



## **Submission Document-Volta BDC: V5**

Coordination and Change

Basin Development Challenges of the CPWF

May 2010

## **PART A: SUMMARY (Maximum 1 page)**

### **1. Project Data**

BDC:

Project Title: Coordination and Change

Project Lead Organization: Volta Basin Authority

Consortium Partners: (Volta Basin Authority (VBA), Institut de l'Environnement et des Recherches Agricoles (INERA), International Water Management Institute) (IWMI)

Project Leader (name and contact details):

Duration: 3 years 5 months

Target start date: August 2010

Finish date: December 2013

Maximum budget requested from CPWF (1,050 US\$):

Any matching funds offered: (In-kind contributions from participating institutions)

### **2. Project Summary**

Provide a concise project summary. This should include project rationale, key activities, outputs and methodologies and likely impact. This will later be published on the CPWF website and in other relevant documentation.

The Coordination Project V5 will ensure coherence amongst the other 4 Volta BDC Projects, manage their interdependence and data protocols in such a way to allow smooth running of the program and also monitor and evaluate the quality of research outputs. Through communication strategies to be developed, V5 will assist in linking projects with policy makers and other stakeholders to create opportunities that will enrich the research process and subsequently the uptake of research outputs.

The main problem to be addressed by the Coordination and Change Project (V5) is 'How best to orient and integrate research conducted by BDC Projects V1, V2, V3 and V4 to achieve impact'. The Volta Basin Authority (VBA), the coordinating Institution and the coordinating team led by the Basin Leader, will focus on the five main areas of Coordination and quality of research, Fostering change, Communication, Adaptive management and Innovative research, with the collaboration of the four BDC projects (V1 – V4) to successfully achieve the BDC program.

The communication strategy for achieving the above will include a dedicated website for the project, creation of dialogues, platforms and alliances through ad hoc, group, individual, within teams, across teams, between teams or basins meetings. There will also be web portal linkages and Reflection and Annual workshops.

Project V5 has links to previous and ongoing research and development work including the GLOWA Volta Project, Volta Basin Research Project, Volta River Transboundary Project, ADAPT Volta Project and other VBA activities such as Volta Basin Observatory, Volta HYCOS Project and Establishment of a regional Science centre for West Africa.

Institutions comprising the consortium are the Volta Basin Authority, Institut de l'Environnement et des Recherches Agricoles and International Water Management Institute).

## **PART B: PROJECT DESCRIPTION (Section 3 – 10: maximum 10 pages)**

### **3. BDC Goals to which the project will contribute**

“Improving rainwater and small reservoir management in Burkina Faso and Northern Ghana to contribute to poverty reduction and improved livelihoods resilience while taking account of downstream and upstream water users including ecosystem services”.

Briefly list the BDC Goals that have been developed during the project development workshop and how the project will contribute to their achievement.

The Coordination and change Project V5 is strategically positioned to work with the other 4 Volta Basin Development Projects (BDC) on one hand and with the CPWF Management Team (MT) on the other for successful implementation of the CPWF Phase II Volta BDC on ‘Integrated management of rainwater and small reservoirs for multiple uses.

In working with the projects, V5 will ensure coherence amongst them, manage the interdependence and data protocols in such a way to allow smooth running of the program and also monitor and evaluate the quality of research outputs. V5 will assist in linking projects with policy makers and other stakeholders to create opportunities that will enrich the research process and subsequently the uptake of research outputs. The communication strategies of V5 will create awareness of project activities in the basin to encourage next users to be part of the process thereby ensuring the acceptability and adoption of project outputs. A framework of cumulative learning and using what is learnt to progressively adjust outcome and impact pathways will improve the probability of success. Adopting frameworks of multidisciplinary and integrated research, multi-stakeholder platforms, dialogue and negotiations will also improve the outcome and impact pathways.

The effective management of the two way channel of communication between the MT and V5 will be very important in achievement of the Volta BDC goals.

### **4. Research questions and methodologies**

Describe here what is the problem this project is aiming to address. CPWF has suggested sample questions for each BDC project (available from <https://sites.google.com/site/cpwfbdceoi>). Describe how your research will address these research questions and/or additional research questions you consider important. Give a brief description of the research methodologies you will use.

The main problem to be addressed by the Coordination and Change Project (V5) is ‘How best to orient and integrate research conducted by BDC Projects V1, V2, V3 and V4 to achieve impact’.

Project V5 will actively engage the BDC projects to conduct quality research that will contribute to the desired change in the basin, especially in northern Ghana and Burkina Faso. The BDC projects were designed to have strong cross-project functional linkages which have to be managed in such a way to ensure the achievement of the BDC goals. The Volta Basin Authority (VBA), the coordinating Institution and the coordinating team led by the Basin Leader, will focus on the five main areas of Coordination and quality of research, Fostering change, Communication, Adaptive management and Innovative research, with the collaboration of the four BDC projects (V1 – V4) to successfully achieve the BDC program as a whole.

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### **Coordination and Quality of Research**

Understand the key policies of governments of Burkina Faso and Ghana in the area of water, agriculture and sustainable use and management of the natural resources and identify key implementing agencies at all levels.

Study the outcome pathways of V1 – V4, including the interdependencies (together with project interactions during the proposal workshop). Coherence and interdependence strategies will be mapped out for implementation as early as possible. The Volta Basin stakeholder network established during the Stakeholder workshop will be studied and updated using the outcome pathways the BDC projects developed during the proposal workshop. Relevant decision makers and potential next/end users will be identified and regular contacts made as early as possible.

Monitoring framework will be developed which will include internal self evaluation and external evaluation by the Basin Leader and his team to ensure quality and on time delivery. This will include regular contacts with project leaders and field visits to project sites. This contacts and visits will enhance the evaluation of the 6-monthly reports and the preparation of the state of BDC reports.

Database of CPWF I will be maintained and further updated. The data will be made available for all projects

### **Fostering Change**

The network of decision makers and other stakeholders at various levels in the area of water, agriculture and environment would be created at the beginning of the project based on institutions identified in Ghana and Burkina Faso. VBA, with its network of highest-level decision makers in water and related resources in the Volta basin, will facilitate linkages, access and communication amongst projects, CPWF MT, policy makers and other stakeholders through lobbying and dialogue among others.

The coordinating team will regularly interact with individuals, organizations and sectors through briefings on research outputs at various milestones during the research implementation periods.

Regular multi-stakeholder workshops with BDC researchers will create ‘together we solve the problems’ relationship/attitude using facilitators, an environment that will bring out opportunities and possibly threats through interactive discussions.

## **Communication**

The Communication Strategy of the consortium will focus on

a) Creating awareness of the presence of CPWF in the basin to explain the overall CPWF goals in general and the goal of BDC in particular. Journalists will be engaged to write feature articles in the print media to link CPWF activities to poverty reduction, food security, environmental integrity and to the MDG in general. The electronic media will also be used to improve coverage. An avenue for feed-back will be established to collate views from the public.

b) To communicate BDC research to stakeholders in the basin and, where possible outside, the basin, key messages of projects will identified and developed and these will be directed to relevant targets groups through dissemination workshops.

c) As part of the dissemination strategies, web based systems will be established, peer review publications will be highly encouraged.

d) BDC research will be communicated to the communities with the help of district assemblies through local radios and wherever possible in local languages, through field schools etc

## **Adaptive Management**

Platforms will be created to engage as many next and end users (including policy makers at all levels) as possible in all the activities of BDC researchers. It will be a learning process, where strength and weakness can be identified and worked upon, where experiences (including local knowledge) from the area can be incorporated. Divergent opinions will be recognized and options for next best choices will be analysed and where necessary adjustment to the impact and outcome pathways will be made in consultation with the Management Team.

If necessary a consultative forum of partners will be created to positively review the research issues and the impact pathways to improve the possibility of project outcomes.

With data from the learning processes regular SWOT analysis will be conducted that could inform a decision change.

## **Innovative Research**

One of the main pillars of CPWF is to undertake research for development. Outcome and Impact pathways are developed to facilitate this process. The research process must therefore include some mechanisms that will increase the probability to transforming research into development outcomes.

A network of relevant decision makers and next and end users at all necessary levels will be regularly engaged in multi-stakeholder workshops at various stages of the research process to enhance the possibility of development outcome.

Multi-disciplinary BDC research groups linked within a project and interdependently linked between projects engaging in an integrated research will be well coordinated to make possible a development outcome.

Development outcome will also be influenced through dialogue and negotiations: one on one, informal meetings, special workshops of only decision makers where specific up-scaling issues

are discussed or special end users workshops or field schools where out-scaling and adoption issues are discussed.

Within the above framework, we will adopt an approach grounded in the fields of Political Ecology and Development Anthropology that mainly involves policy document analysis and key informant interviews. The research will look critically at the CPWF initiative that focuses on rainwater management and small reservoirs for improved livelihoods, and in which the principal investigator participates. By assessing the overall context of scientific knowledge production and development interventions in the agricultural water management sector, the activity will inform the project V5 about possible shortcomings and opportunities of the approach adopted by the CPWF to truly coordinate research for “impact”. This activity will also inform, and be informed, by the work on “institutions, policies and governance” that is being planned in the projects V2 to V4 and look specifically at rainwater and small reservoirs management. This will enhance synergies between BDC Volta projects.

## 5. Links to previous and ongoing work

What – if anything – has been done to address the problems in the past (by your partners, other researchers and in CPWF Phase one projects) that is relevant to implementing this project? What are the key lessons learnt that you will consider in the present project? (Include in Section 16 a carefully selected list of relevant bibliographic references).

### 1. GLOWA Volta Project

#### **GLOWA Volta Project**

Sustainable Water Use under Changing Land Use, Rainfall Variability and Demand in the Volta Basin. The River Flow Sub-project. This is German funded joint Collaborative Research of Center for Development Research (ZEV) of University of Bonn and Institute for Atmospheric Environmental Research (IFU) together with the following NARES: CSIR Savannah Agricultural Research (SARI), CSIR Water Research Institute (WRI), Remote Sensing Application Unit(RSAU), Population Impact Project(PIP) and Institute of Statistical, Social and Economic Research (ISSER) all of Ghana and Institute de L’Environnement et de Recherche’ Agricoles (INERA) of Burkina Faso.

The central objective of the project is to analyse the physical and socio-economic determinants of the hydrologic cycles and based on this, develop a scientifically sound decision support system (DSS) for the assessment, sustainable use and development of water resources in the Volta Basin.

At the end of nine years, a decision support system for the management of the water resources of the Volta basin will be produced for Ghana Government. A lot of data will be generated for the scientific community. Over 14 PhD graduates (seven from Ghana and seven for Germany) will be produced after the first three years.

### 2. Volta Basin Research Project

This initiative is being undertaken by University of Ghana, Legon and is led by Prof. Chris Gordon of the Zoology Department. The main research focus is in the area of the Volta Lake

and Public Health, Microbiological and Fisheries in the Lake and aquatic weed problems. Other areas include Soils of the basin and agriculture

### **3. Volta River Transboundary Project**

This project is being sponsored by GEF, UNEP, EPA-Ghana and the Ministry of Environment and Science of Ghana. It has as its objectives to build consensus on transboundary priority issues, prepare a Transboundary Diagnostic Analysis and then to prepare a Strategic Action Plan to deal with the Issues.

**4. Water Resources Commission (WRC) of Ghana and Direction Generale de l'Inventaire des Ressources Hydrauliques (DGIRH) of Burkina Faso- The Integrated Water Resources Management (IWRM ) of the White Volta Basin.** A major objective in this project is the pilot on integrated management of water resources of the basin including transboundary issues. The GLOWA Volta Project is a collaborator in this intervention. Some of the Challenge Program projects of the basin are also expected to collaborate with this initiative.

### **5. ADAPT Volta Project**

Water, Climate, Food and Environment under Changing Environment (ADAPT): An Assessment of Global and Regional Impacts and the formulation of Adaptation Strategies for River Basins. This is a Joint Collaborative Research by Institute for Environmental Studies (IVM) of the Free University, Amsterdam, International Water Management Institute (IWMI), IWMI South Africa, Stockholm Environment Institute (SEI) and Institute for Development Research (ZEF) Univ. of Bonn and Water Research Inst.(WRI) Accra.

To assess impacts of climate change and climate variability on global food production & security, environment and livelihoods, link these impacts to similar effects on a basin level and finally develop and promote adaptation strategies for food and environment to alleviate the negative impacts, on a basin scale.

### **6. “Improving Water Governance in the Volta River Basin” (PAGEV)**

A project initiated by the West Africa Office of the World Conservation Union (IUCN) with funding from the Water and Nature Initiative (WANI) of IUCN. The project started in 2004. This project responds to one of the recommendations made by the Ghana-Burkina Joint Commission for Cooperation to engage in consultations on the Volta River Basin

### **7. Green Cross-West Africa**

The mission of Green Cross is to help ensure a just, sustainable and secure future for all by fostering a value shift and cultivating a new sense of global interdependence and shared responsibility in humanity's relationship with nature. Green Cross:-

- Promotes legal, ethical and behavioural norms that ensure basic changes in the values, actions and attitudes of government, the private sector and civil society, necessary to build a sustainable global community
- Prevents and resolves conflicts arising from environmental degradation.
- Provides assistance to people affected by the environmental consequences of wars and conflicts.

## 8. Volta Basin Authority

Current / similar initiatives of the Volta Basin Authority (VBA) include:

- i. Establishment of VBA Observatory for Water Resources and Related Ecosystems, with financial assistance from French GEF and SIDA/IUCN;
- ii. Implementation of Volta HYCOS Project with financial assistance from French GEF and African Water Facility and technical collaboration with IRD (France) and WMO.
- iii. Establishment of a Regional Science Service Centre for West Africa in partnership with the Centre for Development Research, University of Bonn, to among others establish VBA as a Centre of Excellence in Climate Change and Sustainable Water and Land Use while water-related institutions in the riparian countries will benefit from human and technical capacity building programmes;

## 6. Links to other BDC projects

Please fill out the following table.

Outputs	Dependencies on other BDC projects	Use of output by other BDC projects	Risks and assumptions
BDC projects producing high quality research	Reports from projects and visits to field sites	-	Quality reports on time; Well organized field sites
Creating enabling environment for RWSR management	High quality presentations and other inputs from projects V1-V4	Use of results of workshop to adjust project plans	All projects may not be at the same level of results
Communication strategy	Relevant data/information Linking BDC projects to decision makers and other stakeholders	Networking Communication tools Web site	Projects Responsibilities well defined Data/ project results shared
Well documented learning process..	High quality presentations from projects V1-V4; Active participation at reflection workshops; Reliable data for SWOT analysis	Use of results of workshop to adjust project plans	Timely implementation of projects V1-V4
A better understanding of how research triggers innovation leading to change	Clear outputs from the projects Projects to engage stakeholders	Data/information for adjusting outcome and impact pathway	Identification of good opportunities

## 7. Suggested sites



Taking into account sites mentioned in the description of the BDC research program, and the need to work together with other projects, where will this project work?

The part of the Volta basin covering northern Ghana and Burkina Faso

## 8. Project Outcome Pathways

How do you intend to carry out this project? Please describe in the table below how the research outputs and strategies are expected to influence key targeted actors in your project (i.e., achieve outcomes). For a worked example see <https://sites.google.com/site/cpwfbdceoi/proposal-development-workshop-preparatory-information>.

	Actor(s) who will change in the same way	Change in actor Practice / Behavior	Change in Knowledge, Attitude and/or Skills in actor(s) required to achieve Practice change	Project's strategies for achieving these changes in KAS* and Practice	Research/Process output(s) involved in change	Risks and assumptions
<b>Outcome pathway 1</b>	Ministries of Agriculture, Water Resources, Environment, Research	Enabling environments for Rainwater and Small reservoir management (policy, fiscal, material)	Increased awareness of the benefit of supporting research in green water and small reservoir management. Increased willingness to value research in decision making on Rainfall and small reservoirs management	Dialogue and lobbying to increase profile /potential of Rain water and small reservoir management	Similar to strategies	Political commitment
<b>Narrative 1</b>	VBA is the coordinating agency for the BDC. VBA is part of the network of highest-level decision makers in water and related resources in the Basin. Therefore VBA can facilitate linkages, access and communication amongst projects, CPMT, policy makers and other stakeholders—related to BDC research. VBA is positioned to legitimately lobby and dialogue for BDC activities.					
<b>Outcome pathway 2</b>	BDC Researchers	No Business as Usual Integrated, innovative research for impact  Cross project and basin interaction and use of adaptive management	Capacity Building --Improved cross-project communication and coordination --Willingness for self reflection and monitoring --Willingness to reorient research Activities Identify target groups - Mid-level admin - High level decision makers - CSO - Field staff - Researchers  Types of Capacity Building: host media, field exchange, etc Monitoring and Follow up	Platforms: Extra and intra. Communications; Facilitate access to policy for BDC researchers	Similar to strategies	Committed project staff
<b>Narrative 2</b>	CPWF approach is research for development and impact. An innovative and integrated approach is necessary to meet these goals. For effective coordination, adaptive management, innovation research and utilization of other processes will be applied. Platforms will also be created to facilitate linkages.					

<b>Outcome pathway 3</b>	Other Stakeholders including Farmers	Adoption and out-scaling of Research outputs. Improvement in production	Appreciation of new technologies and ideas from research projects	Involve stakeholders in all stages of developing and implementing projects	Similar to strategies	
<b>Narrative 4</b>	Research projects together with the coordinating team will engage stakeholders at various stages of the project period and create platforms to increase the potential for adoption and out-scaling of research results, towards achieving impact.					

## 9. Activities and Implementation Plan

In the form of a **Gantt chart**, constructed as an Excel spreadsheet, please provide a tabular description of the activities leading to outputs (both research and communication) and uptake that your team will undertake. A Gantt chart is a 'timeline' that shows the sequence of activities leading to outputs and uptake and constructing it helps ensure that the sequence of activities you propose is feasible. Construct it in monthly segments over the life span of your proposed work. The Gantt Chart does not contribute to the word count. BE AWARE THAT THE GANTT CHART IS INDICATIVE and need not be too detailed because if successful your project implementation plans will be coordinated and finalized during the Inception Workshop

Send the Gantt chart as a separate document called **Annex B – Project Gantt Chart**.

**NOTE: The Gantt chart is not included in the page count here. It is part of the Excel Table.**

## 10. Communications

Briefly describe your communications plan.

The Communication Plan (CP) aims to ensure the success of all projects regarding the overall Volta BDC goal as well as the specific objectives. The CP will encompass:

Project Launching meeting to be held at the beginning with all researchers and stakeholders. There will be media and TV coverage of the event alongside banners to be hoisted. This may be also the occasion to discuss the Communication Plan with the other projects in order to have a common understanding.

During the implementation of the projects, V5 will use the following strategy:

- Online communications (a dedicated website for the projects to inform each other and conduct exchanges; regular emails, Skype),
- Media and public relations (meetings, lobbying and dialogue). Dialogues, platforms and alliances will be created through ad hoc, group, individual, within teams, across teams, between teams or basin meetings and communication;
- Web portal (Links will be created between the VBA and the CPWF web portals);
- Project monitoring and evaluation on a six months and annual basis: written reports to be posted at the website;
- Visits to the projects
- Reflection and Annual workshops

For increased visibility, posters, newsletters and brochures on the Volta BDC and its projects will be produced and disseminated.

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## PART C: CONSORTIUM DETAILS, INDICATIVE BUDGET AND REFERENCES (Section 11-13)

### 11. Consortium Details

The quality and experience of your project team will help ensure the delivery of quality outputs. Please fill in the table below to describe the project team members. Indicate in particular who has responsibility for communications, M&E, knowledge sharing and gender analysis. These will be people who will normally be funded at least partly by the project. You will be requested to enter into a Memorandum of Understanding with them if successful. Attach a full c.v. for the project leader and a one page c.v. for each team member in Annex A.

Names of team members	Professional discipline	Institutional affiliation and address
[Leader] (Responsibility for, M&E, knowledge sharing and gender analysis).		
Winston ANDAH – Principal Investigator (Responsibility for communications)	Hydrology	c/o Volta Basin Authority 10 BP 13621 Ouagadougou 10 Burkina Faso Tel. +233 21 775511 & 784753(Office),  +233 21 784752/777170 Cell : +233 20 8155948 or 267010148 Email: <a href="mailto:weiandah@africaonline.com.gh">weiandah@africaonline.com.gh</a> or <a href="mailto:winandah@yahoo.com">winandah@yahoo.com</a>
Seraphine KABORE SAWADOGO – Investigator 2	Remote Sensing	Chef Service Etudes et Projets Direction de l'INERA - CNRST 04 BP 8645 Ouagadougou 04 BURKINA FASO Tel : 226 50 34 02 70 226 78 02 28 18 226 70 26 78 40
Jean Philippe VENOT Investigator 3 -	Geography	International Water Management Institute PMB CT 112, Cantonments, Accra, Ghana CSIR (HQ) campus, Airport Residential Area Accra, Ghana Phone: +233-21-784753/4 Fax: +233-21-784752 Email: <a href="mailto:j.venot@cgiar.org">j.venot@cgiar.org</a> Web: <a href="http://www.iwmi.org">http://www.iwmi.org</a>
Charles BINEY - Investigator 1 (Responsibility for communications)	Environmental Chemistry	Volta Basin Authority 10 P. O. Box 13621 Ouagadougou 10 Burkina Faso Email: <a href="mailto:cbiney@gmail.com">cbiney@gmail.com</a> <a href="mailto:c.biney@abv-volta.org">c.biney@abv-volta.org</a>

		Tel. Office: +226 50376067 Fax +226 50376486 Website: <a href="http://www.abv-volta.org">www.abv-volta.org</a>
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Provide a brief text statement on why the lead institution is well-placed to lead the group.

The Volta basin Authority has the mandate to:

- i. Promote permanent consultation tools among the parties for the development of the basin;
- ii. Promote the implementation of IWRM and the equitable distribution of the benefits resulting from the various utilization;
- iii. Authorize the development of infrastructure and projects planned by the stakeholders and which could have substantial impact on the water resources of the basin;
- iv. Develop joint projects and works;
- v. Contribute to poverty alleviation, the sustainable development of the parties in the Volta basin and for better socio-economic integration in the sub-region.

Through the above mandate, VBA has established a network of local and international partners that enables it to work with various organizations in research for development.

Provide brief text statements on why the proposed partner institutions are qualified to carry out the proposed research.

*Institution 1: INERA*

INERA is the national institute for environment and agriculture research in Burkina Faso. As such, INERA has the mandate to conduct research in the field of agriculture, livestock, forestry and natural resource management and production systems in the country. Specifically, INERA has a long experience in research related to integrated water and natural resource management including livestock and production systems using multiscale, multidisciplinary and participatory approaches. INERA is conducting research through a very large and strong partnership network at the national, regional and international level as well. Through these experiences, INERA has established different channels for dialogue and communication with its local and external partners including policy makers, which ensure skills for managing research projects in the context of the Volta Basin with appropriate communication strategies and monitoring and evaluation system.

*Institution 2:*

The International Water Management Institute (IWMI) has been an important player in agricultural water management in the Volta Basin, with the objective of improving water and land management for food, livelihoods and nature and with the goal of contributing to the vision of 'A Food Secure World for All'. IWMI's research is organized around four themes: Water Availability and Access; Productive Water Use; Water Quality, Health and Environment; and Water and Society. IWMI has considerable experience in integrated water and natural resource management, from farming system to basin scales, including transboundary issues. It has specific skills in decision-making related to the study, the planning, and management of small reservoirs to safeguard ecosystem services and enhance livelihoods – especially in the context of integrated basin management.

## 12. Indicative breakdown of budget

This is part of the project workbook.

## 13. Bibliography

Please list up to 10 references and key documents

1. Andah, W., Van de Giesen, N., Huber-Lee, A. and Biney, C. A. (2004). Can we maintain food production without losing hydropower? The Volta Basin, West Africa. In Aerts, J. C. J. H., Droogers, P. (eds): Climate change in contrasting river basins. CAB Publ. Wallingford UK: 181-194.
2. Andreini, M., Andah, W., Balaz, C., Boelee, E., Cecchi, P., Huber-Lee, A., Rodriquez, L., Esznanje, A., Steenhius, T. and Van de Giesen, N. (2005). Small reservoir ensemble planning innovative methods. CPWF Forum, Uganda, Entebbe.
3. De Condappa, D., Chaponniere, A. and Lemoalle J. (2009). A decision support tool for water allocation in the Volta basin. Water International 34, 71-87.
4. GAT (Global Author Team). (2010). Transforming agricultural research for development. The Global Forum for Agricultural Research (GFAR) Report for the Global Conference on Agricultural Research (GCARD) 2010. 28th – 31st March, 2010
5. IWMI (2008). Small Reservoirs Tool Kit. CGIAR CPWF , [www.smallreservoirs.org](http://www.smallreservoirs.org)
6. Keeley, J.; Scoones, I. (2003). Understanding environmental policy processes-Cases from Africa. Earthscan: London.
7. Lemoalle, J. and De Condappa, D. (2009). Water Atlas of the Volta Basin. CGIAR CPWF, IRD: Colombo, Marseille
8. Lemoalle, J. (2009). Basin Focal Project Volta. CGIAR CPWF Project Report No. 55.
9. Obeng-Asiedu, P. (2004). Allocating water resources for agricultural and economic development in the Volta River basin. Doctoral Thesis, University of Bonn, Germany.