



RCE AFRICA

REPORT

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1.0 Regional Status Report

The AquaFish CRSP Strategy for Achieving Development Impact focused on Research, capacity building, information dissemination, and country involvement. Focal areas included in this report cut across, improving nutrition and health, maximizing water, soil quality and productivity, advancing IPM practices, broadening market access, increasing incomes, and improving food quality, processing, and safety.

The Feed the Future Research Strategy, which is an integral component of the broader Feed the Future Initiative, presents our global research portfolio to create more productive crops, sustainably intensify agricultural production systems, ensure food security, and enhance access to nutritionally improved diets. Despite recent improvements in smallholder production and strengthened institutions, food security continues to be an issue in East Africa.

The East Africa Regional Center of Excellence (RCE) continued to perform its role in building community among all CRSP participants; identify potential additional partnerships with the public and private sector, NGOs, USAID, and others; and bridging the knowledge gap from local-regional perspectives to global development outcomes.

During this reporting period, RCE facilitated Networking with African scientists through SARNISSA, WAS, NEPAD and ANAF meetings, conferences and exchange forum.

Specific approaches included:

- Personal contacts/relationships
- HC PI networking in Kenya, Uganda and Tanzania
- Farmer to farmer exchange programmes
- Reviewed regional proposals
- Collaborative research and institutional linkship

Rural Community Benefits Stemming from RCE activities: The RCE CRSP AquaFish organized fish farmers' workshops at the Mwea Aquafish farm and Kisumu. Workshops were held on 27th June in Mwea and 11th and 12th June in Kisumu. In addition RCE facilitated participation of Victor Motari to attend and take video shots during the pre and post on-farm trials workshops held on 18th October 2010 and 8th July 2011 at the Mwea Aquafish farm.

RCE has also been instrumental in setting up forward working interpretations to facilitate various aquaculture tasks in the region particularly with regards to ANAF as special programmes for Aquaculture development in Africa. To this end, RCE office initiated a collaborative meeting between Aquafish Director and SARNISSA coordinator and SARNISSA was invited to the Aquafish CRSP annual meeting that took place in Shanghai China April 2011. Mr. William Lechen the SARNISSA coordinator made a presentation to the Aquafish ACRSP delegation that was attending this meeting.

1.1 Assessment of opportunities and gaps in technology

As a result of the increased effort to avail quality feed to fish farmers under the Kenya Economic Stimulus Programme, RCE Visited Sigma feed producers, held a meeting with Boniface Kimania and also met the agent for Uga chick feed (imported from Uganda) to discuss consistency and reliability of quality feed supply to small scale fish farmers. Within the region, countries such as Kenya (Sigma Feeds) and Uganda (Ugachick) have witnessed feed companies setting up extruders for commercial production of fish feeds and quality is one area that must be monitored. We are also concerned with price per tonnage and whether our farmers can break even if the current market price is sustained. On 7th May 2011, I was invited by the Ministry of Fisheries Development to give a talk on how small scale farmers would benefit from the government programme and whether more subsidy by way of providing fish seed and feed is required to help farmers return to profit.

1.2 Activities supporting students involvement in Aquaculture

Through Collaborative research in Aquaculture, CRSP has endeavoured to work with all aquaculture stakeholders. RCE supported undergraduate and graduate students education through sponsorship or partial funding to travel to the field and undertake various aquaculture activities in particular, RCE has supported victor Motari to shoot, edit and upload aquaculture Videos on YouTube as part of information exchange.

1.3 Activities supporting women involvement

RCE has made every effort to address gender integration within the planned scope of work through training and involvement in project implementation. Among some of the activities women have been roped into include training on production of catfish as bait fish for Lake Victoria fisheries and several workshop as well a visit to Uganda fish farmers in 2009. Within the present Aquaculture CRSP in Kenya for example, more than 40% of the students educated through formal training opportunities are women; the two graduate students on the Kenyatta/Purdue university project are girls, RCE does play a role in the selection and mentoring of these students. The two students have received full funding including registration and accommodation to attend the Aquaculture Association of Southern Africa (AASA) conference to be held in Malawi this September.

1.4 Associate Award and other leveraged activities

Lead with Associate Award project

We do not have any Lead with Associate, award project currently running.

Developed Proposals submitted for Research and Leverage:

- Kenya, South Africa linked with Brazil and wrote a proposal in August 2008. Funds for

this project have been release and activities have begun. RCE coordinator had been invited to give a key note address at the annual aquaculture conference in Brazil but was unable to attend. We still have plans for an exchange visit by Maria Portella to Kenya.

2. 0 Linkage Visits

During this period, Charles C. Ngugi travelled to Shanghai, China in April 16 through 25, 2011 to attend, the AquaFish CRSP 2011 annual meeting, the 9th International symposium on Tilapia in Aquaculture (ISTA) and the 9th Asian Fisheries and Aquaculture Forum (9AFAF) in Shanghai Ocean University. Charles also organized an e-workshop for farmers in Kisumu and Kirinyaga in March 2011 where farmers were introduced to use of internet as a source of aquaculture literature and information.

2.1 Fostering Linkages and Collaboration

RCE has through SARNISSA established contacts with over 1,800 stakeholders who are enrolled members of SARNISSA. Through this initiative, member countries have received invitations for meeting, conferences and scholarship support from institutions such as the Asian Institute of Technology in Thailand. As William Leschen put it, we wished to create an information sharing network with materials and information relevant to African users , a community of individual members from a wide stakeholder base , and then to encourage and bring about sharing and potential collaborations between the different members towards positive change in African aquaculture. I think and hope this has provided individuals with something they need and can actually benefit from. I think these initial clear plans have stood us in good stead and I happy proud as Aquafish CRSP - RCE to be associated with this success. Through an earlier collaboration with Purdue University, we successfully submitted two project proposals and have received funding that will include support for two graduate students as well as run one on-farm trial for fish farmers.

2.2 RCE Contacts in Ghana, Kenya, Mali, Uganda and Tanzania

Charles has established links and contacts with senior government officers in these countries

- In Ghana, We are working with FAO Africa Representative John Moehl on information exchange.
- In Kenya we are in close collaboration with The Ministry of Fisheries Development and have been invited to several meetings to discuss the Aquaculture stimulus programme and the Aquaculture development plan
- In Tanzania, the Assistant Director of Fisheries member of ANAF attended the meeting in Jinja and I linked him to FAO and SARNISSA
- In Uganda we have established linkage with Kajanssi Research centre and the Uganda Commissioner for Fisheries who attended the ANAF meeting in Jinja.



RCE have made every effort to source leverage funds from USAID mission, EU, CIDA, DFID, and Government Ministries among others in support of aquaculture development for the region. Currently there are FAO/ TCP aquaculture projects going on in Uganda, Kenya and Ghana. Most recent undertaking has been the FAO support in Ghana. The “Aquaculture Investments for Poverty Reduction in the Volta Basin: Creating Opportunities for Low-Income African Fish Farmers through Improved Management of Tilapia Genetic Resources – Regional Project GCP/RAF/417/SPA”. The USaid funding in Uganda, World Fish Center funding in Malawi, NEPAD/Comesa project at Bunda College in Malawi, Leader with associate award in Mali, EU-SARNISSA funding for Cameroon, Malawi and Kenya, DFID Aquashop projects in Kenya among a host of other projects in the region.

2.2 Meeting with Feed Manufactures

Ugachick feed is now available to Kenya farmers and is being distributed by the Ministry of Fisheries Development under the Economic Stimulus programme. Enquiries for sales can be sent to: ugachick@infocom.co.ug

2.3 RCE Linkage with DFID/ Farm Africa RIU Project

Research-into- Use (RIUP) is a DFID funded programme aimed at catalysing agricultural innovation as a follow-up to DFID’s £220m investment in the Renewable Natural Resources Research Strategy (RNRRS). It represents a shift in emphasis away from generating new knowledge and towards ensuring that existing research with potential is promoted and scaled up successfully to achieve lasting development impact.

The implementing team comprises of representatives from Natural Resources International Limited (England), Farm Africa (UK), University of Stirling (Scotland), Kenyatta University (CRSP), and Imani Development (East Africa). This team is collaborating with Ministry of Fisheries Development and Women in Fishing Industry (WIFIP). We are through with the first phase of the project and RIU is considering giving FARM Africa one year extension. I have provided information before regarding the setting up of Aquashops which we successfully launched in 2010.

2.5 Information dissemination through conference participation

The RCE office is proud to announce that the office supported submission of several papers at the AquaFish CRSP 2011 annual meeting, the 9th International symposium on Tilapia in Aquaculture (ISTA) and the 9th Asian Fisheries and Aquaculture Forum (9AFAF) in Shanghai Ocean University:

- Ngugi, C. C., and C.M. Mlewa. 2011. Air Breathing Fishes of Kenya: The Case of Marbled African Lungfish (*Protopterus ethiopicus*). Aquafish ACRSP Air Breathing Fishes Workshop, Shanghai, Marriot hotel Hangqiao, China, 18th April 2011. Oral Presentation
- Ngugi, C. C., G. Kuria, K. Quagraine, and S. Macharia. 2011. Effects of Stocking Density on the growth, survival and yield performance of Nile tilapia (*Oreochromis niloticus*, Linn.1858) in an integrated cage-cum-pond system. The 9th Asian Fisheries and Aquaculture Forum April 21-25, Shanghai Ocean University, China. Oral Presentation
- Macaria, S., C. C. Ngugi, K. Quagraine, B.Wamubeyi, and H. Ong'anda. On 2011. Kenya Aquaculture suitability Assessment. The 9th Asian Fisheries and Aquaculture Forum April 21-25, Shanghai Ocean University, China. Oral Presentation

Peer reviewed publications supported by RCE office

- Boit, C. Victoria, **Ngugi, C. Charles**, Bowman James, Oyoo, E. Okoth, Rasowo, J., James, M. Bundi and L., Cherop. 2011. Growth performance, survival feed utilization and nutrient utilization of African catfish (*Clarias gariepinus*) larvae co-fed Artemia and micro-diet containing freshwater atyid shrimp (*Caridina nilotica*) during weaning. Journal of Aquaculture Nutrition: Vol 17 Issue 2-82-89 April 2011
- Elijah Oyoo-Okoth, Leah Cherop, **Charles C. Ngugi**, Victoria Chepkirui- Boit, David Manguya Lusega, Josiah Ani-Sabwa, Harrison Charo- Karisa 2011. Survival and physiological response of *Labeo victorianus* (Pisces: Cyprinidae, Boulenger 1901) juveniles to transport stress under a salinity gradient. Aquaculture (2011) doi:10.1016/j. aquaculture .2011.06.052
- Elijah O. Okoth, **Charles, C. Ngugi**, and Victoria C. Boit 2011. Assessment of Physiological and biochemical response of Nile tilapia (*Oreochromis niloticus*) exposed to aqueous extracts of neem (*Azadirachta indica*). Journal of applied Aquaculture: Vol 23, Issue 2, 177-186
- Elijah Oyoo-Okoth, Mucai Muchiri, **Charles C. Ngugi**, Elizabeth W. Njenga, Veronica Ngure, Paul S. Orina, Emily C. Chemoiwa, and Bernard K. Wanjohi 2011. Zooplankton Partitioning in a tropical alkaline –saline endorheic Lake Nakuru, Kenya spatial and temporal trends in relations to the environment. Lakes and Reservoirs: Research and Management Journal 2011 Vol 16:1-13

Submitted Abstracts supported by RCE office:

- Cecilia Muthoni*, Charles C. Ngugi, Julius Manyala, and Kwamena Quagraine. Aquaculture Association of South Africa to be held in Malawi Sep 2011. An economic assessment of Nile tilapia (*Oreochromis niloticus*) and African catfish (*Clarias gariepinus*) consumer fish preferences in selected urban centres in Kenya
- Gladys Kuria*, Charles C. Ngugi and Kwamena Quagraine. Aquaculture Association of South Africa to be held in Malawi Sep 2011. Effects of stocking density on growth, survival and yield performance of Nile tilapia (*Oreochromis niloticus*, Linn. 1858) in an integrated cage-cum-pond culture system

3.3 Aquaculture development in Africa

It is important to develop synergies in aquaculture and therefore due to the role Aquaculture CRSP has played in the continent, through USAID funding, AU envisaged that there is need for projects' coordination and information sharing. Fortunately, the Regional Centre of Excellence (RCE) initiative created by Aquafish CRSP provides a very good avenue for aquaculture networks and information sharing. Prof. Ngugi of Kenyatta University is the coordinator of RCE in East and Southern African region.

There has been concern that the USAID country offices do not appear to be aware of the USAID – USA funded projects. This meeting seeks to discuss ways to change this so that African Union can play a more coordinating and central role in aquaculture projects. In this regard, the RCE would play a catalytic role on aquaculture information dissemination.

3.0 Activities related to IEHA and FtF goals

Presently Aquafish CRSP is focused on complementary themes in different IEHA countries as shown in:

- Kenya –Focus is now on marketing and impact assessment for cage culture in small water bodies
- Tanzania – Fish Production and technology transfer
- Ghana – Fish feed, water quality, environmental impact assessment for cage culture on Lake Volta and marketing
- Mali – Aquatic Resource use and conservation for sustainable freshwater aquaculture and fisheries. This is a leader with associate award project.
- Uganda -Hydrology, Water Harvesting, and Watershed Management for Food Security, Income, and Health: Small Impoundments for Aquaculture and Other Community Uses

4.0 ACRONYMS and ABBREVIATIONS

ACRSP = Aquaculture Collaborative Research Support Program

AquaFish CRSP = Aquaculture and Fisheries Collaborative Research Support Program

ANAF = Aquaculture Network for Africa

CRSP = Collaborative Research Support Program

COMESA = Common Market for Eastern and Southern Africa

FAO = Food and Agriculture Organization (of the United Nations)

FtF = Feed the Future

HCPI = Host Country Principal Investigator

IGO = Inter Governmental Organization

NEPAD = New Partnership for Africa's Development

NGO = Non Governmental Organization

SARNISSA = Sustainable Aquaculture Research Network in Sub Saharan Africa