The Santropol Roulant & Alternatives Rooftop Garden:

Reflections on an Innovative Collaboration

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Confronted with a deteriorating environment, shrinking agricultural lands and growing poverty, two Montreal organisations have teamed up to turn inner-city rooftops into fertile and productive gardens.

Looking from a high-rise apartment window over downtown Montreal, you are immediately confronted by vast, untapped empty spaces. The monotonously grey expanse of residential and low-rise commercial rooftops appears as an infertile patchwork. But looking closer, you may see a few specs of green encroaching on the gravel and tar desert. Just as the Bedouin have adapted food production to the Sahara, so are urbanites adapting to the extremes of their environment. It is in this spirit that Santropol Roulant and Alternatives are implementing a mutualistic strategy for urban survival thorough rooftop gardening.

All over the world rapidly growing cities are expanding into the most productive agricultural lands as economics, culture and history conspire to replace farms with suburbs. We are running headlong into a crisis where rising populations rely on shrinking farmlands. To avert or delay the crisis, food distribution is becoming more and more influenced by, and dependent on, international markets and the additional risks that these bring.

In these same cities almost none of the food consumed is grown locally. People have become disconnected from the cycles that support their lives, having little knowledge of where their food is grown, how it is cultivated, or how nutritious it is. Such dependence on outside sources to meet basic needs puts city-dwellers more at risk to food insecurity. We are challenged to find ways to reintegrate food production into the cityscape, to reconnect people with the ecological and agricultural processes that sustain them.

Envisioning vegetables gardens on inner-city rooftops, and opening these unused spaces to the community, Santropol Roulant and Alternatives set off to combine their experience and make this a reality. Santropol Roulant is a community organization that operates an innovative meals-on-wheels service, intergenerational activities and volunteer programs that aim to address the health and food security needs of seniors and Montrealers living with a loss of autonomy. Alternatives on the other hand is an international development agency with a network of partners spanning more than 30 countries. Together they have devised a solution that could significantly alter the Canadian, and perhaps the global, cityscape.

Alternatives' international partners in mega-cities like Sao Paulo, Jakarta and Casablanca were looking for new ways to address urban poverty and dire inner-city environment conditions. High rates of population growth, income inequality, land degradation and soil erosion, as well as a host of institutional and economic factors that limit food security in the urban context are causing endemic hunger in these cities. At the same time, partners in Mexico, Senegal and Cuba were experimenting with innovative hydroponics and organic agriculture techniques that reduce the cost and limitations of producing vegetables on degraded lands and in cities. Thus Alternatives began a program to share and demonstrate ideas that tackle food security and hunger issues around the world.

Starting in 2001, Alternatives (with the financial support of the International Development Research Council) began to bring these ideas together and experiment with them in a garden on a Montreal garage roof. The work focussed on adapting systems devised at the Institute of Simplified Hydroponics in Mexico to the Canadian context. From there Alternatives began other action research projects in Morocco, Senegal and Cuba, in each case incorporating local concepts of organic and urban agriculture, and adapting the techniques tested in Montreal to other climates.

Santropol Roulant became interested in rooftop gardening when they first looked into setting up a garden on their own offices in 2000. Unfortunately, accessing their rooftop was not possible, so they sought another site while contributing ideas and volunteers to Alternatives' experimental garden. In the summer of 2004, Santropol Roulant and Alternatives together established a five hundred square meter garden on the roof of a University of Quebec building located in the Plateau neighbourhood of Montreal. This volunteer-run rooftop demonstration garden now serves as a long-term learning ground while producing fresh food for the Santropol Roulant meals-on-wheels program.

Santropol Roulant's staff and volunteers see rooftop gardening as a key to strengthening food security in Montreal. Many volunteers live in the crowded city centre, and have no access to a garden of their own. Santropol Roulant's collective rooftop garden offers them a place to experiment with urban agriculture, while encouraging participation in an enriching and enjoyable community activity. Through this work the gardeners themselves, who are mostly young people, are demonstrating a growing interest in issues around food security and sustainability.

The critical element of this work has been the combination of various ideas to create lightweight, simple-to-use, and affordable gardens that can be built on flat rooftops, in other small urban spaces, or on degraded lands. The rooftop gardens combine the principles of hydroponics, organic agriculture and permaculture to create a versatile set of garden designs.

Hydroponics refers to the growing of vegetables without the use of soil, wherein the nutrients are delivered directly to the roots by dissolving them in an irrigating solution. While hydroponics systems are usually complicated and expensive – requiring a variety of pumps and specialised materials – the rooftop gardens employ hydroponics in a way that requires no pumps and is constructed from materials that are easily found either at the recycling centre or the local hardware store.

The main advantage of this "simplified" form of hydroponics is that most of the weight (about 95%) is attributable to the nutrient solutions that feed and irrigate the plants. Thus when the systems are drained of their water in the fall, and turned upside-down for winter storage, they leave little additional weight on the rooftop. In Montreal, where inner-city roofs are flat, and designed to hold over twenty pounds of snow per square foot, the rooftop gardens take advantage of the natural load-bearing capacity of the rooftops in the summer, but do not risk causing structural damage during the winter months when the gardens are stored empty. This is a significant step forward for rooftop gardening in cold climates, as it eliminates the need to invest in the expensive infrastructure retrofits that soil-based rooftop gardening requires.

The gardeners and researchers in Montreal, Cuba, Senegal and Morocco are now looking at ways to replace the chemical hydroponics nutrient solutions with compost-derived and organic nutrient sources. This will make the gardens even easier and cheaper to construct, making them a viable income-generation alternative for urban poor around the world. Moreover the sealed-container growers used in the Montreal rooftop garden do not lose water to infiltration and evaporation which significantly reduces irrigation needs, providing yet another incentive for their use.

In Montreal the work is focussing on the research and adaptation of rooftop growing techniques. With the support of Environment Canada, Health Canada, the City of Montreal and the Quebec Ministry of the Environment, Alternatives and Santropol Roulant are developing a how-to manual and a ready to go start-up kit to help individual home-owners and renters start their own gardens. They are working with other community gardening and poverty alleviation organisations to spread the idea of rooftop gardening through a wider network of demonstration sites and workshops. Over the coming three years the ultimate goal is to integrate considerations for rooftop gardening into city building codes, and to establish a training and supply service through the Montreal Botanical gardens.

As these elements continue to fall into place, it will not be long before all high-rise apartment dwellers will be treated to a city covered in greenery. And, most important,

Montrealers will all be able to enjoy the experience of eating freshly harvested summer vegetables that they grew by their own hand.

Santropol Roulant (www.santropolroulant.org)

~~Can you make this way shorter~~

Santropol Roulant's mission is to bring people together across generations and cultures through an innovative meals-on-wheels service, intergenerational activities and volunteer programs. We use food as a vehicle to break social and economic isolation, addressing the health and food security needs of seniors and Montrealers living with a loss of autonomy while engaging a diversity of people to take an active role in their community.

Our holistic approach to social services and community development has led us in recent years to turn our attention towards "greening" the community and we are excited to engage ourselves further in this critical venue. These initiatives allow us to promote urban sustainability while improving the services we provide to our clients and bringing people together through workshops, cooking nights, gardening and special events.

Alternatives (www.alternatives.ca)

Alternatives responds to the needs and ideas of progressive Canadians, who are working together to counter poverty, racism and social exclusion in Quebec, Canada, and around the world. Rooftop gardening offers new options for communities to introduce a healthy and enjoyable activity that can improve the quality of life for urban residents, and encourage cooperation between Canada's diverse ethnic and social communities. Alternatives is expanding the scope of the project, working with the urban poor in developing countries to use rooftop gardening as a new income generating activity.