

Resource recovery and urban agriculture in Cuba: Some recent experiences

Travel Report: December 9 – 19, 2006

By: *Jutta Gutberlet** and *Gabriela McBee***
University of Victoria - Latin America Research Group



Photos: Permaculture production and earthworm culture in Sancti Spiritus



Photos: Informal recycler and waste bin in central La Habana

University of Victoria
*Department of Geography
Phone: 1 250 472 4537,
Fax: 1 250 721 6216
Email: juttag@uvic.ca

**Department of Hispanic & Italian Studies
Phone: 1 250 721 7418
Fax: 1 250 721-6608
E-mail: gabriela@uvic.ca

1. Introduction:

The overall objective of our trip to Cuba was to promote the exchange of successful experiences and the accumulated knowledge on community based food production and recycling between Cuba and Brazil. Our aspiration was to learn about local urban agriculture experiences, (Warwick, 2001) permaculture (Mollison, 1990) and organic and inorganic resource recovery from household waste. We also wanted to find out about the facets of current waste issues in urban agglomerations in Cuba, the necessities, problems and possibilities.

We understand waste as a resource that needs to be recovered. Its appropriate management offers opportunities to alleviate poverty and environmental health (Jaffe et al. 2004, Gutberlet, 2005; Medina, 2001; Mansoor, 1999). Ideally the organic composition of waste needs to be recovered through composting and redirected into the food production. Environmental education is crucial to obtain a high level of information among the population, co-responsibility and community participation. Consequently, local capacity needs to be built to expand sustainable food systems by using composted organic waste from community recycling programs (Walker et al., 2006).

In order to elaborate a joint (South-South-Canada) research proposal we set out to investigate the assets and needs involved in waste management, recycling, and food security in Cuba. Our aim was to establish and expand our networks with researchers and government and non-government agents involved in urban agriculture, who are interested in collaborative research on related issues. We wanted to witness the Cuban experience and talk to people involved in food production and stakeholders involved in the planning, research and capacity building aspects of urban agriculture. We wanted to learn about their assets as well as their difficulties by interviewing them and by photo-documenting their experiences.

Our research methodology is humanistic and ethnographic in its approach and is based on the integrated sustainable livelihoods framework that focuses on assets and needs of local communities. Research methods in the field (qualitative multi-methods approach: Hay, 2000) were participatory and action oriented (Kidd et al. 2005). We conducted open interviews and group discussions, and we undertook site visits and took photos. Our travel in Cuba and the site selection was prepared and accompanied thanks to several participants from the *Fundación Antonio Núñez Jiménez de la Naturaleza y el Hombre* (FANJ).

2. Overall objectives of our research proposal

The goal of our research proposal is to improve the quality of life in poor urban neighborhoods by increasing their access to locally grown organic food and by recovering organic solid waste for composting.

The specific goals are to:

- Analyze the results of the experience of urban agriculture in Cuba

- Identify strategies and methods that build capacity for the implementation of sustainable urban agricultural systems with community gardens and food production at the household level.
- Analyze the potential for organic waste recycling and design strategies for the collection at the household level and for composting and posterior use in community gardening.
- Study environmental health aspects (cost/benefit) of the diversion of organic waste from the landfill to composting.
- Research long-term food security and health issues in poor neighborhoods in developing countries.
- Research and select components of urban agriculture and green medicine in Cuba adaptable to the situation in Brazil.
- Diffuse the generated knowledge on waste management, composting, and urban agriculture into other communities in poor countries.
- Research the role of indigenous knowledge and its contribution to food security and health.

3. Field activities

La Habana

11.12.2006

Meeting with María Caridad Cruz (Cary) and Reinaldo Funes Monzote from the *Fundación Antonio Núñez Jiménez de la Naturaleza y el Hombre* (FANJ). We were introduced to the experience with community gardens and creative urban agriculture in Cuba. Most of their experiences are in La Habana and Sancti Spíritus.



The acute crisis in the 90s led the Cuban government to promote and facilitate urban agriculture. Individual and community response to the state campaign has been extraordinary, decidedly making a difference in the wellbeing of the population. After over 15 years of Green Revolution, around 18,000ha are now being used for local food production (*organopónicos*, intensive *huertos*, family owned *parcelas and patios*), with more than 200,000 people participating, and over 100,000 being employed. Older adults

have been given the opportunity to be productive and satisfy part of their food needs, and children and youth are growing up with new awareness toward a sustainable agrarian culture and environmental health. Bountiful gardens are now growing in former empty lots and garbage dumps.

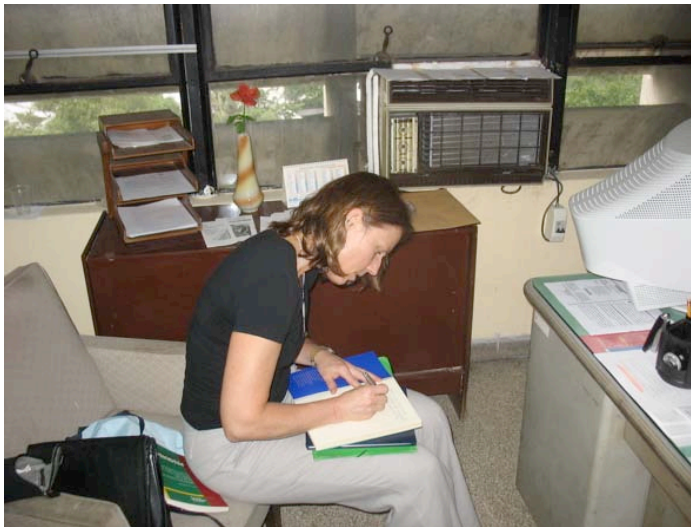
Cuban people are ingenious in reusing and recycling and are making a significant contribution to sustainable growth. There is a widespread understanding of solid waste as wasting resources (*desperdicio*) and of recycling as resource recovery (*materia prima*).

12.12.2006

a.) Visit to the Faculty of Geography at the *Universidad de la Habana*.



Meeting with Dr. Roberto González Souza (Prof. Titular. Grupo de Estudios de Desarrollo Regional y Local) and with Dr. José Evelio Gutiérrez Hernández (Prof. Asistente). We learned about the Masters program and recent Thesis defenses at the Geography Department and current research activities on Environmental assessment and urban planning.



A new contact was established with a visiting scholar from the University of Alicante (Prof. Rocío Díez Ros) whose recently defended PhD thesis is on: The generation of urban solid waste in the province of Alicante: the importance of environmental education (*Generación de residuos urbanos en la Provincia de Alicante: la incidencia de la educación ambiental*).

b.) Visit to the Center for International Economic Research (CIEI *Centro Internacional de Investigaciones Económicas*). Meeting with Mahé Sosa Arencibia,

(Profesora-Investigadora, CIEI; Prof. Lázaro Peña, Director of CIEI). The research focus of the CIEI related to our interests are: 1.) Globalization and local economy (local development in rural and in urban areas). 2.) Macro economy and international economic relations (global networks). 3.) International finance. 4.) Commerce and integration.

There has always been a culture of recycling in Cuba. People automatically separated waste to collect items for reuse and sent other useful materials to *materia prima* plants. Severe lack of transport and fuel has eroded this practice by undermining communal and individual efforts. For environmentally aware people it is an arduous task to keep working on solutions. According to Mahé the municipality of Taguajay has a very good experience in local development, community actions to improve urban development.

c.) Visit of the *Taller Cultural Comunitario “Coloreando Mi Barrio”*. Meeting with the artist Jorge Jorge González.

Since 2004 Jorge has been leading children’s art workshops centered on environment issues. Fed up with the smell coming from the garbage dump across the street and inspired by a great idea he set out to take action. With 100% recycled materials and the help of his neighbors he built this space open to any child between 6 and 13 wishing to paint. To this day the *taller* has won 189 prizes at the municipal, regional, national and international level. With local and international help this exemplary project is expanding physically as well as in scope. Soon there will be computers for digital art production, an art gallery, and a library for art and environmental education books and software.



13.12.2006

a.) Seminar presentation at the Faculty of Geography at the *Universidad de la Habana*.

Topic: Manejo de residuos sólidos en zonas urbanas (Solid waste management in urban areas).

b.) Meeting with Prof. Silvia Díaz García. Research focus: Urban agriculture. Collaborator with FANJ and the project *Parque Metropolitano* (east of the city, started in 1990 to develop 700 ha of urban park along the once highly polluted Almendares River). Dulce Almonte Ahusta Miranda: Project *Parque Metropolitano*.

c.) Dinner with Alejandro Hartmann, historian and foremost expert in the study of surviving Cuban indigenous people, FANJ delegate in Baracoa and the Guantánamo Province, member of the National Writers and Artist Union, and director of the *Museo del Matachín*. Hartmann was in La Habana during the *Semana de Cultura Belga* to make a presentation on the historical relations between Baracoa and Belgium, which are closely linked to the cocoa production in the eastern part of Cuba. One of his present projects is the opening of the *Museo del Cacao* in Baracoa.

14.12.2006

Visit to several experiences with urban agriculture in La Habana

1.) *Solar Rojo*, barrio El Vedado (Señor Falcón, Señor Oswaldo). The brothers' experience dates back to 1992, when they both attended training sessions organized by the FANJ. In their 100% organic *huerto* they practice permaculture at its best. Main products are medicinal herbs and plants for spiritual wellbeing. There are also vegetables and herbs (*condimentos*), some fruit trees and animals (poultry and fish, and planning to grow rabbits). They incorporate organic waste from the neighborhood for composting and have an excellent composting/worm culture. Apart from the organic waste there are no external inputs.



Solar Rojo was one of the outstanding experiences we witnessed while in Cuba. Established after removing truckloads of garbage from the site, it is now a little eden of sustainability. All waste gets reused and reintegrating into the local production. Furthermore, the Hermanos Falcón cultivate their community ties by engaging in outreach activities. By setting an example and welcoming visitors from

neighbouring schools and families who want to come and learn, they actively contribute to environmental education, social cohesion, and a sense of community.



2.) *Patio Justo*, barrio Canal del Cerro (Justo Torres). This experience dates back to 1996. It is an example of a *patio productivo*, producing vegetables, fruits and grapes,

medicinal plants, and animals (rabbits and *jutía*) in the backyard (*patio*) and on the roof.



Justo supports the entity *Grupo Estatal de la Bahía de La Habana* in its efforts to develop and diffuse environmental education. He also teaches culinary workshops and makes wine. He has a very strong civic motivation and sees the benefit of his didactic activities in terms of generating social capital.



3.) Centro Comunitario de Salud Mental María Elisa del Rey Boaglandro, barrio Arroyo Naranjo (Juan Manuel Jiménez Oranda and Leticia María Guerra Curiel).

The *huerto comunitario* produces vegetables, herbs, medicinal plants, fruit trees, seedlings and seeds for propagation. There is on site composting and a large concrete water reservoir to catch the rain. This project that converted a former dumpyard into lush



gardens in a short period of time, was jump-started by a couple in the late 90s and turned into permaculture in 2005. The couple *Juan Manuel* and *Leticia* (see photo) who work at the local mental health clinic, are dedicated to offering their patients the experience of working with nature. The benefits of their horticultural therapy are remarkable: engaged individuals, who enjoy the productive and meaningful task of growing healthy food. Around a dozen people work on this creatively laid out large plot. Leticia likes gathering

seedpods and such to take into the clinic for art projects. The garden produces plenty and varied food for the clinic and everybody involved in the production as well as for the

local community. Horticulture, fruits, herbs and medicinal plants are grown totally without industrial fertilizer or pesticides. As in all the other experiences visited before, the food grown here is 100% organic.





4.) *Criadero de Conejos de Cría* (Señor Nelson Abare Nae) barrio Cerro, Parque Manila.

On his rooftop Nelson runs an animal production (breeding-rabbits). To feed them he collects food waste, *desperdicio*, from his neighbors, puts it into his homemade food drier (old fridge powered by gas) and triturates it to a gritty product in a self-made grinder. This and some lettuce grown in pots is the food for his several dozen breeding-rabbits and their offspring. The watering system for the cages, invented by Nelson, is also made of recycled materials. There are a few fenced-in chickens and some free running *cuyos* who feed from the organic animal waste that falls below the rabbit cages. The remainder is reintegrated as plant fertilizer for potted plants and herbs.

Nelson's inventiveness is remarkable and his enterprise is successful. Many people grow rabbits but few have such a large stock as Nelson. Our concern, however, is that although keeping it very clean by washing it down with water every day the acid from the urine could be corroding the rooftop, which could eventually cause severe damage to the building.





15.12.2006

Visit to Sancti Spíritus, Sancti Spíritus Province

a.) *Fundación Antonio Núñez Jiménez* (FANJ) in Sancti Spíritus.

Meeting with Alejandro Romero Emperador, director of the FANJ and the local museum for natural history and archeology. He is an expert speleologist and has been the head and driving force of this very active FANJ group.

Current projects of FANJ in Sancti Spíritus are: 1.) Environmental education with the local community on permaculture, waste, and recycling, 2.) Rainwater collection system, 3.) Composting toilet, 4.) Urban agriculture, with: 10 *Organopónicos* (out of a total of 30 groups in SS), six *fincas rurales* from 5 to 7ha each, seven *patios familiares*, five *huertos*, and 5.) Capacity building in urban agriculture (300 people are trained, 40 facilitators or *promotores*). There are approximately 20.000m² of *organopónicos* in

Sancti Spíritus and 79ha *fincas* (fruits, horticulture, medicinal plants). All of them produce 100% organic.

Points to consider are: with the state as intermediary agent, production becomes more expensive and workers earn less. During our conversations with FANJ and with producers it became evident that a larger scale production is more likely to use chemical fertilizers and pesticides. Hence, small, family size productions are most likely 100% organic, whereas state-owned large horticulture productions for the market, to be sold in bigger quantities, are not necessarily 100% organic. Since there is still a deficit in food production in Cuba, everything that comes to the market is sold, little is wasted and prices are high.

There is an excellent experience in Sancti Spíritus with composting. Six months ago one community started the design of a pilot project collecting organic waste at the household level. Everything is being thought through, from the size of bucket to be distributed to each individual home, to the wheels on the vehicle that the collector will use to pick up from door to door. The idea is to work with the neighborhood and include as many households as possible in the collection of the organic waste for the local communal permaculture project. This experience will soon be expanding into seven additional neighborhoods. The following picture shows the housing complex involved in the organic waste collection and the neighboring receiving *organoponic* center.



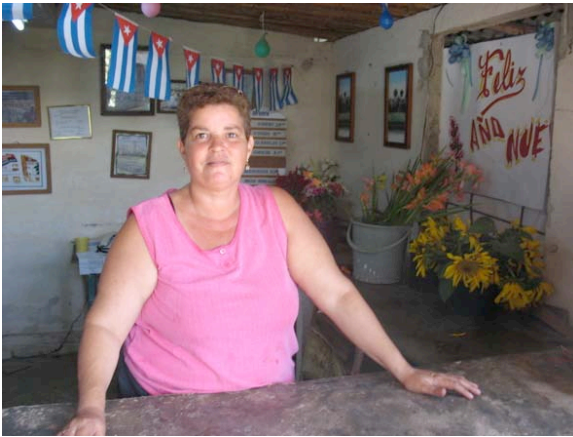
Field visits:



1.) *Patio productivo* (Lourdes and Basilio). In their *patio* behind the house this couple grows an abundance of vegetables, tubers, fruit trees, medicinal plants, and chicken. The place is lush and shady from all the trees. We witnessed people coming to the door to buy freshly squeezed juices and medicinal plants. Basilio is planning an expansion on the rooftop, where he already has a meeting room for people to come and learn about permaculture and related subjects.



2.) *Linda Flor* is a Flower *Organopónico* and composting project growing at the edge of a big square with several-story-high housing units at the city limits. *Linda Flor* has installed the rainwater collection system that is being propagated by FANJ. Neighborhood organic waste collection is in place and ten people are employed. The rows of flowers planted in neat elevated beds are surrounded by rice chaff covered walkways, to keep weed free.



At the entrance there is a small flower shop (see picture) where the buyers can get fresh flowers and bouquets. There hasn't been a culture of gifting flowers in Cuba, but places like this are trying to promote it. People also gather here under a huge tree for learning events.



3.) *Organopónico Estadio* is a fairly large vegetable garden in close proximity to the *Linda Flor*. The people produce their own compost from neighboring organic waste deliveries (see earlier pictures).

4.) *El Ranchón*, Ismar Garce Palmero y esposo. This amazingly vibrant garden is owned by Ismar (see photo below) and her husband. They started it in 1994 and have a production area of 340 m². Every centimeter in and outside the planted rows is used thoughtfully. Again the *paja de arroz* (rice chaff) is used to cover the pathways in between. Over the years fertile humus has accumulated to 35cm in depth. The growers manage six plant rotations/year and produce vegetables and tubers, medicinal plants, herbs, fruit trees, ornamental plants, and fish. This is also an excellent example of a well-established composting experience. *El Ranchón* is adjacent to



the community market so they are able to collect the organic waste produced there, as well as from surrounding neighbors. They have the rainwater collection system in place (they also collect the rainwater from the roof of the adjacent market) and are proud owners of the Mexican composting toilet.

the community market so they are able to collect the organic waste produced there, as well as from surrounding neighbors. They have the rainwater collection system in place (they also collect the rainwater from the roof of the adjacent market) and are proud owners of the Mexican composting toilet.



This simple yet surprisingly sensible artifact was mentioned in every discussion we had with people involved in sustainable systems. Ismar participated in an exchange program on food security and sustainable agriculture (*Programa de Intercambio, Diálogo y Asesoría en Agricultura Sostenible y Seguridad Alimentaria*), funded in part by the church council (*Consejo de las Iglesias, ANAP*). During this experience in Mexico she could learn from hands-on practical examples. After her trip to Mexico Ismar

brought the composting toilet to Cuba and now they are in the process of making a mold to produce them locally.

This garden is an extraordinary example of what can be done with education, dedication and willpower. Ismar studied agronomy and has been continuously developing her skills and knowledge by being actively engaged in workshops and conferences. She is one of the chief promoters of permaculture in the area. She and her husband practice worm culture and by composting produce all the necessary organic fertilized soil (see photo below).



16./17.12.2006

Return trip to *La Habana*, via *Trinidad* and *Cienfuegos*.

Along the way to and from Sancti Spíritus we saw experience after experience of homegardens and *organopónicos*. We were also able to get a glimpse at big agricultural and agrarian operations and marine aquaculture.

18.12.2006

Back at the FANJ office in La Habana we met with Cary to debrief and brainstorm on possible research collaborations between FANJ and UVIC, and experience transfers between Brazil and Cuba.

We can confirm that there is a great interest in Cuba in learning from the recycling experience in Brazil. The municipality of Sancti Spíritus seems perfect in size and level of commitment for our proposed exchange program. Some neighborhoods in La Habana could also be included (e.g. *grupos comunales* and *promotores* in the neighborhoods Cerro, Arroyo Naranjo, San Miguel, El Vedado).

Points to consider:

- How can we produce meaningful information?
- We need to know how much the government benefits from recycling.
- We need to organize the data on recycling, composting, and urban agriculture.
- Participatory methods to gather, compile, and share information during workshops are most appropriate.
- *Promotores* could be the researchers.
- Information transfer through exchange of publications between the three countries.

Next steps:

- Definition of the agencies involved in the project.
- CIPS: *Centro de Investigación Psico-Sociológico*.
- CPS: *Proyecto Cauto* (local development in the watershed of the Cauto river) (partnership with *Alternativ*).
- *Centro de Desarrollo Local* (Adaguson).
- IPF: *Instituto de Planificación Física* (national and provincial).
- Definition of the specific groups involved in La Habana and Sancti Spíritus.
- Find adequate funding agency.
- Bibliographic review in Cuba.
- Definition of methodology.

4. Final remarks:

This trip has allowed us to strengthen our contacts and to establish new links with key institutions for a possible research partnership. It confirmed the necessity, urgency, and existing commitment from both sides for a collaborative research project and community outreach program between Cuba and Brazil, in partnership with Canada.

During our stay in Cuba we were able to experience the complexity of urban food production in that country. We witnessed the scarcity and lack of resources and the remarkable ingenuity of the locals to be creative and not waste anything, and to locally produce high quality and nutritious food items with whatever resources available. The concepts we teach in theory regarding carrying capacity, sustainable livelihoods, ecological footprint, food miles, appropriate technology, etc., obviously produce more sustainable results in Cuba than in consumption oriented, wasteful societies. These aspects definitely need to be researched in depth.

Undeniably there are problems and contradictions in the Cuban urban food production system and green medicine experience, that need to be addressed. Nevertheless, it seems an extremely insightful experience from which we can learn a lot and to which we can also make significant contributions in return.

Unfortunately we can also confirm that there is already a huge waste problem in La Habana, with waste piling up in the streets, generating pollution, contaminating rivers and unoccupied spaces. With the steady increase of international tourism and the availability of CUC currency (convertible pesos), more Cubans are now able to access consumer items from abroad (recently particularly from China). This means that there is considerable packaging waste in the city and that there will be more in the near future. It is suggested that the current waste management system in La Habana is unable to address this increase in terms of quantity and diversity of materials in a sustainable fashion. Cuba needs to make a pro-active step to avoid the waste dilemma most cities in the world are already facing (Boadi et al. 2005). We also learned that there used to be a well functioning recycling system, recovering most of the materials for reuse and recycling. The population in Cuba is widely informed about the environmental hazards related to solid waste and the necessity to recover these resources in order to avoid environmental problems.

The experience of collecting organic household waste for composting in Sancti Spíritus e.g. is very interesting and needs to be documented, evaluated and can possibly be transferred to other cities in the world. The city of Diadema in Brazil has already manifested great interest in participating in such an exchange program. The recycling experience in Diadema is also worthwhile to be documented and transferred to Cuba (Gutberlet 2005). The established partnerships provide a fertile and inspiring ground for action oriented and participatory research.

Finally, we would like to thank our partners in Cuba who have made this trip so enjoyable and informative and the Office of International Affairs at the University of Victoria for the Development Project Seed Money Grant.

Jutta Gutberlet
Gabriela McBee

São Paulo / Victoria, 15 January 2007

5. Bibliography

- Boadi, K.O. and Kuitunen, M., 2005. Environmental and health impacts of household solid waste handling and disposal practices in third world cities. *International Perspectives*, 68(4): 32-36.
- Cruz, M. C. & Sánchez Medina, R., 2001, *Agricultura y Ciudad. Una clave para la sustentabilidad*. FANJ, La Habana.
- Cruz, M. C. & Sánchez Medina, R. (coord.), 2005, *Ciudad Sustentable. Reflexiones sober: la agricultura y sus relaciones e el medio ambiente urbano*. FANJ, La Habana
- 2006, *Permacultura Criolla*. La Habana.
- 2004, *Relaciones de la agricultura en el ambiente urbano*. La Habana.

- Gutberlet, J., 2005, Co-management of urban solid waste resources: Experiences and challenges from Sao Paulo, Brazil. In: Ibrahim, M., Errafie, C., Bounaim, N., Chifri, H. & Mahfoud, M. (Eds.) *Impacts environnementaux et socio-économiques des options de valorisation des déchets solides municipaux pour les collectivités de petite et moyenne taille*, Séminaire régional, 1-2 June 2005, Rabat, pp. 92-102.
- Hay, I., 2000, *Qualitative Research Methods in Human Geography*. Oxford: Oxford University Press.
- Jaffe, P.J.M and Rivke, N., 2004, Informal Waste Management: Shifting the Focus From Problem to Potential. *Environment, Development and Sustainability* 6: 337-53.
- Kidd, S. and Kral, M., 2005, Practicing Participatory Action Research. *Journal of Counseling Psychology* 52(2): 187-195.
- Medina, M., 2001, Scavenging in America: Back to the Future? *Resources, Conservation and Recycling* 31: 229-40.
- Medina, M., 2000, Scavenger Cooperatives in Asia and Latin America. *Resources, Conservation & Recycling* 31: 51-69.
- Mansoor, A., 1999, The Informal Sector: What Is It Worth? *Waterlines* 17(3): 10-12.
- Mollison, B. 1990. *Permaculture: a practical guide for a sustainable future*. Washington, Island Press.
- Walker, P., Williams, S.D. and Waliczek, T. M., 2006, An Analysis of the Horticulture Industry as a Potential Value-Added Market for Compost. *Compost Science & Utilization*, 14(1): 23-31.
- Warwick, H., 2001, Cuba's Organic Revolution. *Forum for Applied Research and Public Policy*, 54-58.

