

*2007-2010 U.S. Department of Agriculture Cooperative States Research, Education, and  
Extension Service  
Higher Education Challenge Grant*

**New Paradigm for Discovery-Based Learning:  
Implementing Bottom-up Development by Listening to Farmers' Needs and  
Using Participatory Processes and Holistic Thinking**

**Site Visited: Bamako, Mali, West Africa**

**Dates of Visit: September 21-October 2, 2007**

**Investigator: Professor Nancy E. Beckage, Ph.D.**

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Departments of Entomology & Cell Biology and Neuroscience  
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## **I: EXECUTIVE SUMMARY**

The primary purpose of this inaugural visit by Dr. Nancy Beckage of the University of California-Riverside to Bamako, Mali, West Africa in Sep-Oct 2007 was for the investigator to participate in the 2007 Kick-Off Symposium for the newly formed Mali Agri-Business Network and make contacts and meet with scientists at Malian academic institutions, non-governmental organizations (NGOs), and government agencies to lay the groundwork for future collaboration on scientific research projects of mutual interest. This visit was made in preparation for the planned participation of undergraduate and graduate students from the University of California-Riverside led by the investigator Professor Nancy Beckage to collaborate with Malian scientists to conduct, in collaboration with the Mali AgriBusiness *Network*, research projects focused on agriculture and human health in Mali beginning in 2008-2009.

## **II: OBJECTIVES OF VISIT**

- 1) Participate in Kick-Off Symposium for Mali AgriBusiness *Network* in Bamako, Mali, on September 27, 2007**
- 2) Participate in site visit to village demonstration of shea butter processing and holistic goal setting with the Coprakazan Shea Butter Production Cooperative, Zantiebougu, Mali**
- 3) Participate in site visit and village holistic goal setting in village of Sanambe, Mali; identification of priorities for agricultural research and engineering projects**
- 4) Identify laboratory sites and *Network* leaders for collaborative research involving University of California-Riverside undergraduates in 2007 USDA CSREES sponsored research grant funded projects**

## **III: GOALS ACCOMPLISHED**

- 1) The investigator met with all 7 members of the Mali Agribusiness *Network* and participated in the Kick-Off Symposium for the Network; consulted with representatives from USAID and non-governmental organizations (NGOs); and met with Malian students sponsored by USAID Program research funds at Montana State University (Bozeman, Montana, USA) and St. Thomas University (Minneapolis, Minnesota, USA).
- 2) The investigator visited village of Zantiebougu, Mali, and met with women leaders and members of the Coprakazan Shea Butter Production Cooperative; learned processes of shea nut collection and processing, and shea butter production.
- 3) The investigator visited village of Sanambe, Mali, and discussed strategies of holistic goal setting and formulation of priorities for research on malaria and insect vector

control, shea butter processing, and cowpea production and storage with village leaders and residents.

- 4) Contacts were made with faculty at the University of Bamako, the Agricultural University (Institut Polytechnique Rurale [IPR] / Institut Formation Recherche Applique [IFRA]), the Ecole Nationale d'Ingenieurs Abderhamane Baba Toure, the Medical School of University of Bamako and scientists employed at several Malian non-governmental organizations (NGOs) to establish collaborative networks to facilitate training of undergraduate and graduate students from the University of California-Riverside in Mali in 2008-2009.

#### **IV: Journal**

##### **Friday, 21 September 2007:**

Arrival in Bamako, 9 pm. Residence at Sarama Hotel for duration of visit to Bamako. Met with Director of Mali Agribusiness Network Belco Tamboura and students sponsored by USAID project at Montana State University in 2006-2007.

##### **Saturday, 22 September 2007:**

Meeting with members of the Mali Agribusiness Network to plan Kick-Off Event scheduled for 27 September 2007. Discussion of participatory process and goal setting objectives with faculty and representatives of NGOs.

##### **Sunday, 23 September 2007**

Extensive discussions with grant principal investigator Professor Florence Dunkel of Montana State University and Information Specialist and former Business Professor Robert Diggs (retired faculty member also of Montana State University) for planning of Kick-Off Events and arrangements for visits to laboratories in the Bamako vicinity to establish collaborative networks for faculty and student research projects to be undertaken in Mali in 2008-2009.

##### **Monday, 24 September 2007**

Meetings with Representatives from the Accelerated Economic Growth Program at USAID in Bamako, faculty at the medical school of the University of Bamako School of Medicine, Dentistry and Pharmacy, and the IPR/IFRA Agricultural University. Tours of facilities at each of these sites. Discussions of areas of mutual interest and establishment of priorities for future interactions. Arrival of Professor Ada Guisti, Associate Professor of French at Montana State University, and discussions with Dr. Guisti in Bamako on French linguistics and her personal experiences of serving as a mentor to undergraduate and graduate students from Montana State University who visited Bamako in 2005.

##### **Tuesday, 25 September 2007**

Organized visit by Malians and US representatives to the village of Zantiebougu, Mali to observe processes of harvest, production, and purification of shea nut butter in final marketable form by women members of the Coprakazan Shea Butter Cooperative. Holistic discussion with members of the cooperative was facilitated by Assa Kante of the Mali

Agribusiness Network. Mechanical and engineering challenges encountered during processing of shea nuts and butter production were discussed in detail by members of the cooperative together with US representatives and members of the Agribusiness Network. Problems associated with marketing the final products (grade #1 butter and soap products) and identifying export markets were also analyzed. Technical limitations to producing large quantities of high quality products were also discussed.

### **Wednesday, 26 September 2007**

Organized visit by US representatives and members of the Network to the village of Sanambele, Mali to receive updates on current priorities for agriculture and human health since previous meeting with village leaders and members which took place in March 2007. Transmission of malaria in the village and shortages of bed nets in households of the village members continue to be major problems which impact agricultural productivity of women and men subsistence farmers in the village. With Dr. Florence Dunkel, a natural product toxicologist whose research included mosquito rearing and adult bioassays, we took a walking tour of the village to find locations that might serve as breeding areas, larval nurseries for the anopheline mosquitos that vector malaria. The main areas located that could possibly serve as larval nurseries were grey water release areas from village showers and small ponds. We found no larvae or pupae in these areas, however. Observation of agricultural processes and products of the village included sorghum, millet, and shea nuts. Limitations to marketing their products were also discussed. Cowpeas are primarily regarded as a cash crop and storage capacity is limited due to necessity of improving continuous cash flow into the village. Losses due to insect damage during storage cannot be recouped prior to market.

### **Thursday, 27 September 2007**

Kick-Off Symposium sponsored by Mali Agribusiness Network at Ecole Nationale d'Ingenieurs Abderhamme Baba Toure with Plenary Address by Professor George Ayittey of American University in Washington, D.C. USA. Mali Agribusiness Network Leaders Belco Tamboura, Aissata Thera, Assa Kante, Keriba Coulibaly, Abdoulaye Camara, Adama Berthe, and Sidy Ba facilitated discussions and made presentations to the attendees which included representatives from Montana State University (led by Professor Florence Dunkel of the Department of Entomology at MSU), St. Thomas University (represented by Dr. Ronald Bennett, Dean of the School of Engineering at St. Thomas), and University of California-Riverside (represented by Professor Nancy Beckage of the Department of Entomology at UC-Riverside). Representatives of farmers from the villages where the *Network* is working, USAID offices including the Office of Accelerated Economic Growth, Institut de Economie Rurale, Malian journalists, professors from Malian universities, and ICRISAT (an NGO) were present at the meeting. Translations were provided by Professor Ada Guisti, Montana State University. Poster sessions displaying results of projects sponsored by grants from USAID and USDA CSREES took place after the morning oral sessions. The afternoon session closed with the plenary address delivered by Dr. George Ayittey of American University, Washington D.C., describing current challenges of rural economic development in Africa. Dinner hosted at the home of Sidy Ba, member of the Mali Agribusiness Network and faculty member at the Ecole National d'Ingenieurs, with representation from US and Malian universities and the Agribusiness Network.

### **Friday, 28 September 2007**

Visit to Malian Artisan's market in Bamako led by Assa Kante (Malian Agribusiness *Network*) and accompanied by Drs. George Ayittey (American University) and Dean Drenk (retired business school faculty member from Montana State University). Continued discussions with Dr. Ayittey, Drenk, Dunkel, Diggs, and Guisti regarding Malian economic and rural agricultural challenges and development. Dinner with Drs. Dunkel, Ayittey, Giusti, Bennett, Drenk, and Diggs.

### **Saturday, 29 September 2007**

Tour of Bamako including hospital facilities located near the University of Bamako Medical School, the Malian National Museum of Bamako to view cultural and artistic exhibits and description of the history of Mali, and the Malian Artisan's market led by *Network* member Sidy Ba. Visits to suburbs of Bamako including site of the Presidential Palace of the President of Mali. Dinner and continued discussions with Drs. Ayittey, Drenk, Bennett, and Guisti regarding rural and economic development of Ghana and Mali in Africa, and global marketing strategies for African agricultural products and exports.

### **Sunday, 30 September 2007**

Formulation of Trip Report and planning activities for visits to Laboratories of Toxicology and Malaria Research and Training in Bamako scheduled for 2 October 2007 to set up future research projects and collaborations to be conducted during 2008-2009 with Malian scientists and faculty accompanied by undergraduate and graduate students from the University of California-Riverside.

**Monday, 1 October 2007 \*\*\*Nancy will add other details when she returns to U.S.A.\*\*\***

### **Continuation of formulation of Trip Report**

**Tuesday, 2 October 2007 \*\*\*Nancy will add other details when she returns to U.S.A.\*\*\***

**Met with Dr. Safiatou Dem  
Assistant Director  
Mali Environmental Toxicology Laboratory  
In the Central Veterinary Laboratory of Mali  
Bamako, Mali**

**Visit to USAID –Mali to change money**

**Visit with Dr. Ousmane Koita and Dr. Hamidou Maiga, University of Bamako, Faculty of Science and Technology (FAST). Tour of molecular laboratories aimed at**

**Deposition of baggage at the Air France office in Downtown Bamako.**

**Cooperative supper provided by *Network***

**Departure for US 10:50 pm from Bamako to Paris on Air France**

## **V. List of Persons Met and Their Contact Information**

### **LEADERS OF THE MALI AGRI-BUSINESS NETWORK**

**Belco Tamboura**, Head of the Mali Agri-Business Network  
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**Aissata Traore Thera**  
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**Sidy Ba**  
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**Keriba Coulibaly**

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## **U.S. FACULTY MET**

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Robert Diggs

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Professor Ronald Bennett

USDA CSREES Grant Co-investigator

Dean

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Professor Ada Giusti

USDA CREES Grant Co-investigator

Associate Professor of French

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### **PLENARY SPEAKER AT MALI AGRI-BUSINESS KICK-OFF EVENT**

Professor George Ayittey, Ph.D.  
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Email :  
Author of : Ayittey, G.B.N. *Africa Unchained : The Blueprint for Africa's Future*

### **REPRESENTATIVES FROM US AGENCY FOR INTERNATIONAL DEVELOPMENT (USAID)**

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Mary Lou Carlson

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Also met the following members of the Accelerated Economic Growth Team at USAID :

Augustin Dimbele

Yacouba Santara

Halima Ouaattara

Gaussou Traore

John Harmor

#### MALIAN FACULTY MET

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Koulikouro, Mali

Dr. Nadou Paul Sanogo

Specialite Cultures Maraicheres (seed potato meristems ?)

Department de l'Agronomie (IPR/IFRA)  
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Koulikouro, Mali

Professor Ousmane Koita, Ph.D.  
Faculty of Medicine, Pharmacy & Dentistry  
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Laboratory located at Faculty of Science and Technology (FAST)  
Bamako, Mali  
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Professor Sekou Traore  
Co-Director of the Malaria Research &  
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## **SCIENTISTS FROM MALIAN GOVERNMENTAL ORGANIZATIONS**

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## **SCIENTISTS FROM NON-GOVERNMENTAL ORGANIZATIONS (NGOs)**

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Dr. Alain Ratnadass

Entomologist

CIRAD

Insects eating millet

REPRESENTATION FROM Cooperative des productrices de beurre de karite de Zantiebougu  
(COPROKAZAN)

Women's Cooperative for the Production of Shea Butter in Zantiebougu

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## **Representatives from the Village of Sanambele**

Hawa Coulibaly

Maimouna Coulibaly

Bourema Coulibaly

Lansine Doumbia

**PLACE OF RESIDENCE DURING STAY IN BAMAKO, MALI**  
**21 Sep-2 Oct 2007**

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Mali

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## Appendix 1.0.

### **USDA CSREES Higher Education Challenge Grant Trip Report**

#### **Required Output of Each Faculty Member and Student Traveling on Grant Funding**

##### **Outline**

**1.0. Title Page.** (Use name of Grant, name of granting organization, dates of visit, your name, title, and institution, and school and department within the institution)

**2.0.Executive Summary** (1 page summary of the highlights of the visit)

**3.0. Table of Contents**

**4.0.Objectives of Visit**

**5.0.Accomplishments of Objectives** (By objectives what was accomplished)

**6.0.Journal** (a daily log of what was done, visits, meetings, cultural experiences, other things related to visit objectives or helpful information for the faculty and students who will follow you here to Mali.)

**7.0.List of Persons Met** (complete name with correct spelling, their title, organization, e-mail)

A draft must be completed before leaving the country. The electronic version is given to Dr. Kadiatou Gamby and the US project director (Dr. Florence Dunkel) and your institution's P.I. for the project you are on if it is different from yourself. A hard copy of the Executive Summary is given to USAID-Mali Accelerated Economic Growth Group (AEG).

Please also include a header (using the header function) with the date of the draft and the location of the file and name of the file. For the header use font size 8.