



**Climate-Smart Agriculture in Liberia:
Current Status and Support Needs to better integrate CSA
into the LASIP**

June 2015

Executive Summary

On the basis of the agro-ecological zones of Liberia, the territories identified for climate change adaptation are i) Coastal plain or swamp, ii) Upper Highland Tropical Forest (Agric. Belt), iii) Lower Tropical Forest and iv) Savannah. Each of these zones is unique in terms of its rainfall pattern, altitude, topography, temperature and human interference.

The Coastal plains are characterized by flooding. The vegetation is marked by its mangroves, scattered patches of bushes and savannah woodland with an annual record of very high rainfall between 4,450 - 4,550mm. The forest ecosystems (Upper Highland Tropical Forest (Agric. Belt) and the Lower Tropical Forest) are mainly closed forest and transition or secondary forest. The closed forest can further be sub-divided into evergreen and semi-deciduous forest. In the evergreen forest the trees are about 30 m tall with a closed canopy growing in areas where rainfall is abundant (at least 3,000 mm per year). These characteristics are similar to the semi-deciduous forest, but with a greater proportion of deciduous forest trees. Due to prolonged shifting cultivation and firewood harvest, most of the closed forest has been converted into secondary vegetation. The North of Liberia's border with Guinea is the savannah belt that is characterized by tall grasses with scattered trees and forests.

Climate change impacts are marked by irregular patterns of rainfall, high temperature, drought and flooding. These factors result in crop and livestock losses that intensify food insecurity and income losses; with women particularly vulnerable due to limited income and livelihood alternatives. The limited supporting infrastructures such as roads and extension services increase the vulnerability of the farmers. Local farmers manage to adapt by leaning on informal farmer support networks to supply labour for land preparation and other agriculture activities. In areas such as Bong and Nimba, located in the Upper Highland tropical Forest zone, high level of cash crop production enables farmers to adapt to losses sustained from poor harvest of food crops. Additionally; hunting, fishing and petty trade tends to provide some cushion against climate change losses on farmlands. Farmers are also able to adapt by intercropping rice with cassava and vegetables. Farmers are somehow aware of climate change but they generally lack access to climate forecast information and early warning systems to enable them plan better. The poor condition of rural roads and weak transportation also poses serious challenges to climate change adaptation. In the case of women, they lack access to finance and agricultural inputs. This situation amidst their ever increasing domestic responsibilities puts women in a difficult situation to adapt compared to their male counterparts who have access to finance and off-farm income.

Three priority projects were identified for climate change adaptation in Liberia under the National Action Plan for Adaptation (NAPA): The agriculture adaptation project, the national early warning systems project, and the project for the building of coastal defence. Activities for the implementation of all of these projects have already started.

The Liberia Agriculture Sector Strategic Investment Plan (LASIP, i.e. the Liberian NAIP), which defines Liberia's strategic choices for the growth and development of agriculture in an environmentally friendly and sustainable manner over a period of 10 years has also been developed under 5 pillars that include food and nutrition security and institutional development. The major challenge faced by the LASIP is in the area of private sector investment. The financing of LASIP is a major step (and necessity) for achieving sustainable agriculture development in Liberia, which will enhance the country's capacity to implement climate smart agricultural systems. Liberia is yet to integrate CSA into the LASIP.

The Integrated Water Resource Management Policy (IWRMP) developed in 2007 seeks to ensure the supply of adequate quantity and quality of water for domestic water use, food production and

other uses. Notwithstanding, the sector has been straddled with enormous challenges including scattered mandates across various agencies, low funding, and inadequate leadership; governance and coordination. This led the Government to implementing a Governance, Advocacy & Leadership project for the Water and Sanitation sector (GoAL WaSH) in 2012, with the aim of establishing a leadership and coordination mechanism for IWRM. In 2014 an IWRM Action Plan was developed by the stakeholders, which is yet to be validated. The plan will amongst other things seeks to review and harmonize existing legislations and institutions, water management strategies and address the impacts of land use and climate change on water management. This plan will be important for the development of irrigation and agriculture water management systems that are necessary for agriculture adaptation. Currently, Liberia does not have an irrigation policy. Moreover, there is low support and funding for irrigation and water management systems that are needed for CSA programs.

All of the national instruments (NAPA, LASIP and IWRMP) were characterized with broad-based stakeholders' participation during formulation, but interagency coordination and coherence in implementation has been fragile. The agency of government mandated with coordinating activities between the programs has not been successful in ensuring effective coordination and coherence largely due to budgetary constraints and the dominant sector-based implementation approach. The absence of a specific CSA policy and strategy has also been prohibitive.

Liberia's support needs to mainstream CSA into the LASIP to include investment for research and development in the areas of climate resilient crop varieties, practices and innovations that are suitable to the local environment and the impacts of climate change on farming of particular crops and options for climate change adaptation in the agriculture sector including farming, transportation, processing, fishing, livestock etc.; development of the infrastructure and human resource capacity of the Central Agriculture Research Institute (CARI, the Liberian agriculture research centre); training for staff of the Ministry of Agriculture; support for the reestablishment of the *Agricultural Cooperative Development Bank of Liberia* to give farmers access to timely and low cost credit, especially to small and marginal farmers; support for irrigation development and agricultural water management; and support for women and youth access to cash crops (currently essentially dedicated to male farmers).

In order to enhance inter-institutional dialogue and inter-sectorial coherence in CSA, Liberia needs support to develop a CSA policy which provides for strengthening the technical capacities within the relevant government agencies to identify climate related challenges in the agriculture sector and to improve the planning, management and evaluation of programs and development projects that affect agriculture. Additionally, there is a need to strengthen coordinated inter-sectorial mechanisms at the Ministry of Agriculture and to fund CSA coordination activities and programs that can facilitate training, planning and evaluation workshops, regular meetings, communication, creating better monitoring and surveillance systems and mechanisms related to climate smart agriculture.

1. The territories of agricultural climate change adaptation in Liberia

1.1 Presentation of the territories

The territories relevant to consider for agricultural climate change adaptation in Liberia are based on the agro-ecological zones (AEZ) of the country. Four AEZ can be identified: 1) coastal plain or swamp, 2) Upper Highland Tropical Forest (Agric. Belt), 3) Lower Tropical Forest and 4) savannah. Each AEZ is unique in terms of rainfall pattern, altitude, topography, temperature and human interference.

Coastal plains: Located south of Liberia along the coast; vegetation is mainly comprised of mangroves, scattered patches of bushes and savannah woodland; with Very high levels of rainfall (4,450- 4,550mm). The vegetation and composition of plant communities in this zone are influenced by hydrological conditions (frequency and duration of flooding, depth of the water level, soil type, and physiography). The savannah plant communities in this zone are potential pasture resources, especially those found in Grand Bassa, Maryland, and Sinoe counties.

Upper Highland Tropical Forest (Agric. Belt) and the Lower Tropical Forest: Divided into closed forest and transition or secondary forest. The closed forest can further be sub-divided into evergreen and semi-deciduous forest. The evergreen forest is marked by trees about 30 m tall with a closed canopy growing in areas with abundant rainfall of at least 3,000 mm per year. The semi-deciduous forest has similar characteristics to the rain forest, but with a greater proportion of deciduous forest trees. Most of the closed forest has been converted into secondary forest and farm bush due to clearing for 'slash-and-burn' and for firewood. Generally, farming is done in the cleared site for 2-3 years followed by a fallow period of less than 10 years.

Northern savannah: Located north of Liberia at the tips of Lofa and Nimba counties towards Guinea; the vegetation is generally consisting of tall grasses (derived savannah and the Guinea savannah) with scattered trees and forests. These are very significant for ruminant production.



1.2 Analysis of the vulnerability of the territories to climate change

Territories	Degree of exposure to CC	Degree of sensitivity to CC	Adaptive capacity	Resulting vulnerability
<i>Coastal Plains</i>	High: <ul style="list-style-type: none"> • heavy rainfall (4,450-4,550mm) and flooding • Sea erosion • Heavy storms 	High: <ul style="list-style-type: none"> • Transportation difficulties and rising food prices during the rainy season 	Low: <ul style="list-style-type: none"> • No protection against sea erosion and flooding; lack of information and limited infrastructure 	High: <ul style="list-style-type: none"> • Poverty, diseases and loss of assets due to flooding and poor infrastructure, with women and children affected mostly
<i>Upper Highland tropical Forest</i>	High: <ul style="list-style-type: none"> • Rainfall and temperature variation 	High: <ul style="list-style-type: none"> • Transportation difficulties and rising food prices during the rainy season 	Medium: <ul style="list-style-type: none"> • Low regarding limited infrastructure • High regarding the diverse economic activities and high agriculture production 	Medium: <ul style="list-style-type: none"> • Decline in food and cash crop production • Post-harvest losses, affecting women mostly • Increased deforestation
<i>Lower Tropical Forest</i>	High: <ul style="list-style-type: none"> • Climate variation (especially rainfall and temperature) 	High: <ul style="list-style-type: none"> • Transportation difficulties and rising food prices during the rainy season 	Low: <ul style="list-style-type: none"> • Limited infrastructure 	High: <ul style="list-style-type: none"> • Limited alternatives for income and livelihoods • Limited access to credit particularly for women • Increased deforestation
<i>Northern Savannah</i>	High: <ul style="list-style-type: none"> • High temperature variation • High due to low rainfall and high temperature 	High: <ul style="list-style-type: none"> • Flooding and erratic nature of rainfall significantly affects swamp and upland areas and rice production 	Low: <ul style="list-style-type: none"> • Lack capacity to respond to risks such as flooding or erratic rainfall 	High : <ul style="list-style-type: none"> • Increase vulnerability to hunger and diseases due to poor infrastructure

1.3 Current status / diagnosis of climate change adaptation in these territories

Territories	Progress observed Projects and program	Difficulties encountered	Needs for support at the local level
<i>Coastal Plains</i>	<ul style="list-style-type: none"> Increased awareness on wetland and mangrove conservation Support for cassava production and fishing projects with emphasis on women Coastal defense project in Buchanan 	<ul style="list-style-type: none"> Limited funding for the coastal defence project Low agriculture production and loss of crops and assets during flooding 	<ul style="list-style-type: none"> Increased support for cassava and fishing projects in the areas of processing and storage facilities, with emphasis on vulnerable communities and women Additional funding for the extension of coastal defence projects in vulnerable areas Increased support for agriculture extension services to enhance production of cassava and other crops
<i>Upper Highland tropical Forest</i>	<ul style="list-style-type: none"> Climate change agriculture adaptation project in Bong county Intensification of lowland farming Farm support services including rehabilitation of farm to market roads under the USAID Food Enterprise in Development (FED) project 	<ul style="list-style-type: none"> Lack of climate forecast data and early warning system 	<ul style="list-style-type: none"> Support for the development of more climate tolerant and resistant rice and cassava varieties Micro-finance credit opportunities for local farmers including vulnerable women Support and training for the development of simple surface irrigation systems to support local farmers Support for women to venture in tree crop production (rubber, cocoa, and coffee)
<i>Lower Tropical Forest</i>	<ul style="list-style-type: none"> Climate change adaptation pilot project in one district of Grand Gedeh County 	<ul style="list-style-type: none"> Poor infrastructure including farm to market roads Limited extension services 	<ul style="list-style-type: none"> Increased support for agriculture extension services Construction and rehabilitation of farm to market roads Micro-finance credit opportunities
<i>Northern Savanna</i>	<ul style="list-style-type: none"> No program 	<ul style="list-style-type: none"> Inadequacy policy and training Lack of infrastructure 	<ul style="list-style-type: none"> Livestock policy Support for livestock farming: productive animal breeds and basic techniques Integration of livestock into tree plantations Micro-finance credit opportunities

2. CSA in the context of national sectorial programmes (NAIP, NAPA and upcoming NPA, IWRM-AP)

2.1 Current status / diagnosis of the adaptation component of national sectorial programmes

The National Adaptation Programme of Action (NAPA)

With technical support and funding from the GEF and UNDP, Liberia completed its NAPA in 2008. The preparation of NAPA was guided by existing national development plans such as the National Reconstruction and Development Plan (NRDP), National Biodiversity and Strategy Action Plan (NBSAP) and the Millennium Development Goals (MDGs) 2004. The preparation of NAPA benefitted from broad level stakeholders participation.

NAPA studies revealed that Liberia was faced with climate variability and extreme events with negative impact on agriculture and socio-economic development. NAPA identified several projects and urgent adaptation needs using multi-criteria analysis, which were validated at a stakeholder's forum. Three projects emerged as priority needs of Liberia. These projects, given by priority rank within the NAPA, are described hereinafter:

- (i) *Agriculture adaptation*: enhancing resilience to increasing rainfall variability through the diversification of crop cultivation and small ruminants rearing;
- (ii) *A National Meteorological Monitoring System*: enhance adaptive capacity through the rebuilding of the national hydro-meteorological monitoring system and improved networking for the measurement of climate parameters;
- (iii) *Coastal Defence*: reducing the vulnerability of coastal urban areas (Monrovia, Buchanan, and Robertsports) to erosion, floods, siltation, and degraded landscapes.

(i) Agriculture adaptation:

In 2006, while the NAPA was being finalized, the Government of Liberia requested funding from the LDCF for the 1st priority ranked project of the NAPA to enhance resilience to increasing rainfall variability through the diversification of crop cultivation and small ruminants rearing in order to enhance the resilience of the population to climate change impacts on agriculture and food production. This request paved the way for funding from the GEF, UNDP, and Government of Liberia for the Climate Change Adaptation Agriculture Project (CCAAP) scheduled from September 2011-2015. The CCAAP provides the means through which the agriculture adaptation project can be implemented in Liberia.

The project was designed to achieve the following expected outcomes:

- a) integrating concerns into relevant policies and planning processes at the state and national levels;
- b) comprehensive capacity development for individuals in national agencies focusing on agriculture in pilot counties, and farmers;
- c) demonstration of risk reduction strategies and measures at pilot sites;
- d) strengthening technical capacity to integrate climate change risk management into farmer level agricultural capacity; and
- e) capturing and disseminating lessons learned to key stakeholders.

The benefits of the CCAAP include the building of local capacities in farming communities that are largely vulnerable to climate change impacts and lack the capacity to adapt. Currently, the project has enabled farmers, including women in the climate change adaptation pilot areas in Bong and Grand Gedeh counties to understand the changing patterns, variability and extreme events of the Liberian climate. These farmers now understand that they can no longer rely on the traditional farming calendar for clearing, planting and harvesting. They have now adapted by identifying the calendar periods when the rainy and dry seasons are due (planting in August when the rain begins to fall as opposed to May in the past), based on access to information from the project. In addition farmers in the pilot projects have access to climate resilient crops and other form of adaptation methods including shifting from upland to lowland farming.

Stakeholder institutions including the technical government institutions (MOA/Environmental Protection Agency, etc.), academic institutions and community groups have also developed organizational capacity and understanding of the impacts of climate change.

It is anticipated that when completed, the project will promote mainstreaming of climate risk reduction into agricultural planning frameworks, policies and programmes in Liberia. Based on the success story of the pilot territories, the project will be replicated in 2015 and up scaled in several agriculture-based communities across the country to enable them to adapt to climate change and its adverse impacts. The project will establish an evidence base, which is essential to achieving successful climate smart agricultural systems and this project will build not only the evidence base needed, but also the on-going capacity to expand it in direct response to policy needs.

The project is challenged by limited number of resource persons with the technical skills and knowledge to provide extension services and support to farmers. There is also limited logistical and material support for the project staff due to limit in funding. The most significant challenge for the program is the lack of climate forecast data on rainfall, temperature, sunshine, humidity, etc., to inform decision making, planning and training in the implementation of the pilot projects.

(ii) National Meteorological Monitoring System:

The National Meteorological Monitoring System (Early Warning System) project of Liberia identified under the NAPA was funded by the GEF, under the Least Developed Countries Fund. The project was launched on January 22, 2014 with installation of measurement instruments expected to be completed by 2017. The project is very important to the sustainability of socio-economic development of Liberia across all sectors.

The system will enable Liberia to provide weather and climate change information and services for the health, agriculture, transport, energy and water resources sectors. The project is designed to produce appropriate information which can be communicated to all sectors to enable informed decision-making. This system will provide farmers with the right climate information (rainfall, temperature, sunshine etc.) that can assist them in planning agriculture activities and measures intended to adapt to climate variability and extreme events like flooding or drought across all the country. The challenge that can be faced by the project is the prospect of decentralizing and disseminating the flow of information to remote and rural parts of the country where climate data is very much needed by rural farmers who, in many cases have limited access to formal communication channels (radio and cell phones).

(iii) Coastal Defence:

The project was designed with the objective to strengthen national capacities in reducing the incidence of floods, erosion, siltation and degraded landscape in the cities of Monrovia and Buchanan. Though ranked 3rd under the NAPA, the project was given priority due to the increasing threat of sea erosion to the shorelines of coastal cities. With funding from the GEF, under the Least Developed Countries Fund, the coastal defence project for “Enhancing Resilience of vulnerable coastal areas to climate change risks in Liberia” was launched for the Construction of a Break Water System in Buchanan (Walvis Bay, Robert Street and Port of Buchanan). The first phase of the project commenced in 2013 for the construction of coastal defence structures along 1,600 meters of the shores of the Atlantic Ocean to protect Buchanan City against sea erosion. This project was due for completion in 2014, but it is not yet, and should be completed in June 2015. So far close to 85% of the works have been completed. The coastal defence project is very important for the coastal plains agro-ecological zone and the nation at large considering that Liberia has a coastline of 590 km, with most of the country’s population (approximately 58 %) densely residing in coastal communities; plus the concentration of significant socio-economic activities and infrastructures in these areas (Monrovia, Buchanan, Greenville, Harper, and Robertsport). The total cost of the entire project for Grand Cape Mount, Montserrado and Grand Bassa Counties was initially put at US\$18 million with US\$3.3 million allocated for the Buchanan phase. Based on a situational analysis and logistical constraints the project team readjusted the engineering design, thereby moving from a groyne system initially proposed to a breakwater revetment system, which is being implemented in Buchanan. In consideration of the lessons learned from the implementation of the pilot project in Buchanan and changes in design, a technical review is being recommended by the coastal engineers in order to determine the actual cost of the project. Meanwhile, there is an outstanding deficit of US\$60,000.00 from government funding for the completion of the pilot phase in Buchanan.

The Liberian Agricultural Sector Investment Plan (LASIP, e.g. Liberia NAIP)

As part of its commitment to the vision and principles of the Comprehensive African Agriculture Programme (CAADP), managed by the NEPAD Planning and Coordination Agency (NPCA); Liberia developed the LASIP for the period of September 20, 2010 to 2020. The plan was developed as a result of broad level technical meetings, followed by several validation workshops. LASIP programs and sub-programs priorities are based on Pillar 2 of the Poverty Reduction Strategy of Liberia, as well as other development policies and plans including the National Medium-Term Investment Program, Food & Agriculture Policy Strategy and the CAADP.

This plan is an expression of Liberia’s strategic choices for the growth and development of agriculture in an environmentally friendly and sustainable manner over a period of ten years.

Liberia launched the LASIP/NAIP program in 2010 to transform the agriculture sector of Liberia over a period of 10 years (2010 to 2020) in order to increase the contribution of the agriculture sector to social-economic growth, food and nutrition security, and poverty reduction. The programs focuses on initiatives from the private sector and commercialization as the foundation for enhancing food production and improving market conditions for poor farmers. The GOL identified 4 major program of emphasis for 2010-2015 as Liberia’s priorities under the CAADP framework as follows:

1. Land and Water Resources Development (land policy reform, improved wet and degraded land management etc.)
2. Food and Nutrition Security (enhancing food crops production, development of smallholder tree crops and agroforestry, sustainable fisheries development, livestock development etc.)
3. Competitive Value Chains and Market Linkages (roads, agriculture infrastructure, rural financing, market enterprise development)
4. Institutional Development (rebuilding MOA; agriculture research, education and training; strengthening farm-based organizations)

LASIP was established as a public-private partnership (PPP) initiative for the private sector to oversee activities along agricultural value chains, from production to domestic and export marketing, with the public sector focusing more on support for small farmer sector, creating the enabling policy and regulatory environment and supporting extension, research, and coordination services. There have however been serious challenges with the limited private sector investment into the program as mentioned earlier. Without private sector investment it might be difficult if not impossible to achieve the program targets."

Climate change adaptation (or mitigation) is yet to be mainstreamed into the LASIP. Under the LASIP the MOA has concentrated its actions and efforts on smallholders with a focus on food crops (rice, cassava, and vegetables), value chains, and raising income.

The LASIP is an important tool for poverty alleviation in Liberia, in a country where more than 70% of the population rely on agriculture for livelihood. The program provides a framework for food security, public and private sector investment for the agriculture sector, promoting the use of technology and innovation by local farmers amongst other things.

The major challenge faced by LASIP is the limited private sector involvement into the program, which poses challenge in achieving the goals of CAADP. Against this background the Government of Liberia through the National Investment Commission and the Ministry of Agriculture and the coordination of the UNDP and other stakeholders hosted a Public-Private Dialogue and Investment Facilitation Platform in September 2013. The intent of the platform was to promote private sector investment and support public-private partnership in relation to the implementation of LASIP. The financing of LASIP is a major step (and necessity) for achieving sustainable agriculture development in Liberia, which will enhance the country's capacity to implement climate smart agricultural systems.

The formulation of the LASIP was in part intended to advance the objectives of the National Adaptation Program of Action (NAPA), with respect to reducing the adverse effects of climate change, raising awareness, and mainstreaming adaptation to climate change into policies and programs. There exist some level of coordination between the LASIP and the NAPA with respect to participation in workshop events and meetings, but this coordination is still not substantial in terms of joint planning, providing feedbacks and building synergy between the programs interventions.

The Integrated Water Resource Management Policy (IWRMP)

With support from United Nation Environmental Programme, United Nations Children Fund Liberia and UNDP Liberia, the Ministry of Lands, Mines & Energy in coordination with other government institutions (including the MOA, EPA, Ministry of Health and the Liberia Water &

Sewer Corporation) developed the National Integrated Water Resources Management Policy. The policy was developed as a guide to development efforts across the different sectors (agriculture, health, industry, sanitation etc.). The goal of the policy is to ensure that there is adequate quantity and quality of water for domestic water use, food production and other uses; with the objective of realizing maximum value from water resources in a sustainable manner for the livelihood of present and future generations. The policy addresses current water management issues and adopts the objectives and strategies set forth in the Millennium Development Goals as well as Government's overall goals for social and economic development including the Poverty Reduction Strategy.

Despite the formulation of the policy in 2007 the responsibilities and roles for water resource management have remained fragmented and scattered in different agencies (Ministry of health, Ministry of Public Works, Ministry of lands, Mines & Energy). As a result there has been no regulatory agency for the water sector in Liberia; thereby undermining development in such a critical sector. The National Water Resources and Sanitation Board, which was established in 1980 to coordinate activities for water resources developments and addressing policy needs has not been functional since after the war.

Since 2007 there has been frantic effort by stakeholders in the sector to operationalize the IWRMP given the critical role of water and sanitation to poverty eradication and national development. In April 2011 Liberia developed the WASH Compact supported by the Sanitation and Water for All Partnership, which was approved by the President in 2012. The compact has four key goals: (1) Establish and strengthen institutional capacity (2) Ensure equity and prioritized service provision (3) Develop a monitoring system and (4) Improve sector financing mechanisms. Since the development of the compact it has been recognized as the most important document in the sector. However, progress toward attaining some of the goals of the compact has been slow.

Following Government of Liberia (GOL) request to development partners to address the critical issues and needs of the IWRMP, the Governance, Advocacy & Leadership in Water, Sanitation and Leadership (GoAL WaSH) project was established in 2012 by the UNDP. This project, in part, seeks to operationalize the IWRMP by establishing a mechanism for leadership and coordination in the sector.

In 2014 stakeholders in the IWRM sector developed an Action Plan, which is yet to be validated. The Plan amongst other will seek to review and harmonize existing legislations and institutions in the sector, water management strategies as well as address the impacts of land use and climate change on water management. This plan will be important for the development of irrigation and agriculture water management systems that are necessary for agriculture adaptation.

Water resource management in the country is stifled by many other challenges, which includes inadequate governance and coordination in the sector; the lack of data collection and management system for water resources; the absence of a legal framework and weak coordination with other programs particularly in respect to climate change adaptation programs (LASIP & NAPA). There is also the situation of low support and funding for the development of adequate irrigation and water management system to support the development of climate smart agriculture programs. At current Liberia does not have an irrigation policy. FAO estimates the

irrigation potential in Liberia at 600 000 ha, consisting mainly of freshwater swamps of which only 1,000 ha can be described as relatively developed. One of the targets of the LASIP is to increase the share of arable land under irrigation from less than 2% to 5%, which include developing a strategic irrigation investment plan; which is yet to be realized.

2.2 Current status / diagnosis of the mitigation component of national sectorial programmes

Since the completion of NAPA in 2008, the focus of the program has been in the area of climate change adaptation for agriculture, coastal defence and development of an early warning system. Hence there are no on-going programs with respect to mitigation.

Under the LASIP priority programs is Program 1: Food & Nutrition Security; Sub-Program 3 of this program relates to Smallholder Tree Crops and Agro-forestry Development. The target of this subprogram is to increase smallholder participation in the tree crop and agroforestry sub-sectors by 50% between 2011 and 2015 in order to enhance the income of the rural population and facilitate the sustainability of natural resources. On June 24, 2013 the Liberian Government, World Bank and development partners launched the Smallholder Tree Crop Revitalization Support Project (STCRSP) at a cost of US\$ 23.1m over a period of 4 years. The project is intended to increase access to finance, inputs, technologies and markets for smallholder tree crop farmers in Liberia, and to develop a long term development program for the tree crops sector in six counties (Bong, Nimba, Grand Gedeh, Grand Bassa, Montserrado and Margibi), which are the country's main tree crop producing counties. The number of beneficiaries of the project includes 4,900 tree crop smallholders' farmers with 26,000 household members benefiting directly. Female-headed households representing 15 percent of beneficiaries are expected to benefit from this project. The specific objectives of the project are to : Rehabilitate cocoa plantations as a means of increasing the quantity of produce sold and prices received by poor farmers; Improve access to markets through rehabilitation of roads; Reinforce the extension services of the Ministry of Agriculture and private providers; Strengthen the capacities of farmers' organizations. This project is intended to contribute to climate change mitigation in the agricultural sector, as co-benefit of the adaptation actions undertaken.

In addition, Liberia considers REDD+ (Reduction of Emission of gases to the atmosphere due to the human activities through Deforestation and forest Degradation) as a viable option that contributes to climate change mitigation. With support from the World Bank, Liberia has developed the REDD+ Readiness Preparation Proposal (R-PP). It is estimated that 40% of Liberia's landmass (4.3 million ha) is covered by forests, which is critical in terms of global biodiversity. Forest resources are under increasing threat from commercial logging and charcoal production, which are important source of employment and trade. The forests are also threatened by agriculture and mining activities (both industrial scale and at subsistence levels as well as illegal and uncontrolled logging). Between 2005 and 2010, the national annual deforestation rate was 0.68%. Liberia submitted a Readiness Plan Idea Note (R-PIN) to the Forest Carbon Partnership Facility in 2009. The R-PIN was successfully received and Liberia was granted US\$ 200,000 to develop a Readiness Preparation Proposal (R-PP) in 2010. The R-PP was approved in March 2012 and a preparation grant was signed in June 2012. The Government intends to establish REDD+ policies to address the challenges related to deforestation and loss of forest resources from various drivers of deforestation and forest degradation in collaboration with other

stakeholders. Beginning June 2014, Liberia is about to commission a Strategic Environmental and Social Assessment (SESA), which is seen as an important component in the preparation of the national REDD+ policy.

3. Inter-institutional dialogue and inter-sectorial coherence for CSA

3.1 Related issues and needs regarding CSA

With the support of GEF and UNDP, Liberia has made great strides in developing programs that support climate change adaptation and mitigation in recent years beginning with the NAPA, but the country still has a stiff challenge, due to very low national budgetary support for these programs. Although issues of climate change has traditionally been seen as an environmental sector issue, single-sector environmental-based interventions and policies are not sufficient for addressing such a complex and multifactorial problem of adaptation and mitigation, and the potential role of other sectors (e.g. agricultural, water resources, and health sectors) cannot be overemphasized. It is on this basis that one of the key issues raised in the NAPA was the need to strengthen coordination among climate related institutions in the country typical of the sort of broad-based stakeholders' participation from which the NAPA, IWRMP and LASIP formulation benefitted essentially.

The NAPA highlighted the need for the establishment of a Climate Change Coordination Unit at the various sectoral agencies including the Environmental Protection Agency of Liberia, Ministry of Lands, Mines and Energy, Ministry of Agriculture and Ministry of Public Works. The LASIP and IWRMP also identify the need for information sharing and coordination amongst the agencies. However, interagency coordination across the key programs of NAPA, IWRMP and LASIP have not been effective. The Ministry of Planning & Economic Affairs (MoPEA) is the dedicated government agency mandated with coordinating activities between projects and programs. This includes ensuring cooperation between different government ministries and agencies at the national and provincial levels, including agriculture, land use and management, water resources, health, transport, rural development projects/programs. The MoPEA has had challenges in effectively implementing this mandate, largely due to budgetary constraints; which have limited the kind of coordination/coherence envisaged in terms of reviewing and alignment of action; sharing of some resources and personnel to facilitate strategic joint planning and action; and joint implementation of programs and projects. The MoPEA could be a suitable engine of intersectoral coordination and coherence provided that its mandate is enhanced by adequate funding and policy support.

Coordination and coherence across the programs requires the development of strategic capacity at the national and provincial levels of the various sectors agencies. This strategic capacity refers to the human and institutional capacity required to broker agreements, respond to challenges and opportunities, build relationships between CSA actors, and undertake strategic communication with varied audiences, to name a few. The purpose of such actions will be to establish political will, ensure institutional arrangements and cooperative agreements among all stakeholders, and secure operational capacity for acting at scale. It is clear that the development of strategic capacity at the national, as well as the provincial, level is required to positively affect the implementation of all CSA strategies in Liberia.

3.2 Related existing mechanisms for CSA: description, progress and bottlenecks

The existing mechanism for the overall coordination of climate change related activities in Liberia is the National Climate Change Steering Committee. The Committee was launched in 2010 by the Government of Liberia and comprises of an interministerial Committee, an advisor to the President on Energy, the Environment and Climate Change and a representative from the office of the President at the Ministry of State for Presidential Affairs.

Apart from this Committee is the MoPEA, which is responsible for ensuring inter-agency coordination and collaboration for program/project implementation. At the local level there are other mechanisms which include the County Development Steering Committee and other coordination frameworks that are relevant for coordination of CSA implementation. However, inter-sectorial coherence and coordination between the NAPA, IWRMP and LASIP has not been effective owing to the following:

- The Ministry of Planning and Economic Affairs whose mandate is to ensure coordination between the government agencies, donor partners and other stakeholders, as well as to provide support in terms of planning and project implementation; has not been able to fully exercise its responsibility due to technical and budgetary challenges.
- Funds for government to spend on CSA are limited, at all administrative levels. All budgets have been allocated by sector with no direct budgetary support for CSA, preventing the emergence of joint projects and programs funded by one entity.
- The absence of a Climate Change policy or legislative framework prohibits government from providing a clear line of authority as well as the means of enforcing collaboration; as a result, the implementation of relevant programs has been in a disjointed manner.
- Stakeholder's dialogue with civil society and within government has been minimal in the implementation of the NAPA, IWRMP and LASIP.

At best, there is some level of mutual understanding particularly between the stakeholders involved in the NAPA implementation (Environmental Protection Agency, Ministry of Agriculture, Ministry of Lands, Mines & Energy and Ministry of Transport). Although this level of understanding provides some level of communication, connection and collaboration among the implementation parties; the commitment and leadership structures are not firm enough to ensure that consultative processes and feedback loops are effective at all levels. There are also bottlenecks in setting criteria to identify joint priority issues for collaboration amongst stakeholders involved. This fragile leadership for multisectoral and integrated approaches is a serious bottleneck that impedes experience sharing and collaboration amongst the NAPA projects.

In respect to the IWRMP, the policy has been formulated but implementation is still very much grounded due to the low government budgetary support and limited donor funding for the sector.

Mechanisms to ensure political support for efforts to promote CSA are as critical to the effective operation of stakeholder agencies as are any cross-sectoral coordination or resource allocation and oversight mechanisms. In Liberia, the political commitment that exists to address CSA is insufficient to mobilize resources and to build coordinated efforts across all sectors concerned. Only if sustained advocacy is undertaken could the potential value of cross-sectorial CSA coordination agencies be realized.

In terms of progress, there have been significant gains made in respect to stakeholder approach in regards to CSA dialogue and intersectorial coherence. A wide range of government ministries, including Ministry of Agriculture, Environmental Protection Agency, Ministry of Planning & Economic Affairs, universities, farmers groups, civil society organizations, etc., have been involved in the dialogue and activities that support CSA in Liberia. The formulation of the LASIP, NAPA and IWRMP have all benefitted from broad stakeholders input and participation. It is however important that this momentum is sustained during the implementation aspect in order to ensure that the outputs of the programs are driven by the stakeholders.

The existing bottlenecks for Inter-institutional dialogue and inter-sectorial coherence for CSA in Liberia are many. The key barriers are as follows:

- (i) *Inadequate nationally driven climate-smart strategies that rallies broad stakeholders support:* Despite the fact that close to 70% of Liberians depends on agriculture for livelihood, CSA has not enjoyed wide-spread attention and support in Liberia as required. The NAPA has recognized that Liberia as a country is very much vulnerable to the impacts of climate change particularly on the agriculture sector and raises the need for adaptation. CSA provides a unique opportunity for adaptation in the midst of high poverty and limited capacity for the population to adapt. At the national level the climate smart strategies that enable intersectoral partnership and coordination are weak. There is a need for strategies that links other development sectors with the agriculture sector realizing the connection between food insecurity, poverty and conflict.
- (ii) *Limited coordination at the regional and county levels:* Though there exist some mechanisms for coordination and collaboration both at the national and local levels through steering committees and coordination frameworks where stakeholders from other development sectors (health, forestry and agriculture, environment) interact and dialogue; the level of coordination is not sufficient enough to ensure that all stakeholders are adequately informed and participate meaningfully in project implementation across the different sectors and programs.
- (iii) *Limited budget for inter-sectorial coordination:* Most sector agencies have limited budget that enables them to foster coherence and coordination with other sectors. Budgets follow sectoral lines, and sectoral objectives motivate staff in sectoral institutions. Sectors are more often found to be in competition for limited financial and human resources than to be working in a collaborative manner to attain an important national goal. Similarly, sector-specific criteria form the basis for evaluating sector effectiveness and hence for the allocation of resources. No matter how important, objectives requiring cross-sectorial, coordinated action will rarely be attained by routine sector-planning mechanisms.

4. Support needs and requests addressed to ECOWAS

4.1 To mainstream CSA in the LASIP

Liberia as a country recognizes that climate change has a huge impact on agriculture systems locally. This impact affects resource poor rural farmers in a significant way given that the unpredictable patterns of rainfall, increase in floods and droughts, and changes in the distribution of pests and diseases in the country. To this end the MOA recruited a consultant with the specific

task to review the LASIP and other policy instruments in order to identify opportunities for mainstreaming climate change concerns into these instruments under the Least Developed Countries' Fund (LDCF). The project, entitled: "Enhancing Resilience to Climate Change by Mainstreaming Adaptation Concerns into Agriculture Sector Development in Liberia", is funded by the GEF. A draft report to this extent has been finalized and awaits validation. The objective of this initiative is to support the ongoing processes to revitalize the agriculture sector and ensure that adaptation to climate change is integrated into the revitalization process over a 4 years period. Liberia's support needs to mainstream CSA in the LASIP are as follows:

Investment for research & development

There is evidence to suggest that practices such as agroforestry and conservation agriculture can increase yields and incomes, sequester carbon and help farmers adapt to climate change. However, Liberia as a country lacks quantitative data. There is a need to support research on the kind of practices and innovations that work best within the Liberian context, where they have been successfully adopted by farmers, the barriers to adoption and, lessons for scaling up the spread of successful practices, taking into consideration the gender differences in climate change adaptation. In support of the NAPA, there are two pilot projects being implemented in Bong and Grand Gedeh counties under the auspices of the Climate Change Adaptation Agriculture Project (CCAAP), a Least Developed Countries Fund (LDCF) project. The project intends to increase resilience and enhance adaptive capacity to address climate change impacts on the agriculture sector. There is a need for additional support in terms of funding and knowledge sharing from other countries for the ongoing research initiatives that identifies barriers and benefits of CSA, impacts of climate change on farming of particular crops, and options for climate change adaptation in the agriculture sector including farming, transportation, processing, fisheries and livestock.

Capacity Development

Central Agriculture Research Institute (CARI), which is the only public owned and operated agriculture research agency in Liberia was affected by the civil conflict. At present the CARI's capacity to conduct research is limited due to low budgetary support, infrastructure and trained manpower. Liberia needs support to revitalize CARI's infrastructure including laboratory facilities and equipment, training of graduate level scientists and the decentralization of research pilot projects of CARI into the 3 other agro-ecological zones of the country. With adequate support CARI can play a vital role in research and production of quality seedlings and poultry breeds that are climate resilient and of high yields.

The Ministry of Agriculture which is responsible for the agriculture sector development and oversight for the LASIP implementation also requires human and material capacity development. There is need to provide CSA adaptation training for agriculture officers and farmers (men, women and youth), on a recurrent basis, for rural agricultural extension officers involved in implementing CSA programs in climate change impact areas as well as the need to provide support in the areas of communication and transportation (4wd vehicles and motor bikes to enhance mobility). With sufficient resources agriculture officers will respond adequately.

Access to Credit for local farmers

Most Liberian farmers are small producers engaged in subsistence agricultural activities in areas of widely varying potential. Prior to the war the *Agricultural Cooperative Development Bank of Liberia* (ACDB) provided working capital and seasonal loans along with medium- and long-term credit for investment in farms, as well as savings, insurance and money transfer services. Since the closure of the bank the farming network and support system as well as access to credit and loan has been severely impacted. Before the war, there were approximately a hundred significant farmer marketing cooperatives and associations with approximately 75 000¹ members, and these were very effective. Experience has shown that easy access to financial services at affordable cost positively affects the productivity, asset formation, and income and food security of the rural poor. Liberian farmers need access to adequate, timely and low cost credit from institutional sources, especially to small and marginal farmers. Along with other inputs, credit is essential for establishing sustainable and profitable farming systems. Liberia requests support for the reestablishment of the *Agricultural Cooperative Development Bank of Liberia*; to provide farmers with access to needed financial services that enhances their productivity.

Support for irrigation development and agricultural water management

With less than 2% of arable land under irrigation, irrigation development/ agricultural water management and soil management measures remains very cardinal to the development of swamp rice cultivation amidst increasing population and population density. Water deficiency in the dry season, poor drainage, flooding of lowlands and the hazard of water erosion are all problems that need to be addressed in order to intensify swamp rice cultivation. This is key to Liberia's self-sufficiency in rice (staple) production.

Support for Hydrology Sector

There is also need for support to the Liberian Hydrological Services in the areas of training, planning, and water resources assessment, equipment and instruments, monitoring and water utilization for the various sectors like agriculture, energy, industries, tourism and recreation and finally, the establishment of laboratory of environmental analysis will provide the enabling environment for monitoring and regulating water resources, quality and standards for agriculture and relevant sectors.

Support for women and youth access to cash crops production

The existing gender-based division of farm labour in crop production results in women attending to food crops, while men control cash crops (oil palm, rubber, coffee). The institutional arrangements under which tree crops are grown (plantation and smallholders) limit women access. There is a need for a support fund that enables women to get involved in cash crop production as well as the need to lobby for gender access to natural resources (e.g. land). This will allow rural women to generate significant farm-based income since they have limited cash opportunities for wage jobs off the farm, to make up for lost food crop income.

4.2 To strengthen inter-institutional dialogue and inter-sectorial coherence on CSA

To strengthen inter-institutional dialogue and inter-sectorial coherence in CSA, GOL and development partners should work towards involvement of all relevant stakeholders at program

¹ FAO/WFP Crop and Food Security Assessment for Liberia, February 2006, p. 19.

inception, harmonize mandates that are likely to exist amongst the different sectors, and invest in building relationships through special funds. When these elements are addressed early in the process, the likelihood of problems can be minimized with the building of commitment and interest from the outset. The types of organizational arrangements that facilitate cooperation among actors from the same sector may not necessarily be adequate when it comes to actors from different sectors. These new arrangements - Climate Change Coordinating Units provided for under the NAPA at the various sectoral agencies need to enable involved parties to develop shared plans, participate effectively in decision making processes, manage crises, and identify mutual gains; under the leadership of the National Climate Change Steering Committee at the Ministry of State for Presidential Affairs. Without these arrangements in place, cooperation that is agreed to in principle can easily fail in practice.

To this end, Liberia needs support to develop a CSA policy that drives CSA programs in the country. This should include strengthening the technical capacities within the Climate Change Coordinating Units of the relevant Ministries or Agencies (Ministry of Agriculture, Environmental Protection Agency, Liberia Hydrological Service and Forestry Development Authority) and at the National Climate Change Steering Committee level of government to identify climate related risks and problems particular to the agriculture sector in the country, their causes and to improve the planning, management and evaluation of programs and development projects that affect agriculture.

Support is also needed to strengthen coordinated intersectoral mechanisms at the Ministry of Agriculture, as the lead government Ministry on Agriculture; to provide leadership in implementing, monitoring and evaluating the agreed climate smart initiatives in the agriculture sector. Links between Ministry of Agriculture and appropriate agriculture research and training institutions within the region should be strengthened as well to facilitate transfer of innovation and skills that are relevant to CSA in Liberia.

There is also a need to fund CSA coordination activities and programs through the Ministry of Agriculture, which are often not covered under the budgets of the different sector ministries and agencies. These special funds will facilitate training, planning and evaluation workshops, regular meetings, communication, creating better monitoring and surveillance systems and mechanisms related to climate smart agriculture.