

REPORT ON APRIL 2007 VISIT: CPA 26/7: Pedestal Rescue STM BAYAMO: Stakeholder Workshop



submitted to:

Sustainable Cities
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Asociación Nacional de Agricultores Pequeños
Ministerio para la Inversión Extranjera y la Colaboración Económica
Agenda 21, Bayamo
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REPORT ON APRIL 2007 VISIT

CPA 26/7: The Completion Project STM: BAYAMO

Wendy R. Holm, P.Ag.
International Centre for Sustainable Cities
May 7, 2007

INTRODUCTION

This Report summarizes the results of meetings that took place at CPA 26 Julio, Nueva Paz, La Habana, Camaguey and Bayamo during the period April 8th to April 18th, 2007.

The purpose of the trip was twofold:

1. To meet with the farmers of CPA 26 Julio to:
 - a. identify and resolve problems that had arisen in the development and use of the Pedestals, and
 - b. design and cost the irrigation system for The Completion Project.
2. To attend a meeting of stakeholders in Bayamo to present the STM Bayamo Project and secure MOSF commitments for inclusion in the Proposal.



OVERVIEW

This report is organized as follows:

- Section 1: Meetings and workshops at CPA 26 Julio April 9-12
- Section 2: Meetings in Havana April 13
- Section 3: Meetings in Camaguey April 14 and 15
- Section 4: Meetings in Bayamo April 15, 16
- Section 5: Meetings in Havana April 18

SECTION 1: MEETINGS/WORKSHOPS AT CPA 26 JULIO,
 Los Palos, Nueva Paz
 Havana Province
 Monday, Tuesday, Wednesday and Thursday,
 April 9, 10, 11 and 12, 2007



The primary reason for this Project visit was to allow for consultation between Canadian dairy farmer Jim Millson and farmers at CPA 26 Julio concerning:

- a. Identification and resolution of problems that had developed with respect to the establishment and use of the Pedestals (grass/legume rotational grazing system),
- b. Design and specification of an irrigation system for the Completion Project.

The first four days of our visit were spent at the CPA:

- Monday: On site meeting with CPA, ANAP irrigation specialist to design irrigation system for the Completion Project
- Tuesday: Dairy cattle management workshop, evaluation of Pedestals
- Wednesday: Pedestal renovation
- Thursday: On site meeting and subsequent workshop with CPA, ANAP Institute for the Investigation of Pastures and Forages, Institute for Animal Science

Following are the results of those meetings.

MONDAY

Our first day at the CPA was devoted to irrigation. An on site meeting with the CPA and ANAP's irrigation specialist resulted in the design of an efficient irrigation system for the Completion Project. Present: were:

Wendy Holm	Sustainable Cities
Jim Millson	Canadian dairy farmer
Juanito Sanchez Martell	President, CPA 26 Julio
Justo Gonzales Gonzales	V-President, CPA 26 Julio
Rodobaldo González	Head of Projects, ANAP Provincial
Mirla Isabel García Placencia	Head of Havana Projects, ANAP National
Raúl Santiles Pineda	Irrigation and Drainage Specialist, ANAP



As a result of these meetings, the following decisions taken with respect to the irrigation system for Completion Project:



1. Pump station will move to new site to provide more efficient irrigation to maximize cropping area.
2. Irrigation system will be gravity flood irrigation – this will allow maximum water availability to soils without loss due to evaporation and wind. (In the words of the CPA farmers, they “could not get enough water on the soil” with the traveling gun system specified by Cuban irrigation specialists as part of the Pilot Project.)
3. System will be connected to and integrated with Pilot irrigation system to maximize irrigation efficiency and to provide backup to the first well in case of mechanical failure.
4. New pump location will allow electrical line and poles to be run from the nearby transformer base at CPA workshop. This will save considerably in electrical connection costs.



TUESDAY

Tuesday was devoted to a workshop on rotational pasture management and a field discussion of the problems in Pedestal establishment. Present were:

Wendy Holm	Sustainable Cities
Jim Millson	Canadian dairy farmer
Juanito Sanchez Martell	President, CPA 26 Julio
Justo Gonzales Gonzales	V-President, CPA 26 Julio
Augustin Febles	Head of Dairy, CPA 26 Julio
	Members responsible for dairy cattle
Jesús Martínez	Veterinarian, CPA 26 Julio
Blas Jose Oramas Cabellero	Head of Machine Shop, CPA 26 Julio
Rodobaldo González	Head of Projects, ANAP Provincial

Jim Millson gave a workshop on cattle management, including herd management, parlour management, pasture management and nutrition (proper rotational use of Pedestals and micro-pastures), after which the following resolutions were passed:



1. The dairy cattle will be rotated through the pedestals at a rate of 5-6 cattle per pedestal per day. Similarly, the micro pastures will be rotated on a daily basis.
2. High-producing cows will graze the Pedestals, the rest will graze the micro-pastures. In general, high producing cows are those in their first 130 days of lactation. Actual milk production levels will determine grazing options. Cows beyond 130 days that are still “high-producers” (+ 7 litres per day) will be kept in the Pedestals, cows whose production has dropped off early will be moved to the micro-pastures to make room for higher producers.
3. Irrigation of both the Pedestals and the micro-pastures will follow, not precede, the cattle grazing.
4. An area of artificial shade and water will be constructed down the middle of each of the three pedestals to allow cattle to remain in the Pedestals unless being milked.
5. The King CT-115 will be removed one Pedestal at a time and replaced by a more appropriate variety (low, tender, bushy, nutritious). This renovation will occur over 18 months; once reseeded a Pedestal will not be grazed for 6 months to allow for re-establishment of grasses.
6. Additional wire will be added to each Pedestal to restore height. (Wire received was 1.0 not 1.5 metres, so legume fences are a half metre short, reducing available nutrition.)



Herd Management

At this workshop, a system to facilitate cattle management within the Pedestals was also proposed. Management of the cattle in the pedestals requires that farmers can, in the field, readily identify where a cow is in her gestation cycle. In general, she should spend her first 130 days of gestation in the Pedestals, longer if her milk production stays strong, less if her milk production drops off early.

While records are of course kept for each animal, cows are not milked in offices and so an easy system of field identification is required. Proposed is a system of simple ankle bracelets (Gore-Tex and Velcro?) in six primary colours:

Left Front Leg

Jan	Red
Feb	Orange
Mar	Yellow
Apr	Green
May	Blue
June	White

Right Front Leg

July	Red
Aug	Orange
Sep	Yellow
Oct	Green
Nov	Blue
Dec	White



A bracelet would be placed on the cow's front leg indicating the month she calved.

So, for example, if a cow is wearing a red bracelet on her left foreleg you know she calved in January and should leave the Pedestals in June.

The CPA farmers who will work with the cattle were receptive to this system, and felt it would also help with the timing of artificial insemination (breeding).

WEDNESDAY

Wednesday morning was spent in the field observing the cattle graze the Pedestals and micro-pastures and discussing Pedestal renovation and pasture establishment techniques. Present were:

Wendy Holm	Sustainable Cities
Jim Millson	Canadian dairy farmer
Juanito Sanchez Martell	President, CPA 26 Julio
Justo Gonzales Gonzales	V-President, CPA 26 Julio
Augustin Febles	Head of Dairy, CPA 26 Julio



It was agreed from these discussions that:

1. The difficulty encountered by the CPA in their first attempts to seed the correct species of Pedestal grasses was due to inexperience in pasture establishment techniques. As a result, the seeds were planted too deep and failed to emerge.
2. The optimum soil conditions for seeding pasture grasses is a level, moist bed, dry on the surface and packed or rolled firm after planting. Seeds are planted very shallowly (perhaps a quarter inch of cover), and the seedbed is then kept moist to allow for germination. (Moist, not "muddy" – dry enough so the soil does not clump together but moist enough to change the colour of the soil.) Seeds need moisture to germinate and good soil-to-seed contact can only be achieved when soil is dry. Hence pack the ground after planting and then water.
3. The existing King Grass will be removed - 4 Pedestal alleys a day, following cattle grazing - and pastures will be prepared and seeded to a more suitable grass variety (IIPF has supplied).



In a field workshop, Jim Millson again stressed the importance of having irrigation follow, not precede, grazing. This will ensure soil is dry when the cattle graze (eliminating compaction, pasture degradation and animal health concerns) and that water is available to support the plant growth stimulated by grazing.

Wednesday afternoon was spent reviewing other steps the CPA has taken to improve their economic and environmental sustainability:



BUFFALO The CPA's buffalo herd has doubled in size (from 24 to 57) since our work began in 2004. These animals are now raised in Cuba for both milk and meat, and provide an important source of income to the CPA.



BIO-FUELS We were pleased to learn that the CPA 26/7 is about to construct a small bio-gas plant to capture methane from hog manure. The gas will be used to light the animal production area and to provide gas for cooking fuel. This investment has been supported by ANAP.



NUTRIENT RECYCLING: The CPA continues to receive citrus pulp from a nearby juice plant for use as a cattle feed supplement. (The cows like it best when it ferments!)

THURSDAY



Thursday morning began with a field meeting between the CPA, ANAP and scientists from the Institute of Animal Science and the Institute of Pasture and Forages and concluded with a workshop. Present were:



Wendy Holm	Sustainable Cities
Jim Millson	Canadian dairy farmer
Juanito Sanchez Martell	President, CPA 26 Julio
Justo Gonzales Gonzales	V-President, CPA 26 Julio
Augustin Febles	Head of Dairy, CPA 26 Julio
Jesús Martínez	Veterinarian, CPA 26 Julio
Mario Miguel Perez	Economist, CPA 26 Julio
Juan Carlos Loyla	ANAP Nacional
Mirla Isabel García Placencia	ANAP Nacional
Raúl Santiles Pineda	Irrigation and Drainage Specialist, ANAP
Rodobaldo González	Head of Projects, ANAP Provincial
Aurelio Alvarez Mendez	IIPF (Instituto de Investigaciones de Pastos y Forajes)
Yurangel Sardinias	ICA (Institute Cinecia Animal)
Nidia Fraga Orta	ICA (Institute Cinecia Animal)

The purpose of the meeting was for the farmers to explain to the scientists what had gone wrong in the establishment of the Pedestals and what steps were going to now be taken to correct the problems. The following points were made by the CPA:

Problems with the Pedestals

1. King grass is the wrong species. It is low in nutrition, with woody, thick stems that are unpalatable to cattle. Under irrigated conditions, King grass grows to a height of 5-6 feet. This not only hampers grazing, it also quickly throws the rich, productive legume beds of the Pedestals into shade, effectively stopping growth and removing significant portion of the nutrition.



Action: Remove the King grass from the Pedestals, one Pedestal at a time, and replace it with a low, bushy, tender, nutritious grass well suited to irrigated pastures. This will take 12 – 18 months to accomplish since grasses take 4-6 months to establish. IIPF will support.

2. The first two times the CPA farmers seeded the field, it was with the correct grass species. Only after both attempts to seed the correct grasses failed did the ICA scientists recommend King grass – a drought-tolerant species that grows like a weed in Cuba. But the problem was not with the seeds, the problem was the farmers' lack experience in pasture establishment; when the Pedestal

pastures were sown, the seeds were planted too deep and never emerged. Only King grass was able to survive the deep planting.



Action: When the Pedestal grasses are reseeded to the correct species, ensure that the seedbed is flat, firm and dry. Plant the seeds to a depth of no more than 8 times the seed radius, and water daily until well established.

- The height of the Pedestals must be restored to specifications. The wire fencing ordered was 1.5 metres in width. The fencing that arrived was 1 metre in width. This means the pedestals are half a metre short. The most productive area of the Pedestals is the top third portion. This reduces significantly available nutrition.



Action: Obtain more fencing to raise the Pedestals to their originally intended height.

- In order to graze the Pedestals properly (provide maximum nutrition to the cows), cattle should remain in the Pedestals 24 hours a day unless being milked. For this, shade, water and proper irrigation rotations are critical.



Action: New Neem tree seedlings are now being planted to replace ones that were browsed by the cattle. In the meantime, artificial shade is being built along the mid-line of each pedestal. Water will also be located in this area. The natural shade, when established, will be located at the end of the Pedestals and micro-pastures, again in close proximity to water.



Action: Proper irrigation rotations will be followed to ensure soil is dry when the cattle graze, eliminating compaction, pasture degradation and animal health concerns and ensuring water delivery is timed to provide maximum benefits to the grasses.

COMMITMENT OF THE PARTIES

All parties committed to provide whatever resources the CPA required to fulfill the steps outlined in this report. In particular, IIPF committed to proving the CPA with strong support – one visit per week – to facilitate the Pedestal renovation and to test various different grass species options for the rotational pastures.

NEXT STEPS – BUDGET IMPLICATIONS

1. Secure funding and purchase necessary materials for completion of the irrigation works at CPA 26 Julio. New irrigation budget is estimated at \$12,000 CUC, a savings of \$5,000 CAD over anticipated costs. This amount has been requested by ANAP from the Canadian Embassy's Canada Fund.
2. Secure an additional 4,800 square metres of wire one metre in height and 4,800 metres long (96 rolls at 50 metres/roll) to complete the tops of the Pedestals.
3. Purchase and shipment of remaining materials from Canada (irrigation pump, fencing materials, etc.).
4. Schedule visit of Holm, Millson and Donneral to finalize Completion Project (erect electric fences for 15 hectares more of micro pastures, connect new irrigation system for additional micro pastures, ration crops and grass trials area, construct feed proportioner).

Below is the “before” satellite picture. The area of the Project is the dry, brown region close to the pointer. If GoogleEarth updates its mapping, we look forward to contrasting this with the “after” shot once we complete our work this year!



SECTION 2: MEETINGS IN HAVANA

MINAZ – Ministerio del Azucar de la Republica de Cuba,
Friday, April 13, 2007

On Friday, I met with senior officials at the Cuban Ministry of Sugar to discuss the dairy aspects of STM Bayamo. Present were:

Wendy Holm	Sustainable Cities
Manuel Alonza Padilla	Relaciones Internacionales, MINAZ
Carmen Amarilys Guevara Rodriguez	Subdirectora Direccion Pecuaria, MINAZ
Ing., Eduardo Puig Colon	Especialista en producciones y desarrollo de ganado vacuno, MINAZ
Translator	MINAZ

During the course of a three-hour meeting at MINAZ offices, the agricultural component of both the rural and peri-urban model (Pilot Project at CPA 26/7 and the proposed STM Bayamo) were discussed at great length.

MINAZ remains keenly interested in this work and prepared to support ICSC's MOSF application with a letter explaining the significance of this work to MINAZ on a policy level.

Because the CCS we will work with is not under MINAZ jurisdiction, they are unclear as to what they can do more specifically to help other than to support MINAZ engagement in Bayamo.

When I discussed our concerns with respect to materials sourcing and asked if MINAZ was prepared to support us in this area, they said they had been told by ANAP that an entity was in place to build the water treatment unit and that ANAP had told MINAZ that they foresaw no problems with materials supply.

I advised that Natalia will follow up with MINAZ with respect to receiving their letter of support, which I stressed must specifically reference MINAZ's interest in this work and the MINAZ policy objectives that this project stands to support.

SECTION 3: CAMAGUEY

Saturday and Sunday, April 14-15, 2007

On Saturday morning, Wendy Holm, Jim Millson, Juanito Sanchez Martell (President of CPA 26 Julio) and Juan Carlos Loyola (Project Manager for Granma Province, ANAP) left Havana for Bayamo.

Along the way, I took the opportunity to make two stops:

1. A field visit to a State Farm that I had “seen from afar” during previous visits to the province of Camaguey that had 4-5 hectares of good-looking, well-established sheep Pedestals. The object of the visit was to show Juanito what they will look like once properly established.
2. A visit to CPA Martieres de Cascorro, a high producing, Referencia Nacional dairy CPA in Camaguey province. The object was to introduce Juanito to David (President, Martieres de Cascorro) and allow them to share experiences.

SHEEP PEDESTALS, CAMAGUEY PROVINCE

After some inquiries and a bit of driving around, we found the Pedestals.

They were planted 5 years ago and are very well established. The grass in between the Pedestals had been grazed but did not appear to have been irrigated since grazing. This is to allow the system to rest and set seedpods, which in turn reseed the legume beds.

The operator of the land is the State (Empresa Triangulo 3). The Pedestals are used to provide nutrition to sheep raised for meat production.

No one was at the Pedestals when we visited (perhaps 4 pm on Saturday afternoon) but as we were driving back to our hotel we noticed a local Ministry of Agriculture office.

We stopped to ask the security guard if he had a phone number for the person in charge of the Pedestals.



As it turned out, he steered us to the home of Diego Cuello Saldivar, Jefe de producción de la Empresa Pecuaria Triangulo tres Camaguey, a mere block and a half away!



Diego and his wife graciously invited us in for coffee, and he and Juanito spent over an hour discussing the use of Pedestals as a sustainable nutrition system.

The Ministry of Agriculture is very pleased with the performance of the sheep pedestals. He emphasized that correct establishment and grazing/irrigation management is critical.

Juanito and Diego exchanged contact information, and Diego kindly offered to provide whatever support he could – Juanito only need call him and ask. Diego will also stop by CPA 26 Julio when he has an opportunity.

VISIT TO MARTIERES DE CASCORO, CAMAGUEY PROVINCE

For a number of reasons, taking the opportunity as we drove thru Cascorro on Sunday morning to stop and introduce Juanito, President of CPA 26 Julio to David, President of CPA Martieres de Cascorro, was irresistible - they are both important dairymen who can only benefit by knowing one another!



Today, milk production at Martieres de Cascorro averages 15 litres/cow, double average milk production at CPA 26 Julio (7.5 litres/cow). But Juanito is catching up. Already, CPA 26 Julio's high producing cows have tripled production and the herd average has doubled.

At David's CPA, high producing cattle are milked 3 times a day, yielding up to 20 litres of milk. But this production does not come without a cost – it is completely dependent on continued imports of imported protein – Norgold, a GMO corn gluten - from the US.

This CPA has also developed a very successful, nine-step cross breeding program using Jersey cattle that has produced very impressive results. Because of this Martieres de Cascorro is a National Referencia CPA.

What a challenge for Juanito to meet or top David's production in a sustainable manner! If CPA 26 Julio can produce the same or more milk without the need for any imported protein, the CPA members are far ahead of the game (better soil management practices, better economic margins, improved cost control, elimination of supply risk, footprint minimization, value added activities) and the State, thru import substitution, has more funds to direct to other important priorities of the population.



Again, David and his wife warmly received us into their home and Juanito and David spent over an hour discussing any aspects of the dairy sector, and in particular David's cross-breeding program.

Juanito and David exchanged contact information and I feel certain will stay in touch.

SECTION 4: MEETINGS AND WORKSHOPS IN BAYAMO
 CCSF Roberto Aguilar and Ciudad de Bayamo, Granma Province,
 Sunday and Monday, April 15 - 16, 2007

Juanito Sanchez Martell, President of CPA 26 Julio, Juan Carlos Loyola, Project Manager, ANAP Nacional, Jim Millson and I arrived in Bayamo on Sunday afternoon.

The purpose of our visit was to:

- a. Sunday: meet with the farmers at CCSF Roberto Aguilar and visit the proposed site of the water plant and dairy unit, and
- b. Monday: participate in an ANAP workshop with local stakeholders to elaborate and enrich the MOSF proposal development process for the STM Bayamo Project.

CCSF ROBERTO AGUILAR

On Sunday afternoon we had a meeting with the farmers of CCSF Roberto Aguilar. Present were:

Wendy Holm	Sustainable Cities
Jim Millson	Canadian dairy farmer
Juanito Sanchez Martell	President, CPA 26 Julio
Juan Carlos Loyla	Project Director, ANAP Nacional
Carlos de la Rosa Guevara	Project Director, ANAP Granma
Felix Balay Dias Zaldivar	Presidente, CCSF Roberto Aguilar
Orlando Celeiro Perzon	Member, CCSF Roberto Aguilar
Eligio Cuba Pena	Educator, CCSF Roberto Aguilar
Carmen de la Cruz Medel Maci	Member, CCSF Roberto Aguilar



At this meeting, Jim, Juanito and the members of CCSF Roberto Aguilera exchanged information on the operations of CCSF Roberto Aguilera, the Pilot Project at CPA 26 Julio, the proposed Bayamo Project and how the Canadian's were involved.

After this introductory session, we visited the field site of the proposed water treatment plant and the dairy unit, which will be located six caballieras of land (84 hectares) donated by the State to the CCSF in usufruct tenure (basically, a life-lease) for the construction of the water plant and the sustainable dairy unit. This land is less than 2 kilometers from the dairy plant.

The site appears ideally suited to the location of the water plant. There is a natural rise in the land where the plant will be located and the two lagoons that will hold the treated water are also located here. This means the water can be gravity fed to the dairy unit, which will lie below and to the southeast of the water plant.



Having Juanito Sanchez Martell with us in Bayamo was invaluable.

Juanito's ability to share the experience of the farmers at CPA 26 Julio - what the Pilot Project meant to them, what it entailed, what results they had gotten thus far, how the members of the CPA felt about this new sustainable dairy model, what it was like working with the Canadian farmers – was invaluable. It created for the CCSF farmers a much stronger connection with and sense of confidence in the project than could ever have been accomplished absent his input.



Juanito pledged the resources of the CPA 26 Julio to help the CCSF farmers in the construction of the sustainable dairy component, promising that he would send a team of farmers to Bayamo to work along side the CCSF to help establish the dairy unit.

At the end of the day, Jim presented a set of wrenches to the CCSF on behalf of the Millson family as a token of their commitment to help make this happen.

WORKSHOP APRIL 16

On Monday, we spent the day in a workshop convened by ANAP Granma that brought together stakeholders of the project and develop a consensus of support. Present were:

Juan Sánchez Martell	Presidente CPA 26/7 Habana
Félix Balay Dias Zaldivar	Presidente CCSF Roberto Aguilar
Eligio Cuba Peña	Miembro Junta Directiva CCSF Roberto Aguilar
Orlando Celeiro Perzon	Miembro Junta Directiva CCSF Roberto Aguilar
Francisco Jiménez Pizarro	Dirección Municipal de Planificación Física
Elizabeth Aigrie Regi	Especialista ENAP
Pedro Vargas Verdecia	Delegado del MINVEC
Luis Canut Cedeño	Esp. IPF Granma, Facilitador Grupo Río Bayamo
Raúl Santiles Pineda	ANAP Nacional
Rubier Pérez Soncillera	ANAP Nacional
Héctor Fajardo Rivero	Instituto Dimitrov
Oreste Martínez Miranda	GEA Granma
Juan C. Loyola Florat	ANAP Nacional
Carlos La Rosa Guevara	ANAP Granma
Ramón Aguilar Betancourt	Presidente ANAP Granma
Ángel García Gamboa	Sub-delegado MINAGRI
Wendy Holm	Ciudades Sostenibles – Canadá
Jim Millson	Granjero canadiense de ganado lechero

The following synopsis of the workshop was provided by Natalia Verand based on an audio recording of the workshop and a phone conversation she had with Carlos La Rosa after the workshop:



ANAP Granma invited local organizations to Bayamo to present to them the proposal for the STM Project, to provide an open space where all of them could share with the rest their own experiences around sustainable development, and based on that to exchange ideas and create synergies around the STM Project.

Many organizations participated in this workshop (see list of attendees), presenting, learning, providing ideas and suggestions, as well as committing themselves to support the CCSF Roberto Aguilar before and during the development and implementation of the project. Indeed, the workshop was a success!



Wendy Holm from Sustainable Cities and Juanito Sanchez Martell, President of CPA 26/7 presented their experience with the Pilot Project around sustainable milk production in a rural area near Habana, highlighting the lessons learnt and coinciding in that the Pedestals do work, if the technical standards are properly followed.

The attendees had the chance to see the SI SE PUEDE Video, which shows the experience of CPA 26/7.

After the video, Carlos La Rosa, Projects Director from ANAP Granma explained the context in which the STM project will be implemented, and the three inter-related components that it includes:



1. Environmental Recuperation of El Salado Stream, treatment and reuse of municipal sewage water,
2. Sustainable Milk Production Peri-Urban Model in a drought area, and
3. Extension and Impact over Policies and Strategic Plan of the Cuban Government in the management of natural resources.

He emphasized how the first two components respond to the Governments' national policies, priorities and current strategies; and how the third component is key since it is directly related to the Modernization of the State Fund goal.

Indeed, it is expected that this model of milk production will be used to develop policies at the National Level that will drive the Eastern Provinces in Cuba (and eventually in the whole country) to be sustainable and self-sufficient in the production and supply of milk.

Following, Héctor Fajardo from the Instituto de Investigaciones Agropecuarias Jorge Dimitrov, explained their experience around the promotion of new areas for grass and forage, grass and forage seed production, selection and establishment of areas to promote legumes, alternatives to mitigate negative impacts of drought, organic fertilization for the production of seeds and food for the cattle, recuperation of areas infested by aroma and marabou, procedures to improve fertility, training and extension, among others. Héctor offered to give advice to the members of the CCSF Roberto Aguilar around those themes.

Luis Canut from Grupo Río Bayamo and the Municipality of Bayamo explained how the first component of the STM Project fits the Government's current Strategy for the Recuperation of Bayamo River, he explained that they already have done research that will be useful to the STM project and that there are many opportunities to establish synergies between them and us. The importance of educating the community and raising awareness among them on how important it is that they take care of their environment.



Some of the commitments, suggestions and ideas that the participants provided include:

1. To create a Working Group for the project that would meet once a month to support the Project and to inform on how they have been supporting the project, first to identify who will be representing each organization and the roles each will have. In fact, on Saturday 21, the attendees met again at the CCSF Roberto Aguilar to start coordinating this Working Group!

2. To start with certain activities that don't need the project to be approved in order to start with their implementation: e.g. reforestation of El Salado stream margins – which is funded by Forestales, to implement the reservoirs, etc.

3. The representative from MINAZ offered to support in the construction of the Water Treatment Plant (part of the first component of the project). They also mentioned that they have experience with solid waste management that they can share with the Grupo Agenda 21.



4. The representative from MINAGRI confirmed that they will provide the cattle required for the dairy unit at CCSF Roberto Aguilar.

5. The representative from ENPA offered for free to prepare a Finca Forestal project proposal at the shore of el Salado

6. Everybody agreed that it is the farmers who best know their land, and that they are the main actors in the project. Scientists and experts will provide their experience and determine together with the farmers what the best way to implement the project is the importance of involving the whole CCSF from the very beginning, so they make it theirs.



MEETING WITH JOSE ANTONIO LEYVA GARCIA

After the workshop, Wendy Holm, Jim Millson, Juanito Sanchez Martell and Juan Carlos Loyola met with Jose Antonio Leyva Garcia, Provincial Delegate for Water Resources, Asamblea Provincial del Poder Popular, Granma. Sr. Leyva pledged the full support of his office to this project, which he described as integral to the water recuperation strategy for the city of Bayamo.

SUSTAINABLE DAIRY CIRCLE

Fulfilling the inspiration and vision of John Lefebvre, one of the Pilot Project's principle funders, the site at Bayamo is perfectly suited for the development of a Sustainable Dairy Circle:

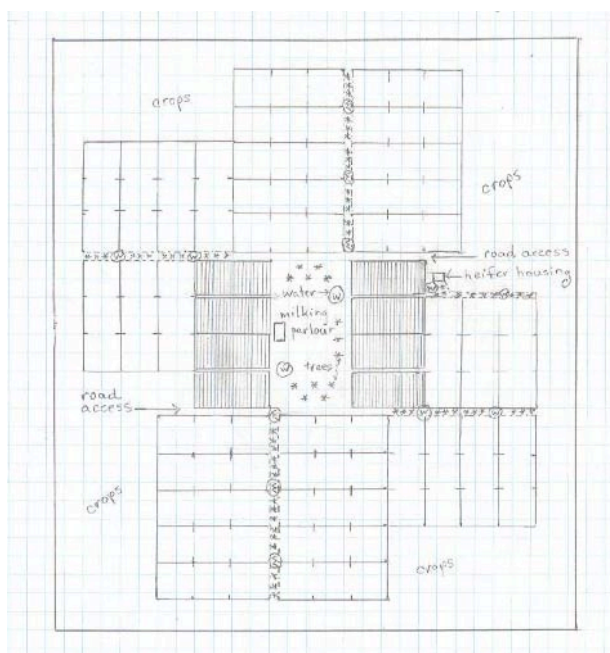
Sustainable Dairy Circle: Rotational Pasture and Pedestal Plan

25.5 ha	micropastures (102 fields, 50 m x 50 m)
4.0 ha	Pedestals (4 sections of Pedestals)
2.2 ha	central milking parlour (108 m x 200 m)
0.9 ha	laneways with shade and water (8 m wide)
0.2 ha	road access to central area
32.8 ha	TOTAL SIZE DAIRY CIRCLE
23.3 ha	surrounding lands for ration crop production
56 ha	TOTAL SIZE (700 m wide by 800 m deep)

Slightly uphill and to the left of the Circle will be the water purification plant and the two lagoons that will store the treated water until it is needed for irrigation in the Dairy Circle. Fresh water will be supplied to the cows from a ground well.

Cows will have free access to shade and water from both the rotational pastures and the Pedestals, allowing them to remain where they graze 24 hours a day except when being milked.

This maximizes benefits to the dairy cows, who need to eat, drink, then lie down to rest to chew their cud and produce milk. Greatest nutritional uptake will occur during the evening hours.



MEETING AT ANAP HOUSE

Discussions continued well into the evening at ANAP House, our home in Bayamo...

All agreed it was a very successful day!



SECTION 5: MEETINGS IN HAVANA
ANAP - Asociacion Nacional de Agricultores Pequeños
Wednesday, April 18, 2007

On Wednesday, before leaving for the Airport, I met with ANAP to finalize a few loose ends remaining to be discussed with respect to CPA 26 Julio and STM Bayamo.

Present at this meeting were:

Wendy Holm	Sustainable Cities
Mirla Isabel García Placencia	Project Development, Havana, ANAP National
Juan Carlos Loyola	Project Development, Granma, ANAP Nacional

Xiomara Acosta Valdez was in meetings with MINVEC and unable to attend; we spoke briefly by telephone. Basically, the discussions with ANAP focused on three matters:

1. The status of ANAP's request to the Canadian Embassy's Canada Fund for \$12,000 CUC to complete the irrigation works at CPA 26 Julio.

We understand this request is scheduled to go before the Canada Fund Committee in May. This is an extremely important funding request and all parties agreed to follow up on its progress.

2. The wire needed to complete the Pedestals at CPA 26 Julio. A lengthy discussion ensued, the specifics of which are addressed in a letter to Mario La O explaining that securing the wire fencing to complete the Pedestals (restoring them to their intended height) is a high priority of the Project that should be acted upon right away.

Another 4,800 square metres of wire fencing is required – 9,600 metres of fencing 0.5 metres in width or 4,800 metres of fencing one metre in width.

CALCULATION OF SHORTFALL IN WIRE FENCING TO COMPLETE THE PEDESTALS CPA 26/7 May, 2007			
Length of one Pedestal	100 m		
Number of Pedestals per hectare	16		
Number of 50 metre micro-pastures per pedestal	34		
Fencing needed per pedestal (both sides)	200 m		
	ORDERED	DELIVERED	NEEDED
Height of Pedestal/width of wire fencing	1.5 m	1 m	0.5 m
Square metres per alley	300 m ²	200 m ²	100 m ²
Square metres per pedestal	4800 m ²	3200 m ²	1600 m ²
Square metres per three pedestals	14400 m ²	9600 m ²	4800 m ²
metres/roll	50	50	50
Total Rolls	192	192	EITHER 192 if width = 0.5 m OR 96 if width = 1.0 m
NOTE: Meetings with IIPF at Project start confirm 34-36 days rotation for irrigated pastures, Los Palos.			

3. The final matter discussed was the shipment of the materials donated by Canada to the CPA 26 Julio Completion Project. Mirla advised that we should use the same EMED number as for the Pilot Project, and send the shipping documents to ANAP by DHL courier. We anticipate shipping within the month.