

EIN FOR STORMWATER AND WASTEWATER MANAGEMENT

EIN OPPORTUNITIES ASSESSMENT

GREATER VANCOUVER REGIONAL DISTRICT

Project Goal

The overall objective of the project was to explore EIN approaches to manage stormwater and wastewater for permitted dischargers in the GVRD, and determine the benefits of using EIN solutions to reduce the demand for handling infrastructure. More specific objectives included:



Photos courtesy of Eco-Tek Wastewater Treatments Inc

- Identification of potential EIN solutions for GVRD permitted companies with stormwater and wastewater concerns. Water conservation and alternative supply options, water recovery and reuse, onsite treatment and shared infrastructure options were considered.
- Assess water related and other demand side management (DSM) benefits that could be derived by implementing the identified solutions. Also consider the other triple bottom line (TBL) benefits for businesses, local municipalities and/or the GVRD.
- Using a case study approach, evaluate the feasibility of a range of pilot opportunities with regulated industries and EIN clusters.
- Provide recommendations for how the GVRD could support the uptake of EIN solutions by those permitted companies with the highest likelihood of success in order to capitalize on potential DSM benefits

Work Completed To Date

Eco-Industrial Solutions conducted three case studies to assess potential EIN stormwater and wastewater management solutions in the region, including potential DSM benefits. These case studies related to:

- 1) Stormwater collection, treatment and reuse in industrialized (highly impermeable) areas;
- 2) Stormwater recovery and reuse by heavy industrial users; and
- 3) Wastewater treatment and reuse in the food and beverage processing sector.

Results of the case studies were extrapolated to other highly industrialized areas, and to the GVRD's entire food and beverage processing sector. The study concluded with a series of high level, strategic guidelines based on recommendations to the GVRD for their further pursuit of EIN.



PROJECT SCALE

- Region
- Individual corporations

CLIENT

The Greater Vancouver Regional District (GVRD) includes 21 municipalities and one electoral area. The current population is more than 2 million, and is expected to grow to 2.9 million by 2021. The GVRD manages regional utility services like water treatment, sewage treatment, storm water management, recycling and garage disposal. The Policy and Planning Division is responsible for the overall planning of utility services, as well as growth management, and also manages regional air quality. The department also oversees administration of programs to encourage households and businesses to reduce waste, conserve water and avoid polluting air and water.

PARTNERS

- GVRD Policy & Planning, Permitting and Enforcement
- Kerr Wood Leidel

TECHNIQUE / TECHNOLOGY

- Interdepartmental EIN
- Multi-stakeholder process

Achievements

Each case study depicted quantifiable water-related benefits to the GVRD (e.g. reduced demand on storm and wastewater infrastructure; reduced costs to supply potable water), as well as participating businesses (e.g. reduced volume of potable water purchased from municipalities, or by purchasing lower cost treated storm-/wastewater instead). In addition to quantifiable benefits, the intangible, but important, triple bottom line benefits of the proposed solutions were qualitatively examined.



Triple bottom line benefits included:

- Support for the creation of municipal development guidelines that correspond with ecological approaches to land use planning
- Foster future partnerships in the region, particularly between the GVRD, large industrial users, and any neighbouring businesses / industries that can use recycled stormwater, and
- Help the GVRD address its Liquid Waste Management Plan objectives of reducing demand for treatment capacity by effectively reducing the amount of BOD in the region's wastewater.



Eco-Industrial Solutions recommended that the GVRD develop and implement a comprehensive EIN water management strategy to better identify opportunities for and maximize the benefits from water-related private and public-sector initiatives. The ultimate goal of the EIN water management strategy should be the actual implementation of successful water-related EIN solutions across the region.

What's Next?

Eco-industrial networking can help the GVRD to identify economically, ecologically, and socially beneficial options for managing stormwater and wastewater. By utilizing this approach, businesses and local governments will be able to form valuable partnerships, share and/or reduce capital costs, and maximize environmental and financial benefits. For more information about this project, contact Jennie Moore at the GVRD at jennie.moore@gvrd.bc.ca.



WHAT IS ECO-INDUSTRIAL NETWORKING (EIN)?

EIN embraces a systems approach and lessons from nature. In practice, EIN creates collaborative relationships (networks) between businesses, governments, and communities to more efficiently and effectively use resources, such as materials and energy, but also including land, infrastructure, and people.

In practice, this results in:

- "Waste = food" synergies
- Multi-objective infrastructure systems (utilities / services)
- Sustainable economic development;
- More efficient land use planning
- Green buildings, technologies & practices
- Greater returns for capital investment
- Leveraged partnerships between public and private organizations; and
- Integral consideration of ecological, social, and economic impacts