

**USDA CSREES Higher Education Challenge Grant Program**

**October 21 – December 8, 2008 Trip Report**

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**Katibougou, Mali**

## **Executive Summary**

In the USDA CSREES grant is planned that the seven Malians leaders of the AgriBusiness Center travel to the US to visit our university partners (MSU, UST, UCR, UC-Davis, Virginia Tech) and work with their faculty and students. The work to be done encompasses these universities projects fitting into the AgriBusiness Center needs as well as courses addressing some global issues.

I was thus able to visit three of these universities (UST, MSU, and UCR) to achieve the objectives assign below.

## **Objectives of Visit**

The visit objectives aimed to:

- Assist the UST MBA students working on the project of seed potatoes production in Mali.
- Follow up with UST engineering students of ESW chapter on slow sand filters and cooling storage for potatoes projects.
- Give cultural preparation about Mali to students and faculty members at UST and MSU.
- Complete manuscript writing of an article on water-related diarrheal diseases survey conducted on Sept. 09 in Mopti, Mali.
- Present a lecture to a class at UCR on Global Health, Agriculture, and Economic Development.
- Assist preparing the visit of students and faculty from UCR to Mali in March 09.
- Give a presentation on my water treatment project in Mali to the EWB chapter at UCR and explore possibilities for future collaborative work between us.

## **Accomplishment of Objectives**

The objectives of the trip have been achieved. I travelled to all three universities (UST, MSU, and UCR) and worked with the faculty and students based on people's availability.

## **Journal of accomplished activities**

**October 21.** My cousin Mamadou Sow drove me to St. Thomas. We arrived near the engineering building but couldn't find parking space for more than 45 min. We finally were able to park about 500 m away and met with Camille and her students. They were having wind power lab session and were almost done. Camille introduced me to the students. I greeted Mike Hennessey who was also there. From the lab, Camille and I went to her office. We discussed about wind power, and Camille shared with me information about the wind power production in US and the goal the Dept. of Energy sets to have 20% of US energy production to be from wind by 2030. She also showed me a map of where one can find the wind distribution across states in US for energy production using wind mills. On this map, North Dakota appears to have the greatest potential, the following states are in no order Iowa, South Dakota, Minnesota, California, Texas, etc. we also speculated about the potential for wind as energy source in

northern Mali. I borrowed from Camille a book on wind energy entitled “Wind Energy Basics: A guide to small and micro wind system. Paul Gipe”. I returned her book before leaving St. Paul.

After that discussion Camille asked me about my trip objectives and how she can help me achieve them. I briefed her about my trip objectives and got specific on my desire to follow up with her students of the ESW chapter on the Slow Sand Filter and the Seed Potato Cool Storage projects we planned to pursue when they (Camille, Tony, and Robert) were visiting Mali in June 08.

Camille also handed some printout of the Africa-US Higher Education Initiative that we may consider to pursue as potential opportunity to build future collaboration since the initiative would release an RFA for \$50, 000 planning grant. I shall think about potential issue that we may address as project for the initiative for our next meeting the following day.

From Camille’s office we walked to their new Dean’s office. After the introduction Camille gave a very good historical retrospective of the partnership between UST and Mali through the grants. Dean... asked for my background and questions about my Slow Sand Filters research. We then talked about future collaboration through the Africa-US Initiative, a joint conference on appropriate technology in Mali as we discussed it in Mali with staffs at ENI and IPR. Dean ...welcomed the ideas and think we should be planning very well the conference especially by making sure it can be an occasion to call for papers for instance.

In our way out Camille introduced me to the rest of the staff in the Dean’s office where I got to see Kyle Bennett, a former classmate in the Solidworks class. We walked to Dr. Ernie Owens’ office who wasn’t there and then directed us (my cousin Mamadou and me) to Ashley’s office. Ashley was not there; it was already lunch time.

**October 22.** Camille and I met in morning and we brainstormed on issues that we may address in the planning grant. In addition to wind power for rural areas that we started talking about the previous day, we also discussed about exploring new processing method of Jatropha to produce biofuel, absorption cooling and extend the evaporative cooler that we have been working on through the previous grants. We agreed that the brainstorming should continue. Camille suggested that I talk to her colleague Greg... who would also be interested to be included to a future collaborative project through the initiative.

In the afternoon, meet with Ashley and her French class. After the usual introduction we talked about some aspects of Malian culture such as Baptism and weddings and others developed in one of Amadou Hampathe Ba’s book. The author is a famous Malian writer who no longer lives. One of the student, Danielle, who is from Haiti found some similarities between Malian and Haitian culture when it comes to superstition especially in giving funny names like trash bin, lucky girl or boy, etc. to babies at their baptism so they can survive to evil attack. The students were also asked to give feedback of a videoconference they had the week before with the UST Business students and MSU students.

After that class Ashley introduced me to her second French class of the day but I did not stay to participate to the class.

**October 23.** Meet with Susan's sociology class (noon to 1pm). There were 3 students and after the routine introduction we exchanged about general aspects of Malian culture and some ways (process) to better tackle a sociology study in a rural place like Borko. I gave them as example of such kind of study the survey Ashley Williams and I conducted in September 08. Susan requested if I can provide them with the questionnaire we used for our survey so they can have an idea about what would be appropriate questions to ask for instance. Later, I emailed Susan our questionnaire.

After Susan's class, we participated to the Thursday weekly conference call.

At 5 pm I was with Dr Ernie Owens at his office from where he drove us to the UST Minneapolis campus. Ernie introduced me to his Management class. After I thanked them for on the AgriBusiness Center seed potatoes production initiative, I explained them that the lack of easy access to internet connection for the Malian makes the communication difficult with them when they request information. I also added that the confusion created by the AgriBusiness Network concept instead of the Center as initially planned in the grant did not help make things easy sometimes. I ensured the class about my complete availability to work with them during my stay to help them help us. At the end of the, I met with the Transportation Group of the class I was sponsoring for their work to answer some of their questions.

**October 27.** Meeting in the mid-morning at Davanni's with the Storage Group of the seed potatoes project. For about 3 hours most of the discussion focused on questions related to the volume of storage needed, cooling system appropriate for the storage, the energy requirements, etc. At the end, the group commented that it was helpful to have the discussion since they were lacking information so much due to communication difficulties with their sponsor (Adama).

In the evening I met with the Transportation Group. The questions were mainly focused on understanding the transportation route of the seed potatoes from laboratory in IPR and IER to Borko and to the farmers. Another focus the volume of seed to transport, the transportations means (truck or boat), how often the transportation is needed, etc.

**October 28.** In continuation of the discussions I had with Camille about the HED Africa-U.S. Initiative planning grant I met with Greg in the early morning. We discussed about the potential use of wind power to provide electricity to schools and health centers in rural Mali. We also discussed about the use of Jatropha for biofuel production that can be used to run a simple diesel engine. Wind power and biofuel from Jatropha we were exploring as projects to address in a proposal for the HED grant. Though, we agreed that the usage of land and the switch for farmers from other speculations to produce Jatropha cannot be under our control as project to pursue. We, therefore, retained wind power as more promising to address as project for the Initiative grant. Finally, Greg shared with me some of his experience in Africa (Tanzania) and handed me paper regarding his work performed there.

Meeting with Camille and her ESW advisees at noon. Tony and Robert were there. Tony presented the three projects they are planning to work on: Seed Potatoes Storage and Slow Sand Filters for potable water production (Mali) and the blacksmith Forge (Burundi). Then I briefly talked about our projects within the AgriBusiness Center. Afterwards, we broke down into three

groups, each group focusing to work on the one of the three projects mentioned above. To resume the meeting, Camille gave a short lecture about an engineering project process and a handout on it.

In the evening, I worked with the Quality Control Group for the seed potatoes project. The questions were mainly about the certification of the seed potatoes to ensure they are disease-free, the chain of production and distribution of the produced seed.

**October 29.** Second meeting with Ashley's class. We continued discussions about Malian Culture as we did the preceding week. The discussion encompassed differences with Togo and Haiti since both Danielle (Haiti) and Siby (Togo) were present in the class.

In the evening, I met with the seed potatoes Marketing Group. In fact only one student represented the group with the questions from everyone. We discussed about the targeted market, the best ways to advertise products like seed potatoes in a Malian context. Would it be TV ads, radio announcement, village gathering, etc?

**October 30.** I attended Ernie's evening class. After Ernie's lecture on risk assessment some of the groups expressed their concern about not having on time or not at all information they need to move forward with their portion of the seed potatoes project. The storage group was the most affected by this situation since they are not able to get hold of Adama. Ernie ensured them that they will be evaluated based on the process of their project not on the final product of their delivery since that seems to be the ultimate concern. Both Douglas Thomas (one of Ernie's student from Liberia) and I gave shared our experience to the class in terms of working with people with different culture to make them understand and be patient with regard to some behavior that one typical American professional would find frustrating and disappointing. The students brought a lot of food and drink as welfare to my last day in their class. I was very honored and happy.

**November 3.** Meet with Camille and the seed potatoes Storage Group. The discussion focused on whether or not the evaporative cooler can be considered for the seed potatoes production. The answer was no from Camille as far as the required temperature would remain 4 degrees Celsius. The only unknown question for Camille is whether some of the seed can survive to a higher temperature. Since no one ever answered to that question she thinks a test can be conducted at Sotuba (next to Aissata's office to test it).

We went to Mali Night. Many former UST students and faculty attended the event. There was exhibition of Malian fabrics and masks, plenty of Malian food, and music. After a brief explanation of the gathering by Ashley, Florence gave thanks message to the audience and flowers to the UST faculty present and ask me for few words. I thanked everyone and explained a bit about our AgriBusiness Center goal. It's been a very fun night.

**November 4.** I visited CTI with Steve Clarke. After a tour of the facility, Steve, Roger, Bert, and I had meeting. They presented CTI as organization. They only have three paid employees, all the other people work for CTI as volunteers and are mostly retired people. They explained that they face to main challenges in Mali and West Africa in general:

- they couldn't get feedback from users for their grinders on field. In Mali for instance, Medecine for Mali is their partner supposed to report to CTI the problem the users of the hand grinders run to. But, because following up of the grinder is a side activity of Medecine for Mali CTI doesn't get the feedback needed to meet the challenges.
- CTI's hand grinder is facing fierce competition from a copied Chinese grinder sold at very low cost. The Chinese version is a much less good quality and capacity though.

So, Roger expressed CTI desire to work with someone on the ground in Mali like me as its representant to help with the dissemination of their hand-grinder. We agreed that we would meet two days later to discuss further about this partnership possibility.

**November 5.** Meet with Mike Hennessey over lunch. We discussed about having a joint paper based on my teaching of the Solidworks software in Mali. The idea is to develop a paper that presents drawings gallery of projects made by my students using Solidworks that we may submit to the ASM annual conference.

Meet with Ashley late in the afternoon. We discussed about some cultural appropriate behaviors in Mali when visiting villages and meeting with elders. Some of those aspects include: to have a known person within a village community as guide to the village, bringing small gift to the leader of the community, taking off shoes when entering the leader's room or greeting him, etc.

**November 6.** Visit to CTI in the morning. I met with ... working on CTI's water chlorination system that has been installed in Central America. I also was shown the wooden version of the omega 6 grinder.

Meet at Davanni's with Roger, Steve, Bert, and Camille. Bert explained that the freight cost of a unit of their omega 6 metal grinder costs them \$160 from US to Mali whereas the shipping of the burrs and the helix cost only \$25. They, thus, made a wooden version of the omega 6 in prototype to be taken to Mali so I can investigate:

- Finding a type of wood tolerant to food that can be used as structure of the omega 6 grinder
- Identify local business in Mali that can reproduce the structure of the grinder from a chosen wood
- Look for local users of the wooden grinder to start the commercialization of the grinder with

Roger requested that I work with them as representant of CTI in Mali and perhaps in all West Africa for a paid position as they are doing now with someone in East Africa. My duties would include disseminating the grinders and report users' feedback, assist users with training and maintenance, etc. He suggested that a deal can be made between me and CTI on selling the grinders to an added-value cost that I desire as far as I can return to CTI a fixed unit price that we agreed upon. Camille thinks that CTI should not allow the grinder to be sold at certain high cost though because it may conflict with their noble goal on designing for the poors. Steve's concern was that any deal to be made should include Belco since he was the first Malian he contacted or possible partnership with CTI. I commit to think about working with them and get back to them with a proposal (as wished by Roger). I also agreed to take the wooden prototype grinder with me to Mali. Steve planned to visit Mali in February and committed to contact me when he gets in Bamako.

After our meeting, Steve and I drove to Solar Oven Society. The company makes a solar oven using fiber glass, aluminum, etc. for cooking and boiling water. We toured their facility and then discussed a possibility to partner with them. Steve agreed to bring one prototype of the oven to Mali during his February 09 visit.

**November 7.** Met with Brian, one the ESW student interested in working on my slow sand filters (SSF) project, in the mid-morning. I gave him some information about how to design SSF and a list of references related to the subject. Met with Tony around noon; we discussed about the seed potatoes storage project. We brainstormed about building a small pilot storage similar in Sotuba that would serve to test

Camille and I discussed about projects to address in HED Africa-US Initiative planning grant. After brainstorming on different ideas we agreed that we focus on sustainable engineering project. Knowing about my desire to pursue a PhD study, Camille suggested that we may clearly state that in our planning grant proposal. She recommended me contact some faculty involved in a program running a Center for Sustainable Engineering. We, right away went online and googled for the Center. We identified and searched on the research focus of the three leaders of the Center from three different universities: Cliff Davidson (who Camille met before) from Carnegie Mallone, PA; Bradley Allenby from Arizona State University; and David Allen from University of Texas. I was impressed and got interested by their work. Subsequently, Camille gave me a book entitled “Craddle to Craddle” developing a sustainable engineering concept. We then ended the meeting with a commitment from me get to get back to Camille about pursuing the HED planning grant.

**November 8.** Trip to Bozeman; Ashley picked me up at 5 am and drove me to the airport. It was fortunate that Ashley decided to stay until I check in and head to my boarding gate because there was an unexpected luggage fee of \$15 charged by the airplane (Frontier) that Ashley paid for me (I had no money on me) in addition to \$10 pocket money that she gave me. I was finally able to leave for Bozeman without hassle.

Arrival in Bozeman; picked up by Dean Drenk and Mark Burr.

**Nov 9.** Meeting with Florence. We called Belco and discussed about the reported malaria outbreak that have supposedly killed 15 kids in Sanambele. Below is the summary of the phone call typed by Florence while we were talking to Belco.

*Saturday, 8 November 2008 uncut Phone Report by Belco Tamboura from Sanambele*

*Kind of less frightening than it was supposed to be. Tried to contact Sanambele. Went very early in morning.*

*Bourema came to meeting. Hawa was in Bamako. Awa the midwife was not there. Malaria was a problem this year.*

*It is true that 15 children died. 3-4 are from Sanambele. Will e-mail to me the exact details. From August and Sept there were 3-4 who died this last year. This year there was a lot of rain and there were a lot of mosquitoes. They (the MSU students) trained students in school. They learned a lot.*

*What was the \$200 for? Maimouna Coulibaly was there. She received the \$200. Hawa was not there. The Sanambele representative will bring the handicrafts to Sotuba or some where in Bamako where Belco can pick them up before he leaves for the US. So that it all works, Belco will keep in touch with the Sanambele people by phone.*

*Awa is in Bamako now. Belco will call her Sunday. The \$200 was given to Maimouna Coulibaly.*

*Sidy reported that he checked this out separately and also learned that the mortality was not 15 within the village of Sanambele.*

*Some kids were brought from outside Samambele to the health center there in Sanambele. Those reported dead were in July and August (however, the midwife Awa and Jebriil reported to Katy Hansen and Abdoulaye on 29 July that*

*there had not yet been any deaths in Sanambele from malaria this year). Where were the kids from within Sanambele that did die? Apparently none were from the farm families with whom we have been working with the IPMCRSP and the malaria integrated management. Belco didn't know whether they were from a different part of the village, e.g., the potters, the weavers, the blacksmith/ musicians group. Belco will ask Awa which health center they must report to the mortality information.*

*Tomorrow Belco will go to Katibougou.*

*Bourema Coulibaly said the rains were bad this year. What about the rainy season this year, Belco asked. Bourema said he has never seen this kind of rain before. One of his sons that was sick the other day. This time around it is getting less and less. Smaller son was a little sick. This 2 wives and the baby girl were ok. The village where there were children dying is not known. All of the 15 deaths were from around the village, but not in the families where we work.*

*Belco is not sure which villages are the ones from where the information of the 15 children came. He will try on Sunday to contact Hawa Coulibaly, Awa Diarra, and Jebril to obtain more exact information. Florence committed to call Belco after he checked for the information.*

*Visa issues for Belco: Sidy suggested Belco e-mail an urgent appointment request.*

Florence called Belco as planned on Nov.9 and the summary of their dialogue according to Florence is:

*There was no electricity in Bamako (or Katibougou) when I called and the battery on Belco's phone was low. Belco said that he had today not been able to reach Hawa Coulibaly in Bamako. He was not able to reach Awa Diarra either. (Maybe Belco meant Awa and not Hawa because I am not sure that he had Hawa's phone in Bamako and I do not believe she has a cell phone.)*

*Belco did say that he was able to reach Jebril and this is the information he did receive:*

*Fifteen children did die of malaria by 29 Aug this year in Sanambele and 6 or 7 villages in the area served by the Diallakoroba commune. He does not know the name of the villages. In Sanambele, there were 5 children that died. There were 10 in the surrounding villages. The nearest regional health center to Sanambele is in Diallakoroba and apparently there is a "big health Center" in Diallakoroba.*

*Visa issue: Belco e-mailed all his information to me today and I did receive it. I agreed to call the US Embassy to hasten the visa appointment for Belco. I agreed to do this at 2am Monday morning, 10 Nov 08.*

After our phone call with Belco, Florence and I made a plan for working on the paper from the survey on water quality and health impact survey Ashley Williams and I conducted on September 08. Ashley agreed to join us on skype on Wednesday, Nov 12 to work together on the paper.

**Nov 10.** Meeting at Florence's office; we worked on a detailed outline and title page of the manuscript of the paper and some suggestions that we emailed to Ashley W.

**Nov 12.** Skype with Ashley. We worked on the introduction and mapping of the villages to put in the paper.

**Nov 13.** Attended Florence's class PSPP 465R Health, Agriculture, Poverty: Concepts and Action Research. After a welcome to me by Florence everyone introduce himself and talk about his project focus in the class. Most of the students are either premed or planning to go to medical school; their projects cover topics in direct relation with malaria prevention or fight with regard to the malaria outbreak in Sanambele this rainy season in Mali. I ask them why they chose to work separately in individual projects instead of work as a team on an integrated project if their ultimate goal is to have their projects have an impact on reducing malaria burden in Sanambele. As answer, it's because they were trying to have their projects fit into their medical study goal for most of them.



The lecture of the class covered a “holistic discussion and participatory process” with regard to water, diarrhea and waterborne diseases for projects in Mali.

**Nov 17.** Meet with Josh Manchester. He came up with a list of questions regarding Malian culture that I answered.

In the afternoon I attended Ada’s French class. The conversation focused on comparing the education systems between the US and Mali in terms of levels of grades. Many similarities exist between both systems with some differences. Middle school in Mali has 3 grades whereas in US it is 4 grades. The last year in high school is ended by the Baccalaureat (a very tough exam) in Mali while it does not exist in Mali. At the university, the system is more flexible in US than in Mali: university students in US may easily change major whereas in Mali such opportunity is not available unless a student changes school completely and may thus lose a whole year of study to do so.

**Nov 21.** Meeting with Anna Leena Porter. I waited for her for more than half an hour and had to finally leave. She later replied to my emailsaying that her car slid off the road due to the snowy conditions and got stuck in a ditch; she was fine though.

**Nov 23.** Meeting with Florence. We reviewed the first draft of the paper manuscript that Ashley W. sent us. It covers the introduction, Material and Methods.

**Nov 24.** Drive to Missoula with Bob, Florence, we left around noon. We stayed at Ashley’s house. After dinner, we worked on the tables and parameters to analyze, etc. We went to bed late (past 1 am).

**Nov 25.** Morning meeting with Sarah Halvorson, Ashley, Bob, and Florence at the geography Dept. of the U of M. We worked mainly on the results section (tables to put in the paper, parameters to correlate, etc.) after the meeting we drove back to Bozeman around after lunch time.

**Nov 26.** Meet with Ian Frye and YungBen (both are Florence’s students) in the morning 9-11. Afternoon phone call at Florence’s office. Attended the phone call: Cliff Montagne, Florence, Sidy in Montana side; Belco and Ernie in Minnesota side. The discussion agenda that seemed to surprise everyone (except Florence) focused on of the AgriBusiness Center and the reports (trip report, semi-annual and annual reports) for the USDA grant.

**Nov 30.** Meeting with Belco and Florence in our way from the airport. Summary of the meeting is appended

**Dec 1.** Fly to Riverside. I was given ride to the airport by Dean Drenk, no surprise of any kind with the airplane this time.

**December 1.** Arrival at the Ontario airport in the early evening. Picket up by Nancy and her husband John.

**December 2.** I attended Nancy’s class Honors 012 “Global Health, Agriculture, and Economic Development”. After a brief introduction, Nancy handed out a printout of my Nine Villages organization to the students before start listening to the students’ individual presentations. The topics they presented were: Children Soldiers in Uganda, Roots Causes of Terrorism, Schemes in India (microloan system), Migrant Workforce in China-Huko System, Children Abuse, Burma-A People’s Struggle for Democracy.

Lunch with Nancy, Susan Ossman, and Anne Sutherland, Directors of the Global Studies Program. We discussed about cultural behaviors among other topics. After lunch, Susan and I walked to her office and we were joined by Samantha, a student and assistant to Nancy. I exhibit to them some pictures of the women I work with through Nine Villages. From there Samantha and I walked to her office where we shared experience for the volunteering work we do working with underserved communities; Samantha has an NGO that assists with child education in India.

Nancy and I interviewed three students applying to the USDA higher education challenge grant to do project in Mali in March 09.

Meeting in the evening with David Cwiertyny and the Engineers Without Borders chapter at UCR. I presented my master's research work on Slow Sand Filtration and the implementation plan of the technology in villages in Mali. The audience was very interested in the technology and asked many technical questions.

**December 3.** In the morning, I met with Dr. Cwiertyny at his office. We discussed about possible plans for working together with his EWB advisees. We also discussed about his research focus and my plan to apply for a PhD position at their Chemical & Environmental Engineering program. Afterward, David led me to Dr. Sharon Walker's office. Sharon and I discussed about the research I conducted for my M.S. study at the Center for Biofilm Engineering at Montana State University as well as her research focus at UCR. I toured her laboratory. We both expressed common interest in me being her graduate student at UCR.

Lunch with Professors Marylynn Yates, David Cwiertyny, Sharon Walker, and Nancy Beckage. We discussed about the global heal program focused water quality that UCR is about to put in place and brainstormed about elements to put in a proposal for the program. The UCR faculty expressed a clear interest to partner with IPR and other international schools for this program when I asked about such possibility.

In the afternoon, Nancy and I interviewed two students for the Mali project. One was interested in child education and the other on maternal health. Later, we met with Nancy's lab group. Everyone introduced themselves. I gave a brief presentation of my involvement on the Mali grant and my work for Nine Villages. We then opened a discussion about how to make projects succeed on developing world societies along with many social, political issues and corruption.

**December 4.** Last interview of students for Mali project. I presented a lecture to Nancy's class on "Global Health, Agriculture, and Economic Development". I gave a brief presentation of my work for Nine Villages on education, health, nutrition, microloan, and women empowerment and then talked about how I think projects would succeed in developing world based on my experience: partner with villagers and make sure they take ownership of any project intended to help them; avoid as much as possible free implementation of projects; make sure the recipient initially contribute to the projects; etc. It has been a fruitful open discussion.

In the afternoon, Nancy and I visited the Executive Associate of the Agricultural Experiment (Donald Cooksey) Station and the Vice Provost for Undergraduate Education (David Fairris). To both of them we explained the Mali grant project before Nancy requests for financial support to sponsor one student to be involved in the Mali grant project. Agreement was given by David

Fairris while we were there to sponsor one UCR Honor student to travel to Mali the following spring.

Later, I joined Nancy and Susan to discuss about the handicrafts made by women in Sanambele. Susan suggested that the crochets selling becomes a long term business project that would not rely on volunteers going back and forth between Mali and US for the shipping of the crafts from Sanambele to US. She recommended that we work with Mr Sanogo (an artisan she met in Mali) to develop the market for the crafts in US since he knows how shipping of art materials would work better between Mali and US.

**December 5.** In the morning, I attended a seminar at the engineering college on “Engineered Carbon-based Nanomaterials” presented by prof. Elimenech Menachem from Yale University. At noon, meet with Nancy’s Honor 012 class. It was last day of the class for the semester; after the evaluation of the class we had a round table feedback from the students for the class. Everyone was satisfied, happy, and said to have learnt much from the class. Afterwards, we departed to Indio, CA.

In Indio, we visited the Coachella Valley Vector and Mosquito Control Facility. We were given a history of the agency that started initially to control eye gnat and later rodents and mosquitoes in the area. We then toured the facility. We visited the lab inside which mosquito larva, pupii, adult mosquitoes, and eye gnats are bred. According to Hugh Lothrop, entomologist at the center, fogging is rarely used to control mosquitoes because of the will to avoid chemicals more and more. That’s why they developed biological control of the insects; mosquitoes are big concern at the facility since some species (tiger mosquito) from Taiwan were identified in the area. We visited the Biological Control Facility where Nematodes, Mosquito fish (*Gambusia affinis*), and shrimps used to control mosquitoes are raised.

## Contacts of some New Persons Met

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## Appendices

### Sidy's schedule in St.Thomas

Oct. 21	meeting with Camille at her lab & office (10am-2pm). Visit to Ernie's office; we did not find him there
Oct. 22	Fre 492 Ashley (4-5pm)
Oct. 23	Sidy with SOCI (11-12). Conf Call MSU (1-2). Sidy with Ashley (3-4). With Ernie's class (6-9)
Oct 24-26	mid-term break
Oct 27	work w/ Ernie's Storage group & lunch (10-1). Work w/ Transport Group (5-7pm)
Oct 28	Meet w/ Camille's coll. Greg (8-9). Meet w/ Camille & her students (12-1). Sidy with Ashley (1-2). Work w/ Quality Ctrl group (5-7pm).
Oct 29	Fre 492 Ashley (4-7). Work w/ Quality Ctrl group (6-7).
Oct 30	Confer. Call MSU (1-2). Sidy @ Ernie's class (6-9pm)
Nov 3	Meet w/ Camille & storage group (5-6pm). Mali Night (7-10pm)
Nov 4	SIDY VISITS C.T.I. (9-4).
Nov 5	Meet w/ Camille's coll. Mike (1-2). Fre 492 Ashley (4-5).
Nov 6	Visit to CTI (9-11). Meet w/ Camille's students (12-1). Lunch w/ Camille & CTI folks for business discussion (1-2). Visit to Solar Oven Society w/Steve (3-4). With Ernie's class (6-9pm).
Nov7	Meet w/ Mike (8-9). Meet with Camille's student (Brian) (9-10). Meet with Tony (12-1). Final discussion w/ Camille at home after diner (6-9)
Nov 8	leave St. Paul for Bozeman (picked up by Ashley at 5, surprise for \$15 luggage fee paid by Ashley!)

### Sidy's schedule in UC-Riverside

Dec 1 7:30 pm	Arrive Ontario Airport
Dec 2	Attend Honors 012 Class Honors 012 "Global Health, Agriculture, and Economic Development) and hear student presentations 11:00-12:30 pm Lunch with Susan Ossman and Anne Sutherland, Directors of the Global Studies Program, 1-2pm Interviews with students applying to Mali Program Meeting with Engineers Without Borders 5:30-6:30 pm
Dec 3	Meeting with Assistant Professor David Cwiertyny (8:30-9:30 am) Meeting with Assistant Professor Sharon Walker (9:30-11:30 am) Lunch with Engineers, Professor Marylynn Yates (Environmental Sciences-water-borne diseases), and Nancy Beckage (Entomology)
Dec 4	Student interviews 9am-11am

Meeting with Class Honors 012 “Global Health, Agriculture, and Economic Development) 11:00-12:30 pm  
Meeting with Executive Associate of the Agricultural Experiment Station Donald Cooksey  
Meeting with Vice-Provost for Undergraduate Education, David Fairris  
Mali student extern interviews  
Meeting with Professor Susan Ossman to select finalists for Mali Program  
Meeting with Honors 012 class and field trip to Coachella Valley Vector and Mosquito Control Facility, Indio, California

Dec 5

**Mali Agribusiness Entrepreneurial Incubator Center  
Meeting 29 November 2008  
Bozeman, MT**

**Meeting participants: Belco Tamboura, Sidy Ba, Florence Dunkel, Bob Diggs.**

**Revenue stream/profit opportunities for Center in projects currently underway**

- Shea quality testing kit. Several demonstrations were done July 2008 by Katy Hansen for Malians in Zantiebougou (Coprakazan Cooperative) and for scientists and Center participants at Sotuba. Next step is to show the kit to Binta Bocum, director of national shea project with Ministry of Women and Children. Belco has not been able to reach her since July. Belco is thinking of contacting (or has already contacted?) Jabate and AMPG in order to move toward the distribution of quality testing kits and training for export (handling and storage of nuts and butter that maintains quality).
- Shea export to US (Minnesota) company buyer. The requests of the buyer were met (purity analysis). Analysis delivered to Coprakazan Cooperative. Next step, provide analysis and samples to buyer (company president).
- Evaporative Cooler. ENI is now testing the Prototype that was sent by Camille George to ENI. John Thomas was able to see the cooler during his on-site project visit Dec 2008 before testing began. Sidy has not seen the testjng data that has been recorded thus far. The next step is that 8 prototypes will be built for use in ENI classrooms. These will be built at ENI by students and faculty. Prof. Moussa Kante is committed to funding these 8 coolers. Once these coolers are installed in the classrooms, the Center will be engaged to facilitate their commercial production.
- Handicrafts Enterprise of the Women of Sanambele. This cottage industry has in just one year (Oct 1, 2007 to Sept 30, 2008) developed a steady revenue stream for the Women’s Association of Sanambele Village to implement their integrated management plan to reduce childhood mortality due to malaria. Retail prices have been established for 11 products that they make in the village. The Center has been asked to provide some of the transportation and communication for this enterprise.
- USDA New Paradigm grant. \$51,150 is the funding for Center activities. Because the Center did not meet the criteria to be a subcontractor, funding had to be distributed to other partners for use by Center participants. Criteria to be a subcontractor on a US federal grant, are to: 1) be incorporated as a business; 2) to have a transparent and

complete accounting system that can meet cash accounting standards as set by US CPA's; and 3) to be able to conduct cost reimbursable transactions. These amounts were allocated: \$13,890 to UST; \$9,260 to CDKC; and \$27,780 to MSU.

**Center's accounting system:**

- No one is keeping permanent records of cash flow on a spreadsheet or any other way. See below for the cash flow that has already accrued to the Center.
- One question that we did not answer is who of the Center in addition to Sidy has Excel on their computer.

To have an appropriate accounting system, one of the center members will need to be able to use Excel and be able to generate invoices and receipts. Sidy uses Excel and Abdoulaye is able to generate receipts and invoices on the Center letterhead.

**High speed Internet connection**

- The invoices were sent in early November and received by MSU accounting system (Tamara Parnell). No payment information for the Internet Service Provider (ISP) (routing and transit number, bank account number, bank account name) was included and still has not been received as of today.
- Belco will obtain a phone card and call the company to provide the information.

**Budget of Center (funds spent, funds remaining)**

- **Initial amount** \$51,150
- **Spent as of 29 Nov 2008:** MSU (Bob and Tamara have these figures), UST (Bob and Ashley have these figures), CDKC (none spent yet)
- **Encumbered**

For highspeed Internet connection

For airfare to US for Adama, Keriba, Abdoulaye to participate in collaborative teaching and research in the New Paradigm grant

M.S. research project on long-term cowpea storage

Farmer exchange

- **Remaining**

**Needs for Center office-**

- Scanner and scanning software

- Excel accounting system in operation (developed by Bob Diggs Sept 2007) and person to do receipts and invoices and to communicate with other accountants such as those of MSU (Abdoulaye)