Dear Friends

We are back home now with good memories of the Briquette Producer's Conference in Arusha. It seems like yesterday! Thanks again for your active participation! We look forward to staying in contact as our briquette producer work grows and matures.

We received comments from a few people, so revised the report with those in mind. We are attaching then, the FINAL report from the conference. We have changed the page format to A4 which should make printing easier!

All the best for this Holiday Season.....in America it is quite a big event and we enjoy the emphasis on family get-togethers, sharing celebrations and the overall joyful spirit that seems to prevail during this time of the year. Wishing each of you the very best for the coming New Year!!!

Pressing On!

Joyce and Richard

Briquette Producers' Conference
November 9-14
Olasiti Garden Lodge
Arusha Tanzania

REPORT OF CONFENCE PROCEEDINGS

Background

Through a grant provided by the McKnight Foundation, Legacy Foundation was funded to conduct a briquette producers' meeting/workshop, as a follow-up to the Training of Trainers that was conducted in 2009 for groups from Tanzania (Chamavita) and Uganda (Uganda United Women's Association). The purpose of the Briquette Producers' Workshop was to provide an opportunity to assess the impact and progress of the original TOT and to begin a process of developing a briquette producers' network, so that lessons learned regarding briquette production and usage could begin to be shared between the countries/groups.

As Legacy Foundation is working with a much wider network of briquette trainers and producers throughout Africa, it was decided to expand the outreach of the conference to other producers in these regions, if they were willing to pay their own costs to attend. We received responses from Kenya, Mozambique, Chad, Ethiopia, Rwanda, Burkina Faso, Sudan, Botswana, the DRC and South Africa. Although not all could attend the conference we benefitted much from their "virtual presentations" which are available, online.

As per the original objective, the majority of the participants came from Tanzania and Uganda, but the input of the other participants enriched the sharing of information and allowed the participants an opportunity to build a new and wide network of briquette producers.

The following report is a brief chronological summary description of the proceedings. The value of the conference is not so much in this report but rather in the attached list of participants, which will now be the basis for future sharing of experiences, learning, issues, successes and briquette making ideas and solutions. The Network has been established and will now have an opportunity to grow, expand and thrive, on its own.

November 9, 2010: Monday

Arrival of Participants

Participants arrived by plane, bus and car; some taking an 18-hour bus ride. The Olasiti Garden Lodge welcomed the arrivals with a lunch and a place to rest and get ready for the workshop to start. Informal introductions and briquette discussions began immediately, as the Olasiti grounds already had a large display of briquette technology for viewing: The Thresher Masher Chopper, the Mini-Bryant Press, the Peterson Press and a newly designed Ratchet Press.

November 10 2010: Day 1: Tuesday - Morning

The proceedings began with a welcome from Steve Kitutu, the Executive Director of TROSS Solar Systems in Arusha. He welcomed everyone to Tanzania for the conference, in KiSwahili first, for those who do not use English. Richard Stanley then

repeated the welcome in English, for those who did not understand the KiSwahili. The welcome remarks are attached in the appendix. Richard added a few words about the importance of cooperation emphasizing that, with current population growth; there would always be enough of a market for briquettes. At present the producers are not even touching the population growth rate, so the idea of competing with each other is unnecessary. We can only make each other's production better and stronger with more cooperation.

It was then noted that since the participants were the 'guests of honor' it would be good get to know each other with introductions. Each participant was asked to find a person they did not know, meet with them for ten minutes and then introduce their partner to the rest of the group. With 50 participants this took some time, but it was an enjoyable and rich session, demonstrating the diversity of the group attending, from village-based producers to larger scale business producers to researchers to trainers.

The group then did all of the housekeeping chores, selecting a timekeeper, establishing norms, selecting rappateurs and developing a timetable. A CD was given to the producers at the end of the conference, which has photos of the newsprint that was developed through this interactive session. As well the CD has some 130 professional photos of the conference proceedings.

With the opening activities completed, the conference moved into the important element of group/individual producer reports. The format established was that a full afternoon or morning would be devoted to a country and its representative participants. Tanzania began their presentations on Day 1, followed by Uganda and Kenya on Day 2 and then the other regional countries on Day 3. This was followed by a full afternoon focused on technologies and briquette production techniques. The final day focused on solutions and a way forward based on the issues that were derived from the previous days' presentations and discussions.

The overall timetable is attached in the appendix.

November 10: Day 2: Tuesday - Afternoon

Tanzanian participants – The following groups presented their experiences in briquette production and sales.

1. TROSS: Tanzania Solar and Renewable Energies: TROSS is the Tanzania facilitating organization representing McKnight and Legacy Foundation in Tanzania. They have been instrumental in organizing training, marketing and business/group development of the various Tanzania producers.

2. Grace Healing Ministry, Dodoma (2 active producer groups): They were trained by the Mkombozi Group (Lushoto) and are beginning to develop their briquette production activities. Their vision is to to go 'big' and go 'green' and to create a local industry for briquette production. They have approximately 15 participants and are just at the beginning stages of production.

3. CAMARTEC: Camartec is a Tanzanian national appropriate technology and agricultural mechanization organization that does research on agriculture related technologies. They are a link to both technology development and technical assistance to briquette producers. Their goal is to network with

briquette producers to promote better stoves and research different methods for briquette production.

4. TEMDO: The Tanzania Engineering and Mechanical Design Organisation is producing compressed briquettes from tannin bark on a large-scale commercial basis. Their production work was an interesting contrast to the small-scale producers. From the TEMDO work they have created a private business: Nishati Poa Services, which sells briquettes at from 200-400 TZ Shs. Per kilo. The industrial machine they use creates a continuous log of briquettes from wattle, charcoal dust and sometimes paper.

5. Mama Mkaa wa Briketi: (Honeyguide) The producers were trained by the Mkombozi Women's group and are beginning small-scale production in support of tourist facilities in Zanzibar and the Serengeti. They are in the testing and decision making stage of briquette production – how to operate, finding good recipes, creating a business model etc. They currently have donated land for production. Their briquettes are made from sawdust, leaves and paper. They are also in the process of organizing a KiSwahili translation of the Legacy Foundation Briquette Manuals.

6. Mkombozi: Lushoto: This group is a spin-off from Chamavita and now is the main training organization in Tanzania. With McKnight funding they have established a training center in Lushoto, participated in various marketing activities through trade shows in Tanzania and are fully involved in both training and briquette production activities. All of the Mkombozi members no longer burn fuel wood or charcoal, but are only using their briquettes for cooking. They provide an outstanding example of successful progress from receiving training in 2007, to receiving TOT training in 2009, to becoming a fully operational briquette training and production unit. They have made a profit of TZ Shs 450,000 this year.

7. WOODSTA: is a National NGO in support of women's small enterprise development. They received briquette production training from the Mkombozi trainers and are subsequently doing some small-scale production. They were able to bring their briquettes to the conference for use/burning at the final evenings' barbecue. (They were not available for a presentation, but they did attend most days of the conference offering technical support in briquette materials processing).

8. Community Forestry International: A tree planting organization based in Canada, partner organization in Pemba, Tanzania. Community Based Tree Nurseries plant 100 000 trees a year on the island of Pemba. CFI is innovating with briquette production by using the briquettes as a planter/base. The problem they are facing is finding good recipes for fuel briquettes and planting pods. They attended the conference to share this innovation and to learn how to expand their use of the briquette technology into biomass briquette production as a fuel wood/charcoal replacement. Participants were interested to learn about this different, effective way of using the briquette press. Their vision is communities that can reduce tree extraction through fuel briquettes AND increasing forests through addition of trees through agro forestry projects.

9. WEMA (UBIRI) Lushoto: The Mkombozi group in Lushoto trained twenty producers in 2009. Their production activities remain small scale with individual members using the briquettes in place of firewood and charcoal, but with no sales of briquettes at this time. They stated their constraint was lack of drying space, but there is a Ubiri center with storage rooms that might be able to be used for briquette drying in the rainy season. Their vision is to use solar dryers to dry briquettes during the rainy season and to join and be an active part of the network of producers.

10. Lukozi/Lushoto: Mangare: This group received training in 2007 and has since created a local 'briquette school' with four production groups each with about 30 producers / members, with each group producing about 320 briquettes/day. They are working within the Savings and Credit Group Model with producers contributing for the purchase of presses and technology. These members are very active as producers but need more skills in marketing and an upgrade in technology from using a mortar and pestle to the use either of a TMC, or possibly with next year's McKnight funding (since they are in Lushoto) an investment in a Lushoto Mill for processing materials on a larger faster scale for all the Lushoto groups.

11. Amani na Upendo, Lushoto: This group was another trained in 2007 that is now an active SACCO group. 15 producers produce briquettes for their own use. This group could become part of the Lushoto cooperative using a maize mill for materials processing.

Note for Lushoto Groups: They have large amounts of wattle available as a material source, the same wattle being used by TEMDO. With a maize mill the six Lushoto groups could share the materials for briquette production locally and/or sale outside of Lushoto.

After each 15-minute presentation there was 10 minutes of discussion/questions. The following issues arose during the discussions:

- Why do some briquettes smoke and others don't?
- What recipes are people using and why?
- Should briquettes be standardized?
- What are some of the better storing the drying techniques?
- Group organization: how were the groups formed? What is the group organization procedure?
- Marketing: if establishing a business what are some of the best ways to market briquettes
- Business Development: Is it enough to be a production group for the groups' own usage of briquettes or is it necessary to sell briquettes?

November 11: Day 2: Wednesday: Morning - Uganda

The proceedings began at about 8:30, with presentations from the Uganda members. The Uganda group was represented essentially by three groups:

- The Uganda United Women Association that received briquette producers training in 2007 and then TOT training in 2009, both under McKnight funding. The second group,

- UWESO, (Uganda Women's Efforts to Support Orphans) was represented by five members who were trained as producers in 2009 by Legacy Foundation and UUWA/J during the TOT practicum held in Kampala in March of 2009.
- NIMCBO: consultants hired by Legacy Foundation to provide support to UUWA/J in business development and to do a preliminary evaluation of the briquette producers' progress after the 2009 Training of Trainers and Practicum.

The reports therefore are best seen in connection to each other and in a context of the two participating groups which received training.

1. National Report from LF Consultants who evaluated the programme in Uganda in 2009: NIMBCO: Ziria Ndifuna and Timothy Lubega. Their report was a review of their 2009 assignment to evaluate the progress of the 2009 UWESO training which took place in Uganda in March 2009. They provided the 'before' picture outlining some of the problems being faced by each of the trainees in setting up their briquette production units. Their power point is attached in the CD with all of the power points from the workshop that was given to all of the participant groups. In essence they reported that the group's had difficulty starting their businesses because there were initially no funds for briquette technologies/presses; when they did get a press it was too small for large scale production; there was no machinery for materials processing; participants lacked business skills and some refused to come to training because no food was provided. They reported that eventually another donor ACCION provided grants to 10 producers for the purchase of a briquette press, allowing for the development of the various small producer businesses. Overall they presented the 'before picture'; the UUWA/J and UWESO presenters followed with comments and more current progress reports.

2. UUWA/J Mbale: Victoria Akia Israel: Their group has grown since the first briquette producers' training in 2007. They are now an active training group which has completed demonstrations and training for over 800 small-scale producers since the TOT in 2009. (UUWA/J's interpretation of training includes demonstrations and multi-day training events. Actual multi day training has taken place for approximately 15 groups since the TOT). (Note: In the authors' own experience, this is not an unreasonable interpretation: The rate of take-up varies highly according to the skills and resources of the trainee. Some require many days others, only one or two.) UUWA/J is not as active as producers, but remain with a commitment to build up their production once they have a good site (Currently they operate out of an urban office and do not have adequate space for briquette production). They currently have a proposal with President Museveni for a two-district/15 county briquette producers training to offset the damage done by the recent floods/ mudslides. (Vickie presented him with a proposal, by hand, when he visited the areas affected by floods and mudslides and has received a very favorable response from the President and his Gender Specialist Office. She met with the President in his office, subsequently and the proposal is in the final stages of development. (We wish her all the best with this project!)

3. Uganda NGO Forum: Mbale: Aidah Wetungu: This group is working with UUWA/J to ensure that they register as a National NGO (they are currently registered as a CBO). They are further providing UUWA/J with

training in organizational development, finance and business management.

4. RWICOD: Flavia Masika: MOTO - Women Making a Difference. This group learned about briquetting on the Internet, contacted Legacy Foundation, who referred them to UUWA/J for training. They were recently trained by UUWA/J as producers. They are a small group and have minimal production working only two days a week and producing about 150 briquettes a day, but they have plans to expand their production and begin training other groups in their region. They charge UG shillings 50 for each briquette and were happy to learn that others are actually charging and getting UG shillings 100 per briquette. They are scheduled to receive TOT training from UUWA and have a grant to train more producers in Kasesse district.

5. YENATA SACCO: Pastor Godfrey Wakhooli: This group of 15 members has received training from UUWA/J and are currently producing briquettes for group consumption. They attended the workshop to learn more about marketing their briquette product. They currently earn about UG shilling 5000 in profit (about $2.5).

6. Bruce's Briquettes (UWESO, Butaleja): As above this is a new production group looking for skills in briquette production, marketing and business development. They make between 150 and 350 briquettes per day depending on the number of hours they work. They keep good records and promised to share their record keeping sheets with the group. They said they need more funding for business development, but didn't yet consider that selling briquettes might give them the funding they need.

UWESO Participants. Each of the following five participants presented a report on their own group/individual briquette producer development. As trainees in 2009 and after getting off to a slow start because of lack of presses, they have progressed in both their own production and most importantly in their training of other UWESO members. The UWESO group is impressive in that they have 150 groups throughout Uganda with 30-40 representatives in each group and in most counties, so the potential for expansion to all of Uganda through UWESO is excellent. The hurdle has been and continues to be lack of briquette making equipment for a group. It was noted that since the UWESO groups are all Savings and Credit organizations with the potential to raise funds themselves to buy their own briquette presses, they could put more effort into encouraging the groups to use their own savings to make or purchase briquette presses. With some discussion the groups may now consider this option.

It seems that once the equipment is in place the groups, with basic training, are able to figure out mixtures, materials processing, drying and selling. The issue of smoke came out in each of the presentations, with appreciation by the members of learning from the experiences of others regarding smoky briquettes.

7. Eunice Mwananwnai/Kassese: Small production unit in her village.

8. Marjorie Kirondi / UWESO Mukono: group works 2 days a week, producing about 150-300 briquettes a day, with most of the production by her family members.

9. Ntambi Teddy / UWESO Wakiso: most active UWESO trainer who have trained over 20 groups, but all suffer from expansion because of lack of technology. they look for grants and have not yet considered purchasing a press on credit or with their savings.

10. Harriet Kizza / UWESO Masaka: After going home from the Legacy Foundation/UWESO training without a press, she made her own 'hand press' and now is producing 200-250 briquettes over a two-day period, selling them for UG Shs. 100/- each. She generates about UG Shs. 10,000 per week or about $5.00 a week. It was noted that this is not a huge amount, but that it was 10,000/- more than she was earning before selling briquettes. She hopes to expand her business so that she can buy a press in the coming year.

11. Margaret Amongin UWESO Soroti: She explained that she built a press immediately after the training, but then let it stay in her store because, as she noted, she did not have the funds to feed briquette-making trainees. It took some time but eventually she and her family began making briquettes. She still has serious issues with smoke as a problem with briquette making.

November 11: Day 2: Wednesday: Morning - Kenya Presentations

1. CEDO (Community Enterprise Development Organisation) Kenya: Isaiah Maobe: CEDO began as a small-scale producer and now does both production and training. He mastered the art from the Kangemi Women's Empowerment Association/ Charles Onyando (see below). He is now actively involved in training and business marketing skills and is a full time producer, trainer and advocate of biomass briquettes and technology. He has designed equipment including stoves, nut shellers so that nutshells could be used in briquettes. He was technical resource and translator throughout the workshop.

2. ECO STRADA: Charles Onyando: Charles was first trained at Kangemi by the Miumbuni Women's Association (Mary and Francis Kavita (see below). He has since developed a flourishing, private, training and production business and is always at the forefront of experimentation and innovation with briquette production technologies and briquette preparation techniques. He was a valuable resource to some of the newer producers, demonstrating various preparation techniques. Charles claims that 800 briquettes can be produced in 8 hours of work, with each briquette weighing .25 kg. Each bag he sells carries 104 pieces thus 8-bags/day production is possible. They normally sell the briquettes at 800 Kenya shillings a bag/ about $12.00 . Each briquette is sold at 10 Kenya shillings, or about 15 US cents. Briquettes containing charcoal dust are the best sellers and after being dried never spoil from moisture. (Author's note: The regional averages have been more like 3 to 6 us cents per briquette but these are generally much lower in calorific value and burn duration than Charles's, near 100 percent charcoal blend. The market varies considerably.)

3. AOAW (A One are We Self Help Group): Based right in Nairobi, Steve Mburu group is very new to the briquette making business. He learned briquette making from a group called Hook and has been in business

only three months. He attended the conference to learn more to improve his new business.

4. Miumbuni Women's Group: Francis and Mary Kavita: Mary and Francis presented separate reports, but in summary their organization was the first to be trained in Kenya. Legacy Foundation trained them in 2000 with the help of the Wood family and they have since established a flourishing briquette production and training business. They travel throughout Kenya and the region now as trainers while continuing their own successful briquette production and sales business in Miumbuni. They have trained producers in Masaii Mara, Nairobi, Mombasa, Malindi, Kisumu, and helped Legacy Foundation to initiate training both in Lushoto Tanzania and Uganda with the UWESO organization. Mary and Francis continue to be a primary Legacy Foundation resources for regional training. They were scheduled to provide technical assistance to a large briquette production in the DRC, project (over 1,000 presses in operation at latest count) but the funds have not yet come through for that work. They are highly qualified as briquette production trainers and were an excellent resource for briquette production and burning demonstrations during the conference. Both of their presentations were especially useful in giving tips for briquette materials preparation, mixtures and burning to help avoid smoke.

6. KIRDI: Willis Makokha (Kenya Research and Development Institute): Mr. Makokha is the head of the Energy Unit of KIRDI and is available for both research and development of briquette making technology and briquette production/usage studies. His organization has developed machines for processing briquettes and they are conducting physical and chemical analysis on briquettes i.e. moisture, ash, mixed carbon, nitrogen and sulphur content, etc. They are also testing the benefits of carbonized vs. non carbonized briquettes and have developed a machine that can produce carbonized and non carbonized briquettes. He encouraged the standardization of the briquette making process which resulted in an interesting discussion about whether or not briquettes should be standardized.

7. Wildlife College, Naivasha: Ed Morrison and Elija Chege : Their focus was two fold – Briquette production using papyrus through the University of Leicester (Ed) and Community Media Production (Chege). The participants look forward to seeing the video which Chege produced during the proceedings.

<u>Issues Arising Day Two</u>

1. Funding sources for business development and equipment purchases
2. Briquette Quality control
3. Briquette Business viability: How much time is spent collecting materials?
4. Briquette Standardisation : Standard composition of the briquettes (raw materials), standard weight and size of the briquettes and standard price of the briquettes. Of course this will vary but it would be useful. How do you decide the size of your briquette?
5. Business Development: How to start and maintain a briquette production business?
6. Marketing

7. Technology Innovation: how can we spread some of the innovations which have been developed by the various producers.
8. Environmental conservation: Are you instilling environmental values into the children so that they make the connection with the importance of using briquettes over firewood?

November 12: Day 3: Friday AM : RWANDA

1. Mountain Gorilla Veterinary Project: This project started as a small-scale production project based on a larger project already established in the DRC. The objective was to preserve gorilla habitat through decreasing or eliminating the use of charcoal in the region. The project is just getting off the ground but is already making a considerable impact. Their main problem was smoky briquettes, but with recent technical assistance from a representative of the DRC project, the group is becoming more proficient at preparing materials for production, drying the briquettes and burning them at a hotter combustion level, all of which help with the smoky problem. They produce about 500 briquettes/day ; one household uses 30 briquettes/day, so they are serving only about 15 households/day. They emphasized that they were in the early stages of their project and have thus far learned these lessons: how to experiment with new raw materials, how to test the mixture, how to test the dried fuel briquettes. Enhancing this program will resolve the problem of illegal tree cutting where gorillas live and enhance the livelihood of local producers.

2. Art of Conservation Project: The Art of Conservation works in rural communities bordering Volcanoes National Park in Rwanda, teaching school children and other community members about the importance of maintaining a healthy environment. They were first trained in briquette making in December 2009 by Robert Williams of the Gorilla CD project in the DRC , who was trained by Legacy Foundation is 2008. Cecile uses the wood press and recycled paper from local offices, sawdust purchased from local carpenters and water. They are dried in a greenhouse. Cecile and her husband produce a minimum of 300 briquettes/day, 3 burn for approximately 20 minutes. Their main challenges included: smoke, faster burning time than charcoal, lack of awareness of local community of benefits, some community members thing briquettes are more expensive than charcoal. Successes: They continue to experiment and problem solve in order to enhance their projects. One interesting success they found was when they placed the briquettes in the stove on an incline, so that they are sloping inward towards the top, the stove then produced significantly less smoke. Finer processing of materials and selecting the type of stove that one uses also reduces the amount of smoke. (Authors note; Legacy Foundation and Robert Williams put together a short Frequently Asked Question Sheet on smoke reduction. It is attached in the appendix and available freely through Legacy Foundation as well as through the Gorilla CD project online. The Rwanda participants also commented that some smoke is actually good for aromatherapy, particularly eucalyptus. (Authors note: A smoke free way to emit aromas and to assure quick ignition , is to pre heat the briquette by suspending it alongside the stove. This was demonstrated subsequently in the conference).

3. Sudan Project: Aheudit women group was established 2007;the group's headquarters is in Kan Ajak Village, Awiel east county (A/E/C), Northern Bahr El Ghazal State south Sudan. The group work focuses on two goals:
   Education - the group has since established a school at the village through voluntary effort
   Environment - the group will embrace the briquette production as an alternative for firewood in a community that where over 95% of household use firewood and 80% of women ferry firewood to the market every single day.
   James Ochieng, the facilitator of the project, learned about briquette making on the Internet and received technical support from Legacy Foundation online. It appears that the technology will transfer well because the women are using a mortar and pestle which is common within every household. Young girls use it every day to pound out flour for the household. This project will first be implemented in a school that James helped to build while living in Sudan as a volunteer for 4 years. If it proves to be successful he hopes to introduce briquette making at other schools in Sudan. This project is interesting because currently, students are required to bring one piece of firewood to school and the children collect these along the roadside close to school. It is ingrained in the children at a young age that firewood is essential for eating. If the children become involved in briquette making instead, they will be less likely to use firewood in the future and thus, leading to strong environmental ethics that support forest conservation. James intends to report further on this and spread information about the projects success in Sudan over the internet.

4. ECOMAKE Kigale Rwanda: Ecomake conducts technological research, promotion and marketing. Business opportunities in alternative energy from waste include: land fill (Methane gas), landfill waste for briquettes, biogas and biomass.
   a. Objectives: Technological research and development, promotions and marketing, technological representation.
   b. Success: Completed a briquette production factory and plan to start in February 2011. They are using a machine from Germany that has the capacity of producing 2.4 T/day requiring 7 people for labour. The machine costs $100,000 US.
   c. Initial Challenges faced before the business/project started: Lack of business plan, lack of finance for proper equipment and infrastructure, less consideration of the value chain, lack of trained staff, lack of quality standards for raw materials and finished products, small production and bad pricing, lack of health and safety standards and environmental compliance, lack of sales and marketing plan, lack of incentives/support from third parties. Appropriate solutions: research and development before starting production, develop a Business Plan and secure real financing, secure your network, make sure your staff are well trained, maximize your resources, fix your product price, set standards for your product.
   d. Tests being conducted: 1) moisture content, 2) smoke, 3) gases test 4) calorific value 5) efficiency (CO2, CO, S2, N2).
   e. This project is planned to be a large-scale production project of briquettes using a sawdust and paper-compressing machine which was given to the group under a fully funded project. Their presentation provided information, like TEMDO's, on a much

larger and more centralized scale of biomass briquette production activity. The group recognized that this kind of production was not necessarily competition, but another option for eliminating the use of fuel wood or charcoal as a cooking heat source.

Following the morning presentations, the group was invited to visit TEMDO/ Tanzania to see the briquette production technology for a large-scale production process. They spent time at a large manufacturing facility looking at an option that was frankly well out of the reach of most participants. But they said they appreciated seeing the various levels of briquette production. After visiting TEMDO, the participants were able to spend some time exploring Arusha town. (Author's note: Temdo seems equipped and ready to supply a smaller hammer mill for shredding materials, an essential piece of equipment for the larger scale producer of the lower pressure, fiber-bound biomass based briquette.)

Issues Arising from day 3:

1. Large scale vs. small-scale production: what is appropriate and for whom?
2. Smoky briquettes; how to improve preparation, drying and combustion.
3. Standardization : is it necessary?

November 13: Day 4 Saturday : Summary and Recommendations

Based on the previous presentations and discussions the following **issues** were summarized:

- Briquette Quality Control
- Briquette Materials Preparation and Drying.
- Briquette Standardization: Should we or shouldn't we?
- Marketing of briquettes and briquette training businesses
- Business Skills
- Business Development
- Management and Leadership Skills in a Briquette Business
- Capital for Investment in business development, training, etc.
- Networking: How can we set up a network to make it work for the group.

Based on these general issues, the large group was divided into 4 sub groups to discuss the following main issues and develop a way forward for the group:

1. Briquette Quality and Standardisation
   - Briquette Preparation
   - Briquette Drying
   - Briquette Burning
   - Standardisation
2. Business Development and Management
   - Funding Sources for Business Development
   - Management Training for Briquette Producers
   - Business Skill Development and Training
3. Marketing
   - How to market briquettes
   - Marketing techniques for the briquette producer
4. Networking and a Way Forward
   - How to build a briquette producers network

The conclusions of the group/newsprint summaries are attached in the appendix. The main discussions for a way forward were around the idea of standardization, marketing and networking. Everyone agreed that business development skills were needed as part of the way forward.

As part of the way forward it was decided that Legacy Foundation would produce and distribute a full list of participants to initiate the network and begin a dialogue on the issues that were raised and recommendations that were given. The key now is to encourage continued communication between participants. In that regard and thanks to the CFI participants, Legacy Foundation was able to open a 'local website' for briquette producers on the www.envaya.org/legacyfoundation website. Each group was also encouraged to create their own website through Envaya and Honeyguides has already done that.

Envaya is a new community-networking project in Tanzania which allows local NGOs and CBOs to create free websites and to access them through their cell phones. Eventually the goal is to be able to upload information and comments through cell phones. The envaya idea is a very exciting and positive opportunity for the groups to stay in touch as a network, as many or the real producers and trainer groups with the most skills and greatest needs for marketing their services and products , or just exchanging information with other producers and trainers --- do not have practical or affordable access to the internet.

Summary of Successes:

Its probably quite safe to say that briquette making has taken hold in East , Central and Southern Africa ! What started as a small TOT project has grown into a budding network of Biomass Briquette Trainers and Producers. From the McKnight Grant, what started with two training groups, Chamavita and UUWA/J, has led the development and implementation of over 30 production groups in those two countries and through other networking, well over 60 production groups in the region. It is also safe to say that the number of produces in smaller villages and towns is probably double this number but like the very nature of its growth, these producers are mostly based in the informal sector where communications and network exposure is least likely.

Legacy Foundation is excited to proceed, together with the briquette trainers and producers, to help build a network which can be sustained by the actual trainer and producer - one which is not only for assisting them but also for having them assist others in a sustainable manner. De-forestation demands that we act quickly however we have not even begun to touch the rate of growth of the population in the respective nations, as the subsequent tables of training and impact show below.

Briquette Training and Production Impact (Groups 2009-2010)	**Focus/staffing**			**. Persons trained**	**Production impact ***			**Market reached** @av. of 3 Bqs per person per day unless noted	**Wood /charcoal demand Substitution** (tons/yr)***
. √ = *data complete* . –– = *not applicable* *0 = insufficient data*	Research	Production	Training		Bqs /day**	Production days per month	Production per month		
TANZANIA:									
1. TROSS: Arusha	√		√	—	—	—	—	—	—
2. Grace Church; Dodoma		√		15	270	9	2430	27	10
3. CAMARTEK Arusha	√		√	—	—	—	—	—	—
4. TEMDO /Nishati Poa Services: Arusha ****	√				2000	22	44000	489	178
5. Honeyguide: Arusha		√	√	15	0		0	0	0
6. Mkombozi: Lushoto:		√	√	100	2500	9	22500	250	91
7. WODSTA: Arusha		√	√	4	250	9	2250	25	9
8. Com. Forest. Int'l; Pemba	√		√	4	—	—	—	—	—
9. Wema (UBIRI): Lushoto		√	√	15	0	0	0	0	0
10. Lukozi: Lushoto		√	√	120	1280	22	28160	313	114
11. Amani na Upendo; Lushoto		√	√	15	270	22	5940	66	24
Sub total: Tanzania				***235***	***6,570***		***105,280***	***1,170***	***427***

UGANDA:									
1. NIMBCO: business Mgmt. Consultants	√		√	—	—	—	—	—	—
2. UUWA/J Mbale		√	√	820	40,000	9	360000	4000	1460
4. RWICOD: Rwenzori		√	√	4	160	9	1440	16	6
5. SACCO: Yenatta		√	√		0	0	0	0	0
6. UWESO, Butaleja		√	√	11	250	9	2250	25	9
7. UWESO, Kassese:		√	√	4500	4500	9	40500	450	164
8. UWESO, Mukono:		√	√	7	250	9	2250	25	9
9. UWESO, Wakiso;		√	√	140	5,000	9	45000	500	183
10. UWESO, Masaka;		√	√	?	250	4.3	1075	12	4
11. UWESO, Soroti:		√	√	7	150	4.3	645	7	3
Sub total: Uganda				***5,735***	***50,285***		***452,565***	***5,029***	***1,835***

KENYA:									
1. CEDO Nairobi	√	?	√	0	0	9	0	0	0
2. ECO STRADA; Kangemi	√	√	√	0	800	9	7200	80	29
3. AOWA Nairobi		√	√	6	200	9	1800	20	7
4. Miumbuni Women's Group; Sultan Hamud		√	√	960	2800	15	14400	160	58
6. KIRDI; Nairobi	√			—	—	—	—	—	—
7. Wildlife college, Naivasha	√		√	—	—	—	—	—	—
Sub totai: Kenya				***966***	***3,800***		***23,400***	***260***	***95***
RWANDA									
1. Mountain Gorilla Veterinary Project:		√	√		500	22	11000	122	45
2. Art of Conservation		√	√		300	22	6600	73	27
3. ECOMAKE Jan 2011		√		7	4800	22	105600	1173	428
Sub total: Rwanda				***7***	***5,600***		***123,200***	***1,369***	***500***
SUDAN									
1. ADWG	√		√	0	0	0	0	0	0
Sub total: Sudan									
BOTSWANA									
1. RIBCO: Thuso Mogaetsho n/a	√			0	0	0	0	0	0
Sub total: Botswana									

Virtual Participants: responses and waiting for responses									
CHAD									
Eco fuel Mark Heath √	√	√		25	1500	22	33000	367	134
Sub total: Chad				***25***	***1,500***		***33,000***	***367***	***134***
BURKINA FASO									
SOS Economies	√	√	√	0	0	0	0	0	0
Sub total: Burkina Fs									
ETHOPIA									
Merawie		√		0	0	0	0	0	0
Sub total: Ethiopia									
MALAWI									
UNDP project				0	0	0	0	0	0
Min of Energy project				0	0	0	0	0	0
Sub total: Malawi									
MOZAMBIQUE									
Apolinario Maputo		√		0	0	0	0	0	0
SPARK Maputo	√		√	0	0	0	0	0	0
Sub total: Mozambique									
DEM. REP. CONGO									
Gorilla Conservation project, Goma as of June 2010		√	√	2300			160,000	53,000	720
Sub total: DRC				***2300***			***160 ,000***	***53,000***	***720***

*Production impact assumes consumption of 3 briquettes per person per day for the average family cooking and sanitation needs among the mass population.

**Briquette production per day figure is rarely reported directly but rather, it has to be extrapolated over a wide variation of actual work hours and known press availability. Most production activities are for example operating about 4 hours a day, two days a week, because of the many other traditionally imposed demands upon the (mainly) married women producers. Hence the 9 day per month multiple for many of the entries.

***Extrapolation from briquette use to wood demand substitution is calculated on the widely accepted figure of 1kg wood use per person per day, using three stones or conventional stoves. Further the use of wood is directly converted to charcoal use here, on the assumption that the charcoal made and distributed by traditional and existing methods results in near equal volumes of wood consumed whether burned directly or processed into charcoal and burned or charcoal from wood.

**** The conversion for daily kg output figures to equivalents in daily per capital consumption is based on conversion through hollow core briquette experience. For example, TEMDO notes 500 kgs a day / 10,000 kgs per month. Equivalents in hollow core briquettes: ~ 4 charcoal dust briquettes are ≈ a 1 kg TEMBO Bq log. 10,000 kgs of Temdo briquettes/month is therefore roughly equivalent to 40,000 Bqs per month. At the standard 3 Bqs or 0.75kg per person per day consumption rate, x 30 days consumption, the 40,000 briquettes actually serve only 440 persons on a daily basis. The Charcoal consumption figure was corroborated by informal discussions with not only the briquette producers but also the local community of everyday charcoal consumers. The average 50 kg sack of lump charcoal lasts the average 5 person family two weeks (if its their main fuel, using conventional charcoal stoves) 50/5x14 = .71 kg per person per day.

Interpretation and Way Forward:

One of the key lessons learned from the Briquette Producers Conference was that while networking is essential to the growth of the briquetting movement it can be fraught with challenges. Like many in development work, we initially considered the issue of "developing networks" to be merely technical but as we listened to the participants- directly and inferentially - several layers were added to the issue.

Essentially, the whole notion of sharing ones own project information challenges the traditional instinct for privacy and protection of ones idea or initiative. In the western nations, we have devised the idea of "open source" and it seems to work well amongst those who essentially have full stomachs (those who are relatively high up on Maslow's ladder and a can afford to give a bit out), or are too far removed to be negatively affected by the West's gratuity. Even at that, however, developed countries have relied upon the foundation of a "patent and protect" system which assures the innovator some degree of protection (and of course a good income for the attorneys) when business privacy has been violated).

Little of this type of structure applies to the current micro entrepreneur-based biomass briquette producer. Consider the following:

- The product: The hollow core biomass briquette) is valued at about 10 US cents per kilogram: One kilogram effectively occupies 6000 ccys (6 liters, or +1.5 US gallons).
- The briquette can be made almost anywhere there is a stable population.
- A small ~ 1/2 ton truck, operating a near to 75 US cents per kilometer.

All of which mandates by force of practical economics, that the briquette cannot be shipped to any distance without incurring immediate competition. That hardly matters as the typical micro entrepreneur can reach, at most, about 500 persons with his/her hand produced product. Larger production units can of course wedge into this setting in the more urban, densely populated markets but the smaller towns and rural areas belong pretty much to the micro entrepreneur who is the main focus of the Legacy Foundation's efforts.

As an example, let us look at Tanzania with its 40 million population that is increasing at ~1.2 million per year at present. Total production output of all briquette activity of the wet process type is perhaps reaching about 2000 persons. Any one producer reaches at maximum about 75 families ~ 450 persons - usually within their immediate local market range of an average. of 5 km radius in the rural areas and ~1 km radius in the urban areas. (This varies widely according to population distribution pattern but the general idea is that distribution is very local.)

Additionally the resources are generally sourced very locally. Incurring the cost of transport to either end of production immediately makes the product far more expensive than if produced in the infringed new market area. The skills are transferred readily and resources are generally available anywhere a fixed population is sustaining itself.

Yet the micro entrepreneur has his or her own special needs. They lack access to information and are not generally equipped to manage and market a new product within the more formal sector --which this new product exposes them to. They need the support

of each other for marketing product, identity and branding, policy and public awareness, processing and pressing technology developments, improved and/or novel blends and techniques, thermal and emissions performance and assessment techniques and standards etc., etc.

What this implies is the need to share information globally but for their local sustenance, they need to be able to preserve their resources and blends and production processes for their own local markets.

As initially mentioned production is not even touching population growth rates (generally 3% +/- 0.75%) of the producer's own nations.

But convincing the local producer of the benefit of sharing information to help build a local production micro enterprise is challenging nonetheless. It would be almost as difficult to convince a western entrepreneur to share their own information with their so-called competition even well outside their market area.

Based on this we therefore do not encourage containment, but rather "playing it forward" networking. Maybe this is foolish to the western trained business manager but when it works, it works well. It is in a way, a real benefit to being on the front edge of the growth of a new process for combating climate instability with hopefully wiser approach to sustainable human development then previously attempted.

With this foundation of global information sharing with local private entrepreneurship now somewhat embedded, its showing real promise of returning far greater numbers of producers trained, local income being generated and, through reduction in fuel wood demand for same or charcoal making, carbon offset.

We thus look forward to tracking the data presented above through to the final year of the grant of McKnight Foundation. Through this experience, we anticipate the development of, not only a regionally self-sustaining briquette production and use activity, but a sustainable and supportive network of producers, which can serve as a model of growth and adaptation for other regions of the world where the briquette is proving a sustainable alternative.