



Turn construction and demolition waste into resource

By MHCA

The government has asked Manitobans for their views on reducing the waste heading to landfills so Manitoba can become “the cleanest and greenest” province.

We say look no further than the sidewalk under your feet, or the roads you drive daily. And what about when the demo crews move in to tear down an old building or gut your neighbour's kitchen?

Construction, renovation and demolition (CR&D) sector is one of the largest resource consumers and waste producers in society, using up to 40% of the total raw materials extracted globally and generating about 35% of the world's waste.

While other jurisdictions have adopted policy and regulations for recycling CR&D waste, in Canada just about 16% of more than 4 million tonnes of CR&D material produced annually is diverted from the landfill. (And that doesn't include material generated by large civil engineering and infrastructure projects.)

That's a huge “waste” of opportunity, and a significant contributor to greenhouse gas emissions.

Meanwhile, there are successful models to learn from and replicate.

The recycling of construction and demolition waste materials is rapidly developing as an area of global public policy, as national and sub-national governments work to divert waste from landfills, preserve natural resources and reduce greenhouse gas emissions.

In 2008, the European Union set a target for an average 70% recycling rate by 2020; Belgium, Switzerland and Austria reached the 70% target in 2013. Japan passed a Construction Waste Act (2000), mandating recycling of concrete and wood and more than 93% of regulated construction waste is recycled there. In the U.S., almost 456 million tons, or 75%, of construction and demolition waste was recycled in 2018.

Closer to home, Edmonton has an aggressive policy for recycling, encouraging residents to bring their construction and renovation waste to civic recycling depots. In the past three years, the city has produced 642,753 tonnes of recycled aggregate, used mainly for all the road base construction on city projects.



Dr. Asia Shvarzman leads research and innovation at Antex Western/ACM Technologies

Every jurisdiction has its reasons for diverting materials – concrete, asphalt, untreated wood, glass, metals etc. – from the landfill. Frequently, it is driven by scarcity of resources or available landfill area. The best reason is to reduce the carbon footprint and preserve natural resources, some of which are finite and significant factors in the cost of construction.

Further, reclaiming CR&D waste would open new avenues for research and innovation in engineering and value-added material processing and production, says Dr. Asia Shvarzman, a University of Manitoba adjunct professor of civil engineering, and research and innovation lead at Antex Western/ACM Technologies.

Recycling of aggregates and asphalt are among the most common materials reused, and some countries have legislated the reclamation of cement from demolished concrete. Recycled glass is used in road building, as well, and recycled plastic as a road-building material is in development. Recycled carpet fibers could be used as soil reinforcement in road construction.

Shvarzman says the successful uptake of CR&D waste recycling requires a public policy framework that promotes sustainable

practices with mandated recycling thresholds, construction specifications and incentives – landfill tipping fees, tax credits etc. – in an approach toward a “circular economy.” She has devised a series of policy ideas for Manitoba (see sidebar).

But at present, recycling of construction materials in Manitoba for road-building or other purposes is largely the result of private-sector initiative.

For example, the use of recycled concrete aggregate (RCA) on public works projects – primarily within the City of Winnipeg – was introduced in the late 1990s by the heavy construction industry, which saw value in re-processing and repurposing the base and sub-base materials (aggregates) torn up in street rehab and reconstruction projects.

However, in 2020 the City of Winnipeg wrote new road-building specifications for road base and sub-base that have clipped the ability to use recycled aggregate materials. The city and the industry are working to see RCA use continue.

This work is being done in the wake of a 2020 resolution from the Infrastructure Renewal and Public Works Committee, directing the administration to present recommendations to increase the use of RCA in road-base design. The MHCA supported the resolution.

The direction is consistent with the City's own 2019 Climate Action Plan, which directs the public service to “reduce consumption and increase waste diversion from residential, commercial and industrial users; and advance Winnipeg's circular economy to support waste reduction.”

Hundreds of thousands of tonnes of RCA are pulled up each year from public and private-sector infrastructure works in Winnipeg and the immediate capital region.

Diverting this material to landfills grossly conflicts with sustainable finite resource management.

The provincial review of recycling policies and programs should look beyond assessing current practices, to a broader framework that moves us closer to the circular economy concept, where landfilling is a last resort.

Going green and clean demands that the enormous volumes of construction materials pulled up each year be turned into a valuable resource, not an environmental liability.

ENCOURAGE RECYCLING, NOT DUMPING

The MHCA, aided by Dr. Asia Shvarzman, has recommended that Conservation and Climate Minister Sarah Guillemard consider the following:

- Require recycling of construction and demolition waste materials in procurement by government, Crown corporation, public bodies and agencies
- Set rules for sorting, stockpiling and recycling of waste materials; include accountability measures for project owners, material producers, builders, agencies, departments and facilities
- Amend the Planning Act to promote the inclusion of construction and demolition waste recycling thresholds in municipal planning bylaws and development agreements, and within regional development plans
- Align financial incentives – user fees and charges to encourage waste reduction and diversion, such as tipping fees or virgin materials levies
- Adopt waste disposal bans or transportation restrictions to limit the disposal of materials
- Increase the resource efficiency of construction, renovation and demolition activities, such as through building certification and deconstruction standards.



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