

**REPUBLIC OF LIBERIA
MINISTRY OF AGRICULTURE**

**Climate Change Management in Agriculture
Capacity Development Plan**

March 2013



Table of Contents

1: Introduction	3
<i>The Agriculture Adaptation Project</i>	3
<i>Capacity development needs</i>	3
<i>Structure of report</i>	4
2: Capacity development aims and approach	5
<i>General approach</i>	5
<i>Outputs and activities</i>	7
3: Raising knowledge and skills	9
<i>Training program for the agriculture extension service</i>	9
<i>Sub sector action plans</i>	12
<i>Familiarization with international and national frameworks</i>	13
<i>National climate change adaptation strategy and action plan</i>	14
4: Establishing governance arrangements	17
<i>Agriculture resilience resource centers in the counties</i>	17
<i>Making policies and programs climate smart</i>	17
<i>An Agricultural Resilience Unit</i>	19
<i>Working groups on adaptation and disaster risk management</i>	22
5: Research and Education	26
<i>Research program on agriculture adaptation</i>	26
<i>Teaching courses on agriculture adaptation</i>	27
<i>Field research and monitoring</i>	27
6: Budget and performance management	29
<i>Costed capacity development plan</i>	29
<i>Timing of implementation</i>	30
<i>Measuring and managing progress</i>	31
Appendix 1. Participants at validation workshop	34
Appendix 2: Capacity outputs and activities from Project Document	36

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1: Introduction

The Agriculture Adaptation Project

- 1.1 The government of Liberia, through the Ministry of Agriculture and the United Nations Development Programme, is embarking on a major project to improve the resilience of the agriculture sector to climate change. The four-year project '**Climate Change Adaptation in Agriculture Project**' (CCAAP) started in 2012 and is funded by the Global Environment Facility of The World Bank and the Government of Liberia. The first component of the project is to develop capacity within the sector, so that it is better able to manage climate change. This document provides a plan for doing this.
- 1.2 Following the brief, the capacity development plan is targeted particularly at those making policies and investment plans for agriculture; the technical staff in the Ministry of Agriculture and in other government or non-government organizations. It is also directed at Liberian research and education institutions so that they can contribute research and train agricultural students in climate change adaptation. The total number of individuals, who are intended to benefit from capacity building, by the end of the project, is at least 190. The project results framework sets the following targets:
- Technical staff: 60 (30 women and 30 men)
 - County level staff: 30 (15 in each county) (15 women and 15 men in total)
 - University students: 100 (50 women and 50 men)
- 1.3 Although farmers and not direct beneficiaries of this capacity development plan (a second component of this project provides this), the agenda for the plan is set by the adaptation issues and needs confronting farmers, because this largely determines what it means to manage climate change.

Capacity development needs

- 1.4 A capacity needs assessment was carried out to inform the plan. The results of this are presented in full in a separate report but in summary, the priority needs identified were:

<u>Priorities for individuals:</u>	<u>Priorities for institutions and systems:</u>
<ul style="list-style-type: none">• Training for extension staff in pilot sites and then nationally• ‘Hands on’ training and skills development for technical staff in 3 departments and 10 divisions of MoA• Information and involvement for Ministers• Support to University staff to enable them to prepare courses and conduct research on adaptation.	<ul style="list-style-type: none">• Developing a national strategy to give direction and context for managing climate change.• A core team within MoA to implement and lead policy and technical work on adaptation• Working groups and processes for inter-sectoral coordination• Research and education to provide evidence for action and future staff with climate change knowledge.

1.5 The capacity needs assessment also described how, in Liberia's post-conflict state, the knowledge, skills, resources and institutional arrangements for managing climate change are extremely weak. In this context, it is difficult to develop capacity in a way that 'sticks'. It tends to get acquired but not applied, so is quickly lost. The plan set out in the rest of this report therefore takes a distinctive 'learning by doing' approach. The plan engages staff from the outset in helping farmers to adapt, analysing risks and options, producing strategies and plans and working in teams with other government agencies, NGOs, the private sector and researchers.

Structure of report

1.6 The remainder of the report is structured as follows:

- Chapter 2 defines the aims of capacity development and the general approach;
- chapters 3, 4 and 5 describe in detail a plan for achieving the three main outputs; knowledge and skills raised, governance arrangements established and a program of research and education underway;
- chapter 6 contains a budget and timetable for the capacity development plan. It also describes how progress with implementing the capacity plan is to be measured.

1.7 A separate implementation manual has been written to accompany the capacity development plan. This gives the Ministry of Agriculture a step-by-step guide to implementation, including a guide to methods and resources.

2: Capacity development aims and approach

- 2.1 The aim of the capacity development plan is taken from the overall CCAAP project plan. This states that the outcome of component 1 should be '*strengthened institutional and individual capacity to plan and manage climate change in the agricultural sector in Liberia*'. Direction is also taken from the existing national policy for climate change in agriculture¹. This policy places an emphasis on mechanisms for monitoring and managing climate change, on ensuring farming practices are 'climate smart' and on the bigger goals of poverty alleviation, food security and environmental protection.

National Policy

"Mechanisms in place with contributions from the agriculture sector, monitoring climate change situation in respect to Liberia, ensuring agricultural activities in Liberia do not contribute to such changes, and that such changes will not seriously undermine efforts directed at poverty alleviation, food security, and environmental protection."

(National Food and Agriculture Policy and Strategies, 2008)

General approach

- 2.2 The CCAAP project is the first to directly address climate change in the agricultural sector in Liberia. Very little is known about climate change risks and the adaptations that are required (or are already taking place). A plan for capacity development must therefore address the underlying questions of "**capacity for what? ... What does it mean to manage climate change adaptation for agriculture in Liberia?**". Therefore the general approach taken is one that allows the MoA and others to learn about risks, adaptations and how to manage these.

Learning by doing

- 2.3 The importance of 'learning by doing' so that capacity is absorbed and applied has already been stated and there are other good reasons for taking this approach. It helps to ensure that the knowledge and skills gained by people are relevant and are used to achieve real results. This means that the project will support 'on-the-job' training that is based on achieving a practical task, such as solving problems encountered by farmers who are experimenting with an adaptation technique, or producing a national strategy for agricultural resilience. The project will not support long-term training for Masters or PhDs abroad and it will not carry out training or other activities unless they are directly linked to the achievement of a tangible output.

- 2.4 A 'learning by doing' approach means that new plans, strategies and working groups will be created in order to implement the plan. It is likely that these will be imperfect; some working groups may not work and plans may sit on the shelf, but this approach is essential if learning is to be practical and not just theoretical. New plans and structures are also essential if the learning and practices are to be 'mainstreamed' across the Ministry of Agriculture and the sector. Other principles which guide the approach taken are listed below:

¹ There is not a stand-alone for climate change in agriculture but a policy is included within the 2008 *National Food and Agriculture Policy and Strategies*.

Contributing to the United Nations Climate Change Framework

- 2.5 Adaptation measures in the agricultural sector should fit within the wider process of the United Nations' Framework Convention on Climate Change, to which Liberia is a signatory. Least Developed Countries within this framework are encouraged to follow a specific process of adaptation planning. The approach taken in this capacity development plan is therefore one that enables the MoA and its' partners to join and contribute to this wider international and national framework.

A farmer-focused approach

- 2.6 Ultimately, it is farmers who must implement adaptation measures, so the actions that they take, the barriers they encounter and the incentives that are required if farmers are to be encouraged to change their practices will determine what the management requirements are. Component 2 of the project will bring farmers together to develop and test adaptation measures in Farmer Field Schools. The resulting activities and issues will therefore set the agenda for capacity development work.

Supporting and leading

- 2.7 The MoA needs to lead as well as support farmers, because it intends to change their practices. This means that it needs to be able to communicate to farmers what it wants them to do and provide the necessary incentives. This requires a good understanding of the policy levers that can be applied to change farmers' behaviour, including information, the extension service, material and financial support, financial instruments such as credit schemes and possible even regulatory instruments. Ministers and staff also need a clear policy framework to give a mandate and direction to their work. A policy exists, but this needs to be translated into an effective strategy and action plan.

Coordination

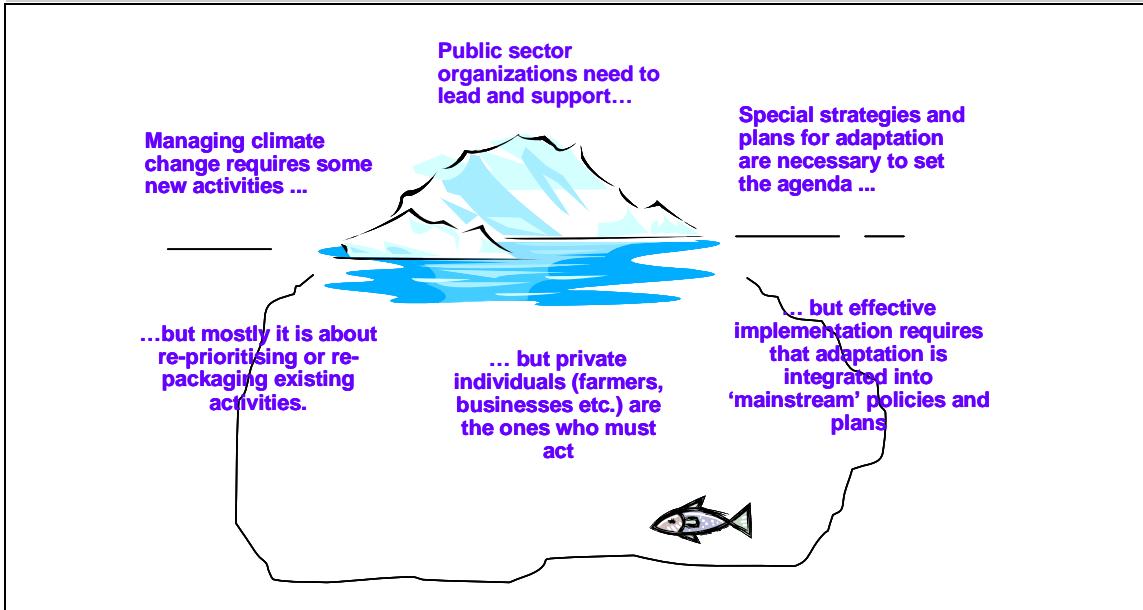
- 2.8 Climate change is a cross-cutting issue and its management requires a coordinated approach. Coordination is required across the MoA, across other relevant sectors and between local adaptation activities and the national-international frameworks for adaptation. Three of the four departments and at least ten divisions in the MoA are managing activities relevant to climate change adaptation. The MoA also manages numerous projects that can support adaptation practices and which provide capacity development relevant to climate change. The CCAAP needs to avoid duplication with these projects and it needs to lever in their support. For example, one of the barriers to adaptation encountered by farmers will be the cost and technical demands of water management. The CCAAP project therefore needs to draw upon agriculture infrastructure projects that have funds available for dam construction or irrigation.

- 2.9 Beyond the MoA there are other projects and policies that are relevant to adaptation. These include meteorology projects, the national Disaster Risk Management framework and initiatives on land ownership and land use planning. At the international level, the project is an opportunity for Liberia to develop its contribution to the UN Framework Convention on Climate Change, by developing adaptations plans and actions for the agriculture sector.

- 2.10 Coordination is crucial if climate change management is to become 'mainstreamed' – i.e. part of normal business, rather than a separate and marginal activity. This is because most of what is required to manage climate change is the re-prioritisation or re-arrangement of existing

activities. The ‘new’ climate change activities described in this plan are just the tip of the iceberg; meant to bring about changes in the conventional actions, plans and programs for the agriculture sector. Figure 1 illustrates the point that the most important activity happens ‘under the surface’, in the mainstream.

Figure 1: Special adaptation initiatives are just the tip of the iceberg



Source: D Rothe

Finding ‘win-win’ solutions

- 2.11 Adaptation measures can provide other benefits such as poverty reduction or environmental gains. For example, conserving forests in watersheds increases the resilience of lowland farmers to floods and droughts, but it also provides poor people with alternative sources of income and resources (e.g. from collecting non-timber forest products) and contributes to Liberia’s goal of conserving biodiversity. Even if decision-makers do not ‘believe’ in climate change, they will still find win-win solutions attractive. And in a situation of uncertainty and insufficient evidence, all decision makers, sceptical or not, will favour ‘no regret’ or ‘low regret’ measures².

Outputs and activities

- 2.12 The original CCAAP plan proposed five outputs and 24 activities for component 1 (see appendix 1). The subsequent capacity needs assessment and planning exercise behind this report confirmed that these were valid, but allowed for some refinement. Hence in this plan there is a greater emphasis on linking training or knowledge development to tangible deliverables, on supporting farm-level adaptation and on creating the new structures and processes that MoA and partners need to manage climate change. The outputs have been reduced to three, to reflect the priorities from the needs assessment and to give the project a sharper focus. The activities have been re-organised into eleven (see the table overleaf), plus a list of inputs for each activity.

² These terms are used to describe measures where the risks in taking no action are greater than the risks of acting.

Climate Change Adaptation in Agriculture Project: Capacity Development Plan

Impact	Improve food security by increasing the resilience of Liberian agriculture to climate change and weather extremes
Outcome	Strengthened capacity to manage climate change risks and adaptation in the agricultural sector
Outputs (Expected results)	<ol style="list-style-type: none"> 1. Staff in the Ministry of Agriculture and partner organizations have the knowledge and skills required to manage climate change adaptation 2. Governance arrangements for managing agricultural risks and adaptations are established and 'mainstreamed' into national structures, policies, procedures and plans. 3. Research and educational institutions have a research program on climate change risks and adaptations in agriculture, and have incorporated the subject into teaching courses.
Activities	<p>1. Raising knowledge and skills</p> <ol style="list-style-type: none"> 1.1 Prepare and implement a training program for extension workers, based on the lessons emerging from Farmers Field Schools in the pilot sites and the preparation of county adaptation plans. 1.2 Train and support staff in relevant divisions to carry out an assessment of climate change risks and adaptation requirements in agricultural sub-sectors (crops, livestock, fisheries etc.) 1.3 Familiarize through training and exposure to international knowledge a core team of MoA staff in international-national frameworks important for agriculture adaptation, including UNFCCC, DRM, and Meteorology. 1.4 Prepare a climate change adaptation strategy and action plan for the MoA and the agriculture sector <p>2. Establishing governance arrangements</p> <ol style="list-style-type: none"> 2.1 Establish climate resource centers in the pilot counties to make meteorological and climate change adaptation information available to extension service and partners. 2.2 Work with Environmental Protection Agency to apply EIA and Strategic Environmental Assessment systems to appraise projects and policies for their impact on climate change resilience. 2.3 Establish an Agriculture Resilience Team in the Ministry of Agriculture to manage implementation and coordination of climate change adaptation 2.4 Embed agricultural resilience into national frameworks for climate change and disaster risk management. <p>3. Research & Education</p> <ol style="list-style-type: none"> 3.1 Develop a national program of research on agricultural adaptation 3.2 Develop teaching modules on climate change adaptation to include in courses for agricultural students. 3.3 Engage staff and students in field research and work-based learning, supporting the Farmer's Field Schools in the pilot sites.

3: Raising knowledge and skills

Output 1: Staff in the Ministry of Agriculture and partner organizations have the knowledge and skills required to manage climate change adaptation.

Training program for the agriculture extension service

Activity 1.1 Prepare and implement a training program for extension workers, based on the lessons emerging from Farmers Field Schools in the pilot sites and the preparation of county adaptation plans.

Linking training to farmer field schools

- 3.1 Component 2 of the CCAAP project will set up Farmer Field Schools in the two pilot sites. It will also provide four facilitators, who will support the farmers to develop a ‘curriculum’ of adaptation measures and issues. This curriculum will be used as the basis for training of the extension service; ensuring that the information and skills provided to extension workers is relevant and practical.
- 3.2 The subjects that are likely to be in this curriculum are illustrated in table 1, which describes the adaptation activities planned for the pilot sites. An important point to note from this is that training for adaptation will often involve conventional agriculture subjects such as water management and soil conservation. It is therefore a matter of assembling the correct package of existing training courses and giving them a climate/weather emphasis, rather than preparing entirely new courses.

Table 1: Adaptation outputs and activities planned for county level [to be updated with the FFS Curriculum from Kennedy's final report]

Output 1. County Extension system strengthened to support community based adaptation	Output 2. Water control, water harvesting, irrigation	Output 3. Livelihood diversification	Output 4. Micro-watershed ecosystems restored/rehabilitated
Activities			
Develop FFS curriculum Develop FFS manual Train FFS Facilitators and extension officers Establish mini-weather system Procure transport, ICT and other equipment for planning & monitoring adaption measures	2.1 Design & construct water control/drainage systems in flood-prone swamp areas 2.2 Establish small-scale water harvesting in upland catchment area. 2.3 Train farmers in water management 2.4 Form/strengthen Water User Committees	3.1 Establish 8 FFS in 2 counties 3.2 Develop FFS group skill in diversification activities 3.3 Support piloting/adoption of sustainable livelihood technologies/practices 3.4 Support strengthening of savings/credit facilities	4.1 Develop a community-based watershed management plan 4.2 Promote soil and water conservation technologies/practices 4.3 Train FFS groups and watershed stakeholders 4.4 Form/strengthen watershed catchment stakeholders.

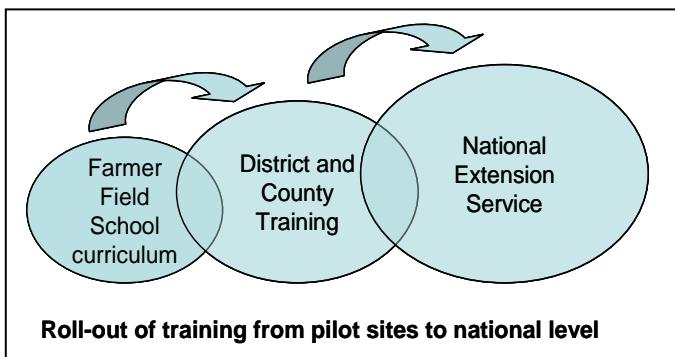
Source: Component 2 Needs Assessment

- 3.3 Component 1 will ‘roll-out’ this training to the extension service staff that are not directly involved with the Farmer Field schools. At least fifteen staff from the district and county service of each pilot site (30 individuals in total) will be trained. The individuals to receive training in each of the pilot counties will therefore include:

Table 2: Beneficiaries of training to extension service

Individuals to be trained	
County Agriculture Coordinator (CAC)	MoA
District Agriculture Coordinator (DAO)	MoA
County Development Officer (CDO)	MIA
County Project Planner (CPP)	MIA
Statistics & Information Officer	LISGIS
Land Commission Officer	Land Commission
District Agriculture Officers from surrounding districts	
Women’s Rural Network Coordinator	MoGender
Local NGOs	NGOs
<i>Total number to be trained</i>	<i>15</i>

- 3.4 A further roll-out of the training to the national extension service is recommended (if the training in the county sites is found to be effective by an interim review). This would exceed the target of 30 individuals but it is an important additional step because the extension service is the principal means by which the MoA interacts with farmers. The national level training should be relatively light, including the lessons learned from the pilot counties and background information on climate change risks and adaptation. It should prioritise counties where other projects are providing support that is relevant to adaptation; e.g. the counties targeted by WAAP or by the intended IFAD/MoA project on agriculture and climate change³.



Reaching women farmers

- 3.5 The project’s target is that half of those trained should be female but this is difficult to achieve, because extension staff are predominantly male. To overcome this, the Women’s Rural Network will be involved to help identify suitable female workers to join the training. There will also be a separate training initiative for the Women’s Rural Network. This will be led by the Ministry of Gender. Although the training for the extension service and for the Rural Women’s Network will be the same, there are advantages in running them separately: It ensures that women’s needs are not neglected and it gives the project an alternative means of reaching farmers, rather than depending entirely on the MoA extension service.

³ Pers com. IFAD are developing a proposal for 2014 which is about the rehabilitation of lowland rice swamps, with a strong climate change mitigation and adaptation theme.

Strengthening the extension service

- 3.6 Currently, the MoA does not currently have a District Agriculture Officer (DAO) for each district. Component 1 will therefore strengthen the extension service by funding the employment of two DAOs in each of the pilot counties. This will add to the strengthening provided by Component 2, though the Farmer Field School Facilitators.

Preparing County Adaptation Plans

- 3.7 The principal role for county and district extension workers is to support farmers but they also have the responsibility of coordinating and planning the implementation of national policy. The training provided therefore needs to include these responsibilities. Following the principle of ‘learning by doing’ this aspect of the training will be based on the preparation of county adaptation plans.
- 3.8 Local adaptation plans are one of the standard ‘tools’ within the UNFCCC. They are particularly appropriate when a ‘bottom-up’ approach is being emphasised. Some countries have put a great emphasis on locally-led adaptation planning. Nepal for example, a post conflict country dependent upon rain-fed agriculture, has adopted a system of Local Adaptation Plan of Action (LAPA) and a commitment that 80% of all adaptation funding should be spent at decentralised levels⁴. For Liberia a balanced approach has been taken, because there is a need for central leadership as well as grass-roots adaptation and capacity is seriously lacking at all levels. In this way, both ‘top-down’ and ‘bottom-up’ approaches will be tested. One of the key questions for monitoring and evaluation of the CCAAP project will be which of these proves most effective.
- 3.9 There is a debate in the international literature about whether it is best to create separate plans for climate change management or whether it should be ‘mainstreamed’ into other plans. The appropriate approach for Liberia is to do both. This is because a specific adaptation plan will clarify for everyone what it means to manage adaptation, how it will be done and how progress will be measured. It will also raise awareness of climate change adaptation which otherwise tends to get lost as a footnote to other policies and plans. The implementation of this plan will however be done largely through other plans. For example, once adaptation measures have been defined in a county-level strategy, the actions can be incorporated into the existing county agriculture.
- 3.10 Preparation of a county adaptation plan involves similar tasks to the development of a curriculum for Farmers Field Schools at the sites level:
- 1) Assessing climate risks.
 - 2) Assessing the exposure and sensitivity of community and their livelihood capitals to climate risks.
 - 3) Assessing the current coping strategies for negative impacts of climate change
 - 4) Identifying options for adaptation.
- 3.11 It is recommended that the CCAAP project support the development and implementation of a county adaptation strategy in the two pilot areas but not a roll-out of this to the other 13 counties. This gives the MoA the opportunity to test the effectiveness of county strategies and it makes sure that resources are concentrated on getting it right first in the pilot areas. If the

⁴ IDS Learning Hub. *Linking national and local adaptation planning: Lessons from Nepal*.

plans prove successful, then MoA will have a strong case for requesting further funding for a national roll-out.

Sub sector action plans

Activity 1.2 Train and support staff in relevant divisions to carry out an assessment of climate change risks and adaptation requirements in agricultural sub-sectors (crops, livestock, fisheries, etc.)

3.12 Around ten divisions in the MoA are relevant to the management of climate change. Currently, division heads have some knowledge of climate change hazards but there has been no research or planning for climate change in any of the sub-sectors. Nor have staff received training. The production of sub sector action plans for adaptation will fill this knowledge gap as well as providing ‘hands-on’ training for technical staff. Plans will be prepared for four sub-sectors: Crops, Livestock, Land & Water and Fisheries.

3.13 Staff from a further six divisions should also take part, because they have knowledge to contribute and a need to learn about climate change. These are Policy & Planning, Statistics, Information Management, Quarantine, Extension Services and Community Empowerment. The plans will not be written by external consultants, because the point is for MoA staff to learn by doing. However the CCAAP project will provide a template for the plans and a trainer/facilitator to guide the MoA staff through the process. The subjects to be covered will include:

- Climate change and extreme weather risk assessment
- Identification of existing coping strategies
- Appraisal of adaptation options
- Action plan
- Monitoring and measuring progress

Costs and benefits

3.14 The options appraisal is a particularly important part of the planning process, because it determines the actions to be taken. The principle that will be followed is that adaptation actions should only be taken when the costs of that action are judged to be less than the likely future losses caused by climate change. Although cost-benefit analysis can only be done in a very rudimentary way, because information on possible future losses is largely unknown, the approach is still valuable. It trains staff in the principles of appraisal and it starts the necessary process of thinking about – and gathering information on - the financial costs and benefits of adaptation⁵. A further proposal to develop knowledge on the benefits/costs of adaptation is included in the later chapter on research.

Concession agriculture and private sector involvement

3.15 Policies and donor interventions for the agriculture sector are strongly focused on subsistence and small holder farming, because of concerns about food security and rural livelihoods. Yet

⁵ It also builds on the study of investment and financial flows for climate change commissioned by UNDP in 2011.

rubber and oil palm plantations are more significant in terms of export earnings and paid employment, and accounts for a large area of land-use. There has been no analysis of climate change risks and adaptation options for the tree crop plantation sub-sector.

- 3.16 An initiative will be launched with the private sector, with the aim of producing an adaptation strategy for the rubber and oil palm industries. The main rationale for doing this as a separate exercise and not as part of the ‘crops’ sub-sector strategy is that it presents an opportunity to engage with the industrial/multinational private sector, who tend not to be engaged with climate change issues. Examples of such an initiative from other countries suggests that the private sector is likely to introduce other perspectives, e.g. on the benefits/costs of adaptation measures and the necessity for better data before changing practices⁶. This initiative should start with a conference with the aims of a) raising the issue and b) establishing whether there is sufficient interest amongst the private sector for them to take a lead in developing a strategy. If yes, the project will provide the same level of support as it does for the other sub-sector studies. If no, the plantation/agribusiness sub-sector should be examined carefully as part of the formulation of a strategy for crops, with additional resources going to that exercise so that it can engage with concession owners and issues.

Familiarization with international and national frameworks

1.3 Familiarize through training and exposure to international knowledge a core team of MoA staff in international-national frameworks important for agriculture adaptation, including UNFCCC, DRM, and Meteorology.

- 3.17 The MoA needs to manage adaptation in the agriculture sector within the wider frameworks that exist for managing climate change and emergencies resulting from extreme weather. Technical staff and those at ministerial level need to become more familiar and involved with these frameworks.
- 3.18 To enable this, working groups on adaptation will be set up within the climate change and disaster risk management frameworks that already exist in Liberia. The institutional arrangements for this are explained in the next chapter. In terms of raising knowledge and skills, this approach serves to bring a group of people in MoA and partner organisations into contact with international and national information, events and ways of working. The learning will mainly occur through taking part in these frameworks, but the CCAAP project will also support introductory training, covering the relevant processes, theory and practices. This training will be organised by the secretariat for the frameworks; EPA for UNFCCC and MIA for DRM. The CCAAP project will support them to do this.
- 3.19 Although there is not yet a national system for meteorology in Liberia, this is a vital area of knowledge for staff who will be managing climate change. Training will therefore be provided on climate change scenarios, extreme weather probabilities and the use of meteorological data for forecasting and monitoring weather/climate trends. There are several meteorological projects underway in Liberia under the Ministries of Transport and Land, Mines & Energy and staff in these institutions have the expertise. The CCAAP project will

⁶ For example, International Finance Group of The World Bank (2011) *Ghana Oil Palm Development Company, Climate Risk and Agribusiness*.

support these Ministries so that they can design and deliver a training package to MoA staff. This approach will strengthen the link between the agricultural sector and these other projects and Ministries. It will also focus the funding on building national capacity rather than paying for international experts.

Support for Ministers

- 3.20 Ministers (including Deputy and Assistant Ministers) have an important role to play in the capacity plan; providing leadership, political support and oversight of progress. The Management structure of the MoA is one in which Deputy and Assistant ministers are the top tier of management. Only they have a cross-cutting policy remit and are in a position to coordinate activities. The most senior civil servants are the Heads of Division and there is a lack of cross-cutting mechanisms to involve them in managing issues such as climate change.
- 3.21 The level of knowledge and engagement of Ministers for all four of the MoA's departments (Policy & Planning, Administration, Technical Services and Extension Services) in the capacity needs assessment and planning process has been strong. To support their deeper involvement the capacity plan will include 'seeing is believing' visits by Ministers to the pilot sites and to another country where adaptation activities are more advanced. Uganda is recommended, because it is a particularly good example of where climate change has been strongly supported by Parliament and integrated into the legislature and national policy.

National climate change adaptation strategy and action plan

1.4 Prepare a climate change adaptation strategy and action plan for the MoA and agricultural sector

- 3.22 The sub-sector plans and county adaptation plans will inform a national adaptation strategy for the agricultural sector. The purpose of a national strategy is to provide a policy context in which ministers and technical staff can manage climate change. As noted in section 2, there is already a climate change and agriculture policy but this needs to be updated and made more visible. There are several other strong arguments for producing a strategy and action plan:
- it provides a focus for training and ensures that the learning results in a tangible product;
 - It is a way of raising awareness of climate change adaptation and communicating the Government's role to a wide audience;
 - it strengthens the ability of Liberia to apply for international funds for further climate change projects, as it demonstrates to donors that there is a national commitment and policy context;
 - the UNFCCC process includes a facility to help least developed countries to produce a national adaptation plan. By developing a national adaption plan for the agricultural sector the project will help with the preparation of this.
- 3.23 The steps involved in preparing a national strategy are similar to the country adaptation plans, hence the training needs are also similar. To ensure that the national plan builds on the county and sub-sector plans, a small team of staff from the MoA will join the training provided for

the county and Division staff. This central team will then lead the development of a national strategy. They will become particularly skilled at adaptation planning and will therefore be able to act as trainers and facilitators for future planning and review exercises. Preparation of the national strategy will be overseen by the project steering group.

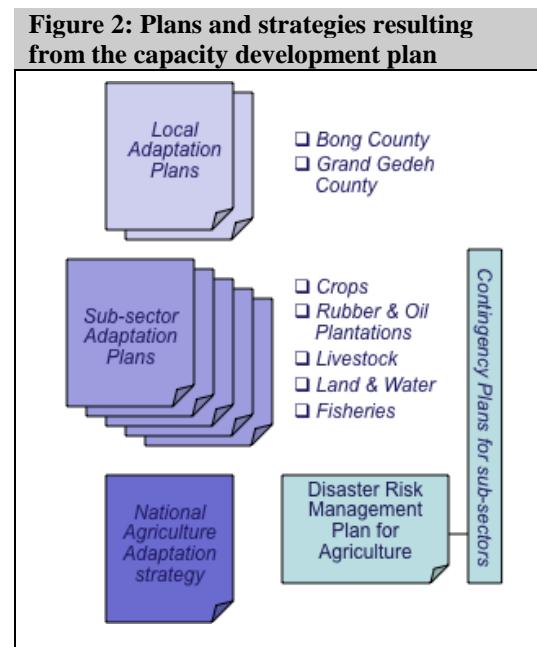
3.24 One of the objectives of the national strategy will be to make policies and programs in the agriculture sector and beyond ‘climate smart’. The preparatory work will therefore include a review of national policies and programs to assess their impact on agricultural resilience. This is a substantial exercise in its own right because it needs to be done rigorously. The assumption that some policies and programs, including in the agriculture sector, are not climate smart and are encouraging ‘maladaptive’ practices needs to be tested properly⁷. If policies are to be amended as a result of the review, good evidence of the problems and proposed solutions needs to be gathered and presented. This review should be done in two stages, firstly considering policies and programs within the MoA itself. This will allow the review team to become skilled at the process and for the MoA to get its own house in order before addressing other sectors. The review can then be extended to other policies and programmes that impact on agriculture.

3.25 The process for preparing a national strategy and county adaptation plans should not be over-expensive or take a long time to complete. It should be based on available information, not reliant upon new research. It should be produced as the output from a training program for relevant staff and it should be produced by the staff, not by an external consultant (although training and guidance will be required). The process will include consultation with partners through existing mechanisms: the project steering group; the agricultural coordination committee and the agricultural donor’s coordination group. This consultation is itself an opportunity to fulfil the project’s aim of raising awareness about climate change. Consultation and dissemination of the final strategy will form an important part of the communication plan being developed under the communication/knowledge management component of the CCAAP project.

‘Hands-on’ learning and the production of plans

3.26 The training described in this chapter is organised around the production of a series of plans and strategies (see figure 2). These are valuable in themselves, to guide and communicate MoA’s management of adaptation. They fill a serious capacity gap which is the absence of plans at present. But they are also a way to make the training practical. The knowledge gained is applied immediately and skills are developed by doing.

Figure 2: Plans and strategies resulting from the capacity development plan



⁷ The CCAAP Project Document makes several references to existing policies that are maladaptive, particularly the large-scale promotion of lowland swamp rice using industrial production methods.

Summary of inputs and beneficiaries

- 3.27 The table below summarises the inputs for this first part of the capacity development plan. It also identifies those who will benefit from the capacity support. The inputs are mostly packages of training and facilitation to provide a foundation of knowledge and skills, followed by support for the application of this capacity to deliver a tangible result.

Summary: Capacity development Inputs and beneficiaries:	
Output 1 – Raising Knowledge and skills	
Inputs	Beneficiaries
Activity 1.1 Training and strengthening the extension service	
Employment of 2 District Agriculture Officers	2 DAOs
Training program for pilot county extension service with trainer/facilitator	15 district and county staff, plus 2 national trainees
Roll-out of training to national extension service	60 extension service staff, plus 4 staff from central ES division
Training for Rural Women's Network, led by Ministry of Gender	30 women with leadership roles in farming communities. Ministry of Gender.
Training and facilitation for the production of county adaptation plans	15 district and county staff, plus 2 national trainees
Activity 1.2 Adaptation plans for agriculture sub-sectors	
Training and a facilitation for the production of sub-sector action plans	60 Technical staff from 10 MoA Divisions.
Conference and private sector-led working group to develop an adaptation strategy/position for the concession agriculture sub sector (rubber and oil palm)	4 Technical staff from Crops and Planning & Development divisions in MoA, concession holders and key government and non government stakeholders (including, NIIC, FDA, LME, MIA, MoP)
Activity 1.3 Familiarization with UNFCCC and other frameworks	
Induction 3-day training workshops on UNFCCC, DRM and Meteorology. Support to EPA, MIA and MOT/LME to provide training.	10 Technical staff and 6 Deputy/Assistant Ministers., plus CCAAP steering group. EPA, MIA, MoT, LME.
Study-visits for Ministers and HoDs to pilot sites and an exemplar country.	6 Deputy/Assistant Ministers plus 4 HoDs
Activity 1.4 National agriculture resilience strategy	
Training and facilitation for the production of a national agriculture resilience strategy.	10 Technical staff and 6 Deputy/Assistant Ministers., plus CCAAP steering group
Review of policies and programs	10 Technical staff and 2 Deputy/Assistant Ministers

4: Establishing governance arrangements

- 4.1 To manage climate change as a cross-cutting issue and to ‘mainstream’ it, new institutional arrangements are needed to link the CCAAP project in the Government of Liberia’s policies and procedures. These are depicted in Figure 3 (overleaf).

Climate resource centers in the counties

Activity 2.1 Establish climate resource centers in the pilot counties to make meteorological information and climate change adaptation information available to extension service and partners.

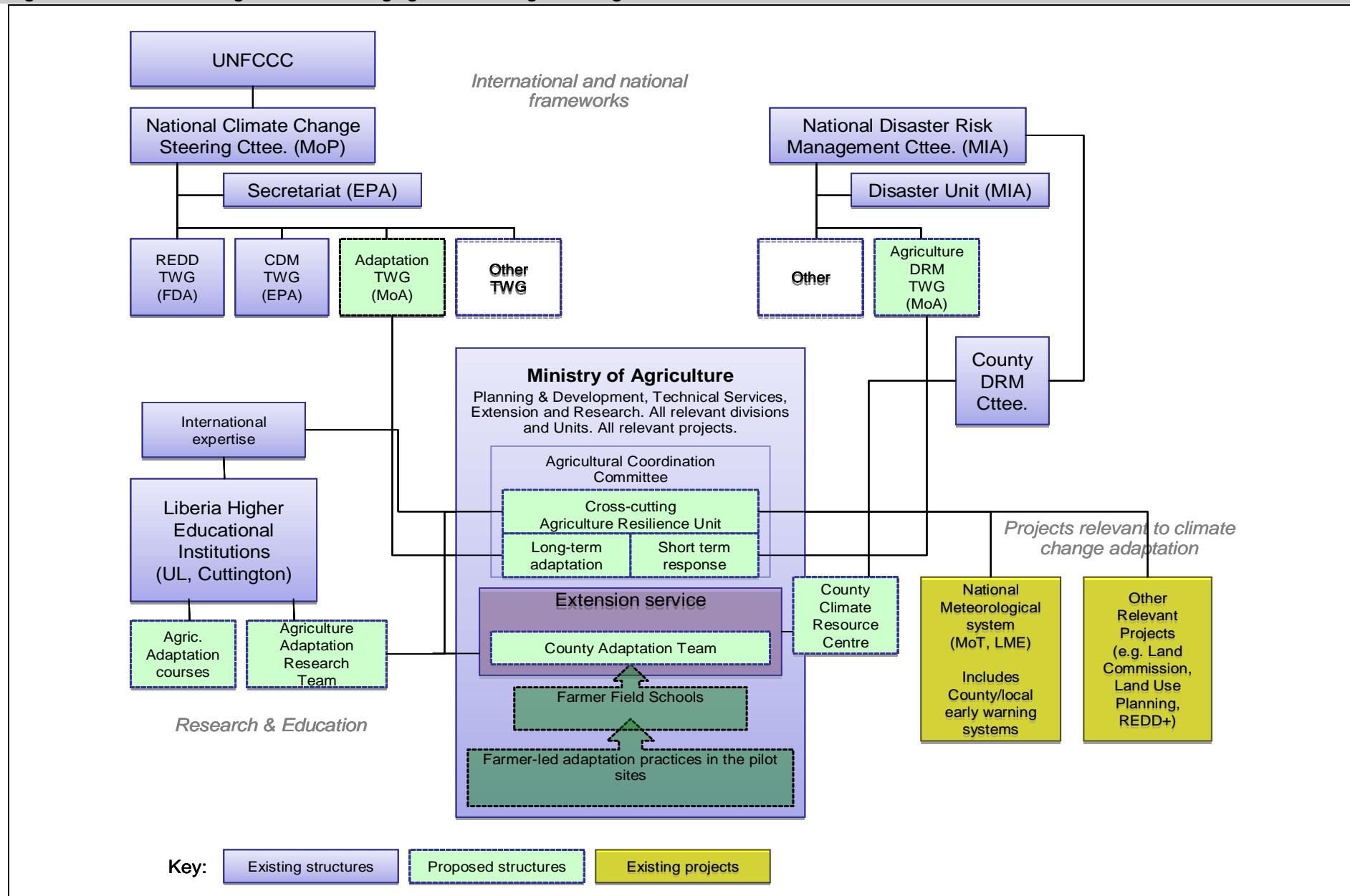
- 4.2 The capacity needs assessment identified a requirement for a source of information on climate change and meteorology at county level. To meet this need, resource centers will be set up in the two pilot counties. These will be based in the County Agriculture Office and will include a desktop computer that extension workers and partners can use to obtain information about weather, climate change, agricultural adaptation practices and disaster management. Packages of appropriate information will be made available through the knowledge management and communication component of the CCAAP project. This component will bring together information from the pilot sites and from national and international sources and present this in a form appropriate for technical staff working at county and district level. Extension staff in other counties will also be able to benefit from the on-line resource.

Making policies and programs climate smart

Activity 2.2 Work with Environmental Protection Agency to apply EIA and Strategic Environmental Assessment systems as appraisal tools for making programs and policies ‘climate smart’.

- 4.3 A review of policies and programs, to establish if they are ‘climate smart’, has already been introduced in the previous chapter. There is also a need for an ongoing mechanism for screening new policies and programs, to check that they are not acting against climate change adaptation objectives. The plan is to use the existing Environmental Impact Assessment and Strategic Environmental Assessment screening tools. This requires some adaptation of the current EIA method so that it is capable of screening for climate change risks. It also requires capacity development in MoA and the Environmental Protection Agency so that EIA/SEA can be applied effectively.

Figure 3: Governance arrangements for managing climate change in the agriculture sector



Source: D Rothe

- 4.4 Specifically, funding will be provided so that a small team of EPA and MoA staff can meet every two months to check new policies and programs and follow up any issues with the relevant part of government (and/or donor). A draft of the tasks and membership of this team is given in Figure 4.

Figure 4: Climate risk screening team: Tasks and Membership

Tasks:

1. Review and adjust EIA/SEA tools so they are suitable for screening climate change risks.
2. Carry out a baseline review of existing policies and programs
3. Meet regularly to review new policies and programs
4. Report findings to AAWG, Agriculture Coordination Committee and Donors Agriculture Coordination Group.
5. Work with other agencies to address any maladaptive policies/programs identified.
6. Review the effectiveness of the approach after one year.

Membership:

- CCAP Project Coordinator and M&E officer.
- Two EIA specialists from EPA.
- One staff member from Policy & Planning and the Agricultural Coordination Committee in MoA.

An Agricultural Resilience Unit

Activity 2.3 Establish an Agriculture Resilience Unit in the Ministry of Agriculture to manage implementation and coordination of climate change adaptation.

- 4.5 This capacity development plan contains a range of farmer-support, planning and coordination activities. The approach taken is to ‘mainstream’ adaptation into the regular activities of the agricultural sector and other sectors, rather than to treat it as a separate activity. It involves various working groups, plans and strategies. This is demanding to manage because it is complex and requires a high level of influencing and coordination.
- 4.6 To deal with this, the MoA needs a small, cross-cutting team who specialise in climate change risks and adaptation. The CCAAP project team (with support) provides a starting point for such a team but a permanent solution is required for when this project ends in 2016. In preparation for this time, it is recommended that an Agricultural Resilience Unit be formed midway through the CCAAP project. This will be made up of the CCAAP staff plus a ‘virtual team’ of MoA staff who have become expert in climate change adaptation and emergencies as a result of the capacity development project. This wider pool of staff can be drawn into ARU-led activities as required, by emergencies for example or as further funding opportunities allow. One of the functions of the ARU will be to secure further funding so that the MoA can continue to take a leading role in managing climate change. Having a unit dedicated climate change resilience will give donors confidence that structures for implementation/management are already in place.

Terms of Reference for the Agriculture Resilience Unit

- 4.7 The terms of reference for the ARU will largely be the same as for the CCAAP project management team. Implementation of the project and this capacity development plan involves

linking in with wider frameworks and managing climate change activities across the sector and the terms of reference reflect this. Draft terms of reference are provided here, to be finalised by the MoA and the project steering group.

Figure 5: Agriculture Resilience Unit: Terms of Reference (Draft)

1. Manage the CCAAP project, including the coordination, planning and farmer-support actions in this capacity plan, under the supervision of the project steering group.
2. Provide secretariat and technical support to the AAWG and ADRM working groups and implement the decisions of these groups.
3. Manage the implementation of long-term adaptation and short-term disaster risk management measures by MoA and partners.
4. Provide technical expertise and policy advice on agriculture risks and adaptation to the MoA and GoL.
5. Acquire international expertise on climate change risks and adaptation by participating in international networks and events, representing the GoL at such events and supporting representation by Ministers.
6. Secure funding for supporting further and ongoing work on climate change adaptation in Liberia, identifying suitable donors, preparing and submitting proposals.

A technical support facility

- 4.8 The current three-person CCAP project team provides the core of the Agricultural Resilience Unit but it does not currently have the capacity required to lead the coordination, influencing, training and expert inputs that is required to implement this plan. It is under-strength⁸, able to manage the project but not implement it.
- 4.9 To address this need for additional support a suitable international NGO or a consortia of international and Liberian NGOs should be contracted to provide technical support. The contract would be for the duration of the CCAAP project and would provide a range of technical expertise services as required for the implementation of the capacity development plan. The service provider(s) should be able to provide many of these skills itself and will manage a budget to commission expertise from others when required. They will be responsible for managing the overall budget for implementation of the capacity development plan. They will be expected to transfer knowledge and skills so that MoA staff will be capable of taking over the role by the end of the CCAAP project.

Figure 6: Specification for a Technical Support Facility

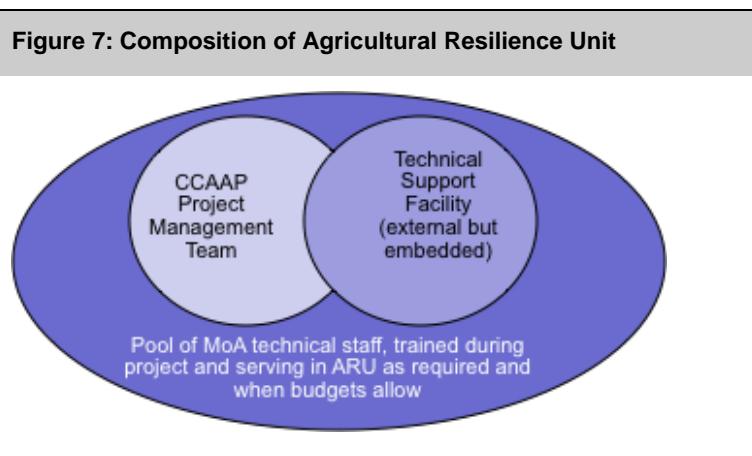
Terms of Reference

1. Implement the CCAAP capacity development plan and manage the budget allocated to this activity.
2. Provide climate change expertise, coordination and influencing/communications support to the Agricultural Resilience Unit.
3. Transfer this expertise and skills to the MoA and partner organizations.
4. Provide a training program and qualified trainers/facilitators for the training components of the

⁸ The project document recommended an international expert, a Project Coordinator, an officer with a combined monitoring and communications role and a second officer to do both finance and administration. Instead there is a Project Coordinator, a full time M&E officer and a full-time finance officer. The current team is therefore lacking expertise, communications and administration capability.

<p>capacity development plan, making maximum use of MoA staff;</p> <ul style="list-style-type: none"> ○ Training of extension workers in pilot sites and national roll-out (with FAO) ○ Training of female farmer leaders and Rural Women's Network (with MoGender) ○ Training/facilitation for the production of county adaptation plans in 2 pilot counties. ○ Training/facilitation for the production of 4 sub-sector adaptation plans ○ Training/Facilitation for the production of a national agricultural resilience strategy, including introductory training for key technical staff on UNFCCC, DRM and Meteorology (with EPA, MIA, MOP/LME) <p>5. Provide technical support for the organization and facilitation of an initiative amongst large-scale concession holders to develop an adaptation plan for this sub-sector.</p> <p>6. Provide technical support for the following working groups:</p> <ul style="list-style-type: none"> ○ County adaptation groups in both pilot counties ○ National Agriculture Adaptation Group within the UNFCCC process (led by EPA) ○ Agriculture Disaster Risk Management group (led by MIA) ○ EPA/MoA group on EIA/SEA for climate change screening <p>7. Commissioning and management of a research contracts to support the information requirements of the MoA and partners.</p>
<p>Attributes of suitable organization or consortia</p> <ul style="list-style-type: none"> • Strong expertise in climate change and adaptation in agriculture, including international experience in West Africa and other relevant regions/countries. • Strong links with international centers of expertise on climate change (academic and other NGOs) and an ability to draw on this expertise. • Ability to work collaboratively with Liberian and international organizations to bring in the most appropriate expertise. • Experience of working in the agricultural sector in Liberia. • Ability to work closely and collaboratively with the CCAAP Project Coordinator, the project Steering group and other key partners. • Strong financial management and project management systems and experience.

- 4.10 The Agricultural Resilience Unit will therefore be made up of three elements as depicted in figure 7. The reason for delaying formation of the ARU until midway through the CCAAP project is because it depends upon the transfer of skills and knowledge from the TSF, to the CCAP project team and then to 'mainstream' MoA staff. By the end of the CCAAP project, MoA staff will be capable of running the ARU.



Source: D Rothe

4.11 The option of using of a series of short-term consultancies, commissioned and managed by the CCAAP project management team, was considered but it has serious disadvantages. It will result in a series of disconnected projects that will add to, rather than reduce, the challenge of coordination. It will also be very burdensome to manage.

Location of the Agricultural Resilience Unit within MoA

4.12 The Agricultural Resilience Unit will have a cross-cutting role across the MoA, but for line-management reasons it needs to be assigned to one of the four departments and Deputy Ministers. This is a decision for the Ministerial team at MoA. The recommendation is that it be placed in the Department for Planning and Development, because this holds the policy, planning and coordination functions that are key to managing climate change (it also holds the Project Management Unit where the CCAAP project is located).

County Adaptation Teams

4.13 It is important that the ARU has a strong presence at county level, where coordination and action to support farm-level adaptation is required. A County Adaptation Team will therefore be supported to perform the following functions:

- Support farm-level adaptation by removing barriers
- Coordinate adaptation and related climate change activities at county level
- Prepare and implementing a county adaptation plan

4.14 As with the national resilience unit, the county team does not involve recruiting new staff or re-directing staff from other roles. There is already a group of MoA extension staff and key partners who coordinate agricultural activities and so the requirement is to enable this group to become involved in managing climate change risks and adaptation.

4.15 Practically, this means regular meetings and support for a group who can lead on the preparation of a county adaptation strategy and coordinate actions in support of farmers in the pilot sites. The occasional larger event to involve other stakeholders, for example to validate the county plan, will also be required. Once this plan is produced, the group should continue to meet regularly to review implementation. These regular meetings provide a means of coordinating climate related activities and support to farmers. Some human resource is required to support the group; to gather information and carry out actions. This secretariat will be provided by the additional District Agricultural Officers that the CCAAP project will employ for each County.

Working groups on adaptation and disaster risk management

Activity 2.4 Embed agricultural resilience into national frameworks for climate change and disaster risk management.

4.16 The national/international frameworks for UNFCCC and Disaster Risk Management (DRM) function through technical working groups. These are formed to complete specific tasks and end when that task is complete. The Liberia climate change framework currently lacks an adaptation working group and nor is there a DRM group that is addressing the agriculture sector. The capacity development plan is therefore to both strengthen and use these groups.

They will be strengthened by forming new adaptation groups and used as sources of knowledge, process and further technical (and financial) support.

Terms of reference for an Agriculture Adaptation Working Group

- 4.17 The agricultural adaptation working group (AAWG) will have similar duties to the current CCAAP Steering Group. The difference is that it will also have the responsibility of formally linking into UNFCCC. In this way the group is no longer just a project steering group, it is part of the national and international framework for managing climate change.
- 4.18 Its remit therefore includes giving advice to Government on agricultural adaptation in general. This wider remit enables the AAWG to fulfil the role of a ‘think tank’ on agricultural climate change that was envisaged in the original CCAAP project document. By merging the functions of the steering group and think tank into a new Agriculture Adaptation Working Group, the intention is to rationalise the number of groups and meetings and make a strong link to the UNFCCC process.
- 4.19 Valuable experience of running such a group has already been gained with the REDD+ Technical Working Group and the terms of reference drafted in figure 8 draw on this experience. These will need to be finalised by the group itself, in agreement with the CCAAP project funders.

Figure 8: Agricultural Adaptation Technical Working Group: Terms of Reference (Draft)

1. Oversee the preparation of a national strategy for managing climate change adaptation in agriculture.
2. Steer the implementation of the CCAAP project by providing technical advice and managerial oversight.
3. Act as Government’s advisory body on the implementation of Climate Change Adaptation policies and programs;
4. Review and approve terms of reference for studies, consultancies and assessments, ensuring that stakeholder views are taken into account;
5. Identify opportunities for raising awareness of climate change risks and resilience measures and for mainstreaming it into national policy and programs
6. Ensure that stakeholders in the public, private and NGO sectors are informed and able to participate in decision making.
7. Provide input into other climate change adaptation proposals that have fiscal consequences for the Government.
8. Set-up additional task groups as needed to advise and assist the MOA in particular subject or technical areas.

Purpose of an Agriculture Disaster Risk Management working group

- 4.20 The purpose of an Agriculture DRM working group is similar to that of the previously described adaptation group: it enables the agriculture sector to manage climate change within a wider framework (the UN-led Hyogo Framework of Action). The Government of Liberia has a National Disaster Relief Commission, led by the Ministry of Internal Affairs, although the national arrangement is still relatively undeveloped. Liberia is one of the few African states that have yet to form a national platform for DRR within the international framework. It has benefitted from several substantial projects however, including an FAO-led project on DRM in the agriculture sector, which produced a proposal to set up a national taskforce to take forward work on the subject. [Roland to check with FAO progress with this taskforce.]

Has it started, does it have funding?]. As things stand, the MoA lacks contingency plans and structures for managing disasters arising from extreme weather and climate change. This was one of the issues identified in the capacity needs assessment.

- 4.21 The Agriculture Disaster Risk Management working group will address this need by preparing a Disaster Risk Management Plan for the agricultural sector, and by supporting the preparation of contingency plans for each of the MoA's relevant Divisions. These national and sub-sector plans will focus on the management of disasters arising from severe weather and climate change. This group has a more limited and technical role than the AAWG. In effect, it is a sub-group of the AAWG so its membership will be different. It will include a small team of MoA staff drawn from the most relevant divisions, plus experts from other government and non-government organisations, including FAO and Ministries of Internal Affairs and Planning.

Figure 9: Agricultural DRM Technical Working Group: Terms of Reference (Draft)

1. Organize and oversee the preparation of a Disaster Risk Management Strategy for the agriculture sector in Liberia.
2. Oversee the preparation of contingency plans for agricultural-related disasters
3. Act as government's adviser on emergency planning and responses in the agricultural sector, as part of the national DRM framework.
4. Act as the focal point within the Ministry of Agriculture for RM planning and response.
5. Advise on the development and use of early warning weather systems.
6. Initiate and oversee research as required to improve information about risks and appropriate responses.

Inputs required

- 4.22 Both working groups will need a budget for regular meetings. A budget for steering group meetings is already provided by the project although additional meetings (and therefore additional funds) will be required for the additional 'think-tank' role and for the new DRM group. The need for introductory training and support to develop a workplan has already been addressed in the previous chapter.
- 4.23 Both groups also need a secretariat to organise meetings, prepare papers and implement decisions. This will be provided by the CCAAP Project Coordinator and team (with support from the technical support facility). This does not represent an extra task because it falls within their existing responsibility for project implementation.

Summary of inputs and beneficiaries

- 4.24 A summary of the inputs described in this chapter is given below, along with a description of the organizations and individuals who will benefit directly.

Capacity development inputs and beneficiaries for output 2 – Establishing governance arrangements

Inputs	Beneficiaries
Activity 2.1 Establish climate resource centers in the pilot counties	
Equipment (computer, desk, chairs) for a climate resource	MoA extension staff at

<p>center in each of the pilot counties). Provision of on-line information of adaptation practices, climate change and meteorology.</p>	<p>county and district level in pilot areas. Partner organisations.</p>
<p>Activity 2.2 Work with Environmental Protection Agency to apply EIA and Strategic Environmental Assessment systems to appraise projects and policies for their impact on climate change resilience</p>	
<p>Formation and support of an EPA/MoA team to review and adapt EIA/SEA for use as screening tools for CC risks, initially as a one-year pilot, with a review and possible continuation. Includes support for regular screening of policies/programs, report their findings and engage with other organizations about maladaptive policies/programs.</p>	<p>4 MoA staff, 2/3 EPA staff.</p>
<p>Activity 2.3 Establish an Agriculture Resilience Unit in the Ministry of Agriculture</p>	
<p>Staffing of Agricultural Resilience Unit through the existing CCAAP project team and a technical support facility, externally contracted</p>	<p>3 Staff in CCAAP team plus 6 staff from key divisions in MoA who are trained to become adaptation experts.</p>
<p>Meetings and events to engage other staff in MoA and stakeholders</p>	<p>Technical staff in most relevant divisions</p>
<p>Attendance at national/international events on CC risks and adaptation.</p>	<p>CCAAP PC, Ministers and Heads of Division at MoA.</p>
<p>Secretariat and running costs for county adaptation groups in each of the pilot sites (Secretariat provides by 2 additional DAOs funded by the project).</p>	<p>Extension staff of MoA plus partner organisations (MIA, MoP, Land Commission)</p>
<p>Activity 2.4 Embed agricultural resilience into national frameworks for climate change and disaster risk management</p>	
<p>Secretariat support and running costs for new MoA-led adaptation working groups under UNFCCC and DRM, including costs of regular meetings and occasional consultative events with larger groups of stakeholders.</p>	<p>UNFCCC- Members of working group (similar to current steering group, plus key technical staff)</p>
	<p>DRM – Technical staff from key divisions in MoA, and from key partners: MIA, MoGender, Ministry of Health.</p>

5: Research and Education

Research program on agriculture adaptation

3.1 Develop a national program of research on agricultural adaptation

- 5.1 There is a lack of information about climate change, risks and adaptations in agriculture in Liberia. Research is therefore crucial to provide evidence for actions and for influencing policy. The CCAAP project will fund a core research program with the University of Liberia and with Cuttinton University. This research program will be guided by the curriculum of the Farmer Field Schools, thereby ensuring that the information generated is relevant. A budget of \$45,000 has been allocated to this program in the first year, which is a sensible approach as it allows the research capabilities of the Universities to be developed and tested.
- 5.2 The various working groups and planning exercises initiated by this capacity development plan will identify additional research needs (because the evidence-base for climate change adaptation is currently very limited). The MoA Agricultural resilience Unit will therefore need a budget to commission further research on a competitive basis during years two-to-four of the project. Proposals for research will come through the various groups involved in implementing the project; including the County adaptation teams, sub-sector planning teams, or the technical working groups for UNFCCC and DRM. The AAWG will make the final decision on which research projects to fund and the technical support facility/ARU will manage the research contracts. Liberian institutions will be invited to tender for the research contract, and will be encouraged to link to international research institutions to bring in expertise that they lack. In this way, Liberian institutions will benefit from the research support and will also be able to strengthen their links with foreign centres of excellence.
- 5.3 A particular need for research in three areas was identified during the capacity needs assessment. The first is to record perceptions of climate and weather change held by farmers across the different agro-ecological zones of Liberia and to gather baseline data on what adaptations or coping strategies are already being used. The pilots will produce this sort of information for two sites (both with similar swamp farming and upland farming systems) but there is no similar information for the other thirteen counties, or for the range of farming systems that characterise Liberia. This is essential ‘baseline’ information for a national strategy and other plans. It should be a relatively ‘quick and dirty’ survey, designed to provide baseline information for the program. It should be conducted alongside the development of sub-sector adaptation plans and training for extension workers. I.e. MoA staff should be centrally involved in carrying out the data gathering.
- 5.4 The second topic is the costs and benefits of adaptation options. UNDP commissioned a study of investment and financial flows for managing climate change in Liberia⁹ and this is a useful starting point, but it is heavily based on assumptions and modelling and does not give costs/benefits for specific adaptation options. Decision makers will need this information in order to judge whether the benefits of adaptation outweigh the costs. It is therefore important

⁹ UNDP (2011) *Investment and Financial Flows*

that the project includes an ongoing research program to examine the economics of the adaptation measures being tried in the pilot sites.

- 5.5 There is a growing body of international literature on methods for assessing climate vulnerability, risk and adaptations¹⁰. The initial research task should therefore be to review this literature and devise a set of methods most suited to the Liberian context. This can then form the basis for training staff affiliated with the Agricultural Resilience Unit in appraisal methods that they can apply for planning and management purposes.
- 5.6 The third piece of research proposed is a study to inform the development of indicators that can be used for measuring the effectiveness of adaptation activities. More is said on this in the final chapter. Beyond these three key topics, it is not helpful at this stage to go on to define the whole research program. It is intended to be a resource for the project steering group and those involved in the various adaptation planning and management activities, to help them to address the information needs that they will encounter.

Teaching courses on agriculture adaptation

3.2 Develop teaching modules on climate change adaptation and include in courses for agricultural students.

- 5.7 The present curriculum of the Universities and other teaching establishments in Liberia do not include climate change adaptation. The capacity development plan therefore includes support for the two Universities in Liberia to develop modules on climate change risks and adaptation, for inclusion in teaching courses for agriculture, forestry and related subjects (e.g. engineering).
- 5.8 A second stage of this support will extend these teaching resources to other education institutions in the country. This will be done through the production and dissemination of teaching modules and by enabling the University to provide introductory teacher-training.

Field research and monitoring

3.3 Engage staff and students in field research and work-based learning, supporting the Farmer's Field Schools in the pilot sites.

- 5.9 There is a need to link University research with the Farmer's Field Schools so that studies help farmers with their problem solving and experimentation with adaptation measures. It is expected that the national research program described above will be closely linked to the pilot sites but in addition, support will be provided for staff and students to conduct regular field visits. The purpose of these visits will be to enable:
- Monitoring and reporting of activities and results in the pilot sites by an academic team
 - teaching of students *in-situ*, allowing them to gain hands-on experience with adaptation activities and to learn from the experience of farmers and FFS facilitators.

¹⁰ See for example methods proposed by, UNFCCC guidance for National Adaptation Plans or UNEP (2012)PROVIA Guidance on assessing vulnerability, impacts and adaptations.

- 5.10 Funding will also be provided for internships. The interns will be agriculture graduates and they will be assigned to the county agricultural office in each of the pilot counties. Their job will be to act as an information/communication officer for the county adaptation teams; collating research and other information on climate change risks and adaptation and making sure the information held in the County Resource Centres is up to date and accessible.
- 5.11 [Roland – you will want to check that this works with the final plans for component 2. I.e. will FAO be willing to cooperate with research and teaching at the FFS and will the internship program be acceptable to the PSG and County Agricultural Coordinators?]

Capacity development Inputs and beneficiaries for output 3 – Research and Education	
Inputs	Beneficiaries
Activity 3.1 Develop a national program of research on agricultural adaptation	
Expansion of research program to create an evidence base for planning and action.	Liberia research institutions
Activity 3.2 Develop teaching modules on climate change adaptation and include in courses for agricultural students	
Support package for Universities to carry out a curriculum review and to develop new modules or courses.	Universities of Liberia and Cuttington
Dissemination program to offer climate change modules/courses to other education institutions and provide teacher-training.	Liberian teaching institutions
Activity 3.3 Engage staff and students in field research and work-based learning, supporting the Farmer's Field Schools in the pilot sites	
Field research program to enable staff and students to conduct field-visits and on-site training for students in association with the Farmer Field Schools	6 Staff and 100 students of UoL, Cuttington
Intern program to provide additional information/communication capacity at county level.	6 interns (1 per county on a 1 year contract).

6: Budget and performance management

- 6.1 This chapter presents the budget for the capacity development plan. It also describes the timing of implementation and arrangements for performance management. Implementation arrangements are set out in more detail in the accompanying implementation manual. This chapter therefore sets out the key points and general approach.

Costed capacity development plan

- 6.2 The total project budget is \$XXXX (excluding contributions in kind). Component 2 accounts for \$XXXX. Management and administration costs for the project amount to \$93,000 per annum. This leaves a maximum budget of \$XXX for component 1 capacity development. Note that a substantial proportion of the project management/administration budget will contribute towards component 1 activities, although these are not included in the figures below. [Roland to provide project budget figures and confirmation of the amount available for component 1 capacity development].

Headline budget

- 6.3 The budget in table 3 shows a breakdown of costs by activity.

Table 3: Budget for the capacity development plan

Output/activity	Budget (\$USD)
1. Raising knowledge and skills	
1.1 Prepare and implement a training program for extension workers, based on the lessons emerging from Farmers Field Schools in the pilot sites and the preparation of county adaptation plans.	123,000
1.2 Train and support staff in relevant divisions to carry out an assessment of climate change risks and adaptation requirements in agricultural sub-sectors (crops, livestock, fisheries etc.)	48,000
1.3 Familiarize through training and exposure to international knowledge a core team of MoA staff in international-national frameworks important for agriculture adaptation, including UNFCCC, DRM, and Meteorology.	50,000
1.4 Prepare a climate change adaptation strategy and action plan for the MoA and key partners	54,000
<i>Sub total</i>	<u>275,000</u>
2. Establish governance arrangements	
2.1 Establish climate resource centers in the pilot counties to make meteorological information and climate change adaptation information available to extension service and partners.	14,000
2.2 Work with Environmental Protection Agency to apply EIA and Strategic Environmental Assessment systems to appraise projects and policies for their impact on climate change resilience.	10,000

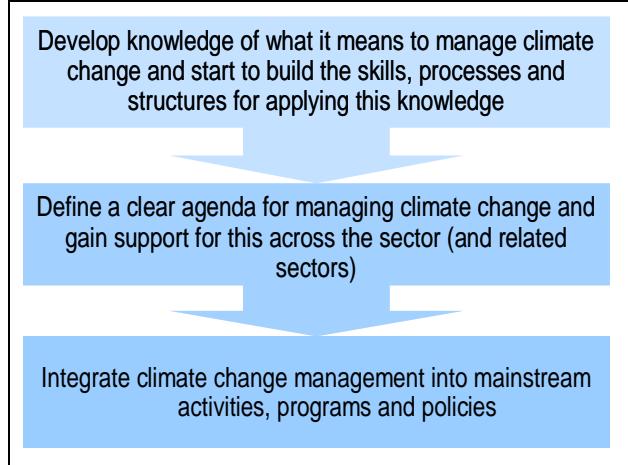
2.3 Establish an Agriculture Resilience Team in the Ministry of Agriculture to manage implementation and coordination of climate change adaptation.	156,000
2.4 Embed agricultural resilience into national frameworks for climate change and disaster risk management.	24,000
<i>Sub total</i>	<u>204,000</u>
3. Research & Education	
3.1 Develop a national program of research on agricultural adaptation	150,000
3.2 Develop teaching modules on climate change adaptation and include in courses for agricultural students.	7,000
3.3 Engage staff and students in field research and work-based learning, supporting the Farmer's Field Schools in the pilot sites.	62,000
<i>Sub total</i>	<u>219,000</u>
TOTAL	698,000

- 6.4 The budget is allocated fairly equally between the three outputs, reflecting the substantial needs in each area of intervention. Amongst the activities, a relatively large budget is assigned for the training of extension workers, to ensure that the capacity support benefits farmers. The setting up of an Agricultural Resilience Unit within the MoA to implement this project and to lead the Ministry's ongoing work on adaptation is the largest item in the governance section. This is necessary to provide the substantial technical expertise required and to ensure that the MoA is in a position to lead on climate change adaptation across the sector and at a national/international level. In the third output, research and farm-based learning is prioritised because the evidence base for action and for developing policy is currently very weak.

Timing of implementation

- 6.5 The phasing of capacity development is important. It needs to support the progression of the MoA and partners through three stages on the road to managing climate change (see Figure 10). The first stage clarifies the question of "capacity for what?" by expanding knowledge of what climate change adaptation means for Liberian agriculture and what is required to manage it. This first phase also lays a foundation of skills, methods and structures. As experience is gained in the pilot sites and as analysis and planning at the county and national

Figure 10: Key stages in capacity development Plan



Source: D Rothe

level proceeds, it will become possible to define priorities and the effective actions that can be taken to support adaptation.

- 6.6 In stage two, the knowledge gained is translated into an agenda for action, through a national strategy and action plans at national, sub-sector and county level. Support for this agenda needs to be gained across the sector and in other relevant sectors. ‘Buy-in’ from Ministers, staff and partners is essential for the third stage, when climate change adaptation is ‘mainstreamed’ into policies, programs, training and education for the agriculture sector.
- 6.7 Ideally, the county and national-level capacity development activity would follow the local level piloting, so that it could be shaped by lessons from the pilots about what, in practice, adaptation involves and how it can be supported, but the time-frame for the CCAAP project means that the pilots and national capacity development need to start at the same time. There is therefore a need to check that the ‘top down’ approach is appropriate for the ‘bottom-up’ needs after the first phase. This means including within annual reviews and the mid-term evaluation¹¹ an assessment of whether the national activities are properly aligned with what the pilots reveal about the realities of climate risks and adaptation. A detailed timetable, reflecting the three key stages, is included in the implementation manual that accompanies this plan.

Measuring and managing progress

- 6.8 Implementation of the capacity development plan will be measured and managed as part of the overall management of the CCAAP project. This approach taken makes this relatively straightforward, because the plan is based around the production of a series of clear outputs. The accompanying Implementation Manual provides a set of targets and timelines that can be incorporated into the CCAAP performance management framework. The capacity needs assessment conducted prior to this plan provides a baseline measure of capacity.
- 6.9 Two other important aspects of performance management are dealt with here:
- Measuring outcomes
 - Mainstreaming the capacity development plan into the workplan of MoA and partners.

Outcome Indicators

- 6.10 As Liberia develops its capacity to manage climate change it will be important to be able to demonstrate that the adaptation measures being taken actually improve resilience and outcomes for farmers. Demonstrating results is not only important for evaluating the effectiveness of the CCAAP project, it is also vital for winning political support and donor funding for future projects.
- 6.11 There are no standard international targets or indicators for measuring progress with adaptation (‘adaptation metrics’)¹². Various methods are available, including Cost Benefit Analysis, Cost Effectiveness Analysis, Multi Criteria Analysis and Expert Consultation. Liberia therefore has to develop targets and indicators that suit its own circumstances. The

¹¹ The Project Document specifies annual reviews and independent evaluations at mid-term and completion.

¹² Prabhakar & Srinivasan. *Metrics for measuring adaptation to climate change in the agriculture sector. Paper to World Bank.*

Project Document suggests some indicators but these need further work to ensure that they are ‘SMART’ and to provide a wider set of outcome indicators. For example, percentage change in food production is not a good impact indicator because it does not isolate the effects on productivity of adaptation. A more relevant indicator would be the percentage of agricultural production lost to extreme weather events.

- 6.12 The development of suitable indicators will be done as part of the strategy and adaptation-planning activities set out in this plan. The production of a national strategy in particular presents an opportunity to devise a set of outcome targets and indicators. The assessment of current levels of risk and resilience that will be done as part of the preparation of the strategy will contribute information on the baseline.

Figure 11. Impact and Outcome Indicators (from Project Document)

	Indicator	Baseline	Targets	Source
Impact: Improve food security by increasing the resilience of Liberian agriculture to climate change and weather extremes	% change in projected food production in target areas given existing and projected climate change	Upland: Not currently measured Lowland: % tons/year of low-land rice - site specific information Baselines to be established during inception	Upland & lowland: Formal tracking system established to cover diversified food commodities Lowland: 10% average annual increase of rice production due to cultivation of traditional rice varieties as 'adaptation option'	Local level assessments at demonstration sites (Questionnaire based appraisal - CBA)
Outcome: Strengthened capacity to manage climate change risks and adaptation in the agricultural sector	No. of staff trained on technical adaptation themes	Technical staff: 0 County level staff: 0 University students: 0	Technical staff: 60 (50% female) County level staff: 30 (10 in each county) (50% female) University students: 100 (50% female)	Course/training/ professional updating event lists of participants

Source: CCAAP Project Document

- 6.13 The farmer field schools in the pilot sites will be an important source of information on indicators. In terms of making a difference at farm-level, the key indicators will be those that demonstrate to the farmer that the adaptation measures are worthwhile, i.e. metrics such as crop yield, reduction of losses due to weather extremes or pests, labour inputs etc.
- 6.14 To inform this work to develop indicators, the research program introduced in this plan will include a study of adaptation indicators. This will identify suitable indicators from the pilot sites, from national documents and from the international literature. It will include a review of the quality of evidence available for measuring the progress against the indicators.

Mainstreaming the implementation of the capacity development plan

- 6.15 Particularly because of the ‘learning by doing’ approach taken, many MoA staff and staff from partner organizations will be actively participating in the implementation of this plan. In MoA, technical staff and extension workers will be involved in analysing risks, developing strategies and plans and participating in working groups. Staff are not just required to turn up to training sessions, they are required to put substantial time into productive activities. It is vital that the contribution of these staff is effectively managed. The Project Management team will not be able to do this alone because it does not directly control these staff. It requires that the capacity development plan is integrated into the workplans and targets for

the MoA as a whole, for the ten or more Divisions who are most involved in this project and for the individuals within those divisions who will be playing an active role.

Appendix 1. Participants at validation workshop



Climate Change Adaptation Agriculture Project (CCAAP) Climate Change Management Capacity Development Plan Validation Workshop March 28, 2013

No.	Name	Title	Institution
1.	Austin Wehye	Program manager	BNF/MOA
2.	J. Kaine Merfee	Technical Coordinator	FAO
3.	Nathaniel Z. Korvah	Intern	FED/FAO
4.	Walter Osenberg	Technical Leader	CIZ
5.	Dermot Cassidy	Peri Urban Agri. Agronomist	USAID/FED
6.	Charles McClain	Acting Minister	MOA
7.	C. Morlee Mend-cole	Chairman	CAF/UL
8.	Shawna Hirsch		USAID
9.	Vasile Klaassen	Consultant	IFAD
10.	Saah A. David Jr.	Acting Project Coordinator	FDA/REDD
11.	Arthur Gar-Glahn	Meteorology Director	MOT
12.	T. Samuel B. Fayia	Director	MIA
13.	Glasgow B. Togbah	Head	BNF/MOA
14.	Jessie A. Vannie	Statistician	FDA
15.	Kumeh S. Assaf	Climate Change	UNDP
16.	Sedia K. Williams	PTA/Econ.Transformation	LDA/MOF
17.	John Y. Brownell	Deputy Executive Director	AEDE
18.	Francas Beaurain	Climate Change	Freelancer
19.	Jefferson W. Wylie	Director	LHS/MLM&E
20.	Kolly S. Allison	Advocacy Coordinator	FUN
21.	Hassan Kiawu	Director	MOA-Comm
22.	Halala W. Kokulo	Agronomist	IFAD/MOA/PIU
23.	Jerome Nyenka	Asst. Prof.	UL
24.	David Rothe	Consultant	MOA
25.	Ken Kumeh	Asst. Director	MOA-comm
26.	Princtetta Clinton Varmah	Project Coordinator	IFAD/MOA
27.	J. Cyrus Saygbe Sr.	Project Coordinator	WAAPP/MOA
28.	Erik B. Vincent	Deputy Registral	CDA
29.	Harold E. Davies	Auditor	CDA
30.	Sieane Abdul-Baku	Special Asst. Minister	Ministry of Gender&

			Development
31	Augustine Octavoius	Editor	Fabric Radio Station
32	Joseph O. Sayon	Reporter	ELBC
33	Winnie Saywah	Comm. Specialist	MOA
34	Chea Garley	Asst. Minister	MOA
35	Emmanuel E. Johnson	M&E Officer	CCAAP
36	Benjamin Karmorh	Climate Change Coordinator	EPA
37	Judeomue Kollie	Reporter	Daily Observer
38	Bettie Johnson	Reporter	Truth Fm
39	Peterson Nyemah	Fin/Adm Officer	CCAAP
40	Anthony D. Kpadeh	Consultant	MLME
41	Adolfo cires Alonso	EU	Manager

Appendix 2: Capacity outputs and activities from Project Document

The prosed outputs from the original project document are shown here so that the reader can see how these have been refined in the light of the subsequent capacity needs assessment and capacity-planning process.

Component 1 outputs and activities from overall project plan
<p>Output 1.1: CRM and adaptation capacity in the agriculture sector developed of key technical stakeholders in the ministry technical departments, in parastatals, NGOs and in research institutes (especially those responsible for preparing policies and plans and for overseeing investments)</p> <p>1.1.1 Develop a Climate Change Management (CCM) capacity development plan for technical stakeholders in the agricultural sector, giving specific consideration to women representation.</p> <p>1.1.2 Based on the vulnerability assessments and lessons learned under Component 2, develop specific climate risk management strategies for the various actors in the sector, with a special focus on women.</p> <p>1.1.3 Establish a plan of action for the implementation of knowledge transfer strategies on climate change risk management at various levels, including educational institutions, government functionaries, local leaders, communities.</p> <p>1.1.4 Set up a Monrovia-based think tank on CRM and adaptation (including a self financing scheme that make the institution sustainable) n the agricultural sector for key stakeholders (government, non-government and donors), facilitating knowledge exchange among the various interest groups, and learning and up-scaling from the demonstrations.</p> <p>1.1.5 Support relevant (on-site) climate change management research by organizations, institutions and individuals through small research grants.</p> <p>1.1.6 Develop a strategy to strengthen the technical and financial capacities of the most appropriate private and public local institutions including the NGOs and CBOs to provide farmers and other key stakeholders with climate information and advices for climate resilient agriculture.</p> <p>1.1.7 Develop a website on climate change learning: for this purpose, the project will support end-users surveys and hire developers to design a cutting edge and modern climate change adaptation website for Liberia with a focus on the agricultural sector. The knowledge management website will be linked to the websites of all relevant institutions including EPA, FDA, UNDP and the climate change secretariat for example.</p> <p>1.1.8 Make website maintenance and updating with key information a key task of a staff member and ensure that regular follow-up is guaranteed.</p>
<p>Output 1.2: In two counties, county planners and extension workers have the technical capacity to support communities on climate change, by providing advice on climate change impacts on agriculture and on alternative approaches and measures.</p> <p>1.2.1 Include county level staff in implementation arrangements for site-level initiatives to facilitate hands-on learning with the project team.</p> <p>1.2.2 Develop a CCM capacity development plan for county level technical stakeholders in the agricultural sector. Link to Output 1.1 and specifically address needs and target group profiles for county level staff identified during the baseline assessment planned in the output 2.1.</p> <p>1.2.3 Implement county-level CCM capacity development plan on climate risk management, in particular focusing on building the capacity of key actors especially field staff, i.e. extension workers, NGOs, community leaders including those from women's organizations and leading farmers.</p> <p>1.2.4 Make climate change learning materials accessible to key actors using the newly established</p>

climate change web portal. Cater for those who do not have web access by printing hard copies or distributing CD-ROMs with the learning materials.

Output 1.3: Liberian tertiary education system adapted to produce technicians, engineers and scientists knowledgeable about adapting to climate change

1.3.1 Support tertiary education institutions in the development of technical support that is responsive to the adaptation strategies identified in the demonstration projects.

1.3.2 Facilitate on-site analysis of the effectiveness of adaptation measures with local level community participation – and outputs that directly benefit local level application.

1.3.3 Establish a network of climate change practitioners and support knowledge sharing and communication on managing climate change risks at the farm level.

1.3.4 Establish an incentive system to encourage sharing of best practices on assessing climate change risk management practices.

1.3.5 Once identified and validated, new technologies, approaches and associated organizational activities will be promoted through an integrated medium strategy.

Output 1.4: Raised awareness of national leaders to the threat of climate change to agriculture (e.g. MOA leaders, related Ministries and agencies, the Climate Change Committee, Cabinet, Food Security and Nutrition Technical Committee [FSNTC], Agriculture Coordinator Committee [ACC]).

1.4.1 Develop a detailed knowledge management and communication strategy addressing all intended project outcomes (e.g. website incorporated into MOA's and other related ministries' and agencies' websites).

1.4.2 Document the local level lessons learned in a systematic manner and develop the validation site capacity to function as local level learning laboratories (linked to Outcome 2).

1.4.3 Implement specific policy outreach activities such as technical seminars, field visits, policy dialogues and regular technical briefing papers for specific target groups.

1.4.4 Specifically link project lessons learned to the international peer community through attending conferences, presenting papers and linking to the Adaptation Learning mechanism, amongst others. Implement strategy and track impacts.

Output 1.5: Climate change and adaptation mainstreamed into LASIP and other key agricultural policy initiatives (e.g. Land Policy Reform, Enhanced Land Husbandry drive under LASIP)

1.5.1 Formally identify and catalogue policy opportunities (such as the upcoming PRS update striving for Liberia to become a Middle Income Country by 2030), reviews of agricultural sectoral policy but also of donor investment proposals for mainstreaming climate change resilience building opportunities (based on project findings).

1.5.2 Together with key stakeholders (MOA, EPA, others), develop joint strategies of mainstreaming climate change concerns into future policy development.

1.5.3 If appropriate, develop climate change mainstreaming tools, integrating lessons from the project intervention.

1.5.4 As part of project review, track and analyze policy impacts.