

# **Mainstreaming climate change Adaptation into implementation of WAAPP Action Plan**

## **Introduction**

Ghana as many other sub-saharan African countries is experiencing its fair share of climate change and variability impacts. Several assessments conducted locally and internationally indicate the vulnerability of Ghanaian agriculture and food systems because of the heavy dependence on rainfed production systems.

Notable climate change effects in Ghana are increasing temperatures across all agro-ecological zones, and variable and unpredictable rainfall. The two phenomenon are resulting in longer than normal dry spells during growing seasons, shifting of growing seasons and increasing occurrence of extreme weather events. Additionally, sea level rise is resulting in destruction of coastal communities resulting in desruption of livelihoods within fishing communities. A major outcome of current situation is the estimated economic impact that lowers the incomes of vulnerable population and increases peoples' risk of hunger.

Ghana is one of the lead countries implementing the West Africa Agriculture Productivity Programme, a regional programme aimed at increasing farmer level productivity as a major contribution to ensuring regional food security. The commodity focus area for Ghana is the development and dissemination of root and tuber crop technologies. Under WAAPP II however, the scope of commodities for dissemination has been expanded to include dry cereals, horticultural crops (i.e. onion, tomato and pepper), livestock (small ruminants) and poultry (Guinea fowls).

Root and tuber crops are vulnerable to the damaging effects of climate change. However, if changes are gradual, they may adapt. Sudden changes such as water shortages, increases in crop damage through emerging changes in interaction among crops, weeds, insect and diseases could lead to drastic effects. Options for responding to these changes are few but effective policies can minimize the climate impact on food production and sustain income and livelihood of many Ghanaian who depend on agriculture.

Analysis of agricultural systems using value chain approach can provide suitable and sustainable means of mitigating the effects of climate change. Mainstreaming climate change adaptation where possible mitigation into different activities of WAAPP-Ghana is therefore a viable means of ensuring sustainability of expected yields increases at farmer level and poverty reduction in the medium to long term.

## **Justification for Climate Change Adaptation Action Plan for WAAPP – Ghana**

A second and expansion phase for WAAPP has been approved for implementation by Ghana in December 2012. Addressing climate change effects as a means of achieving sustainability of programme results was not clearly factored into the preparation of implementation process although, under component 1, the need for harmonising national climate change strategy with ECOWAS strategy was identified.

Ghana under its international obligations developed a ten year (2010 – 2020) National Climate Change Strategy with the focus of mainstreaming climate change adaptation into sectoral policies, plans and programmes. Ghana additionally has developed a National

Climate Policy aimed at achieving sustainable socio economic development and low carbon growth. The food and agriculture is one of 5 priority sectors for which concise strategies have been developed. The theme for and agriculture sector is the ‘Development of Climate Resilient Agriculture and Food Systems’.

The WAAPP is the major programme for the development of the food and agriculture sector in Ghana with a focus on small scale farmers who are most vulnerable to climate change effects. It is therefore imperative that, in implementing WAAPP, addressing climate change effects and impacts must be made an integral part of the process.

It is for this reason that WAAPP – Ghana has developed an action plan that seeks to mainstream climate change adaptation (with co-benefit for mitigation where possible) into the implementation of WAAPP II at all levels. The action takes into consideration, action areas of the national strategies and the West Africa Climate Change Strategy developed by CORAF/WECARD.

### **Methodology**

A participatory approach was adopted for the preparation of the action plan for mainstreaming climate change adaptation into WAAPP implementation. A 3-day stakeholders workshop was held for major stakeholders of WAAPP to discuss and arrive at consensus on the issues of climate change as they relate to WAAPP. The deliberations were supported with technical presentations to ensure participants are abreast with developments as they relate to policies and strategies within Ghana and the ECOWAS region.

Participants in two groups (research and development, and dissemination and adoption) proposed actions which were discussed and agreed on in plenary.

A major short-coming of the process is the non-inclusion of farmers and farmers’ groups. The current action plan will however be validated with CSOs and other private and public sector stakeholders as part of the process of ensuring effectiveness of the mainstreaming process.

### **Draft Action Plan for Mainstreaming Climate Change Adaption into WAAPP – Ghana.**

AREA	ISSUES/GAPS	RECOMMENDATION	INTERVENTIONS/ACTIVITIES	TIMELINE	SUSTAINABILITY MEASURES	RESPONSIBILITY
Capacity Building	Inadequate capacities to address climate change issues in agriculture	<ul style="list-style-type: none"> <li>- HR plan of WAAPP 2A must factor in Climate Change issues.</li> <li>- Build institutional capacity for climate smart agriculture</li> </ul>	<ul style="list-style-type: none"> <li>-Organize 2 capacity building workshops for 50 staff of NARS institutions on climate change, agriculture and food security</li> </ul>	June-Dec., 2013	<ul style="list-style-type: none"> <li>Organize refresher courses</li> <li>Ensure effective M&amp;E for compliance</li> </ul>	<ul style="list-style-type: none"> <li>EPA / NCOS / MOFA</li> <li>PCU / CSIR HQ / MOFA</li> </ul>
			<ul style="list-style-type: none"> <li>-Train at least 3 staff of implementing agencies to post-graduate level on climate change related programs</li> </ul>	2014-2017		
			<ul style="list-style-type: none"> <li>- Train technicians to manage weather stations</li> </ul>	Jan-June 2014		
			<ul style="list-style-type: none"> <li>-Develop human resource capacity (extension service providers) in climate change adaptation including Integrated Pest Management (IPM) approaches to support technology dissemination.</li> </ul>	Jan-June 2014		<ul style="list-style-type: none"> <li>WAAPP/DCS/DAES/APD/PPRSD/WIAD/CSIR</li> </ul>
			<ul style="list-style-type: none"> <li>Build capacity of farmers in the use of conservation agriculture practices in root and tuber cropping systems. (minimum tillage, cover cropping, soil and moisture conservation etc.)</li> </ul>	2014-2015		<ul style="list-style-type: none"> <li>DCS/DAES/WAAPP</li> </ul>
	Inadequate Infrastructure	<ul style="list-style-type: none"> <li>Upgrade facilities in Research institution for climate change studies.</li> </ul>	<ul style="list-style-type: none"> <li>-Establish one (1) weather station each in NCoS and SARI by June 2014.</li> <li>-Provide relevant laboratory equipment (e.g. Lysimeters, methane chamber etc.) to support Climate Change research in NCoS and SARI</li> <li>-Provide portable equipment to enable</li> </ul>	<ul style="list-style-type: none"> <li>Jan-June 2014</li> <li>June – Dec., 2014</li> <li>June 2013 –</li> </ul>	<ul style="list-style-type: none"> <li>Regular maintenance and replacement of gadgets</li> <li>Assess budgetary support from projects accessing such equipment.</li> </ul>	<ul style="list-style-type: none"> <li>PCU / CSIR HQ / NCOS / ARI /SARI</li> <li>WAAPP</li> </ul>

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			extension service providers assist farmers to plan for adaptation (weather forecasting handsets, soil testing kits, pheromone traps). -Train community/opinion leaders in handling and managing early warning kits.	December 2014		
Genetic material Development (Crop varieties and Animal Breeds)	Inadequate availability of varieties of crop and animal breeds tolerant to CC impact	Support development of improved crop varieties and animal breeds	- Develop stress (drought, heat, waterlogging, pest and diseases) tolerant and improved (early maturing and high yielding) Root and Tuber crop varieties  - Develop water use efficient R&T crop varieties/species  - Identify, screen and conserve genetic materials (varieties and breeds) adapted to local climatic stress conditions	2014-2017  2014-2017	Promote the use of developed technologies across target areas  Mainstream sustainable farming methods into extension programmes	NCOS / SARI
Land and Water management	Inappropriate farming systems for the changing climatic conditions	- Introduce appropriate and cost effective farming systems  - integrated soil fertility management into traditional farming systems	- Adapt and disseminate feed conservation and management technologies for livestock  -Develop protocols for the incorporation of R&T residue into soil fertility management programmes.  - identify, document and validate indigenous knowledge and best soil and	2014-2017  2014-2015  2014-2017	Monitoring and backstopping of technology beneficiaries	CSIR-ARI / MOFA-APD  NCOS / MOFA-DCS  CSIR-CRI / MOFA-DCS & DAES

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			<p>water conservation practices</p> <p>- Promote indigenous and best soil and water conservation practices suitable for R&amp;T production systems</p> <p>-support dissemination of in-field water harvesting and conservation technologies within R&amp;T cropping systems</p> <p>-Promote the adaptation of SAWA technologies in wetland rice production.</p> <p>-Promote the adoption of improved agricultural practices through study tours, exposure visits etc.</p>	<p>2014-2017</p> <p>2014-2017</p> <p>2014-2017</p> <p>2014-2017</p>	<p>Strengthened capacity of farmers and extension service providers on climate smart agricultural technologies</p>	<p>CSIR-SRI / MOFA-DCS/</p> <p>DCS/CRI/DAES/ WAAPP</p> <p>WAAPP/DAES/DCS/ APD/WIAD/PPRSD</p>
<b>Adaptation of Livestock Production Technologies</b>	Low productivity of livestock	Support promotion of improved livestock production technologies	<p>-Promote and facilitate establishment of pastures (individuals and groups) in farming communities</p> <p>-support improvement of nutritive value of rangelands through over sowing with appropriate legumes.</p> <p>-Promote the use of crop residue/ agro industrial by- products for supplementary feeding</p>	<p>Jan- Dec. 2014</p> <p>2014-2017</p> <p>2014-2017</p>		<p>APD/WAAPP/ARI</p> <p>APD/WAAPP/DAES</p> <p>APD/WAAPP/DAES</p>

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			<p>-Sensitize and promote the use of climate resilient breeds (guinea fowl/small ruminants) which are less vulnerable to climate change and variability.</p> <p>-Promote the use of appropriate housing to protect stock from harsh weather.</p> <p>-Promote the use of improved manure management technology in crop production.</p> <p>-Build capacity of farmers on routine pest (parasites) and disease management in guinea fowl and small ruminant</p>	<p>2014-2015</p> <p>2014-2016</p> <p>2014-2017</p> <p>2014-2016</p>		<p>APD/WAAPP/DAES</p> <p>APD/WAAPP/DAES</p> <p>APD/DCS/WAAPP/DAES</p> <p>VSD/APD/WAAPP</p>
Alternative Livelihood and Agricultural Diversification	Low utilization rate of R&T	<p>-Use of R&amp;T by-products/ waste as substrates</p> <p>-Use of R&amp;T by-product as feed for livestock</p> <p>Utilization of cassava leaves as vegetable</p>	<p>-Promote the use of R&amp;T by-products as substrates for mushroom production</p> <p>-Promote the use of R&amp;T by-product as feed for livestock</p> <p>-Promote the utilization/consumption of cassava leaves</p>	<p>2014-2017</p> <p>2014-2017</p> <p>2014-2017</p>	Encourage use of by-products of developed technologies	CSIR-FRI, ARI , CRI, IIR, / MOFA-WIAD

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	Limited range of products  Farmers not practicing diversified agricultural systems	Create awareness and facilitate the scaling up of diversification options	-Promote R & T product diversification  -Promote the uptake of integrated cropping systems (crop/trees & crop/livestock /fisheries) systems -Eg. yam production/tree planting -Cereals & legumes/small ruminants. -Taunga system. -Rice and fish culture.	By Dec. 2017  By Dec. 2017		DCS/DAES/WAAPP  DCS/DAES/WAAPP
Postharvest Management	Limited Value addition to Root and Tuber crops	Support development and promotion of multiple value added products from R&T	- Develop and disseminate alternative uses of R&T products and by-products for industrial usage	2014-2017		
	Poor Effluent management at cassava processing sites	Support development of appropriate effluent management technologies	Develop appropriate effluent management technologies in 5 agro-ecological zones for 10 farmer-processor groups	2014-2017	Wide circulation of information on effluent management technologies	CSIR-FRI, MOFA-AESD
Innovation Platform	- Knowledge and information sharing and management  - Inadequate Climate Smart	Identify relevant stakeholders and establish links for information sharing	-Expand and improve the existing RELC system to coordinate knowledge exchange and information sharing on climate change adaptation among stakeholders.  -Develop, disseminate and facilitate the use of information, education and	2014- 2017  2014-2017	  Make information and materials available for	-Key Value chain actors -Innovative platform (IP) facilitators  Research/DAES/DCS/APD/PPRSD/WAAPP/

AREA	ISSUES/GAPS	RECOMMENDATION	INTERVENTIONS/ACTIVITIES	TIMELINE	SUSTAINABILITY MEASURES	RESPONSIBILITY
	agricultural information		<p>communication materials on climate smart agricultural technologies</p> <p>-Build capacity of extension staff/other extension service providers to translate technologies into usable forms</p> <p>-Identify and document indigenous knowledge for use of root and tubers to cope with climatic change effects.</p> <p>-Validate and promote useful indigenous knowledge on climate change issues.</p> <p>-Establish institutional linkages for information sharing on Climate Smart Agriculture</p>	<p>By Dec. 2015</p> <p>By Dec. 2017</p> <p>By Dec. 2014</p> <p>2014-2014</p>	<p>different stakeholders along the value chain</p>	<p>EPA</p> <p>Researchers/DCS/DAES/APD/WAAPP</p> <p>DAES/DCS/WAAPP</p> <p>EPA/DCS/WAAPP/DAES</p> <p>WAAPP</p>

## Road-map for implementing action plan

No.	Activity	Date	Responsibility	Budget (US \$)
1	Validation of Action Plan with stakeholders	End of May 2013	DCS, EPA, PCU	20,000
2.	Awareness create and dissemination of Action Plan	June – July 2013	MoFA, CSIR, PCU	20,000
3.	Review and update M & E framework to capture climate change indicators	End of August 2013	PCU, MoFA, CSIR NCoS	30,000
4	Preparation of climate proofed work-plan and budget for 2014	September – November 2013	PCU, MoFA CSIR , NCoS	30,000
	<b>Total</b>			<b>100,000</b>

## Conclusion

Climatic change and variability effects have the potential of negatively impacting on the expected results/outcomes of WAAPP – Ghana. There is therefore the need to address these through mainstreaming adaptation measures into the implementation of WAAPP.

Ghana has developed a National Climate Change Adaptation strategy and a national Climate Change Policy with strategies. Both documents lay heavy emphasis on adaptation of agriculture and food systems. The West Africa Climate Change Adaptation Strategy is in many ways consistent with the national climate change policy and strategies.

The proposed action areas of the national strategies and sub-regional strategy were used to identify entry points for mainstreaming climate change adaptation into WAAPP and to develop an action plan for that purpose.

The activities identified in the action are expected to be integral part of the annual workplan and budget for WAAPP starting 2014 with the understanding that they seek to strengthen the outputs/results/outcomes of the programme.

A road map has also been developed to facilitate the process of mainstreaming climate change adaptation into WAAPP implementation starting 2014. The road map and its budget are not part of the approved workplan and budget for 2013 hence, might require special approval for spending.

Finally, funds allocated for climate change activities within component 1 were envisaged for only activities leading to harmonising national and sub-regional strategies. There is therefore the need to review the budget line to be able to cater for the expanded activities for ensuring effective mainstreaming.