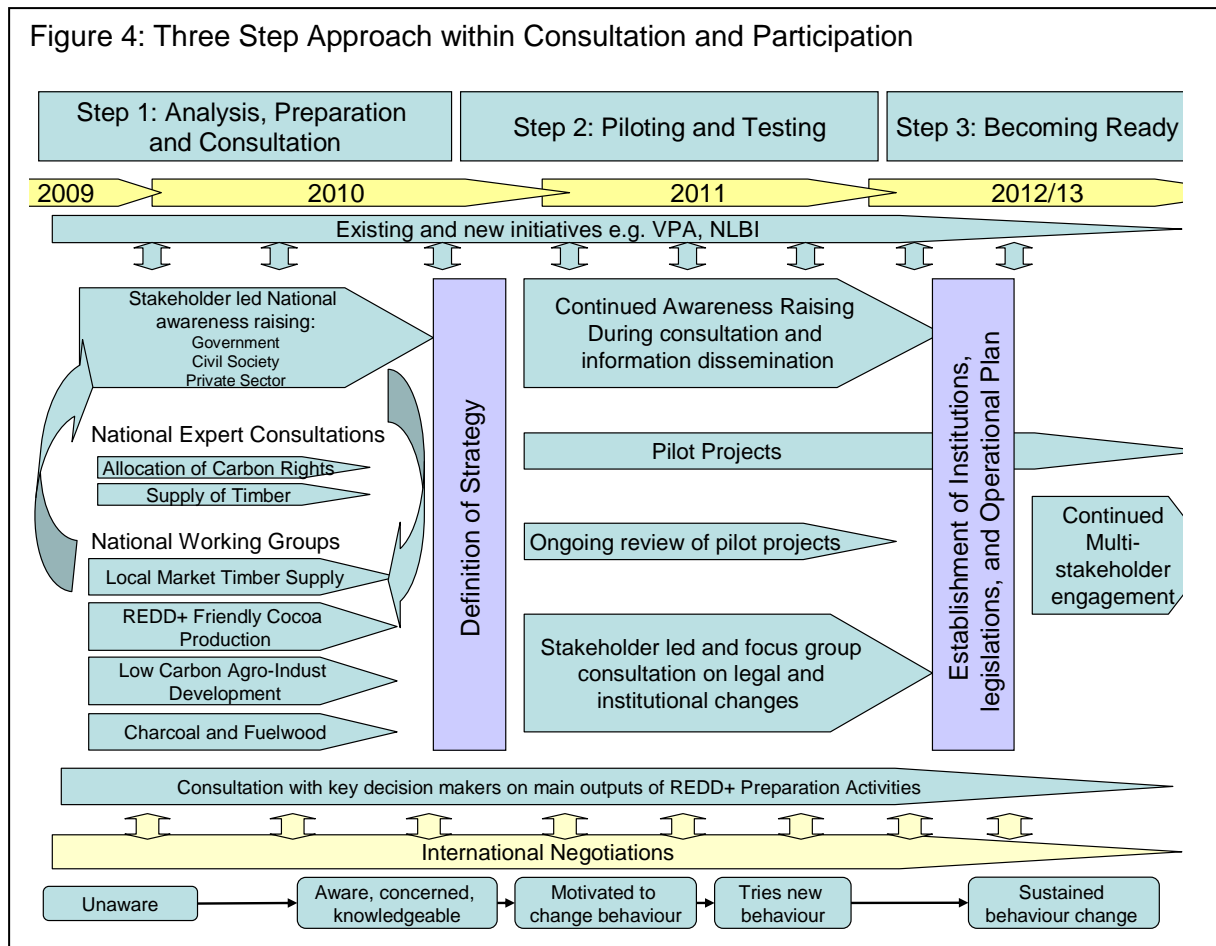
Structures for participation have been discussed within component 1a, but will include the NRSC, as well as stakeholder groups utilized for consultation information sharing.

For these tools to be effective, particular attention will be paid to the planning of consultation and participation processes to ensure that: i) information is available for participants sufficiently in advance of consultation, ii) participants are aware of upcoming dates so that they can organize their constituencies, iii) information sharing and consultation processes can be coordinated with other existing processes.

## Intended Sequencing of Consultation Processes during R-PP Implementation

The sequencing of consultation processes during R-PP Implementation is very important. Experience during the 2009 development of the R-PP Proposal emphasized the importance of all stakeholders having prior, well informed and realistic understanding of REDD, REDDplus and the relationship with both international (UNFCCC) and national (e.g. Forest Development Master Plan) consultation processes. It also revealed the need for strengthening of the capacity of both the National REDD Steering Committee (NRSC) and the REDDplus Secretariat (within the Climate Change Unit to oversee and manage effective consultation processes (as proposed in Component 1a).

The proposed consultation and participation plan for the REDDplus Preparation Phase will focus around three major steps outlined below and illustrated in Figure 4. These steps will allow for knowledge to be developed, consolidated and shared, for gaps to be filled and understanding to be furthered and then for decisions to be made based on a strong understanding of the interactions between potential REDDplus mechanisms, and the broader Ghanaian context at both local and national levels.



### Step 1: Analysis, Preparation and Consultation

**Awareness Raising:** A broad range of stakeholders will be engaged with the REDDplus process as it develops within Ghana. In order for this to occur, levels of awareness of REDDplus must be increased. It is anticipated that this will be undertaken mainly through stakeholder owned and managed processes.

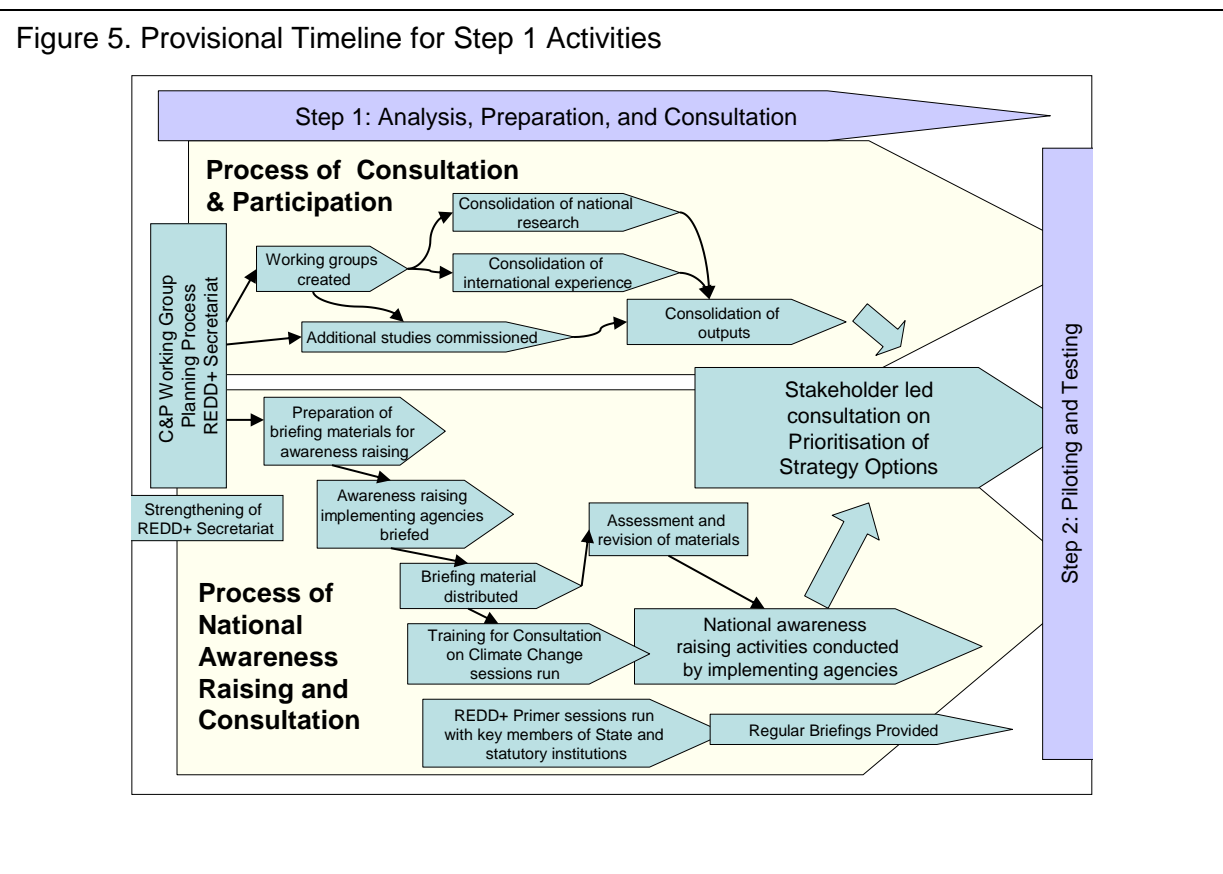
**Analysis of Existing Knowledge:** There exists considerable knowledge and expertise on tackling deforestation and degradation within Ghana. This knowledge is currently held in a wide number of institutions and groups both within the sector and beyond. It is important that this knowledge be brought together and developed in relation to the challenges presented by REDDplus. As such a process of Consultation for Strategy Option development should occur. This would encompass both issue based Working Groups and broader National Expert Consultations on timber supply and carbon rights allocation (expanded within Component 2b).

**Consultation:** Presentation of an appropriate synthesis of proposed aspects of a REDDplus strategy to wider stakeholder groups should occur in order for them to be effectively consulted on their view points. These views will help shape the resulting REDDplus strategy and the pilot activities selected for Step 2.

Actions to be taken with Step 1 are outlined in Figure 5 below (it is anticipated that actions identified here will last for no more than one year).

It is intended that the actions within this step will be able to deliver:

- Increased awareness of REDDplus, its challenges and opportunities,
- A clearly defined strategy with policy options that can be further developed through pilot activities or implemented through policy reform.
- A work plan which maps out these outcomes over the following year to ensure effective sequencing of activities with other initiatives and processes



## Step 2: Piloting and Testing

Ongoing information sharing and consultation is required during Step 2. This would include:

- Awareness raising existing National Strategy
- Focused consultation on specific aspects of a National Strategy within stakeholder groups, including revisions to legislation and institutional structures
- Continuous review and update on pilot activities to relevant stakeholders
- Consultation on lessons learned from pilot projects developed as part of the national preparation activities

## Step 3: Becoming Ready

The final step of the C&P process is consultation and validation of comprehensive operational plan for REDDplus. Built on the outcomes of previous stages of consultation and the results of pilot projects, sufficient time and resources should be allocated for a validation process engaging both senior government figures as well as community and private sector representatives. The capacity of organizations to participate effectively in it should have been developed during the previous steps but support in transferring information and developing responses should still be provided.

## Monitoring and Evaluation

It is important that activities undertaken for communication and consultation are also monitored and evaluated to ensure that they are effectively supporting continued learning and improvements in decision making and implementation processes. One of the tasks of the Consultation and Participation Working Group will be to design effective monitoring mechanisms, so that it can determine for itself if the C&P Plan is working effectively. These mechanisms should include indicators that will assess the extent to which information has reached the intended audiences, whether the audience has been able to make use of it and integrate the learning into their behavior and actions. The success of the REDDplus processes depends on the ability of groups to provide feedback into the process and the requisite response from decision makers to the feedback.

## Initial Activities

R-PP Implementation will include the following activities:

**Activity 1b-1: Establishment of a Consultation and Participation Working Group.** This should comprise of a dedicated member of staff from the Forestry Commission representing the REDDplus Secretariat, as well as key members from Government, the private sector and civil society. The Consultation and Participation working group established during R-PP development could form the basis of this. This group should be responsible for:

- development of a detailed work plan for REDDplus readiness preparations,
- identification of partner organizations to conduct Stakeholder led information sharing and consultation
- development or commissioning of effective awareness raising / training materials

**Activity 1b-2: Broad information sharing on REDDplus through stakeholder based information sharing and consultation.** The consultation process that surrounded the VPA



utilized existing stakeholder structures to implement consultation. It is suggested that this process be developed again with the REDDplus Secretariat providing financial and technical support to stakeholder groups to enable them to undertake this. A training course on communicating REDDplus and climate change and should be developed to help broaden understanding of the process and improve its communication within stakeholder groups. The Consultation and Participation Working Group should coordinate this process and ensure that different stakeholder groups are well informed and prepared for the process.

**Activity 1b-3: Expert and Focused Consultation through Working Groups and National Expert Consultations.** Existing knowledge and lessons learned from past approaches needs to be consolidated and synthesized to ensure that REDDplus strategies are appropriate and effective. Further information on these groups is provided in section 2b.

**Activity 1b-4: Stakeholder based consultation on key pilot projects and legal / institutional changes.** It is anticipated that a number of pilot projects will need to be run to test aspects of Ghana's evolving national REDDplus strategy. Feed back on these projects will need to be obtained and their potential application in new areas consulted upon. Discussions with key stakeholder groups will also be necessary in the development of the legal and institutional structures needed to implement REDDplus at the national scale.

**Activity 1b-5: Validation:** Prior to full engagement with a mechanism for REDDplus a process of indepth stakeholder consultation will be required to validate the manner of engagement. The exact nature of this process will depend on the outcome of the assessment processes during the prior years, but is foreseen as being undertaken by stakeholder groups.



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**Table 1b: Summary of Stakeholder Consultation and Participation Activities and Budget**

Main Activity	Main Activity	Sub-Activity	Estimated Cost (in USD \$ thousands)				
			2010	2011	2012	2013	Total
Activity Establishment of Consultation and Participation Working Group	1b.1 Planning and Coordination	Consultation working Group Operational Costs	8	6	2	2	18
		Development of Detailed C&P Work plan	4	1	1	1	7
Activity 1b.2 Broad information sharing on REDDplus through Stakeholder based consultation	Development of REDDplus Briefing materials	Technical support	10		5		15
		Translation	5		5		10
		Material Development	10	10	10	10	40
		Distribution	1	1	1	1	4
	Training on Communicating Climate Change	Technical Support	10				10
		Materials (stationary literature)	5				5
		Workshops (venue, per diem, conference package, accommodation)	20				20
Stakeholder led national information sharing	Civil Society	50	30	50		130	
	Government of Ghana	30	10	5		45	
	Private Sector	30	20	10		60	
Activity 1b-3: Expert and Focused Consultation through Working Groups and	National Expert Consultation Process	Focus group meetings	25	10	5		40
		Workshops (venue, per diem,	70	30			100

## Ghana R-PP

National Consultations	Expert	conference package, accommodation)						
		Working Groups	Please see 2b					0
Activity Stakeholder consultation on key pilot projects and legal / institutional changes	1b.4 based on key pilot projects and legal / institutional changes	National Consultation: Consultation on specific issues or with key interest groups - eg consultation on pilot projects, consultation on outcomes of specific studies	Regional Workshops	30	50			80
			National Workshops	20	30			50
			Focus Group Meetings	10	10			20
			Expert consultative meetings		10	10		20
Activity Validation of National Strategy	1b.5 of	Stakeholder led consultations			40			40
		Validation meetings			30	80		110
<b>Total</b>				<b>288</b>	<b>178</b>	<b>254</b>	<b>104</b>	<b>824</b>
Government				66.66	40.94	58.42	23.92	189.94
FCPF				221.34	137.06	195.58	80.08	634.06
UN-REDD Programme (if applicable)				\$	\$	\$	\$	\$
Other Development Partner 2 (name)				\$	\$	\$	\$	\$
Other Development Partner 3 (name)				\$	\$	\$	\$	\$

### **Component 2: Prepare the REDD Strategy**

#### ***2a: Assessment of Land Use, Forest Policy and Governance***

[The following paragraphs summarize the issues covered in the **Background Paper** which is included as an attachment to this submission.]

The condition of Ghana's forests has been in decline for many years, particularly since the 1970s. Many forest reserves are heavily encroached and degraded, and the off-reserve stocks are being rapidly depleted. Plant and animal populations are becoming increasingly fragmented, heightening concerns not only about the future of the timber industry but also about the future quality of the natural environment.

Arresting deforestation and forest degradation is an important priority for the country on a number of fronts, and the significant convergence between REDDplus and other aspects of environmental, social and economic policy strengthens the government's commitment to REDDplus strategy development.

By and large, the problem is one of gradual 'degradation' rather than 'deforestation', and is incremental rather than dramatic, with no single dominant driver. The underlying causes are those typical of degradation in the more heavily populated countries of the tropics, and involve a complex of demographic, economic and policy influences (see Table 2 below). The immediate drivers include: forest industry over-capacity; policy/market failures in the timber sector; burgeoning population in both rural and urban areas, which increases local demand for agricultural and wood products; high demand for wood and forest products on the international market; heavy dependence on charcoal and woodfuel for rural and urban energy; limited technology development in farming systems, and continued reliance on cyclical 'slash and burn' methods to maintain soil fertility. The prominence of one forest crop in the national economy (cocoa), and recent varietal changes (from shade to full-sun), have also exerted a major influence on trends in forest cover. Mining (industrial and artisanal/small scale) is a concern in some areas, as is the use of fire in livestock management.

All forest zones are affected, including the high forest, transitional areas and northern savannah.

Ghana's R-PIN gives an approximate estimation of the relative importance of the various drivers as: agricultural expansion [c.50%]; harvesting of wood [c. 35%]; population & development pressures [c. 10%]; mineral exploitation and mining [c. 5%]. Further studies will be undertaken to give more precision to these estimates.

Ghana has benefited from diverse multi-donor support for natural resource management in recent years, in recognition of the crucial role of these sectors in the national economy and in any strategy of poverty alleviation. Programmes have included milestone investments such as the Forest Resource Management Programme (FRMP), Natural Resource Management Programme (NRMP), and others. These programmes have had varying levels of success, both in sub-sectoral and regional terms, reflecting Ghana's unusually complex social structure (particularly in the HFZ), the variety of forces seeking to influence policy development and the difficulties of ensuring the effectiveness of long-term planning in conditions of economic instability, as well as a tendency to over-centralisation. Performance was also affected by the limitations of past national planning exercises ('Making People Matter' [1991]; 'National Development Policy Framework' [1994]; and 'Vision 2020' [1995], later developed into the 'First Medium Term Development Plan' of 1996), which were un-costed and lacked the detail needed to provide effective guidance for sectoral programme development. The current 'Ghana Poverty Reduction Strategies' (GPRS I, 2003-5; GPRS II, 2006-9) and new approaches to donor support (aid harmonization and alignment, and a shift away from enclave projects) offer the prospect of a more coordinated approach.

Experience has shown that unsustainable natural resource management can have very negative effects on the economy in terms of environmental damage, reduced productivity and erosion of the national assets base. Ownership of natural resources has been dispersed (and therefore fragmented), and economic pressures have encouraged unsustainable exploitation. The Government recognizes that, in terms of moving the country to thriving middle-income level status, new ways of working need to be developed. New policies and laws, new incentive structures, and new governance and enforcement mechanisms will all play a role. Ghana still has valuable natural resources and the Government is determined to write a new chapter in the use of its natural wealth in order to protect and develop the assets base, and build on its natural capital. An integrated environment and natural resource policy is proposed, under the Natural Resources and Environmental Governance Programme (NREG). This aims to increase the contributions of the natural resource sectors (particularly forestry, wildlife, mining) and the environmental sectors to the socio-economic development of Ghana. NREG will ensure that responsibilities for sustainable natural resource management and environmental protection and enhancement are shared by all, with a common goal of using resources for universal public benefit, especially for the poor and disadvantaged. Ways of working within government will be improved, with improved inter-ministerial coordination and decision making will become more open at all levels (national, regional and local). Communications and public awareness will be improved, and a policy framework developed that enable local communities and households to benefit from sustainable management. REDD offers the opportunity for more predictable financing, overcoming the problems of stop-go budgeting that undermined past policies.

Governance of the forest sector has long been problematic, but forest governance reform is currently under way and is being spearheaded by the Forestry Commission under the forest law enforcement, governance and trade (FLEGT) programme, in which the Voluntary Partnership Agreement (VPA) with the European Union is prominent. A notable feature of this has been the successful engagement with civil society and the private sector. Illegal timber

extraction remains a problem particularly as regards provisioning of local and sub-regional markets. Illegal chainsaw lumber is prevalent in local market. Forest policy development is hotly debated and areas of contention include: industry capacity; resource pricing; inadequacies of the legal regime. To date, certification has not played an active role in development of responsible management practices. This is partly because of the heavy dependence of the industry on timber supplied from off-reserve areas. These are ineligible for certification on account of their lack of environmental integrity and 'non-sustainability'.

The rapid decline of the off-reserve tree stock is an area of particular concern. This was formerly government policy (off-reserve areas being earmarked for progressive conversion to agriculture and other non-forest uses), but a policy change in 1994 in favour of sustainable production has failed to arrest the decline. Rights over trees are held by the state in trust for the nation, and income is distributed according to a Constitutional formula in which revenues (net of Forestry Commission and Office of the Administrator of Stool Lands charges) are shared between District Assemblies, Stool and Traditional Authorities. This does not adequately incentivise the small farming population who would rather keep economic timber trees off their land than risk collateral damage from timber operations to their beverage and food crops. Reform of the tree tenure regime is widely viewed as a necessary precondition for reinvigoration of the off-reserve stock, and will be addressed in the REDDplus strategy. This is made all the more urgent by the huge scale of unregulated chainsaw logging (all of it officially illegal). While this does fill an important gap in supplying the local market, it is a major contributor to forest degradation. Increased incentives to tree plantations are also likely to be required if the commercial timber industry is to survive, and a new commercial plantations policy and a modified *taungya* programme have recently been put in place.

For over a century, cocoa has been the major driver of land use change in the high forest zone, and the new full-sun varieties which are now widely adopted have accelerated the pace of deforestation. The traditional varieties require much denser crown cover and, in the past, their need for high atmospheric humidity encouraged the farming population to support the forest reserve policy. Their reinstatement would have much to commend it.

Agricultural technologies are generally under-developed, particularly in the smallholder sector which dominates the rural economy, and low purchasing power is a major constraint. Farm and livestock management practices are characterized by low-input technologies and risk-aversion strategies. Fire is integral to the agricultural cycle in many areas, and the major means of restoring soil fertility and controlling plant diseases. Agro-industrial enterprise has had a poor record to date, though development of the sub-sector is a government priority. A major programme of investment will be required to develop the agricultural and pastoral economies in more carbon-friendly directions, balancing the interests of the smallholder and industrial sectors.

Most people in Ghana depend on fuelwood and charcoal for their energy needs. Charcoal is produced in a number of systems, some (though not all) of which contribute to deforestation. Given the extent of local demand, any radical change of energy policy would be challenging. Past attempts to find substitutes for charcoal (LPG, for example) have not been sustainable, although the opening up of petroleum production may offer new possibilities in this area.

Finally, the mining sector (both industrial and artisanal) contributes to deforestation and degradation both directly (through expansion into forest areas) and indirectly (through pollution of the environment and groundwater). Government policy aims to accommodate both types of exploitation, though with appropriate environmental controls.

In summary, addressing deforestation and forest degradation presents a number of challenges in Ghana conditions, though success in REDDplus policy would offer significant benefits for the society not only in the area of carbon emissions reductions but also in relation to biodiversity conservation, forest industry, agriculture and rural livelihoods. Developing the REDDplus Strategy will require a highly participatory approach, with an extensive programme of: applied research, as well as research and policy syntheses; commissioned expert reviews; inter-ministerial policy coordination and harmonisation; and public consultation. Radical measures may be needed in areas such as: *forest policy development* (particularly governance reform relating to the timber industry; policies to encourage adequate re-stocking of off-reserve timber; and forest plantations development); *agricultural policy* (given the importance of cocoa and other beverage crops to the national economy and rural livelihoods); and *energy policy* (which still depends heavily on primary products such as fuelwood and charcoal). Agro-industrial growth will also need to be more 'carbon-friendly', as will further development of the mining sector.

The Annex to Component 2a includes the complete **Background paper** providing further detail on the status of the forest sector.

Please also see Table 1: Underlying and Immediate Causes of Deforestation and Forest Degradation and present trends on next page.

**Table 1: Underlying and immediate causes of deforestation and forest degradation, and present trends**

Underlying Cause	Immediate Driver	Manifestation	Trend (in DD)
Policy Drivers [FP]	Gaps in Forest Policy, and Policy Realisation, including: <b>[FP reference numbers:]</b> 1. Weak incentive structure for timber industry, leading to non-sustainable offtake 2. Under-priced goods and services 3. Weak regulatory mechanisms and rights regimes 4. Weak enforcement of regulations 5. Imbalances in forest exploitation, in favour of large-scale timber industry 6.	1. Forest industry over-capacity 2. Low local value-added 3. Excessive focus on export markets to detriment of local consumers 4. High levels of illegality in the forest sector 5. Lack of incentives for farmers and landowners to conserve and replant trees; - benefit sharing arrangements 6. Lack of policy and legal structures for small-scale and community-based resource management 7. Weakly developed agro-industrial and plantations sub-sectors 8. Low public engagement in forest policy development	<i>Varying, though generally increasing</i> 1. Industry over-capacity is being addressed, though production still far above the annual allowable cut 2. FLEGT policies in place with good public participation 3. New plantations policies in place 4. Tree and land tenure regimes merit urgent review
Demographic changes [DC]	1. Population growth and urban expansion 2. Limited technology development in farming systems	1. Uncontrolled agricultural expansion 2. High local demand for lumber/wood products (and illegal supply) 3. High demand for fuelwood and charcoal 4. Overgrazing and rangeland depletion 5. Urbanization and infrastructure development 6. Construction and settlement	<i>Increasing</i> 1. Cocoa policy a major influence on forest cover; demands inter-sectoral action 2. Chainsawing in urgent need of control 3. Massive urban growth 4. No current alternatives to charcoal, fuelwood 5. Lack of institutional means to address conflicts between agriculture, forestry, conservation and mining 6. Increasing prevalence of wild fires in rural areas
Economic forces [EF]	1. High international prices for primary products (wood, agricultural and minerals) 2. Policy and market failures in timber pricing 3. Low local purchasing power within agricultural economy	1. Depletion of timber stock 2. Encouragement to local illegal timber supply 3. Discouragement to agricultural investment in the smallholder sector 4. Expansion of mining enterprises into forest areas 5. Growth of under-regulated artisanal mining sector 6. Poor performance of agro-industries and plantation sector 7. Dumping of international products	<i>Increasing, in line with demand</i> 1. Added pressure for illegality 2. Mining policies under view (industrial and artisanal)

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Natural causes [NC]	<ol style="list-style-type: none"><li>1. Wind &amp; natural fire events</li><li>2. Floods,</li><li>3. Pests and diseases</li></ol>	<ol style="list-style-type: none"><li>1. Degradation of the natural environment</li><li>2. Chronic rural poverty and recurrent hunger</li><li>3. Low levels of rural entrepreneurship and wealth creation</li><li>4. Nutrition and health problems</li></ol>	<i>Evidence of increased frequency of catastrophic events</i>
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### Initial Activities:

#### Gaps in research:

Understanding of the emissions performances of the different forms of forest cover in the country and the effects of changes in their constitution is limited (See Section 3). Significant research gaps also exist in relation to the ways in which forest and land use may be developed in carbon conserving directions, which deliver important co-benefits (biodiversity, equity and social welfare, soil and water conservation). Applied research priorities include the following:

- a. Improving understanding of the carbon emissions of the various classes of forest cover in Ghana, and of the implications in emissions reduction terms of changes in their constitution.

Improved understanding of the magnitude of the various drivers of deforestation applicable in the Ghana context

Ways to promote innovations in forest policy, to encourage better stewardship of the resource, by industry and small-scale loggers as well as other resource users.

- b. Actions needed to address the timber supply constraint, through a variety of mechanisms (plantations development including *taungya*, encouragement to tree conservation on-farm and in fallows), while also promoting conservation of plant and animal biodiversity.
- c. Investigation of ways to develop community based enterprise and commodity chains.
- d. Applied research relating to the design of new institutional delivery mechanisms to incentivise the forest and farm management levels under REDDplus, perhaps through payments for environmental services.
- e. Better understanding of the dynamic and carbon footprint of fallow forest mosaics as a form of land use practice (involving multiple cropping systems for beverage and food crops, NTFPs, bushmeat and other animal harvests), and the possibility of payments for environmental services to sustain these
- f. How to improve the carbon profile of the cocoa industry, while sustaining its position within the economy; further research on the feasibility of re-introducing shade-dependent varieties, and the policy issues arising.



- g. Research on new economic opportunities in the agricultural sector, and critical appraisal of proposed ‘alternative livelihoods’; emerging economic opportunities in the high forest and transitional zones (cashew, etc.) and their carbon profiles.
- h. Ways to develop alternatives to shifting cultivation and fire management practices which are not only technically but also economically feasible at the small farmer level.
- i. Better understanding of the dynamics of on- and off-reserve management, and the relationships between the two; innovative strategies for the rehabilitation of degraded forest ecosystems (traditional cocoa-growing areas, river banks, etc.), and their potential for funding under a REDD-plus strategy.
- j. How to address the challenge of household energy supply, in ways compatible with income distribution and purchasing power; better understanding of the carbon footprints of cyclical charcoal and fuelwood production systems, and the potential alternatives; evaluation of past attempts to address household energy needs, and policy messages arising.
- k. Promoting responsible management of the mining industry, at both industrial and artisanal levels, in ways that contribute to the health both of the human populations and the natural environment

Table 2a provides an indicative budget for such background research. In practice the individual research activities are likely to be integrated into within the work of the Expert Consultations and Working Groups specified within Section Two. These will commission their own research studies. Table 2a provides an indicative budget for additional background research not covered elsewhere.

<b>Table 2a: Summary of REDDplus STRATEGY DEVELOPMENT Activities and Budget</b>						
<b>Main Activity</b>	<b>Sub-Activity</b>	<b>Estimated Cost (in thousands)</b>				
		<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>Total</b>
Research fund	Individual background studies (flexible fund for studies to be specified; additional to 2b); maximum US\$10,000 per study	50	50	50	50	200
<b>Total</b>		<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>200</b>
Government		6.66	6.66	6.66	6.66	26.64
FCPF		43.34	43.34	43.34	43.34	173.36

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UN-REDD Programme (if applicable)	\$	\$	\$	\$	\$
Other Development Partner 1	\$	\$	\$	\$	\$
Other Development Partner 2	\$	\$	\$	\$	\$
Other Development Partner 3	\$	\$	\$	\$	\$

### **2b: REDD Strategy Options**

#### ***Overview of Initial REDDplus Candidate Strategies***

The components of a National Strategies for REDDplus in Ghana are being developed throughout the REDDplus Readiness Preparation Phase. Development of these elements and the strategy itself will involve further analyses of the institutional, policy, legal and technical requirements for the development of the REDDplus process. Links will need to be made in each case with other fields of national policy (particularly forest policy but also agriculture, energy, employment, poverty reduction, etc.), and duplication avoided.

It is envisaged that REDDplus components of a National Strategy for Ghana will fall into two broad and overlapping thematic areas:

- **Theme A: Timber policy and supply.** Approaches here will focus on traditional forest and timber sector operations, processes, policies and laws, and on the potential for broadening public participation in the sector and its management. This will involve consideration of both on- and off-reserve supply, and the potential of REDD payments to improve the management and emissions performance of each.
- **Theme B: Wider aspects of forest policy including agro-forestry and other carbon conserving activities.** Approaches here will reflect the potential for actions in the agriculture, agro-industry and fuel wood sub-sectors to contribute to avoided deforestation and degradation. Some of these options will be suitable for pilot interventions during step 2 of R-PP implementation.

Current candidate components are summarized in Table 2 (below), and each component is elaborated in Annex 2b. These candidate components and actions were developed and discussed during the initial consultations in July 2009 as described in Section 1b and Annex 1b. The activities described here address many of the drivers of deforestation set out in Table 1. In Annex 2b-1, we further describe the rationale of each candidate component, the main activity, proposed institutional arrangement, link to driver of deforestation and degradation, feasibility, sustainability and links to other forest sector policies, risks of leakage, key actors to engage and next steps to be taken to further analyze and eventually define each candidate component's role within a National Strategy.

However, given the large number of unknowns in the development of REDDplus policy, these candidate components are only indicative. The accent of the next steps will be on fact-finding research and policy syntheses, expert reviews and public consultation. By these means, an in-depth understanding of mechanisms to address the drivers of deforestation and degradation will be gained and candidate REDD strategy components and actions further developed. *Inter alia*, analysis will be deepened in areas such as the following:

- Biodiversity impacts of both the drivers of deforestation and of the candidate REDDplus measures
- Alternative models of timber exploitation (in addition to industrial logging) will be considered, with due regard to possible civil society roles in small and medium scale enterprise; impacts of the various options for timber exploitation (industrial and non-industrial) on deforestation and degradation will also be reviewed.
- Understanding the energy needs of the local population, and how candidate REDDplus measures will impact the needs. Linkages to various other rural energy mechanisms and REDDplus actions should also be analyzed.

Development of new knowledge and strategy will occur through three main mechanisms: *National Expert Consultations*, *Working Groups* and a *Challenge Fund*. The two *National Expert Consultations* will address major policy issues with important cross-sectoral dimensions. The four *Working Groups* will address issues that are more sectorally specific (though with some important cross-sectoral dimensions), and more amenable to delivery without major policy reforms). The third mechanism will be a *Challenge Fund* arrangement (i.e. a fund to which NGOs and other civil society groups apply competitively) which will be used to support experimental actions, initially in the area of fire control (in all its aspects). Currently, it is unclear which activities and in which forest zones (high forest or transitional zone) are causing the highest net emissions of carbon dioxide from changes in forest cover. Indicative data suggest that this may be in the high forest given the carbon profile of the forests in this zone, but this will be better understood as results from component 3 on historic emissions are produced. In the initial phase, actions are likely to be concentrated in the high forest zone, with only limited intervention in the transitional zone and northern savannah.

It is recognized that the Forestry Commission (and the Government of Ghana, more generally) will need to increase their capacity significantly in technical and managerial terms in order to take this strategy forward.

### **Theme A: Timber policy and supply**

The greatest impact on forest carbon stores is likely to be felt at the lowest economic opportunity cost by implementing changes to **forest policy**. To help accommodate the potential political costs of such changes, a transparent design process that prioritizes co-benefits is important. Broad national participation in forest policy development is already evident in the FLEGT process, which is articulated around the VPA for trade with the European Union. Synergies between REDDplus and FLEGT will be sought during the period of strategy development (Step 1), including both substantive matters and participatory processes.

National forest policy is already under review, as is a new Wildlife Bill and revision of the Forest Sector Development Master Plan. Ghana's FLEGT programme also has important policy dimensions. The immediate, urgent requirement is for the implications of, and potential financial flows from, REDDplus to be fully taken into account in the **new policies, plans and**

laws, alongside other social, environmental and economic priorities. Carbon impact will need to be considered throughout the design of the new policies.

As regards the *functioning of the timber industry*, a number of policy-level options are under consideration. These relate to such issues as increasing industrial efficiency and encouraging tertiary value-added (including changes to pricing and export policies), and reforms to forest governance. Systematic application of the proposed governance reforms would have financial as well as political costs, and might be candidates for REDDplus finance, subject to independent assessments of their cost-effectiveness (See Annex 2b Candidate Strategy B for details on these aspects). As part of the process, local export tariffs and controls will be re-examined, to minimise leakage effects sub-regionally.

There may be potential to support **reduced impact logging** and more effective management planning, though there is a danger of perverse effects if subsidies are offered to cover costs that should be internalised by the industry. Likewise, constraints on small and medium enterprise will need to be addressed, and opportunities for community involvement in timber enterprise investigated, both as an adjunct to industrial exploitation and as a possible alternative. A set of investment criteria and guidelines will be identified and reviewed by the National REDD Steering Committee, and submitted for approval by the National Climate Change Committee.

Existing **tree tenure** arrangements will be reviewed, to optimise the incentives for tree conservation and replanting. Current pilot activities (for example, Community Resource Management Area, CREMAs) will be examined to ascertain the potential for meaningful innovation with and without major tenurial reforms. A major weakness of current forest policy is the lack of incentives in the off-reserve areas for farmers to conserve and plant native trees on-farm and in fallows. Without strong incentives to regenerate timber trees, the off-reserve stock is likely to continue its downward trend, exacerbating the impending crisis in the industry's timber supply. Plantation development may help to alleviate the shortage, though this is as yet an underdeveloped sub-sector, and other actions are likely to be necessary to address the shortfalls in future supply. REDDplus strategy development will therefore consider ways to increase the focus on regeneration within the forest policy, and the need for direct incentives to farmers and land owners to conserve trees on their land. This is a priority from the perspectives of both timber production and the enhancement of carbon stocks.

The starting point will be the commissioning of a National Expert Consultation on Timber Supply which will examine the hypothesis:

*'Existing and planned benefit sharing mechanisms in the forest sector will suffice for REDDplus in Ghana, and also ensure the long-term provisioning of the country's timber needs?'*

This expert analysis and consultation will draw on high-level national as well as international expertise, and will have a strong focus on long-term forest resource assessment; forestry

economics and scenario analysis. Issues such as means of reducing impact of logging in forest reserves and systems for assessing management effectiveness off-reserve will be considered. An early expert review will result in a platform for discussion to obtain input during consultation to inform subsequent actions and decisions. The review will report to a high-level body led by the MLNR (within the NREG framework), including representatives of other line ministries, as well as industry (small, medium and large scale) and civil society. The findings of this expert review process will determine the next steps to be taken, including decisions about tree tenure reform. A strategy will be developed appropriate to the need, dependent on the condition of the stock and the projections as to its future availability.

***Land and carbon rights:*** An allied issue is the question of land tenure and how carbon rights will relate to the underlying land rights (which can be expected to play a determinant role in conditioning public attitudes to carbon payments). A second *National Expert Consultation on Allocation of Terrestrial Carbon Rights* will be constituted to examine this issue. This will focus on the implications of current land and tree tenure arrangements for the allocation of carbon rights, and will advise on any changes to legislation that are likely to be required to operationalise carbon rights. It will also consider the risks in the current tenurial context which would arise from any innovations in carbon rights, and ways to mitigate those risks.

***Chainsaw logging:*** control of chainsaw loggers is essential if the timber stock is to be conserved. While removal of the distortions that undercut legal enterprise is clearly necessary if Ghana's FLEGT policy is to thrive, there needs to be realism about the extent and satisfaction of local market needs. Local needs are largely unmet under current arrangements which give a major encouragement to illegality. This is a challenging area, in that respect for the law needs to be combined with innovations in policy and practice if greater discipline is to be obtained. A *Local Market Timber Supply Working Group* will be established to lead this work. It will have a budget for pilot project activities. This Working Group commends itself for strong NGO participation and leadership, and dialogue will be initiated with civil society members of the NRSC and the lead members of the forum 'Forest Watch-Ghana' to investigate appropriate options. (Alternatively, this work will be amalgamated with the similar VPA Working Group currently under consideration.)

### **Theme B: Wider aspects of forest policy including agro-Forestry and other carbon conserving activities**

In Ghana, the agro-forestry / tree crops / agriculture sector is as important as the forest sector itself in defining options for REDDplus, because much of the process of deforestation relates to agricultural or agro-forestry conversion. The *cocoa sector* presents particularly interesting opportunities in relation to REDDplus, with potentially major impact given its dominant position in the high forest zone. Incentivising the re-establishment of the shade tolerant and dependent varieties would have much to commend it, and would have the important knock-on benefit of enhancing public support for the retention of forest reserves. Implementation will be challenging in that economic pressures lead farmers to prefer short-term benefits even at the expense of long-term soil degradation. The best way to do so could

be to ‘bundle’ timber rights with cocoa production, so that the additional timber income tips the balance in favour of the shade-loving cocoa varieties. This is likely to be preferable to, say, offering a price premium to the cocoa seller for the preferred varieties, which would be expensive to operate and might encourage rent-seeking. The COCOBOD and Cocoa Research Institute might be invited to lead this work, in association with the Ministries of Land and Natural Resources, Food and Agriculture, and Local Government, convening a specialist Working Group on REDDplus-friendly cocoa production focusing on strategies to ensure and revive ‘REDDplus-friendly’ cocoa cultivation. This would investigate the implications regarding MOFA policy on varieties promotion, and consider whether granting the farmers ownership rights over native timber trees (either exclusive or co-beneficiary) would be likely to influence their behaviour sufficiently to encourage a return to the shade-tolerant varieties. Given the important cross-sectoral aspects of the cocoa sub-sector, consideration will be given to the possibility of putting in place an inter-sectoral coordination mechanism or stakeholder platform involving all the major players in the sub-sector (COCOBOD; Forestry Commission and MLNR; civil society including farmers). Close links will be maintained with the two National Expert Consultations (above), given the evident synergies.

Regarding ***other agro-forestry, agricultural and farm practices***, there is a strong lobby in climate change circles in favour of trying to alter the behaviour of the cohorts of small farmers and livestock owners who depend for their livelihoods on cyclical (‘slash and burn’) cultivation systems and the use of fire in the agricultural cycle. However, such actions do not appear to offer many win-wins in the Ghana context. They could easily bring about an increase in rent-seeking behaviour without any positive impacts on the resource. Despite very heavy investments in agricultural and livestock research, both nationally and internationally, few alternatives have yet been found for the severely resource-poor, and there may be little to gain from attempting to impose major behavioural changes on poor people who have no other options for their livelihoods. Further research would be needed before any actions are implemented which might impede those livelihoods, and this would also be the case as regards the activities of pastoralists (where Ghana is constrained by ECOWAS protocols). These are complex issues which would benefit from experimental and adaptive field research. It is proposed that a Challenge Fund on Fire Control be established to support projects to work with local communities in finding ways to improve fire management. This Challenge Fund commends itself for NGO management, and could be ideally be coordinated by one of the stronger savannah-based NGOs, or a consortium of partners. Funding and management arrangements (including relationships to established programmes, such as the Savannah Accelerated Development Authority) would be put in place once approval has been given in principle.) The Challenge Fund brief would cover both design and pilot implementation activities, being: to support projects that work with local communities to address the causes of fire in agricultural areas, both anthropogenic and natural; to fund research initiatives that assess the effectiveness of existing mechanisms to control fire, obtaining community views on their functioning and proposing ways to improve them; and to consider the potential of other mechanisms to substitute for fire use in the agricultural cycle, and their viability in Ghana conditions, supporting pilot initiatives in such areas. Outline Terms of Reference for the Challenge Fund are provided in Annex 2b-1-iii.



Further research is also needed in relation to the agricultural emissions profiles of **agro-industries** relating to crops and trees for which opportunities have already opened up or are likely to in the near future - fruits such as pineapple for the export market, biofuels such as oil palm and jatropha, and trees such as rubber. A Working Group on Low Carbon Agro-industrial Development will be formed, under the leadership of the Ministry of Trade and Industry, with inputs from other relevant Ministries (MLNR, MoFA, Finance and Economic Planning). The aim would be to identify policy and strategic options that will reduce the carbon footprints and improve the pro-poor benefits of these industries. The research agenda will cover the full range of enterprises - from large-scale agribusiness down to small farmer and out grower levels.

Another important source of emissions is the demand for **energy and fuel wood**: Charcoal production and the fuel wood trade provide a potential area for REDDplus development, geographically located outside of the high forest zone. Charcoal production is widely viewed as damaging to the environment but the evidence base for this assertion will need to be carefully assessed. A number of different charcoal production systems exist in Ghana with variable carbon footprints. Community woodlot schemes may provide a more sustainable alternative than the existing and individualised production methods, though such schemes have a questionable record elsewhere, and the proposition would need further substantiation. There may also be possibilities in other areas, such as biogas production and solar energy. A Working Group on Charcoal and Fuelwood will be created to investigate these issues, considering the means to reduce emissions from existing sources of energy and fuelwood and the feasibility of potential alternatives. The focus will be not just on the control of fire as a land management tool, but also its judicious use. Similarly, consideration will need to be given to the carbon profile of alternatives to charcoal use, as well as ways to improve the efficiency of carbonization of raw wood, and the potential for improved sustainability of wood supply from managed sources. This work will be led or commissioned by MoFA, with support of the MLNR, and the MEST.

In all of the above, full account should be taken of past experiences and ongoing pilots in Ghana (public and private sector, NGO and civil society), in areas such as: forest and cocoa sector reforms, including reforestation, timber recovery and institutional innovations (such as CREMAs); rural energy (charcoal production, etc.); and allied areas of natural resource management. A number of studies have already been commissioned by the Katoomba Group (for example, a study of opportunities for carbon finance in the cocoa sector) which are likely to provide useful information in these areas.

### ***Description and Preliminary Analysis of Candidate Components of a National Strategy***

Initial ideas on potential candidate components of a national strategy and supporting activities emerged from consultations in July 2009, held at zonal workshops in Ghana; these are summarised in Table 2a below. These are presented in Table 2a are only indicative at this stage; in all cases the selection of a strategy will require further analytical work (including cost/benefit analysis, opportunity cost analysis, etc.), consensus, prioritization and development during 2010-2011. Annex 1b-1 presents a summary of the consultation processes and priorities identified from the consultation workshops held during the preparation of this



R-PP. Individual activities are further explained in Table 2b, indicating possible outcomes and underlining the links to established policy processes.

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**Table 2a: Indicative REDDplus Strategies**

NOTE 1: Candidate actions are grouped together by relationship to drivers of deforestation and degradation (per Table 1). Actions listed in the right hand column refer to the concrete activities suggested for Step 1 of R-PP Implementation and existing processes within Ghana.

NOTE 2: Please see Annex 2b-1 for a more complete description of candidate strategies proposed within sub-components.

<b>THEME: FOREST SECTOR POLICY, LEGISLATION AND GOVERNANCE ACTIVITIES</b>			
<b>Challenge / Immediate Driver of Deforestation</b>	<b>Candidate element within national REDD strategy</b> <i>[Ref in parentheses refer to Table 2]</i>	<b>Sub-component</b>	<b>Activities proposed under R-PP</b>
<b>Gaps in Forest Policy, and Policy Realisation</b>	A: Improve the quality of multi-stakeholder dialogue and decision-making [FP 1/2/5/6]  B. Clarify rights regime [FP3]   C. Improved FLEGT [FP4]   D: Address unsustainable timber harvesting by supporting sustainable supply of timber to meet export and domestic / regional timber demand [FP 1/2/3/4/5] E. Address problem of local market supply [FP2/5]	A: Strengthened National Forest Policy Forum and improved Forest Information Dissemination  B. Carbon rights allocated   C. Implement VPA and related actions   D: Policy measures to ensure a sustainable timber industry, including on-reserve rehabilitation, plantations development and off-reserve actions (incl. tree tenure reform and REDD-friendly cocoa) E. Better regulation of small scale lumbering (SSL), sustainable supply of timber to meet export and domestic / regional timber demand, implemented	A. Maintain links to ongoing Forest Policy Review   B. National Expert Consultation on the Allocation of Carbon Rights, to review terrestrial carbon rights, benefit sharing and tree tenure  C. Maintain links to VPA process, and integrate actions as appropriate  D. National Expert Consultation on Provisioning of the Timber Supply   E: Working Group on Local Market Timber Supply (or amalgamate with proposed VPA action)

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### Demographic Pressures

*[F-I all refer to DP-1]*

F: Mitigate effects of agricultural expansion (particularly cocoa in the HFZ)

F1. Support Ecosystem-friendly Cocoa Production

F2. Improve productivity of farmland

F3. Improve law enforcement on FR encroachment

F4. Promote ecosystem-friendly agro-industry development

F. Liaise with MoFA, COCOBOD and Cocoa Research Institute

F. Working Group on REDDplus-friendly Cocoa Production (Cocoa Carbon)

F. Working Group on Low Carbon Agro-industrial Development

G. Strengthen local decentralised management of natural resources

G1: Support training in forest and resource management at district level administrations (already part of NREG)

G2: Support pilot projects in decentralised environmental management and resource planning, through national agencies (EPA, MLGRD)

G. Maintain links to existing NREG strategy and Ghana's long-term development plan (under preparation; successor to GPRSII)

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H. Improve sustainability of fuel wood use	<p>H1: Implement policy measures and fuel efficiency initiatives projects that will reduce carbon emissions arising from charcoal and fuel wood use.</p> <p>H2: Develop wood-based fuel supply (woodlots, etc.)</p> <p>H3: Develop alternatives to primary fuels</p>	H: Working Group on Charcoal and Fuel wood
I. Improve quality of fire-affected forests and rangelands	I. Policy and practical measures to address degradation caused by fire in the agricultural and livestock production cycles (e.g. rangeland zoning strategies; alternative grass control methods, incentives for community fire management; payments for ecosystem services)	<p>I1. Maintain links with National Wildfire Policy and Sustainable Land Management Programme</p> <p>I2. Challenge Fund for projects on Fire Control</p>
<b>Economic Forces</b>	J. Address local market demand [EF1]	J. Timber supply situation rationalized A-E above
	K. Improve returns to small-scale enterprise [EF2]	K. Ecofriendly approaches to forest land development F, G, I above
		K. Intensification strategy supported

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L. Improve regulation of mining activities to reduce forest degradation [EF1]

L: Implementation by mining companies of EIA requirements for forest rehabilitation following the closure of mining sites enforced

Maintain links to NREG

L: Measures to reduce forest degradation as a result of unregulated (sometimes illegal) small scale mining implemented

<b>Natural causes [NC]</b>	M. Implement actions to address acts of God (wind and natural fire events, floods, pests and diseases [NC-1/2/3])	M. Policy implantation takes account of risks from natural events	M. Review permanence and liability issues as the R-PP develops
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**Table 2b. Review of Key Activities Proposed for R-PP, indicating lead actors, key issues and potential outcomes**

Activity	Lead Actors	Key Issues	Potential Outcomes	Links to other policy processes
National Expert Consultation on Timber Supply	MLNR/FC-G, with broad cross-sectoral and stakeholder participation	<ol style="list-style-type: none"> <li>1. Scenario building on future timber supply situation</li> <li>2. Adequacy of present strategy on-reserve</li> <li>3. Adequacy of present strategy off-reserve</li> <li>4. Adequacy of existing remedial measures (FR stock)</li> </ol>	<ol style="list-style-type: none"> <li>1. Good understanding of likely future timber supply situation (+10/20/30/40 years), as a basis for policy reform and development (forest policy &amp; REDD policy)</li> <li>2. Strong evidence base for decisions on reform of tree tenure</li> <li>3. Improved incentives for tree</li> </ol>	<p>National Forest Policy Review</p> <p>Validation of legal timber</p>

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		enrichment/plantation policy)		conservation and enhancement on-farm and in fallows	programme/VPA
		5. Incentives for off-reserve conservation and enhancement		4. Revisions to benefit sharing arrangements to reward the immediate tree manager	Plantations development policy (incl. modified <i>taungya</i> )
		6. Benefit sharing mechanisms in forest sector		5. Broadening of legal participation in timber production including community forestry enterprises	
National Expert Consultation on Carbon Rights	MLNR/FC-G, with broad cross-sectoral and stakeholder participation	1. Allocation of carbon rights under a future REDD+ regime 2. Links between carbon rights and land and tree tenure 3. Derived rights and their allocation (tenant farmers and share-croppers) 4. Mechanisms to disseminate benefits to the immediate forest users 5. Handling of conflicts 6.		1. Clear and legally enforceable rules for the allocation of carbon rights to all categories of forest user 2. Well-defined procedures for transmission of REDD payments and other PES to resource managers 3. Conflict resolution mechanisms in place and tested	National forest policy review  Payments for environmental services (PES) policy development
Working group on local market timber supply	NGO leadership	1. Understanding of underlying drivers of illegal chainsaw logging		1. Measures to ensure adequate legal timber supply, incl. licensing of supply	VPA chainsaw logging programme  FMSSD Chainsaw pilot studies  Tropenbos Programme
Working Group on REDD-friendly	COCOBOD/Co coa Research Institute, with participation	1. Farmer preference for full-sun cocoa hybrids 2. Effects of cocoa varietal selection on DD 3. Implications for soil quality		1. Support for eco-friendly cocoa production: measures to encourage return to shade-tolerant varieties 2. To include possible bundling of timber rights	

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cocoa production	from MoFA, MLNR, MTI, cocoa industry, NGOs		3. Other measures to substitute for the inter-cropping co-benefits from the full-sun varieties	
Working group on charcoal and fuelwood	MoFA with inputs from MLNR, MEST, MLG&RD (DAs), NGOs and community organisations	<ol style="list-style-type: none"> <li>1. Varying Carbon footprints of different charcoal production systems</li> <li>2. Footprints of alternatives</li> <li>3. Environmental impacts of charcoal production systems</li> <li>4. Innovative fuels and technologies</li> </ol>	<ol style="list-style-type: none"> <li>1. Evidence base for an effective and appropriate fuelwood policy</li> <li>2. Sustainable livelihoods</li> </ol>	
Working Group on Low Carbon Agro-industrial Development	MTI, with participation of MLNR, MoFA, MinFEP, NGOs and civil society	<ol style="list-style-type: none"> <li>1. Emissions from agro-industrial crops incl. biofuels, tree crops and allied crops, in a range of ecozones in Ghana</li> <li>2. Barriers to growth of sub-sector</li> <li>3. Effects on poor of agro-industrial expansion</li> </ol>	<ol style="list-style-type: none"> <li>1. Ecofriendly agroindustrial development</li> <li>2. Equitable agroindustrial development, delivering real benefits for the poor</li> </ol>	
Challenge fund for projects on fire control	NGO leadership, with expert participation in project	<ol style="list-style-type: none"> <li>1. Emissions from fire in livelihood systems (slash and burn agriculture/pastoral development/grass control/hunting)</li> <li>2. Negative effects on environment</li> </ol>	<ol style="list-style-type: none"> <li>1. Better understanding of roles of fire in rural economy</li> <li>2. Best practices for fire control in community contexts</li> <li>3.</li> </ol>	<ol style="list-style-type: none"> <li>1. National fire control programme (GoG/GoN funded)</li> </ol>

selection

- from wildfires
3. Lack of established policy measures to control these issues



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Table 2b: Summary of REDD STRATEGY DEVELOPMENT Activities and Budget						
Main Activity	Sub-Activity	Estimated Cost (in thousands)				
		2010	2011	2012	2013	Total
Research studies to support National Expert Consultations (2)	i) Hire of consultants	100	80	50	50	520
	ii) Organization of public consultations	[See lb]	[See lb]	[See lb]	[See lb]	
	iii) Study visits (Ghana and international)	60	60	60	60	
Information dissemination	Broadcast and print media; internet;	10	10	10	10	40
Demonstration activities	Implement Challenge Fund for Fire Control (probably funded by bilateral donor)					455
	Other demonstration activities	75 20	100 20	100 20	100 20	
Select final REDDplus Strategy options	As per Management decision making guidelines; inter-sectoral and inter-departmental meetings	[See 2c]	[See 2c]	[See 2c]	[See 2c]	
<b>Total</b>		<b>265</b>	<b>270</b>	<b>240</b>	<b>240</b>	<b>1015</b>
Government		31.33	32.40	28.80	28.80	121.33
FCPF		233.67	237.60	211.20	211.20	893.67
UN-REDD Programme (if applicable)		\$	\$	\$	\$	\$
Other Development Partner 1		\$	\$	\$	\$	\$
Other Development Partner 2		\$	\$	\$	\$	\$
Other Development Partner 3		\$	\$	\$	\$	\$

### **2c. Arrangements for REDD Implementation**

#### ***Introduction***

This subcomponent describes the basic institutional, legal and economic arrangements needed during the REDDplus Readiness Implementation Phase to enable Ghana to credibly and transparently develop and begin to implement the candidate actions identified as a result of the reviews identified in 2b.

The full set of legal, institutional and economic structures that will be needed for REDDplus implementation and management will emerge from the process of analysis, consultation, review and testing during REDDplus Readiness Preparations phase. They will be consistent with the outcomes of COP-15 relating to the structure of the future REDD mechanism. They will also integrate learning, flexibility and adaptation into their institutional and management structures to ensure the capacity to evolve with the international process.

Through this development process a REDDplus Management System with clear procedures, requirements and limits in which multiple actors can begin carbon emission removal related actions will be developed. This system will form part of Ghana's Low Carbon Development Plan and its Nationally Appropriate Mitigation Action Plan.

Key elements of this REDDplus Management System will include:

**1. Management mechanisms for integrating and coordinating REDDplus actions and decisions with broader climate change, environment, forestry and land use decision making.** REDDplus actions will have to be closely coordinated with land use planning in the public and private sector as well at local, regional and national levels. REDDplus should be seen as a catalyst for improved forest sector governance and sustainable land management supporting the revision and development, of appropriate legal, political and economic arrangements. Integration of REDDplus into the broader policy framework is therefore important, while also taking account of the *distinguishing characteristics and requirements related to emission reduction and carbon sequestration calculations and management*.

**2. Ensuring accountability and due process.** Procedures for accountability and due process will need to be put in place during the REDDplus Readiness Preparation Phase (and sustained in the resulting REDDplus Implementation Phase Management phase). To ensure transparency, accountability and equity in the implementation of mechanisms for REDDplus, an information clearinghouse with the ability to track, publicly share and hold accountable the various actors involved in REDDplus implementation will be developed. Properly addressing grievances if and when they arise is also a priority and is described in

more detail in subcomponents 1a and 1b ('National Readiness Management' and 'Stakeholder Consultation and Participation').

### ***Priorities of the REDD Readiness Preparation Phase***

#### ***Step 1: Analysis, Preparation and Consultation***

- Policy Analysis

A review of existing laws and policies focused on identifying perverse incentives or areas that undermine sustainable forest and land management is critical to preparing for future REDDplus implementation. Such analysis will also help identify policies and measures that can support the development of mechanisms for REDDplus. The National Expert Consultations and Working Groups being created as part of 2b. REDDplus Strategy, will include expert analysis on these policy and legal issues, as well as obtain broader input from stakeholders to inform the review.

Within a multisectoral approach, the implications of current land and tree tenure arrangements for the allocation of carbon rights will inform any changes to legislation that are likely to be required to operationalise rights for REDDplus actions. The risks in the current tenurial context which would arise from any establishment of carbon rights will need to be considered, and ways to mitigate those risks identified. A specific proposal on how REDDplus operates where the lands and activities are under public ownership and control will be an outcome of the analyses.

For each action recommended by the review, an analysis will be conducted that includes:

- A comprehensive impact analysis (including on emissions reductions)
- Cost benefit analysis
- Political feasibility and sustainability
- Fiscal and budgetary implications
- Financing strategies

Each complete action proposal will need to include budgetary, institutional and capacity implications. The topic-specific Working Groups and National Expert Consultation Groups will develop these analyses as indicated in Component 2b and the REDDplus Secretariat will finalize the proposals. Consultation with relevant stakeholders on would also be included in the REDDplus action proposals. Implementation would be subject to approval from the Natural Resource and Environmental Advisory Council (described further in Component 1a).

- Financial Arrangements Analysis:

Financial needs and sources will continue to evolve and diversify during RPP implementation and after implementation has been initiated. Sources will vary between national and international, public and private funding, and are likely to include payments for the carbon credits via market and non market mechanisms. Recipients will include public and private entities carrying out REDDplus related programs and actions.

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Institutions to manage the flows of REDDplus funds, to ensure fiscal discipline, fiduciary skill, and required audits and compliance management will need to be identified for both the REDDplus Readiness Preparation Phase and the future REDD implementation phase.

Fiscal treatment of REDD financial flows will require cross sectoral and in depth consideration.

The NREG platform presents one option for fund coordination during the initial steps of R-PP implementation. The structure is strongly supported by donors and can help increased confidence in supporting Ghana's engagement in REDD. The NREG process provides for budgetary financial support that is monitored via jointly agreed indicators and reported on through annual rolling assessments. It is also expected to reduce transaction costs and improve predictability of funds.

Fair benefit sharing will be essential for REDDplus in Ghana. Only if all stakeholders involved in REDDplus activities are rewarded according to their conservation contributions to reduced deforestation, degradation, conservation and stock enhancement, will REDDplus be measurable and lasting. Benefit sharing may involve direct payments or the creation of non-cash benefits. The latter benefit sharing systems are likely to be more sustainable since, provided they are well designed, they will generate alternative income and livelihoods for local communities. Financial mechanisms for revenue distribution under different benefit sharing mechanisms will need to be assessed.

### ***Step 2: Piloting and Testing***

- **Demonstration and Pilot Activities**

A critical part of REDDplus readiness preparations is carrying out targeted REDDplus demonstration and pilot activities (design and implementation). Through this, it will be possible to test how policy interventions and the established REDDplus-focused institutional frameworks operate in specific locations. In addition, institutional and stakeholder capacity to undertake activities can be both gauged and strengthened.

Demonstration actions at the site level will be selected to provide the best learning opportunity to inform the emerging REDDplus management system. Demonstration actions will cover a wide range of project and program designs to test targeted REDDplus policies. They may be supported by international-funded development grant assistance / funds or involve site-level crediting and participation in voluntary carbon markets. Learning from project approaches that fit into the voluntary market can also be an important part of testing how policy and legal changes influence the ability to create carbon reduction credits. The learning provided by these activities will further inform the Working Groups and the National REDDplus Secretariat regarding the best design of REDDplus actions and the implementation framework.

Private entities, communities and other actors (in priority areas where deforestation and degradation drivers are strongest) might be invited to submit proposals for demonstration projects to the Government. Alternatively, or additionally, a survey of possible sites could be conducted to identify the REDDplus initiatives which the Government may wish to support. A Committee to define the selection process and oversee the management and learning will advise the CCU of the FC and NRSC regarding selection of proposed site level actions.

- Enabling institutional Arrangements and Capacity Building

While components of a REDDplus strategy are being tested, a number of enabling activities need to be carried out by various public and private entities. It is anticipated that these activities will continue into Step 2, and that different aspects will progress at different speeds. Such activities include:

- Defining Institutional responsibilities, roles and resource needs for the implementation of new REDDplus policies, programs and laws
- Define procedures and criteria for ensuring accountability of the actors and due process
- Institutional mapping and assessments of the human, financial, technical capacities
- Training of public officials and relevant stakeholders in Ghana's REDDplus Management and Implementation framework
- Institutional strengthening
- Public outreach to enhance awareness of particular policies
- An enabling framework that ensures swift scaling up of REDDplus activities after the completion of the Readiness preparation phase

A priority to facilitate the implementation of interim REDDplus demonstration actions (described in Step 2) and of full REDDplus implementation in subsequent phases, is the Governments clarification of the ownership of REDDplus activities and benefits, including potential carbon credits. Under a future REDDplus Implementation and Management System, a specific institution will need to authorize project proponents to own and sell carbon credits. Permits for REDDplus actions can be based on meeting criteria similar to those required by the Designated National Authority for CDM projects, for example, or in the minimum apply lessons learned from current processes. Entities that approve forest uses at the local level could play a role in the permitting process for REDDplus related activities.

The ability to *implement* the capacity building priorities (including recruitment into key teams or equipment where needed) will be a focus of the Piloting and Testing phase. Ensuring that appropriate institutional arrangements can be put in place and scaled up when REDDplus implementation takes place across the country will involve financial and political planning.

### **Step 3: Becoming Ready**

- Training

Training on technical issues related to new policies and laws, as well as process issues (consultations, multi-stakeholder dialogues) will include both formal training and informal knowledge sharing mechanisms, accessible for all actors about the state of, practice and policy, in the forest sector and implications of including REDDplus in sectoral activities.

Training in defining metrics and indicators for monitoring, reporting and verification for REDDplus action (in addition to emissions and removals of carbon— see details in component 4) include performance based metrics for policies and programs. Also training

would be needed for various institutions that oversee and evaluate technical aspects of monitoring and impact assessment of carbon, socioeconomic, and biodiversity aspects of policies and site level activities (see Component 2d). These efforts will consider complementary mechanisms used by other forest sector processes (NREG, VPA, FLEGT) and shared monitoring by varied actors.

- Institutional Innovations

Institutional innovations needed for managing and implementing REDDplus are anticipated to be planned during Step 1, developed during Step 2, with an aim of being established and functional at a regional, or national level, by Step 3.

Necessary institutional innovations include:

- The establishment of a central management information depository and the design and establishment of a central carbon accounting registry for tracking carbon emissions and credit monitoring, with clear reporting protocols (as further described in component 4). Both institutions will streamline the management of REDDplus at the national level, avoid double accounting and help to bring transparency to REDDplus progress.
- The development of a national REDDplus credit ‘buffer’ system whereby the government can help to insure forest credits from risks and losses will have cost implications to be better understood (whether carried out as an accounting buffer or a physical buffer), as well as institutional requirements.
- Operationalize conflict resolution structures via training of lawyers, government officials and people who may play a role in helping design REDDplus activities and also mitigate disputes, working with Ministry of Justice, National House of Chiefs and the Commission on Administrative Justice and Human Rights.

### *Initial Activities*

**Activity 2c.1: Develop an Information clearinghouse with the involvement of public and private and civil society leaders involved in the design of the RPP implementation actions. Individuals responsible for developing the public information platform will use the web and other information management tools to transparently**

- a. Monitor that all policy analysis covered in the Expert Consultations and Working Groups meets the requirements of this RPP.
- b. Track and shepherd the REDD strategy and action proposals through the decision making process of the NRSC, MLNR, NCCC and NEAC.

### **Activity 2c.2: Financial Arrangements**

Put in place information flow procedures for financial aspects of REDDPlus for use by different ministries, donors and other actors to enable overall accounting of REDDplus

readiness and REDDplus implementation investments (including consideration of existing financial oversight platforms such as NREG).

Review national, regional and international best practices for benefit sharing and define options for the Ghanaian REDDplus context.

### **Activity 2c.3: Demonstration Activities**

Establish a selection committee that can help manage the demonstration activity process in a way that maximum learning and iterative feedback into working groups results. This can include carbon market and project experts, NRSC (or designees), FC Secretariat and others.

### **Activity 2c.4: Institutional Arrangements and Capacity Building**

Carry out a comprehensive institutional mapping in light of REDDplus management requirements and the institutional roles required for REDDplus strategies, actions and policy program measures.

Design training and outreach for the institutional strengthening needs (see component 1b).

### **Activity 2c.5: Carbon Accounting and Carbon Emission Reductions Management**

A carbon accounting registry that meets international requirements is described in Component 4.

Study methods for establishing a national carbon credit buffer system, including best practice and next steps on who manages it, who has access rights to the buffer, who administers it, etc.

### **Activity 2c.6 Conflict Resolution Structures**

Establish the institutional requirements for housing a conflict resolution protocol and process, using an ombudsperson, etc.



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**Table 2c: Summary of Implementation Framework Activities and Budget**

Main Activity	Sub-Activity	Estimated Cost					Total
		2010	2011	2012	2013		
Activity 2c-1: Develop an Information clearinghouse	Monitor that all policy Analysis meets requirement of RPP	FC CCU staff	FC CCU staff	FC CCU staff	FC CCU staff	FC CCU staff	0
	Track and Move action proposals through decision making process	FC CCU staff	FC CCU staff	FC CCU staff	FC CCU staff	FC CCU staff	0
Activity 2c-2: Financial Arrangements	Establish Information flow procedures for financial aspects of REDDplus across public actors	FC CCU staff					0
	Review Best Practices on Benefit Sharing options for Ghana	15	15				30
Activity 2c-3: Demonstration Activities	establish selection committee and procedures to manage process	FC CCU staff	FC CCU staff	FC CCU staff	FC CCU staff	FC CCU staff	0
Activity 2c-4: Institutional Arrangements and Capacity Building	Institutional Mapping Review and Proposal to fulfill REDDplus implementation needs (via consultants at budget allocated, or via FC CCU staff)	20	20				40
	Design training and outreach for institutional strengthening	see Comp 1b	see Comp 1b	see Comp 1b	see Comp 1b	see Comp 1b	0
Activity 2c.5: Establish a System for Carbon Accounting and Carbon Emission Reductions	Carbon Accounting registry	see Comp 4	see Comp 4	see Comp 4	see Comp 4	see Comp 4	0
	Study on a national buffer system and workplan	10	30	10			50

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management	Establish a national buffer system	-	TBD	TBD	0	
Activity	2c.6 Establish procedures and define which institution takes on Conflict Resolution procedures; Staff time to manage the conflict resolution process	15	15	15	45	
Resolution Structures						
<b>Total</b>		<b>45</b>	<b>80</b>	<b>25</b>	<b>15</b>	<b>165</b>
Government		16.66	29.6	9.25	5.55	61.06
FCPF		28.34	50.4	15.75	9.45	103.94
UN-REDD Programme (if applicable)		\$	\$	\$	\$	\$
Other Development Partner 1		\$	\$	\$	\$	\$
Other Development Partner 2		\$	\$	\$	\$	\$

## **2d: Social and Environmental Impacts**

### ***Introduction***

Social and environmental impact assessment is a key component of Ghana's R-PP to the World Bank Forest Carbon Partnership Facility (FCPF). This component is essential for both avoiding negative impacts ("do no harm") and enhancing positive or "additional" REDDplus benefits, especially in terms of social or livelihood benefits, governance and wider environmental or biodiversity benefits. Specifically the FCPF recommends that Ghana undertakes a Strategic Environmental and Social Assessment (SESA) as part of the Phased approach of the FCPF Readiness Mechanism (preparation of the R-PP and subsequent Preparation for REDDplus).

The SESA is a tool that will help answer various critical questions:

- What are the likely or potential positive and negative impacts of Ghana's REDDplus strategy options and implementation framework?
- Who are the likely winners and losers from REDDplus activities?
- What are the political, social and institutional risks and trade-offs of the proposed REDDplus interventions?
- How can we ensure effective and equitable stakeholder consultation, community participation and governance so that REDDplus policies are more likely to be socially sustainable? Key to the SESA process is that the priority issues of social and environmental concern are those raised by the affected stakeholder groups through a process of consultation (see also the Consultation and Participation Work Plan - Annex 1b.5)
- Is due diligence being followed, especially in relation to the World Bank Environmental and Social Safeguards?
- What are the potential activities or instruments for mitigating possible adverse environmental and social impacts?

In parallel with the SESA tool, the R-PP will be subjected to the Strategic Environment Assessment<sup>1</sup> (SEA) procedures developed by Ghana's Environmental Protection Agency.

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<sup>1</sup> SEA is the environmental assessment of policies, plans and programmes as part of an integrated multiple layered analysis. A definition of SEA is "a systematic, on-going process for evaluating, at the earliest appropriate stage of publicly accountable decision-making,

This component should also be informed by, and collaborate with, an on-going World Bank study on the Economics of Adaptation to Climate Change (EACC) in Ghana and other countries: <https://beta.worldbank.org/content/ghana-economics-adaptation-climate-change-study>

A major component of this study, being conducted in collaboration with the EPA, is an impact assessment of climate change, including social and environmental impacts.

### ***Objectives of Subcomponent 2d***

The overall objectives of this component are to promote due diligence in the determination of the REDDplus strategy; identify the likely social and environmental impacts (negative and positive) of proposed REDDplus strategies; assess the potential additional benefits of REDDplus (especially biodiversity conservation and poverty alleviation); and to inform the design of the national REDDplus strategy so that it avoids or mitigates negative social/environmental impacts and encourages positive ones. A strong SESA analysis will promote integration of social and environmental issues into the upstream policy-making process, thereby promoting more sustainable and equitable REDDplus policies.

The proposed activities should also promote a more inclusive and transparent REDDplus decision-making and policy implementation process, especially by involving primary stakeholders in identifying the likely benefits and costs/risks, and ensuring that the views of affected groups are prioritised in the decision-making process. How to ensure an inclusive and iterative consultation process with key affected stakeholders is a critical task, and one that requires considerable thought and discussion between the ‘impact assessment team’ (see below) and key government, civil society and NGO actors. Apart from strengthening the participatory basis of REDDplus, this will build grass-roots acceptance or ownership. Over time, the government should recognize that better quality

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the environmental quality, and consequences, of alternative visions and development intentions incorporated in policy, planning or programme initiatives, ensuring full integration of relevant biophysical, economic, social and political considerations” (Partidário, 1999).

While SEA can have most benefit at the policy level, it should also have considerable focus at the project or programme level. For example, the Government of Ghana recently carried out an SEA of the mining industry. This included environmental audits of 6 mining sites, included strong consideration of health and social issues, and fed into an SEA covering major river basins and communities affected by mining. This study provided valuable information for environmental management and institutional strengthening in the mining sector.

participation and wider acceptance of REDDplus strategies increases effectiveness and sustainability.

In accordance with FCPF guidance, special consideration should be given to livelihoods, rights, cultural heritage, gender, vulnerable groups, governance, capacity building and biodiversity. Given that many REDDplus activities are likely to be neutral or positive as regards biodiversity, hydrological and other environmental or ecosystem impacts, the risk of negative environmental impacts may be lower than the risk of negative social impacts. Therefore assessments are anticipated to focus particularly on the likely social impacts, while not ignoring possible negative environmental impacts (e.g., in the stakeholder consultations).

This component also needs to be developed in conjunction with the strategy development process (section 2b) and to take into consideration existing initiatives impacting on forest areas, especially those of the Voluntary Partnership Agreement (VPA) (see Mayers et al, 2008, for an impact assessment of the VPA). An integrated approach will enable more rapid development and assessment of REDDplus strategies as well as ensure that the impacts of these strategies are assessed within the context of an evolving forest sector. Finally it should be noted that a SESA analysis will be most effective when there is an agreed coherent set of REDD strategies and policies following a multiple stakeholder planning process. A SESA analysis prior to this would be of limited value.

### **Who should undertake the impact assessment and who should they report to?**

This component should be coordinated by a balanced and multi-disciplinary ‘Impact Assessment Team’ composed of three members, at least two of whom should be Ghanaian: one team member should be experienced in social impact assessment, including gender issues, and be competent in facilitating multiple stakeholder consultation; a second should have experience in environmental impact assessment; the third member can be a national or international consultant with specialist impact assessment skills. One of the national team members can be from the public sector, and the other should be from the NGO or civil society sector if possible. They should also be from different sectoral backgrounds (forestry, agriculture, etc.).

The international or national consultant with specialist skills should provide initial inputs (especially in the design of the impact assessment process and methods) and then provide support at critical points. She(he) should also provide a mentoring role with the aim of building national capacity in impact assessment in the Government of Ghana.

This team should report to the Environmental Advisory Council, a high level inter-Ministerial and sectoral body composed of the Ministers of Lands and Natural Resources (MLNR), Environment, Technology & Science, and Finance, with potential contributions from the Ministers of Agriculture and Local Government.

### ***Activities for Subcomponent 2d***

#### ***Activity 2d-1. Initial (largely desk-based) diagnostic analysis***

Building on the Background Paper, the Impact Assessment Team will utilise existing research and specialist knowledge to develop a clear initial understanding of the key issues in each of 3-4 key REDDplus regions. These have yet to be finalized, but likely areas reflecting high rates of deforestation and/or forest degradation include the Western Region (both on and off reserves), the Ashanti Region and the Brong-Ahafo Region. Some contextual analysis of the issues in these regions, for example, issues around cocoa farming in Western Region, are discussed in Annex 2d and the Background Paper. Some sources for further contextual analysis of likely REDDplus impacts are listed in Annex 1 of Annex 2d. This analysis should allow for natural overlaps between the core themes of:

- Political economy context analysis
- Institutional and governance assessment
- Initial stakeholder and trade-off analysis

### ***Activity 2d-2: Consultative or field-based stakeholder analysis and discussions***

A full stakeholder analysis will be undertaken in each key REDDplus region. This stakeholder analysis will be undertaken with representatives of stakeholder groups (especially representing affected communities, traditional authorities/stools, civil society, District Assemblies, central government and the private sector) to identify and prioritise the most important likely benefits and costs, trade-offs and risks associated with the provisionally defined REDDplus strategies. This requires development of a basis for selecting the key government, civil society and NGO representatives. It is suggested that the process for deciding on or possibly electing these representatives should be decided by the Environmental Advisory Council in consultation with appropriate state and civil society bodies. (Consideration could be given to forming a Multiple Stakeholder SESA Working Group).

During this initial consultation process, special attention should be given to the current level of understanding of REDD by the primary or resident stakeholders. If levels of understanding are found to be inadequate, a proposal for popular education or community capacity building around REDD should be made to the inter-Ministerial Environmental Advisory Council (or other appropriate high level body) for appropriate action. A second round of stakeholder consultations should be undertaken once this education process has taken place in order to ensure a fair and balanced consultation process. These consultations should also be part of the overall REDDplus strategy definition consultations.

### ***Activity 2d-3: Analysis of the World Bank Social and Environmental Standards***

In anticipation of funding from the Forest Carbon Partnership Facility, the proposed activities and their likely impacts need to be carefully assessed in relation to the World

Bank Safeguard policies (<http://go.worldbank.org/WTA1ODE7T0>) in order to ensure that they are compatible, especially with the following safeguards<sup>2</sup>:

*Forests*: this includes the rights and welfare of forest dependent people;

*Environmental Assessment*: this includes some social issues as well as guidance on environmental mitigation measures;

*Involuntary resettlement*: this could be relevant if an exclusionary REDDplus strategy is adopted, e.g., evicting farmers or communities from Forest Reserves;

*Indigenous peoples*: while the concept of ‘indigenous peoples’ does not really apply in Ghana, many of the safeguards for indigenous people can be related to the rights of local communities.

The Impact Assessment Team should consider whether and how the proposed REDDplus activities can be carried out in a way that (a) minimizes harmful impacts as much as possible, and (b) mitigates any potentially harmful effects in a way that is consistent with the safeguards.

#### **Activity 2d-4. National SESA Working Group meeting**

A national SESA Working Group meeting will be organized with relevant and representative government bodies, NGOs and civil society representatives. The SESA findings would be presented and discussed at this meeting. The aim would be to modify (as necessary) current REDDplus strategies so that the main social and environmental concerns, as prioritized by the multiple stakeholder consultations, are integrated into the overall REDDplus strategy. In order to ensure that stakeholder concerns are genuinely prioritized, the results of this meeting should be shared and discussed in each key REDD region.

#### **Activity 2d-5. On-going SESA monitoring**

The on-the-ground effectiveness and equity impacts of REDDplus policies are to some extent unpredictable. Information on these effects must thus be fed back to the multiple stakeholders so that policies and strategies can be improved. This will require an approved set of monitoring indicators. An annual report to the Environmental Advisory Council and other key stakeholders would be based on the results of these indicators and further rounds of stakeholder group discussions. Short briefing papers on the social and environmental impacts will also be developed, and the main findings appropriately communicated to key Stakeholders.

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<sup>2</sup> Other Safeguard Policies which should be considered, but are unlikely to be applicable in the Ghana REDDplus context are *Natural Habitats* and *Disputed Areas*.

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**Table 2d: Summary of Social and Environmental Impact Activities and Budget**

Stages/activities	Estimated Cost (in thousands of dollars)				
	2010	2011	2012	2013	Total
	\$	\$	\$	\$	\$
1. Initial diagnostic analysis including political economy, institutional and initial stakeholder analysis	20	-	-	-	20
2. Consultative or field-based stakeholder analysis and discussions					
3. Analysis of World Bank Social and Environmental Standards	2	-	-	-	2
4. National SESA Workshop and Briefing Paper	50	15	15	15	95
5. On-going SESA monitoring and annual updates	15	15	15	15	60
<b>Total cost</b>	<b>87</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>177</b>
Government	11.33	3.90	3.90	3.90	23.03
FCPF	75.67	26.10	26.10	26.10	153.97
UN-REDD Programme (if applicable)	\$	\$	\$	\$	\$
Other Development Partner 1 (name)	\$	\$	\$	\$	\$
Other Development Partner 2 (name)	\$	\$	\$	\$	\$
Other Development Partner 3 (name)	\$	\$	\$	\$	\$



## ***Component 3: Develop a Reference Scenario***

### ***Background***

Ghana divides its forests into zones: high forest zone, transitional zone, and savannah zone. Forest cover within these zones varies along a north-south gradient, where the 'high forest zone' (HFZ) dominates the southern region and transitions to savanna towards the north. Forests are further classified into forest reserves (forest land within reserves and under protection) and off-reserve forests (any land area outside forest reserve in the HFZ mainly made up of forestland or mosaic of agricultural fields, fallow lands, secondary forest patches).

According to Ghana's report to the FAO for the 2005 Forest Resource Assessment, the forest area in 2000 was 6.1 million hectares (using FAO forest definition of 10% canopy cover, including plantations), of which about 1.6 million ha are forest reserves and the rest are off-reserve (with about 60,000 ha of plantations). According to the same report, deforestation during the period 1990-2000 was about 135,000 ha per year and during the period 2000-2005 it was estimated to be 115,000 ha per year. These estimates were based on original area estimates in two reports for 1990 and 1996. The basis for these area estimates is unclear and do not mention the use of satellite imagery, however the basis will be investigated as part of the readiness phase. The only satellite imagery for Ghana as given in our R-PIN was some data for 2001-2002 that we used for designing an inventory of the high forest reserves.

### ***Drivers of Land Use Change in Ghana***

The drivers of land cover/land use change are described in detail in Component 2a and in the background paper on land use and forest policies (Annex 7) and will not be repeated here. It is clear that the patterns of land cover/land use change are complex that make it challenging to develop a reference scenario for Ghana, but also provide many opportunities to reduce emissions and enhance removals through implementation of REDDplus-related activities.

### ***Defining 'Forest'***

How a country defines its forest cover depends on national circumstances as was agreed to under the Kyoto Protocol. It is likely that international agreements will allow for such definitions to be decided by a country within certain guidelines. In the Ghana case, it makes sense for REDDplus related activities to use the current Marrakesh Accords guidelines for defining forest cover. Various sub-national definitions could be developed that correspond to (for example) different vegetation zones (such that forest is defined in the high forest zone as having a canopy cover greater than 30% while forest cover in the savanna and transition zones could be defined as having a canopy cover greater than 15%).

Alternatively, for the purposes of REDDplus, it may be more cost-effective and practical to define one canopy cover threshold across the entire country that will be used to develop an estimate of historic emissions of both deforestation and degradation and also used for future monitoring.

Using different definitions in the two main forest zones (HFZ and transition zone) could complicate the future monitoring system. Furthermore, the canopy cover chosen (e.g., 15 or 30%) to define a forest captures total emissions differently depending on whether both deforestation and degradation are included in a REDDplus mechanism vs. deforestation only. Figure 7 shows that if only deforestation was included, then the emissions associated with a transition from forest to non-forest (80% to 20% canopy cover), based on a  $\geq 30\%$  canopy cover forest definition, would be 80 t C/ha. The potential subsequent emissions during devegetation (20% to 10% canopy cover) would not be included in any REDDplus activity. However, if degradation was included in REDDplus activities and the forest definition was  $\geq 15\%$  canopy closure, 80 t C/ha would be emitted during degradation (80% to 20% canopy cover) and another 20 t C/ha during deforestation (20% to 10%) for a total of 100 t C/ha. Given the common cause of change in Ghana's forests is a long-term and progressive degradation of forest to complete deforestation, a 15% canopy cover may be selected as the definition for Ghana's forests. On a technical level, it does not make sense to define forest with lower than a 15% threshold for canopy cover because as the cutoff gets lower, the accuracy of remote sensing also declines due to the large fraction of background materials and their variation in spectral properties.

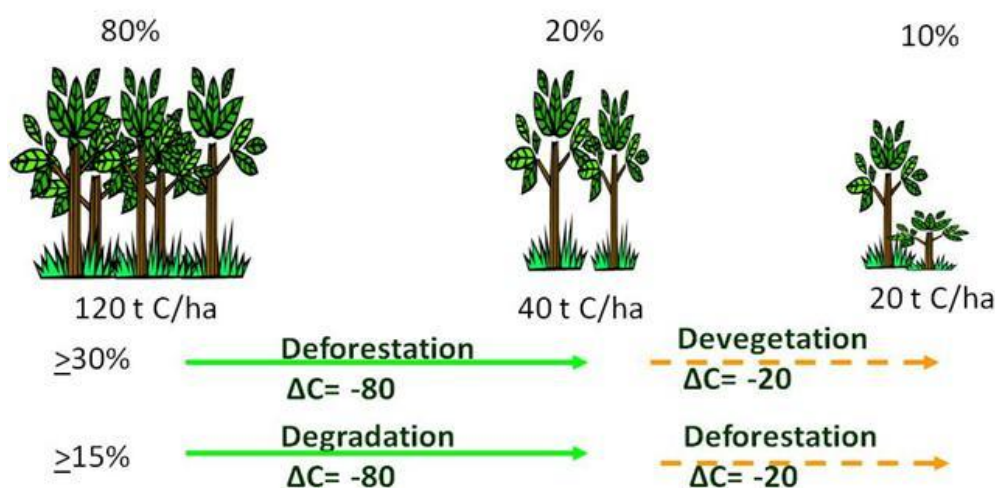


Figure 7. Illustration of various changes in forest lands, and corresponding emissions and removals of carbon based on a definition of forests with a  $\geq 30\%$  and  $\geq 15\%$  canopy cover.

The use of  $\geq 15\%$  canopy cover to define Ghana's forests is also supported by a preliminary investigation of readily available remote sensing products such as MODIS (Moderate Resolution Imaging Spectroradiometer) satellite imagery. This investigation showed that forested pixels in 2000, using a 15% canopy cover threshold, cover an area of 6,032,000 ha, which compares well to the national forest cover statistic reported by Ghana in FAO

FRA of 6,094,000 ha (Figure 8). Given this result, it may make sense for Ghana to define a forest as one 'with a canopy cover of greater than or equal to 15%'.

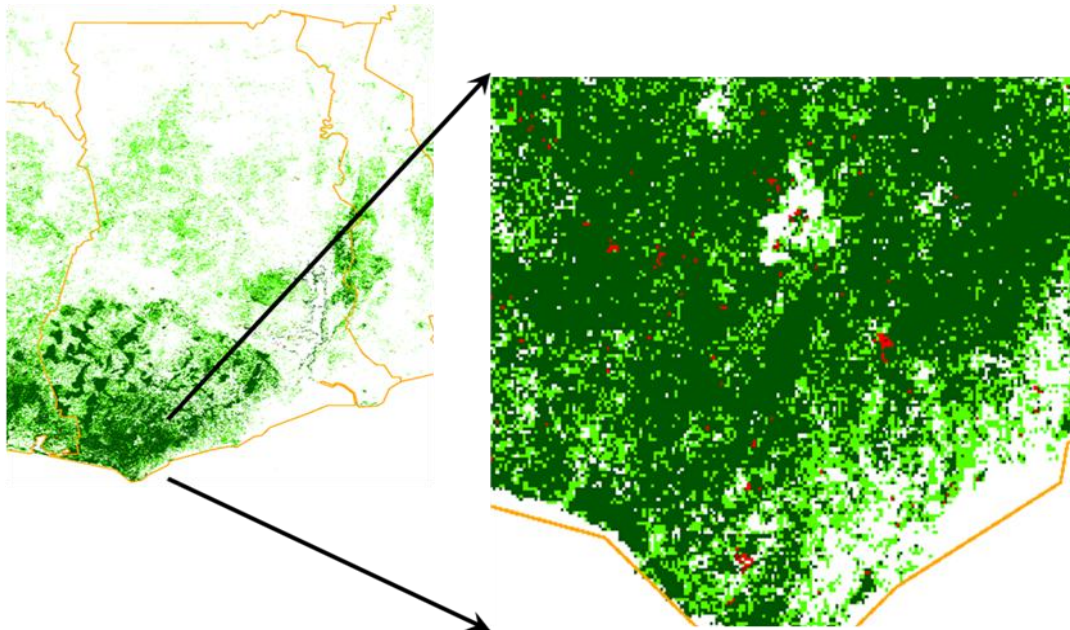


Figure 8. Ghana's forest areas based on 15% canopy cover (dark green = >30% canopy cover and light green = >15% canopy cover) and in the zoomed in image deforestation (red pixels) within the high forest zone of Ghana according to MODIS 500-m scale imagery from 2000-2005.

For Ghana, it may be advantageous to define forest at a low cover threshold, e.g., 15%, because doing so would ensure that most lands that contain tree cover will be classified as forest and will thus be eligible for REDDplus incentives either through reduced degradation, reduced deforestation, or enhancement of carbon stocks (Figure 9). However, additional analysis may reveal that it makes sense to base reference scenarios on the specific conditions pertinent to each zone. Thus, defining forests differently in different zones (e.g., high forest zone vs. transition zone) will be investigated, along with their associated impact on monitoring costs.

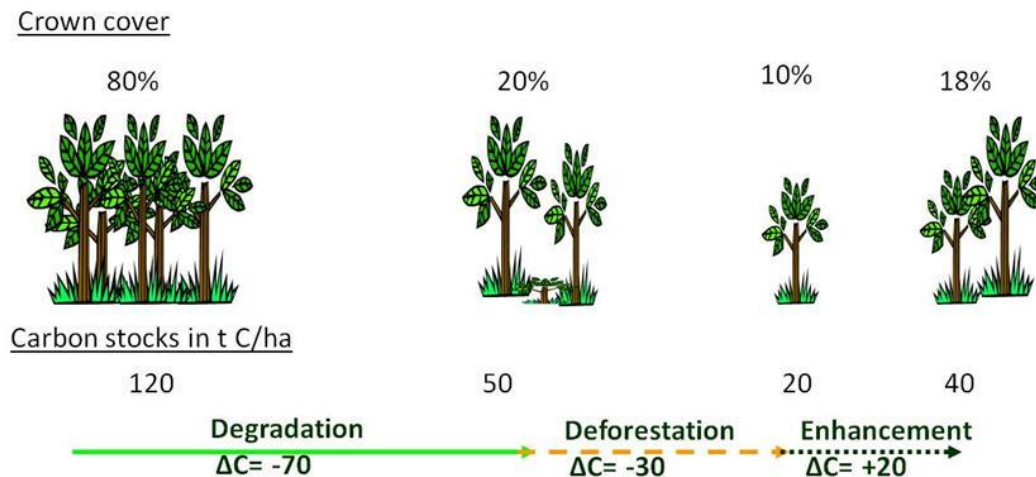


Figure 9. Illustration of various changes in forest lands, and corresponding emissions and removals of carbon based on a definition of forests with 15% canopy cover

### Reference Scenario

All of the changes in the use of forest lands in Ghana described above have resulted in emissions and removals of carbon dioxide, which affect the global carbon budget. There is no recent estimate of the net emissions of GHG caused by deforestation and degradation—the only estimate that Ghana has is for 1994 when it was estimated that the emissions were 40% of the total country’s emissions (R-PIN). A second National Communication (NC) is being developed by the Environmental Protection Agency (EPA) in Ghana. The EPA has been working on developing landcover maps for forestry and agriculture cover for 2000 using Landsat imagery and 2007 using MODIS imagery. However this effort has progressed slowly to date. As part of Ghana’s REDD preparedness work the reasons for the slow progress will be investigated. The work planned to be done on the reference scenario will contribute to the EPA staff effort on the National Communication and we plan to work closely with them to improve Ghana’s NC. In addition, estimates of forest cover change at the scale of MODIS imagery are not well suited for establishing historic emission levels, because the scale of the land cover changes and MODIS are drastically different. As described below, abundant data for recent time periods by Landsat are available and will be used for developing the historic emissions from forests and at the same time contribute to improved estimates of emissions and removals for the NC.

Emissions and removals occurring from past changes in land use can be used as a starting point for projecting a reference scenario for the likely magnitude of emissions and removals of CO<sub>2</sub> in the future that would occur in the absence of a mechanism to reduce deforestation and degradation. All activities under REDDplus are covered by the IPCC framework under agriculture, forestry and other land use (AFOLU):

- deforestation is covered by “forests converted to other lands”,
- degradation is covered by “forests remaining as forests”, and

- enhancement of C stocks is covered by both forests remaining as forests and by other lands converted to forests.

Ghana will use this framework for developing its historic emissions rather than attempting to define all the activities included under REDDplus. The historic emissions/removals will be projected into the future over different time periods and under different economic and development scenarios, taking into consideration such factors as GDP, population growth, agricultural expansion, forest industry growth, sectoral development plans, specific investment programs, and/or adjustment coefficients otherwise derived from such factors and data.

### ***IPCC Good Practice Guidance***

Quantifying emissions and removals of carbon dioxide from the land to produce estimates of historic emissions requires knowledge of two parameters: the area of lands that have undergone change over a known time frame and the change in carbon stocks on the lands that have undergone change. The IPCC Good Practice Guidance (IPCC-GPG) refers to the two basic inputs with which emissions and removals of carbon (as carbon dioxide) are estimated, namely activity data and emission factors. Activity data in the REDDplus context would refer to the real extent of an emission/removal category—e.g., in the case of deforestation it refers to the area of deforestation, presented in hectares, over a known time period. Emission factors refer to the emissions or removals of carbon per unit activity—e.g., metric tons of carbon per hectare emitted or sequestered. Emissions or removals resulting from land-use conversion are manifested in changes in carbon stocks in the pre- and post- land cover/land use status (in the five eligible carbon pools).

Activity data in the REDDplus context are best obtained from remote sensing sources so that land use conversions are spatially mapped and explicitly tracked. Spatially explicit changes in land use have advantages over other kinds of data as they can be better matched to the carbon stock of the forest undergoing change, they prevent double counting of emissions/removals from land units, and they can track gross changes in all land conversions. Emission factors are currently obtained from ground measurements or default tables, or a combination of both.

The IPCC GPG also contains internationally accepted methods for combining the activity data and emission factors into estimates of emissions and removals of carbon dioxide.

### **Objectives for Component 3**

The overall objective of Component 3 is to develop reference scenarios that forecast emissions and removals of CO<sub>2</sub> into the future in the absence of REDDplus incentives. The reference scenarios, while based on historical information, will also reflect national circumstances and relevant policies as well as meet international standards and requirements. The reference scenarios will be developed in a way that lends consistency with the monitoring system, so that emissions and removals that are monitored over time can be compared directly to the emissions and removals in the reference scenario.



Accomplishment of this objective involves two sub goals:

- Quantification of *historic* emissions/removals from deforestation, degradation, and enhancement of C stocks (DDE) for the period post 2000 to 2007+ at a national scale using the IPCC framework; and
- Development of *future trajectories* of emissions/removals over different time periods and under different economic and development scenarios. This will take into consideration such factors as GDP, population growth, agricultural expansion, forest industry growth, sectoral development plans, specific investment programs, and/or adjustment coefficients otherwise derived from such factors and data.

### Activities

Below, activities are outlined that need to be accomplished to attain the objectives of this component. The proposed steps needed to achieve the results of the activity are also listed. The proposed steps are essentially the terms of reference what would need to be accomplished to meet the objectives of this component.

A consultation and working group meeting of personnel from various Departments of the Forestry Commission, other related Ministries and research institutes, held in May 2009, assessed the current situation with respect to skills and expertise needed to design and implement a plan to establish historic emissions/removals and how to use the historic emissions to project reference scenarios into the future. Although capacity to perform several of the steps needed to estimate historic emissions/removals and to project this forward exists, it was concluded by all members of the group that this existing capacity is insufficient and additional expertise in carbon stock assessment, remote imagery interpretation, and economic analysis is needed. This will be elaborated on in the first activity below.

Obtaining historic data for estimating emissions/removals from deforestation, degradation, and enhancements requires different approaches and methods, especially for the activity data. There are robust methods for using data from current optical sensors to detect distinct changes in forest cover as in deforestation and forestation (including afforestation and reforestation), but the methods for degradation and enhancement of carbon stocks in forests remaining as forests are more challenging.

***Activity 3-1. Capacity building, staffing and technological upgrades to improve the ability of Forestry Commission, related Ministries and research organizations (FORIG) to produce reference scenarios that forecast emissions and removals of CO<sub>2</sub> into the future in the absence of REDDplus incentives.***

In the consultation and working group meeting held in May 2009, the following were identified as necessary to increase the overall effectiveness and abilities of the Forestry Commission, related ministries, and FORIG in the assessment, monitoring and verification of changes in vegetation and carbon stocks under various land use scenarios.

## Ghana R-PP

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- Forestry Commission and FORIG: Capacity building for carbon stock assessment: Ghana has many trained foresters but they need training in and/or acquisition of technical capacity for the following purposes:
  - What data to collect for carbon stock assessment
  - How to analyze the data to feed into both the reference scenarios and the monitoring system
  - How to interpret the IPCC GPG manuals and use them in their analysis—what do they really need to know in the IPCC manuals
  - Complete overhaul of field equipment and updating using the more efficient field measurement equipment available, and training in the use of more modern technology (e.g. GPS, laser rangefinders and distance measuring devices, PDAs for data recording, etc.)
  - Increased staff access to computers with data analysis software, GIS packages, and faster internet connections to download data sets freely available at various web sites.
- Forestry Commission: A new center or a unit under an existing center (e.g. RMSC) within the FC to coordinate all activities related to all data collection and analysis for developing reference scenarios and monitoring
- Forestry Commission and FORIG: Strengthening the capacity of staff (e.g. statisticians, data management specialist, remote sensing and GIS experts) and programs to retain technical staff within FC (using incentive structure to be determined as part of capacity building activities)
- Forestry Commission, Ministry of Food and Agriculture: Training of higher level managers and directors to understand REDDplus issues to better champion the social and economic aspects of forests (as opposed to just timber benefits) and agroforests
- Research organizations such as FORIG and the Cocoa Research Institute: enhanced capacity to conduct research in areas related to REDDplus, including soil science, biodiversity and land use change, livelihoods and sustainable management.
- Ministry of Food and Agriculture: is an important player for REDDplus because forest conversion to agriculture is one of the main causes of deforestation. The Ministry therefore requires:
  - Training in REDDplus issues and on how to disseminate to information to land owners (training to extension agents, REDDplus issues translated into materials that are understandable to farmers)

- In-house capacity in remote sensing and GIS, along with appropriate hardware/software—GIS/RS products that would be useful for extension agents to enhance their extension activities with farmers
- Training of extension personnel so they can train local landowners and farmers in field measurements and monitoring of forest cover changes and stock changes
- Enhancement of formal collaboration and cooperation among key ministries, departments and agencies (FC, EPA, MOFA, MEST, MLNR, MoFEP, etc.) and thus improved sharing of data and information relevant to a REDDplus strategy.

As a first step in the proposal to increase Ghana's preparedness to attain the objective of this component, a formal working group of key people representing each related organization and institution will be formed whose remit will be to prepare a detailed plan of the specific needs, how to attain the needs, and the budget required—this will need to be accomplished no later than the end of the first quarter in the planning stage and will feed into Ghana's overall preparedness plan. This will be quickly approved so that the capacity building, staffing, and technological upgrades can be acquired to facilitate progress on preparing Ghana's reference scenarios, designing the MRV system, and disseminating user friendly materials to farmers and landowners.

***Activity 3-2. Quantify activity data for deforestation, forestation and forest degradation in Ghana from 2000-2009 at national and sub-national scales***

For optical remote sensing applications, the tropical regions can be particularly challenging due to the frequently cloudy conditions, however these limitations are less of an issue over Ghana than other tropical nations because of the extended dry season. The Landsat program has been the most useful of the many satellite systems designed for land cover monitoring because it is the longest running exercise in the collection of multispectral, digital data of the earth's surface from space. The long life of the program, along with its high spatial resolution (30 m pixels) and extensive freely available archive, makes Landsat data the ideal choice for mapping deforestation at the national scale for Ghana. Based on a search of the existing freely available Landsat archives, extensive (wall to wall coverage), low cloud cover data are freely available for Ghana from 2000 to 2009, thus data for determining rates of forest cover change for the historic period are not a limiting factor.

Remote sensing has been useful for mapping and monitoring indicators of forest degradation, including mapping of logging roads, fire scars and forest canopy damages, and secondary forest recovery. However, the accuracy of mapping changes in forest cover for forests remaining as forests depends on forest stand characteristics, processes of degradation/enhancement, intensity of disturbance, timing of satellite imagery acquisition relative to the events, and spatial resolution of the imagery. Thus remote sensing can play an important role in quantifying rates and spatial extent of forest degradation/enhancements by mapping indicators of such activities that can be used to



guide a field measurement program to understand the impacts of forest degradation/enhancements on carbon stocks. The remote sensing signal of small changes in canopy cover of forests can be short lived, thus it is important to map these signals on an annual basis if possible.

Field verification of land cover and use maps based on remote sensing data is an essential component of mapping and is much improved by today's technology. Digital cameras allow field technicians to document land cover conditions on the ground and global positioning system (GPS) instruments ensure that each field measurement is located with high accuracy. Without conducting field surveys, accurate mapping of land cover and land use is not possible. Additionally, in the absence of good field data for field validation, very high resolution data can be used -for example, Google Earth imagery can be used contingent upon availability of such data for the time period of interest. In addition, new initiatives being implemented in Ghana, such as the development of a field-based forest carbon map (the Katoomba project funded by Moore), will also be used to compliment verification of remote sensing products as well as improve the stratification of forests into different classes of degradation.

The following are the proposed series of steps Ghana will take for wall-to-wall mapping of deforestation, forest degradation and forestation in Ghana from 2000 to 2009 to feed into estimating historic emissions/removals. It is expected that advice will be solicited from national and international experts on the various steps given below (to be identified as part of this activity). We anticipate that, at a minimum, the following products will be created by these steps:

- Maps of deforestation for 2000 to 2004 and 2004 to 2009. These maps will indicate areas of forest lost (canopy cover transition from at least 15% to less than 15%) during each census period.
- Maps of forestation for 2000 to 2004 and 2004 to 2009. These maps will indicate areas of new forest (forest regrowth) during each census period.
- Maps of forest degradation every two years (Landsat signal of forest logging can disappear within 3 years).

### **Step 3-2.1: Staff training**

Strengthening human resource and institutional capacities is required to ensure the proper utilization of existing GIS and remote sensing technologies for accurate and transparent quantification of deforestation, forest degradation and forestation. Technical support is needed within the Forestry Commission as described in Activity 1, and could come from consultation with remote sensing experts (e.g., those involved in the GOFC-GOLD REDDplus Sourcebook) and from training sessions held in-country—this step will be needed.

***Step 3-2.2: Acquire GIS and image processing software and hardware systems suitable for wall-to-wall mapping of deforestation, forest degradation and forestation with multi-temporal Landsat data***

This will be done with expert advice (see step 1) as needed to ensure that the hardware and software acquired meets the required standards for the tasks.

### ***Step 3-2.3: Develop standards for creating a national basemap***

Development of the basemap will include setting a standard map projection and datum, defining map scales, collecting national topographic databases (SRTM is a candidate source), compiling existing national scale databases (including ecoregion boundaries, land cover, soil types, hydrology, census data, transportation, forest reserve areas, logging concessions, etc.), and establishing map metadata standards.

### ***Step 3-2.4: Acquire satellite data***

Low cloud cover Landsat TM and ETM+ imagery is available for all of Ghana on an annual time series from the United States Geological Service (USGS) global metadata system. Accurate mapping of deforestation/forestation can be hampered in seasonal forests of Ghana, thus the data acquisition will target selection of images acquired during leaf-on conditions. Landsat ETM+ data acquired after May 31, 2003 contains data gaps due to the failure of the one of the instruments, but this is a minor problem when developing current deforestation/forestation data sets because a history for each pixel will be established from data acquired from 2000 when there were no data gaps. Nonetheless, data gaps will be filled by acquiring multiple images for each path/row combination in Ghana. It is possible to fill data gaps because each time the satellite passes over the same place, the gap is in a different geographic location.

The years for which satellite data will be acquired will be 2000, 2004 and 2009 at a minimum. These maps act as “benchmarks” and will facilitate the estimation of forest carbon stocks.

### ***Step 3-2.5: Mapping Land Cover Change with multi-temporal Landsat Imagery***

Prior to mapping, individual Landsat imagery requires pre-processing to enhance the utility of the data for accurate mapping of land cover change—this will be accomplished using existing algorithms and expert advice from the remote sensing community as needed. Following data pre-processing, Landsat image interpretation can be conducted following any of several methodologies, including digital visual interpretation or digital classification. With advances in the quality of the data, as well as in the computing power of desktop machines, automated digital classification with human interpretation and correction is the most accurate and efficient approach to land cover change mapping. Selection of classification methodologies and algorithms for mapping deforestation, forestation and forest degradation will be set based on a review of peer-reviewed methodologies and expert advice from the international remote sensing community working on regional deforestation mapping. All image processing methods and evaluation results will be permanently documented and recorded for verification and complete transparency.

### ***Step 3-2.6: Classification quality control***

Visual interpretation of Landsat imagery can be used to evaluate the success/effectiveness of the classification routines in Step 3-2.5. Based on results from the quality control step, the classification results can be adjusted manually in the GIS or by adjusting the parameters used to assign Landsat spectral information to the forest and non-forest classes.

### ***Step 3-2.7: Accuracy assessment of derived deforestation and land cover maps at imagery scale***

The accuracy assessment can be conducted by comparing maps of deforestation derived from remote sensing with field observations. This will be done in collaboration with new initiatives already being implemented in Ghana—e.g. the forest carbon mapping effort by the Katoomba project. Stratification criteria will be given according to change sequences derived from the land cover overlay. For historical imagery (pre-2009), the use of existing very high resolution (<3 meters) imagery will be investigated. For example, while it may not include complete wall-to-wall coverage, Google Earth has some recent (2000-2009) imagery available for Ghana. Each field site visited will be photographed and its GPS location recorded. Standard methods used by the remote sensing community will be used to assess the overall accuracies of the land use classification to provide a statistically valid representation of map accuracy.

### ***Step 3-2.8: Mosaic and stratification of classification products***

Individual Landsat products will be stitched together to create the final wall-to-wall map of deforestation, forestation and land cover following deforestation and forest degradation. In addition, these products will be stratified based on forest zones, namely high forest zone, transition zone and savanna zone, to facilitate integration with carbon products and to understand regional differences in rates and patterns of deforestation, forestation and forest degradation.

The three products will be:

- Maps of deforestation for 2000 to 2004 and 2004 to 2009.
- Maps of new areas of forest for 2000 to 2004 and 2004 to 2009.
- Maps of forest degradation every 2 years.

### ***Activity 3-3. Develop emission factors for deforestation, forest degradation, and enhancement of carbon stocks (forestation and in forests remaining as forests)***

The IPCC provides default data for all forest carbon pools throughout the world—the use of such data would be considered a Tier 1 method. Ghana will use at least a Tier 2 level of data for its estimate of historic emissions/removals. The steps below describe how we propose to collect Tier 2 level data for emissions factors to be combined with the activity data collected in Activity 2 to estimate the historic emissions.

### ***Step 3-3.1. Identify key carbon pools to include in the historic estimate of emissions/removals***

The IPCC recognizes five forest carbon pools: aboveground biomass, belowground biomass, soil, litter and dead wood. We propose to include aboveground and belowground carbon stock in trees as the main pools. Adding additional pools can increase the cost of field measurements and monitoring, so we will investigate which additional pools would be appropriate to include for Ghana. Of interest to Ghana is the potential to include the soil carbon pool for deforestation and forestation, particularly as deforestation often results in cultivated agricultural lands and forestation occurs on abandoned cultivated lands. The GOF-C-GOLD 2008 Sourcebook for REDD suggest that if the organic carbon content of the forest soil in Ghana is typical of many tropical forest soils (~70 t C/ha to 30 cm depth) then it could be advantageous to include emissions from soil as a result of deforestation and soil C sequestration after forestation in the reference scenarios.

We will use the principle of conservativeness when deciding which pools to include in the reference scenario and MRV. Conservativeness allows for pools to be omitted except for the dominant tree carbon pool and a precedent exists for Parties to select which pools to monitor within the Kyoto Protocol and Marrakesh Accords. This principle ensures that reports of decreases in emissions are not overstated as compared to the reference case. Clearly for this purpose both the reference scenario and subsequent estimations from monitoring must include exactly the same pools. For example, if CO<sub>2</sub> emitted from the soil is excluded as a source of emissions during deforestation, and as long as this exclusion is constant between the reference scenario and future monitoring and reporting, then no exaggeration of emissions reductions occurs.

### ***Step 3-3.2: Inventory all existing historical data on carbon stocks and compile into central database. Identify data gaps that need to be filled before changes in carbon stocks for a recent time period can be estimated.***

Data currently exist for Ghana, from which estimates of carbon stocks for specific areas at specific years can be identified using the biomass expansion factor (BEF) approach presented in the IPCC GPG:

- 1986-92: Survey - Established 600 permanent sample plots (PSPs) in High Forest Reserves; these covered all trees and all species  $\geq 10$ cm DBH. Some subplots were also established which covered trees down to 2cm DBH. Local volume equations were also developed. These data meet the criteria for using the BEF approach but they are now more than 20 years old and the whereabouts of the detailed plot data is unknown. Thus this data set has limited use for the historic reference emissions/removals.
- 1986-92: The first National Inventory in High Forest Reserves conducted a timber cruise within High Forest Areas. 2-3,000 sample areas were visited and DBH of commercially valuable timber species only was measured. This survey forms the basis of most of the management prescriptions within the Forestry Commission and

is the basis of the Forest Management Master Plan. As this inventory did not measure all species in the forest then this does not meet the criteria for use of the BEF method. Like the previous data set, it is also more than 20 years old now

- 1995-96: Inventory of off-forest High Forest Reserve - 400 transects of 200m x 1km identified at random across High forest and Transition zones. The whereabouts of this data set is not clear although it has some potential to be used for the historic reference emissions. An attempt to locate this data set will be made and it will be assessed for its suitability to be converted to C stock estimates using the BEF approach.
- 2002—2nd National Inventory of High Forest Reserves - Survey represents 715,000 ha of production forest. Conducted in one year and combined GIS and ground truthing. Its focus was on timber producing areas and focused on the 82 timber species. As it did not include all species, this data set is not suitable for estimating carbon stocks even though the timing is suitable.

It is clear from this assessment of existing data sets for forests of Ghana that there is practically no data that is suitable for converting to estimates of carbon stocks and major data gaps exist. Despite this lack of national data for carbon stock estimates, a national forest carbon inventory is not needed. Carbon stock estimates are needed for those areas undergoing change. However, given the long history of use of forests lands in Ghana it is likely that most of them are either losing carbon during ongoing degradation (e.g., from wood extraction) or gaining carbon from past disturbance, both of which may be difficult to detect in the current suite of satellites, particularly if these gains and losses are small. For deforestation and forestation, which are clearly seen in remote sensing products, estimates of carbon stocks are needed only for those pixels that change.

New data on forest carbon stocks for Ghana are likely to become available during the next couple of years as a result of the new Katoomba Group project (funded by Moore Foundation) that plans to develop a forest carbon map based on collection of new data.

The following steps briefly outline the proposed approach to cost-effectively collect emission factor data to high Tier 2 level.

### **Step 3-3.3. *Link field and remote sensing data***

Carbon stocks vary across a landscape based on various physical, biological and human factors. Associating a given area of deforestation, forestation, or forest degradation with a specific carbon stock results in more accurate and precise estimates of carbon emissions.

Sampling forest carbon stocks across the entire country of Ghana would be costly and time-consuming, and may not result in valuable information if the forests for which data are collected are under no threat of deforestation or degradation or undergoing small changes in stocks from previous disturbance. In reality, the only information related to carbon stocks that is needed to estimate historic emissions is the carbon stocks of the

lands that underwent change. In the case of soil, it is only the soil carbon stocks that are needed for those areas converted to/from annual cultivation.

How to identify forested areas today whose carbon stocks represent the carbon stock of forests that have changed since 2000? The 2008 GOF-C-GOLD Sourcebook provides an approach by which this can be accomplished. It basically proposes that, when combined with other spatial data layers, the spectral characteristics of forested pixels in the remote sensing imagery that were deforested or degraded over the historical reference period can provide information about the remaining forested pixels that share these same attributes. Carbon stocks in these remaining forested pixels can then be sampled as proxies for the carbon stocks in the pixels that were deforested, degraded or enhanced. This will spread out both the cost and the time investment of data collection. Over time (during the monitoring phase), as new carbon stock data are collected, a carbon stock “lookup table” will be created for Ghana that relates change data from remote sensing interpretation to a likely estimate of carbon stocks derived from field data.

We propose to use this “spectral characteristics” approach to stratify Ghana’s forest lands in the design of a sampling plan to provide field-based estimates of carbon stocks. The specifics of the stratification and field plan will be developed in detail in coordination with Activity 3-2. In addition, we will investigate the other spatial factors suggested in the GOF-C-GOLD Sourcebook that are known to make forest areas more susceptible to change, such as proximity to roads and rivers, logging infrastructure (roads, decks, etc.), elevation, and proximity to population centers, already cleared areas and protected areas.

The outcome of this step will be a detailed plan of how estimates of carbon stocks of forests that have undergone change will be measured and estimated, including where measurements need to be made.

### **Step 3-3.4. Staff training**

Strengthening human resource and institutional capacities is required to ensure the proper application of existing field methods for measuring carbon stocks (vegetation and soil) accurately and precisely. Technical support is needed within the Forestry Commission as identified above, and the strategy to obtain this support will be implemented, as identified in Activity 3-1.

### **Step 3-3.5. Carbon stock measurement**

The detailed plan from Step 3-3.3 will be implemented and the forest areas to be measured identified on a map. A sampling strategy will be elaborated to ensure that carbon stocks measured in each stratum attain an acceptable level of accuracy and precision, taking into consideration the cost—this level will be set based on standard methods used for forest inventories.

Several sources (e.g., IPCC GPG LULUCF, World Bank’s BioCarbon Sourcebook for LULUCF, GOF-C-GOLD Sourcebook, etc.) are available that provide standard methods for measuring and estimating the carbon stocks for the key carbon pools identified in Step 3-3.1. These

sources will be reviewed and a set of standard protocols for field measurements and for emission factor estimation suitable for Ghana's situation developed. Relevant FC staff in the forest inventory unit will be trained on these methods. Staff will then be deployed to the field to collect the data based on the sampling design. A data archiving framework and Quality Assurance/Quality Control (QA/QC) plan will be formulated so that field data on carbon stocks measured at various locations and for various attribute combinations will be transparently and accurately mapped and tracked.

Results from the field measurements will be used to calculate emission factors for various land cover changes (deforestation, degradation, forestation, enhancement of carbon stocks). Uncertainty around each emission factor will also be quantified.

***Activity 3-4. Combine activity data with emission factors to develop total historical emissions/removals***

The IPCC framework will be used for this step, applying the stock change approach.

***Activity 3-5. Assess uncertainty in historic emissions/removals***

Two approaches will be used to assess the uncertainty associated with the estimates of emissions/removals. The first approach will use the IPCC Simple Propagation of Errors method—this is based on combining uncertainties in the data sources (activity data, emission factors). Accuracy assessment of the remote sensing data will be combined with the sampling error (largest source of error) associated with field measurements of trees, and both sets of errors will be combined. Further training in more sophisticated error analysis (e.g. Monte Carlo approach, using software packages as detailed in the IPCC GPG LULUCF) will be part of capacity building.

Additional indicators of changes in forest carbon stocks will also be obtained, particularly in relation to degradation from charcoal production and timber production. The identification of which indicators to use will be investigated in collaboration with relevant government departments, and could include estimates of the amount of charcoal produced and its relation to the quantity of live woody biomass harvested, quantity of timber produced per ha in different areas of Ghana's HFZ, trends in changes in crop production that could be explained by increase in area of land under cultivation.

***Activity 3-6. Develop future trajectory under different economic and development scenarios.***

Developing future trajectories of emissions/removals for Ghana's forests will involve modeling exercises using input data from various sources. The historic emissions will be projected over different time periods and under different economic and development scenarios, taking into consideration such factors as GDP, population growth, agricultural expansion, forest industry growth, sectoral development plans, specific investment programs, and/or adjustment coefficients otherwise derived from such factors and data.



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Work on this activity will require coordination and inputs from other government departments, in particular the National Development Planning Commission (NDPC), whose members are Cabinet Ministers. In addition to the NDPC, experts/professors on the staff of the Institute of Statistical, Social and Economic Research at the University of Ghana will be engaged and consulted with for their assistance in developing the data bases and models to derive adjustment coefficients to modify the historical emission levels for developing future trajectories.

To develop future trajectories will include such activities as:

Organization by REDD SC of an initial workshop to include staff from the relevant government departments, experts from the University of Ghana, and international experts to discuss the current thinking and methodologies for modeling future emissions scenarios based on historic emissions

Convene a small focused national subgroup of experts from government, universities, and private sector in the REDD Steering Committee (SC) and provide support as needed for them to design potential methodologies for modeling future projections (expected to develop at least 2-3 different methodologies to test appropriateness for Ghana situation)

Obtain and collate the required data bases to implement the methodologies, test methodologies, share results with REDD SC, and decide on a plan forward.

Under this activity it will be important that Ghana keeps abreast of the international discussions and decisions on how reference scenarios for REDDplus are to be established. To model future reference emissions scenarios will require advice from national and intentional experts trained in financial and economic modeling, including impacts of development policies, global trends in demand and prices for Ghana's land based commodities, and other economic factors.

Activity	Timeline			
	2010	2011	2012	2013
1. Capacity Building				
1.1 Carbon stock assessment				
1.2 Coordination center				
2. Map Activity Data for Land Cover Change				
2.1 Staff training				
2.2 Acquire software and hardware				



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2.3 Develop standards for basemap				
2.4 Acquire satellite data				
2.5 Map land cover change				
2.6 Perform quality control				
2.7 Accuracy Assessment				
2.8 Mosaic National Products				
3. Develop Emission Factors				
3.1 Identify key carbon pools				
3.2 Inventory historical carbon data				
3.3 Link field and remote sensing data				
3.4 Training for measuring carbon				
3.5 Measure forest plots				
3.6 Calculate emission factors				
4. Combine Activity Data with Emission Factors				
5. Assess Uncertainty in REL				
6. Develop Future Trajectory <ul style="list-style-type: none"> <li>• Hold workshop of national and international experts by REDD SC</li> <li>• Develop methodologies for projecting future emissions</li> <li>• Collect data and implement methodologies and compare</li> </ul>				

<b>Table 3B: Summary of Reference Scenario Activities and Budget</b>					
<b>Activity</b>	<b>Estimated Cost</b>				
	<b>(in thousands)</b>				
	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>Total</b>
1. Capacity Building	130	70	30	20	250
1.1 Carbon stock assessment	70	30			100
1.2 Coordination center	20				20
1.3 Training	40	25	20	20	105
2. Map Activity Data for Land Cover Change	265	180	35	10	490
2.1 Staff training (training 3 staff at outside facilities)	150	150		\$	300
2.2 Acquire and maintain software and hardware	120	20		20	160
2.3 Develop standards for basemap	10	\$	\$	\$	10
2.4 Acquire satellite data	5	\$	\$	\$	5
2.5 Map land cover change	20	15	\$	\$	35
2.6 Perform quality control	\$	5	5	\$	10
2.7 Accuracy Assessment	10	30	20	\$	60
2.8 Mosaic National Products	\$	\$	10	\$	10
3. Develop Emission Factors	250	150	40	\$	440
3.1 Identify key carbon pools	5	\$	\$	\$	5
3.2 Inventory historical carbon data	5	\$	\$	\$	5
3.3 Link field and remote sensing data	40	\$	\$	\$	40

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3.4 Training for measuring carbon	100	\$	\$	\$	100
3.5 Measure forest plots	100	100	20	\$	220
3.6 Calculate emission factors	\$	10	10	\$	20
4. Combine Activity Data with Emission Factors	\$	5	5	5	15
5. Assess Uncertainty in REL	\$	\$	10	20	30
6. Develop Future Trajectory	30	\$	10	20	60
<b>Total</b>	<b>1370</b>	<b>790</b>	<b>215</b>	<b>115</b>	<b>2490</b>
Government	44.66	26.07	7.10	3.80	81.63
FCPF	1325.34	763.93	207.90	111.20	2408.37
UN-REDD Programme (if applicable)	\$	\$	\$	\$	
Other Development Partner 1 (name)	\$	\$	\$	\$	

### ***Component 4: Design a Monitoring System***

#### Background

A monitoring, reporting and verification (MRV) system will be designed for tracking deforestation, degradation, forestation and enhancement of carbon stocks. The exact details of the MRV system will not be finalized at this time, as both future international discussions and future technology will likely influence the decisions made. However, the IPCC framework will be followed for establishing an MRV system.

The design of the MRV system will build upon the framework already established for determining the historical emissions in Component 3, as the methods for estimating emissions and removals going forward during the monitoring period will need to be the same as those used for determining the historical emissions. This similarity between the methods used for estimating historic emissions and future monitoring of emission reductions is needed so as to be able to measure the performance of REDDplus interventions. Thus the capacity building and data synthesis steps outlined in Component 3 will carry over into Component 4. It is also planned that the increased capacity, tools, methods and staff used for estimating the historic emissions will also be used for developing the MRV system. Not only will the enhanced capacity in staffing and resources described above in component 3 be applied to estimating historic emissions, but they will also be needed to monitor the performance of REDDplus interventions for consistency.

In addition to the use of personnel trained for developing the reference historic emissions, selected members of Ghanaian forest communities and related private sector companies will be trained and engaged in future monitoring as appropriate. The identification of which communities and companies and where will be performed early on in the design process so that the identified people will be engaged from the outset.

To monitor REDDplus activities, an initial forest area map is needed that represents the point from which future changes in forest cover will be determined. This initial forest area map (referred to here as a benchmark map) should be linked to a benchmark year against which all future REDDplus activities will be monitored. The forest area benchmark map would show where forests exist and how they are stratified (for example, by threat for deforestation or degradation, carbon stocks, or for other national needs). The use of a benchmark map also makes monitoring a potentially more cost effective task as the interpretation of remote sensing imagery needs only to identify the areas (or pixels) that changed compared to the benchmark map. The benchmark map would then be updated at the start of each new analysis interval.

Design considerations for the MRV system will include:

- Use of satellite remote sensing data for the monitoring system, providing annual to biannual estimates of deforestation, forestation and forest degradation at the national and regional scales. Estimates of deforestation, forestation and forest degradation will include ground truthing to derive statistically valid accuracy estimates.
- Reporting component that will synthesize the outcome of the monitoring system and compare against the reference scenario to provide annual accounting of deforestation, forestation and degradation emissions/removals for REDDplus reporting
- A system that will permanently and clearly document all procedures utilized in the monitoring and reporting components of the system, allowing complete transparency so as to be open for verification and peer review
- An evaluation of tradeoffs for various options for monitoring, including tradeoffs between specificity (e.g., resolution of satellite data, time period, satellite data availability) relative to the approaches used for setting reference levels, current human and technical capacity, availability and resolution of data sources for carbon stocks/emission models and overall cost.
- Consideration of accuracy and uncertainties of both the deforestation, forestation and forest degradation products with the associated accuracy and uncertainties in carbon stocks and emission models with an understanding of the propagation of errors/uncertainties.
- Recommendations on expected standards and methodologies for mapping rates of deforestation, forest degradation, and forestation
- Recommendations on design and function of software toolkits for monitoring, reporting and verification of annual rates of deforestation and forest degradation
- A plan for documenting methodologies and procedures used for annual deforestation and forest degradation mapping and reporting
- A methodology and strategy for accuracy assessment of satellite imagery derived estimates of annual deforestation and forest degradation
- An assessment of opportunities for new satellite based methodologies for improved monitoring, reporting and verification of annual deforestation, forestation and forest degradation at the national to regional scales.

### **Objectives for Component 4**

The overall objective of Component 4 is to develop a monitoring, reporting and verification system that allows for transparent accounting of emissions and removals of CO<sub>2</sub> through time that can be compared against the projected reference scenario. The

outcome of this component will be a functional system capable of MRV of the performance of REDDplus interventions in Ghana.

### Activities

**Activity 4-1.** Establish a national working group or department within an existing national institution with staff dedicated to the design and implementation of the MRV system, and assess existing capacities in terms of staffing, hardware and software needed. It is expected that the members of the national MRV working group will be those who worked on the reference emissions scenarios and were trained in and have access to the resources on the use and application of 2006 IPCC Guidelines for National Greenhouse Gas Inventories for Agriculture, Forestry and Other Land Uses (AFOLU) and the 2003 IPCC Good Practice Guidance for Land Use, Land Use Change and Forestry (GPG-LULUCF).

Under this activity, selected members of Ghanaian forest communities and related private sector companies will be identified for further training in future monitoring, as appropriate, so that the identified people will be engaged from the outset. These two stakeholder groups will be represented on the MRV national working group.

**Activity 4-2.** The MRV working group will conduct a detailed assessment of monitoring systems that are currently in place in other countries (both developed and developing countries) for tracking emissions from land use (e.g., U.S., Australia, India, Brazil, etc.). In-person meetings between the Ghanaian MRV working group and counterparts in other countries will facilitate information exchange and capacity building. The assessment will investigate the appropriateness of each system to monitor Ghana's forests, including the data needs, activities to monitor, costs to monitor, and the like.

**Activity 4-3.** Based on the information gathered during Activity 4-2, the MRV working group will develop a monitoring framework for Ghana for all activities (deforestation, degradation, forestation and enhancement of carbon stocks). The carbon pools to be monitored will have been defined in Component 3 above. The monitoring framework will outline the sampling approach to be used (e.g., permanent vs. temporary plots, wall-to-wall vs. hotspot mapping, etc.), the likely timing of data collection for different monitoring components, estimated costs of monitoring, how various data will be archived, etc. Both remotely sensed data and ground-based approaches are expected to be used for measuring and monitoring changes in area and changes in carbon stocks. Part of the monitoring framework will also include an analysis of which areas of the country to focus the sampling on—that is the “population of interest” or the areas most under threat of deforestation and degradation.

**Activity 4-4.** A data archiving system will be established that allows for transparent documentation of existing data and metadata. Hardware and software will be maintained and upgraded through time to keep up with improved computer technology and processing power. The national base map established in Component 3 will be maintained and updated with the most up-to-date remote sensing (i.e., Landsat) imagery for each monitoring year. New remote sensing imagery will be processed according to the steps outlined in

Component 3. New biomass data collected through time will also be archived and added to a national carbon stock database. As the system is updated, the MRV working group will keep up to date on the most recent developments with respect to remote sensing technology for monitoring changes in land cover and biomass (e.g., incorporating multi-polarization SAR data with optical data to improve characterization of forest structure that will enhance the stratification process, utilization of very high resolution optical data for forest crown mapping and identification of forest degradation processes, use of remote sensing imagery in combination with ground measurements for estimation of biomass).

**Activity 4-5.** At least two members of the MRV working group will be trained as needed in information management and technology and dedicated to setting up and maintaining a web-based national registry that allows transparent viewing of data, information and analyses related to the MRV system. Once up and running, an international peer review team will be engaged to review the monitoring framework and data compiled to identify gaps.

**Activity 4-6.** A training workshop for appropriate staff and relevant stakeholders (e.g. forest community dwellers, private sector) in Ghana will be set up for learning techniques used in other countries and organizations for monitoring biodiversity. The MRV system will then be expanded to include biodiversity indicators.

**Activity 4-7.** The monitoring system that was developed in Activity 4-3 will be tested in several pilot regions (to be decided after REDDplus interventions are implemented) and will include the acquisition and analysis of remote sensing imagery and carbon stock data over time. The monitoring system will ultimately allow for national-scale, reportable at regional scales, annual to bi-annual reporting of GHG reductions achieved as compared to the reference scenario.

**Activity 4-8.** Results of each monitoring event will be documented and reviewed by national and international experts and will undergo a verification audit. What form the verification audit will take is unclear at this time, but MRV staff will follow international discussions of this issue and implement the verification process accordingly.

Activity	Timeline			
	2010	2011	2012	2013
1. Establish National Working Group				
2. Detailed Assessment of Existing Systems				
3. Develop Monitoring Framework				

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4. Establish Data Archiving System	■	■	□	□
5. Information Management Training	□	■	■	□
6. Training workshop for biodiversity indicators	□	■	■	□
7. Implement Monitoring System	□	□	■	■
8. System documentation and review, verification	□	□	■	■



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<b>Table 4B: Summary of Monitoring Activities and Budget</b>					
<b>Activity</b>	<b>Estimated Cost</b>				
	<b>(in thousands)</b>				
	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>Total</b>
1. Establish National Working Group	20	-	-	-	20
2. Detailed Assessment of Existing Systems	50	-	-	-	50
3. Develop Monitoring Framework	60	60	-	-	120
4. Establish Data Archiving System	20	10	-	-	30
5. Information Management Training	-	20	20	-	40
6. Training workshop for biodiversity indicators	-	40	40	-	80
7. Implement Monitoring System on pilot areas	-	-	100	50	150
8. System documentation and review	-	-	20	20	40
9. System verification audit	-	-	30	30	60
<b>Total</b>	<b>150</b>	<b>130</b>	<b>210</b>	<b>100</b>	<b>590</b>
Government	11.33	9.88	15.96	7.60	44.77
FCPF	138.67	120.12	194.04	92.40	545.23
UN-REDD Programme (if applicable)	\$	\$	\$	\$	
Other Development Partner 1 (name)	\$	\$	\$	\$	
Other Development Partner 2 (name)	\$	\$	\$	\$	
Other Development Partner 3 (name)	\$	\$	\$	\$	

**Component 5: Schedule and Budget**

Activity	Timeline			
	2010	2011	2012	2013
Approximate time frame for Steps of R-PP Implementation. (it is anticipated that this timeframe may change and that activities within different areas of REDDplus readiness preparations may progress at different speeds)	Step 1: Analysis, Preparation and Consultation	Step 2: Piloting and Testing	Step 3: Becoming Ready	
<b>1a: Summary of National REDDplus Management Arrangements Activities and Timeline</b>				
<b>1a.1 - Strengthening of the REDDplus Secretariat</b>				
<b>1a.2 - Strengthening of REDD Steering Committee</b>				
<b>1a.3 - Strengthening of Forest Forums</b>				
<b>1a.4 - Formal Establishment of the Natural Resource and Environment Advisory Council</b>				
<b>1b: Summary of Consultation and Participation Activities and Timeline</b>				
<b>1b.1- Establishment of a Consultation and Participation Working Group</b>				
<b>1b.2 - Broad information sharing on REDDplus through stakeholder based information sharing and consultation.</b>				
<b>1b-3: Expert and Focused Consultation through Working Groups and National Expert Consultations.</b>				
<b>1b-4: Stakeholder based consultation</b>				

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on key pilot projects and legal / institutional changes				
<b>1b.5 Validation</b>				
<b>2.a Assessment of Land Use Forest Policy and Governance</b>				
<b>2a.1 Further Research</b>				
<b>2a: REDD Strategy Options</b>				
<b>2b. Strategy Development</b>				
<b>2b.-1 Research studies to support National Expert Consultations</b>				
<b>2b.2 Demonstration Activities</b>				
<b>2c: Summary of Arrangements for REDDplus Implementation Activities and Timeline</b>				
<b>2c-1 - Develop an Information Clearinghouse</b>				
<b>2c-2 - Develop Financial Management Arrangements</b> - Establish information flow procedures - Review best practice of benefit sharing				
<b>2c-3 - Establish of a selection committee and management group for demonstration activities</b>				
<b>2c.4 Institutional Mapping and capacity Building</b>				
<b>2c.5 Establish a system for Carbon Accounting and Carbon Emissions Reductions Management</b>				
<b>2c.6 Develop Conflict Resolution Systems</b>				
<b>2d: Summary of Social Environmental Impacts Activities and Timeline</b>				

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2c-1.- Initial (largely desk-based) diagnostic analysis;				
2c-2.- Consultative or field-based stakeholder analysis and discussions - <i>linked 1b2</i>				
2c-3.- Analysis of the World Bank Social and Environmental Standards;				
2c-4 - National SESA Workshop;				
2c-5 - On-going SESA monitoring.				
<b>3A: Summary of Reference Scenario Activities and Timeline</b>				
<b>3a.1 - Capacity Building</b>				
3a.1.1 - Carbon stock assessment				
3a1.2 - Coordination center				
<b>3a.2. Map Activity Data for Land Cover Change</b>				
3a.2.1 - Staff training				
3a.2.2 - Acquire software and hardware				
3a.2.3 - Develop standards for basemap				
3a.2.4 - Acquire satellite data				
3a.2.5 - Map land cover change				
3a.2.6 - Perform quality control				
3a.2.7 - Accuracy Assessment				
3a.2.8 - Mosaic National Products				
<b>3a.3.- Develop Emission Factors</b>				
3a.3.1 - Identify key carbon pools				
3a.3.2 - Inventory historical carbon data				

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3a.3.3 - Link field and remote sensing data				
3a.3.4 - Training for measuring carbon				
3a.3.5 - Measure forest plots				
3a.3.6 - Calculate emission factors				
3a.4 - Combine Activity Data with Emission Factors				
3a.5 - Assess Uncertainty in REL				
3a.6 - Develop Future Trajectory				
4A: Summary of Monitoring Activities and Timeline				
4a.1 - Establish National Working Group				
4a.2. - Detailed Assessment of Existing Systems				
4a.3 - Develop Monitoring Framework				
4a.4 - Establish Data Archiving System				
4a.5 - Information Management Training				
4a.6 - Training workshop for biodiversity indicators				
4a.7 - Implement Monitoring System				
4a. 8 - System documentation and review, verification				

### ***Component 6: Design a Program Monitoring and Evaluation***

As set out in the R-PP guidance notes: “the purpose of the Program Monitoring and Evaluation (M&E) framework is to encourage efficient and transparent management of Bank and country resources and to help a country keep track of its progress towards readiness and identify and address gaps, shortfalls, and program underperformance as they emerge. The Program M&E framework helps to monitor, for example, the schedule of activities to be undertaken, the outputs and the final outcome using simple indicators and serves to provide real time feedback to the government and other stakeholders of how well the preparatory work towards REDDplus readiness is progressing”.

In the case of Ghana the M&E framework needs to recognize three specific features:

- First, there is already a very high level of donor coordination within the natural resources sector in Ghana. There is a multi-donor sector budget program (NREG), an effective government-donor-civil society sector group mechanism, and a group of like-minded donors who put high priority on implementation of both the Paris Declaration on Aid Harmonisation, and the Accra Agenda for Action ([www.accrahlf.net](http://www.accrahlf.net)).
- Second, some key policy measures (e.g. FLEGT/VPA) are highly complementary to the REDDplus proposals.
- Third, the high number of initiatives in forest and NR sector policies put a severe capacity constraint on all the key actors in the forest sector - government, civil society and development partners alike.

For these reasons there is an extremely strong case for integrating the World Bank’s requirements for REDDplus monitoring and evaluation framework into existing donor frameworks and review processes, in particular those used for the NREG and ENR sector review processes.— A joint REDDplus monitoring framework will:

- avoid duplication, overlap of effort
- ensure opportunity for coordination with other activities
- be consistent with the commitments made by the donor community and national governments in the Accra Agenda for Action on aid harmonization.

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A potential framework for an integrated program monitoring and evaluation framework is set out below. (It is recognized, however, that there may be a separate program requirement for evaluation of REDDplus by FCPF).

### Indicative Timetable/ Review Cycle for REDDplus

Monthly: REDDplus as an agenda item: GoG-DP ENR Sector Group Meetings

Quarterly: REDDplus as an agenda item GoG-DP ENR Sector Group Meetings (plus Civil Society)

Jan-March	Revision of NREG Development Policy Operation (DPO) Program Document
March	GoG-DP Reviews of Sector and General (MDBS) Support
June/July	
June/July/August	Annual ENR Sector Review
October-November	GoG Budgeting
December	NREG Annual Review Process

Targets and indicators for REDD+ for inclusion within the NREG framework will need to be agreed during the revision process. Potential targets are however suggested below within table :

Policy Objective Stated within existing NREG PAF	Suggested Target 2010	Suggested MOV	Suggested Target 2011	Suggested Target 2012
F1. Institutional Strengthening	EAC established and meeting regularly	Meeting minutes	Development of effective REDD+ management structures	
F2. Secure Natural Ecosystems for the Benefit of all Segments of Society	Development of 2 Regional level pilot projects	Pilot projects operational	Expansion of pilot projects to 2 new regions	Scaling up of approach to National level
F3. Sustainable Finance and	Establish of REDD financing	Distribution of REDD finance	Establishment of Carbon Accounting	Harmonising of accounting

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Promote Investment in Forest Sector	mechanisms within pilot projects	within Regional pilots	system	systems to national level
F4. Strengthen Monitoring and Evaluation / Information Communication Technology	Develop carbon baseline	Carbon baseline map	Capacity to measure landcover use and change and corresponding carbon change	Finalised Reference Emissions Level
F5. Promote Equitable Resource Access Rights	Completion of review of Allocation of terrestrial Carbon rights	Review completed and agreed by NREAC		

Table 6.1: Potential Targets for Inclusion within NREG PAF Sector Matrices during upcoming review

The above targets could either be included under the existing Programme/Policy Objectives as shown or held under a new REDD+ policy objective. Inclusion of such elements within the Forestry Matrix would increase ownership of the process at Ministerial level/ Inclusion of elements within both Forestry and Environment matrices may also support cross sector coordination. This could be done at lower levels than the main matrices and included under existing headings such as:

Policy Objective Stated within existing NREG PAF	2010	MoV	2012	
F5. Promote Equitable resource access rights and benefits for all segments of society	Develop framework for promoting community involvement in resource access rights and benefits			
E1. Cross-sector natural resource and environment	Inter-ministerial forum meetings held			



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management and partnerships in environmental management	on SDAP, climate change and environmental management of the oil industry			
E5. Climate Change	Mitigation climate change strategy approved by Cabinet			

Proposed Outcomes should also be included within the Expected Outcomes and Indicators aspect of the PAF to support effective monitoring and evaluation of progress. Examples for Forestry include:

Program / Policy Objective	Baseline	Outcomes	
		2010	2012
1. Strengthen institutions and Governance		REDD+ Strategy by Endorsed by Parliament	REDD+ pilots scaled up to national level
2. Secure Natural Ecosystems for the benefit of all segments of society		Reduced rates of off reserve deforestation within pilot sites	Reduction in off reserve rates of deforestation
3. Sustainable Finance and promote Investment in Forest Sector		Mechanism for Carbon financing within NREG outlined	Carbon finance included within
4. Strengthen Monitoring and Evaluation System		Accurate figures for off reserve deforestation developed	Effective monitoring and reporting of changes in Forest Carbon
5. Promote equitable resource access rights and benefits for all		Benefit sharing mechanisms fully reviewed and revised	Ownership of terrestrial carbon rights clarified

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segments of society			
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Table 6.2: Potential NREG Outcomes for inclusion within Forestry Matrix during next review period.

Activities:

Activity 1:

Assess the potential for utilizing a framework similar to NREG so REDDplus can be nested within NREG, for the purposes of monitoring and evaluation.

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<b>Table 6: Summary of Programme M &amp; E Activities and Budget</b>					
<b>Activity</b>	<b>Estimated Cost</b>				
	<b>(in thousands)</b>				
	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>Total</b>
1. Develop M & E framework: consultancy to align REDD+ M & E with sectoral and national systems	30				30
2. Monitoring activities - implementation	60	70	80	90	300
3. End of Phase Evaluation costs				100	100
<b>Total</b>	<b>90</b>	<b>70</b>	<b>80</b>	<b>190</b>	<b>430</b>
Government	\$	\$	\$	\$	\$
FCPF	90	70	80	190	430
UN-REDD Programme (if applicable)	\$	\$	\$	\$	
Other Development Partner 1 (name)	\$	\$	\$	\$	
Other Development Partner 2 (name)	\$	\$	\$	\$	
Other Development Partner 3 (name)	\$	\$	\$	\$	