



Submission Document

Format for submitting a project proposal

Basin Development Challenges of the CPWF

April 2010

PROJECT SUBMISSION DOCUMENT (Volta/Limpopo BDC)

Introduction

Building on the Proposal Development Workshop that you have just attended as well as the EOI your project team submitted, CPWF is now asking you to complete a formal project proposal as one of five projects that make up the Volta/Limpopo BDC. Background information on the BDC, the CPWF in general, the EOI and this related commissioning process as well as contracting requirements and deadlines, can all be found on <https://sites.google.com/site/cpwfbdceoi>.

General guidance

Please fill in the text boxes and tables to complete this submission. Only information provided in the text boxes and tables will be sent to the reviewers.

Text must be in Calibri 12, Arial 11 or Times New Roman 12 pt; do not change the page setup: margins top and bottom 2.5cm; right and left 3.2 cm. Not adhering to these requirements may lead to a request for resubmission and delays in contracting.

Do not exceed the maximum length of parts A and B of this submission. Any pages exceeding the length will not be sent to the reviewers. Annexes are not counted towards the length of the submission.

The CPWF supports research for development that is underpinned by the core values of capacity building, interdisciplinary research, partnership, pro-active consideration of gender-and-diversity issues and adaptive management. Throughout the proposal indicate, where appropriate, how you will be guided by them. Proposals will be evaluated on this.

BDC Research and Research Projects

Please insert the relevant information into **Box 1** below:

The **Volta** BDC research program is on:

“Integrated management of rainwater and small reservoirs for multiple uses”

Research on the **Volta** BDC is structured into the following five projects:

V1 – Targeting and scaling out

V2 – Integrated management of rainwater for crop-livestock agroecosystems

V3 – Integrated management of small reservoirs for multiple uses

V4 – Sub-basin management and governance of rainwater and small reservoirs

V5 – Coordination and learning for adaptive management and change (coordination and change project)

The **Limpopo** BDC research program is on:

“Integrated management of rainwater to improve smallholder productivity and livelihoods and reduce risk”

Research on the **Limpopo** BDC is structured into the following five projects:

L1 – on targeting and scaling out

L2 – on small-scale infrastructure

L3 – on farm systems and risk management

L4 – on water governance

L5 – on learning for innovation and adaptive management (coordination project)

Tables

Please fill out the Excel table provided together with this form. Note that the table has seven tabs (worksheets): Title; Gantt; Budget; Comments; Time Allocation; \$ by Output; \$ by Institution. Please read carefully the instructions in each worksheet before filling the form.

Annexes to your proposal submission

A: Team leader and team member c.v.'s.

B: Gantt Chart (Annex 4 to the Draft Award Letter)

C: Budget (Annex 6 to the Draft Award Letter)

Attachments to this document

(you may wish to share these with your legal/financial department)

1: Draft Award Letter.

2: CPWF Standard Clauses and Procedures (Annex 1 to the Draft Award Letter).

Deadline

Submission deadline for your proposal is **28 May 2010**. Please send your proposal by email to cpwfsecretariat@cgiar.org.

PART A: SUMMARY (Maximum 1 page)

1. Project Data

BDC:	<i>Integrated management of rainwater and small reservoirs for multiple uses</i>		
Project Title:	<i>Sub-basin management and governance of rainwater and small reservoirs</i>		
Project Lead Organization:	International Water Management Institute (IWMI)		
Consortium partners (who receive budget):	CIRAD, WRC-WVBB, SP/PAGIRE (MHARH), CSIR-WRI and UDS-Tamale		
Project Leader (name and contact details):	Jean-Philippe Venot; j.venot@cgiar.org	International Water Management Institute (IWMI)	
		IWMI, PMB CT 112, Cantonments, Accra, Ghana	
		Tel : + 233 21 784753/4; Fax: +233 21-784752	
Duration:	39 months		
Target start date:	October 2010		
Finish date:	December 2013		
Maximum budget requested from CPWF (in US\$):	\$875,000		
Any matching funds offered (provide brief explanation):	None		

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.

A strong international consensus has been created regarding the need for Integrated Water Resources Management (IWRM) and what it means. The river basin is then invariably singled out as the natural unit for organizing water management. However, experience to date shows that effective implementation of IWRM initiatives in the developing world remains a challenge. Two main reasons for these shortcomings are generally presented: a lack of political will and socio-political externalities. Calls for more reforms follow but they rarely question policy models themselves. As a consequence, they face the same shortcomings they were meant to address. This project aims at understanding the processes that govern IWRM policy-making, practices and research in the Volta Basin (Ghana and Burkina Faso). This will be done to identify demand-driven opportunities for the management and the governance of rainwater and small reservoirs at the watershed (sub-basin) level. The project will make use of tools and results of previous CPWF projects so as to devise and assess the prospects offered by a participatory modeling framework, designed and discussed in multi-stakeholder platforms (MSP), to steer IWRM practices in two pilot watersheds. The participatory modeling framework will integrate expert biophysical modeling with locally-defined understanding of the socio-environmental system. This will provide the basis for identifying desirable rainwater and small reservoirs governance options at the watershed level. Participatory action-research will foster discussion of IWRM principles and policies and enhance better knowledge on the ways policy and development interventions are shaped by local actors. This will provide the basis to fine-tune IWRM policy processes to local needs and demands. Participatory approaches will be combined with a critical assessment of the theory and practice of natural resources policy making and research activities. We will draw from the fields of *Political Ecology* and *Science and Technology Studies* to better understand local dynamics and appropriation pathways of innovations such as IWRM policy interventions. By going beyond the simplistic –yet commonly admitted- divide between formal decision making and informal practices, this research project will lead to enhance impacts of on-going IWRM policy initiatives in the Volta basin.

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

3. BDC Goals to which the project will contribute

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

The BDC goal is *improving rainwater and small reservoir management to contribute to poverty reduction, and improved livelihoods resilience and people's well-being in the dry lands of Burkina Faso and Northern Ghana while taking account of implications for downstream water users including ecosystem services.*

The project will provide a critical assessment of the theory and practices of IWRM policy processes in Burkina Faso and Ghana (Activity 1). This understanding will serve as a basis to devise and assess the prospects offered by a participatory modeling framework, designed and discussed in multi-stakeholder platforms (MSP) in which multiple actors (local farmers and decision makers, researchers, national policy makers, donors, NGOs, private sector etc.) will engage, to pilot IWRM practices in two pilot watersheds (Activities 2 to 5). MSPs will allow a better understanding of the practices and perceptions of all actors involved in natural resources management and use. Exchanges will help consider and include the concerns of previously powerless stakeholders –among which the youth and women- and foster *adaptive management* of both research and policy processes and field practices, hence enhancing *livelihoods resilience* -e.g. the capacity to recover from external shocks. If successful, the project will contribute to the identification of socially acceptable land and water governance options and identify their livelihoods –including health- and environmental impacts, including spatial and temporal trade-offs at the watershed level. Participatory action-research will not only foster discussion of IWRM principles and policies (and their local adoption, if this is identified as a priority), but it will also enhance knowledge on the multiple “appropriation pathways” through which policy and development interventions are shaped by local actors – and their underpinnings. Local transformations are indeed inherent features of policy implementation projects; appreciating them better will help multiple actors, notably national decision makers, to fine-tune their approaches to IWRM policy processes. By better understanding and accepting local dynamics and appropriation pathways of innovation such as IWRM policy interventions, this project will identify promising *poverty reduction* strategies that will be socially acceptable. Governance strategies for *rainwater and small reservoirs management* will be coherently deployed, maintained and monitored through multi-stakeholder platforms. The success of the process in the two pilot watersheds, the participation of key governmental actors, and the clear impact that will have resulted including changes in attitude, knowledge and skills of those involved, will prompt its adoption by government, development agencies and researchers across the Volta Basin.

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 research project can be divided in six major activities (see table below) that contribute to answering three inter-related research questions (see graph below):

1. What governs the shaping of Integrated Water Resources Management (IWRM) policies and practices in sub-Saharan Africa and in the Volta Basin in particular (Q1)?

The project will adopt an approach grounded in the fields of *Political Ecology* and *Science and Technology Studies* (Forsyth, 2003 for instance highlights the scope for linking these two schools of thoughts for the analysis of environmental processes) to understand how certain policy models such as Integrated Water Resources Management (IWRM) have emerged, are sustained despite evidence of their shortcomings, and are implemented in the Volta river basin. This critical analysis will unfold at two different levels: [1] the regional and national levels, at which methods used will include discourses and policy analysis and key informant interviews to investigate the context of policy making and the interplay between multiple institutions that govern land and water resources (activities 1.1 and 1.4); [2] the local level, at which a detailed documentation of specific IWRM policy interventions in Burkina Faso and Ghana will be conducted (for instance, the establishment of the Comité local de l'eau –CLE- by the *Millennium Challenge Account* in the Black Volta sub-basin of Burkina Faso and the establishment of Water User Associations –WUAs- in both Burkina Faso and Ghana; activities 1.2 and 1.3). Local level studies will build upon, when possible, the findings of the CPWF Phase 1 projects (notably the *Small Reservoir Project* and the project CP40 *Integrating Governance and Modeling*). National and local level studies will be informed by the notions of “brokerage” (as developed in Mosse, 2005), institutional *bricolage* (Cleaver, 2002) and polycentric governance that recognize the multiplicity (type and scale) of decision making nodes (McGinnis, 1999). This activity will highlight the multiple “appropriation pathways” of IWRM in the Volta basin (e.g. the ways through which IWRM policy and development interventions are shaped by local actors). This will provide –and be informed- by other planned action-oriented activities of the project that aim to address the following research question:

2. How to breach the gap between the rhetoric and the practices of Integrated Water Resources Management (IWRM) in Ghana and Burkina Faso (Q2)?

This research investigates how local knowledge and perceptions of socio-environmental systems can be linked to expert/scientific knowledge and policy-makers imperatives to better understand and pilot the multiple “appropriation pathways” of IWRM policy interventions in the Volta Basin (Q2a in the figure below). To this end, the project adopts a participatory approach and brings together the expertise, knowledge, attitudes and skills of multiple actors among which the governmental agencies in charge or piloting IWRM efforts in Burkina Faso and Ghana. It interrogates the constraints and opportunities of such posture to design options for IWRM and livelihood support at the watershed level (Q2b). The prospects offered by integrating expert and local knowledge in a participatory modeling framework designed and discussed in multi-stakeholder platforms (MSP) are investigated (Q2c) for two pilot watersheds of the Volta river basin. These pilot activities will support the IWRM policy interventions initiated in Burkina Faso and Ghana (setting up and restructuring of watershed management bodies). The participatory modeling framework includes the following activities:

- Expert-modeling of the biophysical conditions of the two pilot watersheds will be conducted (activities 2.3 and 3.3). This will include simulation (using models such as SWAT) to understand the hydrological processes occurring in each watershed and in particular the temporal and spatial variation in rainfall-runoff processes and groundwater recharge. An allocation model (such as WEAP) will be used to evaluate the implications of land/water resource developments as well as different governance options on water availability, livelihoods, and downstream flows within each watershed. These “expert models” will be used to: i) quantify spatial water availability within the watersheds; ii) identify the biophysical interactions between different nodes and types of water storage structure (rainwater harvesting, small reservoirs, surface and groundwater) and iii) assess the watershed hydrological trade-offs of different governance

options. Computer models can provide insights into the biophysical functioning of watersheds and the possible consequences of interventions. However, past experience shows that expert models make no allowance for subjective and value-dominated human components of socio-environmental systems. Consequently, their output is often not trusted and models have rarely been used to assist decision-making. Expert-modeling on its own is not sufficient and significant efforts will be made to improve communication between model developers and various actors so that a shared understanding of the socio-environmental system is built.

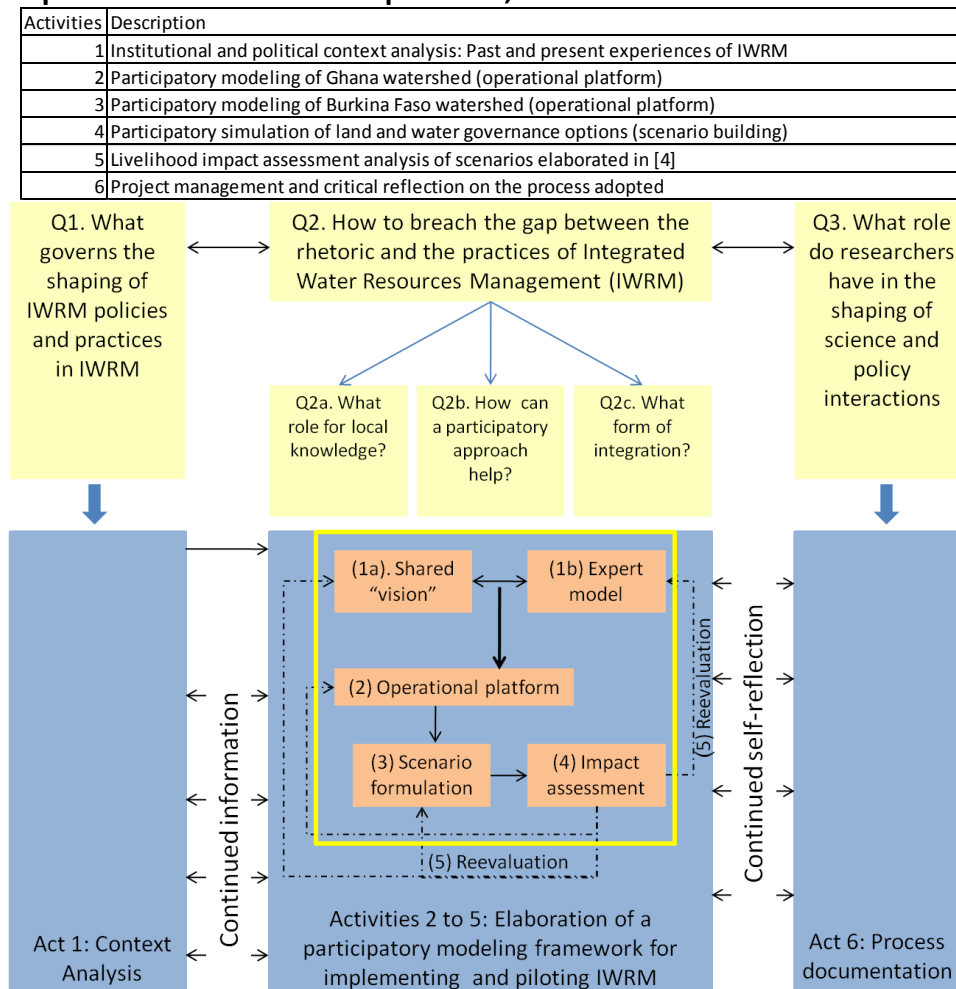
- Past experiences such as the CPWF PN25 *Integrated water resource management tools-application to the Limpopo, Mekong and Niger River Basins* highlighted that the exchange of multiple actors' points of view is useful to breach the gap between the rhetoric and the practices of IWRM. Therefore, in parallel to the expert modeling, a "shared vision" of the socio-environmental system will be created through multi-stakeholder platforms (MSP). The setting up of MSP can be incremental by first interacting in parallel with a selection of participants from existing groups of similar stakeholders, before organizing workshops with representatives from the different homogeneous groups involved during the first stages. This option enables trust building among the participants and the research team, but it is time consuming. Another option consists in mixing up the diverse types of stakeholders straight from the beginning to build a communication platform on an initial sharing of representations. In any case, what MSPs can achieve chiefly depends on who contributes to the platform. In each watershed, a list of relevant actors will be identified by the project-team, discussed and amended after discussion in the wider group so that perceptions of all –and notably generally powerless stakeholders such as the youth and women- are accounted for. This will be done during the workshops 2a and 3a as identified in the Gantt chart. A second round of workshops (2c and 3c) will then be conducted so as to build a shared vision about the relevant actors, resources, dynamics, interactions and problems –including health and the environment- that characterize the socio-environmental system –that may or may not coincide with the watershed boundaries. A conceptual model representing this system will be created and coupled with the expert biophysical modeling of the watershed so as to produce an operational platform that will, again, be tested, modified and validated through MSPs. To implement activities 2.4 and 3.4, we envision using such methods as participatory gaming and simulation field workshops combining role-playing computer-assisted games and agent-based simulation (key components of the the ComMod approach). Other tools such as the Participatory Health Impact Assessment developed as part of the SRP CPWF Phase 1 project will also be investigated. The participatory design of the operational platform will improve the representation/participation of all stakeholders –including the youth and women- in the process of IWRM implementation.

- The operational platform will then be used for identifying different governance options (scenario formulation), simulating, and discussing their impacts on livelihoods and the socio-environmental system (activity 4). Those options will be identified in a participatory way, going further in using the tools collectively designed and tested during activities 2.4 and 3.4. At this stage, the exploratory dimension being prevalent; interactive computer simulations are essential (Collectif ComMod, 2003, D'Aquino et al., 2003; Daré et al., 2009). Indicators relevant to the different stakeholders who contribute to the MSPs will be produced so as to assess the social acceptance of different governance options and the way these link to people's priorities. The method used for participatory development of environmental health indicators around small reservoirs in Morocco will serve as a starting point for this approach (Boelee et al., 2009). Simulation results will then be compared to the initial expectations as identified by the MSP. This comparison will provide the basis for actors to refine the scenarios, the operational

platform or the shared vision (see figure below) and could form the basis for a new loop of scenario modeling. The simulation could also result in refining the expert bio-physical model.

- Finally, socio-economic and environmental data generated by V2 and V3 will be used to quantify the livelihoods –including health- and environmental impacts of the socially acceptable governance options that would have been identified by the MSP.

Schematic representation of research questions, activities and methods.



Lastly, the project adopts an original and critical “action-research” posture and will use the studies and activities conducted in the pilot sites to address the following question:

3. What role do researchers, and more generally science, have in the shaping of environmental and natural resources management policies in sub-Saharan Africa (Q3)?

This question addresses the roles and modes of knowledge production in creating and sustaining policy frameworks and development interventions in the agricultural water sector. It uses the specific case of the project V4 to critically assess the role and impacts of research – be it based on expert modeling or participatory approaches- in the making of (agricultural) *Development* in sub-Saharan Africa, and in the Volta Basin in particular. A critical comparative assessment of desk-research approaches and multi-stakeholder processes will be conducted. This will be informed by the findings and documentation of specific projects such as the RIPARWIN (McCartney et al., 2007) and the CP 40 *Governance and Modeling projects* (Schiffer et al., 2010) as well as by the study of other initiatives that have been implemented in the Volta river basin (for instance, Roncoli et al., 2009).

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).

IWMI is involved in multiple initiatives looking at Integrated Water Resources Management for poverty alleviation and enhanced livelihood resilience. These include the CPWF projects in the Nile river basin that aim(ed) to assess and anticipate the consequences of innovation and improve rural livelihoods and their resilience through a landscape approach to rainwater management; the BMZ-funded project *Re-thinking water storage for climate change adaptation in Sub-Saharan Africa*; the project *Agricultural Water Management Landscape Analysis: Assessing the feasibility and potential impacts of on-farm water control interventions in Sub-Saharan Africa and South Asia* that look, among others, at small reservoirs as a source of resilience to smallholders and is a follow up to a CPWF Volta phase 1 project looking at *planning and evaluating ensembles of small, multi-purpose reservoirs for the improvement of smallholder livelihoods and food security* in which a toolbox was developed for the sustainable planning and management of small reservoirs, including methods for participatory analysis and governance of small reservoirs. IWMI has also established an office in Ouagadougou and is leading an USAID funded action research project (WAIPRO) that aims to enhance food security through improved irrigation performance at the reservoir and micro-catchment scale.

CIRAD-Green has demonstrated its experience in participatory approaches for sustainable natural resources management through the implementation and coordination of research projects such as: the CPWF and ECHEL Eau projects *Integrated water resource management tools-application to the Limpopo, Mekong and Niger River Basins* and *Companion modeling for resilient water management: Stakeholders' perceptions of water dynamics and collective learning at the catchment scale*; the European Union funded project *AquaStress: Reducing tension on multiple uses of water by developing new approaches taking into account technical, institutional and management aspects*; the *Negotiating peri-urban water conflicts (NEGOWAT)* project. These different projects aimed at developing tools to structure and analyze knowledge about water resources and its multiple uses and to foster decision making for sustainable management. GREEN has organized several training courses to help stakeholders to use and develop companion modeling approaches as a way to build capacity through collective learning and coordination processes on water resources management.

The SP-PAGIRE has been coordinating the setting up of 48 local water committees (Comité local de l'eau) over the last 5 years. It is now envisioning a review of these past experiences of local IWRM while currently overseeing the implementation of the second phase of the IWRM plan of Burkina Faso with the setting up of 4 "basin agencies" (agences de bassin) and about 75 local water committees (Comité local de l'eau) that aim at managing watersheds in an integrated way. The SP-PAGIRE works closely with other governmental (*Ministère de l'agriculture, Direction Générale des Ressources en Eau, Direction de l'Agriculture et du Développement de l'Irrigation -DADI*) and non-governmental institutions (*Millennium Challenge Account; APEFE*) that are also promoting IWRM at multiple levels. The SP/PAGIRE is the national agency in charge of piloting IWRM in Burkina Faso. As the main partner in Burkina Faso, the SP/PAGIRE will have the responsibility of ensuring that all relevant agencies and organizations are informed of, and contribute to, the project activities. The SP/PAGIRE will also act as a bridge between the project and other organizations piloting IWRM (*Millennium Challenge Account; Ministère de l'agriculture*), hence providing significant input in Activity 1.

The WVBB has contributed significantly to several projects on integrated water resources management in the White Volta Basin, among which the IUCN-led PAGEV project that aimed at

transboundary local IWRM and organized community exchanges between Burkina Faso and Ghana to enhance local knowledge and interactions around the environmental impacts of local practices. The WVBB is also exchanging expertise and knowledge with its counterpart in Burkina Faso (l'Agence de l'eau du Nakambé). This expertise and institutional network will be used by the V4 project. The WVBB will act as a bridge between the project and other organizations piloting IWRM in Ghana, hence providing significant input in Activity 1.

CSIR-WRI has been collaborating with IWMI on several projects including CPWF Phase I projects 40 (Governance modeling), 46 (Small Multi-purpose Reservoir Ensemble Planning) and 47 (Transboundary water governance in the Volta Basin and Limpopo: towards an African Indigenous model), the GTZ funded project *Re-thinking water storage for climate change adaptation in sub-Saharan Africa* and the Rockefeller funded project *Groundwater and climate change in sub-Saharan Africa: Implications for food security and livelihood*. These experiences will be used to inform the watershed modeling that will be done in the V4 project.

The Faculty of Integrated Development Studies (IDS) of the University of Development Studies (UDS) of Tamale has been involved in several projects aiming at enhancing local resources management systems to inform policy and guarantee ownership and participation of local population in development projects. With campuses in Wa (UWR) and Tamale (UER), UDS will bring its expertise on local development issues in North Ghana. UDS and IWMI are currently collaborating on the *Agricultural Water Management Landscape Analysis project*. UDS is also working in close partnership with 3 local NGOs: CECIK (Upper East Region, Ghana), CIKOD (Upper West Region, Ghana) and ORCADE (Burkina Faso) who are part of the project network.

6. Links to other BDC projects

Please fill out the following table.

Research outputs	Dependencies on other BDC projects to produce it	Use of research output by other BDC projects	Risks and assumptions
Output 1	No	Yes (V1, V2, V3, V4, V5)	Timely site selection Timely synthesis
Output 2	Low- Local stakeholders identification by V2 and V3	Yes , watershed modeling <u>could be</u> used for calibrating sustainability zones/ modeling by V1	Timely identification of stakeholders involved in local natural resources management (V2/V3)
Output 3	Low- Local stakeholders identification by V2 and V3	Yes , watershed modeling <u>could be</u> used for calibrating sustainability zones/ modeling by V1	Timely identification of stakeholders involved in local natural resources management (V2/V3)
Output 4	High- Local governance options identification by V2 and V3	Possibly , results could be used by V2 and V3 for reflecting back on the governance options they identified and further testing them	Timely identification of local natural resources management options (V2/V3)
Output 5	High- Rely on V2 and V3 data on economics and	Yes , results <u>could be</u> used for calibrating	Timely and adequate inputs from V2 and

	environmental impacts of local governance or management options	sustainability zones/ modeling by V1	V3 Risk: Output from V4 are late for integration in V1 activities
Output 6	Medium- Innovation research in V5	tbd	The innovation research planned in V5 on the agricultural water management sector complement the work planned on IWRM in V4

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?

This project will select two types of “sites”:

First, local IWRM structures (e.g. CLE in Burkina Faso and WUAs in Ghana) will be selected so as to illustrate the “field realities” of institutional and policy initiatives related to IWRM in the Volta basin. Sites will be selected so as to ensure representativeness of the multiple situations observed in the Volta Basin. Among the selected sites, there will be overlap with the study areas selected by V2 and V3: for instance, the districts of Lawra (Upper West Region of Ghana-UWR) and Koubri (Central Plateau of Burkina Faso) will be selected and a comprehensive overview of local IWRM structures in these two areas will be done.

Second, one pilot watersheds will be selected (500-2,000 km²) in each of the countries where the projects will be implemented (Burkina Faso and Ghana). The main criterion for site selection is **the existence of on-going policy initiative** that the project will support in a participatory way. The WVBB and the SP-PAGIRE will identify possible sites that will be collectively discussed during the first project meeting (see Gantt Chart in annex) before the final choice is made during the first quarter of the project, that is by December 2010/January 2011. Other criteria for selecting sites include the willingness of local stakeholders to engage in the participatory process and the availability of hydrological data or models that could serve as a basis for modeling the watershed (downstream gage and weather station for example).

In Ghana, two possible sites of the White Volta sub-basin (in the Northern and Upper East regions of Ghana) are envisioned. Both options provide possible overlap with the sites selected by V2 and V3 in these regions: [1] the Atankwedi and Anayare watersheds in the Upper East Region (area of about 500 km²) where biophysical modeling has already been done as part of previous projects (CPWF Phase 1 and GLOWA Phase 1 and 2) and data is available; [2] the Nasia sub-basin (5,250 km²) in the Northern region. The other pilot watershed will be selected in **Burkina Faso**, either in the **Mouhoun** (Black Volta) or in the **Nakambé** (White Volta) sub-basins. Both options can provide overlap with V2 and V3 sites as those sub-basins have been identified during the proposal development workshop. The final choice needs further discussion with local partners and stakeholders.

To ensure full complementarity of sites selection among projects, it is important that V2 and/or V3 show some level of adaptability so as to select some of their sites within the boundaries of the pilot watersheds. Fine tuning of sites selection is expected to occur as part as the first project meeting.

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 / Behaviour	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 output(s) involved in change	Risks and assumptions
Outcome pathway 1	Local Communities	Local communities consider long term and integrated impacts of their local practices ; adapt their own actions and better share views with policy makers	K: More knowledge of the off-site and long term impacts of their local actions (externalities) A. Recognition of the legitimacy of other natural resources users in the watershed S. Enhanced communications/exchange skills S. Enhanced adaptive capacity to change -external and internal shocks (such as climate change and external interventions: project, policies...)	Participatory modeling approaches with all actors (communities, local government and authorities, decision makers and implementers, researchers)	Outputs 2d, 2e, 2g and 3d, 3e, 3g (User friendly and operational platform to identify and assess impacts of local actions) Outputs 4a to 4d; 5b and 5d (Active discussion platform to negotiate shared rules of use and allocation of land and water resources at the watershed level)	We assume that: (1) local communities' engagement requires a platform where they can share their worldviews and their perceptions of the issues at stake; (2) the exchange of views and viewpoints and the activity of scaling up building allow tackling the complexity of IWRM and related systems while enhancing the adaptive capacity of the later. The risk is that the participatory modeling reveals crucial issues that are not related to land and water management. If such a situation were to occur, it could mean the project would select other priorities and land and water issues would be overlooked. Another risk is that output/results of Phase 1 are difficult to access.
Narrative 1	V4 will facilitate multi-stakeholder platforms that involve participatory modeling activities. The participation of local users will not only enable for a realistic scenario and tradeoff analysis, but it will improve their understanding and acceptance of the far-reaching impacts that their local actions can have. This knowledge will in turn inform possible changes in local practices. The participatory modeling is a practical tool for IWRM interventions.					
Outcome pathway 2	Policy makers and implementers from local to national level (SP-PAGIRE/WRC-WVBB, NGOs, decentralized governments and deconcentrated services)	Actors share views on different options for enhancing watershed management National decision makers (and bureaucrats in general) recognize the added value of adopting participatory approaches to policy implementation Enhance cross-scale channels of communication	K. Awareness of local knowledge and disincentives/constraints that local actors face to participate in IWRM A. Recognition of the possible role/importance of local knowledge for effective implementation/ monitoring of policies S. Enhanced capacity to implement integrated approaches at the watershed level S. Enhanced communications/ exchange skills	Involvement of policy implementers from the design phase of the project Participatory research activities feed in policy initiatives Participatory modeling approaches with all actors (communities, local government and authorities, decision makers and implementers, researchers)	Outputs 2d, 2e, 2g and 3d, 3e, 3g (User friendly and adaptable model to identify and assess impacts of local actions) Outputs 4a to 4d; 5b and 5d (Active discussion platform to negotiate shared rules of use and allocation of land and water resources at the watershed level)	We believe that early involvement of policy makers -from the project design phase- leads to an acceptance of the participatory approaches and possible adjustments of implementation pathways of on-going initiatives. The risk is that the approach (participatory modeling) is too time consuming. The risk is that output/results of Phase 1 are difficult to access.

Narrative 2	V4 will facilitate multi-stakeholder platforms that involve participatory modeling activities. The participation of planners and policy implementers will not only enable for a scenario and trade-off analysis, but it will also increase their knowledge and acceptance of the value of local knowledge in facilitating the implementation and monitoring of policies. By consequence, policy makers and implementers will be encouraged to tailor their own participatory modeling will be used by national decision maker to facilitate IWRM interventions on the ground.					
Outcome pathway 3	Project partners, Academics and Researchers	Partners use interdisciplinary methods and tools	K. Recognition that IWRM initiatives do exist both at the ground and policy level S. Enhanced communications/exchange skills	Training and exchanges among research partners on the methods and the underlying vision of the project	Output 1 (Policy and Institutional Analysis) (1b to 1e) Output 6d	We assume that research partners have a strong interest in interdisciplinary approaches. Risks are linked to the difficulty of coordination among team members and aversion to the “modeling” approach. Regular meetings and discussions will be organized among team members (activities 6.3 and 6.4) to progressively build a common vision of the project process and vision. Risks linked to the fact that “expert” knowledge will be questioned by local stakeholders and researchers might be reluctant to accept it. Regular meetings and discussions will be used to ‘sensitize’ researchers (see above).
Narrative 3	V4 will bring together multiple expertises (physical modeling, geography and policy science, sociology, etc.). This will not only enable bringing new light on the theories and practices of IWRM in the Volta basin but also create a fruitful platform for project partners and other academics to become comfortable with inter-disciplinary research methods, recognize local knowledge, and be critical about their role in the making of development projects.					
Outcome pathway 4	Basin Institutions and Donors	Basin institutions and donors improve decision making regarding resources development and allocation by considering "alternative" ways of supporting, implementing and monitoring policy initiatives of IWRM	K. Recognition that policy frameworks/ initiatives are adjusted/modified by local population during implementation A. Recognize that "appropriation pathways" are inherent parts to any development project A. Consider local realities of interventions and policies rather than their "stated objectives" when evaluating the later	Continuous involvement and communication of project activities with basin institutions and donors	Outputs 1b to 1e Output 5b	We assume that project partners will have enough leverage to attract attention to the activities of the project. This will be achieved through communication and coordination strategies (see section 10 below)
Narrative 4	Assessment of policy initiatives always point out to “implementation faults or failure”. This often deters further involvement/investments of donors or international basin agencies as they then look for other policies. The project will highlight the “realities” of IWRM interventions in Ghana and Burkina Faso and the local appropriation mechanisms they go through to better inform international development partners. In turn, they will be able to fine tune their interventions regarding IWRM and resources allocation by considering alternative and more participatory approaches to development and policy implementation.					
PROJECT IMPACT NARRATIVE E	The project will develop and test participatory approaches to implement and pilot IWRM at the watershed (sub-basin) scale in two pilot watersheds of the Volta River Basin. Participatory research activities (including stakeholder platforms and participatory modeling) will be combined with a critical assessment of the theory and practices of natural resources policy making and research activities, in relation to IWRM. By better understanding and accepting local dynamics and appropriation pathways of innovation (such as the implementation of a national IWRM policy), this project will contribute to making policy implementation more context-specific by involving multiple actors such as local farmers, decision makers, researchers, and national policy makers in a participatory process. Such actors would have been selected for their complementary roles in the shaping of policies and practices of IWRM. Governance strategies for watershed management will be coherently deployed, maintained and monitored. The success of the approach and the fruitful partnerships developed will prompt governments and development agencies across the Volta Basin to consider participatory approaches when designing and implementing policies and other development projects.					

* KAS: knowledge, attitudes and skills

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.

IWMI has a triple approach to the uptake of its research results. First, **project-specific uptake strategies** are designed for the uptake of project results. For V4, the strategy will include:

- A series of relationships established with decision makers, development agents and local stakeholders in key organizations so that participatory approaches to IWRM are considered as likely alternatives to top-down policy implementation. Practically, this will be achieved by inviting stakeholders involved in land and water management issues to inception, mid-term and completion workshops. The project will adopt a participatory and action research oriented approach. This involves initiating and consolidating local exchange platforms in the two pilot watersheds considered. This exchange platform consists of regular meetings and stakeholder forums during the life time of the project (see Gantt chart). A role playing game and a simulation model will be used as operational tools to test scenarios and to foster the interactions between all the actors. This will lead to building an effective communication between decision makers (local to national), local actors and researchers on the issue of integrated land and water management.
- Several peer reviewed journal articles and a policy brief will describe the policy processes of IWRM in the Volta Basin, its underlying motives, and its local practices. These communication products will be useful for decision makers and local natural resources users to design context specific policy intervention. The multi-stakeholder platforms will also be used to explore other communication channels such as translating key project documents into local languages.
- A web-page will be used to store/share information and documents among project members (restricted access, for internal communication) and make relevant information broadly available to a wide audience (open access section); we hope V5 will help in maintaining this tool.

Beyond project-specific strategies, IWMI adopts **regional uptake strategies** and **align its corporate information and communications to support them**. Here, results of a variety of projects are considered simultaneously so as to provide coordinated and integrated messages –that have a regional relevance- to different actors, among which the project partners so their own corporate and communication activities incorporate projects' results. This is to stimulate the momentum of uptake, even after completion of a specific project. In the case of the BDC Volta, these strategies will be elaborated and adapted at the start of the project in consultation with the teams of V1 (on extrapolation domains), V2 and V3 (on technical aspects of rainwater and small reservoir management), **and mostly V5** (overall communications plan and uptake strategies).

This triple approach will target key uptake points (as identified in the Outcome Pathways in section 8) so that research results lead to building awareness, knowledge and capacity with the aim of leading to changes in attitude, adoption pathways, improved water management, and ultimately more impact. The strategies listed above will require dedicated time and resources and support from V5. IWMI is also opening two new positions: a communication and a regional uptake specialist who will contribute to developing effective communication channels for the V4 project in close collaboration with, and under the supervision of, the IWMI's Regional Director for Africa.

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
Jean-Philippe Venot	Geographer	IWMI, West Africa PMB, CT 112, CANTONMENTS ACCRA, GHANA
Under recruitment	Landscape Modeler	IWMI, West Africa
Katherine Snyder	Senior Social Scientist	IWMI, East Africa (Addis Ababa office)
Mark Giordano/ Deborah Bossio	Geographer/Soil Scientist	IWMI HQ, Sri Lanka & IWMI, East Africa <i>Overall Guidance</i>
Eline Boelee	Water and health specialist	IWMI HQ, Sri Lanka Methodology development and support for health and environmental baseline and impact assessment
William's Daré	Sociologist	CIRAD UPR-Green Station la Bretagne, Chemin grand canal BP20, 97408 Saint Denis messagerie Cedex09
Patrick d'Aquino	Geographer	CIRAD-GREEN/PPZS 37, avenue Jean XXIII Dakar BP 6189 Dakar-Etoile (Sénégal) CIRAD-Montpellier, France
Christophe Le Page	Modeler	CIRAD UPR-Green Montpellier, France
Aaron Aduna	Hydrologist	WRC-WVBB; Box 489 Bolgatanga; Ghana
Pierre Zoungrana	Hydrologist	SP-PAGIRE; 03 PB 7025; Ouagadougou 03
Moses Kwadwo Kambou	Expert in Capacity Building/ Languages/ Development Studies	UDS, FIDS-Wa Campus, P.O. Box 520, Wa, Ghana & 09 B.P. 675; Ouagadougou 09; Burkina Faso
Emmanuel Obuobie	Soil and Water Engineer/ Landscape Modeler	CSIR-Water Research Institute; P. O. Box M32 Accra, Ghana

Provide a brief text statement on why the lead institution is well-placed to lead the group.

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. With research offices in Ghana and Burkina Faso, IWMI is in a uniquely advantageous position to undertake a project oriented towards analysis, management and governance of rainwater and multiple small reservoirs at the watershed level in the Volta Basin.

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

Institution 1: CIRAD-UPR Green

The unit “Renewable Resources and Environment Management” (GREEN) is part of the Environments and Societies department of the French Agricultural Research Centre for International Development (CIRAD). The aim of GREEN is to provide knowledge, methods and tools for modeling complex systems, hence supporting collective processes for the management of natural resources and helping stakeholders to improve their capacity to manage their eco-social system. GREEN is among the research units at the origin of an interdisciplinary network of researchers -coming from several national and international research institutes- interested in the management and governance of natural resources. GREEN has notably developed the *Companion Modeling* approach (ComMod, www.commod.org) as an interactive process facilitated by adaptable models to support dialogue, shared learning and collective decision-making. More than 30 experiments have been conducted all over the world and GREEN has closely monitored over a dozen on issues related to land and water management.

Institution 2: Water Resource Commission-White Volta Basin Board (WRC-WVBB), Ghana

The White Volta Basin Board (WVBB) from WRC is the agency directly responsible for promoting and implementing IWRM in the Ghanaian part of the White Volta Basin. The WVBB has been directly involved in multiple watershed management activities and projects such as the transboundary water management initiative coordinated by the IUCN (PAGEV) and its expertise is an asset to implement complementary activities that aim at enhancing the participation of local stakeholders in water resources management. The participation of the WVBB in CPWF-Volta thus offers an opportunity for research results to directly inform on-ground initiatives, in terms of scope, timing, uptake and likely impact. The WVBB will contribute to (e.g. sharing data and information, participation to stakeholder consultation) and benefit from the CPWF Volta research.

Institution 3: Secrétariat Permanent au Plan d’Action et de Gestion Intégrée des Ressources en Eau (SP-PAGIRE), Burkina Faso

The Permanent Secretariat for the Action Plan on Integrated Water Resources Management (SP/PAGIRE) is the agency directly responsible for promoting and implementing IWRM in Burkina Faso. The second phase of the Action Plan, PAGIRE 2010-2015, will, inter alia, lead to the setting up of basin agencies and watershed management bodies in Burkina Faso. Key strategic components of the Plan will include (a) generation of knowledge via applied research; (b) human resources development in the water sector within local government, private sector and civil society; (c) implementation of cross-cutting actions with a view to poverty reduction, gender mainstreaming and information-communication. The participation of SP/PAGIRE in CPWF-Volta thus offers an opportunity for research results to directly inform on-ground initiatives, in terms of scope, timing, uptake and likely impact. The SP/PAGIRE will contribute to (e.g. sharing data and information, participation to stakeholder consultation) and benefit from the CPWF Volta research.

Institution 4: University of Development Studies (UDS-Tamale); Faculty of Integrated Development Study, Ghana

The Faculty of Integrated Development Studies (FIDS) will bring its expertise on the notion of “endogenous development” (a notion advocated by COMPAS international) in the context of Ghana to bring new lights on the practices and perceptions of local IWRM (WUAs). FIDS has been working on endogenous approaches to development in partnership with COMPAS Africa for the past 6 years in the Upper East and Upper West regions of Ghana in natural resource management. The UDS team is fluent in English and French. This will help in coordinating work and sharing experience between the two countries.

Institution 5: Council for Scientific and Industrial research-Water Resources Institute (CSIR-WRI), Ghana

The CSIR-WRI is a Government of Ghana Research Institute mandated to research into water and related resources, generating and providing scientific information, strategies and services towards the rational development, utilization and management of the water resources of Ghana in support of socio-economic advancement, especially in agriculture, health, industry, energy, transportation, education, environment and tourism sectors. The CSIR-WRI has long partnering with CPWF in the Volta Basin. CSIR-WRI coordinated the activities of CPWF Phase 1 in the Volta Basin and participated in several research projects notably PN40, 46 and 47. Currently, CSIR-WRI is working with IWMI on different projects to model the impacts of Climate Change Scenarios on groundwater and multiple type of water infrastructure. This experience will benefit the current project as CSIR-WRI will participate in modeling activities to create scientifically sound and user friendly modeling platform for the participatory design of land and water governance scenarios.

12. Indicative breakdown of budget

This is part of the project workbook.

13. Bibliography

Please list up to 10 references and key documents

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