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City of Vancouver Compost Demonstration Garden

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Good afternoon. Before I get too far along I would like to say that it is a pleasure to be a part of the Urban Agriculture Showcase Tour and specifically the World Urban Forum. It is an honor to be able to present to such a wide range of international visitors and I can't think of a better venue than the City of Vancouver's Compost Demonstration Garden, especially on a beautiful day like today.

When I sat down to prepare this talk I grappled with a number of ideas and specific topics that I thought you may find interesting. In situations like this when I've been asked to present to international visitors I normally fall into my stereotypical roll of bureaucrat engineer and focus solely on the City of Vancouver's accomplishments with managing municipal solid waste materials.

So that you don't leave disappointed, I will attempt to highlight specific policies, practices and programs in the City as they relate to solid waste, and more specifically food waste and other organic material. However, I will also attempt to add a human dimension to my talk by including a few of my own personal insights, observations and experiences from working in the field of solid waste management over the past 15 years.

In order to collect my thoughts and seek some inspiration for this presentation I decided to look at the IDRC's website. On that site I found a simple statement that resonated strongly with me. The statement reads, "*Cities are engines of economic growth and cultural prosperity, but they are also centres of pollution and poverty.*" There is something about that statement that I can connect to, based on the work I do and the places I've visited. The statement speaks to the issue of managing the solid by-products of human consumption, sometimes referred to as garbage, and it can be applied to virtually every developing and developed urban center in the world. And in my opinion Vancouver doesn't escape the definition.

As sophisticated, beautiful and livable Vancouver is there exists an element of poverty and pollution in the raw underbelly of our City that demands leadership, innovative thinking, and aggressive strategic policy and planning, combined with a healthy dose of compassion on the part of our civic leaders. If you need convincing that areas like this exist in picture postcard beautiful Vancouver, I invite you to take a few moments to tour the City's Downtown Eastside neighborhoods. It is the heart of Vancouver's drug activity and the centre of the survival sex trade industry. It is a neighbourhood under stress and is the cause of some very complex solid waste management issues far beyond the challenges we face with encouraging residents and businesses to divert food waste from landfill disposal. To give you a sense of what I mean, in 2005 over 600,000 kg of litter was collected by City Sanitation crews in a 45 block area. This litter is typically a result of a general lack of community pride by the high percentage of homeless and transient people, drug dealers and drug users populating the area.

On a larger scale, Vancouver is a City of about 550,000 people within a region of over 2 million people. It is one of 21 municipalities located in the Greater Vancouver Regional District, referred to as the GVRD. In terms of solid waste management, the GVRD is responsible for overall planning and regional policy development. What that means is that Vancouver's solid waste management programs operate within the context of a Regional Solid Waste Management Plan. That plan is our blueprint, if you will, for the development of programs to reduce and manage solid waste produced within the City.

About 350,000 tonnes of residential and commercial solid waste is generated each year in Vancouver. Regionally, over 1.2 million tonnes are produced. Fortunately, various initiatives have reduced the amount of waste produced by over 50% per capita compared to 1990 levels. However, in my mind 50% is analogous to only climbing to the top of a mountain. The more difficult part is getting back down, or in other words reducing the amount of waste generated far beyond 50%. To do that will demand:

- more sophisticated education and awareness techniques and programs to foster greater participation in waste reduction activities;
- increased political and public will;
- increased private sector or new public sector material processing capacity, likely resulting in significant capital expenditures;
- expanded end-use markets and increased demand for items such as finished compost and products made from recycled materials;
- further increases in our regulatory controls over such things as material bans and litter abatement;
- and an even greater shift of responsibility away from local government to industry so that industry becomes fully accountable for the products they produce that become waste using the model of Extended Producer Responsibility.

However, the most profound challenge I believe public sector solid waste managers face, particularly in large urban centers, is changing people's behaviors so that they assume greater accountability for their actions and the waste they produce. To give you a better sense of what I mean by this, I'm going to digress for a minute.

What I find fascinating about the art and science of managing garbage is that you can learn a lot about a population's buying habits, consumption practices, core values, beliefs and mentality from looking at the type of garbage they produce and how they manage it on an individual basis. Looking into a bag of garbage is like peering through the window of society.

On a trip to Nepal a number of years ago I learned that for years there had been a problem of some irresponsible foreign trekkers littering instant noodle packages and other prepackaged food items on mountain trail sides. Fortunately, that problem has been largely abated through education and awareness, but it was described to me that a similar problem had developed with local Nepalese people since they had begun to believe that littering was a sign of affluence.

There are other examples of the challenges with changing people's behaviours much closer to home. Every few years the Regional District commissions a waste composition study, which determines what people are still throwing into the garbage. In the most recent study it was determined that over 22,000 tonnes per year of fine paper, such as high grade computer paper is still being thrown in the garbage. I find this absolutely mind boggling and largely attribute the problem to human laziness considering there is a well established recycling

industry for paper in the Lower Mainland, businesses often receive revenue from recycling this type of material, and to dispose of it as garbage will cost them over \$65 per tonne.

In Vancouver, to help guide us with the challenge of influencing positive behavior change the City has established 10 Sustainability Principles. Among these principles is the recognition that:

- we are all accountable for our individual and collective actions;
- that resources must be used fairly and efficiently;
- and that a sustainable Vancouver contributes to, and provides leadership towards, regional, provincial, national and global sustainability."

However, developing and implementing solid waste management policy, projects and programs that meet the true definition of sustainability can be challenging. As an example, there is an argument to be made that it is more sustainable to manage residential food waste through backyard composting than by relying on large scale multi million dollar curbside collection and centralized processing systems often located miles away from where the material was produced as waste. In this day and age, sexy high tech solutions for society's problems seem to be the norm. Lower tech relatively inexpensive solutions can be a hard sell.

The City of Vancouver has made sustainability a way of doing business. The following are examples of the many innovative and sustainable initiatives that the City has implemented, with regards to solid waste management:

We have moved away from manually picking up garbage and yard trimmings at curbside and have implemented an automated system where a truck equipped with a mechanical arm and hand lifts standardized waste containers. This change with how we collect garbage and yard trimmings for composting is the most significant service change in Vancouver's waste collection history. The program impacts over 90,000 residents of the City and is structured on the principal of user pay / "pay as you throw". What that means is there is now a direct incentive for residents to minimize the waste they produce. The City offers five different cart sizes ranging from 75 litres (\$70) to 360 litre (\$147) so that residents who choose to generate more waste and recycle less must pay more for service. Conversely, with this system of user pay, residents who make an effort to divert waste through recycling and composting pay less and do not subsidize the cost of service provided to high waste generators.

It is anticipated that with automated collection, the City will save over \$300,000 per year in worker injury claims. This results in not only a cost savings, but will lead to a healthier and more productive work force. In my mind that scores high when the test of sustainability is applied.

Our fleet of 29 garbage and yard trimmings trucks now run on biodiesel. Biodiesel is produced from a renewable resource and results in lower emissions. The City is also moving towards using blended biodiesel in our entire diesel vehicle fleet.

The City provides an extensive recycling collection program to residents through its blue box and recycling bag program. Last year over 30,000 tonnes of material were recovered for recycling by the City through its curb side recycling program. The City also offers free drop off of recyclable material at two depots. Materials accepted at the Vancouver Landfill

recycling depot include scrap metal, tires, mattresses, lead acid batteries, used oil filters, propane cylinders, clean corrugated cardboard, white goods (which are large metal appliances such as stoves, fridges and freezers), newspaper and mixed paper, and gypsum drywall. In 2004, over 3,600 tonnes of material was received and directed to a variety of companies for recycling. Revenue received based on the commodity value of some of those materials flows back into these programs to reduce operating costs. We also recycled 1,800 propane tanks, 1,750 white goods, 10,200 litres of waste oil, 820 litres of antifreeze and 12 drums of used oil containers.

Recently, as part of program to install new public litter receptacles throughout the City the idea of adding a recycling rack for deposit containers was born. In British Columbia we have a system in place where most beverage containers include a deposit on their purchase price. The deposit is redeemed when these items are returned to retail or taken to an authorized depot for recycling. This deposit program has created an underground workforce of "binners" - people who collect bottles and cans from garbage and litter containers as a means of income. To assist binners with their efforts and to help divert these materials from disposal staff developed a recycling rack that attaches to the front of litter cans. These are proving effective with diverting waste and help reduce damage to the containers by people trying to break into the public litter bins.

To help keep our neighborhoods clean the City operates an annual city-wide litter clean-up and community building campaign called Keep Vancouver Spectacular. This program is hugely successful and has run each May since 1996. This year we saw over 12,000 volunteers clean up litter from 2000 blocks of City streets, from parks, school grounds, and shoreline.

For over 20 years, City Farmer and the Vancouver Compost and Water Conservation Demonstration Garden has been demonstrating the benefits of urban agriculture and various "green" technologies too residents, business people and school groups. Their work includes promoting and educating people in the City on water-wise gardening, food and yard waste diversion through composting, rain barrel use, and natural yard care. Last year over 6,500 people visited this garden, or attended a City Farmer workshop, and City Farmer staff responded to almost 4,000 phone call enquiries.

To encourage the sustainable practices of water conservation and diverting organics through backyard composting, the City offers backyard composters and rain barrels to Vancouver residents at subsidized rates (\$25 and \$70, respectively). Resources and information on the importance and use of each of these are also available. To date, over 2,000 rain barrels and over 36,000 composters have been sold. Each backyard composter diverts approximately 250 kg of organic waste from landfill annually, or about 9,000 tonnes total in the City.

Since 1994 the City has been providing school plays about waste reduction, graffiti and littering and water conservation to Vancouver's elementary schools. The shows, performed by a theatre company contracted by the City, are interactive, slapstick musical comedies directed at kindergarten through grade 5 students.

In spite of significantly reducing the amount of waste generated, Vancouver continues to produce garbage that requires cost effective, environmentally responsible disposal.

The Vancouver Landfill, located in the neighboring municipality of Delta is owned and operated by the City of Vancouver. The Landfill serves approximately 40% of the region's residents. Each year approximately 475,000 tonnes of municipal solid waste are deposited at the Landfill.

A unique and award winning feature of the Landfill is the system we use to capture and utilize gas generated from the decomposition of organic materials. Landfill gas is collected by a series of vertical and horizontal extraction wells connected by pipes to a flare station. Since 2003 the gas has been conveyed to Hot House Growers Inc. greenhouse in Delta by Maxim Power Corporation of Alberta. There it is run through a cogeneration system to produce electricity and heat in the form of hot water. The electricity is sold to B.C. Hydro and the heat is used to offset the heating demands of the greenhouse operation.

The landfill gas utilization project is an important part of the City's Corporate Climate Change Action Plan, because of the significant reduction in greenhouse gas emissions. Approximately 160,000 cubic metres per day of landfill gas is collected at the Landfill. If the gas was allowed to vent to the atmosphere it would create greenhouse gas emissions of approximately 400,000 tonnes per year of CO₂ equivalents, or the emissions of approximately 80,000 automobiles. The amount of energy captured by the cogeneration system is approximately 600,000 GJ per year or the energy needs of about 4,000 households.

Another important aspect of the City's landfill site is an onsite composting facility for yard and garden trimmings. That facility processes over 35,000 tonnes of yard and garden trimmings annually, diverting this material from landfill disposal. Materials accepted for composting include grass, leaves, tree trimmings and plant debris. Compost is sold to landscaping companies, Delta Farmers, and the public and used by the Park Board.

In spite of our accomplishments with reducing solid waste, the City and the region will continue to be faced with new challenges and opportunities for further reducing solid waste in the future. Personally I can rest assured that I will remain busy in my role in local government as we continue to search out cost effective and sustainable solutions to our solid waste management challenges. However, what we must remember is that to create a truly sustainable society we each need to accept accountability for our individual and collective actions.

Thank you for your interest and I hope you enjoy the rest of your day.