Ministry of Agriculture

Ministry of Water and Irrigation

Report of the Green Water Credits Workshop Nairobi, 11-12 October 2006

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The convenors: Kenya Ministry of Agriculture and Ministry of Water and Irrigation, and ISRIC – World Soil Information

The hosts: Kenya Agricultural Research Institute

The co-organizers: Samuel Ondieki and John Cheluget

The workshop secretaries: PT Kamoni, ZK Mairura, Chebii Kilel, Mwangi T Hai, Mary Baaru, CRK Njoroge and EM Mnyamwezi

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Preamble

Green Water Credits (GWC) is a mechanism for paying or otherwise rewarding land users in return for specified land and soil management activities that determine the supply of fresh water at source.

The goal is to enable rural people to better manage land and water resources so as to improve food security, water security and public health; to improve local resilience to economic, social and environmental change, by asset building (stable soils, improved water resources, shortening the hunger gap, diversified rural incomes); to deliver enhanced *blue* water resources downstream; and to reduce the hazards of flood and landslips. It is not a poverty alleviation scheme but poor people in rural areas will benefit directly. Benefits from water management activities and rewards to the water managers are viewed differently by the various stakeholders and development programs so much work is still to do to develop an operational, sustainable mechanism.

Phase I of the Green Water Credits program, a proof-of-concept project, began in 2006 with the support of the International Fund for Agricultural Development and the Swiss Agency for Development and Cooperation. Its aim is to demonstrate the viability and feasibility of the concept. Out of a short list of four basins (the Volta in Ghana and Burkina Faso, the Tana in Kenya, the Great Ruaha and Ruvu in Tanzania),the Tana basin was ranked first: water scarcity and water quality is a big issue for all users; the upper Tana catchment has good rainfall and many farmers, so there is a big potential for downstream water benefits; there are important downstream water users who need and can pay for improved water management over the long term (hydro-power, Nairobi municipal water supply, and irrigators); and current political and economic initiatives in the water sector in Kenya may also be favourable for introduction of Green Water Credits.

Given a favourable outcome of the proof-of-concept, the aim is to establish pilot operations (Phase II) in Sub-Saharan Africa, Mediterranean-West Asia, South and East Asia, and Latin America.

1. Workshop objectives and program

The 1st Green Water Credits workshop was convened at the Kenya Agricultural Research Institute Headquarters, Nairobi, on 11-12 October 2006, jointly by the Ministry of Agriculture, Ministry of Water and Irrigation, and ISRIC – World Soil Information. It was attended by some 55 representatives of farmers, public and private sector agencies, and the project partners.

The objectives were:

- To explain Green Water Credits and the choice of the Tana basin for the proof-of-concept project;
- To present the preliminary results of biophysical and socio-economic studies, and the positions of the main stakeholders in the catchment
- To discuss the feasibility of Green Water Credits in Kenya

The program comprised seven sessions with presentations, plenary and parallel discussions (Appendix 1). The presentations covered the four work domains: land and water management, rural and urban livelihoods, institutions and legal framework, and financial mechanism. PowerPoint presentations, abstracts of the oral presentations and summaries of the discussions are available on-line: www.isric.org (under Current Projects).

2. Participation

Fifty five persons participated, representing national and international, public and private institutions. The list of participants is given in Appendix 2.

National institutions:

- Ministry of Agriculture, Ministry of Environment , Ministry of Finance, Ministry of Lands, Ministry of Water and Irrigation
- National Irrigation Board , NALEP, NEMA, Water Resources Management Authority
- Research Institutes: Kenya Agricultural Research Institute, Nairobi University
- Private sector: six farmers from several districts in the Upper Tana catchment, K-rep Bank, ETC East Africa, Dertu Millennium Village program, Elsa Youth Catchment, Tendelyani ECS

International institutions:
ASARECA, ICRAF, IFAD, ISRIC – World Soil Information, Stockholm Environment Institute (SEI), International Institute for Environment and Development (IIED), Agriculture Economic Research Institute (LEI)

3. Presentations and discussions

Session I: Objectives

- Keynote address - Dr Romano Kiome, Permanent Secretary Ministry of Agriculture (PDF)
- Green Water Credits Workshop Objectives – Ir Sjef Kauffman, ISRIC – World Soil Information (PPT)

Session II: Need for Green Water Credits

- Green Water Credits: Who? What? Why? Where? When? How? – Dr David Dent, ISRIC -World Soil Information (PPT); abstract (DOC)
- Regional perspective of green water management – Prof. Bancy Mati, ASARECA (PPT)
- Plenary discussion after sessions I and II (PDF)

Session III: Water users' perspective - resources and demand

- Organisation of farming communities as water producers in the Tana Basin – Mr Isaac Mulagoli, NALEP (PPT)
- Irrigation sector in Kenya, status and challenges – Eng. Evangelina Mbatia, Ministry of Water and Irrigation (PPT)

Session IV: Roles of land managers in water supply

- Basin-scale hydrology scenarios to explore opportunities for Green Water Credits – Dr Peter Droogers, SEI (PPT)
- Overview of socio-economic aspects of Tana Basin – D W Kilambya, P M Maingi, F M Murithi and P T Gicheru, KARI (PPT); Abstract (DOC)
- Lessons from Payments for Environmental services – Dr Ina Porras, IIED (PPT)
- Supply side – Ir Gerdien Meijerink, LEI (PPT); Abstract (DOC)

Session V: Policy, institutional and financial aspects – linking water users and suppliers

- Draft Rules to govern water resources management in Kenya - Eugen M Mnyamwezi, Water Resources Management Authority (WRMA) (PPT)
- WEAP model for water allocation scenarios to explore opportunities for Green Water Credits - Dr Peter Droogers, SEI (PPT)
- Banking for smallholders and options for financial transfers - Mr Benson Kimithi, K-rep Bank (PPT)
- Plenary discussion (PDF)

Session VI: Questions to be answered

- Parallel discussion groups:
  1. Biophysical information needs
  2. Socio-economic, institutional and policy
  3. Financial mechanism
- Summary of discussions PDF

Session VII: Conclusions, recommendations and closing address

- Conclusions, recommendations and way forward (see Section 4)
- Closing address - Eng Mahboub Maalim, Permanent Secretary of Ministry of Water and Irrigation PDF

4. Summary of findings and conclusions

4.1 General

- Within the broad range of payments for environmental services, Green Water Credits are payments for water management services

- There is overall agreement in both public and public sectors that the Green Water Credits concept is appropriate for the Tana basin, and Kenya in general

- Green Water Credits offers real opportunities to improve water management upstream with beneficial effects for water users downstream

4.2 Land and water management assessment

- Water flow analyses at field and catchment level demonstrate significant scope for improved water delivery downstream, both in quantity and quality, from improved management practices in rain-fed farming

- Farmers can make significant improvements in water resources by use of well-selected crops and field management practices that: 1) enhance infiltration and thus reduce runoff; 2) reduce evaporation

- Better rainwater management can lead to higher crop yields and better quality crops, reduced soil erosion and silt load, enhanced groundwater recharge, mitigation of flooding, and more regular stream flow

- Further field information will be used to improve the provisional biophysical assessment (e.g. recognize the high erosion in coffee and cotton zones and specific districts).

4.3 Socio-economic assessment

a) Upstream service providers:

- The wealth of experience of soil and water conservation in Kenya, both at farmers' and government level and in the Tana basin in particular, provides a good base for Green Water Credits

- The adoption and maintenance of soil and water conservation measures appears to be below par; this is reflected in flash floods, increasing silt loads, sedimentation of reservoirs, and declining river and groundwater levels

- Farmers are aware of the private, on-site benefits from soil and water conservation. They expressed the need for technical assistance. They also expressed the need for financial support to compensate for the necessary labour and material inputs; Green Water Credits is designed specifically to provide this incentive

b) Downstream water users:

- Large water users in the Upper Tana catchment include hydro-power generation, municipal water utilities, and irrigators
- Irrigators include smallholders and large public and private irrigation enterprises, all with unmet water demands
- The Tana basin provides most of Kenya's electricity. Key issues are low reservoirs levels and high silt load that significantly shortens the life of reservoirs and turbines
- Most of Nairobi's water comes from the Tana basin. There is already substantial unmet demand and demand is projected to increase steeply. Main problems are low reservoir level, and high suspended silt load that causes eutrophication and high costs for purification
- It was recognized that environmental effects form lower river flows and siltation should be included in the assessments.

4.4 Governance: institutional and legal framework assessment

- The Government of Kenya is introducing radical legal and institutional changes in the water sector e.g. the recent establishment of the Water Resources Management Authority, the New Water Act and (draft) Water Management Rules
- The new Water Act considers water as a socio-economic good
- The WRMA is the lead agency that will oversee the management, use and development of water resources
- The draft Water Management Rules recognize the risk of soil erosion, flooding and loss of life and infrastructure caused by excessive runoff; and the link between downstream resources and upstream land use and management
- NALEP and NEMA are leading agencies to assist farmers in implementing good land and water management
- There are several related projects and proposals for payments for environmental services in Kenya, but hardly any others aimed at improved rain-fed agricultural land and water management
- Now is the right moment to introduce Green Water Credits within the new institutional and legal framework
- Institutional analyses indicated that community-based organizations are necessary to reach the many smallholders for information, education and financial aspects of Green Water Credits

4.5 Financial mechanism

- General aspects and those specific to the Tana basin were presented and discussed

- It is necessary to be clear and consistent in the use of terms such as credits, payments and rewards

- It is recommended to assess all forms of payments: cash, payments into trust funds, micro-credits and in-kind benefits such as implements, infrastructure, as well as collateral incentives such as permits and secure tenure

5. Forward plan of work

The findings of the workshop will be used to continue and to improve the assessments in the four project work domains: land and water management, livelihoods, institutional and legal framework, and financial mechanism.

Draft final results to be presented in the next workshop in May 2007

Appendix 1 – Workshop program

Time	Event	Responsibility
DAY 1		
8.30 – 9.00	Arrival and registrations	Workshop secretariat
	SESSION I: Welcome, objectives and introduction Chairman: John KA Cheluget, Director Land and Crop Management	
9.00 – 9.10	Introduction	Mr John KA Cheluget
9.10 – 9.20	Welcoming remarks	Dr EA Mukisira, Director KARI
9.20 – 9.30	Workshop objectives	Ir Sjef Kauffman, ISRIC – World Soil Information
9.30 - 10.15	Keynote address by PS Ministry of Agriculture	Dr Romano Kiome
10.15 - 11.00	Refreshments and informal discussion	
	SESSION II: Need for Green Water Credits Chairman: Dr Patrick Gicheru, NARL Centre Director	
11.00 – 11.15	Concept: bridging water users and suppliers; phases of the Green Water Credits Program	Dr David Dent, ISRIC – World Soil Information
11.15 – 11.30	Payments for environmental services: lessons learned, examples	Dr Ina Porras, IIED
11.30 – 11.45	Regional perspective of green water management	Prof. Bancy Mati, ASARECA
11.45 – 12.30	Plenary discussion	
12.30 – 14.00	Lunch	
	SESSION III: Water users' perspective; resources and demand Chairman: Eng. Lawrence N Simitu, Director WRM-MWI	
14.00 – 14.15	Organisation of farmers as water producers	Mr Mulagoli, NALEP
14.30 – 14.45	Irrigation demand and water management	Mrs Evangelina Mbatia, Ministry of Water and Irrigation
14.45 - 15.30	Plenary discussion	
15.30 – 15.45	Refreshments	
	Session IV: Roles of land managers in water supply Chairman: Mr Richard Nderitu	
15.45 – 16.00	Basin hydrology scenarios in the Upper Tana	Dr Peter Droogers, SEI
16.00 – 16.15		
16.15 – 16.30	Socio-economic aspects, Tana Basin	Dr Kilambya, KARI
16.30 – 16.45	Opportunity costs of best practice for water supply	Ir Gerdien Meijerink, LEI
16.45 – 17.15	Plenary discussion	
DAY 2		

Time	Event	Responsibility
morning	**SESSION V: Policy, institutional and financial aspects - linking water users and suppliers** Chairman: Dr Fred Muchena	
8.30 - 8.45	Kenya's new Water Resources Management Rules	Dr Eugen Mnyamwezi, WRMA
8.45 - 9.00	WEAP model for water allocation scenarios	Dr Peter Droogers, SEI
9.00 – 9.15	Farmers 'representation in negotiations on price for services	Mr Leonardo Kariuki, KENFAP
9.15 – 9.30	Banking for smallholders and options for financial transfers	Mr Benson Kimithi, K-rep Bank
9.30 - 10.00	Plenary discussion	
10.00 - 10.30	Refreshment and informal discussion	
	SESSION VI: Questions to be answered Chairman: Dr David Dent, Director ISRIC	
10.30 - 12.00	Parallel small working groups: Biophysical. What do the data tell us? Socio-economic, institutional and policy. Do we have appropriate legislation and institutions for Green Water credits? Financial mechanism. What are the options?	All participants, each group led by national or international partner
12.00 - 13.00	Working group reports and plenary discussion	Session VI Chairman
13.00 - 14.00	LUNCH	Host – KARI
afternoon	**SESSION VII: Conclusions, recommendations and way forward** Chairman: Dr David Dent	
14.00 - 15.00	Conclusion, recommendations and way forward	
15.00 – 15.15	Closing by PS Ministry of Water and Irrigation	Eng. Mahboub Maalim

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