

Draft

Executive Summary and Recommended Next steps, Summary and  
Detailed Recap of the Discussion  
from  
Belize Open Source Sustainable Development  
Brainstorming Meeting

February 22, 2008

At Muffles Junior College  
in  
Orange Walk Town, Belize

Prepared by:

Pat Coyle,  
Belize Open Source Sustainable Development  
March 14, 2008



Site visit: At caretaker's residence - Adrian Leiva, Pat Coyle, Marion Cayetano, and Vicente Tuyub. Photo by Osmany Salas



Planning session - Muffles Junior College: Osmany Salas, Adrian Leiva, Natalio Soliz, Vicente Tuyub, Marion Cayetano



Muffles Junior College: Natalio Soliz, Vicente Tuyub, Marion Cayetano, Pat Coyle, Adrian Leiva

## **Introduction**

The following provides an executive summary and recommended next steps, summary and detailed recap of the discussion from the Belize Open Source Sustainable Development brainstorming meeting held February 22, 2008. The participants included:

- Marion Cayetano, Vice President-Planning, Galen University
- Adrian Leiva, Dean, Muffles Junior College
- Natalio Soliz, August Pine Ridge
- Vicente Tuyub, Orange Walk District Agriculture Extension Officer
- Osmany Salas, BelNaRM Strategies
- Pat Coyle, Belize Open Source Sustainable Development

Invited, but not able to attend were:

- Edilberto Romero, Executive Director, Programme for Belize (PFB)
- Javier Moreno, President, Rotary Club-Orange Walk
- Belarmino Esquivel, Orange Walk District Agriculture Officer (sent representative)
- Cecilio Pech, Principal, Belize High School of Agriculture

The meeting announcement and invitation provided background information and the purpose of the meeting (See attachment B). The meeting was conducted per the agenda (See attachment C).

Briefly, the purpose was to meet with key members of the educational and agro-environmental sector to discuss and explore ideas for the development of the Belize Open Source property in collaboration with key stakeholders. The intention was to identify next steps to initiate programs and collaborations to include others in sustainable education and development initiatives.

## **Executive Summary and Recommended Next Steps**

There was agreement that it is important to think through goals at various scales, be clear about immediate goals, and formulate intermediate and longer term vision and goals, along with more focused near-term plans. The overall collaboration may well evolve in ways that the originator does not yet even anticipate. There was agreement for the need to categorize objectives as immediate, short term, intermediate, and long term. This draft has not yet categorized the ideas discussed, with the exception of the recommended immediate next steps described below.

There was a recommendation to develop a concept paper as the framework to outline project elements, identify where more specific projects could fit in finer detail, design project profiles for the elements, which could be then be developed into specific

## Draft

proposals. Pat Coyle and Osmany Salas have an action to prepare this for distribution to the group.

### **Immediate next steps**

In parallel with development of the concept paper and longer term planning, Pat Coyle recommends we proceed with the most immediate, concrete idea - partner with Muffles to use the Belize Open Source property to provide practical labs and in-service field training opportunities for students in their new program in environmental science which includes a focus on sustainable development and agriculture.

This would also include partnering with Mary Ann Studer on her Defiance College work in northern Belize which supports community based development. Especially so, since she expressed interest in educational collaboration with Muffles and other educational institutions in Belize and has incorporated assessment of the August Pine Ridge community and the Belize Open Source property in her near-term work plans.

This is an opportunity to identify suitable collaborative programs, curricula, and initiatives that work for Muffles and have a good fit with the property, nearby communities, and the region. It could also include the Belize Agricultural High School in San Lorenzo as well as Galen's interests and the connection between Muffles and Galen. It could also develop links to primary schools to incorporate the curriculum and field experience early.

A specific part of Mary Ann Studer's work is soil testing and identification of improvements. This is an opportunity for collaboration on curricula and field work for students that could provide a practical science-based skill with employment or entrepreneurial opportunities and lead to concrete work opportunities for graduates in the area of providing tailored, individualized soil testing and improvement recommendations for growers.

This initiative would inform the Belize Open Source property site improvements and operations. It could change plans for the property in order to preserve areas of the site as-is to provide "baselines" for monitoring performance improvements achieved by using an integrated natural resource management approach – part of the curricula and field work. It should shape near term plans for the next steps to get the initial operation up and running, as we get the caretaker in place, fence the property, get initial livestock, and start first small projects. Feedback from Agriculture Department indicates using goats and sheep looks feasible as a first activity at the core of a sustainable operation, to improve the property using intensively managed grazing to reduce brush and clean the property in preparation for other uses, as well as to provide a kid or lamb cash crop.

The near term infrastructure needs at the property to support the start of this initiative appear to be minimal. Initially, they might include: additional restrooms; a sheltered space with chairs and tables for student, teacher, and visitor teams to meet, work, and present results; secure storage for supplies and equipment; broadband internet access. Additional needs would be identified as the initiative developed.

## Draft

A Memorandum of Understanding (MOU) between the participants would be used to describe the initiative and formalize access to the property, protocols, and terms and use. There was agreement that it is important to think of the sustainability and continuity of the program and projects from the very beginning; we need to take into account that people may move on as the years go by and take care with this issue from the beginning. I have drafted a straw man MOU as starting point for discussion (See attachment A).

Feedback on this specific recommendation and the rest of this draft document is invited.

### **Summarized points from discussion**

- This group may be most helpful in identifying needs that exist here and how we might think about collaborative approaches to solve those problems and draw on the best talents and strengths to do it.
- The Muffles new program in environmental science with a large focus on sustainable development and agriculture has a need for practical labs and in-service field training opportunities for students. The environmental science program, with an agricultural element, definitely could link up and be enhanced through this initiative. There is a concrete suggestion for in-service training for environmental science.
- The sciences are often so theoretical that even after two-year degree program, students often take other jobs that have nothing to do with science, so it stops right there and they end up underemployed. However, soil testing and improvement curricula and field work for students represent an example of a possible practical science-based skill with employment or entrepreneurial opportunities. This suggests a concrete work opportunity for graduates in the area of providing tailored, individualized soil testing and improvement recommendations for individual growers.
- Linkages to educational institutions will be necessary if Belize Open Source is to have a big impact over the long term. Given the benefits of field work for practical service hands-on training, the property lends itself to such uses. The challenge is how to develop it for such uses.
- The European Union proposal to evaluate economic diversification opportunities and proposals for social and economic service in infrastructure and capacity building in northern Belize as their economies adapt to change will include education and the need for more science, engineering, and agricultural graduates. There are hands-on field experience opportunities that the property and programs there could fit into.
- The property lends itself to making the educational curriculum come to life - more so than at a site with rich soils, where it is easier to be successful. The pine ridge lands are viewed as marginal. If can demonstrate successful activities on the property, there are large areas of such land in Belize that successful approaches could be applied to.
- Mary Ann Studer's Defiance College work in northern Belize supports community based development using an integrated natural resource management paradigm, doing community needs assessments, identifying gaps, opportunities, and measurable objectives across the spectrum from health to education and development. She is interested in educational collaboration with Muffles and other educational institutions in Belize and in joining COBEC. This represents another possible collaboration opportunity if suitable programs, curricula, and initiatives that have a good fit with the property can be identified.
- There are opportunities to connect uses of the property to either existing programs and curricula or develop curricula needed for demonstration projects, as the OAS

agro-forestry project did; with specific courses and also integration of the basic hard sciences and lab sciences. Then can begin to work the combination of education, field station, field demonstration, and educational training opportunities.

- It is also important to consider how the results fit into an economic framework that benefits and is of value to people in the community. We need to show people that they can get improved outputs from the marginal pine ridge savannah lands that are beneficial to them. For example sheep and goats; fish, whether Tilapia or other indigenous fish, but all of these things need to fit into making a difference in the family income.
- Galen has been considering a course set in northern Belize to cover archaeology, anthropology, natural resources, and the Lamanai Mayan site, all as part of a circuit of activities. The Belize Open Source property has the potential to fit in to such a scenario. However issues and logistics need to be addressed including, access to the property, where to stay and eat, how to develop and generate resources and interests, and how to make and keep it active. Galen's relationship with Indianapolis University offers opportunities as well.
- The Belize Agricultural High School in San Lorenzo is close by and could be a potential participant. The principle was unable to attend the session or send an alternate. Follow up will be important.
- Community Mapping, a U.S. based program from the Orton Family Foundation, uses GIS mapping and other technologies to foster deeper connections between students and their surroundings and may be a potential collaboration that could inject resources and add another dimension of training to the scenario.
- At this time, the property is not ideal for a general tourism venture, due to its location and vegetation type. However, it lends it self for a novel/innovative sustainable agriculture educational demonstration program, that could be used by international visitors and benefit local people.
- Other non-agricultural uses, resources, and aspects of the property and the nearby region have value and should be considered. Birding is an example, if you can develop an idea of what kinds of sightings that could be expected it can be an opportunity. In thinking of this property, look at a range of opportunities that exist in the area that development of this site could consider. Ideally should fit in broader development framework, but it really doesn't exist yet. Look at opportunities that exist and in which development of the site for itself or others who live in the area, could be of benefit.
- Longer term, there may be tourist opportunities at the property as a "stop" on a part of a circuit or cluster. The more things do on the site, the more tourists could do as pass through. There may be other opportunities, which we are not looking at now, but that foster the choices one makes. Not that you would necessarily develop the property for tourism purposes, but should take into account that there are opportunities and resources to consider, such as the Jaribu stork nesting sites on the New River and the proximity to the Lamanai site, Las Milpas, and other sites.

- It is also useful, from a learning perspective, to consider what spin-offs might be developed. Multiple enterprises are key to the success of any business development in Belize. Young entrepreneurs need to realize from the get-go that the Belize market is not one to become a specialist in.
- In a group of tourists, often there are a few that rather than going diving, or doing the more exotic attractions, just want to be in the community. Several stayed overnight in August Pine Ridge and spent additional time there after deciding that the trip to Las Milpas and back to Belize City or even Orange Walk Town was too far for a day trip.
- Another example is pimento. The site is a natural habitat for it. There is a market for it, but it usually not cultivated, rather it is gathered where it exists. In this scenario, it is an example of a plant that grows in a natural setting, and is harvested, and that one can consciously maintain and use it.
- Muffle's business programs emphasize the importance of entrepreneurship rather than just finding a job. This is applicable to other areas like the environmental science and sustainable development programs. That is another angle to consider as well, entrepreneurial development.
- Capacity building and entrepreneurship building are good themes with a focus toward preparing this part of the country for the new challenges that have come our way. These are ideas we could move towards developing.
- It is desirable to keep a core working group going, keep efforts focused as flesh out strategic plan.
- To date, Pat Coyle has funded the site improvements himself and will do so to get the initial operation up and running, the property fenced, get initial livestock there, and any other small projects that do first with caretaker.
- However, for larger project funding in the future it will be necessary to raise funds for additional improvements and programs.
- Using goats and sheep looks feasible as a first activity at the core of a sustainable operation; to improve the property using intensively managed grazing to reduce brush and clean the property in preparation for other uses, as well as provide a kid or lamb cash crop.
- Rotary and Engineers Without Borders-USA (EWB-USA) partner at the national level and often at the local club and chapter level to support projects. Particularly when there is teaming between an EWB chapter, a U.S. Rotary club and an in-country Rotary club who has identified a need and can show a strong benefit there can be strong support for an EWB project.
- The EWB fiscal agent and U.S. 501 (c) (3) tax exempt status offers opportunities to raise funds since donors get income tax deductions.
- The San Felipe educational book program started with donations from an American tourist and grew to include grants to other villages and even to the high school.
- In New Mexico, Friends of Belize, Kristi Drexler and other former Peace Corps volunteers, fund small grants.
- Belize Open Source board member links to universities and other organizations offer potential opportunities for funding connections to endowments and grants.

## Draft

- Some schools do service-learning as part of their programs. If Muffles had a relationship with access to the Belize Open Source property this could offer an opportunity to link up and team with other schools for international service with such programs. Mary Ann Studer's Defiance College work with students in northern Belize and her interest in collaboration with Muffles and other educational institutions in Belize is an example.
- International service opportunities for students and adults is an opportunity. Another possibility for tourism could be based on Oklahoma State University, where the business and tourism management students run a hotel business at the university. It could be a business service-learning example to be applied to the site.
- It's important to develop tours, routes, and learning opportunities that can provide a range of different things for visitors, such as labeling of trees, demonstrating traditional house construction, so many things. Tourism has evolved so much that what is attractive to tourists is very different than it once was twenty years ago. For example, Chaa Creek has taken advantage of this, with a traditional milpa farm for those who'd like to experience it, as well as a whole bunch of other things. While it was over thirty years in the making, it started with a vision. When the owner Mick Fleming talks about his photo album and shows the changes from their humble start over 30 years ago to now, it is very impressive. Now they are an internationally recognized spa and a retreat center.
- It is really useful to think about what we want to do tomorrow, what we want to see next year, in five years, in ten or thirty years.
- Another idea for the property is there are not many places for retreats or conferences in this part of the country. That is another long-term opportunity.
- It's important not to forget to include women's perspectives and influences. Tourists are often very interested in simply observing women's daily work activities in the village.
- A key benefit would be to help more women get secondary education and be better prepared for opportunities. This is a key part of the Muffles mission with the goal of full participation for women in all their programs.
- Need to also consider potential outreach and demonstration activities that would benefit existing families, either for market uses or household use with a small additional change to their existing activities, such as improved vegetable garden practices, aquaculture/fish growing, or improved approaches to local chickens. Are there things like this that could make a difference to a family's income and well being? If can demonstrate sustainable activities that could coexist and are successful, it could be a useful purpose. As noted above, there are large parts of Belize with this kind of land habitat where successful things could be extended and replicated. However, would need to be patient and not expect it all to happen at once.
- Does this initiative offer opportunities for the participant's organizational needs?
  - For Muffles, it offers specific ties to the environmental sciences program for field experience.

## Draft

- For Galen, there are already agreements for Muffles graduates to continue on to Galen. Galen would be open to even more specific agreements. For example, for the environmental sciences program, it could be useful if a student going into it knows up-front will be a path through to Galen.
  - This is increasingly the way educational institutions are working, with a link to another institution.
  - There could be benefits and a link to Muffles for Galen students if they wanted to do work in Orange Walk District in terms of potential use of Muffles facilities such as library space, campus access, faculty support, and other resources.
  - The Belize Open Source site is some distance from Galen. If they were to use it in its current state, likely would come in the evening and spend one to two nights in the area (say in August Pine Ridge or Orange Walk Town) with days working at the site. In the long run, there are night research opportunities that are worth conducting.
  - The key would be how the site contributes to course delivery.
  - They're looking to broaden their range of field course offerings and there might be opportunities there.
  - Ornithology is a field course they are considering. There are Jaribu stork nesting sites on the nearby New River and ocellated turkeys nearby. It would be useful if can figure out and provide pretty sure opportunities for sightings of such birds and other wildlife.
  - Mayan archaeology is another opportunity. Their current focus is on the central area near Galen. Northern sites are not utilized as much as they could be. However, there are several: Santa Rita, Cerros, Lamanai (which is close to the site), and Cuello.
  - Galen does not have resources to help develop the Belize Open Source property. However, in principle, they could contribute as partners to pursue grants and implement them.
  - While it is not that physically close to Galen, with ties to Muffles there are potential opportunities.
- With Galen's ties with Muffles and Indianapolis University, with EWB connection, there may be opportunities to apply for NSF funding, which can be substantial.
  - We looked at a GIS map, with several layers of information, around August Pine Ridge, showing the several (12 or more) communities in the area. We discussed how GIS offers a way to consider the spatial aspects of impacts and benefits to the users in the adjacent community. It offers a way to understand the region and the range of users of the property. It also gives a sense of the other resources in the region not just on the 40 acre property, informing the initiatives in a broader context. It informs and shapes the curricula and course delivery you design with lots of emphasis on community culture and sociology.
  - August Pine Ridge has had a revival of cultural awareness and activities which is part of the overall community context.

## Draft

- The Department of Agriculture has a presence at the Yo Creek station. They provide breeding stock for farmers: high quality genetic material, such as livestock, grasses, and legumes; and are very interested in assisting. Sees sheep production as viable right away and could assist in getting animals. Also, can provide legumes and grasses.
- It will be good to categorize objectives as immediate, short term, intermediate, and long term.
- Proposed we continue a working group discussion by e-mail.
- See three parts: the community impact; the place itself, “Open Source” - the station; and the academic part. It is a combination of the three with all parts contributing to the relevance. It would be nice for the station to be there and the people in the community around it.
- It sounds like we’ve found another name for it, “the station”.
- This fits perfectly into Pat Coyle’s vision for the communities to have a stake in it as well. The GIS map we looked at showed how many communities there are close by, Shipyard and all the others.
- Regarding the Shipyard Mennonite community, so much documentary has been written about them, but it is not like when you are so close to them that you can walk into the community in the morning, or afternoon, or evening and you are able to get much more of a feeling for what their culture is like. When among them, really have more of an appreciation for their culture and lifestyle.
- When students come, they could have this kind of opportunity. The open source station would look like be a friendly place to all its neighbors, so they would be welcome to filter into their societies. There is a lot to learn from that community. That sets the spirit of the project.
- (Post meeting note: In phone call with board member Ruth White, she recalled how interesting her trip to Shipyard was. Going with Natalio, who is familiar with them and has a good working relationship, provided her a unique view that she really appreciated.)
- Filiberto Penados is moving to UNICEF and will be influencing Government of Belize education policy through that organization. He might also be able to attract resources through UNICEF, especially if can demonstrate community learning aspect, since multi-cultural education is a key focus for him.
- If can find ways through projects and things we do, that primary schools in the area could use the site for field visits, it would be beneficial and even more powerful. It would be desirable to develop links to primary schools to incorporate the curriculum and field experience early.
- Audubon had a program on schoolyard ecology for primary schools. There is a lot to be learned even in their own school yards. If can take them to a nice site, there could be more to observe. It could be another opportunity.
- It is key to market academic programs.
- It’s important to find ways to excite students about what they are learning, figure out “how to make it come home”. Tries to grab what is around you in real life as a teaching tool.

## Draft

- For Galen, the first link in this partnership will likely be with the environmental science program, later maybe tourism, business programs, and other areas.
- It's important to think through goals at various scales, be clear about immediate goals, and formulate intermediate and longer term vision and goals, along with more focused near-term plans. It may well evolve in ways that the originator, Pat Coyle, does not yet even anticipate.
- Pat Coyle replied that would be a great outcome, would be exciting and very appropriate.
- Will need to develop Memorandum of Understanding (MOU) as get further into it and thoughts crystallize, in order to formalize access to the property, protocols, and terms and use.
- It's important to think of the sustainability and continuity of the program and projects from the very beginning. While Pat Coyle is here, is the driving force, and their board seems committed, need to take into account that people may move on as the years go by. Need to take care with this issue from the beginning. Participants will have invested a lot of time, effort, and money. There are many examples of unsuccessful initiatives in Belize due to poor planning on this matter.
- Pat Coyle thanked all for participating, that this has been extremely helpful and essential to move it from his ideas to a context where ideas are coming in from people on the ground here, which is so important. Hopes we can get it to bear fruit so it is useful to all of you. He will recap notes and get them out to the group for review. He asked them what else, what other last thoughts, in terms of what next?
- Clarification was sought about what we hope to accomplish through the mail exchange and how we know what we are achieving, how we know we are progressing toward goals.
- Pat Coyle to brief the Belize Open Source board and get their feedback and communicate it to this group. From that discussion can continue. Later, expect we'll need a structured planning session perhaps a day long, to form a shared objective, vision, and mission, to form a basis for a MOU with partners.
- Pat Coyle said the Belize Open Source board is committed and if we bubble up ideas on-the-ground that fit and make sense, have strong community based support, and are beneficial to the region; that the board will go for them in every way we can to see how we can help. Certainly we will have a lot to digest from the session, but he is quite optimistic.
- The key things are what we want to do concretely and what has to happen next to achieve them; then if look further down the line, what are the things we would have to do in order to make the next set of things happen. We will also need to be open to responding to things that emerge that we have not thought of yet.
- We could do a lot of the ground work through email, identify the near term specifics that need to be done at the site to enable the initial objectives, e. g., the environmental science program. He can prepare a draft plan and distribute to the group.
- Suggestion is we draft a concise concept paper, similar to the one they did for Muffles initiative, and then share it with the group. Use it to make the ideas more concrete. Get the ideas on paper, into cohesive concept, and move them along.

## Draft

- At some point, need to get to where parties see possible projects they can do there on the property. For example, offer a specific course, or apply for and implement a grant for a project.
- Could use a broad concept paper to outline project elements, identify where more specific projects could fit in finer detail, design project profiles for the elements, which could be then be developed into specific proposals.
- Marion Cayetano commented that he and people like Michael Rosberg could help with project and proposal writing.
- How long it will take from now to get board meeting feedback, is it three to four months?
- Pat Coyle expects shorter time frame. Our board is distributed; his thought is four-six weeks, for their feedback. Then, however long it would take for Osmany and him to draft concept paper.
- Again Pat Coyle thanked all. Wants it to yield results that are beneficial to all.

### Discussion details

Preliminary discussions as people arrived covered the following:

- Additional people who should be invited to participate were identified including:
  - Filiberto Penados helped establish Toledo Center of Learning. He's moving to UNICEF and will be influencing Government of Belize education policy through that organization. He might also be able to attract resources, especially if demonstrates cultural learning. It is a key focus for him.
  - Dr. Colin Young, cyoung@galenu.edu.bz; ecologist at Galen University, uses field sites with interests in ecology, landscape, and teaching practice.
  - Marion Cayetano indicated, at Galen, land management and development planning themes crosscut through several of their programs. They have courses in application of Geographic Information Systems (GIS), specific certificate courses, animal health for pre-veterinary international students; field based archaeology and anthropology.
  - Marion indicated he and the Galen CEO, Nancy Adamson, have been considering a course set in northern Belize to cover archaeology, anthropology, natural resources, the Lamina Mayan site, all as part of a circuit of activities. He noted the potential of the Belize Open Source property to fit in to such a scenario. However issues and logistics need to be addressed including:
    - Access to the property
    - Where to stay and eat
    - How to develop and generate resources and interests
    - How to make and keep active
- Osmany Salas noted that the Belize Agricultural High School in San Lorenzo is close by and could be a potential participant. The principle Mr. Cecilio Pech was

## Draft

unable to attend the session or send an alternate. Follow up with him will be important.

- Marian described a U.S. based community project involving GIS that is used in school educational systems to map communities and adjacent land as a way to learn about the community and how land gets value. Perhaps a potential collaboration could be found. If so, it could inject resources and add another dimension of training to the scenario.

The other participants arrived and after introductions and a brief overview we drove to the property, about a 25 minute trip on the hard surfaced, unpaved road. At the property, we:

- Looked at the new site entry road, the caretaker's residence, and in-progress septic system, and the overall views of the property from the caretaker's residence. As toured the property, discussed the preliminary site map showing arrangement of functional areas.
- Drove through the more wooded central part of the property on the vehicle track to the perimeter boundary strip on the south side near the August Pine Ridge village water tower. Stopped and looked at the improved pasture grass planted in the perimeter boundary strip.
- Drove along the boundary strip to the back of the property, and along the back border. Looked at neighboring pastures with cattle grazing.
- Drove back into the central part, then out to the northern boundary strip on the August Pine Ridge side, then along the boundary strip out to the main road at the front of the property.

This allowed the group to get a feel for the overall property and the extent and types of vegetation and trees.

- Much of it is classic pine ridge savannah with a number of surviving cashews that were planted in the '70s.
- The area to the back appears to change to a somewhat better soil type and shows evidence of past additional clearing and cattle grazing, with a different regrowth of vegetation, compared to the rest of the property. This is consistent with stories reported about past use.
- During the site visit, Vicente Tuyub spoke to the use of legumes and protein banks along with improved pasture grasses.

The group returned to Muffles Junior College where Natalio Solis, from August Pine Ridge joined us.

Pat Coyle provided additional background and an overview of the vision for Belize Open Source Sustainable Developments and the purpose of the meeting.

In response to questions, he spoke to aspects of the initiative, including:

- The focus on being a non-profit corporation with objective to be of benefit to the community in the most inclusive way, in the regional context.

## Draft

- The reason for the name “Belize Open Source” – it is modeled after open source software products such as Linux and Apache web server, where there is not a single owner. Instead, a whole community of collaborators pitch in and decide it is something they want to make and think will be useful to the group and community who uses it, so they have a stake in it, they have a share in it, and they participate in building it and using it. The name, Belize Open Source Sustainable Development, is intended to stimulate the idea that we rally welcome collaboration and participation from all.
- The constituents and audience includes the full spectrum of people it would serve and those who participate in planning and implementing it:
  - People in August Pine Ridge and larger local community who would benefit from employment through work activities associated with development of the property and subsequent operations – such as clearing, planting, building, caretaking, harvesting, etc. Additionally, benefits for local people are anticipated through their own collaborative activities such as preparing meals for visitors, hosting them in their homes, guiding visitors, selling locally produced crafts, foods, or other goods
  - People in the local community who would benefit from the programs conducted, outreach activities, application of successfully demonstrated approaches, training, access to resources and credit, and other connections
  - People who participate in the planning, design, fundraising, and implementation
  - People who participate in on-site programs, workshops, and training
  - People who visit to simply enjoy the opportunity to spend some time on a working field station as part of their time in Belize
- We are incorporated in California and our application for tax-exempt 501 (c) (3) status is pending with the IRS. In our articles of incorporation, our primary objectives and purposes include:
  - promote environmentally and socially sustainable development; including development and operation of a working farm and land-based learning and community outreach center (a sustainable development field station) in northern Belize
  - invite ongoing participation and collaboration for an open source approach to empower and work collaboratively with communities and local organizations to identify specific needs and to develop strategies to meet their basic requirements of health, education, and economic opportunity by promoting environmentally, socially, and economically sustainable solutions, with environmental stewardship, women's rights, and humanitarian protection integral to these sustainable solutions

This is where this group may be most helpful; to identify needs that exist here and how we might think about approaches to solve those problems and draw on the best talents and strengths to do it. While we don't have deep pockets, it seems often funds are available for good ideas with strong community support, a good NGO or other organizational partner, and a track record. While we don't have a

track record yet, hopefully we can forge alliances and cooperative arrangements so we can work on that.

- Recognition, based on earlier feedback from Osmany Salas and Edilberto Romero, that at this time, the property is not ideal for a general tourism venture, due to its location and vegetation type. However, that it lends it self for a novel/innovative sustainable agriculture educational demonstration program, that could be used by international visitors and local people.
- Specific examples of a few potential initiatives (more are on the web site):
  - Using goats and sheep as one of the first activities at the core of a sustainable operation, to improve the property using intensively managed grazing to reduce brush and clean the property in preparation for other uses, and build a kid or lamb cash crop.

But how does this relate to the vision we are talking about, rather than just being another goat or sheep farmer? Some ways might be to seek genetic improvements to introduce improved livestock to those in the surrounding community; or partner with Heifer Project to provide livestock to families in the community who then provide an offspring to others in the community; or 4-H club projects for youth to use the infrastructure at the property for their own animal to improve their chance for success with that animal.

- Demonstration projects similar to the Organization of American States (OAS) Agro-Forestry Research Project in Cayo. Focused on layered cropping systems, this project aimed to develop transferable strategies for sustainable land-use in the tropics on degraded pastures, including activities for higher education, socio-economic development and research. They ran experimental trials, did demonstration plots, developed curricula with schools, provided field experiences for students.

He also recapped Sylvia Baumgart Laasner comments from yesterday on their results, that while the layered system for shaded pepper production was promising, more work would be needed. However, the use of Jophotra or Physics Nut and legumes did a nice job in soil rehabilitation of degraded pasture lands. He suggested this could be applicable to demonstrations on improving the pine ridge savannah soil at the property.

Adrian Leiva described Muffles new program in environmental science with a large focus on sustainable development and agriculture and the need for practical labs and in-service field training opportunities for students. Rafael Castillo, who heads the program was not available to join us.

Osmany Salas commented that his first thought when Pat Coyle contacted him through a mutual friend, was that linkages to educational institutions would be necessary if this was to have a big impact over the long term. Given the benefits of field work for practical

service hands-on training, he thinks the property lends itself to such uses. The challenge is how to develop it for such uses.

Adrian Leiva added that they do not have the resources to develop it themselves.

Natalio Soliz suggested the property lends itself to making the curriculum come to life - more so than at a site with rich soils, where it is easier to be successful. The pine ridge lands are viewed as marginal. If can demonstrate successful activities on the property, there are large areas of such land in Belize that successful approaches could be applied to.

Marion Cayetano asked if there is white lime production in northern Belize. If so, could consider as way to enrich soil. Others thought it was imported rather than produced in area.

Osmany Salas described the European Union proposal to evaluate economic diversification opportunities and proposals for social and economic service in infrastructure and capacity building in northern Belize as their economies adapt to change. He said he thinks the basis of this is to prepare the northern districts for the post-sugar era. He thinks education plays a major role in it. There is a real need for more science, engineering, and agricultural graduates. Conceptually, he thinks this fits into part of that. Need to see how to stitch the ideas we are discussing together into a good program. With the emphasis on increasing capabilities in sciences, there are hands-on field experience opportunities that the property and programs there could fit into.

Pat Coyle commented that Galen and its strengths are an obvious potential connection as well as Galen's relationship with Indianapolis University.

He also described his and Natalio Soliz's contacts with Mary Ann Studer and her Defiance College work in northern Belize for the past three years on an endowed grant program that supports community based development. She has brought groups of students, worked closely with PFB, using an integrated natural resource management paradigm, doing community needs assessments, identifying gaps, opportunities, and measurable objectives across the spectrum from health to education and development.

He noted her excitement in hearing of this meeting and her specific interest in identifying contacts for educational collaboration with Muffles and other educational institutions in Belize, with interest in visiting specifically for that purpose in the August time frame. This represents another possible collaboration opportunity if suitable programs, curricula, and initiatives that have a good fit with the property can be identified.

Adrian Leiva would like to speak with her. Perhaps she would be interested in joining COBEC, the Consortium for Belize Educational Cooperation (COBEC). He indicated it consists of all the higher education institutions in Belize and about 18 American universities, with a unique focus on networking and collaboration. (Adrian Leiva

## Draft

provided his contact information. Pat Coyle forwarded it to Mary Ann Studer, who replied with news of her interest and approved funding to return to Belize.)

In response to Osmany Salas question, Pat Coyle briefly described the two other members of the Board of Directors of Belize Open Source and the connection to Engineers Without Borders-USA (EWB-USA).

He met board member, Ruth White, when she spoke about community needs assessments at an EWB conference. Her uncle and father's years of Belize work experience, her sociology background, and her regular trips to the Caribbean and Belize with Seattle University students give her a unique perspective regarding collaboration opportunities. She has visited the site with Natalio Soliz, been to Shipyard and found it a compelling experience. He really values her connections to a different set of players who are primarily interested in the social community aspects; community needs assessments, and sociological issues. She has expressed her willingness to pursue student internship and work study programs, or other student visits associated with the initiative and the property.

He commented that the EWB-USA founder, Dr. Bernard Amadei, started it after a trip to Belize in 2000. In Placencia, he realized the workers at the resort were from nearby San Pablo village that had no electricity, running water, or sanitation. This led him to involve a group to design a water supply system and to start the organization.

Board member, Kathy Voth, worked with the U.S. Bureau of Land Management in education, communication, and research. She runs her own consulting business, [livestockforlandscapes.com](http://livestockforlandscapes.com). She has worked with goats for fire control and brush clearing and more recently with training cattle to eat noxious weeds to reduce herbicide use and protect organic certifications. She has been very successful in this initiative.

Ben Bobowski is a technical advisor. He is with the National Park Service, has broad experience in natural resource management and educational outreach programs, and also runs a cow/calf operation in Montana.

He commented his wife was Rotarian of the year a couple of years ago and he volunteers with them. Rotary and EWB-US partner at the national level and often at the local club and chapter level to support projects. Particularly when there is teaming between an EWB chapter, a U.S. Rotary club and an in-country Rotary club who has identified a need and can show a strong benefit there can be strong support for an EWB project. While none of these entities may have great depth of fund raising abilities, they do have some. It depends on the project, some don't take that much funding, some take more.

It looks like there are opportunities to connect uses of the property to either existing programs and curricula or develop curricula needed for demonstration projects, as the OAS agro-forestry project did; with specific courses and also integration of the basic hard

sciences and lab sciences. Then can begin to work the combination of education, field station, field demonstration, and educational training opportunities.

It is also important to consider how the results fit into an economic framework that benefits and is of value to people in the community. We need to show people that they can get improved outputs from the marginal pine ridge savannah lands that are beneficial to them. For example sheep and goats; fish, whether Tilapia or other indigenous fish, but all of these things need to fit into making a difference in the family income.

Osmany Salas commented that Pat Coyle is open to ideas, and there is an opportunity to hear suggestions from the group on what is needed and how the Belize Open Source property can help to meet some of them.

Adrian Leiva, suggested having heard the background, can start to come up with concrete possibilities. As a higher education institution, Muffles has responsibility to play a major role in human capacity building. That is the reason, he and Osmany developed the concept paper.

The sciences are often so theoretical that even after two-year degree program, students often take other jobs that have nothing to do with science, so it stops right there and they end up underemployed.

So the environmental science program, with an agricultural element, definitely could link up and be enhanced through this initiative.

Natalio Soliz noted that the property provides more challenge to students with the marginal soil than in rich soils. It requires more of them.

Pat Coyle noted soil testing and improvement curricula and field work for students represent an example of a possible practical science-based skill with employment or entrepreneurial opportunities. He cited the Mary Ann Studer testing which led to reduction of 60% in fertilizer inputs for a northern Belize papaya grower. This suggests a concrete work opportunity for graduates in the area of providing tailored, individualized soil testing and improvement recommendations for individual growers. It might be for longer term use of legumes or near-term fertilizer application optimization.

Adrian Leiva, commented if there were employment opportunities like this, it could make the sciences more attractive.

Natalio Solis commented it could help students see it was a good field to go into. He spoke to his own experience with David Dyck and him getting grass from his phosphorous and calcium deficient poor soils analyzed and then designing micronutrient and mineral supplements for their cattle diets to improve production.

## Draft

He commented it is important that such initiatives give positive benefits or they lack sustainability. For him, the “open source” idea is like his relationship to the Shipyard Mennonite community. He’s adopted and assimilated a lot from Shipyard in his life and is making money from what he has learned from them – that is exactly what he would like to see this program do.

Pat Coyle said, Natalio summed it up better than he could have. If there were examples of successes like this it would be marvelous.

Marion Cayetano commented Belize has a lot of pine ridge savannah land like that of the Belize Open Source property, around Hattieville, along the Western Highway, after the Belize Zoo.

Osmany Salas added that the pine savannah has been referred to as a wasteland. While there is that perception, these lands have a special role to play.

Marion Cayetano spoke to other non-agricultural uses, resources, and aspects of the property and the nearby region that have value. Birding is an example. If you can develop an idea of what kinds of sightings that could be expected it can be an opportunity.

He commented on the range of tourist attractions that cater to cruise ships around Belize City and how they developed, how they saw the opportunities and responded to them. Thinking of this property, he suggested one could look at a range of opportunities that exist in the area that development of this site could consider in the same way these people have. Ideally should fit in broader development framework, but it really doesn’t exist yet. Without it, could look at opportunities that exist and in which development of the site for itself or others who live in the area, could be of benefit.

For example, with the Muffles environmental science program, could benefit from use of the site, so clearly there are educational opportunities.

Longer term, there may be tourist opportunities at the property as a “stop” on a part of a circuit or cluster. The more things do on the site, the more tourists could do as pass through. There may be other opportunities, which we are not looking at now, but that foster the choices one makes.

Osmany Salas suggested that to him, tourism while a possibility is likely more of a secondary nature given the location. He’s not saying could not fit into a larger tourist framework, but not as primary focus

Pat Coyle commented, at least for now, it looks like it would be more of a niche market.

Marion Cayetano, agreed, not that you would develop it for tourism purposes, but should take into account that there are opportunities and resources to consider, such as the Jaribu

stork nesting sites on the New River and the proximity to the Lamanai site, Las Milpas, and other sites.

It is also useful, from a learning perspective, to consider what spin-offs might be developed. Multiple enterprises are key to the success of any business development in Belize. Young entrepreneurs need to realize from the get-go that the Belize market is not one to become a specialist in.

Natalio Soliz agreed. In any group of tourists, often there are a few that rather than going diving, or doing the more exotic attractions, just want to be in the community. He's had several stay with him overnight in August Pine Ridge and spend additional time there after deciding that the trip to Las Milpas and back to Belize City or even Orange Walk Town was too far for a day trip.

Marion Cayetano commented that another example is pimento. The site is a natural habitat for it. There is a market for it, but it usually not cultivated, rather it is gathered where it exists. In this scenario, it is an example of a plant that grows in a natural setting, and is harvested, and that one can consciously maintain and use it. He has noticed a family along the Western Highway, where they have maintained the bay leaf and consciously harvest leaves for sale, managing their trees.

Adrian Leiva spoke to their business programs and the importance of entrepreneurship rather than just finding a job. This is applicable to other areas like the environmental science and sustainable development programs. That is another angle to consider as well, entrepreneurial development.

Pat Coyle commented that Google recently made a big grant to TechnoServe for development of small and medium sized businesses, the next level up. It is an important thing in terms of capacity building. (post-meeting note: Google.org has named TechnoServe as a grantee in a new strategic plan it unveiled. Google.org has also awarded TechnoServe a new multi-year grant of \$3 million to expand the organization's private-sector development efforts.)

Osmany Salas summed up, thinks we're on right track in terms of things we are talking about: capacity building, entrepreneurship building, if the focus is toward preparing this part of the country for the new challenges that have come our way. Thinks it is one of the ideas we could move towards developing.

He noted the concrete suggestion for in-service training for environmental science. He could see facilities at the site for that.

He suggested it is desirable to keep a core working group going, keep efforts focused as flesh out strategic plan.

## Draft

Pat Coyle responded to questions about funding. He noted that to date he's funded the site improvements himself and will do so to get the initial operation up and running, the property fenced, get initial livestock there, and any other small projects that do first with caretaker.

However, to be candid, for larger project funding in the future it will be necessary to raise funds for additional improvements and programs. It is an important question and need to be straight-forward in understanding the answer.

Osmany Salas noted that the U.S. 501 (c) (3) tax exempt status offers opportunities to raise funds since donors get income tax deductions.

Natalio Soliz commented on his experience with the San Felipe educational book program which started with donations from an American tourist. It grew to include grants to other villages and even to the high school.

Osmany Salas noted that in New Mexico, Friends of Belize, Kristi Drexler and other former Peace Corps volunteers, fund small grants. He also noted Belize Open Source board member links to universities and other organizations offer potential opportunities for funding connections to endowments and grants.

Marion Cayetano said some schools do service-learning as part of their programs. For example, if Muffles had a relationship with access to the Belize Open Source property this could offer an opportunity to link up and team with other schools for international service with such programs.

Pat Coyle commented that Mary Ann Studer's Defiance College work with students in northern Belize and her specific interest in identifying contacts for collaboration with Muffles and other educational institutions in Belize is an example.

Adrian Leiva said he just came from a conference last week on international service opportunities for students and adults. He noted another possibility for tourism, based on his visit to Oklahoma State University, where the business and tourism management students run a hotel business at the university. It could be a business service-learning example to be applied to the site.

Marion Cayetano noted that it's important to develop tours, routes, and learning opportunities, that can provide a range of different things for visitors, such as labeling of trees, demonstrating traditional house construction, so many things. Tourism has evolved so much that what is attractive to tourists is very different than it once was twenty years ago. For example, Chaa Creek has taken advantage of this, with a traditional milpa farm for those who'd like to experience it, as well as a whole bunch of other things.

Osmany Salas said but keep in mind it was over thirty years in the making.

Marion Cayetano, acknowledged, but it started with a vision.

Pat Coyle commented it is really useful to think about what we want to do tomorrow, what we want to see next year, in five years, in ten or thirty years.

Marion Cayetano said when the owner Mick Fleming talks about his photo album and shows the changes from their humble start over 30 years ago to now, it is very impressive. Now they are an internationally recognized spa.

Osmany Salas pointed out that now known as a retreat center. Another idea for the property is there are not many places for retreats or conferences in this part of the country. That is another long-term opportunity.

Natalio Soliz reminded us that it's important not to forget to include women's perspectives and influences. He's seen tourists be very interested in simply observing women's daily work activities in the village.

Pat Coyle noted it is a good point. He described his conversation with Blanca Esquivel, Indian Church village, and her comment that a key benefit for her would be to help more women get secondary education and be better prepared for opportunities.

Adrian Leiva stressed this is a key part of the Muffles mission with the goal of full participation for women in all their programs.

Pat Coyle noted examples of potential outreach and demonstration activities that might benefit existing families, either for market uses or household use with a small additional change to their existing activities, such as improved vegetable garden practices, aquaculture/fish growing, or improved approaches to local chickens. Are there things like this that could make a difference to a family's income and well being?

Marion Cayetano commented if can demonstrate sustainable activities that could coexist and are successful; it could be a useful purpose. He returned to his point that there are large parts of Belize with this kind of land habitat where successful things could be extended and replicated. However, would need to be patient and not expect it all to happen at once.

Osmany Salas asked the group whether it offers opportunities for their organization's needs.

For Muffles, it offers specific ties to the environmental sciences program for field experience.

For Galen, Marion Cayetano noted there are already agreements for Muffles graduates to continue on to Galen. Galen would be open to even more specific agreements. For

## Draft

example, for the environmental sciences program, it could be useful if a student going into it knows up-front will be a path through to Galen.

Adrian Leiva noted this is increasingly the way educational institutions are working, with a link to another institution.

Marion Cayetano noted also there could be benefits and a link to Muffles for Galen students if they wanted to do work in Orange Walk District in terms of potential use of Muffles facilities such as library space, campus access, faculty support, and other resources.

With regard to the Belize Open Source site, it is some distance from Galen. If they were to use it in its current state, likely would come in the evening and spend one to two nights in the area (say in August Pine Ridge or Orange Walk Town) with days working at the site. In the long run, there are night research opportunities that are worth conducting.

For them, the key would be how the site contributes to course delivery. For example they have a range of courses they currently offer:

- 15 week semester, have two per year
- Two summer terms, six weeks each, within that have two-week intensive courses
- one two-week intensive is a pre-veterinary animal health course with large animals and teaching
- They also do a two week course on exotic animals at the Belize zoo

They're looking to broaden their range of field course offerings and there might be opportunities there.

Ornithology is a field course they are considering. There are Jaribu stork nesting sites on the nearby New River and ocellated turkeys nearby. It would be useful if can figure out and provide pretty sure opportunities for sightings of such birds and other wildlife.

Mayan archaeology is another opportunity. Their current focus is on the central area near Galen. Northern sites are not utilized as much as they could be. However, there are several: Santa Rita, Cerros, Lamanai (which is close to the site), and Cuello.

Galen does not have resources to help develop the Belize Open Source property. However, in principle, they could contribute as partners to pursue grants and implement them.

While it is not that physically close to Galen, with ties to Muffles there are potential opportunities.

Osmany Salas commented that with Galen's ties with Muffles and Indianapolis University, with EWB connection, there may be opportunities to apply for NSF funding, which can be substantial.

Marion Cayetano opened a GIS application with a map, with several layers of information, around August Pine Ridge, showing the several (12 or more) communities in the area. He spoke to how GIS offers a way to consider the spatial aspects of impacts and benefits to the users in the adjacent community. The key is people from some distance may have been harvesting cashews and hauling sand from the property over the years. It offers a way to understand the region and the range of users of the property. It also gives a sense of the other resources in the region not just on the 40 acre property, informing the initiatives in a broader context. It informs and shapes the curricula and course delivery you design with lots of emphasis on community culture and sociology.

Osmany Salas commented that August Pine Ridge has had a revival of cultural awareness and activities which is part of the overall community context.

Vicente Tuyub replied to Osmany Salas questions about the Department of Agriculture. He is in charge of livestock and is at the Yo Creek station. He explained they provide breeding stock for farmers: high quality genetic material, such as livestock, grasses, and legumes and are very interested in assisting. For example, if we do sheep production, Department of Agriculture could assist in getting them. He sees it as viable right away. Goats are mostly in Cayo. Also, he has access to legumes and grasses. Pat Coyle will follow up with him. He noted a California firm, Goats 'R Us, uses goats for fire protection brush clearing contracts.

Adrian Leiva suggested good to categorize objectives as immediate, short term, intermediate, and long term.

Osmany Salas proposed we continue a working group discussion by e-mail.

Natalio Soliz summed up that he sees three parts: the community impact; the place itself, "Open Source" - the station; and the academic part. It is a combination of the three with all parts contributing to the relevance. It would be nice for the station to be there and the people in the community around it.

Adrian Leiva joked that it sounds like we've found another name for it, "the station".

Osmany Salas said he thinks this fits perfectly into Pat Coyle's vision for the communities to have a stake in it as well. The GIS map we looked at showed how many communities there are close by, Shipyard and all the others.

Marion Cayetano said GIS helped him figure out space and things, so he tends to pull it out.

Natalio Soliz followed up on this regarding the Shipyard Mennonite community. So much documentary has been written about them, but it is not like when you are so close to them that you can walk into the community in the morning, or afternoon, or evening

## Draft

and you are able to get much more of a feeling for what their culture is like. It is part of what Marion Cayetano was talking about. He sees it because his daughter was doing some research and they were surprised that so much information is not out yet on the Mennonites. Because he grew with them, he knows more of it.

Adrian Leiva said his father used to work with the Mennonites and would take him along. He really relates to what Natalio Soliz said. When among them, really have more of an appreciation for their culture and lifestyle.

Natalio Soliz suggested that when students come, they could have this kind of opportunity. The open source station would look like be a friendly place to all its neighbors, so they would be welcome to filter into their societies.

Osmany Salas said this is excellent point, that there is a lot to learn from that community.

Adrian Leiva said so that sets the spirit of the project.

(Post meeting note: In phone call with board member Ruth White, she recalled how interesting her trip to Shipyard was. Going with Natalio, who is familiar with them and has a good working relationship, provided her a unique view that she really appreciated.)

Marion Cayetano suggested we add Colin Young, from Galen, to the e-mail collaboration group. He's from part of Belize with this kind of habitat; he's an ecologist, and head of Galen's environmental program.

Also Filiberto Penados would be a good to include. He has many good things to offer. He's moving to UNICEF and will be influencing Government of Belize education policy through that organization. He might also be able to attract resources through UNICEF, especially if can demonstrate community learning aspect, since multi-cultural education is a key focus for him.

Natalio Soliz described a research paper he did on youth who only went through grade eight, the merits of it if don't go for further education, and how they viewed their education in terms of preparation. The responses were very impressive. It links right into the education system.

Marion Cayetano noted if can find ways through projects and things we do, that primary schools in the area could use the site for field visits, it would be beneficial and even more powerful. It would be desirable to develop links to primary schools to incorporate the curriculum and field experience early.

Osmany Salas recalled Audubon program on schoolyard ecology for primary schools. There is a lot to be learned even in their own school yards. If can take them to a nice site, there could be more to observe. It could be another opportunity.

## Draft

Adrian Leiva noted it is key to market academic programs.

Marion Cayetano stressed it's important to find ways to excite students about what they are learning, figure out "how to make it come home". He cited example with his students regarding recent Microsoft and Yahoo takeover story that's in the news. Students use both tools and products so it is real life to them. He had them write a journal about it and follow the story. He tries to grab what is around you in real life as a teaching tool.

He'll participate in the email working group. He'll encourage Colin Young to participate too, since he's head of Galen's environmental program. He thinks he will be interested. He thinks the first link in this partnership will be with the environmental science program, later maybe tourism, business programs, and other areas.

He stressed it's important to think through goals at various scales, be clear about immediate goals, and formulate intermediate and longer term vision and goals, along with more focused near-term plans. It may well evolve in ways that the originator, Pat Coyle, does not yet even anticipate.

Pat Coyle replied that would be a great outcome, would be exciting and very appropriate.

Marion Cayetano, noted will need to develop Memorandum of Understanding (MOU) as get further into it and thoughts crystallize, in order to formal formalize access to the property, protocols, and terms and use.

Osmany Salas stressed it's good to think of the sustainability and continuity of the program and projects from the very beginning. While Pat Coyle is here, is the driving force, and their board seems committed, need to take into account that people may move on as the years go by. Need to take care with this issue from the beginning. Participants will have invested a lot of time, effort, and money. There are many examples of unsuccessful initiatives in Belize due to poor planning on this matter.

Pat Coyle said in his business, they say, "What if he gets hit by a bus. Then what?"

Pat Coyle thanked all for participating, that this has been extremely helpful and essential to move it from his ideas to a context where ideas are coming in from people on the ground here, which is so important. Hopes we can get it to bear fruit so it is useful to all of you. He will recap notes and get them out to the group for review. He asked them what else, what other last thoughts, in terms of what next?

Marion Cayetano sought clarification about what we hope to accomplish through the mail exchange and how we know what we are achieving, how we know we are progressing toward goals.

Osmany Salas suggested Pat Coyle brief the Belize Open Source board and get their feedback and communicate it to this group. From that discussion can continue. Later,

## Draft

thinks we'll need a structured planning session perhaps a day long, to form a shared objective, vision, and mission, to form a basis for a MOU with partners.

Pat Coyle said the Belize Open Source board is committed and if we bubble up ideas on-the-ground that fit and make sense, have strong community based support, and are beneficial to the region; that the board will go for them in every way we can to see how we can help. Certainly we will have a lot to digest from the session, but he is quite optimistic.

He suggested the key things are what we want to do concretely and what has to happen next to achieve them; then if look further down the line, what are the things we would have to do in order to make the next set of things happen. We will also need to be open to responding to things that emerge that we have not thought of yet.

We could do a lot of the ground work, identify the near term specifics that need to be done at the site to enable the initial objectives, e. g., the environmental science program. He can prepare a draft plan and distribute to the group.

Osmany Salas suggested we draft a concise concept paper, similar to the one they did for Muffles initiative, and then share it with the group. Use it to make the ideas more concrete. Get the ideas on paper, into cohesive concept, and move them along.

Pat Coyle asked Marion Cayetano if he thought with this approach if the email exchange could work for us.

Marion Cayetano said yes, thinks email can facilitate discussion toward some cause. At some point, need to get to where parties see possible projects they can do there on the property. For example, offer a specific course, or apply for and implement a grant for a project.

Osmany Salas suggested we could use a broad concept paper to outline project elements, identify where more specific projects could fit in finer detail, design project profiles for the elements, which could be then be developed into specific proposals.

Marion Cayetano commented that he and people like Michael Rosberg could help with project and proposal writing.

Marion Cayetano asked how long it will take from now to get board meeting feedback, is it three to four months.

Pat Coyle, said expects shorter time frame. Our board is distributed, his thought is four-six weeks, for their feedback. Then, however long it would take for Osmany and him to draft concept paper.

## Draft

He described Kathy Voth conversation today, her excitement about the meeting, and her interest in enlisting student ideas.

Again, thanked all. Wants it to yield results that are beneficial to all.

Draft MOU as a straw man starting point

## MEMORANDUM OF UNDERSTANDING

**Belize Open Source Sustainable Development**, a non-profit corporation (application with IRS and fiscal agent EWB-USA), non-governmental organization based in Livermore, California, USA, that promotes environmentally and socially sustainable development and invites people to collaborate on an open source approach to plan, implement, and participate in a land-based learning and community outreach center and working farm on our 40 acre property in northwestern Belize, near the village of August Pine Ridge, in Belize;

and

**Muffles Junior College**, located in Orange Walk Town, Belize: a Roman Catholic Junior College under the auspices of the Sisters of Mercy, commits itself to quality education that is relevant to the needs of a Belizean society. It strives to develop the total person - spiritually, morally, psychologically, intellectually, emotionally, physically, and socially - in keeping with the teachings of Jesus and in the Mercy tradition. It also seeks to create, through active participation of all concerned, an environment of harmony, tolerance, and respect for individual differences;

and

**Galen University**, located in San Ignacio, Belize, with the mission to provide excellence in undergraduate, graduate, and professional education to prepare students to achieve their dreams and goals. Galen University is committed to providing an exciting and stimulating learning environment, innovative and supportive teaching, scholarship, and active service to the community – with a unique focus on “sustainable development” throughout our courses, programs, and service;

and

**Defiance College**, based in the city of Defiance, Ohio, USA, is a college where students learn to lead and serve in a democracy; learn to understand, appreciate, and have the skills to interact with other cultures; and learn to not only receive knowledge but to make their own knowledge by engaging in interactive experiences. Defiance is an independent, coeducational institution related to the United Church of Christ. Through personal caring attention within an ecumenical Christian environment that values people with different beliefs, our community of learners is dedicated to nurturing the whole person through development of the intellectual, emotional, spiritual, social and physical dimensions of self. We seek to inspire within our students a search for truth, a sensitivity to our world

and the diverse cultures within it, the ability to lead in their chosen professions, and a spirit of service. We want them to know, to understand, to lead, and to serve;

and

**To be determined (TBD others)** if applicable,

have agreed to enter into this Memorandum of Understanding (hereinafter “MOU”) and;

Whereas all parties recognize the importance of education with an emphasis on natural sciences, environmental science, agriculture, and sustainable development as the necessary foundation in order to work collaboratively with communities and local organizations to identify specific needs and to develop strategies to meet their basic requirements of health, education, and economic opportunity by promoting environmentally, socially, and economically sustainable solutions, with environmental stewardship, women's rights, and humanitarian protection integral to these sustainable solutions;

Whereas, there is agreement that it is important to think through goals at various scales, be clear about immediate goals, and formulate intermediate and longer term vision and goals, along with more focused near-term plans. The overall collaboration may well evolve in ways that the originator does not yet even anticipate. There was agreement for the need to categorize objectives as immediate, short term, intermediate, and long term.

Whereas, there is a recommendation to develop a concept paper as the framework to outline project elements, identify where more specific projects could fit in finer detail, design project profiles for the elements, which could be then be developed into specific proposals. Pat Coyle and Osmany Salas, for Belize Open Source, have an action to prepare this for distribution to the group.

In view of the above the Parties have agreed to work co-operatively, as follows:

- In parallel with development of the concept paper and longer term planning, to proceed with the most immediate, concrete idea: partner with Muffles to use the Belize Open Source property to provide practical labs and in-service field training opportunities for students in their new program in environmental science which includes a focus on sustainable development and agriculture.
- This would also include partnering with Mary Ann Studer on her Defiance College work in northern Belize which supports community based development. Especially so, since she expressed interest in educational collaboration with Muffles and other educational institutions in Belize and has incorporated assessment of the August Pine Ridge community and the Belize Open Source property in her near-term work plans.

## Draft

- This is an opportunity to identify suitable collaborative programs, curricula, and initiatives that work for Muffles and have a good fit with the property, nearby communities, and the region. It could also include the Belize Agricultural High School in San Lorenzo as well as Galen's interests and the connection between Muffles and Galen. It could also develop links to primary schools to incorporate the curriculum and field experience early.
- A specific part of Mary Ann Studer's work is soil testing and identification for improvements. This is an opportunity for collaboration on curricula and field work for students that could provide a practical science-based skill with employment or entrepreneurial opportunities and lead to concrete work opportunity for graduates in the area of providing tailored, individualized soil testing and improvement recommendations for growers.
- This initiative would inform site improvements and operations. It could change plans for the property in order to preserve areas of the site as-is to provide "baselines" for monitoring performance improvements achieved by using an integrated natural resource management approach – part of the curricula and field work. It should shape near term plans for the next steps to get the initial operation up and running, the property fenced, get initial livestock there, and any other small projects that do first with caretaker. Feedback from Agriculture Department indicates using goats and sheep looks feasible as a first activity at the core of a sustainable operation, to improve the property using intensively managed grazing to reduce brush and clean the property in preparation for other uses, as well as to provide a kid or lamb cash crop.
- The near term infrastructure needs at the property to support the start of this initiative appear to be minimal. Initially, they might include: additional restroom facilities; a sheltered space with chairs and tables for student, teacher, and visitor teams to meet, work, and present results; secure storage for supplies and equipment; broadband internet access. Additional needs would be identified as the initiative developed.
- This Memorandum of Understanding (MOU) between the participants describes the initiative and formalizes the other parties' access to the Belize Open Source Sustainable Development property, with the protocols, and terms and use to be mutually defined in subsequent documents as an annex to this MOU.
- There was agreement that it is important to think of the sustainability and continuity of the program and projects from the very beginning; need to take into account that people may move on as the years go by and take care with this issue from the beginning. This MOU represents a step in addressing this.
  - More specifically the above Parties agree to:
    - do joint and independent fundraising to reach the

Draft

widest array of funding sources so as to fund all aspects of all projects covered by the alliance agreement,

- that all organizations will strive to improve the technical capabilities of the alliance members,
- that the other parties may represent Belize Open Source in Belize and that Belize Open Source may represent the other parties in the USA respectively in pursuit of agreed goals on joint projects,
- design projects in the short term that may be accomplished in a relatively short amount of time with a high percentage of success
- use the concept paper as the framework to outline additional near-term, intermediate, and long-term project elements; identify where more specific projects could fit in finer detail, design project profiles for the elements, and develop specific proposals. for project implementation

This MOU is agreed to on April 1 of 2008 and will remain in effect for five years when it will be subject to review and reapproval. The intent is that this will be an enduring long term partnership.

Approved:

---

Pat Coyle, Chief Financial Officer/Treasurer  
Belize Open Source Sustainable Development

---

Adrian Leiva, Dean  
Muffles Junior College

---

Marion Cayetano, Vice President-Planning  
Galen University

---

Draft

Mary Ann Studer, Assistant Professor of Physical Science  
Defiance College

---

To be determined (TBD others)

The following meeting announcement and invitation provided background information and the purpose of the meeting

Osmany Salas has set up the planning meeting as follows:

Osmany Salas <[osmany.salas@gmail.com](mailto:osmany.salas@gmail.com)>  
Romero, Edilberto <[edilberto.romero@gmail.com](mailto:edilberto.romero@gmail.com)>  
Leiva, Adrian <[mjc@btl.net](mailto:mjc@btl.net)>  
Cayetano, Marion <[planning@galen.edu.bz](mailto:planning@galen.edu.bz)>  
<[mino\\_esquivel@yahoo.com](mailto:mino_esquivel@yahoo.com)>  
javier moreno <[ojm.mor@gmail.com](mailto:ojm.mor@gmail.com)>  
Adrian Leiva <[agmleiva@yahoo.com](mailto:agmleiva@yahoo.com)>  
<[dacorangewalk@gmail.com](mailto:dacorangewalk@gmail.com)>  
Programme For Belize <[pfbel@btl.net](mailto:pfbel@btl.net)>  
Pat Coyle <[pat@coyles.com](mailto:pat@coyles.com)>  
Belize Open Source - Sustainable Development  
2/14/2008  
10:35 PM  
February 14, 2008

\*\*

\*Attention\*:

Edilberto Romero, Executive Director, Programme for Belize  
Marion Cayetano, Vice President-Planning, Galen University  
Adrian Leiva, Dean, Muffles Junior College  
Belarmino Esquivel, Orange Walk District Agriculture Officer  
Javier Moreno, President, Rotary Club-Orange Walk  
Cecilio Pech, Principal, Belize High School of Agriculture  
Natalio Soliz, August Pine Ridge  
Dear Sirs,

Belize Open Source - Sustainable Development is a novel initiative that intends to enable people to collaborate to promote environmentally and socially sustainable development. Belize Open Source has a fiscal agent and broader partnering agreement with Engineers Without Borders-USA (EWB-USA). A unique aspect of Belize Open Source includes development and operation of a land-based learning and community outreach center and working farm (sustainable development field station) on a 40 acre property in northwestern Belize, near the village of August Pine Ridge in the Orange Walk District. Belize Open Source intends to carry out its work in a way that is beneficial to the people in the local community and to people who participate at all stages of the life cycle of the project to establish it and then operate it.

## Draft

Pat Coyle, the founder and Chief Financial Officer/Treasurer of Belize Open Source, will be in Belize from January 15th to March 2nd. Pat was in Belize from '74 - '77 working with his family on the Carver property between August Pine Ridge and San Felipe. He bought the 40 acre property and had the semi-savannah property cleared, disked, and planted to about 2500 cashews to fulfill the development concession terms. He had not been back until August '05. After a site visit and discussions with people in the community he decided to try to put it into operation in a way that is self sustaining and beneficial to the surrounding community.

In short, Belize Open Source has the following objectives:

- To promote environmentally and socially sustainable development; including, but not limited to, development and operation of a land-based learning and community outreach center and working farm (sustainable development field station) in Belize;
- To work collaboratively with communities and local organizations to identify specific needs and to develop strategies to meet their basic requirements of health, education, and economic opportunity by promoting environmentally, socially, and economically sustainable solutions, with environmental stewardship, women's rights, and humanitarian protection integral to these sustainable solutions;
- To develop a novel/innovative sustainable agriculture demonstration program, that could be used by students and locals; and
- To identify specific collaboration agreements and get them in place and identify specific recommendations and actions to implement them.

The Belize Open Source website lays out the primary purposes and objectives that were used in its incorporation documents at <http://belizeopensource.org/about>.

While Pat is in Belize, he and I would like to meet with key members of the educational and agro-environmental sector to discuss and explore ideas for the development of his property in collaboration with key stakeholders. We want to identify next steps to initiate programs and collaborations to include others in sustainable education initiatives.

To this end, you are hereby cordially invited to a meeting on Friday, February 22, 2008, in Orange Walk Town. The meeting will be held at the Muffles Junior College (San Estevan Road, Orange Walk) from 1pm to 5pm. Snacks and refreshments will be provided.

Please confirm your attendance at your earliest convenience. If you have any questions, please do not hesitate to ask.

We look forward to seeing you next week Friday.

[pat@coyles.com](mailto:pat@coyles.com), <http://belizeopensource.org/>

Draft

Best regards,

Osmany Salas  
for Pat Coyle  
Belize Open Source

-----  
BelNaRM Strategies  
19 Guadalupe Street  
Orange Walk Town, Belize  
Tel: 602-2535  
-----

The meeting was conducted per the following agenda.

Belize Open Source Brainstorming Meeting

Friday, February 22, 2008

Muffles Junior College Conference Room, Orange Walk

AGENDA

1:00 pm	Introductions and Brief Overview	Pat Coyle and Osmany Salas
1:15 pm	Depart on field trip to August Pine Ridge Property, return to MJC	All
3:00 pm	Snacks and refreshments at MJC	All
3:15 pm	Welcome Remarks/Overview of Belize Open Source/Purpose of Meeting	Pat Coyle
3:30 pm	Open discussion - Belize Open Source's Purpose and Objectives	All
4:45 pm	Next Steps	All
5:00 pm	Adjournment/Departures	