Growing Food Security in Peterborough, Ontario

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Introduction

Across Ontario, people are struggling to eat. In 2007, 379 100 households were food insecure; that is approximately 9 percent of Ontarians (Scharf et al., 2010). The trend is even higher in households with children, with 11 percent of those surveyed described as food insecure (Scharf et al., 2010). In Peterborough, the rates of low incomes and food insecurity exceed the averages for Ontario. In 2000, almost 60% of low income Peterborough households were "food insecure", with almost 20% of the children in said homes going hungry (Hubay and Powell, 2000).

One could say that the Canadian Food System, along with other factors of course, has lead to food insecurity in Peterborough and other communities throughout Canada, if not the world. This is supported by Peter Andree's article entitled "Cultivating Sustainability: Strategies for Agriculture in the Kawarthas" (1997). Andree notes that the Kawartha region, which encompasses Peterborough, was still largely self-sufficient and food secure in the 1920s (1997). The latter occurred shortly thereafter in the late 1920s through the industrialization of agriculture. This was exemplified in the Kawartha region by new industrial production technologies (e.g. mechanization, high inputs, farmland concentration), new food processing and storage techniques, corporate concentration of the food retail sector, and the globalization of the economy (e.g. the export and trade of food through a deregulated market, with certain players having an unfair advantage) (Andree, 2007). All of these factors transformed food into a commodity, not for the nourishment of people, but for the accumulation of profit. This in turn lead to less direct access to food and an increase in food insecurity.

It is evident that food security is complicated as it is connected to systemic issues of poverty and inequality. According to Hubay and Powell, food security is "said to exist when all people at all times have access to sufficient amounts of safe, nutritious and personally acceptable foods in a manner that maintains human dignity" (2000). One very important factor that determines access to food is affordability. Affordable food means food that can be purchased without compromising the ability to pay for other daily needs such as housing, electricity and education. Food security must be identified as a basic human need, one that unfortunately is not always met, "especially in low-income, of-color, and single mother households" (Melcarek, 2010).

Community food security (CFS) initiatives have been popular since the 1990's (Scharf et al., 2010). Specific initiatives in Peterborough include collective kitchens, breakfast programs in schools, food box programs, community gardens, gleaning programs, and farmer donations through the 'Grow a Row' program (Hubay and Powell, 2000). Despite the range of initiatives, there exists many challenges which must still be resolved. The following quote addresses the challenges facing emergency hunger relief and food security programs in general,

"Since food banks were first established in the early 1980s, a growing number of Ontarians have come to rely on food charities to meet their basic needs. These under-resourced charitable organizations can provide only uneven service, and the food quality

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is often less than optimal. Thus many low-income people either go hungry or consume cheap, processed foods — which contributes to the high rates of poor health and diet-related illness seen in poorer communities. At the same time, people across the socio-economic spectrum have lost touch with the skills necessary to choose, grow, and prepare healthy food (Nasr et al., 2010. pp 6)."

Taking all of this into consideration, food security initiatives must take a holistic approach. Like most modern notions of sustainability, measures of social, environmental, and economic sustainability are all relevant to a sustainable food system (Hubay and Powell, 2000). Community food security programs then, must incorporate both antipoverty work to build social sustainability and environmentally sound agricultural practices to build environmental sustainability (Scharf et al., 2010). Organizations such as FoodCycles emphasize the environmental aspect of the food system by concentrating their efforts on nutrient cycling initiatives such as vermicomposting (FoodCycles, 2009). On top of this, the projects must be economically viable and sustainable to continue to exist.

In Peterborough, the YWCA is taking the lead in this respect. The organization views food security as a means of building community, which includes equal participation and education as key concepts. The Trent Community Based Education project which we have been working on aims to create this definition of food security as a reality in Peterborough. The objective of the project is to explore new avenues of growing food on a large-scale to provide for the YWCA's current food security initiatives, especially the food box and gleaning programs.

The food box programs in Peterborough provide regular packages of food that are subsidized for low income families. There are two different types of food boxes; one being the Good Food Box and the other being the Fresh Food Box. Currently, approximately 500 families in Peterborough subscribe to these food boxes. Gleaning is the harvesting of gardens or farm fields after the farmer has already harvested the profitable foods. Often, large quantities of produce are left on harvested land as it is either not profitable to sell or uneconomic to harvest. This produce, if collected in an organized fashion can feed many people. The YWCA's gleaning program organizes bus rides to farm fields for gleaning in partnership with farmers in the Kawarthas.

In particular, this project will assess ways larger scale gardens can be integrated into these food security programs. While these gardens can be viewed as community gardens they would actually play the role of small farms so as to generate enough produce to be gleaned by a large group and/or to be integrated into the food box program. This project will highlight the potential of urban agriculture, where intensive gardening becomes a direct step into farming.

A number of communities throughout North America are already home to large-scale urban agriculture projects. This report includes seven relevant case studies, general recommendations for an urban agriculture project based on the case studies and research, and recommendations for proceeding in Peterborough.

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Case Studies

Eight main case studies are presented in some detail, followed by the more generalized themes or lessons gained by researching each project. The last case study, Growing Power, is a large organization with many projects. Both an overview of the organization and details on four of its projects are given.

Toronto Urban Farm

The Toronto Urban Farm is the fruit of a partnership between the municipality of Toronto and the Toronto and Region Conservation Authority (TRCA) who own 3.2 hectares of land -formerly a dairy farm - in Black Creek Pioneer Village (TRCA, 2010 a). The farm was built onto an existing project, the Rockcliffe Demonstration and Teaching Garden within a socially vulnerable community (TRCA, 2010 a).

The goals of the Toronto Urban Farm include youth employment and leadership skill development, food system education, community capacity building in relation to food security and environmental stewardship ability, and the promotion of health and nutrition (TRCA, 2010 a).

The Toronto Urban Farm has become an active part of its community with 68 youth employed to date (TRCA, 2010 a). The farm and its accompanying training building continue to host youth development sessions on a range of topics from food security and nutrition to cross cultural sensitivity and time management (TRCA, 2010 a). The farm is also involved in public outreach events such as an open house hosted to meet with community agencies, local residents, staff, and media, and community events such as the recent 'Composting Kick-off' (TRCA, 2010 a). The Toronto Urban Farm has built a partnership with Starbucks to receive used coffee grinds for composting and works with the Peer Nutrition Community Garden to promote nutrition and inclusion among newly immigrated women (TRCA, 2010 a).

Key Concepts:

a. The major emphases of the project include community building in stigmatized neighbourhoods, youth employment and development, skill building, education, community outreach, food security, nutrition, and waste reduction.

b. The project hosted an open house as an effective means of public relations with community members, agencies, and staff to build strong relationships and support within the community.

c. The farm has an accompanying building for training and workshop purposes.

d. The project has formed partnerships with the municipality, other food security programs, and with businesses (e.g. Starbucks).

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McVean New Farmers Project

The McVean New Farmers Project is another project headed by the TRCA, in partnership with Farmstart. Farmstart is a "not for profit organization established in 2005 to support and encourage a new generation of farmers to develop locally based, ecologically sound and economically viable agricultural enterprises" (TRCA, 2010 b). In 2008 the project held 15 hectares in a renewable multiyear lease (TRCA, 2010 b). The significance of the renewable multiyear lease is in the promotion of sustainable stewardship and planning techniques for the project. The site includes both a heritage building and site (TRCA, 2010 b) and is therefore protected into the future against changes in zoning or development.

The land is divided into parcels ranging from one half to four hectares and for a small rental fee participants have access to not only the land but also supporting infrastructure (TRCA, 2010 b). This land is available both to aspiring farmers and to community groups (TRCA, 2010 b). Before the land could be farmed the soil was tested and treated as required with organic composts and cover crops (TRCA, 2010 b).

The goals of the project include encouraging local agriculture, supplying the urban and peri-urban communities with local food, protecting local greenspace and ecosystems, encouraging and training new farmers, community building, and connecting consumers to their food (TRCA, 2010 b).

The McVean New Farmers Project is an incubator model and works with similar programs in Burlington, Vermont and Guelph, Ontario (TRCA, 2010 b). They also work with the Afri-can Food Basket, the Cutting Veg and the Matchbox Garden and Seed Company (TRCA, 2010 b).

The project receives funding from a variety of sources including:

- Agricultural Management Institute
- Toronto and Region Conservation Authority
- Region of Peel
- Friends of the Greenbelt Foundation
- AgrFoods Canada
- Agricultural Adaption Council
- Laidlaw Foundation
- Metcalf Foundation
- Catherine Donnelly Foundation (TRCA, 2010 b).

Key Concepts:

a. The major emphases of the project include local agriculture, food security, greenspace and ecosystem protection, skill development, community building and consumer-producer connections.

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b. A renewable multiyear lease encourages long term planning and sustainable land use techniques.

c. The land is available to both individual aspiring farmers and community groups for the same small fee.

d. Farmers are provided with both land and infrastructure.

e. The soil was tested prior to farming and treated organically as needed.

f. Funding for the project has been sourced from a variety of organizations.

Martin Luther King Jr. Middle School Edible School Yard

Edible School Yard programs are an example of food security and production in partnership with schools. Founded in 1995 by Alice Waters in Berkeley, California the program began at Martin Luther King Jr. Middle School (Edible School Yard New York, n.d.) which now has a one acre garden and kitchen classroom guided by five key principles:

1. Participatory

   The garden uses hands on learning activities to transfer knowledge to students (Edible School Yard, 2010).

2. Integrated

   The themes of food security, the modern means of production and distribution, nutrition, and agriculture are incorporated into the curriculum of the school (Edible School Yard, 2010).

3. Shared

   The students and staff share both the food grown and cooked in the program and the learning experiences gained through the work (Edible School Yard, 2010). All students at the school attend a range of twelve to thirty workshops per year (Edible School Yard, 2010).

4. Delicious

   The program values local, organic and seasonal foods (Edible School Yard, 2010).

5. Beautiful

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> The program is designed to inspire both personal and social responsibility (Edible School Yard, 2010).

It is useful to look at the timeline of the programs development to see how a project that started merely as a cover crop with monthly student participation (TRCA, 2010 b) turned into a well established means of food production and education.

In the first year, 1994 to 1995, the program coordinators developed a vision and mission statement to guide the project and in the following year a steering committee was formed and the staff trained (TRCA, 2010 b). This year also saw the beginning of a vermiculture program and the planting of the first cover crops: bell beans, fenugreek, crimson clover, oats, and two vetches (TRCA, 2010 b). The school year of 1996 and 1997 marked the introduction of students to the land as well as the reception of a Curriculum Development Grant from the Centre for Ecoliteracy (TRCA, 2010 b).

In 1997 and '98 the students built a tool shed and planted fruit, nut, and berry trees (TRCA, 2010 b). The next year they built an apple espalier and planted apple trees, built a propagation table for seedlings and planted corn, herbs, tomatoes, onions, broccoli, and greens (TRCA, 2010 b). The next year saw more apple trees as wells as asparagus, peas and beans (TRCA, 2010 b). In 2000 and 2001 a herb garden was built and the school raised money through a holiday wreath sale using garden materials (TRCA, 2010 b). The school also donated fruit tree grafts to other gardens and schools (TRCA, 2010 b).

The school year beginning in the fall of 2001 marked the introduction of livestock with the purchasing of chicks and the construction of a chicken coop (TRCA, 2010 b). Olive trees were planted along the perimeter of the garden (TRCA, 2010 b). The next year's crops included wheat, barley, corn, amaranth, quinoa, millets and flax and saw almost forty educational visits to the garden from outside educators (TRCA, 2010 b). In 2003 a partnership was formed with the local university who began using the site for research and supplying biology students as volunteer leaders (TRCA, 2010 b). The garden grew squash and heirloom foods this year (TRCA, 2010 b).

In 2005 the garden first began producing food for the Berkeley Family Clinic, the Richmond Senior Centre, and People's Grocery in the summer months of the year (TRCA, 2010 b). The next year they introduced their first month long summer course (TRCA, 2010 b). By 2006 the garden was producing over one thousand pounds of veggies, 300 ears of corn and nearly 300 eggs (TRCA, 2010 b). In 2007 they began growing mushrooms and produced 30 pounds of one of the three species grown (TRCA, 2010 b). They also added a wheelchair accessible bed, tea beds, a gutter water barrel collection system, and soil storage bins (TRCA, 2010 b). Recently, a grant from the Alameda Countywide Clean Water Program was used to build a new rainwater catchment system that holds six thousand gallons of water and catches 200 gallons with every inch of rain (TRCA, 2010 b).

Key Concepts:

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a. The major emphases of the program are youth development, education, food security and production, accessibility, and environmentally sound agriculture.

b. The program has clearly defined guiding principles, and an established steering committee.

c. The early years of the project focussed mainly on planning, staff development, and land preparation.

d. The project started small and grew through several reasonable and achievable projects each year.

e. The project included both produce and livestock.

f. The project incorporated vermicomposting.

g. Fruit tree grafts were donated to schools and community gardens to promote local urban food production and nutrition.

h. Funds were sourced both through educational grants and creative fundraisers using 'waste' garden materials.

i. The project formed a partnership with the local university where by researchers at the university could use the garden as a research site and the school program gained biology students as volunteers.

j. The garden produced food for community organizations and programs as well as for the staff and students.

k. The garden is wheelchair accessible.

The Stop

"Over the years, The Stop Community Food Centre in the Davenport West community of Toronto has evolved from a food bank into a thriving community centre where people come together to grow, cook, and eat food, as well as to advocate for measures that can increase food security in the wider community. It maintains its emergency food programs, but has complemented them with a range of capacity- and skills-building programs (Scharf et al., 2010. pp 6)."

The Stop has been considered both a grassroots program in contrast to the industrialized food system and an organization working within the current political and food systems to create positive change during its thirty years of operation (Scharf et al., 2010).

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The Stop focuses its programs on issues of food security, providing access to healthy food in a dignified way, community building, and reducing inequalities within the community (Scharf et al., 2010). They view food not as a commodity but as a public good necessary for health and equality (Scharf et al., 2010). Their wide array of programs include a food bank and drop in centre, collective kitchens, community gardens, educational workshops, civic advocacy, Speakers Bureau which shares stories of poverty, the social advocacy group Bread and Bricks, a low cost market, an outdoor wood-fired oven, and their satellite site, the Green Barn (Scharf et al., 2010). The Green Barn, opened in 2009, is housed in a reclaimed TTC streetcar repair barn and includes a green house, kitchen, demonstration garden, classroom, and a geothermal energy system (Scharf et al., 2010). While these programs target both food security and emergency relief, the Stop has intentionally limited the amount of resources allocated to emergency response and the food bank program to allow for increased resources to build food security programs (Scharf et al., 2010).

The Stop reaches all demographics within the community with programs aimed at children, adults and seniors as well as marginalized populations (Scharf et al., 2010). The Stop has formed partnerships with community groups through programs such as the After School program, the Shovels and Spoons program, and a new program in 2010 intended to bring together multiple generations (Scharf et al., 2010). The After School program brings youth from low income households to the garden for skill development and nutrition education while Shovels and Spoons forms connections with stigmatized community groups such as the mentally ill, isolated seniors, and survivors of abuse (Scharf et al., 2010).

These programs provide the Stop with much needed volunteers while offering skill development and healing opportunities for the volunteers. Volunteers are able to contribute to the growing of their food and gain valuable skills which have been connected with increased self esteem and social relationships (Scharf et al., 2010). This is in contrast to hand-out programs which strip the recipient of dignity and do not include skill building components (Poppendieck, 1998). Furthermore, by restricting costs in some areas, the Stop was able to implement a voluntary voucher program for low income volunteers to spend at the Good Food Market (Scharf et al., 2010). This voucher program must be framed within the context of the volunteer demographic to be appreciated, as "[a]pproximately 75% of Stop users have an income of less than $20,000 per year, and 73% say they have insufficient money for food after rent; 80% are unemployed, 61% are on social assistance, and 40% report that they have some type of disability" (Scharf et al., 2010. pp 33).

In 2009 the Stop distributed nearly 13 500 food hampers to 6 000 families and provided more than 4 500 meals at its drop in centre (Scharf et al., 2010). The greenhouse produced 2 500 pounds of food (a number expected to increase by 50 percent in 2010) and trained 300 low income volunteers, who with the other 109 volunteers contributed a combined 20 000 hours of work to the Stop's efforts (Scharf et al., 2010).

In the beginning the Stop sourced its funding primarily through direct mail, foundations, and grants but has since grown to provide food based revenue services such as catering, workshops, and in house events (Scharf et al., 2010). Having a diverse array of programs and emphases allows the Stop to approach a variety of funding sources, resulting in private sources providing 90 percent of the funding needed (Scharf et al., 2010).

Key Concepts:

a. The major emphases of the Stop's programs include food security, providing access to healthy food in a dignified way, community building, and reducing inequalities within the community.

b. The Stop targets both food security initiatives and emergency hunger relief, with an emphasis on the former.

c. A wide array of projects allows the Stop to approach a variety of potential funders.

d. The majority of the Stop's funding comes from private sources.

e. Relationships are formed between community groups to provide volunteers for the Stop and skill building and learning opportunities for volunteers.

f. Programs are intended to reach many demographics.

g. Program participants can take part in a voluntary recognition program to receive vouchers for discounted produce.

h. The Stop has started to incorporate revenue producing services to help fund their programs.

The Kinsman Neighbourhood Urban Farm

The project is currently underway. It will reuse 28 acres of under-utilized and vacant land in the Kinsman neighborhood in Cleveland (McCormick, 2010).

The project is part of the Cleveland Urban Agriculture Incubator Pilot Project. It will combine resources from public and private partners to fund site preparation and improvements (CUAIP, 2010). The objective is to establish an urban agriculture business incubator as a way to provide entrepreneurs access to land for food production and minimize infrastructure costs like water access, fencing, and soil remediation (Taggart, 2010).

The project involves a number of partnerships. The City of Cleveland will be providing access to the land, as well as resources to help carry out a land use assessment (Taggart, 2010). Burten, Bell, Carr Development Inc., a community development corporation, is spearheading the project. The Rid-All Green Partnership will manage a 1.1 acre site on the north side in order to develop a Growing Power Regional Outreach Training Center (Taggart, 2010). This Center is intended to provide workshops and education in food production to local residents. The Ohio State University will offer a variety of training opportunities and workshops to women, minorities, immigrants and limited resource adults with developmental disabilities in order to help them develop small farming operations (Taggart, 2010). The majority of the funding for this project is being sourced through the USDA's Beginning Farmer and Rancher Program and allocated to the University for their specific program (Taggart, 2010).

Key Concepts:

i. The major emphases of the Kinsman Neighbourhood Farm include productive use of vacant land, local food production, entrepreneurship and employment opportunities, and training.

j. Small scale farming is made feasible through a system of financial and technical assistance.

k. Access to land and start-up costs are secured through support from the municipality.

l. On-going funding is dependent on support from government agriculture agencies.

m. A partnership is established with the local University, municipality and a development corporation to coordinate education and training.

Ohio City Farm, Ohio City

The farm is situated on 6-acres of land behind the Cuyahoga Metropolitan Housing Authority's (CMHA) Riverview Tower. The land had been vacant for years as it was considered "un-build-able" property located on a bluff adjacent to the Cuyahoga River and sliding downhill (Boresz, 2010). The public housing agency trustee permitted the use of the vacant land.

The project involves a number of partnerships. The initial Ohio City Farm licensees are also the co-developers of the project - The Refugee Response and Great Lakes Brewing Company (OCH, 2010). Great Lakes is paying about a third of the total $80,000 to establish the farm, and will purchase the food that comes from the 2-acres for its restaurant (Lefkowitz, 2010). Refugee Response will employ refugees to farm both their own plots, as well as that of Great Lakes. The Ohio City Near West Development Corporation (OCNW) will lease the remaining plots at $10 a year, with discounts for the

CMHA residents (Lefkowitz, 2010). Residents will also have free access to a half-acre community garden, as well as tools, education and coaching from the existing farmers on the site (Boresz, 2010).

The project planners are exploring other partnerships including with a young entrepreneur named Central Roots and with the Cuyahoga County Department of Developmental Disabilities, which has a program that trains developmentally disabled individuals to work on farms (Boresz, 2010).

The OCNW launched its Ohio City Fresh Food Collaborative, an effort to tie together the West Side Market, restaurants and urban farmers (Lefkowitz, 2010). Plans include a harvest festival, and a feasibility study for an incubator kitchen in Ohio City.

There are also plans to build an Ohio City Farm stand on the edge of the site.

The project is helping to impact food and agriculture policy. The city council introduced two new pieces of legislation to further the practice of urban agriculture (Lefkowitz, 2010). The first is a proposed amendment to residential zoning districts that would permit market gardens, food stands, hoop houses and composting on the property of single-family homes (Lefkowitz, 2010). The second is an Urban Agriculture Overlay District that would designate 10,000 sq. ft or larger areas as urban farms and thereby permit structures necessary for such operations (Lefkowitz, 2010).

Key Concepts:

n. The major emphases of the Ohio City Farm include productive use of vacant land, local food production, entrepreneurship and employment opportunities, training, and the integration of marginal communities.

o. Land is licensed and leased through a third party local organization.

p. Labour for the farm is secured through both paid-employment and volunteer work.

q. Urban farmers are connected to the market through the Ohio City Fresh Food Collaborative.

r. The project is starting off small, but has plans to diversify in order to ensure economic sustainability.

Growing Power

Growing Power was first initiated in 1993 through a partnership between a group of youth in need of work, and farmer Will Allen in need of workers. Will hired the youth to work at his store and renovate the greenhouses which grew food for their community. This simple program soon evolved into a full-out urban agriculture project guided by a specific vision; that is “to inspire communities to build sustainable food systems that are equitable and ecologically sound, creating a just world, one food-secure community at a time” (Growing Power, 2010).

Today, Growing Power is a national nonprofit organization and land trust supporting people from diverse backgrounds, and the environments in which they live, through the development of Community Food Systems (Growing Power, 2010). These systems provide equal access to healthy, high-quality, safe and affordable food for people in all communities (Growing Power, 2010). Moreover, Growing Power provides hands-on training, on-the-ground demonstration, outreach and technical assistance that help people grow, process, market and distribute food in a sustainable manner (Growing Power, 2010).

As founder and Chief Executive Officer Will Allen proclaims, “If people can grow safe, healthy, affordable food, if they have access to land and clean water, this is transformative on every level in a community. I believe we cannot have healthy communities without a healthy food system” (Growing Power, 2010).

Growing Power's projects fall into three essential areas:

Grow - Projects and Growing Methods

Growing Power has multiple farm sites located in both urban and rural settings, including in Milwaukee and Merton, Wisconsin, and in Chicago, Illinois. Growing Power has also established satellite-training sites in Arkansas, Georgia, Kentucky, Massachusetts, and Mississippi (Bybee, 2009).

All together, the various projects produce 159 varieties of food including vegetables and fruit in greenhouses, goats, ducks, bees, turkeys mostly outdoors, and—in an aquaponics system designed by Allen—tilapia and Great Lakes Perch (Bybee, 2009).

Project methods are guided by sustainable agriculture principles. For example, nutrient cycling is a very important element of all projects. Growing Power composts and vermicomposts more than 6 million pounds of food waste a year, including the farm’s own waste, material from local food distributors, spent grain from a local brewery, and the grounds from a local coffee shop (Bybee, 2009). The aquaponics system further facilitates nutrient cycling through vertical growing, and subsequently multiplies the productivity of the farm’s limited space (Bybee, 2009). The water from the fish tanks flows into a gravel bed, where watercress grows and further filters the water. Also, the waste breaks down to produce nitrogen (Bybee, 2009). The nutrient-rich water is then pumped to overhead beds to nourish crops (Bybee, 2009). The crops extract the nutrients while the worms in the soil consume bacteria from the water (Bybee, 2009). Finally, the water emerges and flows back into the fish tanks fully purified (Bybee, 2009).

Another sustainable project method includes growing produce with little to no chemical input. This means that Growing Power buys all of their seeds from reputable seed companies that do not treat seeds with chemicals (Growing Power, 2010). Moreover, they do not use any synthetic chemicals to grow any of their crops. Instead, they practice integrated pest management which includes handpicking weeds, introducing beneficial insects such as ladybugs, and using foliar compost tea to help control pest and bacteria

problems. As a very last resort, they use only certified organic pesticides like Neem oil and Pyrethrum, a pesticide made from Chrysanthemum leaves (Growing Power, 2010).

Bloom - Education and Technical Assistance

Growing Power's philosophy is that farming should be simple and accessible to all people, regardless of age, race, gender, ability, etc. For this reason they design methods for growing and livestock management that can be replicated in every neighborhood, throughout North America and the world (Growing Power, 2010).

Areas of education and technical assistance include the following: acid-digestion, anaerobic digestion for food waste, bio-phyto remediation and soil health, aquaculture closed-loop systems, vermiculture, small and large scale composting, urban agriculture, permaculture, food distribution, marketing, value-added product development, youth development, community engagement, participatory leadership development, and project planning (Growing Power, 2010).

Growing Power educates all those who are interested in learning through local, national, and international outreach. They also coordinate multiple youth programs, have an active volunteer base, and even provide employment. In fact, Growing Power is a source of 35 good-paying jobs for a very diverse population in an area of high unemployment (Growing Power, 2010). Work at Growing Power is said to be fulfilling as it combines hard physical labor and thoughtful planning based on scientific research (Bybee, 2009). Growing Power also educates the general public through its advocacy work on policy initiatives regarding agriculture.

Thrive - Food Production and Distribution

Growing Power produces its food in the organization's greenhouses, at the rural farm site in Merton, and on urban farms in Milwaukee and Chicago.

Growing Power distributes its produce, grass-based meats, and value-added products through the Rainbow Farmers Cooperative, the Farm-to-City Market Basket Program, local restaurants, and farmers' markets in Milwaukee and Chicago (Growing Power, 2010). The first two means of distribution are particularly important. The Rainbow Farmers Cooperative helps to support over 300 small family farms in Wisconsin, Michigan, Northern Illinois, and the South (Bybee, 2009) The southern farmers, who are primarily African-Americans, make it possible to offer fresh fruits and vegetables year-round (Bybee, 2009). Meanwhile, the Farm-to-City Market Baskets is the organization's food security program. A week's worth of 12-15 varieties of produce costs $16, and a "Junior/Senior" basket, with smaller quantities of the same produce, is available for $9 (Bybee, 2009). Each week, Growing Power delivers 275–350 Market Baskets of food to more than 20 agencies, community centers, and other sites in Milwaukee (Bybee, 2009).

Beyond food that is distributed for profit, Growing Power donates a portion of their produce each week to organizations that serve individuals and families who are food insecure (Growing Power, 2010). In addition, they partner with local organizations to

support other food security programs, including the Greater Chicago Food Depository and the Fourth Presbyterian Church of Chicago.

Growing Power is committed to information sharing and enabling other communities to adopt and adapt the food security model. Growing Power is helping set up five projects in impoverished areas across the United States, including training centers in Forest City, Arkansas; Lancaster, Massachusetts; and Shelby and Mound Bayou, Mississippi (Growing Power, 2010).

a. Merton Rural Farm Site

The farm is a 40-acre parcel of land located on the property of Camp Whitcomb, just outside of Milwaukee. Of the 40 acres, 5 acres is allocated to intensive vegetable production, while the remaining is allocated to raising pasture poultry and growing hay, grasses, and legumes which provide food for the urban farm's livestock. In addition, Growing Power hosts its Immigrant Farming Project and its Food and Fitness Initiative with the Greater Milwaukee Boys and Girls Club (Growing Power, 2010).

b. Maple Tree School and Community Garden

Growing Power leased a five acre plot for 20 years from the city of Milwaukee in order to establish a community garden in partnership with the Maple Tree School. Community members, youth, local volunteers including students from University School of Milwaukee, Work Institute of Milwaukee, and Marquette University worked together to construct over a thousand square feet of raised garden beds. Growing Power assists the Maple Tree School with curricular development to combine school subjects with hands-on experiential learning in the garden. It also provides training to any community member who rents a plot for private growing. On a weekly basis, community members and Maple Tree School families work at the garden. Throughout the summer, 13 community youth received stipends and weekly produce from the garden in exchange for their work (Growing Power, 2010).

c. Grant Park Urban Agriculture Project

The urban farm is 20,000 square feet located on Chicago's lakefront adjacent to Buckingham Fountain and Lincoln Memorial in Grant Park. Over 150 varieties of heirloom vegetables, herbs, and edible flowers are grown here.

The farm was established in partnership with the Chicago Park District and Moore Landscapes, Inc. This partnership enables Growing Power to facilitate a project which encompasses youth economic development and re-establishing biodiversity in the urban setting.

A key element of the project is providing youth with internships in order to prepare them for employment. Youth work both on the farm and also at a small community farmers' market where they market produce and value-added products. As a result, they gain a broad range of experiences and skills, including observation and decision-making,

physical fitness, food production, culinary appreciation, customer service, and entrepreneurship.

The project also has an important impact on Chicago's policy regarding urban farming. It "seeks to quantify the commercial viability of urban agriculture both in economics and production" (Growing Power, 2010).

d. Community Food Center

The prototype for Community Food Centers is the Growing Power facility in Milwaukee, Wisconsin. This facility encompasses a two-acre farm and greenhouse operation. In addition, it provides a space for hands-on activities and large-scale demonstration projects. The center offers schools, universities, government agencies, farmers, activists, and community members the opportunity to learn from and participate in the development and operation of Community Food Systems, which includes sustainable practices to grow, process, market, and distribute food.

The community food centre currently includes:

- *six greenhouses* growing over 12,000 pots of herbs, salad mix, beet greens, arugula, mustards, seedlings, sunflower and radish sprouts. These greenhouses also host production of six hydroponic systems growing Tilapia, Perch, and a variety of herb and salad greens, and over 50 bins of red wriggler worms;

- *an aquaponics hoop house* with two independent fish runs and growing beds for additional salad mix and seedlings;

- *three hoop houses* growing a mixture of salad greens;

- *a worm depository hoop house*;

- *an apiary with 5 beehives*;

- *three poultry hoop houses* with laying hens and ducks;

- *outdoor pens for livestock* including goats, rabbits, and turkeys;

- a large plot of land on which the first stage of the organization's sophisticated *composting operation* is located including 30 pallet compost systems;

- *an anerobic digester* to produce energy from the farm's food waste; and

- *a small retail store* to sell produce, meat, worm castings, and compost to the community (Growing Power, 2010).

Growing Power Key Concepts:

s. The major emphases of the Growing Power projects include sustainable agriculture practices, food security, skills development, youth engagement, equal and diverse participation, and fair market practices.

t. The project combined a variety of land uses and production systems in both rural and urban areas to grow food.

u. The project included both produce and livestock.

v. The project incorporated vermicomposting.

w. The organization is non-profit but does engage in commercial activity through the Market Basket Program in order to sustain itself.

x. The project formed a variety of partnerships, including with municipalities, local schools and universities.

General Themes in the Literature

In conducting a literature review of urban agriculture and food security projects, many insights were gained in topics important to the planning and success of a project in Peterborough. What follows is a summary of the themes, emphases, and general lessons from the literature that may prove helpful in the task at hand.

Urban Agriculture

"Urban agriculture defined in simple terms is the growing, processing, and distribution of food and other products through intensive plant cultivation and animal husbandry in and around cities."

- (Bailkey and Nasr, 2000)

Urban agriculture must be recognized as a sustainable system of agriculture that is a necessary and possible response to increasing urbanization, rather than a mere alternative on the sideline (Adeyemi, 2000). It can also be a "major process of poverty alleviation during periods of economic recovery" (Smit and Nasr, 1992). The opportunities for urban agriculture projects are ample and diverse; they may include aquaculture, livestock, produce and orchard components (Smit and Nasr, 1992).

The current status of urban agriculture can be seen by considering the community garden network of Toronto, consisting of more than 110 gardens maintained by 3 300 gardeners in 2004 (Baker, 2004). These gardens are intended to both stimulate the local food

system and provide affordable access to nutritious food (Baker, 2004). Beyond these functions, the gardens are a space where social inequalities become evident and dialogue about the connections between food and the social, political and ecological environments can take place (Baker, 2004). Community members cite such benefits as healthy food, financial savings, interaction with other community members and physical activity as their motivations to participate in the program (Baker, 2004). Toronto's community gardens can be found in parks, on rooftops, and in backyards and churchyards (Baker, 2004). Another important aspect of the community gardening program is that by producing their own food, participants learn food security skills that will continue to feed their families in years to come (Baker, 2004).

Urban agriculture can be intensified in two major ways: by including more people and spaces in agricultural initiatives and by increasing the scale of urban projects to larger commercial scale projects which can compete in the food system market (Nasr et al., 2010). Nasr et al. make the following five recommendations for supporting urban agriculture:

1. Giving farmers land to produce food on.
2. Supplying the physical infrastructure and resources required.
3. Strengthening the pathway along which food is produced and consumed.
4. Sharing knowledge.
5. Creating new models of governance and funding (2010).

Land Selection

Using urban land for agriculture can be expensive, depending on the type of lot used, and many factors must be considered when selecting the lot (Nasr et al., 2010). Zoning bylaws bring about another challenge: for food to be grown commercially within city limits land use categories must change to include food production (Nasr et al., 2010). The soil must be healthy and free from contaminants, the lot should be close to the inputs and final destination, and the site's ecology must not be vulnerable to agricultural practices (Nasr et al., 2010). Soils with minimal levels of contamination may be treated with composting and photoremediation which uses plants to draw toxins out of the soil (Nasr et al., 2010). It is also important to consider neighbourhood dynamics and to make efforts to communicate effectively with the surrounding public (Nasr et al., 2010). It is helpful to consider the length of land ownership or leases as long term access to the land is required to make the costs of soil preparation and sustainable farming worthwhile (Nasr et al., 2010).

The National War Garden Commission aimed to "put slacker land to use" by using more than 5 000 000 pieces of previously unused urban land which produced 528 285 000 pounds of food in 1918 (Pack, 1919). It is however, more efficient to operate machinery on large parcels of land than many small lots (Pack, 1919). Ideally, a large piece or several large pieces of 'slacker' urban land should be identified as project sites.

Many urban agriculture sites are donated by landowners with an interest in food security. This can be encouraged through a program of the Ontario Heritage Trust which exempts landowners from paying property taxes on lots donated to the program (Nasr et al., 2010). Smit and Nasr recommend the use of public and quasi public land of low density use such as university grounds as sites for agriculture projects (1992). Trent currently has 25 acres of land available for such a project, withstanding approval.

Funding

As seen in the case studies discussed earlier in the report, many options exist to fund urban agricultural projects. The Federal Economic Development Agency for Southern Ontario is the body governing the allocation of capital resources for infrastructure development and is therefore in a position to be able to support urban agriculture projects if pressured to do so (Nasr et al., 2010). Nongovernmental organizations and foundations may also supply funding to projects, and community industries, businesses and individuals may alleviate the need for funding through in-kind donations of supplies, water and power connections and compost (Nasr et al., 2010). It should be noted however that experts do not expect infrastructure for new projects to be government funded given the current economic situation (Scharf et al., 2010).

Currently, the YWCA of Peterborough provides $ 51 000 in food box subsidies annually which must be fundraised each year. A more affordable option than purchasing fully grown produce may be for the agency to provide funding in the form of start up costs such as seeds and compost. The obvious advantage to this approach is a lessened financial burden on the YWCA, but the risk involved in agriculture is a potential disadvantage; if the crops fail the YWCA will already have invested its funding in the project.

Infrastructure and Resources

A poll of farmers identified the following needs in supporting urban agriculture projects:

- Soil and compost
- Funding
- Land
- Knowledge
- Tools (Nasr et al., 2010).

Further detail was provided regarding the types of tools required, with the following items being listed as most important:

- Hoses
- Wheelbarrows
- Pitchforks
- Shovels
- Composters

- Stakes
- Trellises
- Rain Barrels
- Drip Irrigation Systems (Nasr et al., 2010).

The majority of successful projects studied incorporated a building as a community food centre, training classroom, or events site. The poll also considered the characteristics of such a building valued by producers and provided the following list:

- Facilities to wash and prepare produce
- Canning station and supplies
- Dehydrators
- Tool sharing facility
- Meeting spaces
- Access to experts
- Library (Nasr et al., 2010).

A number of strategies can be used to minimize the demand for water as a resource. These include mulching, adding organic matter to soils to increase their capacity to hold water, and choosing plants with low water demands and others that provide shade (Nasr et al., 2010). Furthermore, an effective rain water catchment system can greatly reduce the amount of water that must be brought onto the farm (Nasr et al., 2010).

The incorporation of permaculture techniques, including nutrient cycling, closed loop production and crop rotations can help minimize input costs by creating a system which utilizes the outputs of one component as the inputs to another. For example, the inclusion of chickens as livestock on the project would provide labour in the form of tilling and soil additives in the form of manure.

Labour Recruitment

Community members cite such benefits as healthy food, financial savings, interaction with other community members and physical activity as their motivations to participate in gardening programs (Baker, 2004). Historically, programs such as the National War Garden Commission have emphasized the importance of the work being done to create enthusiasm and recruit the many needed volunteers (Pack, 1919).

In Peterborough, partnerships with the following agencies should be explored as a possible exchange of skill building with voluntary farm labour:

- New Canadians Centre
- High School Co-Op programs
- Boy and Girl Scouts
- Girl Guides of Canada
- The Public School Board
- The Separate School Board

- Big Brothers Big Sisters Peterborough
- YES
- University Field Courses

It is also recommended that the project involves the participation of Food Box recipients to increase food literacy and skill development in low income households.

Partnerships

A variety of creative partnerships may be formed in Peterborough to meet the needs of an agriculture project. For example, Peterborough Transit and B!ke may be able to offer transportation resources to bring farm labourers to and from the agriculture site. Another potential partner may be Camp Kawartha who may be able to offer the building infrastructure required near a project at Trent University. Their building could be used as a classroom or meeting space for the agriculture project. Furthermore, such a project could form relationships with Aramark and the Seasoned Spoon to provide compostable materials or with Ecology Park to source already processed compost.

The most essential partnerships will be those that secure further funding and labour for the project.

The Role of Schools

"Studies have shown that when children have a hand in growing food, their understanding of food and its relationship to their health increases. A combination of direct instruction and hands-on gardening has shown a positive result in increasing children's knowledge of and preference for fruits and vegetables. (Scharf et al., pp 35) »

One possible partnership that can provide hands to work the land and land to be worked as well as funding opportunities is one with educators or school boards. In this partnership students gain skills and knowledge while producing food. An organized network of small urban production sites on school grounds may be an option for increased urban food production.

Schools use food production to teach food literacy, environmental stewardship and the natural sciences (Nasr et al., 2010). Obesity and diabetes are both negatively correlated with food literacy (Library of Congress, 2010). Furthermore, the education does not typically stop at the child but is often brought into the households of the community through the youth (Library of Congress, 2010). The organization FoodShare has a goal of incorporating a food garden into the curriculum of every school to engage children from the "first to the final grade" (Nasr et al., 2001. pp 45).

School gardens gained popularity during the first World War as North America suffered great food shortages (Library of Congress, 2010). Land was needed to grow food, labourers had been lost to the war and the railroads were overburdened and impairing

food distribution (Pack, 1919). Both the United States School Garden Army and The National War Garden Commission arose from the emergency state of food insecurity, both reflecting the patriotic motives of food production at the time. The United States School Garden Army consisted of children aged nine to fifteen to pledged to grow food for the war effort and their community and a common motto was "A garden for every child, every child in a garden" (Library of Congress, 2010). The mission of the National War Garden Commission was to "arouse the patriots of America to the importance of putting idle land to work, to teach them how to do it, and to educate them to conserve by canning and drying all food they could not use while fresh" (Pack, 1919).

Guiding Principles

Finally, through literature research some guiding principles of successful projects can be highlighted. While these guidelines do not provide specific recommendations for the design of the project, they do offer thoughts on *how* the project should proceed; what characteristics successful programs exhibit and what priorities the project should have.

A dissertation by Melcarek particularly focuses on the way organizations subscribe to different movements, along with their respective framework and goals, and how this subsequently shapes the organizations' impact on the community and its food security (2010). She determines that organizations that specifically subscribe to the food justice movement are especially well equipped to meet food security needs (Melcarek, 2010). Moreover, she notes that they are able to address and begin to change a fundamental issue of food security, that being power structures in low-income communities (Melcarek, 2010). Such organizations thus take a more holistic approach; rather than simply focusing on the provision of food, they focused on "inclusion and empowerment of community members, planted proportionately more edible crops, planted on a higher percentage of their land, grew primarily culturally appropriate crops, and one organization hired directly from the food-insecure community that it served" (Melcarek, 2010).

In order to establish such a holistic approach to the project in the Peterborough context, a variety of the above emphases should be considered. One of the most important emphases should be accessibility since this determines who can access the farm and when. While basing the project off of Trent land is a good idea, some people may not be able to access and participate in the project since it is located outside of the city. This is why a partnership with Peterborough Transit or B!ke would be an important consideration.

The next priority should be on education and training. This could be particularly focused on the youth population in Peterborough in order to build their experiences and skills, and thus better their chances of securing future employment. The integration of marginalized groups is also a relevant emphasis considering the fact that Peterborough is divided by so many different groups and the resultant inequality is an issue which seriously affects food security. Groups such as the New Canadians Centre and Best Buddies could integrate into the project by participating in education workshops, volunteering on the farm and preparing food boxes. In addition to community engagement, an emphasis could be put

on engagement on an individual basis for those that want to grow on private plots. These plots could provide an extra source of funding.

Finally, an emphases should be put on sustainable agriculture practices which help to protect and enhance the existing ecosystem and its natural cycles, especially the nutrient cycles. This involves developing an efficient composting system. As a sustainable source of manure for compost, the project could involve renting land out to any community members interested in raising their own chickens and livestock. They would help pay for the production costs, and in turn would receive meat that could be marketed. At the same time, the farm would gain important nutrients from the manure which would be integrated into an efficient composting system.

A Potential Peterborough Project: Partnerships with Fleming College and Trent University

Trent University encompasses one of the greatest masses of farmland in the Peterborough area. This land could be put to productive use to grow food for the Food Box Program and other food security initiatives. Moreover, the production of food could be integrated into an agriculture program at Trent University, in which students are active participants. Trent University has in fact been interested on and off in establishing an agriculture program. However, in the midst of such tentativeness, Fleming College has since taken the lead and developed it's own Sustainable Agriculture program which began in January 2010. The experience thus far can be reflected upon and analyzed in order to lend insight into how such a program could be implemented at Trent, especially in order to meet Peterborough's food security needs.

The Sustainable Agriculture program at Fleming College is inspired by the Farm Start Model (Knibb, 2010). This model originated from the operation of incubator farms for new farmers in New England, USA. On these farms, new farmers would be provided with 1-5 acres of land, infrastructure, equipment, and access to a farm manager (Knibb, 2010). Following this program, farmers would be able to lease land for themselves and develop a small scale business, after which they could move on and mentor other farmers (Knibb, 2010). This model creates a nurturing, semi-protected environment which has proven to be quite successful, as exemplified by the Ignatius Farm in Guelph, Ontario.

At Fleming, a similar vision and objective is shared as students are specifically trained to start up a small scale, non-capital intensive farm (Knibb, 2010). The program is designed for new and beginner farmers who are interested in experiential learning. Carried out over three semesters and in line with the farm year, the course work is guided by the principles and practices of sustainable agriculture, environmental stewardship, farmer profitability, social responsibility and community health (Fleming, 2010). Following an introduction in all of these, the program moves on to focus on small farm operations and viability, the exploration of new and expanding niche markets, and strategies for direct marketing and new farm business models (Fleming, 2010). Finally, the program culminates in the development of an individual business case and farm plan (Fleming, 2010). In addition,

an 18-week summer co-op experience provides the opportunity to specialize in one's specific farm interest (Fleming, 2010). Throughout the program, the learning experience is enriched through farm field days, site visits, community-based learning activities and invaluable resource materials (Fleming, 2010).

One of the biggest issues for any agriculture program is access to land and infrastructure (Knibb, 2010). Fortunately, both Fleming and Trent have ample access to land. At Fleming's Lindsay campus, there is approximately 150 acres of land available, though its quality varies as some areas have 9 feet of topsoil while others have none due to flood plains (Knibb, 2010). An even greater concern is the fact that many of the other programs utilize the land, and thus the agriculture program must negotiate with them for land use. Finding a location for the greenhouse and hoop tunnel was said to be most challenging (Knibb, 2010). Meanwhile, the infrastructure necessary for a farm operation is barely existent at the Lindsay campus. The only thing that exists is an old farm house. However, considering the diverse range of trades-based programming at Fleming, a program such as Sustainable Building Design and Construction could contribute in later years to developing infrastructure.

The next issue is that of access to expertise and mentoring (Knibb, 2010). This is important as it serves as the basis for experiential learning. At Fleming, the program is fortunate to be facilitated by a mix of experienced farmers and practitioners. This is important as it ensures a diversity of voices and information. Currently, the most crucial element of the program is said to be the core faculty who are responsible for networking and bringing in the experts, as well as developing the case studies and appropriate farm visits (Knibb, 2010). It is they who make all the program components fit together. Meanwhile, the program is still lacking a full-time farm manager that can dedicate his or her time to farming on site and simultaneously mentor students. Of course, this is not an urgent issue since students gain much of their experience off site at local farms. With that being said, the coops involve their own obstacles which have already become apparent. Due to the emphasis on experiential learning and the coops, the program as a whole struggles to align with traditional institutional processes and schedules (Knibb, 2010). For example, the program does not line up with start and end dates, and thus complicates securing funding such as OSAP (Knibb, 2010). In addition, the coop experience itself is often difficult to legitimate and have academically recognized by the institution (Knibb, 2010).

A farm manager would be absolutely critical to an agriculture program at Trent if it were specifically designed to meet food security needs. This is because the quantity and diversity of food produced for the Food Box Program necessitates a farmer who is very experienced, knowledgeable and skilled, and who is willing to work full time, at least at startup (Knibb, 2010). It would be very difficult to find such a farmer in the region, and if we did, it would then be challenging to assign a monetary value to that farmer's work (Knibb, 2010). The cost would likely be high which may not exactly be feasible for Trent and the YWCA alone, thus indicating the need for a third-party funder. Furthermore, even with funding, a good farmer may not be a good teacher. Who then would be responsible for education? This highlights the vicious cycle between those who lack the

knowledge and experience and the few who possess it. It also ultimately points to the importance of integrating ecology and agriculture into the school curriculum from a very young age so that children have a foundation.

If student participation in the agriculture program were intended to supplement the work of the farm manager, their labour would have to be secured beyond a volunteer basis. On a volunteer basis, it is likely that participation will vary based on levels of motivation and availability. One way of motivating students is to formally recognize the extracurricular activities of students, which Trent apparently does by making a note on transcripts. Furthermore, Trent could establish a service learning program that would be available throughout the year (even during the summer) to all Trent students regardless of major (Knibb, 2010). If Trent were to form a partnership with Fleming, they could dialogue and collaborate so as to establish distinct program emphases. For example, Fleming students could visit Trent on a service learning basis to farm and maintain the land, so that Trent students could then engage in applied research with trials (Knibb, 2010). Once again, this would not be viable without a farm manager.

For the sake of funding and economic sustainability, it is suggested that an agriculture program designed to meet food security needs be based on a business model (Knibb, 2010). More specifically, it could be based on a cooperative model (Knibb, 2010). While this would not secure the operating funds, it would secure funding for materials like seeds. The Ontario Rural Development Branch has a Cooperative Development Program and has an External Research Grant on Cooperative Development that could possibly be accessed. However, due to the intensity of a cooperative operation, it would still not be possible to integrate it fully into the academic year and curriculum (Knibb, 2010). It would have to it be managed outside the academic structure which would involve certain limitations especially in regards to coordination.

The Fleming Sustainable Agriculture program can be distinguished from the potential agriculture program at Trent in that it is immediately focused on personal development rather than community development. In any program that may develop at Trent, it will be critical to clearly define the priorities, the top one being a reliable and affordable source of food. As such, education and participation in food production may have to come second, considering the aforementioned complexities.

Other Projects

While only seven main case studies were discussed in this text (Growing Power's projects representing one case study) many examples of urban agriculture projects exist both in North America, and globally. This following list gives projects not discussed in the report but that may be of interest in future research for information or inspiration.

- Edible School Yard New York P.S.216
- Foodcycles Downsview Park
- FoodShare
- Greensgrow
- Hantz Farms
- Growing Power's "Los Cultivadores de Paz" Growers of Peace Community Garden
- Growing Power's Cleveland Urban Agriculture Incubator Project
- Growing Power's Milwaukee Urban Farm
- Growing Power's Oakton Manor Project
- Growing Power's Urban Day School
- Growing Power's University School of Milwaukee Programs
- Schuylkill Centre

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