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***USDA CSREES - Higher Education Challenge Grants Program -
New Paradigm for Application of Discovery-Based Learning:
Implementing Bottom-up Development***

Site visited: Mali, West Africa

Dates of Visit: January 7 to January 28, 2009

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

The sociology team went to Mali to conduct a social assessment of village of Borko for Madame Aissata Thera of the Institut d'Economie Rurale and the Mali Agribusiness Network. Madame Thera identified the village as having the physical characteristics necessary to for growing seed potatoes (no pathogens in the soil, plenty of non-surface water sources and mountains surrounding the village). She asked the sociology team to assess whether the village was socially suitable to pilot the seed potato enterprise that is being developed in Mali. Currently Mali imports all of its seed potato from European sources. Problems with quality, disease, inappropriate varieties and lack of dependability in delivery of the seed potato -- coupled with high prices -- convinced the Malian government to develop its own seed potato enterprise. Madame Thera wanted the sociology team to assess Borko's social viability as a site in which disease-free seed potatoes could be grown.

The French team accompanied the sociology team to provide on-the-spot translation needs, not only for daily living requirements but for all the interviewing that was completed. The French team also translated the draft questionnaires prior to trip departure. Two of the French students remained in Bamako with the UST business team while the other two French students came to Borko as translators.

The business, French and sociology teams arrived together in Bamako. The next day all three teams -- plus the team from Virginia Tech -- met at IER in Sotuba with most members of the Mali Agribusiness Center. After that, the business team was busy with all-day meetings with Center members and the French and sociology teams had meetings with Kristine Hoffer and Macki Sissoko at Peace Corps Mali headquarters and the two Borko Peace Corps volunteers in Borko.

A change in Madame Thera's plans -- when we arrived, she told us she was only able to stay in Borko for 1 ½ days rather than the 10 days planned in Borko and Mopti - meant that Professor Shams of the French team had to go to Borko since Professor Smith-Cunnien could not supervise the students and project alone in Borko without a Center member there and no one else from the Center would go. This meant that the two French students who had planned to remain in Bamako with her had to be chaperoned by Professor Saly of the business team.

The rest of the French team and the sociology team headed to Borko on January 11, arriving on January 12. The teams left Borko on January 15 for three nights in Mopti, during which time the village interviews were typed up and organized and two interviews with members of NGOs with seed potato or Borko connections were completed. The teams returned to Borko for two more days (this visit was shortened by two days so that Professor Shams could return to Bamako before Professor Saly left). During the time in Borko, the teams conducted seven interviews with farmers, 1 interview with a group of women, 1 interview with the village midwives, 3 group interviews with village leaders, and a four-hour walking tour of the farm fields in Borko.

Upon returning to Borko the teams were able to visit the seed potato lab at IPR in Katibougou but they were not able to see potatoes growing at Sotuba. The French team attended multiple cultural events, completed trip logs, and visited the National Library and the FLASH library at

the University of Bamako to look for resources for the student research papers. The sociology team completed the transcription of interviews and completed the project report for Madame Thera. The French and Sociology teams arrived at IER in Sotuba on Tuesday morning for a scheduled meeting with the Center members to present the project report and say goodbye to Madame Gamby on Tuesday, but this did not take place. The report was thus left with Abdoulaye Camara to place in Madame Thera's office.

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4.0. Objectives of Visit

The purpose of the sociology team's visit was to complete a social assessment of the village of Borko, Mali, in terms of its suitability as a site to pilot the seed potato initiative of IER, IPR and the Mali Agribusiness Center. The purpose of the French team's visit was to provide translation for the all teams in Bamako and for the sociology team in Borko, Bandiagara and Mopti.

In Borko, the objective was to interview farmers, leaders of the village, women, and others about farming practices, how and where crops were sold, practices surrounding the water sources, daily life activities and a variety of other issues. The survey templates are included in the report to Madame Thera, which is attached to this document. Another objective was to observe the farmers working in the fields. Lastly, the sociology and French teams planned to interview Peace Corps administrators and volunteers and to interview members of NGOs in the Mopti region who had experience working with the people of Borko.

5.0. Accomplishments of Objectives (By objective, what was accomplished?)

The sociology team completed the social assessment of Borko and delivered the final report to Madame Thera's office at IER before leaving Bamako on January 27.

The sociology and French teams were in Borko twice for a total of 6 days, with three days in Mopti in between the site visits. The two teams interviewed 7 farmers, 3 women (in one group), 2 midwives (jointly), and had three group interviews with village leaders and elders. The teams walked through the fields (gardens) for 4 hours one morning and had opportunities to observe farmers working in fields closer to the village proper on several occasions. The teams had numerous informal conversations with members of the mayor's office (Souleymane Kassambara and Mboussa Kassambara) and with two government officials from Bamako who had recently been assigned to Borko (Lala Sedebele and Ousmane Kouyate).

Everyone we met in the village was extremely kind and helpful in every way. However, without Madame Thera or another Malian accompanying us in Borko it was difficult to arrange interviews. Madame Thera was there only 1 ½ days. As guests in the village and non-Malians we were not in a position to be as assertive as Madame Thera had been. Therefore, our findings are more tentative than if we had been able to interview a larger number and broader range of villagers during our site visit. The sometimes three-way translation (English to French to Dogon or Bambaran and back again) made interviewing difficult. Since the deputy mayor did a lot of the translating (Dogon or Bambaran) many of the responses were filtered through him.

The French team did a fantastic job of translating under difficult circumstances, including a very different accent and the specialized vocabulary of farming. The sociology team put together a 35 page assessment report with eight appendices. The assessment report (without the appendices with the raw interview transcriptions) is attached to this trip report. The report included overviews of the farmer interview findings, the village leader findings, an economic assessment, a social assessment, a cultural assessment, a brief strategic planning S.W.O.T. analysis, a section on issues regarding the projects process, and recommendations to Madame Thera and the Mali Agribusiness Center. The report included eight appendices, four of which covered the interview transcripts and three of which were more substantive.

The meetings with Peace Corps Administrators and volunteers took place as planned. The French and sociology teams interviewed people from two NGOs, one identified by Kris Hoffer of Peace Corps Mali (this was Allaye Karembe from GTSA in Bandiagara) and one we located on our own (Moumouni Kone and Laure Guinot of AIVM in Severe).

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 or to the US.)

January 6 - 7

Departed from Minneapolis-St. Paul airport on 5:11 p.m. on Northwest Flight 1458 and arrived in Bamako on January 7 at about 10:30, arriving at the apartments after midnight. The apartments were arranged by Mali Agribusiness Center member Abdoulaye Camara and were located on the Rue de Sotuba near the Place de Chasseur (across from the old Russian Embassy). We had three apartments: one with three bedrooms (six people) and two with two bedrooms (housing 5 and 4 people respectively). The apartments were rented for the month at a cost of \$3,125 (1,500,000 CFA at 480CFA/\$1.00US) including the deposit. Charges for electricity and any property damages or loss would be deducted from the deposit. The remaining money would be refunded after the final walk-through. (Three bedroom apartment cost 500,000CFA, each two bedroom cost 350,000CFA, deposit totaled 300,000CFA).

January 8 - Thursday

Students and faculty were ready to depart at 8 a.m. for the scheduled trip to “meet-and-greet” those in Bamako with whom we would be working but this did not materialize. An initial amount of money was changed at the Ecobank next to the apartments. The UST teams ate lunch with Belco Tamboura and Keriba Coulibaly at La Gamelle, near IER. The meeting with all teams from UST, the Virginia Tech teams, the Mali Agribusiness Center members and others took place at 2:00 p.m. at IER in Sotuba.

Team members and team projects were briefly introduced. This took up the bulk of the meeting.

At this meeting, it was announced that the Mali Agribusiness Center had decided to have students from IPR accompany the science and business teams and a FLASH student accompany the sociology team. UST faculty readily agreed and committed to providing the student evaluation that the University of Bamako would require for the students to receive credit. [Note: this did not occur, however.]

When the Director of IPR asked if there was anything he could do to facilitate the process, Ernie Owens said that it would be appreciated if there was any way he could improve the communication infrastructure at IPR since internet communication had been very difficult. He replied that there are no problems with internet communications at IPR. He said there are two rooms dedicated to the internet using satellite connections: one for student use and one for faculty use.

Aissata was expecting the prototype of the cooler to be delivered by us. She had apparently not read and responded to an email sent by Robert (UST student and member of ESW who had been working on the prototype during fall semester). Nate delivered a note from Robert to Aissata.

Aissata informed us that she would only be going to Borko for 1 ½ days.

Sue, Nate and Andrea went to pay Karen Crabbs at Toguna Adventure Tours travel agency for their one-day Timbuktu excursion (no grant funds were used for this trip).

Dinner that night was a joint dinner at Le Campagnard with all the Virginia Tech teams and all the UST teams in attendance.

January 9 – Friday

Belco Tamboura had arranged for the sociology and French teams to meet with Ms. Kristine Hoffer at the headquarters of Peace Corps Mali. What follows are the minutes of the meeting:

Meeting with Kris Hoffer, Associate Director - Environment, Peace Corps Mali

January 9, 2008

10 am to 11:30 am

Location: Peace Corps Mali Bureau HQ

Present: Soc Team,,French Team, Macki Sissoko, Artie McCollum (for first half hour), Aissata Thera (for last half-hour)

Did introductions. Macki Sissoko is program assistant for the small enterprise development section. He said this unit had three components: 1) business development such as microfinance, tourism, artisan; 2) health education; and 3) water sanitation projects. Kris Hoffer said that the Environment section has 44 PCVs and has three components: 1) improving nutritious food; 2) increasing cereal production and storage (this includes potatoes); and 3) increasing non-timber forest projects (includes shea butter). She described the Peace Corps mission in general, which is to provide technical assistance. Each Peace Corps volunteer has a work partner. They work to increase capacity, production, organization (such as cooperatives and associations) and community (such as assisting mayor's offices etc.) Villages send requests to the PC, they go out and evaluate the site and request, and then the volunteer decides on the specifics of their tasks.

She said Borko is on a road that was completed in April. It is a beautiful site and they are expecting that a wave of tourism will be coming. They want to get in front of that wave and prepare the village for that wave (ecotourism).

Macki described more about SED. They are working on developing but it is difficult because the people are illiterate and reluctant to change. Some people have been working 20 years without the concept of making a profit. But there are successes, too. He spoke of a Gao volunteer (tourism) who did a great job of increasing development and building the capacity of NGOs in the community, too. But most business is oriented to agriculture.

Artie gave his background information (an undergraduate degree in zoology at Ohio State and a Masters degree in marine biology in Maine). Borko has about 18-30 sources of water. Currently there are about 60-100 tourists per year but they expect that to increase with the completion of

the road. There is a French NGO that wants to bring tourists (develop an encampment). The past agricultural focus was on garlic which was exported throughout West Africa. In the past, transport was an issue. With the road, they can focus on more fragile produce, such as “patate” (sweet potato). Artie said that they export everything. He said two “bache” drivers come and pick up products (he thinks come from Mopti and Douentza). He said that pricing is set locally, because there is no communication, and the buyer sets the price. It’s a 4 and a half hour drive back and forth to Mopti.

Kris and Macki said that in Dio, 40 k from here, they grow tomatoes and bring to Kati, about 12 k away, but many buyers refuse to buy until late in the day because they know the prices will be low (because otherwise the farmers have to just dump them if they can’t be sold). Prices also go up and down for other products. For example, sheep brought a good price last year, so lots of people brought their sheep to the market this year. The glut meant that prices were then extremely low.

The talk turned to seed potatoes. Aissata has seed potato to go in the ground November 2009 and she has enough to produce 1 metric ton. Currently what is produced comes from Europe. Abbotois (sp?) store potatoes. They have found a walk-in cooler from a restaurant that can provide the 5-8 degrees C needed to store the potatoes. Aissata talked about the integration of various techniques to depress the growth of micro organisms, including: 1) lower the temperature as much as possible; 2) use compost to grow the seed potatoes; 3) use varieties that do not need as low a temperature or do not have to be stored as long.

The seed potatoes sell for 25,000 CFA per 25 kg or 30,000 CFA for 30 kg. They have to be stored for two seasons. There will be 25% loss at room temperature. But loss is not the most important issue. The most important issue is the development of microorganisms that decrease the quality of the seed. Bacterial wilt is one of the most troublesome bacteria. It can be transmitted by soil, water or plants. The hills surrounding Borko are protective and the water sources are pure. The water table is high. Kris Hoffer said they say you can put a hoe in the ground and find water. She said we need to ask in Borko how they keep the soil so fertile. They have been growing vegetables on the same land for 20 years. They sell cassava, garlic, onions, and sweet potato (eat the leaves in sauces, high in vitamin A). In Sikasso, farmers were putting plants in the well. The bacteria would grow and then they would use the water for irrigation.

Aissata identified several issues that need to be addressed in Borko. First, she said that they don’t have an association of vegetable producers. She said they will need to have this to buy and sell seed potatoes. Kris noted that there used to be a national organization in Mali that was designed to support the development of cooperatives (CAS or CSA). Then with decentralization, this power was given to lower levels of the government. Aissata said that the farmers have to have the official papers for buying and selling and need it for branding purposes. They also need this to control the quality. This is the second major issue that needs to be addressed: certification. They need to set a norm, such as zero level of micro organisms.

Kris noted that Adrissa Sissiko (of IICEM) is working in Borko on a hyacinth eradication project. The crocodiles are increasing but the plant is reducing their habitat.

Sue asked if Kris could suggest anyone from an NGO in the Mopti area who has experience working in Borko who she thought we could interview. She suggested Allaye Karembe with GSTA, who is in Bandiagara. He is working on a US AID 500 project on biodiversity.

Responding to various questions about Borko, Kris noted that mayoral elections are coming in March. She said it may be difficult to interview new potential mayor when we are there. The current mayor is not going to run but Artie's "homolog" might. She said the town was between 2 and 5,000 people. It is the capital of the commune of Borko which is comprised of 20-30 villages. She said the Dogon are more secretive and reserved than other Malians, She said we may get different answers from different people, sometimes because there are some matters that they can't speak about with outsiders (so they will just give some other answer). There is a strict division of labor between men and women. Men grow cotton; women card and spin it; men weave it; women dye it; men make the garment. When interviewing, women can't speak for men; men can't speak for women. If talking to women, have a female translator; if talking to men, have a male translator. Aissata noted that she observed a male conducting a three-day training for women when she was there.

The meeting ended with goodbyes and thanks.

The UST sociology and French teams went to the grocery store and had sandwiches in one of the apartments. There were mix-ups with Belco about when the IPR bus would come for us to go to Sotuba to interview professional staff at IER for pretesting the Borko questionnaires. The plan was to complete the interviews with these professionals and seek their feedback on the questions. However, when the bus finally arrived and took us to Sotuba, Belco came out from the Business team meeting and told us that no arrangements had been made and there was no one there to interview. The sociology and French teams then returned to the apartments in Bamako and spent the rest of the afternoon role-playing the three interviews and translations, which was very helpful.

Teams at dinner at Hong Mai, near the apartments. After dinner, Ashley, Jane and Sue planned the larger money exchange to pay for the apartments and the Borko travel expenses.

January 10 – Saturday

The interview with the two Peace Corps volunteers serving in Borko had to be moved from 9:00 a.m. to 3:00 p.m. due to a change in their schedule, so the French and sociology teams went to the artisan market and the students had their first exposure to the shopping crowds and to bargaining. An inadvertent trip inside a mosque by the market (that we did not realize was a mosque) was luckily stopped by those nearby.

The record of the interview with the two Peace Corps volunteers follows:

Interview with Katie Lazdowski and Artie McCollum

January 10, 2009

3:00 to 5:00 pm

Location: Bamako team apartment

Present: Soc Team, French team (not Sibi and Erin)

Greetings and introductions were completed.

We asked about possible translators in the village in case we could not locate one in Bandiagara. They recommended we not use the mayor's office, but thought of two possibilities:

- 1) the pharmacist - called "the doctor" but he is not the same person as the "old" doctor or the "new" doctor.
- 2) Mariam Kassamabara - she is "the matron," the person who delivers babies.

We proceeded to go through the drafts of the interviews and they gave their comments on the questions.

In terms of planting and harvesting, they said that they grow sorghum and millet which they harvest in October and November. Then they plant garlic in December, which they will harvest in May. In June, they will plant the cereal crops noted above and a little bit of corn. They will harvest these beginning in October. The proceeds from the garlic will go to pay for the teachers, the city expenses, the doctors and the mayor. There are 5 quarters and every month a different quarter has to come up with the money for the teachers.

If you ask three people and two of the answers are the same, that is probably the correct answer. Because the town is so small and so political, you should ask as many people as you can to get the right answer.

There are land limitations in Borko. Women wanted gardens so they could grow and sell some crops but they weren't given any land for this. Men have their money and women have their money (ostensibly separate). They said it's okay to ask "what do you do with the money that you earn." Many young women are leaving because money is separate and there are not enough ways for women to earn money. They noted that the Dogon culture and environment is so rich that NGOs want to pump lots and lots of money in to protect the environment and culture. Borko has become used to receiving money from NGOs. So they will often give you the answers they think you want to hear because they know that is what will get the money from the NGO.

The gardening is done mostly by the men. Women do the harvesting of groundnuts. Men cut the millet and the women carry it back to the village. They encouraged us to take a walk around the fields. They noted that M. Le Gardien is the head of the gardening association but he also keeps the buildings built by the German road-builders. The association asks for 1,500 CFA to be a member. They thought he might be a good person to ask for people to talk to. Interviews would probably have to be after 6 p.m., when the farmers come in from the fields.

In terms of daily life, at this time of year the men are weeding and watering. The women get up and pound the millet, go about 1 ½ hour to get wood, go to the river to get water, pound millet again, etc. In the middle of the day they take lunch for the men out to the fields (as much as 1 ½ hour away).

Katie and Artie encouraged us to put the questions in simple terms. All the insects that eat crops are called “crickets.” The farmers dig trenches for irrigation which they call “canals.” They use calabashes for watering, scooping the water from the canals.

They thought potatoes might be a crop that would really help the village and they said to be sure to reiterate that this is just a pilot trial.

Sunday is market day.

Rainy season is June to September. Cold season is September to January-February. Hot season is March to May.

Men are called “cultivateurs” and women are called “menageres” (housewife). Most men farm, except for the teacher, mayor, office workers and a few others.

Cows come into the town in the dry season, then rotate back out and other cows come in (no place to graze). Goats and sheep are everywhere, again, because there is no permanent place for grazing. There is no fencing to keep animals out of the fields. Katie and Artie talked about an experience they had where there was no one to complain to about what had happened. Katie suggests asking “Do any animals pose a threat?” Artie tells a story of an NGO that planted marena (sp?) trees, some trees that would have provided some very nutritious leaves. It would have taken about 20 minutes to put some protection around each tree, but no one did so the animals ate the trees within a week.

They said not to use hypothetical questions because people are used to thinking and talking very concretely.

Katie and Artie said that the key is to find someone who is really excited about the project and then others will see how well it is going for that person and follow their lead.

Nate asked why this approach is better than “top down” approach. They answered that this way the change can be sustainable.

Cindy asked whether public schools were available. Katie answered that the education system is organized with the Ministry of Education at the top, then below that are about 70-170 CAPS, with each CAP having 80-100 schools in it. Each school has a director. It is hard to know how many children are actually in school because the director of the school may pad the numbers that he reports to the CAP in order to please the CAP. The literacy rate: about 29% have completed the 6th grade. Other problems are the lack of teachers and language issues. When asked about the drop out rate, they didn't have the numbers but said this is a major issue for girls. But this varies because it is mostly girls in grades 1 to 6, because the boys are out in the fields. In the Borko Commune there are four elementary schools. There is no 7-12 grade schools. The children must go to a school 15 k away and there is no boarding there. In Borko there is a grade 1-6 school with 4 teachers and 100 students per class. US AID has a project that involves 30 minutes two times a week where the students learn French and where student-centered learning

is promoted. There are also Qu'uranic schools where they learn Arabic. The majority of the students stop at the 4th or 6th grade (don't take/pass exams).

Nate asked about bottom-up programs. They said the key is building rapport, building friendships and building trust. That's the philosophy of the Peace Corps. Katie said that this takes time. She said you could say "wash your hands" a thousand times and maybe the 1001st time they would say "She's an okay person ---maybe there's something to this."

The mayor of Borko is Aldjouma Kassambara. Borko is a very conservative community, very traditional and we should dress professionally. It is 100% Muslim. There are two mosques; one is for people who have gone to Mecca and one is for everyone else. The caymans are sacred. They are not domesticated but they are used to people. It is not required that we go see the crocodiles. There is now a \$5 fixed price.

In regard to photographs, they said we should wait until the last day or we will be swamped by children constantly. If we wish to take a photo of adults, we should ask first. Children love to be photographed. Food will be mostly toh and sauce or rice and sauce. For the nyegens in the village, go to the ones that are farthest away. Good idea to bring 10 kola nuts to the chief (a way of asking to be under his protection while we are there.) The mayor's office can find someone to bring us water. Give them 2000 CFA at the end of our stay and try to give it to the person who will do the work. They get a 2 gallon bucket of water each day and they pay 10 mille per month.

Cindy asked what the proper greetings are. They said it is Kanda in the morning and Denne after 2 pm.

The response to both of these is "youawa" if you are a male and "eeowa" if you are a woman. "Odenabu" is "how are you?" and the response is "denabu." Pacasima" means thank you. No is "aiyee" and yes is "aioh". "Manay eh loom" means the food is good. If people offer you food you can turn it down by saying "mee seenee," which means "I am full."

For washing water, they advised us to use 2-3 drops of bleach per liter and wait 15 minutes. Boil water for 5 minutes. To call, go down the road to Douentza for 7 km to get reception.

Thanks and best wishes were exchanged as the meeting ended.

After the meeting, sociology students Nate Minor and Luis Rangel revised the questionnaires according to the important feedback offered by Katie and Artie, the two PCVs. Since they said that women do not do any farming, the most important change that needed to be done was to remove all the farming questions from the questionnaire from women. It also meant that we could have just one questionnaire for farmers, so we combined the daily living and general farmer questions into one questionnaire and made smaller modifications in the village leader questionnaire.

Dinner was a joint dinner of all UST teams at Santoro, arranged by Belco and Ashley as a pre-set menu for a fixed price. Also attending were Mali Agribusiness Center members Belco Tamboura, Abdoulaye Camara, and Keriba Coulibaly.

After dinner, Ernie Owens of the UST Business team printed out 5 copies of each of the three revised questionnaires (due to limits on time and paper).

January 11 – Sunday

At 7 a.m. the two drivers arranged through Karen Crabbs at Toguna Adventure travel arrived with the two 4x4 vehicles. Luggage was placed on top of the vehicles and the teams arrived to pick up Aissata at her house at 7:30 a.m. At 8:00 we filled both vehicles with fuel and headed out. Aissata called her husband to ask if his colleagues in Bandiagara could arrange housing for us that night, which they did (Kambary Hotel/Cheval Blanc, tel: 223 22 2 388, B.P. 13, Bandiagara, Mali; kambary.chevalblac@netcourier.com; chevalblancmail@yahoo.fr; www.kambary.com).

We stopped for lunch in San at 1:20 p.m. there was another group there. Professor Smith-Cunnien went over to speak to them. It turns out they were a group from Hofstra University and one of the group leaders, Professor Cheryl Mwaria, was a leader in the Africa Network, a consortium of liberal arts colleges who are focusing on Africa (AfricaNetwork.org, tel: 516.463.5640). She asked Professor Smith-Cunnien if she would come to a conference in Lyle, Ill. in April and present on a panel about the project in Borko and said that if she did that they could probably pay for her room and board.

We arrived in Sevare at 5:15 and had to wait until 6:15 to get a part for the air conditioner. Aissata went across the street to a friend's house while we waited. We arrived in Bandiagara at 7:20 p.m. Aissata's husband's colleagues on the malaria project – Drissa Coulibaly (7632 8752) and Drissa Traore - arrived later in the evening to greet us and they helped us arrange for a Dogon-English translator and said they would help us locate Allaye Karembe to interview when we returned on Thursday.

We met the English-Dogon translator at the hotel that night. We had been told by Drissa that a translator was usually 20,000 to 25,000 CFA per day. This translator, Daouda Timbely, usually worked as a guide, not a translator, and he charged 17,500 CFA per day. Aissata suggested we pay him in segments: for the first four days, we agreed to pay him 35,000 up front and then pay 35,000 at the end of the first segment; then we agreed to pay 17,500 when we picked him up in Bandiagara for the second two days and 17,500 at the end. It turned out that he was not fluent enough in English to do the specialized farming translation, but he was very fluent in French so we used him more for French-Dogon translation.

January 12 – Monday

We ate breakfast at the hotel and then loaded up the vehicles. We picked up the sandwiches that we had ordered from the hotel restaurant because Aissata said we would not be arriving in time for anyone to prepare lunch. We paid the translator the first installment of 35,000 CFAs, which he took to his family before we left. We left the hotel at 10:05 a.m. and went to the market in Bandiagara where Adema, our driver, went to purchase 10 kola nuts for us to give to the chief (as

suggested to us by Katie and Artie, the PCVs). Adema purchased more than 10 so that some could be shared with the elders (cost 1000 CFAs). The trip on the new road between Bandiagara and Borko was spectacular, going through numerous villages and beautiful rock formations. The road itself was a combination of graded dirt and gravel and stone inlay. The stone-paved sections were in the low-lying areas where water no doubt flowed during the rainy season and in the areas going down from the cliffs to the valley where Borko is located. The trip was very dusty and we learned that luggage needs to be stored inside the vehicle, not on top of the vehicle (dust worked its way inside much of the luggage on top of the vehicle). After a dramatic descent into the valley, we reached Borko at 12:30 p.m.

We were immediately greeted by leaders in the village and informed the mayor was not currently there. We were then taken to our sleeping quarters, which were the sleeping quarters for the German road construction crew. We unloaded our luggage and were then escorted on a walk to look for village chief at his home. After a brief five-minute walk, we arrived at his home but he was not there. We found him as he sat and conversed with other villagers in a residential clearing. We met with him and had a ceremonial welcoming in which we gave him the Kola Nuts and he thanked us for choosing Borko for this project, and encouraged us to keep trying if we did not succeed in the first attempt. Aissata and Professors Shams and Smith-Cunniën made arrangements to purchase fuel for the generators, water, and food. The generator took about 20 liters of fuel per day running from 6 p.m. to midnight. This was 35,000 CFA for the three nights, which came to 42,000 with water and paying the driver to go get the fuel. For meals, Aissata negotiated 30,000 CFA per day for breakfast, lunch and dinner. The total we paid was 90,000 CFA, which included 2 full days of meals, plus dinner our first day, breakfast our last day and dinner on our return next Sunday. This was paid to Maimouna Kassambara, the mayor's wife, who cooked all our meals.

That afternoon we had our first interviews. Aissata asked the deputy mayor how to proceed: should we interview people in their homes, should interviewees come to the clearing outside the mayor's office or should they come to our residence? The mayor said the latter. Farmers and leaders came and waited. Our group decided it would be best to split into groups of two, one focusing on farmers and the other on the village leaders and elders. The first interviews took roughly 2 1/4 hours. Due to the heavy turnout the first day, Aissata asked one gentleman to stay Moussa Kassambara, and asked the others to come back another day. The village leaders had to be asked to come back the next day, as only half of the interview had been completed. In the evening, Aissata interviewed Moussa and everyone was present for that interview. Dinner was later that night with several members of the village. We did not have electricity until the lights got turned on in the living room from 6 p.m. until midnight (and electricity only went to one half of the unit). We set our rooms up in the dark but it was a great adventure! Then went to bed.

January 13 – Tuesday

Our morning started at 8 a.m.. After breakfast we immediately began inputting information from the day before into word format, as we compared answers and fixed glitches in what we had written down. We were supposed to have met at 10 a.m. with some village leaders but they came a little later than that. We split into 2 groups once again, with Aissata interviewing the village

leaders and the other group interviewing a farmer. Again, the interviews took 2 hours and 15 minutes. In the meantime, farmers who had been waiting to be interviewed left. Lunch arrived and we ate with some village people. After lunch Madame Thera left to go back to Bamako; Adema drove her to Mopti and we paid for her to take public transportation back to Bamako. We were supposed to have some farmers come back and talk to us, but they never did. We sat around for a few hours doing miscellaneous things and then the mayor and some other workers came to get us and asked if we wanted to take a tour of the village. We agreed and went around to some of the village that we first drove through when getting here. We were shown some of the local gardens (where we saw two tomato plants growing), natural springs, and crocodiles. Dinner came later and we ate by ourselves. After dinner the Mayor, Lala and Mboussa came to share some stories with us. We got ready for bed and called it a night.

January 14 – Wednesday

After breakfast and morning greetings, our groups split into two again, with one group completing two farmer interviews that morning and one group interviewing two village elders (one of whom, Iryande Kassambara, was the chief's son, who in fact was acting as village chief given the elderly status of his father).

The group ate lunch and then one group completed two farmer interviews and the other group completed an interview with the two village midwives (the matron and the grand matron). The matron said she would arrange an interview with a group of women for tomorrow morning.

After dinner, we spent the evening with Lala. The students took advantage of the opportunity to ask lots of questions about life in Mali and it was an interesting cultural exchange.

January 15 – Thursday

After breakfast and we had the usual morning greetings and we also received greetings from Madame Cisse, a teacher at the school and wife of the school director. Madame Cisse said she was from Tombouctou and she gave us several words to learn:

Wandergris – thank you

Wanderwris – Bonjour, bonsoir

Teegeemaborie – bonne nuit

Yow kway se ay – please

How roo agakan – good food

I ga hayraych – I'm hungry

Greetings are:

Wandesuba, with the response: yow kway sowbu; and wandergris, with the response: yo kway sab

We interviewed the women who had arrived and they said they would arrange another group of women to be interviewed when we returned on Sunday afternoon.

We left at 10:45 and headed to Bandiagara, to the Hotel Kambary again. We paid translator Daouda Timbely the second installment for his services. Ashley called Drissa Coulibaly and he arranged a meeting with Allaye Karembe, who works with the NGO GSTA for later in the afternoon. We had lunch at the hotel, interviewed Allaye, and headed for Mopti at 5:00 p.m.

Here is the transcript from the meeting with Allaye:

Date: 01-15-2009

Time Begin: 3:40 p.m Time End: 5:00 p.m

Interviewers: Sue Smith-Cunnien

Translators: Cindy Clarke, Ashley Shams, Danielle Lecorps

Respondent(s): Allaye Karembe

Technicien des programmes Bureau GSTA/ PD

Tourism Durable Pays Dogon

7eme Quartier, derriere YA-G-TU

Bandiagara, Mali

Tel-223 421 44 210 Cell-223 754 62 139

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WWW.gstalliance.org

Allaye is a technician, an agronomist by training and his general job is to sensitize people in Borko to eco-tourism. They have discovered (water hyacinth project, diffa onogolia (?)) an invasive aquatic plant and he has been looking to find research on the internet. The plant is growing in the canals and is suffocating the plants by removing the oxygen from the water. This is threatening the crocodiles. GSTA will have scissors for the people of Borko in the spring to cut down the roots of the plants. The major project of his organization is to get rid of these plants. Along with helping remove the plants, there are worms in the canals that get into the hands and feet of the farmers. By February they hope to have gloves and boots for them all.

The second major project is to increase the biodiversity in the village. People from the outside see that Borko looks rich, but really people are malnourished. The village needs more biodiversity for nutrition. Sue then asked about how several people mentioned women wanted land to plant vegetables. He responded by saying that the problem is a few families have the land and others have to ask for the use of the land. Perhaps with his work and the Peace Corps they will be lending the use of the land for women to grow vegetables. The first goal is fighting against the plant, but he is trying to grow a diversity of plants. Plants that are medicinal, good for the environment, and trees that grow quickly and the leaves can be used to feed animals. He just happened to have seeds with him, there was no plan this was just off the cuff. He has a nursery there; by chance he realized the area was ripe for a biodiversity effort. Part of the goal for the nursery, for example the mango they currently have the Indian mango. So if they could have different varieties they could harvest all year long because otherwise they are all ripe at the same time and they are wasted. Then they could go on to other trees, lemons etc. and could sell them on the market. He can show them how to graft onto the trees.

Allaye spoke of a morenga tree (does not know the French word) that is rich in A, E, C.
[note: we will have to research this.]

Another goal is to expand the food in their diet, all they eat is cereals. They don't eat carrots or greens. They have started to introduce them to salads. There was a big problem with the death of one of their co-workers Christina, which this was her project. What they plan to do now is to have a project with the school- to teach children to learn how to identify vegetables and to also teach them the importance of eating vegetables.

Goal#3- Eco tourism. The rock formations, the plants and the trees are all perfect for eco-tourism. They would like to form a committee for eco-tourism made up of people from the village. The committee would learn about the hospitality industry. They need to learn what it takes to house, feed, etc for the tourists

Goal #4- Total biological inventory of the Borko area-birds, vegetation, just about everything. Plans on having students from IPR do it because they will be interns and they won't have any expense that way. The government has noted the importance of doing this in other areas. Toupéré (near Kendie) has a protected forest area, but it is starting to experience degradation. He said this project started on its own. Then the government saw how valuable it was and started to support it. Only having 2 people in the organization now, there is no way they can do this inventory, so they will use a 4 prong approach:

1. Their organization- GSTA
2. USA AID
3. Volunteers from Peace Corps
4. Students from IPR

By February he hopes to have the committees for the environment and to teach people how to plant. They really want to use Borko as a model. He says he wants to work with Katie and Artie because they are there all the time.

He started talking about the different types of trees- exotic vs. endemic. Some of the exotic plants do have value, they provide leaves to feed the animals, wood burns well, and some are medicinal. So the method they are going to use for planting is PLASA. This tree planting method is successful 98% of the time and would be good in Borko because their water table is high.

Here is the PLASA method:

You dig a hole. You put clay sand and manure at the bottom. Then you put a mound of earth over that. Then you put the tree on it and spread the roots over the mound. You put pebbles around the mound and all the way up over part of the trunk. The hole is bigger at the bottom than at the top. This method only uses 2-3 liters of water over a 2-3 week period. If the leaves turn brownish it needs water; if it is green, it won't need water for up to 20 days.

If they do this in Borko, then the village of Dogoni may want to also.

Sue asked: How did they get the plot of land for the nursery?

They had a big assembly and asked for volunteers who would want to donate part of their land for the nursery. They had originally planned to take the volunteer names, discuss this back at the office and decide. But 9 people volunteered and one man offered them a half hectare so they

just selected that guy right there. Apparently there was a small communication problem because people thought they needed more volunteers, so when he came back to Borko there were more volunteers from other villages including 4 women. So they didn't have any problem. He said that maybe this procedure would work for getting the parcel of land for the women to grow vegetables.

For the nursery that they have, the members of the association of the nursery do the work. The association has a Dogon name. The association has 19 people in it. The nursery is near the crocodile area.

He then said that right now they cannot even find seed potatoes. The people in Borko gave him 18,000 CFA to buy seed potatoes but he could not find any. So the potatoes they do have for eating are from Sikasso. But he added that they will likely just sell the potatoes and use the money for millet.

We left Bandiagara at 5:00 p.m. We arrived at Hotel Y'a Pas de Probleme at 6:10, settled in our rooms and had dinner at the hotel. Every member of our team was happy to finally be able to take a shower and sleep on a bed (since several of us had been on the floor in Borko).

The Hotel Y'a Pas de Probleme informationis:
B.P. 16 Mopti, Mali
Tel: 223 243 1041

January 16 - Friday

The French and sociology teams in Mopti met at 8:30 a.m for breakfast. On our way out to explore the city, the owner of our hotel inquired about our reason for being here and informed us of his wife's work which also dealt with potatoes. Dr. Smith-Cuninen and Dr. Shams then obtained contact information along with driving directions to her office at the D'ille et Vilaine Association. They arranged to meet later in the afternoon with Laure Guinot and Moumouni Kone around 3:00 p.m, at D'ille et Vilaine Association in Savare.

Our meeting began promptly at the time arranged, with Sue explaining our purpose as well as a description of Madame Thera's in progress research with seed potatoes. Madamae Guinot and Monseur Kone responded with an update of their projects and mission. Their focal concern has taken a drastic change from how they started, to what it. They started with the idea of importing seed potatoes from France and the Netherlands, and now they have shifted to expanding their seed potatoes in the laboratories here in Mali to a strong sustainable agribusiness.

Here is the transcript of that meeting:

Interview with Moumoni Kone and Laure Guinot (wife of Hotel Ya Pas de Probleme in Mopti, Olivier Guinot)
January 16, 2009 in Severe, Phone:76 40 39 55
Agro Sans Fontiere With AIVM Association D'ille et Vilaine Mopti

Present: Ashley Shams, Susan Smith-Cunnien, Nate Minor, Luis Rangel, Andrea Jauli, Cindy Clark, Danielle Lecorps

Translators: Ashley, Danielle, Laure

Time begin: 2:55 Time End: 3:50

[Note: we made this contact through the owner of the hotel Y'a Pas de Probleme in Mopti. He asked us about our works and then told us his wife worked for an NGO that also had a seed potato project. It turns out he gets the seed potatoes for his project through Adema Berthe. He had heard of Madame Thera but did not know her.]

We completed introductions and told Moumouni and Laure about Madame Thera and the seed potato project. They thanked us and told us about their work. Moumouni took the lead as he is responsible for the seed potato project.

Moumouni said that they focus on two efforts: 1) the importation of seed potatoes from France and the Netherlands; and 2) encourage the local production of seed potatoes. They are part of Internationale Agro sans Frontieres (Agronomists without borders) and work with the Brittany Region in France (their sister region). Previously they had seed potatoes from Belgium, but they have selected the clones chosen from Peru. At the beginning they had 36 clones. After ten years of trials in Sikasso, Kayes, Mopti, Koulikoro/Katibougou, they selected 5 varieties that are good for Mali. They said something about Sciences, Tools and Culture (SOC), who I think were the ones who cloned the species. They have been supplying Koulikoro with the 5 species and with the equipment. In 2002 they started to do this with in vitro.

They work with a consortium of countries, including Mali, Senegal, Guinea, Burkina Faso, Niger and Cameroon. (Cameroon is not quite fully committed.) All will get seed potato from the lab. In Mopti they were developing the mini-tubers for Bandiagara, Djenne, Komaka (sp?) and Mopti. For the last 2 to 4 years they have been working with the mini-tubers (clones from the Belgium seeds) to see if the ones from Mali are just as productive as the ones from Belgium. Now they are at a phase where they are trying to multiply these (in Bandiagara mainly) in the ground.

Instead of going with the mini-tubers, they have decided to go with the cuttings (Bouture) for the plants. But with the cuttings there are problems with dispersing and delivery because the cuttings are so fragile. So they are behind schedule. They are going to move this operation to Segou because it is so much closer (reduce the damage in transport).

There is a slight problem in Koulikoro because there are just interns in the lab, which means if they have other tasks to do, they have to do those first. They are putting out enough product, but they can't store these properly. Some of the other countries in the network who want seed potatoes have stepped up to the plate. For example, Burkina Faso has asked for a lab to develop their own seed potatoes.

One of the problems is the multiplication of the seed potatoes. They can put out enough of the mini tubers but these need storage, which they lack. They can put out the cuttings, but these are so fragile they can't be transported. They have two coolers now. They have cotton that runs down the middle. They can store them for some of the time without electricity but in May and until mid-June they turn on the cooler. Near KameKoma (sp?) near the river, they can conserve the seed potatoes. But the people there have stopped due to lack of motivation. In the

Normandy region of France they now have a prototype of a cooler that uses solar power. This is being done by the French company TOTAL.

They have also been working on the cuttings (bouture). He thinks the mini-tubers are the best for Borko, though. But still are left with the problem of conservation.

After returning to Mopti, we met up for dinner and went to a restaurant (The Bissap Cafe, tel: 243 13 53, located in Centre Commercial, Mopti). We came back and finished our write-ups for the day.

January 17 – Saturday

Today the French and sociology team members who were in Mopti took the morning off and went out to the Mopti market. Danielle and Nate were both sick, so they stayed back at the hotel. In the afternoon, the sociology team transcribed interviews, revised questionnaires, and caught up on other paper work. For dinner, went to Bozo Restaurant, next to the river. The food was good but the students thought the place was “iffy.”

January 18 – Sunday

After a quick breakfast, the French and sociology teams in Mopti were on our way back to Borko. We picked up translator Daouda Timbely in Bandiagara and arrived in Borko at 3:45 in the afternoon, expecting to conduct interviews. Before we had left the first time, we asked the mayor’s office to arrange women to interview in the late afternoon. However, when we arrived, the women were not available. The mayor was in a meeting with officials from Senegal, but we were invited in to greet them both. Souleymane Kassambara, the deputy mayor, told us the women would not be available tonight because it was cold and most of the women were currently at the weekly market. The two teams walked through the market, and returned to our sleeping quarters to prepare for the next day’s work.

January 19 – Monday

The morning began by packing our gear to be ready for our expected departure later in the afternoon. The day started in the usual way, receiving greetings from various persons and eating breakfast prepared by Maimouna.

The French and sociology teams left for a tour of the fields and gardens of Borko and to collect three water and soil samples for Aissata. Present were Issa, a farmer we had previously interviewed, Souleymane, Mboussa, Lala, Daouda (translator), Ashley, Susan, Nate, Andrea, Luis, Cindy and Danielle. We left at 9:10 a.m. (by car), and were dropped off near our first destination point at 9:24. We walked through numerous fields on our way back to the village proper, arriving back there after 12:45 p.m.

Documentation for the sample locations and procedures is in a separate report, (attached, in one of the appendices of the report the Sociology team gave to Madam Thera).

We saw the rice fields and some millet fields unplanted at this time of the year. Garlic and onion were the most common crops we saw, and some fields were at different stages. For example, we saw some farmers who were dividing the onion to multiply it, while others were not yet at that stage and others were past that stage. We saw some garlic they said would be ready to harvest in about 15 days. Issa's fields were among the farthest fields and he gave us a large bunch of onions as a gift. Most of the farmers we saw were working alone in their fields. Occasionally we would see two men working together or very near each other. However, we saw one group of 13 men who were turning the soil of one parcel of land. Souleymane said they would be done that task today whereas if one man was doing that alone it would take 9 days at least. We saw one field that was partially turned and the farmer was not there, and Souleymane remarked that the farmer had had to abandon the job for now.

At one point we passed rice fields that had been harvested but they were partially filled with water and Souleymane said that the water table was very high here. At another point we saw about 6-8 men pounding the rice stalks that had previously been harvested.

As per our interviews we saw numerous piles of what appeared to be waste on the edges of the fields. However, one pile that Issa showed us was actually the stalks of manioc that would be broken off in pieces and would be planted to grow new plants. He pointed out where the roots would emerge. We saw one man weeding his field and throwing his weeds in the irrigation canal (although he could have removed them - and probably did - later in the day).

As obvious from the photos we took, all the parcels of land are small and trees are interspersed through most of the fields. The irrigation canals are no further than three meters apart as half of that is the distance the calabash of water can be tossed. Taro and manioc are grown on the sides of the canals by some of the farmers, but not all. The taro grows as tall as a small child (they pulled over some children to show us) and they said it does not shade the garden much. The paths between some of the parcels of land have different kinds of bushes and trees. Cotton plants were along many of these paths, as were some berry trees (looked like small crab apples, juji possibly) other nut trees, and even a lemon tree. I asked whether any of these trees had been planted and they said that they all grew naturally.

Some of the water in the canals, especially in the area near the farthest fields, didn't look very clear - some was milky and some seemed to have an oily film on it. (see photos). We saw animals walking in the canals. Animals are also sometimes tethered by the canals so there is the possibility of waste runoff into the canals. The water in other canals looked very clear. But women seemed to be washing clothes at each of the sources we passed. They don't wash in the source, which is always surrounded by concrete and sometimes covered with some type of grid. But they wash right next to it, before the water is diverted to the different fields. We noticed some trash in the sources and a larger amount next to the sources. Temporary dams are built and removed to divert water from some fields to other fields.

About half way between the farthest field and the village we saw a donkey enclosed in an area about 15 feet by 25 feet and we were told that the donkey there was kept there to make manure. We wondered why people did not collect the animal feces throughout the village and place it there (since we had heard there was a shortage of manure).

We returned from the fields at 12:45. Someone had told us that some women had been waiting to be interviewed and other women were there waiting to dance for us (which Maimouna had wanted to arrange for us) In addition to the lunch prepared for us by Maimouna, Madame Cisse, the teacher, had made a special dish for us. After lunch the women performed traditional dances. We asked about doing some other interviews but Souleymane began the thanks and goodbyes. He reiterated their high hopes for the seed potato project and wished God's blessings for us and the project. We distributed some gifts we had brought for our hosts (not purchased with grant money) and left Borko at 2:40 p.m., a little over an hour earlier than we had planned.

We arrived in Bandiagara at 5:10, paid Daouda Timbely, our Dogon translator (tel: 78 86 98 28). Stayed at the Kambari Hotel again, and ate dinner there as well. We contacted Mr. Allaye Karembe as he had instructed, in order to return a map of his that he had let us photocopy. However, he was in Bamako and instructed us to leave the map with the reception desk at the hotel.

January 20 – Tuesday

Danielle, Cindy, Luis and Professor Shams left Bandiagara for Bamako at 8:30 a.m. They ate lunch in San and arrived in Bamako at 7:30pm. The French team was happy to be reunited. Erin and Sibi (Bamako team) updated Professor Shams on what they had been doing with the Business team. Nate, Andrea and Professor Smith-Cunnien left at 10:00 a.m. for Mopti, arrived at about 11:00 and worked on interviews until noon, when they ate lunch at the hotel. They double-checked some interviews and wrote up the transcripts in the afternoon, watched the presidential inauguration in the staff lounge of the hotel, had dinner at the hotel and went to bed early.

January 21 – Wednesday

Nate, Andrea and Professor Smith-Cunnien left Mopti for the airport at Sevre at 6:45 a.m. and took a flight to Timbuktu (no grant money was used for this excursion). In Bamako, the French team and Luis accompanied Jane Saly to Air France to drop off her luggage in the morning. Afterward they went to a small bookstore at the Libya Hotel de L'Amitie to see what books were available and to possibly purchase reference books for their reports. After they went to the French Cultural Center in Bamako to look at additional references for their reports. During the exploration, they discovered that the Center hosted free cultural events including outdoor movies, music, and the like. Lunch took place at the Taureau Rouge, where the team indulged in American-style cuisine. In the evening the teams followed up on its "cultural find" and went to the outdoor "cinema" to watch Tom and Jerry in French. This was a unique experience for the

team and they learned by seeing how another culture enjoys watching a movie. Afterward, they Jane Saly was taken to the airport, and the rest went to dinner at Le Campagnard.

January 22 – Thursday

This was a travel day for one group. Nate, Andrea and Professor Smith-Cunnien arrived back at the Mopti airport at 8:50 a.m. and headed directly back to Bamako. They stopped for lunch in San, where the driver had to get a flat tire changed. They arrived back in Mopti around 7 p.m. and headed to Hong Mai for dinner.

Luis and the French team visited the artisanal market of Bamako, and then returned for lunch at home after buying our groceries at the Hippodrome. Later that day, they met up with Mamadou Keita (brother to Salif Keita in Minnesota) who had planned a cultural outing for the group. That day there was a free concert from a well-known *griot*—a pillar in passing on Malian history through the oral tradition—Mah Kouyate, who invited her audience to dance with her on stage (in front of everyone!) while she sang. The students enjoyed themselves and again learned a lot by just watching how the Malians enjoyed a concert and having a chance to hear such an important cultural icon. After the concert the Bamako team found the returning team from Timbuktu and everyone at the Vietnamese restaurant Hong Mai.

January 23 – Friday

Andrea and Cindy purchased breakfast breads for the group.

The sociology team spent the morning consolidating interview notes into comprehensive interview summaries. By the end of the morning, we had almost all the interviews done: farmers, village leaders and elders, women and NGOs. During our work, it became obvious just how important having multiple note-takers was. We constantly referred to each other's notes as well as digital recordings to fill in missed portions of interviews to present as complete an interview summary as we could.

In the afternoon, we drove to Katibougou where we saw the IPR/IFRA lab. We met the director of IPR, and toured the labs and green house. Adema Berthe took us through the lab and showed us the process of incubating seed potatoes, from seedling to 1st generation seed potato. The lab contained rows of seed potato plants in their *in vitro* stage. There were two storage containers for these plants: a larger box, which contained 60 plants, and a smaller, jar-like container which held 20 plants.

When the plants go into pots in the greenhouse they are generation zero potatoes. Currently there are 10,000 plants in the greenhouses. However, when asked, Adema said none of these are for Borko. He said he has received no plan from Aissata and he currently is growing no plants for her. This was very surprising to us and we wondered if it would be possible to have seed potatoes at the proper stage and ready for Borko by November 2009, which is what we had told the people of Borko.

Every time the potatoes go back in the ground, they add a generation to their life. Each generation increases in size and yield, as well as improved immunity to disease. Aissata intends on giving third generation seed potatoes to Borko. [Note: this may be wrong as elsewhere we heard second generation plants are going in the ground at Borko.]

Adama said the seeds are in the lab for 4 weeks to get the plantlets. Then they go to the green house for 80-90 days as generation zero. Then they go into the ground as generation one (micro tubers?). Then the next time, as generation two, they go to the farmers as mini-tubers. The mini-tubers are about an inch in diameter. Adama's lab assistant brought us a bag of these mini-tubers to examine. These were from last year and were slightly shrunken in appearance.

The multiplication process description was confusing, as it was in quick French and people were having a tough time keeping up. However, it appears that one plant can be multiplied over and over to create enough seed potatoes for one hectare in the ground. In one month, one planture (sp?) gives 120 mini-tubers and over 6 months produces 100,000 mini-tubers.

After repeated questioning, it appears that there are no plants in the fields or in containers at Sotuba.

We returned to Bamako. The students bought groceries and Nate cooked a late dinner for everyone – spaghetti with two types of sauces.

January 24 – Saturday

Andrea and Cindy purchased breakfast breads for the group.

The weekend began with a free day for the French students to catch up on trip reports, French reading and journals. It was a project report work day for the sociology team. The sociology team spent the morning by continuing data entry of interview responses and proper formatting of the village leaders questionnaires and writing getting the appendices for the report in order. Afterwards, Nate, Luis and Cindy searched for a cyber cafe in order to make copies of the finished work. This took several hours as the shop keeper needed to go elsewhere to get enough paper to complete this job.

Nate again cooked dinner for everyone – chili – and some students went for a social outing out to a club with Professor Shams, Mali Agribusiness Center member Abdoulaye Camara, and Mahamadou Keita (brother of Twin Cities friend Salif Keita).

January 25 – Sunday

Andrea and Cindy purchased breakfast breads for the group.

The sociology team started Sunday by finishing data entry of interviews of Peace Corps volunteers, Peace Corps Director, and Borko Women responses. After finishing all our data entry, we began to work on our final report to be presented on Tuesday, January 27. A summation of the village leaders and village farmers was completed for the final report as well as

group brainstorming regarding different cultural, social, and economical benefits and difficulties the seed potato pilot project may encounter.

The French team went to meet young pupils at a school for girls in Wolodo. The meeting was set up by Fatou Wensemen (a friend in St. Paul, MN) and organized by her brother. The French students delivered school supplies and clothing that they had collected through drives at UST and personal connections.

The group had dinner at Hong Mai.

January 26 – Monday

Andrea and Cindy purchased breakfast breads for the group.

The sociology team worked all morning on the assessment report for Aissata. After lunch, the French and Sociology teams walked to Aissata Thera's home to express their condolences for the passing of Aissata's father-in-law. Afterwards, the sociology team went back and completed the assessment report, finishing everything but there was no time for an executive summary. Nate and Luis went to have one copy printed out – again, an almost two-hour process.

The group took 3 cabs to L'Olympienne restaurant for a special wrap-up dinner. One group ended up at the L'Olympic Hotel out near the airport by mistake but eventually made their way to the restaurant. Another group had their cab break down and had to walk the final few blocks to the restaurant.

January 27 - Tuesday

Andrea and Cindy purchased breakfast breads for the group.

Due to earlier mishaps with cabs – and because of the need to transport the group's luggage and go to Sotuba -- Ashley had arranged for a mini-bus and driver for the day. The group loaded up the luggage and left at 8:15 a.m. The group headed for a scheduled meeting at IER in Sotuba and to say goodbye to Madame Gamby, after having confirmed plans with Belco the night before. However, upon arrival at IER we were unable to locate anyone from the Mali Agribusiness Center. In about 15 minutes we found Abdoulaye. When Belco arrived at 9:30 a.m. he informed us that neither Madame Gamby nor anyone else from the Agribusiness Center was available to meet. We decided to check in for the evening flight at Air France and then, since the students wanted to be able to present our findings to the Agribusiness Center, return later to Sotuba. Belco said he would try to arrange something for 2:30 or 3 p.m. but apparently was unable to do so. After checking in at Air France, the group went to the National Museum for an educational outing. The group ate a late lunch at the museum.

The group returned to the apartments for a final clean up. Sue stayed to meet Abdoulaye for the final apartment walk-throughs with the owner. (There were no additional charges.) Ashley and Andrea went to change CFAs back to US dollars (which involved going to three different banks and hours of frustration). The whole group headed to Le Campagnard for a final dinner with

Abdoulaye. At 8:30 p.m. they headed to the airport, as Belco said he would meet us there at 9 p.m. with the receipt for the IPR bus payment. The boarding process began at 10 p.m. and the plane departed on schedule at 11:45 p.m.

January 28 – Wednesday

This was another travel day. After layover at the Paris airport the flight for Detroit departed on time. However, a slight delay caused by a slow journey around the airport in Detroit before arriving at our gate resulted in Northwest Airlines changing us to a later flight to Minneapolis. This flight was delayed. We arrived in Minneapolis after 7:30 p.m.(rather than our originally scheduled 4:09 p.m.). Some of the group's luggage had arrived on the earlier flight and some came on the current flight (and there was a delay in unloading).

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

Please add your information here:

Allaye Karembe

Technicien des programmes Bureau GSTA/ PD
Tourism Durable Pays Dogon
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Bandiagara, Mali
Tel-223 421 44 210 Cell-223 754 62 139
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WWW.gstalliance.org

Daouda Timbely, our Dogon translator (a guide really, not a translator, but spoke some English (tel: 78 86 98 28). Bandiagara.

Moumoni Kone and Laure Guinot (wife of Hotel Ya Pas de Probleme in Mopti, Olivier Guinot) January 16, 2009 in Severe, Phone:76 40 39 55
Agro Sans Frontiere With AIVM Association D'ille et Vilaine Mopti

Drissa Coulibaly (colleague of Aissata's husband on the malaria project), Bandiagara.
Tel: 76 32 87 52

Drissa Traore (colleague of Aissata's husband on the malaria project), Bandiagara

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Severe, Phone:76 40 39 55
Agro Sans Frontiere With AIVM Association D'ille et Vilaine Mopti

8.0. List of Professional Items Given and Received (for example: lap tops, memory sticks, CD's, DVD's, documents either in hard copy or in machine-readable format, posters, shea quality testing kit, grinder part etc.)

4 G memory sticks given to each of the six members of the Mali Agribusiness Center as gifts upon arrival (no grant money used for this)

9.0 Appendix A: Report for Madame Aissata Thera

Report for Madame Aissata Thera
Institut d'Economie Rurale
Mali Agribusiness Center

Social, Cultural and Economic Assessment of Borko as Site for Mali Seed Potato Pilot Project

Submitted 27 January 2009

By the Sociology Team:

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Appendix G - Borko Garden Observations

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Introduction

The Sociology Team was asked assess the social suitability of Borko as a site to pilot the development of the Malian seed potato enterprise. Madame Aissata Thera had previously assessed the essential physical and biological characteristics of the site as suitable for this pilot project, but needed to know whether the social characteristics of the village were such that the protocols for the seed potato project could be followed, thus ensuring the sustainability of the enterprise.

This report includes an overview of the findings from the farmer interviews and the village leader group interviews. The findings from the other interviews, meetings, and observations are incorporated in some of the analyses. The complete transcripts of the interviews are included in Appendices C, D, E, and F.

Farmer Findings--Synthesis

This section contains a brief summary of the responses given by the farmers to each of the questions asked in the questionnaire followed by a brief conclusion of the findings. There were 7 respondents. See Appendix B for the complete interview transcripts.

1. Have your planted potatoes before?

Only one of the seven farmers had ever grown potatoes before.

2. The seed potatoes would need to be planted in the cold season. Can you describe what you would do during a typical day in the cold season? Please start from the time you wake in the morning and tell me everything you are likely to do until you go to sleep in the evening.

Wake up at dawn, stop for lunch at 11:30 a.m., return home around 4 p.m. dinner and prayer.

3. What different types of crops do you plant?

COLD SEASON

<u>Number of farmers</u>	<u>Crop</u>
7	Garlic
6	Onion
6	Sweet potato
2	Cassava
1	Cabbage
1	Sugar Beets
2	Tomatoes

[Note: We also observed manioc, taro, and tobacco growing in the fields during the current cold season. Also, 3 farmers noted that they grew corn in the dry season (April - June).]

4. What is the most important crop?

Of the four farmers who were asked this question, garlic was said to be the most important by three of the farmers, two of whom specified that it was important for the money it brought and that other crops were the most important in terms of nutrition or food for the family (sweet potatoes, rice, millet and sorghum were mentioned here).

5. How do you choose what crops you will grow?

Of the five farmers who were asked this question, three of them said they decided based on which crops bring the best price, one said he decided based on nutritional value and one said he chooses based on what is best for his family.

6. Do you ever need help in the field?

Of the four farmers who were asked this question, all said they sometimes need help in the fields. Friends and family provide the help. One mentioned that his younger brother and 6 others took turns helping each other and another mentioned that he sometimes has up to 40 people helping him (neither were formal associations).

7. Who performs the different aspects of farming (such as clearing the fields, planting, weeding, harvesting)?

Of the five farmers who were asked this question, three mentioned that they usually did everything with one other person (a brother or, in one case, a wife). Several mentioned that during harvest time they receive help from family and friends.

8. Do you belong to an association?

Of the six farmers who were asked this question, two did not belong to any association and four did.

9. Where do you grow your crops?

[This question was only asked of two people.]

10. Are all your crops planted in the same area or do you plant some crops in one area and other crops in other areas?

Most farmers said they divided their parcels of land into smaller parcels with certain crops being grown in different areas within the larger parcel. One farmer said his parcels were close to each other but not touching.

11. Do you grow the same crop on the same plot every year, or do you change it?

Five farmers practice crop rotation and two did not.

12. What kind of tools do you use in farming (for planting, weeding, harvesting, and clearing the land)?

Almost all farmers said they use a hoe (some a large and small hoe), knife, hand and calabash. One person each mentioned a watering can, aerating device and binet (small pike).

13. Do you clean the tools and can you explain how you do this?

Five farmers cleaned their tools and two did not. Those who wash seem to rinse the tools with water.

14. Do you grow any crops during the dry season?

[This question was not as meaningful after Question 3 (“What different types of crops do you grow?”) was changed on some of the questionnaires to specify “in the cold season”. Some farmers simply listed the same crops they had mentioned earlier. However, one person said they grew rice and three said they grew corn.]

15. Do you have any problems with crickets (grillon) or other pests?

Three farmers said “No”. of the others, there were varied responses. Three farmers said they had worms in the dry season. One person said they had crickets three years ago that attacked the sorghum and millet.

a. Is there anything you do to get rid of them?

Of the farmers were asked this follow up, none did anything in response to the problem (and one farmer said he didn’t know o anything to do.)

16. Do you ever apply fertilizer to your crops?

All farmers indicated that they used fertilizer. Five use white, one used both black and white, and one didn’t specify. One farmer also said he uses manure. Three farmers said that they use fertilizer on everything, one said on garlic and onion only, and two said that they used fertilizer only on crops that were to be sold, not on crops that will be stored for seed.

17. How do you choose which to use?

Of the six who were asked this question, the responses were varied. One farmer says that black is used for garlic, white is used to stimulate growth. Three simply state that they have always used that.

18. Would you be interesting in learning more about how to improve the quality of the soil?

Of the five farmers who were asked this question, one said no and five said yes (with enthusiasm).

19. When you clear the fields, what do you do with the waste materials?

Several of the farmers said they feed the waste to the donkeys. Two mentioned that they eat the onion leaves. Two said they burn the waste (one then used the ashes on the field. Several note they use the waste on the fields, either composting it first or just laying it on the fields.

20. Seed potatoes can't be grown near some plants, such as tomatoes and peppers. If you were to grow seed potatoes, would you be able to grow them away from these other types of plants?

All seven farmers said yes.

21. Farmers need to watch the seed potato plants carefully, and if some of the plants appear to have a disease or not be growing correctly, these plants need to be destroyed. Is this something you already do with your other crops or is this a new idea for you?

Three farmers already do this (one of these says that he does this for dead plants but not sick plants), three farmers used to do this and one farmer just said he would do this.

(If new) What do you think of this idea?

Only two were asked this, since the others knew of the idea, and they both thought it was fine.

22. Would there be a problem with digging a well where the seed potatoes will be planted?

All farmers saw no problem in having a well (although the question did not specify who would dig the well.)

23. Do you store most of your crops for use by your family?

All of the farmers store crops, some for family use and some to be sold as needed. None of the farmers store cassava. One farmer said that if he had ten bags, he would store one for the family.

24. How do you store your crops?

Of the four farmers asked this question, Several noted that garlic is stored in sacks in a well-ventilated room. One farmer said that during the dry season he stores the bags under a tree.

25. Do you ever sell your crops for cash? If so, which ones?

All the farmers sell crops for cash; most often mentioned were garlic and onion.

26. How do you know what price to sell at?

Of the six farmers who were asked this question, four farmers said they telephone Bamako for the price. Two negotiate with buyers that come to the village.

27. Would you object to putting a hole in the mountain for storage of the seed potatoes?

Of the six farmers who were asked this question, three said it would be no problem (it used to be done). Three farmers said that it would be a problem but they noted that this is because they thought people would steal from it or they said that they did it in the past and people did steal from it.

28. How often do you sell crops?

Of the six farmers who were asked this question, three sell year-round, two said they sell when they need the money, and one said three times a year.

29. How much money do you make in a year?

Of the six farmers who were asked this question, the answers were: 200,00-300,00; 250,000; 400,000; 600,000; 750,000; and 1.5 to 3 million CFAs.

30. If an outsider came to Borko to farm, would he face any challenges?

Generally people said there would be no problem, although one farmer said there was not enough land. But several noted that the outsider would have to be taken in by a family and several noted they would be likely to be given poorer quality land.

31. Are there nearby villages that want to grow seed potatoes?

Melo, Sorje, Dembali, Some, Oume, Menti, Tintan, Mele, Denpur, Koeoa, and Ibysa [not sure of spellings].

Questions for Village Leaders--Synthesis

1. What are the main crops that are grown here?

The main crops grown in the rainy season are millet and sorghum. However, the village leaders also added shallot and corn and the elders added peanuts, sesame, and dah oseille (crop like cilantro). In the dry season, the main crops they grow are: garlic, onion, tobacco, sweet potatoes and cassava. The village leaders also added potatoes and plantains. The elders added tomatoes, carrots, and a fruit called fegweh. They village elders mentioned that they used to grow potatoes but they no longer do.

2. What would you say is the most important of these crops?

Millet and garlic were cited as the most important crops. However, the village leaders said that millet was the most important in terms of nutritional value, but it suffers due to a lack of land space in which to grow. Garlic is important because it brings in the most amount of money. Village elders said that cassava, sweet potatoes, rice and onion are also important crops.

3. Are all the crops grown for the villagers here to use or are some sold outside the village?

The villagers were asked a different question: Is garlic the only crop sold outside the village? They answered no; they sell onions as well. They sell what will bring them the most money. They do not have the means to store potatoes or cassava, so if they do not have buyers they will not take them out of the ground.

The village elders answered the original question—

They said that crops are grown both for the village and to be sold outside of the village. They also said that they sometimes go to Bamako and Mopti to sell their crops and sometimes they have people come to the village.

4. What would you say is the biggest problem that you have in the village in terms of growing crops?

The village leaders said that the biggest problem is the lack of worker and seeds, and poorly tilled soil. They also lack reliable transportation for the fertilizer, and they do not have a framework to support and organize themselves.

The village leaders said that the biggest problem they see is that the land is limited and the population exceeds the food production.

They both agreed that they do not have the tools for the work and harvest, and that they lack in technology.

We'd like to ask you some questions about the land used for growing crops.

1. Do families own the land? Does it belong to the whole village?

There is one parcel that is owned collectively by the village, most land is owned by families.

Is there a piece of land that the whole village works together?

There is nothing that is not the family. Borko is a socially oriented culture; family is the only division.

2. How is the land worked – by families or by the whole village or some other way?

The village leaders said there are two ways to do this: the collective way and individual way. The individual way is when you plant for your own family and store the surplus in a cave. The village elders said the head of the family and his children work the land.

3. Who decides what crops will be grown on the land?

According to the village leaders, the chief of the family makes the decision, sometimes after consulting with the whole family.

4. Who makes the decisions about farming such as when to plant and when to harvest?

The answers village leaders and village elders provided were very different from each other. The village leaders said it depends on the crop: their timing, and the weather. In Borko, they also have the big brother little brother program: when the 'big brother' decides it is time to plant, he will spread the word to nearby villages.

The village elders said the most intelligent person in the family will decide when to plant and when to harvest.

5. Do people in the village own livestock?

The village leaders were the only ones who answered this question. They said that each family owns their own livestock.

What types of animals?

The village leaders: cows, camels, horses, donkeys, goats and sheep.

Do most people own some livestock or only some people?

Both the leaders and elders answered that most everyone owns livestock, but there are families that may not own livestock.

What land is used for the animals to graze?

The village leaders said there is reserved land for the animals. During the rainy season the animals are sent out to the hills, but during the dry season the animals are stored somewhere else.

The village elders: there is not a lot of land. Usually after the rainy season there is a small forest, but that is still not enough to feed the animals, so they send the cows to the Niger. It gets expensive to do that, but the Niger has a lot of grass for them. The head of the family will send someone with the cows, and sometimes they will sell the cows before returning to Borko.

How do you keep animals away from the crops?

The village leaders responded by saying that they do try to make fences, but sometimes they do not have enough money to put barbwire on them so they hire someone to make sure animals don't eat the crops but there are times they do not pay attention.

The village elders responded by saying that they put a dead plant fence to keep the animals out and there is also a person who is a permanent guardian.

[For the village elders, at this point it was asked if they would like Sue to explain the project for them. There was an explanation back and forth about this.]

At this point, the village leaders began asking questions about the seed potato project, specifically the distribution plan for the seeds. Sue said she would share their questions and concerns with Madame Thera, who would be address the village more closely the next time she comes to Borko.

The interview ended here, as the elders left for evening prayer.

The village elders hope this project will bring full bellies, more animals and road construction to the village. They also want a 'safety net' for their children, and hope the seed potato will provide this. They hope the seed potatoes will bring more profit than garlic, and know they will be more nutritious.

1. If it takes a few growing seasons to get the potatoes ready to market, do you think the villagers are going to be able to wait?

The village elders said they already do this with garlic--save half and consume the rest.

2. There are different farming practices that need to be followed to have the best outcomes for growing seed potatoes. What do you think would be the best way to do this training?

Village elders said they know one method now, but are very willing to learn another if it is better.

3. Do you think growing seed potatoes will change the community? If so, how?

The village elders said if seed potatoes are more productive and generate more money, people will be more likely to grow seed potatoes.

Just a few more questions...

1. Is there anything else we need to know about the village in order to help you prepare to grow seed potatoes?

N/A

2. Do you have any questions for us? (We may not know the answer, but we can find out and let you know the answer.)

The village elders said they are worried about the young people who leave the village because of lack of work; they hope this project will help them stay. They thanked us from the bottom of their hearts.

Aissata's Questions:

Will it be possible to dig a well?

The elders told Aissata there was enough water already, and verbally wondered why they would need more. Lala explained the importance of the well; it would ensure clean water for the seed potatoes. The elders apologized for their answer. Sue explained the importance of pure water and of not contaminating the seed potatoes. The village elders are willing to do this and hope this new production will be successful.

Do you have any concerns?

- The village leaders expressed their thoughts about the seed potato project. The village as

a whole will need to be convinced this project will be a success. This means women and children need to be involved in the project as well.

- Several village leaders continued to show their concern about seed potatoes not being more profitable than garlic.
- They would like assistance during the projects initial stages, because the farmers starting with the seed potatoes will not be able to make as much money as usual. By assistance they meant: training, good tools, equipment and supervision to make sure things are operating correctly.
- The village leaders mentioned that a farmer is able to make 250,000 CFAs per year, perhaps even 1,000,000 CFAs per year.

Would outsiders be able to come to Borko to farm?

Village leaders: they would only be able to borrow the land, and it will not be very good in quality.

Are there nearby villages who would be interested in growing seed potatoes?

Some, Kiro, and Melo were mentioned, but because they lack in water, they doubted their viability.

Economic Assessment

This section summarizes Borko's economic status, viability and potential implications for the seed potato enterprise. An economic assessment evaluates one aspect of the village's suitability to ensure the success of the seed potato pilot project. We examine their current financial circumstances, including an analysis of their estimated annual income in comparison with a projected income from producing seed potatoes. This is done to more fully understand the potential economic impact of producing seed potatoes in the Borko region.

Income

Current Average income estimate:

We procured income data from six farmers, with a range of 200,000-3,000,000 CFA per year. With the outlier of 3,000,000 CFA mentioned, the average income is 450,000 CFA. This is higher than the village leader's estimate of 250,000 CFA, so the real average probably lies somewhere in-between these two figures. We did not have a high number of cases, so the reported average of 450,000 CFAs should not be given too much credence.

Potential income prediction:

We do not know how much land a typical farmer owns, but we have rough estimates of the output of a single parcel dedicated to garlic. Farmers could own many parcels, so the purpose of this estimate is to show the amount of money a farmer earns from a small parcel of land. In a parcel 3m x 25m in size (the size of a parcel we were shown), a farmer could produce 150kg of garlic in a typical year, perhaps 200kg in a good year. A farmer would have planted about 16kg of seed to produce 150kg of garlic (1 kg seed = 9 kg product). (Usually, farmers store a portion of last year's garlic for the next year's seed). According to a village leader, the price of garlic has fluctuated greatly: from 1250 CFA per kg in the 2007 season to 350 CFA per kg during the 2008 season. Thus, a farmer earned approximately 52,500 CFA (150kg • 350 CFA per kg) from this plot of land.

The price of seed potatoes would be higher than garlic, but it is difficult to predict an exact amount because of the absence of Malian seed potatoes on the market. However, the price for imported Belgium seed potatoes is 1,000 CFA per kg. With out the knowledge of how much land is needed to produce a kg of seed potatoes, we are unable to compute the earnings from a 3m x 25m parcel of land.

Farmer's awareness of market price

In our interviews with Arthur McCollum, Katie Lazdowski and Kris Hoffer, we were told that farmers across Mali, including Borko, often sell at a bad price because they do not know the market price for their goods. However, this does not seem to apply to farmers in Borko. The majority of them knew the prices set in Bamako and other major cities, either from selling at these places themselves, hearing from someone who knows the price, or phoning someone in Bamako.

Farmer's selling tactics

Farmers sell their crops in three ways: the most common is when farmers sell to business people who take them to cities including Bandiagara, Mopti and Bamako. This option is available to all farmers although we found they usually get a lower price for their crops. In order to receive a higher price for their goods, some farmers also take their crops directly to these larger markets themselves. Improved road conditions have made it possible to transport more fragile crops, such as sweet potatoes. Not all farmers are able to do this, because some have no means of transportation. The final selling option we found were farmers selling directly to other village residents. Most farmers sell year-round and until their stored goods run out, but usually only when they need the income.

Importance of Diversifying Cash Crops

The majority of farmers and leaders emphasized the importance of garlic as being the most vital crop. However, the main reason for this citation was the income provided by garlic. When it came to the most important crop for nutritional reasons, other crops, usually sweet potatoes and millet, superseded garlic. Farmers also complained about the high level of care needed for garlic, and the falling price of the crop as it becomes a more common crop across the region. This highlights the importance of providing an alternative crop that is both more profitable and nutritious. Farmers are willing to set aside land for potatoes, and seem to have no problem changing which crop they grow. However, farmers also told us they would be willing to dedicate all of their land to potatoes, which may compromise our hopes for a more diverse crop output.

Village Support and Inequality

Village wide support for the seed potato enterprise is essential. Therefore, it is necessary to involve as many people as is possible, to ensure that not only a select few will benefit from seed potatoes. Inequality already exists, both in income and land, and the success of only a few could exacerbate this discrepancy. To avoid this potential obstacle, extra care should be given to the distribution of seed potatoes.

The misconception of Borko's abundant natural resources was highlighted by the village leaders and elders. Fertile land and natural springs are known to aid the Borko region in cultivation, giving the perception of a rich and financially stable community. However, the village still deals with issues of malnutrition and food shortages. The economic framework of the village necessitates the proper allocation of the limited amount of land. As was mentioned throughout our interviews, population exceeds crop production. Therefore, the seed potato project must weigh the implications of altering one of the village's main sources of income with the potential gains that may come from growing seed potatoes. Since garlic and the seed potato are both dry season crops, a substitution would almost certainly occur. The economic impact from this transfer could be highly profitable, by both bringing higher incomes and better nutrition, but the limited amount of land may also have a latent effect on Borko's delicate economic structure.

Social Assessment

This section summarizes the social suitability of Borko as a site for the pilot seed potato enterprise. Social assessment refers to an analysis of social relationships, social structures, and social institutions. While it is not possible to get a full picture of the social structure of a village in a short site visit, we are prepared to comment on a selected subset of issues regarding Borko's social suitability as a site for the pilot seed potato enterprise.

There appears to be a dual hierarchy in the power structure in this community. The first is the traditional power structure with the elders at the top of the hierarchy of the village and the chief of the family at the top of the hierarchy for each family grouping. The second is the administrative power structure of the Malian governing structure (primarily, the mayor's office). The traditional power structure seems to be quite strong; appearing to have a "consensus" or "consultation" process built into it that, along with clear lines of ultimate authority, seems to ensure that when a decision is reached, everyone will adhere to that decision. In this case, both the elders and the mayor's office appear to be very supportive of the seed potato enterprise. Therefore, it is likely that there will be no issues of some segments of the community trying to undermine or subvert the project in any way.

Having said that, however, it must be noted that outsiders to the village with whom we spoke noted that there are some political divisions in Borko, and there is an upcoming mayoral election where the current mayor will not be running for reelection. Therefore, there is the possibility that the new mayor would not be as supportive of the project as the current mayor. Additionally, since all but one person we interviewed was selected by the mayor's office, it is possible if not likely that the impression we received that everyone is supportive of the seed potato is colored by this selection of respondents.

As was noted in the economic assessment above, there appears to be some degree of economic inequality in Borko. The selection of farmers who will participate in the pilot seed potato project is a concern to village leaders. The selection process has to be done in conjunction with the two power structures in the community - the elders and the mayor's office. It may be an exaggeration to say the seed potato project is being seen as a ticket out of poverty but it seems clear that hopes are high and participation in the pilot may be a scarce resource over which there may be some conflict.

We saw no evidence that the pilot seed potato project would affect or be affected by religious institutions in the village.

In terms of patterns of daily living, it was observed that all members of the village have reason to go to the fields. Women take food to the men in the fields at lunch time and sometimes stay to assist with some aspects of the work. Children often go out in the field areas to oversee the grazing of animals or to assist with getting wood. Thus we believe that everyone in the village would need to be trained in the protocol for growing disease-free seed potatoes.

There are no existing educational structures in place for adult education or training. Some farmers we spoke with were more individually-oriented than we expected and much of the

farming work was done much more individually than we expected. With that said, however, the generally more communal orientation of the people we met in Borko -- particularly in terms of family -- would seem to provide a good basis for training in the protocols needed for successfully growing disease-free seed potatoes. Initial quartier-based informational and consultative meetings followed by group meetings with farmers who will be participating in the pilot program and then, finally, individual hands-on training for each farmer should be implemented.

Since informal farmer associations, that require some financial commitment, already exist in Borko, it is likely that moving to the next step of having an officially registered association(s) should be possible. It appears that the mayor has already started this process, although we never met directly with the mayor. Technical assistance with the process could possibly come through the two government officials from Bamako currently assigned to Borko.

If women were required to move their washing activities to other areas (that is, not next to the water sources), we think this would create a large burden and thus this requirement is unlikely to be followed. Developing a large washing facility at each end of the town with a purification system for the water leaving the facility would be an alternative, but that would require significant funding.

Cultural Assessment

This section summarized the cultural suitability of Borko as a site for the pilot seed potato enterprise. Cultural assessment refers to an analysis of norms, values, and beliefs. It must be noted that in a six day site visit it is not possible to become familiar enough with a culture to comment knowledgeably or draw firm conclusions. In this case this is particularly true for two reasons. First, the background preparation we completed on the Dogon culture did not seem to apply to Borko. Second, the communication barriers and the need for multiple-level of translators did not allow for the nuanced communication needed to understand another culture in any depth.

Having said that, however, we are fairly confident in stating that the culture of those we met and interviewed in Borko would support rather than undermine the pilot seed potato enterprise. The people of Borko appear to be “culturally ready” for piloting the seed potato enterprise. Some farmers have grown table potatoes in the past and they have an “institutional” memory of this. They have a history of changing the crops they grow when new crops appear to be more profitable.

When we talked to the program assistant for small enterprise development at Peace Corps Mali he said that one problem among farmers in Mali is that they often do not think like business people; he said they can farm for 20 years and have no idea whether they have made a profit. This is definitely not the case with farmers at Borko, Many that we spoke with have a clear identity as a business person. They are approaching this pilot as a business enterprise, which seems to be exactly in line with Madame Thera’s expectations.

Many people in Borko seem to have a favorable impression of change (at least when it comes to farming). For example, the majority of the farmers we spoke with were interested in learning about different ways to improve the soil. Likewise, they have an understanding of their farming tools as “old fashioned” and express an interest in more modern farming technologies. There is some evidence of actions that support this conclusion as well. For example, when the Ngo GSTA was trying to encourage the growth of new types of trees for Biodiversity and nutritional reasons, there were numerous volunteers in the village who were willing to offer a parcel of land to start a nursery.

There are several cultural features that need to be noted as areas to watch. The first relates to the crocodiles in the village. Should it later prove that the crocodiles are a vector for transmitting microorganisms to the water and seed potatoes, this will be very problematic. Locating the pilot potato gardens far from the main crocodile areas would be desirable.

The second major issue is the concept of water cleanliness. Everyone said that the water in Borko is very clean. Although we did not explore this issue in depth, several pointed to the clarity of the water at the source with pride. However, as noted in the field observation report, laundry and bathing takes place right next to the source and before the water is diverted to the irrigation canals. Additionally, we saw weeds being tossed into the canals. Since Madame There noted that weeds may be possible carriers of harmful bioorganisms, this is a problem even if the weeds are removed from the canals by the end of the day. Animals grazed near canals and

it is likely that feces and urine enter the water. The matron told us that practices she taught in a water purification training she offered women was adopted by about half the participant. If in fact wells are dug by the potato fields, these problems associated with notions of water cleanliness could be avoided. They already seem to have an understanding of and employ some mechanisms to “shield” the source from large trash and animals.

Similarly, cleaning of the tools involved washing them off with water only and was done at the end of the day, not in between working with different crops. Composting practices were uneven, with some farmers saying they take all waste and put it back on the fields, one saying he burned problematic waste and put the ashes on the fields, and one farmer saying he destroyed dead plants but left sick plants in the field.

Finally, we should reiterate that coming into the village as strangers who cannot speak the language, people may not have fully answered all our questions and we may not have fully comprehended their answers. For example, the village leaders and some farmers said they would have no problem putting a hole in a mountain for storage of seed potatoes (although some expressed doubts about the security of doing so.) But when two students asked about climbing a mountain early one morning they were told not to do it on the mountain right behind the guest house (the Northwest ridge closest to the village) because it had religious meaning. We therefore conclude that consultation with the villagers take place before any technical decisions about the project are made. They are likely to be numerous other issues that did not come to light in our interviews that need to be taken into account.

S.W.O.T.: Strengths, Weaknesses, Opportunities and Threats

While much of the information in this S.W.O.T. analysis can be found in other portions of this report, it can sometimes be helpful to see this information summarized in this useful strategic planning format. We are using the S.W.O.T. format to evaluate the suitability of Borko as a site for the pilot seed potato enterprise.

Strengths

- Physical characteristics: seemingly fertile soil, plentiful water, high water table
- People supportive of the project
- Farmers are knowledgeable, hard-working and experienced at growing various crops
- Dedicated population - will commit to a successful enterprise
- Business orientation of the farmers
- Road completed for easier transport

Weaknesses

- Physical Characteristics: Little land on which to expand; seed potatoes will have to replace other crops
- Farmers do not have any specific knowledge about growing seed potatoes
- Tools are very basic making gardening very labor intensive
- Misconceptions and lack of information about the pilot seed potato enterprise
- Lack of workers (young people leaving the village)
- Expectation for direct assistance
- Tomatoes are grown in Borko

Opportunities

- Much enthusiasm for the project that can be harnessed
- Women expressed interest in growing potatoes themselves - meet need for workers
- Variety of NGOs providing network of assistance - can collaborate
- Tourism expected to increase with new road - may lead to more money to help in early stages of potato enterprise

Threats

- Without early success, people may search for alternative crop
- Poverty may not allow some farmers to wait for several generations of potatoes
- Project delays may mean farmers lose interest
- If the price of seed potatoes goes down, seed potatoes may generate less money than garlic (and farmers switch again)
- Biodiversity efforts of other NGOs could bring in plants that transmit bacterial wilt
- The dominant farmers in the village could try to dominate the enterprise
- If another source of seed potatoes emerges, the Borko farmers may use that source (e.g.

Moumouni Kone said that Burkina Faso and Niger were asking to start their own potato labs because impatient with the pace of development in Mali)

Project Process Issues

Although our task was to assess the social suitability of Borko as a site for piloting the seed potato enterprise, several notable items came to our attention during the course of our site visit. Because how these issues are handled could be crucial to the success of the seed potato enterprise, we would like to address them here.

First, some people in Borko think they will be growing potatoes for consumption rather than seed potatoes. It is also not clear that people understand that the potatoes will always need to go through the cycle of generations before they can be sold.

There is a concern among some in the village, especially among the village leaders and elders, regarding how the first seed potatoes will be distributed. They want to know what the procedures will be for deciding this.

Some people, especially some among the village leaders and elders, expected the project would be much further along than it currently is. They want to know what is going on; more frequent communication with the village is essential. People in Borko appear to have a great deal of experience working with agencies and have certain expectations for how things should proceed; these are not being met. Some of the village leaders were dissatisfied with the lack of progress. When we tried to explain that the project was starting small and that the next steps would include consultation with elders and a broader consultation with the village, people seemed satisfied. But we faced many questions that needed be answered by the Mali Agribusiness Center members, not us. The sooner this general consultation and the specific details of the seed potato implementation plan can be communicated, the more likely the enterprise will be successful. The people of Borko seem patient at the moment, but this may not always be the case.

Lastly, and most importantly, the people of Borko have extremely high hopes for the seed potato project. The price of garlic has dropped, the market for the small-sized garlic they produce has declined and many seem to be pinning their hopes for their future economic wellbeing on seed potatoes. In an informal conversation with one of the team members, people shared their plans with for what they are going to do with the money that they made from seed potatoes: “go to the US;” “get an education;” and other grandiose intentions. Others simply told us they didn’t like garlic and could not wait to plant potatoes. Earlier discussions of the seed potato enterprise have raised people’s expectations a lot. We believe the enterprise is at risk for disappointing a lot of people, unless some small success is produced soon. The people of Borko need tangible evidence to prove their high hopes have not been for nothing.

Recommendations

We offer the following recommendations based on our data and assessments.

- That Madame Thera's next site visit should be as soon as possible, but definitely before the spring mayoral election when the support base for the project may change. At this site visit the following should occur:
 - Information seminars should be held in each of the five quartiers to ensure that everyone in the village has information about the seed potato effort, providing the opportunity to have inquiries answered and presenting a projected timeline for the enterprise; an emphasis on the project's small scale start should also be addressed.
 - The process for deciding who will participate in the pilot seed potato enterprise be decided in conjunction with the elders and other village leaders;
 - After the above is completed, the decision needs to be made about who will be the participants in the pilot project
 - Plans for training and implementation of the project be discussed with those who will be participating in the project (this should include the timetable for digging wells, so they can be in place before November);
 - The procedures for evaluating the success or failure of each step of the seed potato enterprise be discussed with the farmers so they know in advance what the possible outcomes might be;
- That before this site visit Madame Thera construct a plan for training that can be implemented prior to the scheduled November planting time
 - That the training be as "hands-on" and concrete as possible;
 - That the training include visual depictions of important aspects of the protocol; for example, pictures of different diseased plants compared to healthy plants and pictures of acceptably "shriveled" stored seed potatoes compared to stored potatoes infected with microorganisms;
 - That the training includes a segment that informs farmers and villagers on the importance of cleaning tools and keeping a clean water source.
 - That the two Peace Corps volunteers be consulted for additional training suggestions.
- That before this site visit the Mali Agribusiness Center construct a feasible time-line specifying all the tasks that need to be completed in order to have seed potatoes ready for planting in Borko in November 2009;
 - The time-line should include details regarding how many mini-tubers will initially go to Borko, a plan of how the project will expand , when training will take place, how the planting and plants will be monitored, how the next generation will be stored when they come out of the ground, when they will go back in the ground for the next planting; when the certification process needs to be in place, what the transportation plan will be, as well as any other steps specified by Dr. Owen's fall 2008 class reports.

- This time-line should be constructed by the Center in order to ensure that all parties who are involved in the seed potato enterprise work effectively.

Other recommendations include:

- Devise a plan for more consistent and ongoing communication with Borko about the seed potato enterprise. This will avoid the potential problems that could arise when technical decisions are made without community input. (Deciding where the storage locations in Borko will be a good example of this.)
- Involve all of the Borko community, including women and children, in the planning and protocols for the seed potato pilot program, so that no one inadvertently undermines the program with accidental contamination.
- Devise a plan for more consistent and ongoing communication among the Mali Agribusiness Center members, particularly among those who are central to the pilot seed potato enterprise.

Conclusion

Madam Thera has done an excellent job of convincing leaders and farmers in Borko that the seed potato venture will be a way to increase the income of people in the village. The people we talked to are anxious to begin growing seed potatoes. The next steps are to join with people in the village in making the decisions about the specifics of this enterprise so people can begin planting seed potatoes in November 2009. Hopefully the data, assessments, S.W.O.T., concerns and recommendations included in this report will contribute to the success of this endeavor.

Acknowledgements

We would like to thank all the wonderful people in Borko who so graciously welcomed us and so generously shared their time and knowledge. Everyone in Borko was extremely helpful. We would particularly like to thank Souleymane Kassambara, Maimouna Kassambara, Mboussa Kassambara, Issa Kassambara, Lala Sedebete, and Koundia Kassambara. They dedicated an enormous amount of time to the project, for which we are very grateful.

We would like to thank our fantastic French team colleagues who patiently and expertly translated for us throughout the project -- which was especially impressive given the specialized subject matter.

This project was made possible by a USDA Higher Education Challenge Grant and we are very grateful for their support. Special thanks go to Professor Florence Dunkel, the Principal

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We thank Daouda Timbely for his help with Dogon and Bambaran translation and thank our wonderful drivers, Adema Karembe and Tahirou Kouyate, for all of their help and good cheer.

Finally, we thank all of our colleagues in the Mali Agribusiness Centre: Belco Tamboura, Sidy Ba, Aissata Thera, Abdoulaye Camara, Keriba Coulibaly and Adema Berthe, with special thanks to Aissata for making this opportunity possible. We hope our project contributes in some small way to their important work.

Appendix A – Procedures

The Questionnaires

The sociology team initially prepared three questionnaires: one for farmers that focused on daily life, one for farmers that focused on other general farming issues and one that was designed for the village leaders. Belco Tamboura reviewed these during his visit to the University of St. Thomas in December and his feedback was incorporated in questionnaire revisions. We had planned to pretest our questionnaires in Sotuba, but were unable to do this. In our meeting in Bamako on January 10, Borko Peace Corps volunteers Katie Lazdowski and Arthur McCollum suggested that we have separate questionnaires for men and women, and told us that only the men did farming. We revised our questionnaires accordingly and were able to print out a few copies of the new questionnaires. The French students changed the translations. Madame Thera provided feedback on the questionnaires when we arrived in Bandiagara: these changes were added by hand to the questionnaire copies. Additional questions were added and deleted during the first few interviews, so not all interviewees were asked the same questions.

Borko Site Visit

The Sociology team and the French team (Cynthia Clarke, Danielle Lecorps and Professor Ashley Shams) were in Borko for approximately six days. The teams arrived on January 12, accompanied by Madame Thera, who made the arrangements for our stay, both for our housing and the logistics of the interviews. Madame Thera departed the next day. The teams departed on January 15 and returned again on January 18 and stayed until the 19th. During this time the teams interviewed 7 farmers (male), conducted three group interviews with village leaders (male), interviewed the matron and grand matron (female), interviewed one small group of women, spent four hours walking through the fields, and had many evening conversations with staff from the mayor's office (especially Souleymane Kassambara and Mboussa Kassambara) and with two government functionaires who had recently been assigned to Borko from Bamako (Lala Sedebele and Ousmane Kouyate).

Additional Interviews

The teams held meetings with seven individuals from two NGOs and the Peace Corps. These included: Kris Hoffer and Macki Cissoko of the Peace Corps headquarters in Bamako; Katie Lazdowski and Artie McCollum, the two Peace Corps volunteers stationed in Borko; Allaye Karembe of Global Sustainable Tourism Alliance (GSTA) in Bandiagara; and Moumouni Kone from Association D'Ille Vilaine Mopti (AIVM) in Severe.

Sample Bias

All individuals interviewed in Borko were selected by the deputy mayor, Souleymane Kassambara, with the exception of Mariam Kassambara, who we specifically asked to interview. Thus we are not able to assess whether our findings are representative of people in the village in general. Additionally, the deputy mayor was present -- and serving as one of the translators -- for many of the interviews. Thus, it is very likely that our findings disproportionately reflect the views of members of the mayor's office.

Translation Issues

It must be noted that the sometimes six way translation -- English to French to Dogon or Bambaran and then Dogon or Bambaran to French and then English -- no doubt meant that information was lost or changed slightly in the process. While the nuances of communication were surely missed, we hope the core of each person's responses was captured.

Work Pace

We expected to complete about two or three times the number of questionnaires than we actually did. We based our expectations on the amount of time needed for a single interview, and knowledge of other social scientists' success with interviews in similar situations. However, we didn't have first hand knowledge of interviewing in Borko itself. Because it had been arranged for us to work through the mayor's office, they made all the interviewing arrangements. This was a very important advantage in terms of the interviews with the village leaders and elders, to whom we may not have been able to speak without the assistance of the mayor's office. However, there was also some miscommunication, double booking and delays which reduced our work time.

Appendix B -Questionnaire Templates

1. Farmer General Questionnaire (Male)
2. Village Leader Questionnaire
3. Questionnaire for Women

Questions for Borko Farmers - Men

Date:

Time begin: Time end:

Interviewers:

Translator:

Respondent(s):

Gender(s): Male Approx. age(s):

Location: Borko

Thank you very much for speaking with us today. We are very grateful to you. We'd like to introduce ourselves..... We are working on a seed potato project with the Mali Agribusiness Center in Bamako, of which Madame Thera is a member. The project is part of the Institut d'Economie Rurale (IER) in Sotuba and the Institut Polytechnique Rural de Formation et de Recherche Appliquée (IPR/IFRA) in Katibougou. We are from the University of St. Thomas in the United States.

As you probably know, we are here in Borko because the village is going to begin growing seed potatoes, to see if this is a crop people want to continue to grow. Madame Thera has been here before and found the soil and the water are very good for growing seed potatoes. We would like to ask you some questions about how you farm, what crops you grow and how things work in the village. We are interested in seeing how growing seed potatoes might fit in with your daily life.

First, we would like to ask you some questions about farming.

1. Have you planted potatoes before?

2. The seed potatoes would need to be planted in the cold season. Can you describe what you would do during a typical day in the cold season? Please start from the time you wake in the morning and tell me everything you are likely to do until you go to sleep in the evening.

3. What different types of crops do you plant?

4. What is the most important crop?

5. How do you choose what crops you will grow?

6. Do you ever need help in the field?

7. Who performs the different aspects of farming (such as clearing the fields, planting, weeding, harvesting)?
8. Do you belong to an association?
9. Where do you grow your crops?
10. Are all your crops planted in the same area or do you plant some crops in one area and other crops in other areas?
11. Do you grow the same crop on the same plot every year, or do you change it?
12. What kind of tools do you use in farming (for planting, weeding, harvesting, and clearing the land)?
13. Do you clean the tools and can you explain how you do this?
14. Do you grow any crops during the dry season?
 - a. What?
 - b. Where?
 - c. How do you water these crops?
15. Do you have any problems with crickets (grillon) or other pests?
 - a. Is there anything you do to get rid of them?
 - b. Are there different techniques for handling problems with different crops?
16. Do you ever apply fertilizer to your crops?
17. How do you choose which to use?
18. Would you be interesting in learning more about how to improve the quality of the soil?
19. When you clear the fields, what do you do with the waste materials?

We'd like to ask you about your thoughts on growing seed potatoes. In order to continue get the highest yields from the seed potatoes, there are certain practices that must be followed. We'd like to ask you about these.

20. Seed potatoes can't be grown near some plants, such as tomatoes and peppers. If you were to grow seed potatoes, would you be able to grow them away from these other types of plants?
21. Farmers need to watch the seed potato plants carefully, and if some of the plants appear to have a disease or not be growing correctly, these plants need to be destroyed. Is this something you already do with your other crops or is this a new idea for you?

(If new) What do you think of this idea?
22. Would there be a problem with digging a well where the seed potatoes will be planted?

We'd like to ask you a few questions about what you do with your crops.

23. Do you store most of your crops for use by your family?
24. How do you store your crops?
25. Do you ever sell your crops for cash? If so, which ones?
26. How do you know what price to sell at?
27. How do you know the price at which to sell your crops?
28. How often do you sells crops?
29. How much money do you make in a year?
30. If an outsider came to Borko to farm, would he face any challenges?
31. Are there nearby villages that want to grow seed potatoes?

Questions for Village Leaders

Date:

Time begin: Time end:

Interviewers:

Translator:

Respondent(s):

Gender(s): Approx. ages:

Location:

Thank you very much for speaking with us today. We are very grateful to you. We'd like to introduce ourselves..... We are working on a seed potato project with the Mali Agribusiness Center in Bamako, of which Madame Thera is a member. The project is part of the Institut d'Economie Rurale (IER) in Sotuba and the Institut Polytechnique Rural de Formation et de Recherche Appliquée (IPR/IFRA) in Katibougou. We are from the University of St. Thomas in the United States.

We are here to learn more about your village, to ask about your farming practices and talk to you about growing seed potatoes. We know that you have met with Madame Thera and that she has tested the land and the water and found that it will be very good for growing seed potatoes. We are here to learn from you about the crops you grow now and to see how growing seed potatoes can be part of this – and to hear from you what you would like to see happen.

First, we'd like to ask you some questions about the crops that you grow now.

1. What are the main crops that are grown here?
2. What would you say is the most important of these crops?
3. Are all the crops grown for the villagers here to use or are some sold outside the village?

[If sold outside the village] When crops are sold outside the village, how is that done? Do buyers come to the village or do you transport the crops yourselves. Please explain.

4. What would you say is the biggest problem that you have in the village in terms of growing crops?

Are there any other farming problems?

We'd like to ask you some questions about the land used for growing crops.

1. Do families own the land? Does it belong to the whole village?
2. How is the land worked – by families or by the whole village or some other way?
3. Who decides what crops will be grown on the land?
4. Who makes the decisions about farming such as when to plant and when to harvest?
6. Do people in the village own livestock?

What types of animals?

Do most people own some livestock or only some people?

What land is used for the animals to graze?

How do you keep animals away from the crops?

Can you tell us a little bit about what your hopes are for growing seed potatoes?

1. What are you hoping the benefits of growing seed potatoes will be for the village?
2. If it takes a few growing seasons to get the potatoes ready to market, do you think the villagers are going to be able to wait?
3. There are different farming practices that need to be followed to have the best outcomes for growing seed potatoes. What do you think would be the best way to do this training?
4. Do you have any concerns about growing seed potatoes?
5. Do you think growing seed potatoes will change the community? If so, how?

Just a few more questions...

1. Is there anything else we need to know about the village in order to help you prepare to grow seed potatoes?
2. Do you have any questions for us? (We may not know the answer, but we can find out and let you know the answer.)

Questionnaire for Women

Date:

Time begin: Time end:

Interviewers:

Translator:

Respondent(s):

Gender(s): Approx. age(s):

Location:

Thank you very much for speaking with us today. We are very grateful to you. We'd like to introduce ourselves..... We are working on a seed potato project with the Mali Agribusiness Center in Bamako, of which Madame Thera is a member. The project is part of the Institut d'Economie Rurale (IER) in Sotuba and the Institut Polytechnique Rural de Formation et de Recherche Appliquée (IPR/IFRA) in Katibougou. We are from the University of St. Thomas in the United States.

As you probably know, we are here in Borko because the village is going to begin growing seed potatoes, to see if this is a crop people want to continue to grow. Madame Thera has been here before and found the soil and the water are very good for growing seed potatoes. We would like to ask you some questions about how you farm, what crops you grow and how things work in the village. We are interested in seeing how growing seed potatoes might fit in with your daily life.

- 1. Can you describe what you would do during a typical day in cold season? Please start from the time you wake in the morning and tell me everything you are likely to do until you go to sleep in the evening.**

[Possible probes]

When do you arise?

About how long would you do that?

Who is with you during this activity?

- 2. Do you get your water for drinking from the same source that is used for irrigation?**

Where do you get your water?

About how long does it take to get water?

- 3. Where do you wash clothes?**

Do you think this makes the water not as clean?

- 4. Do you have other activities to earn income for yourself?**

Appendix C - Village Leader Group Interviews

1. Village Leaders Group 1 Part 1 January 12
2. Village Leaders Group 1 Part 2 January 13
3. Village Elders Interview January 14

Appendix D - Farmer Interviews

1. Tai Kassambara January 12
2. Ama Ongoiba January 12
3. Moussa Kassambara January 13
4. Mamoudou Therie Kassambara January 14
5. Issa Kassambara January 14
6. Drissa Kassambara January 14
7. Hama Kassambara January 14

Appendix E - Interviews with Women

1. Interview with Mariam Kassambara (the matron) and Akayo Kassambara (the grande matron)
January 14

2. Interview with Halme Kassambara, Maimouna Kassambara (joined by the grande matron and Sadio Kassambara) January 15

Appendix F - Informational Meetings with NGO and Peace Corps Staff

1. Kris Hoffer and Macki Cissoko, Peace Corps Mali Headquarters, January 9 (in Bamako)
2. Katie Lazdowski and Artie McCollum, Borko Peace Corps Volunteers, January 10 (in Bamako)
3. Allaye Karembe, GSTA, January 15 (in Bandiagara)
4. Moumouni Kone and Laure Guinot [not sure of last name], AIVM, January 15 (in Sevare)

Appendix G - Borko Garden Observations

Inspected Fields and Collected Water and Soil Samples

We left for a tour of the fields and gardens of Borko and to collect three water and soil samples for Aissata. Present were Issa, a farmer we had previously interviewed, Souleymane, Mboussa, Lala, Daouda (translator), Ashley, Susan, Nate, Andrea, Luis, Cindy and Danielle. We left at 9:10 (by car), and were dropped off near our first destination point at 9:24. We walked through numerous fields on our way back to the village proper, arriving back there at 12:30 p.m. Documentation for the sample locations and procedures is in a separate report.

Saw the rice fields and some millet fields unplanted at this time of the year. Garlic and onion were the most common crops we saw, and some fields were at different stages. For example, we saw some farmers who were dividing the onion to multiply it, while others were not yet at that stage and others were past that stage. We saw some garlic they said would be ready to harvest in a bout 15 days. Issa's fields were among the farthest fields and he gave us a large bunch of onions as a gift. Most of the farmers we saw were working alone in their fields. Occasionally we would see two men working together or very near each other. However, we saw one group of 13 men who were turning the soil of one parcel of land. Souleymane said they would be done that task today whereas if one man was doing that alone it would take 9 days at least. We saw one field that was partially turned and the farmer was not there, and Souleymane remarked that the farmer had had to abandon the job for now.

At one point we passed rice fields that had been harvested but they were partially filled with water and Souleymane said that the water table was very high here. At another point we saw about 6-8 men pounding the rice stalks that had previously been harvested.

As per our interviews we saw numerous piles of what appeared to be waste on the edges of the fields. However, one pile that Issa showed us was actually the stalks of manioc that would be broken off in pieces and would be planted to grow new plants. He pointed out where the roots would emerge. We saw one man weeding his field and throwing his weeds in the irrigation canal (although he could have removed them - and probably did - later in the day).

As obvious from the photos we took, all the parcels of land are small and trees are interspersed through most of the fields. The irrigation canals are no further than three meters apart as half of that is the distance the calabash of water can be tossed. Taro and manioc are grown on the sides of the canals by some of the farmers, but not all. The taro grows as tall as a small child (they pulled over some children to show us) and they said it does not shade the garden much. The paths between some of the parcels of land have different kinds of bushes and trees. Cotton plants were along many of these paths, as were some berry trees (looked like small crab apples, juji possibly) other nut trees, and even a lemon tree. I asked whether any of these trees had been planted and they said that they all grew naturally.

Some of the water in the canals, especially in the area near the farthest fields, didn't look very clear - some was milky and some seemed to have an oily film on it. (see photos). We saw animals walking in the canals. Animals are also sometimes tethered by the canals so there is the possibility of waste runoff into the canals. The water in other canals looked very clear. But

women seemed to be washing clothes at each of the sources we passed. They don't wash in the source, which is always surrounded by concrete and sometimes covered with some type of grid. But they wash right next to it, before the water is diverted to the different fields. We noticed some trash in the sources and a larger amount next to the sources. Temporary dams are built and removed to divert water from some fields to other fields.

About half way between the farthest field and the village we saw a donkey enclosed in an area about 15 feet by 25 feet and we were told that the donkey there was kept there to make manure. We wondered why people did not collect the animal feces throughout the village and place it there (since we had heard there was a shortage of manure).

Appendix H - Soil Sample Procedures and Answers to Aissata's Questions

Requests from Aissata Thera - and Outcomes

Call received Saturday morning January 17, 2009 (received while we were in Mopti)

Water and Soil Samples:

Aissata asked us to bring plastic bags to take 3 different soil samples and 3 different water samples (each one-quarter liter or less) when we get to Borko.

We did this on Monday January 19, 2009.

1) Sample No. 1 - Marked Ndiamine and with a triangle

The first sample was taken from a source far from the village proper (we left in the vehicle at 9:10 am and arrived at the drop off point for the field at 9:24 am, and then walked about 15 or 20 minutes to the site. I wanted to take a sample from one of the irrigation canals but Souleymane and Mboussa wanted to take the sample from one of the water sources. So we did this at the source named Ndiamine, where three springs actually come together. The sample was taken close to the source, from an area before the area the women were doing the laundry. The soil sample was taken from a field about 20 meters away, and appears to be irrigated by water that is past the laundry area (the washing was being done right next to the source).

Sample No. 2 - Marked Saber and with a square

2) The second sample came from an irrigation canal about a half hour's walk (back towards Borko) that was near to the side of the road (see Nate's Photo No. 902). The soil came from about 7 meters away, which was roughly about 100 meters from where they used to grow potatoes.

Sample No. 3 - Marked Bangakoubou and with a filled in-square

3) The third water sample came from Bangakoubou water source, which is nearer to the village proper, across the fields from where the guest house was located. The soil sample came from nearby.

Questions to Ask:

Aissata also asked us to ask the following three questions. The answers to the questions were given by Souleymane, Mboussa and Issa, a farmer who had been interviewed earlier and came with us on our walk to see the fields on January 19, 2009

1) How many kg of seed does it take to produce one ton of garlic?

Answer:

You plant 1 kilo to get 9 kilos (so up to 100 or 115 to give you a ton) . They calculated that on the spot.

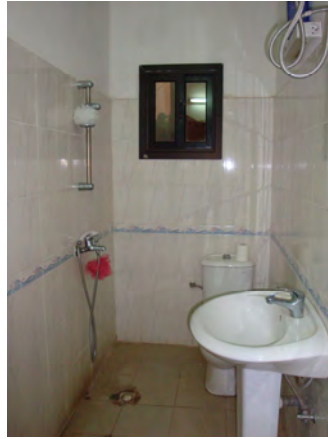
2) How many kg of garlic are produced per hectare?

Answer: They don't measure land area that way so they can't say. However, in one typical sized parcel of land that is about 3 meters wide at the widest and about 25 meters long. The farmer said he would produce about 200 kg in a good year and 150 kg in an average year.

3) What is the total land for gardening in Borko?

Answer: They don't know. Madame Thera should contact the agricultural agent in Bandiagara for that information.

9.0 Appendix B: pictures of lodging accommodations for future team reference



Apartments in Bamako (above)

350,000CFA per month for 2 bedroom (we had two)

500,000CFA per month for 3 bedroom (we had one)

Deposit of 300,000CFA (mostly for electricity –approximately half was returned to us after the walk-through)



Accommodations in Borko. Building has a generator (you can pay for gas to run it). No running water.