

RDKB - RDCK ORGANICS RECOVERY PROJECT

Zero organics to landfill by 2010

FIVE YEAR TRANSITION PLAN
Collection options
Supporting policy
Supporting education

PREPARED FOR

Western BioResources Ltd.
Castlegar BC

PREPARED BY

Footprint Environmental Strategies
Box 3746 Smithers BC
Tel: 250 847 1670
www.footprintbc.com

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Zero organics to landfill by 2010 **FIVE YEAR TRANSITION PLAN**

1 Introduction

The Regional Districts of Central Kootenay and Kootenay Boundary have retained Western BioResources and Footprint Environmental Strategies to deliver a report on how to recover the organic fraction of the municipal solid waste stream. In addition, Celgar Pulp has partnered in the project to finance a marketing strategy and analysis related to the inclusion of biosolids in the feedstock mix.

This report suggests a five year transition plan to move from current operating and administration systems to a system that maximizes diversion of organic material from landfills.

The focus of the transition plan is on:

- Supporting public education
- Supporting regulations and policies
- Supporting service levels and collection options

Consideration is given to the potential for competition from incompatible initiatives, as well as varying levels of participation from key project partners and member municipalities. The timelines presented have been synchronized with the processing and marketing solutions developed by Western BioResources.

The path suggested in this report is the result of research into the activities and lessons of “Zero Waste” communities beyond Kootenay borders, and the input into the transition plan content contributed by Kootenay residents through surveys, focus groups and interviews. A summary of community and stakeholder consultations is included in Appendix A.

1.1 Profile of Kootenay Boundary and Central Kootenay communities

Kootenay Boundary and Central Kootenay are characterized by rural lifestyles and community living. The economic drivers are a mix of resource-based industry, tourism and recreation, and farming. A total of just under 90,000 residents live on an area land base of 30, 225 square kilometers. There are 17 incorporated communities in total and almost 43,000 private dwellings.

Moving from west to east, the five largest communities are Grand Forks (pop. 4,054), Trail (pop. 7, 575), Castlegar (7,002), Nelson (9,298), and Creston (4,795). Regional statistics on population, number of homes, land area and annual tonnage for residential materials is provided in Table 1.1

Table 1.1 Statistical profile of Kootenay Boundary and Central Kootenay¹

Organic materials are measured in metric tonnes for the year 2003².

	Population	Private Dwellings	Land area (sq. km)	Res. organics	Comm. organics
RDKB	31,843	15,733	8,095	3300	1400
RDCK	57,019	27,089	22,130	5300	2200
Total	88,862	42,822	30,225	8600	3600

As the statistics show, Central Kootenay Regional District is notably larger than Kootenay Boundary in terms of population, private dwellings, land area and quantity of organics available for recovery. Differences also exist in terms in the resource recovery landscape in terms of supporting education, supporting policy, collection services, infrastructure and cost recovery methods. For example, RDKB is pushing the zero waste message in their public education programs whereas RDCK focuses on the 3Rs of reduce, reuse, recycle with the notable exception of Nelson who recently completed a “Zero Waste Plan”. Despite these superficial differences, commitment to waste avoidance and

¹ Statistics Canada. 2001 Census Data. www.statscan.ca

² Western BioResources: Material Flows Inventory for 2002/2003.

resource recovery is present in both regional districts. It is the level of commitment and supporting resources that will drive the transition strategy.

1.2 Objectives for Collection, Education and Policy

The development of collection, education and policy recommendations has been done in the context of the overall organics recovery project goal and objectives. Based on client consultations and feedback received during our community engagement program, we used the following directives to guide our work.

Goal: Eliminate all organic material from Kootenay Boundary and Central Kootenay landfills by 2010

Objectives:

- Dovetail with present and future recycling services
- Dovetail with present and future garbage collection services
- Be sensitive to costs and jobs
- Be sensitive to animal interface
- Be sensitive to varying needs based on sector and location
- Keep the solution simple and easy
- Build on the experience of other communities

2 Overview of Best Practices for Organics Collection

A literature and internet survey was conducted to identify communities that are considering or have already implemented an organics diversion strategy. Results of this literature search are summarized in Appendix B. This survey focused specifically on residential organics collection in higher density areas and supporting policy and education for all new programs, including business and rural residential. The questions of particular value to this project are:

- What materials should be collected?
- What is the role of source reduction and on-site composting (including backyard composting)?
- Are there different solutions for rural areas and outlying communities versus “urban” sources of organic material?
- What collection options best serve the project objectives?
- How will a new service affect existing services and costs?
- What is the role of supporting education and policy?

The answers to these basic questions are as unique as the communities asking them. However, some best practices can be established based on the experience of other communities who have implemented organic recycling programs. Table 2.1 provides a sampling of North American communities that have tried organic recycling projects. A wide assortment of public education materials, pilot project reports, and truck and container information is available by contacting these communities. Most of this information is available through the internet free of charge.

Table 2.2 summarizes residential food scrap collection and recycling for ten communities across North America. Based on the frequency of occurrence in the design of these ten programs, the **top five best practices** can be summarized as:

1. Start out with pilot projects;
2. Set collection frequently at weekly or every other week (alternating with garbage collection);
3. Supply residents with “kitchen catchers”;
4. Set the scope of collected materials to include collection of yard waste, food scraps, and soiled papers; and,
5. Provide aggressive upfront and then continuous supporting education programs, featuring direct mailings and reminders through mass media.

Table 2.1 North American communities with an organics recycling program

Province or State	Community or County
Ontario	Hamilton, Wyoming, St. Thomas, Kingston, Region of Niagara, Region of Peel (Caledon, Mississauga, Brampton), Town of Essex, Town of Markham, Town of Pickering, Guelph, City of Ottawa, Ottawa Valley, Etobicoke (City of Toronto), Simcoe County, Dufferin County, Oxford County
Prince Edward Island	East Prince County including Charlottetown.
Nova Scotia	Colchester County, Halifax, Annapolis County, Chester, Pictou County, District of Lunenburg, Region of Queens
New Brunswick	Saint John, Moncton
Alberta	Town of Olds, Edmonton, Levis
Quebec	City of Laval, Rawdon
California	San Francisco, Berkeley, Castro Valley, San Leandro, Pleasanton, Alameda, Fremont and Santa Cruz
Washington	King County
Vermont	Chittenden County

2.1 Spotlight on King County³

While King County communities are significantly larger than Kootenay communities, the pilot projects conducted there are instructive from the perspective of transition planning, designing pilot projects and launching a full-scale program. In particular, the King County composting pilot program objectives most closely matched those of the Kootenay project, namely:

- Recover and divert the widest possible range of organics material as is cost-effective, while either minimizing or reducing the overall residential solid waste collection system costs.
- Build in potential for operating sustainably into the future without continuing subsidies

The Solid Waste Division (SWD) of King County conducted a two-year pilot collection program in four cities. The pilot objectives were to cost-effectively recover and divert the widest possible

³ Information from this section was extracted from King County's website <http://www.metrokc.gov/dnrp/swd/foodwaste/residential/index.asp> and the King County Residential Foodwaste Collection Pilots Interim Report – March 2003.

range of organic material, while either minimizing or reducing the overall residential solid waste collection system costs.

Pilot projects were conducted for weekly and every other week collection in 2002. The four selected communities previously provided yard debris collection at no additional charge, as part of the bundle of services funded through garbage collection fees. The frequency of garbage collection changed for some communities and not for others (i.e. weekly to every other week). All but one of the communities had user pay garbage collection; the flat-rate community had a weekly limit of five containers.

1700 King County residents participated in the collection pilot program that began in April or else May. Participants simply collected food waste and soiled paper with their yard waste rather than putting it in garbage bins. All material was delivered to the privately owned Cedar Grove composting facility in Maple Valley, Washington. Size of community, curbside containers and collection frequency are summarized in Table 2.3.

Key findings of the King County pilot program offer Kootenay communities important considerations when designing collection program parameters.

- **Weekly collection of combined yard debris and food scraps is beneficial.** Collecting food scraps along with yard debris evens out the extreme peaks in volume encountered during spring and early summer, even when the collection frequency is less than weekly.
- **Commingling increases collection efficiencies and reduces odours.** Combining yard debris, food scraps and food-soiled paper works well to reduce odours and contain liquids. It virtually eliminates concerns with respect to odours and flies, even during the summer months.
- **Embedding yard debris collection maximizes diversion.** All pilot cities already had embedded yard debris collection where the service is offered at no additional charge as part of the basic garbage and recycling service. If yard debris collection had not been universal, the route density would have been lower, which would have decreased the opportunity for organics diversion. However, the model of combining food scraps and

yard debris together for collection would still have worked well with a subscription-based yard debris service, though with less diversion.

- **The participation "profile" in the pilot program was significantly different than participation in traditional recycling programs.** Given that composting food scraps and soiled paper is a new experience for many people, initial participation rates were expected to be lower than those for traditional recycling programs. It is expected, however, that over time, participation will increase. During the pilot program, about 20 to 30 percent of residents placed one or more acceptable materials in their yard debris recycling containers.
- **Food scrap collection is a new concept for many people and will require continual education and frequent reminders.**
- **Provision of kitchen containers is an effective tool for program roll-out.** The container is a good tool for increasing participation since it serves as a visual reminder to separate organics for collection.

Table 2.2 Residential Food Scrap Collection and Recycling Program Matrix⁴

SFR – single family residences

City/ Jurisdiction/ Program Name	Collection Frequency	Pilot/ Full Scale # Participants	Containers Provided/ Technology	Accepted Materials
Ottawa, Ontario “Compost Plus”	Weekly	Pilot 10/01 (until 5/04) 5300 SFR	“Green” cart (120 litre) Kitchen pail (7 litre) Open Air Windrow	Yard Waste Food Scraps Soiled Papers
Halifax, Nova Scotia “Organics Green Cart”	Alternate Every Other Week (EOW) with garbage	1998 (phasing in) 110,000 SFR	“Green” cart Pail with lid and handle. Ebara in-vessel system	Yard Waste Food Scraps Soiled Papers
PEI “Waste Watch – Green Compost Cart”	Alternate EOW with garbage	Full-scale 2002 55,000 SFR	“Green” cart Kitchen mini-bin Static aerated; closed containers	Yard Waste Food Scraps Soiled Papers
Markham, Ontario	Weekly	Pilot (April 01 – March 02) 600 SFR	“Green” cart Pail with lid and handle; Kraft bag	Yard Waste Food Scraps
Toronto, Ontario	Weekly	Full-scale 9/02 120,000 SFR by summer 03	“Green” cart Pail with lid and handle. Anaerobic digester	Yard Waste Food Scraps Soiled Papers
Castro Valley Sanitation District (CVSD), CA “Food Scrap Recycling”	Weekly (both pilot and full- scale)	Pilot: 11/ 01 1,000 SFR Full- scale: 4/ 02 16,000 SFR	“Green” cart 2 gl. pail with lid and handle. AG BAG system (Gilton, CA)	Yard Waste Food Scraps Soiled Papers
San Francisco, CA Fantastic Three – Compostables	Weekly (both pilot and full- scale)	Pilot: 4/ 99 2800 SFR Full- scale 2/ 00 (currently implementing): 100,000 as of 1/ 03. 200,000 total	“Green” cart 2 gl. pails with lids and handle (liners used in pilot only) Aerated static pile	Yard Waste Food Scraps Soiled Papers
Pleasanton, CA “Food Scrap Recycling” Program	Weekly (both pilot and full- scale)	Pilot: 9/ 02 900 SFR – 1 area; Full- scale: 4/ 03 (planned) - 18,000 SFR	“Green” cart 2 gl. pail with lid and handle. AG BAG system (Newby Is., CA)	Yard Waste Food Scraps Soiled Papers

⁴ Adapted from Meucci Consulting’s report on Residential Food Scrap Recycling & Collection Program Summaries and Findings, January 2003. This report appears as Appendix B in King County’s Interim Report on Residential Pilot Projects.

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City/ Jurisdiction/ Program Name	Collection Frequency	Pilot/ Full Scale # Participants	Containers Provided/ Technology	Accepted Materials
San Leandro, CA “Food Scrap Recycling” Program	Weekly	Full scale: (currently implementing) 12/02 13,000 SFR (60%)	“Green” cart 2 gl. pail with lid and handle. AG BAG system (Newby Is., CA)	Yard Waste Food Scraps Soiled Papers
Chittenden Solid Waste District “Residential Organics Recycling Project”	Bi-weekly (Jan-May) Weekly (May-Aug)	Pilot: 1/00 (ended 8/00) 265 SFR	“Green” cart 2 gl. pail with lid and handle. Open Air Windrow	Yard Waste Food Scraps Soiled Papers

Table 2.3 Containers and Collection Frequency for King County Pilots

City	Households (total city)	Curbside Containers	Kitchen Containers	Collection Frequency
Kirkland	10,520	64- or 96-gallon standard carts (existing)	Provided to all households in August, 2002	Weekly
Issaquah	2,585	Some rent carts; most use specially marked customer- owned cans	Provided to most households in August, 2002	Weekly
Lake Forest Park	3,781	New aerated 64- gallon Schaefer Compostainers (provided)	Provided to all households at start of pilot program in May, 2002	Every-other-week, alternating with every-other- week garbage collection
Redmond	8,870	64-gallon semi- aerated carts (existing)	Provided to all households in August, 2002	Weekly

3 Service Levels and Collection System

The **major concerns** identified by focus group participants to be addressed in the design of a collection system were:

- Time required for further sorting of materials
- Additional storage space required
- Additional cost of an organics collection system
- Risk of attracting bears and consequences of human/wildlife interface
- Current inequality of service levels between rural and urban areas
- Flexibility within a system to accommodate seasonal residents
- Compost collection and production in outlying areas – don't want to exclude but don't want excessive costs or poor quality control that gives central product a bad name.
- Fluctuations for commercial enterprises in volumes, service levels, operations.
- Lots of animal carcasses in some parts of the region (i.e. Creston Valley – more than 100/yr ostriches, horses, cattle, emus plus bears and roadkill)
- Role of entrepreneurs offering private collection services for recycling and organics
- Collection logistics and concerns for workers: weight of organics container, special vehicle requirements

Recommendations for service levels and collection system options are based on the experience of what works in other communities and the input from the community engagement strategies summarized in Appendix A.

3.1 Service Levels

In general, the service level for organics collection must be at least as convenient as service levels for garbage collection for maximum diversion. This rule applies to any setting, be it urban or rural.

The most successful food scrap recycling programs in **high density areas** are those using a wheeled cart and kitchen pail with a lid and handle (with or without a liner). These programs offer weekly collection of yard waste, soiled paper products and food scraps. Depot systems for food waste collection in this setting are not common in North America, however there is a strong public desire and a good economic reason to at least include this option in a pilot setting. In this instance, co-collection of garbage and recycling may complement an organics depot, or depots may be set up for all three streams. A suggestion was made during the open houses that all new housing developments should have a central organics tank, and that neighbourhood organic tanks could be added to existing developments if a suitable space will allow it. To make the depot convenient, they should be located approximately every five blocks or at maximum a two or three minute walk from home.

There are some depot designs that are suitable for both urban and rural settings. For example, Metro Toronto is running a pilot program for multi-residential units using the Molok system.⁵ The Molok system is a deep collection system in which two thirds of the collection container is underground. The design of the containers facilitates keeping the organic materials cool and odour free. Collection frequency is also reduced. Finland is also collecting source-separated organics or “biowastes” at multi-family complexes. In Finland, the Molok system is used to collect biowaste, paper fibres, mixed recyclables, and residual waste.

In **rural and lower density** settings, depots make economic sense for the collection of all materials but need to be staffed and offer convenient hours including Sundays. Where private haulers are offering garbage collection service, the opportunities for co-collection exist just as they do in higher density residential settings. During the focus groups, it was emphasized that community-based solutions should be found for areas where transportation to central facility doesn't make sense. Furthermore, it was recommended that the option of shredding and compacting organics in rural locations to be trucked to a central facility be examined.

For **commercial customers**, the key will be to provide economic incentives to free up staff time for additional work required of separating organics. The option of using an organics tank or

⁵ Metro Toronto Staff Report to Works Committee from Barry H. Gutteridge,, October 25, 2001.

something similar to the Molok system can be investigated. Direct feedback from a food-based business during the consultations suggested that a cost incentive of 20% or more to compost versus landfill would be needed.

3.2 Collection System Recommendations

A. Phase in collection service.

Larger generators with a predictable volume and quality of organic materials will be targeted first. This group includes pulp mills, restaurants, grocery stores, hospitals. Smaller generators with varying volumes and qualities such as the residential stream will then be phased in. Specific communities can be added on to the program based on their state of readiness. Readiness will be determined by the ability of existing contracts and/or in-house personnel and equipment to offer this service, as well as the status of required supporting education and policy.

B. Use pilot projects to determine residential service standards.

Variables to focus on include:

- curbside service frequency (weekly and every other week)
- types and sizes of containers (ask suppliers about leasing containers for pilot projects with the option to purchase)
- co-collection of garbage and organics, organics and recycling, and recycling and organics.
- location and design of neighbourhood depots
- design of containers for capturing organics at rural transfer stations.

Fall (mid-to-late October) and spring (March or April, preferably after school spring breaks) are the most popular times to launch programs. Greater initial success will be possible by avoiding extreme weather months and conflicts with major holidays or school breaks. After initial start-up promotions, most programs directly contact participants on a monthly or quarterly basis. The

ideal contact seems to be monthly in some form (indirect on a monthly basis, direct on at least a quarterly basis).

C. Create a regional collection standard of every other week for garbage, recycling and organics.

Based on pilot project results, a weekly collection standard for one of these collection streams may be preferable. However, going to a weekly collection service level for any of these streams will result in a significant increase in costs.

D. Details of routes, trucks and containers must be determined at the community level, based on existing services and equipment.

Taxpayers may be able to enjoy a lower cost for collection services based on economies of scale achievable through cross-border collection arrangements. This potential savings has not been determined. The cost in terms of intra-government relations and perceived or real threats to livelihoods of current staff and contractors by regionalizing collection services in a heavy-handed way may jeopardize the larger goal of organics diversion. However, cross-border agreements on collection service standards are critical to the success of this goal.

E. Make participation in all collection services mandatory and user-pay.

Allowing residents to opt out of organics collection removes any potential savings from decreasing garbage collection frequency since garbage will then have to be picked up on a weekly basis. The User-Pay component provides a reward for residents who reduce at source or compost on-site. Introducing User Pay for composting requires that garbage collection is also user pay. For maximum effectiveness, a model of user pay collection should be adopted on a cross-border basis and should be based on a cost for every container collected, using a sliding scale to encourage resource recovery. Either tags or paid for liners can be used for each containers regardless of contents. A parcel tax to cover the basic costs of driving the routes and maintaining equipment will still be required for revenue stability. For this reason, co-collection of organics and recycling with residuals is the best option in terms of administration and public relations.

F. Commercial and industrial service remains private with supporting policy and education.

Most if not all collection service for commercial and industrial clients are currently provided through service agreements with private haulers. It is not recommended that this arrangement be altered as no benefits will accrue to the project goals and objectives. The Regional Districts provide research support, end markets, and educational programs for this sector, including on-site “zero waste coaching” services as needed.

G. Collect food scraps, soiled paper and yard and garden waste together.

H. Regional Districts to purchase carts and kitchen pails and work with collection service providers to distribute to customers.

Bulk-ordering will create cost-efficiencies for all collection service providers and their customers. Offering two sizes of containers (pails especially) was suggested by several communities in the King County survey as a way to make the program more attractive to some customers. However, the majority of communities offer just one size and no major problems have been reported. Suggestions for participants who did not want to use a pail included conveying to people that use of the pail is optional and suggesting alternative containers (i.e. empty milk cartons).

Wheeled carts are recommended for ease of transportation to the curb. For every other week collection, carts need to be larger than weekly collection carts and should be aerated. The size will depend on an automatic or manual emptying service. The maximum weights for manual loading are governed by WCB regulations and local by-laws. Popular sizes for manual service are 46 litres (13 gallons). Prices vary with quantity ordered, but \$15-\$20 for a 46 litre cart is a good ballpark figure. For automatic service, 120 litres is a popular size.

It is important that residents and collectors can easily distinguish between the garbage and the organics bin. Colours, wheels, labeling (YES/NO list), and lids help with identification, convenience and animal proofing. Consideration should also be given to “conversion kits” so

that residents with a similar container to the chosen collection cart can use existing containers. This may include labels and a colour-coded lid.

Kitchen catchers are praised as the most effective way to increase participation and are typically 7.5 litres (2 gallons) in size. Again, labeling with a YES/NO list is recommended. Prices for new containers vary with quantity ordered, but a pail with lid and handle is in the \$5 range. Re-using bulk food containers from restaurants may be an option for some communities and will result in additional landfill diversion. Re-used pails will also need lids, handles and labeling.

Non-biodegradable **liners** are not recommended as they would add to overall costs and potentially threaten desirable end markets. Based on the King County survey, liners are preferred by participants when asked about them, but do not seem to make a difference in overall participation rates. If given the choice, participants would choose to have liners. Most communities surveyed provided some type of liner as part of a pilot program to see if it made any difference in participation or diversion rates, but few have provided them when the program went community-wide. Instead, most have opted to make liners available for purchase either through local retail outlets or by phone order and provided alternative ideas (reusing paper grocery sacks, wrapping with newspaper, freezing, etc.) for keeping the pail clean without the use of a liner.

4 Supporting Public Education and Promotions

In a comprehensive survey of organics recycling projects across North America conducted in 2002, **education and promotion efforts were identified as the single biggest determining factor in the overall success of a program.**

Program managers interviewed were emphatic about the importance of starting promotions early (one month prior to start date at a minimum), planning for broad-based promotions, and

budgeting to provide on-going education and promotion efforts. The single biggest regret most program managers had was not starting outreach early enough and not doing enough of it.⁶

Recommended public education initiatives are presented for organics recycling with notes on the target audience and timeline. Delivery of these initiatives will be a combination of provincial (Recycling Council of BC), cross-regional district, single regional district and individual communities. In all cases, additional staff capacity will be needed.

It is recommended that an assessment of current capacity and needed capacity be undertaken in the first half of 2005 and additional help contracted or hired. As a minimum, a program manager and an outreach coordinator will be needed. These costs can be shared by the two regional districts. Given the huge area to be serviced, it is strongly recommended that outreach assistants be recruited for community level work otherwise a significant portion of the cross-regional staff time will be spent traveling instead of doing direct outreach. As well, in **March 2004, a Communication / Community-Based Social Marketing Plan** was prepared by Carol Suhan to assist the RDKB on their road to zero waste. This document provides valuable observations, tools and recommendations for developing a comprehensive communications program that includes organics recovery.

At a minimum, the following outreach materials for each household participating in a pilot program are most common in North American jurisdictions:

- **Toter/cart label** (including program name/logo, hauler name, phone number, website address and list of general materials accepted).
- **Pail label** (listing acceptable/not acceptable items, program name/logo, phone number and website address).
- **Instruction brochure or flyer** appealing enough to post or keep for future reference. Contents should include: overview of program, list of acceptable/not acceptable items, plenty of graphics or photos of containers and acceptable items, sponsor and contact info, summary of benefits of participating, incentives, and a brief description of what compost

⁶ King County Residential Foodwaste Collection Pilots – Interim Report March 2003. Sound Resource Management Group Inc.

is, how it is made and why it is important for the individual, community and environment.

- **Toter/cart hang tag or doorhanger** introducing the program (optional, but could be used during delivery as a way to introduce program).
- **Toter/cart hang tag** for problems (a checklist-style tag for drivers to leave behind if there are any contamination or collection issues).
- **Collection calendar** listing collections for the coming year. Provided once a year via mail, website and/or email.
- **Hotline or other reliable phone contact** (some communities have established a “Rotline.”)
- **Website with updated info** (a valuable tool, easy-to-update and available to participants 24 hours a day.) All program materials (brochures, flyers, letters, calendars, etc.) should be made available on this site.
- **Communication:** The most successful programs made the most of media communications, issuing press releases on a regular basis and setting up media photo opportunities. Press releases can be issued at specific program milestones: when certain participation and diversion rates have been achieved; when new materials are added to any part of the recycling program; when landmark tonnages have been reached; or when the first batch of compost is sold, bagged or goes to market. Use any new announcement about anything garbage or recycling-related as a time to further promote the program.

Additional topics and strategies for public education are summarized in the Community Consultation Report and include:

- Backyard Composting
- Air Quality and Backyard Burning
- Wildfire Interface Debris management
- General Zero Waste Education at home and work
- Technical seminars or even a certificate for “Small Community Composting Solutions” as part of community college offerings.

5 Supporting Policy Recommendations

The intent behind these policy recommendations is to correct and prevent undesirable “waste management” strategies adopted by residents and businesses. These strategies include burning, illegal dumping, and using transfer stations and landfills outside of their intended service area. In addition, a universal set of policies enables cross-regional education program development and delivery.

1. Phase-in universal landfill ban on organic materials

As public education programs and collection services come on line, the ban can increase in scope and severity of penalties. The final goal is to have a uniform ban in both Regional Districts with equalized enforcement and education. In the transition period however, the ban will be applied for those communities and sectors with full-service options and supporting education.

2. Phase-in universal user-pay fees for collection for residuals, organics, and recycling

Collection fees should be set to provide maximum incentives for resource recovery and reflect the need to maximize full cost recovery. Again, as public education programs and alternatives to disposal come on line, the User-Pay program can increase in scope. The final goal is to have a consistent user-pay collection program in both Regional Districts with equalized enforcement and education. In the transition period however, the User-Pay program will be applied for those communities and sectors with pre-existing User-pay and full-service options and supporting education.

3. Phase-in universal access to resource recovery services

Similar material collection scope is the ultimate goal whether the service is delivered by private contractors, local government staff or contractors, or a depot operator. Householders with similar lifestyles (i.e. urban vs rural) should have the same level of service as their neighbours in the next community or regional district. Curbside collection every week or every-other-week or else a convenient depot system for all residents regardless of location is the bottom-line.

4. Phase-in universal tipping fees.

As with household garbage collection fees, garbage delivered directly to a transfer station or landfill must also ultimately have universal tipping fees across both regional districts.

Universality discourages undesirable effects such as burning, illegal dumping, and material flows across borders.

5. Focus on the final goal of zero organics to landfill.

Whenever possible, allow for creative community-based or entrepreneurial solutions that help achieve the overall goal. Delivery of education programs, provision of collection services, and the provision of collection containers will create questions related to economies of scale and local economic development. It will be important to explore all possible options and be certain that delivery costs and participation levels are given equal weighting. Factoring in larger economic goals that are indirectly related to the organics program such as providing local employment and using local materials will be part of the sustainability equation for the organics recovery program.

6 Overall Transition Plan

A transition plan is presented in Table 6.1 that integrates processing capacity with collection services, public education and policy initiatives. These timelines were created by backcasting from Year 5 when full processing capacity exists and forecasting from the current situation in 2004.

“Full processing” is defined as 80% capture rate in the financial modeling work done by Western BioResources based on the assumption that in most other cities and towns 80% is the maximum capture rate without spending an uneconomical amount of money. In addition the 80% recognizes that some material will be diverted through backyard or other strategies. However, **policy and education initiatives should focus on a Zero Waste and 100% recovery message.**

Risks to the accuracy of this transition plan timetable and the overall project goal are as follows:

- Varying participation levels of member municipalities is needed at the collection and promotional delivery level, as well as in contributing financially to the regional project components of education and processing.
- Varying levels of cooperation with haulers for commercial organics collection and subscription services in rural areas.
- Continued cooperation between the two regional districts to develop complementary diversion strategies. Shared policies and education standards in terms of financing, political will and enforcement will make or break this project.

Table 6.1 Timelines for Residential and Commercial Collection, Education and Policy

Year	Program Status	Policy	Collection	Processing and Marketing	Public Education
Year 1 Jan- June	Get cross-regional and municipal support.			None.	Reality check: take inventory of current resources – staff skills and inclination, amount of available time, supporting education programs and materials. Review RDKB ZW Communications Plan ⁷
July-Dec	Pre-development work	Prepare SWMP amendments and by-laws to support central composting, ban and user fees.	Work with haulers to develop commercial pilot projects for collection and ban enforcement.	None. Review and tighten Marketing Plan.	<ul style="list-style-type: none"> • Develop cross-regional campaign strategy. • Recruit educators as needed. • and design education pilot Zero Waste for Businesses <ul style="list-style-type: none"> ○ Hotel/Restaurant/Pub ○ Grocery Store ○ School ○ Hospital
Year 2 Jan- June	Operational 50% of the year.		Work with municipality to design residential pilot – assess and fill equipment needs.	None. Launch Marketing Plan.	<ul style="list-style-type: none"> • Implement select ZW@Work pilots • Design Zero Waste at Home pilot project. <ul style="list-style-type: none"> ○ depot ○ curb ○ kitchen ○ yard and garden ○ composter
July-Dec	Implementing pilot projects.	Enforce ban at pilot level.	50% of Y&G 10% ICI FW	None.	<ul style="list-style-type: none"> • Evaluate select ZW@Work pilots and make adjustments • Implement select ZW@Home Programs.
Year 3 Jan-			100% of Y&G 40% ICI FW	Grade A and B.	<ul style="list-style-type: none"> • Evaluate select ZW@Home Pilot Program and make adjustments

⁷ RDKB Communication / Community-Based Social Marketing Plan prepared by Carol Suhan, March 2004.

RDKB/RDCK ORGANICS RECOVERY PROJECT
5 YEAR TRANSITION PLAN

Year	Program Status	Policy	Collection	Processing and Marketing	Public Education
June			10% of MFW		<ul style="list-style-type: none"> Implement select ZW@Home Programs. Ramp up ZW@Work to 40%
July-Dec				Review and tighten Marketing Plan.	Continuous offerings of zero waste education programs: ZW@home Y&G, Kitchen, Pilot Collection support, ZW@Work
Year 4 Jan-June			100% of Y&G 60% of ICI FW 40% of MFW		Continuous offerings of zero waste education programs: ZW@home Y&G, Kitchen, Pilot Collection support, ZW@Work
July-Dec				Review and tighten Marketing Plan.	Continuous offerings of zero waste education programs: ZW@home Y&G, Kitchen, Pilot Collection support, ZW@Work
Year 5 Jan-June			100% of Y&G 80% of ICI FW 60% of MFW		Continuous offerings of zero waste education programs: ZW@home Y&G, Kitchen, ZW@Work
July-Dec	Waste composition studies.	Review and tighten ban enforcement and education program.		Full Capacity.	Continuous delivery and effectiveness evaluation.
Year 6 Jan-June	Check for residuals – evaluate program success.	Full Organics Ban.	100% of Y&G 80% of municipal food waste	Review and tighten Marketing Plan.	Continuous delivery and effectiveness evaluation.

7 Summary of Recommendations

Recommendations have been provided for service levels and collection options, supporting education and supporting policies to meet the goals and objectives of the Organics Recovery Project. All recommendations contained in this report can be distilled down to three major steps for moving forward on this critical initiative as follows:

1. Cross-border and sector coordination to deliver early and consistent education on the benefits of organics recovery and the risks of continuing to landfill organics.
2. Phasing in policies and services to match community readiness and availability of supporting personnel and infrastructure.
3. Designing collection service levels and cost recovery systems to maximize convenience to customers and provide maximum economic incentive for recovery of resources.

A great deal of detail on how to achieve these three major recommendations is presented throughout this transition plan report, in Appendix A summarizing the results of public consultation, and in the main report prepared by Western BioResources. Support for developing and implementing new services, education programs and policies is available through suppliers of equipment, communities who have already implemented organics recycling programs, and through non-profit organizations with a resource recovery mandate such as the Composting Council of Canada and the Recycling Council of BC.

As for the future, your task is not to foresee it, but to enable it.

- Antoine de Saint-Exupery, in The Wisdom of the Sands

RDKB - RDCK ORGANICS RECOVERY PROJECT

Zero organics to landfill by 2010

APPENDIX A: SUMMARY REPORT OF COMMUNITY CONSULTATIONS

PREPARED FOR

Western BioResources Ltd.
Castlegar BC

PREPARED BY

Footprint Environmental Strategies
Box 3746 Smithers BC
Tel: 250 847 1670
www.footprintbc.com

DECEMBER 16, 2004

SUMMARY REPORT OF COMMUNITY CONSULTATIONS

This report brings together highlights of community and industry input into the overall project development plan over the past fifteen months, from September 2003 to December 2004. The strategies used to encourage feedback included:

- Letter to introduce project to economic development, educational and composting sectors to solicit partnerships (Sept 03)
- Selkirk Community College Workshop on Public Acceptance Issues for Organics Recycling (Castlegar) – YR 2 Integrated Environmental Planning Class (Oct 03)
- Multi-stakeholder meeting (Castlegar) Oct 03
- E-mail and letter updates to partners and project team
- Website development and maintenance, establishing links with RDKB and RDCK sites.
- Information package mail out to RDKB and RDCK Municipal Councils, Regional Boards, and public advisory committees (60 packages)
- Hauler survey development and interviews
- Poster to promote community open houses and focus groups
- Open House Primer (4 page newsletter – also posted on website)
- Five Open Houses with displays in Grand Forks, Trail, Castlegar, Nelson and Creston (Oct 04)
- Marketing Survey
- Focus Groups with workbook
- Business interviews (grocery store, hotel/pub, rancher) with Operations Survey
- TV interview – Laurie and Raymond with Shaw Cable (Trail) Oct 04
- Radio interview – Laurie with Nelson Co-op Radio (from Creston) Oct 04
- Press releases

Highlights are presented for the marketing survey, and the focus group sessions combined with individual interviews and communications.

Marketing Survey Highlights

A total of 33 surveys were completed by attendees at Open Houses. The most significant findings were as follows:

- 57% are currently backyard composting.
- 60% would like organics pickup service, of these 63% would like weekly pickup, 32% bi-monthly
- 41% didn't want to pay anything for this service, 31% would pay between \$21-40/yr
- 67% prefer bi-weekly non-organics collection
- 52% are willing to drop off organics – 71% indicated site should be less than 10 km away.
- 61% are not currently buying commercial compost or other amendment. 69% of those that do buy between 11- 200 kg per year.

- 61% use finished compost for ornamentals and vegetable gardens, 33% for hanging baskets and potted plants.
- 100% would buy a locally produced product based on similar or superior quality
- 95% would buy local within a 10% price range.
- 50/50 split on purchasing product with mill by-product, but 86% would buy if safety was proven. Pretty much any logo or information would do the trick, no strong preferences.
- Results are similar for municipal bio-solids – 61% would buy, 83% if safety proven. No clear endorsement preference.
- 88% favour including long-term waste management costs in current charges.
- 76% support increase in taxes to pay for composting facility.
- 85% support landfill ban on organic waste.

These results compare favourably with comments made during focus group sessions and recorded in work books.

2. Focus Group sessions and Workbooks

Five Open Houses and Focus Group sessions were held in Grand Forks, Trail, Castlegar, Nelson and Creston. The total number of community representatives consulted was 68. This number includes a broad cross-section of stakeholders including grocery store and hotel operators, hospital staff, haulers, elected officials, ranchers, economic development specialists, residents, media, commercial recycling and composting operators and local government administrative staff.

Separate reports for each of these focus group sessions have been prepared and are posted on the website. What follows is a summary of comments from all participants and establishes common themes and points of consensus.

2.1 Common themes and consensus points

The following points were repeated in every community and seemed to cut across sectors as being reasonable methods of developing a full service organics recovery program.

1. Backyard composting should be encouraged and continuous education provided.
2. Neighbourhood depots are considered viable options for garbage, recycling and organics with additional feature of being easy to “animal-proof”.
3. Phase in service levels based on early successes and financial feasibility; use pilot projects.
4. Each community has unique operational considerations and opportunities - consult with staff on what is feasible;
5. Strong support for regional policies (bans), education, collection standards and keeping organics out of the landfill (Zero tolerance). Fines are popular solution for non-compliance.
6. Early, aggressive and continuous education is needed; personal responsibility and environmental stewardship are key messages for a Zero Waste culture.
7. Availability of additional time, money and space was cited as concern by some residents and businesses.

8. No clear preference on frequency levels of service; but encouragement received to be creative with collection options. Co-collection programs were a popular solution in larger centres or where new programs are being introduced anyway. Bi-weekly garbage seems acceptable when alternatives are working.
9. Explore feasibility of improving recycling options as part of this project.
10. Public ownership of facility with private operation was a popular suggestion.
11. Acknowledgement of integrated environmental and economic goals eg. Zero organics to landfill and water quality protection; reduced landfill costs and new economic opportunities.
Note: Non-landfill pollution issues also surfaced i.e. sewage disposal in Columbia River in Castlegar.
12. Self-haul garbage option for curbside customers was not popular; user-pay is popular.
13. Build on what other communities are doing.
14. Get going!!

2.2 Summary of Risks and Recommendations by project component

The following table presents points made concerning:

- service levels and collection options
- business structure
- development plan and cost recovery options
- education and policy

Since the focus group sessions were conducted using a consensus model and creativity was encouraged, the recommendations presented here are a reliable source for informing program design. Overall, participants were extremely supportive of the project concept though the implementation details were harder to agree on. Some excellent advice was provided for the development plan and for supporting education and policy.

See Table 1 for a summary of risks and recommendations to be considered.

Table 1 - Summary of Risks and Recommendations

RISKS	RECOMMENDATIONS
<p>SERVICE LEVEL/COLLECTION OPTIONS</p> <ul style="list-style-type: none"> • Time, storage space, money – “no more new initiatives” • Bears • Inequality of service levels between rural and urban areas • How to deal with seasonal residents? • Weight of organics containers? • Will a special vehicle be needed? • Low participation rates for recycling may be a bad omen. • Compost collection and production in outlying areas – don’t want to exclude but don’t want excessive costs or poor quality control that gives central product a bad name. • Fluctuations for commercial enterprises in volumes, service levels, operations. • Lots of animal carcasses in some parts of the region (i.e. Creston Valley – more than 100/yr ostriches, horses, cattle, emus plus bears and roadkill) • Role of entrepreneurs offering private collection services for recycling and organics 	<p>Residential (Urban)</p> <ul style="list-style-type: none"> • Combine new service with curbside pickup of other recyclables or an attended recycling depot. • Use trucks with divided compartments to collect recyclables and compost. Could alternate: organics/recycling one week, garbage next week. • Bi-weekly organics with monthly garbage might work. Seasonal variations? • Bi-weekly organics with monthly yard waste and recycling collection. • Use clear garbage bags for easy enforcement (okay for commercial) • Provide in-kitchen compost catchers. • Won’t need liner for garbage can. Clear liner for compost cart? <p>Rural</p> <ul style="list-style-type: none"> • Depots make sense in some cases but need to be staffed and need convenient hours including Sundays. • Find a community-based solution for areas where transportation to central facility doesn’t make sense. • Shredding and compacting organics in rural locations and truck to central facility. <p>Commercial/All</p> <ul style="list-style-type: none"> • Make service convenient, easy, and cheap. • New housing developments should have a central organics tank – saves on trucking costs. Add neighbourhood organic tanks –one every 5 blocks – shouldn’t be more than a 2-3 minute walk. • \$\$ incentive will make it easier to free up staff time, separate organics. • Grocery stores can store organics in “septic tanks”. • Set up a separate bin for fruit and veggies as a starting point. • Provide a cost incentive of 20% or more to compost vs landfill.

RISKS	RECOMMENDATIONS
<p>OWNERSHIP/OPERATION</p> <ul style="list-style-type: none"> • Not really a business opportunity. • Needs industry/government subsidy. • Only a public facility could run without Celgar material. 	<ul style="list-style-type: none"> • Referendum on funding compost facility? • Government could build and lease to private operator, could be lease to own, or government could contract out operation. • Could pay a diversion credit. • Public ownership will protect the public from sudden increases in tipping fees or disruption in service due to bankruptcy. • Private operation preferred. RFP for private operators – compare \$\$ with public operations.
<p>COST RECOVERY/DEVELOPMENT PLAN</p> <ul style="list-style-type: none"> • Funding and role of municipalities • Losing participation because carts are hard to clean. • Political will to follow through on study recommendations. • Rodents • Impacts on landfill revenues if organics removed • What if Celgar opts out or closes? • Celgar material currently considered “industrial waste” by province – Celgar is trying to get this classification changed. If Celgar’s waste is re-classified, they will be able to market it themselves and the material may never be available for this project. • Factoring in compost as a final cover use 	<ul style="list-style-type: none"> • Start project with readily available materials (e.g. Celgar, business food waste), and then add smaller feedstock sources; Generate \$ to fund expansion. • Charge for picking up organics, but charge more for garbage pickup. • Charge fees for whatever is collected. • Composting surcharge on landfilling fees. • “Credit” for what is collected towards end product purchase. • Municipal bonds. • Avoided landfill costs (closure etc) can be used to calculate project finances. • Use cash incentives to encourage conservation mentality. • Markets for compost include: golf courses, farms, organic growers. • Calculate savings by extending landfill life. • Tipping fees for private haulers bringing material to central facility. • May be landfill savings from shorter opening hours, reduced cover costs, reduced investment today for closure and costs of new landfill if organics removed. At present we are not putting aside \$\$ for future landfill closure costs. • Tipping fees could be different for Celgar and commercial customers versus

RISKS	RECOMMENDATIONS
<p>is not economical since Celgar organics are free for this use at present – why spend money to process at plant?</p> <ul style="list-style-type: none"> • Service reliability and predictability of costs. • Contamination affects grade of compost and liability for businesses that use compost • Don't think taxes will go down – will probably go up. Collection costs will increase in municipalities but landfill costs won't decrease. • Education will not reach at least 10% of the people. • Will workers be removing plastic bags at compost plant? Will people line kitchen catchers with plastic bags? • People will expect good quality product from their sorting efforts – can we meet this expectation? • Product quality may have to be traded off versus % recovered from community. 	<p>residents i.e. residents pay per containers and the collector pays tipping fee at the compost facility.</p> <ul style="list-style-type: none"> • Maximize income from collection fees, tipping fees, and compost sales, and then cover rest with taxes. • Start residential programs early to get taxpayer input, and justify public \$. • Communities can come on line as they are ready. • Creston Valley needs a separate solution – not part of the “Celgar solution”; Farmers could operate – already have equipment; waive tipping fees – allows for instant cooperation. • Marketing of all compost products only if all material processed through central plant for quality control; • Backyard composting is part of the solution – low-cost option is the way to go. • Produce quality suitable for farmers. • Produce more than one grade of compost. • Make sure finished compost has clear labeling: recommended uses. • Hold contest to name finished compost (suggestions from Creston - “Kootenay Old Gold” • RD needs to amend bylaws to make composting less costly than landfilling. • Leave room for small entrepreneurs. • Sell program to people so they will participate – prove it works, then penalties won't be needed. • Demonstrate value of finished compost, that commercial system is working and now residential can work. Make compost available for free or low-cost. • Make garbage pickup less convenient and more expensive than recycling pickup. Garbage self-haul over recycling/compost self-haul. • User Pay/Tag a bag system most fair – needs to be universal • Talk to municipal staff about feasibility of proposed ideas. • Keep costs about the same as present garbage costs. • Consider community based or block by block composting, not just central

RISKS	RECOMMENDATIONS
	<p>facility.</p> <ul style="list-style-type: none"> • RDCK’s current SWMP doesn’t call for central composting – would have to be amended. • Private haulers and their customers may need help with initial capital costs for collection systems (commercial and residential) • Consider related profit-centres i.e. worm farms.
SUPPORTING EDUCATION AND POLICY	
<ul style="list-style-type: none"> • Haulers don’t want to be front-line enforcer in case customers cancel service. • People might rebel if we are too heavy-handed (eg. Illegal dumping). • Hard to enforce ban. • Loopholes – “free” transfer stations, roadside composting – plastic bag litter. • Monthly garbage service may result in illegal dumping (noted this is related to distance to final disposal facility). • Inconsistency between education pre-organics collection, transition period, and post-organic collection • Confusion over what is accepted and what isn’t accepted (i.e. diapers?) 	<p>Specific topics for businesses and residents</p> <ul style="list-style-type: none"> • What are the benefits of dividing up garbage? • What is included in program? • How do we minimize animals getting into garbage or organics containers? • Line kitchen catchers with biodegradable liners i.e. newspapers, paper bags. • Composting vs disposal of noxious weeds at landfill, at home. • Air quality concerns related to backyard burning and interface burning of organic materials; promotion of composting alternatives for “firesmart” debris and yard prunings. • Health and safety concerns for illegal dumping • Proper care and disposal of household garbage. • Backyard composting –“Bear Proof” your composter • Composting in confined spaces • True costs of landfilling over the next 50 plus years. • General Zero Waste education: Closed Loop, systems thinking <p>Specific topics for local government</p> <ul style="list-style-type: none"> • Detailed implementation plan – bite size chunks; want full-cost analysis. • Project orientation for existing and newly elected officials • Talk about how costs would be shared by municipalities. Nova Scotia video helps to explain possible facility – may want to use in presentation; keep presentation to 1.5 hours. • Present all options and how they might work.

RISKS	RECOMMENDATIONS
	<ul style="list-style-type: none"> • Present examples of other municipalities and regional districts that have worked together on recycling and/or composting projects. <p>Strategies and projects</p> <ul style="list-style-type: none"> • Webcam or static photo displays of landfill at transfer stations and grocery stores. • Share costs of education programs between two regions. • Join forces with FireSmart program for education and alternatives to burning; firesmart debris collection at transfer stations or mobile chipper. • Can have a voluntary ban on disposal of organics – focus on education not enforcement – why are organics in the landfill a problem? Community program needed. Don’t be too heavy-handed. • Clear bags make enforcement easy. • Door to door education about what is compostable – could be a summer student project. • Community college courses “Composting Techniques for Small Communities” • Standardize tipping fees between landfills across regional district boundaries • Will need aggressive ramp-up education program in years leading up to collection – don’t wait until program starts. • Get hauler cooperation in following regional rules for collecting organics in rural areas. Can adopt price incentives and rules as part of service agreement. Use “oops” note when agreement isn’t followed. Empower operators to enforce bans – provide incentives through reduced disposal costs for clean loads. • Distribute Backyard Composters and support with continuous education. Focus on how and why. • Get schools involved eg. Worm farm projects and science curriculum. • Find a way for people without gardens to get compost to people with gardens. • Universal enforcement of rules especially at landfills • Have “zero waste coaches” work with large generators (hospitals, schools) to

RISKS	RECOMMENDATIONS
	<p>set up systems (and pick somebody with a pleasant personality).</p> <ul style="list-style-type: none">• Treat everyone equally with respect to service levels (frequency) and costs (i.e. Area C and Grand Forks).• Use radio, tv and information videos• Don't forget about the homeless and financially challenged – not all food “waste” should be composted. Donate to shelters and food banks (Zero Hunger)• Pilot project with large generators too – pick early adopters who will champion project (i.e. Best Western and Ferraro Foods in Trail are candidates)

For copies of documents referred to in this report, please visit the project webpage accessible through either the RDKB or the RDCK websites.

RDKB - RDCK ORGANICS RECOVERY PROJECT

Zero organics to landfill by 2010

APPENDIX B: SURVEY OF SUPPORTING LITERATURE AND RESOURCES

PREPARED FOR

Western BioResources Ltd.
Castlegar BC

PREPARED BY

Footprint Environmental Strategies
Box 3746 Smithers BC
Tel: 250 847 1670
www.footprintbc.com

DECEMBER 16, 2004

SURVEY OF SUPPORTING LITERATURE AND RESOURCES

The materials that follow fall into three categories: Publications and Studies, Websites, and Videos. The majority of these materials are housed in the private libraries of the Western BioResources and Footprint Environmental Strategies, and may also be found in larger research libraries and the offices of local governments.

Journals, Trade Publications, and Studies

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- BER Systems, Inc.: <http://www.bersystems.com/>
- BioCycle Magazine:
<http://www.jgpress.com/BCArticles/2003/03esd/03productsservices.html#8>
- BioRenewables Ltd.: <http://www.bio-renewables.co.uk/home/>
- California Integrated Waste Management Board <http://www.ciwmb.ca.gov/FoodWaste>
- Centre for Organic and Resource Enterprises (CORE): <http://www.corebusinessnet.com/>

The Composting Council of Canada: www.compost.org/wdo_mc.html
Double T Equipment Products: <http://www.dte.ca/web/products-display.shtml?pfl=mush-display.param&op2.rf1=46>
Earthcare Technologies Inc: <http://www.ecticompost.com/>
Engineered Compost Systems: <http://www.compostsystems.com/facilities.html>
EnTec, Environmental Technology: <http://www.biogas.at/>
Environmental BioTechnologies, Inc.: <http://www.e-b-t.com/bcomp.htm>
Gicom Composting: http://www.brentwood.com.au/Gicom/gicom_composting.htm
Green Mountain Technologies: <http://www.gmt-organic.com/>
JF Bioenergy Inc.: <http://www.jfbioenergy.com/>
Molok Oy: http://www.molok.com/english/waste_qualities/biosystem/
Norseman Plastics Ltd. http://www.norsemanplastics.com/web_product
Rehrig Pacific Company: http://www.rehrigpacific.com/environ_2_data.html
Remade: <http://www.remade.org.uk/>
ReSource Environmental Technologies: <http://www.resource-eet.com/>
RUF Briquetting Machinery: <http://www.brikettieren.de/english/intro.htm>

Videos:

Guelph: A Profile on Wet/Dry Innovative Recycling. (1997). Video: 13 minutes, The Clorox Company of Canada Ltd.

On the Road to Zero Waste - Part 1, Nova Scotia: Community Responsibility in Action. (2002) Video: 30 plus minutes, narrated by Dr. Paul Connett, GrassRoots Recycling Network (www.grrn.org).