

# Integrated Resource Management

- Create local jobs
- Reduce greenhouse gas emissions by 25%
- Power the equivalent of 10% of homes
- Heat the equivalent of 30% of homes
- Run the equivalent of 10% of cars
- Recover clean, usable water



**W**hat if there was a simple way to reduce greenhouse gases that didn't add to taxpayer cost? What if it paid for itself? What if it generated electricity, heat and gas?

Traditional waste management is designed to address regulations at the least cost. By contrast Integrated Resource Management (IRM) views waste as a resource from which revenues can be generated. Nothing is wasted, everything has value.

## *What's Different : Why Change?*

As the world adapts to economic pressures and Climate Change, waste must be re-evaluated. IRM is the result.

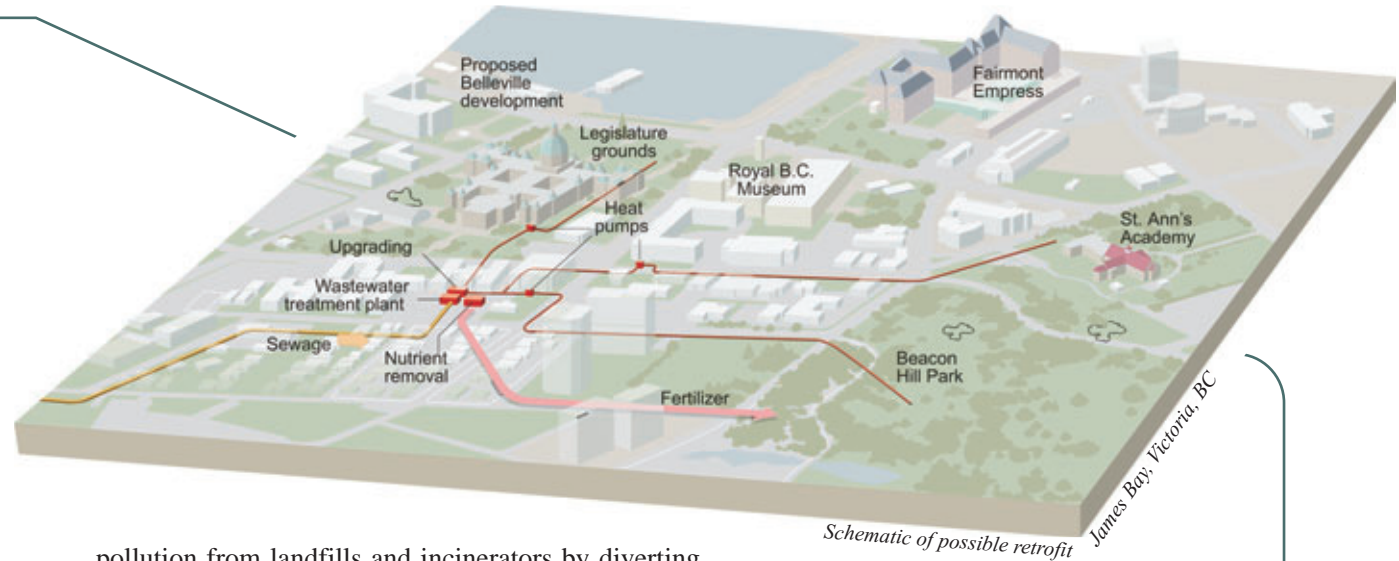
IRM is an integrated approach to recovering energy and resources from waste. It includes planning for solid and liquid waste, community energy needs, water and greenhouse gas reductions. It links with transportation, infrastructure, planning and buildings. It creates local employment and is a local economic generator.

The main driver is an integrated business case that can turn waste from a disposal cost to a viable business. It can reduce GHGs, so developers, investors, owners and corporations can 'do the right thing' while staying profitable.

The components of IRM are not new but are refocused to maximise value, creating a fundamental shift in how waste is addressed.

## IRM Advantages

- IRM costs the same or less than traditional waste management, but generates revenues and can thus be profitable, net of costs. This means taxpayer funding is limited or may even potentially be unnecessary.
- IRM can recover enough energy to heat the equivalent of up to 30% of a community's homes. This can replace fossil fuels to heat commercial and residential buildings.
- IRM can produce chilled water to reduce the electricity consumed by air conditioning.
- IRM can generate enough electricity from waste to power 10% of a community's homes.
- IRM can generate enough biofuels from waste to run 10% of a community's cars.
- IRM can reduce a community's greenhouse gas emissions by 25%. Municipalities can exceed most current GHG reduction targets such as the BC Climate Action Charter and even exceed Kyoto.
- IRM can reduce the electricity required for pumping and treating wastewater by 33%.
- IRM uses small, local treatment plants, many of which can be located within buildings or municipal infrastructure, reducing land requirements by 80%.
- IRM's smaller wastewater treatment plants use largely "off the shelf" components and can be built faster than large, centralized plants. IRM plants can thus be upgraded as technology improves, providing superior flexibility & resilience than other systems.
- IRM can quickly meet additional demand, reducing taxpayer cost & risk. Capacity can be added when and where it's needed, rather than having large planned wastewater treatment plants with excess capacity and avoidable debt.
- IRM is a "zero waste" approach which reduces



pollution from landfills and incinerators by diverting waste into energy and other resources.

- IRM wastewater treatment can produce high quality water (treated to a tertiary sterile level) usable for non-potable purposes, reducing the cost of expanding new watersheds, water filtration and treatment plants and piping costs.
- Recovered resources are used locally, reducing transfer costs and GHGs, improving energy generation efficiency and community improving resilience.
- Taxpayer cost can be stabilized, reduced or eliminated, reducing or eliminating reliance on local taxpayer charges or senior governments for capital funding.
- Resource recovery generates local employment, stimulating the economy rather than sending jobs and money offshore to buy fossil fuels.

## How IRM Works

- Localized plants treat wastewater to high-quality, sterile level usable for irrigation, commercial or agricultural purposes, recharging creeks or groundwater.
- Treated water is piped to nearby buildings where heat pumps extract both heat and cold for heating and cooling. This maximizes efficiency and value.

*"I conclude that this IRM plan is conceptually sound and on the right track, and if implemented it would likely provide a model of great value to countless municipalities throughout the world."*

*Dr. Charles McNeill  
United Nations Development Program*

- Kitchen and other wet organic wastes are converted to biogas to fuel buses and cars.
- Dry organic wastes such as wood waste produces heat and electricity at plants located close to hospitals, universities, or other large energy/heat consumers.
- Nutrients are purified and sterilized into high-quality fertilizers, replacing artificial fertilizers.



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