NO TIME TO WASTE

Global waste crisis fuels broad-based momentum to remodel conventional manufacturing mindset around the key Circular Economy principles

BY GEORGE GUIDONI, EDITOR

A world without waste may sound like a utopian pipe dream, but in mankind's everlasting quest to make our planet a better place the journey can often be as important as the final destination.

For Canada's leading packaging industry group's **PAC Packaging Consortium**, its journey to a waste-free future began in earnest in 2011 with formation of the **PAC NEXT** working group, mandated with developing programs and action plans to help companies across numerous sectors to reduce their environmental footprint through the big 3 R's of reduce, reuse and recycle.

Nowadays headed by PAC director of sustainability Rachel Morier, the group has recently embraced the bold new concept of a Circular Economy—coined by the leading U.K. environmental think-tank **Ellen MacArthur Foundation**—as a guiding blueprint for its future efforts in advancing packaging sustainability.

While Morier admits there is a lot of work to be done to turn skeptics into believers, her commitment to promoting the cause of Circular Economy is aptly matched by her deep conviction in its feasibility and viability.

Manufactured by ReWall Company, the interior wall panels inside this plant are made from recycled paperboard beverage cartons via an innovative a specialized process that requires no water, formaldehyde glues or other hazardous chemicals.

"The Circular Economy is absolutely achievable, or else there would be no use in investing time and resources in it," Morier proclaims.

PAC's director of sustainability Rachel Morier heads the PAC NEXT initiative aimed at helping to facilitate and bring to life the long-term vision of a world without packaging waste.

"Of course, it requires much hard work, careful planning and collaboration, with many challenges ahead to align the interests of government, industry and the public.

"It will take a concerted effort to re-work a system that has been in place for years," Morier acknowledges, "but the momentum is building step-by-step with each new corporate policy, each new passing legislation, each new sorting or processing technology, and with each new packaging innovation."

Often described as an alternative to the traditional linear economy model based on the three pillars of 'make, use, dispose,' the Circular Economy is a more closed-loop regenerative system that not only emphasizes the maximum use of the available resources for the duration of a product's life-time but also the reuse of those materials at the end of each product's service life to make other products—thereby taking the 'dispose' part, i.e. waste, completely out of the equation.

While the concept was developed primarily to address the growing worldwide problem of plastic waste, it is equally applicable to virtually any man-made material used to produce packaging for consumer and industrial goods, as well as the goods themselves.

As Morier explains, the Circular Concept economy inherently requires a big picture approach to new product development whereby the product's end-of-life is addressed at the early design and prototyping stages.

"I believe the Circular Economy model reminds us that there is no defined single path to achieve circularity," she says.

"Some argue that the focus of the Circular Economy model is making everything recyclable or compostable, which is false.

"If you have created a recyclable package but your overall carbon footprint is high, then there is still work to be done," says Morier.

"If you have sourced local and renewable materials to reduce your carbon footprint but your packaging still ends up in landfill, then there is still work to be done."

Says Morier: "The biggest challenge with adopting the "circular economy" is that it requires long-term thinking and a willingness to collaborate.

"As a result, this can be very difficult to plan for in today's fast-paced, competitive environment."

Difficult but not impossible, says Morier, citing the 100-percent recycled plastic containers used for the **Lush Cosmetics**' hand and body creams, with five-percent content made from reprocessed plastic waste collected from the shorelines of British Columbia islands under auspices of the **Ocean Legacy Foundation** group.

"The intent is to source materials renewably to create a packaged product that can then be put back into the system to be recycled again," Morier relates.

"Not only does this packaging help incorporate recycled content to reduce greenhouse gas emissions," she notes, "but it also raises consumer awareness of ocean plastic pollution."

Other examples abound.

Isabelle Faucher, managing director of the **Carton Council of Canada (CCC)**, points to her group's collaboration with the Des Moines, Iowa-based construction materials manufacturer **ReWall Company** as a shining example of Circular Economy at work.

Founded in 2008, ReWall is a thriving manufacturer of roofing products and construction materials made from recycled food and beverage cartons such as the aseptic paperboard cartons manufactured by companies such as **Tetra Pak** and **SIG Combibloc,** among others.

The company employs a specialized low-energy, eco-friendly process that uses no water, formaldehyde glues or hazardous chemicals to produce quality roof cover board, exterior sheathing, wallboard and floor underlayment.

"We have discovered that the unique properties of food and beverage cartons, such as strength, durability and resistance to mold and moisture, make them an ideal material for creating high-quality building materials," says ReWall Company's chief executive officer Jan Rayman.

"In addition, the life-cycle of the cartons will continue to grow because the building materials themselves can also be recycled."

With technical and financial assistance from Carton Council, ReWall has more than doubled its manufacturing capacity late last year with the addition of new specialized equipment—enabling ReWall to recycle over 600 tonnes of recovered paperboard per month.

"Ensuring there are stable and robust end-markets to recycle used cartons is critically important to the circular economy," says Faucher.

"Recycling is a crucial component of the circular economy, and sustainable, high-performing recycling systems are essential to recovering the source materials that supply the manufacturing process.

"Since our formation in 2009, we have collaborated with municipalities, sorting facilities, the waste management industry and schools to increase carton collection and recycling," says Faucher, "while also working tirelessly to make post-consumer cartons a valuable commodity tradable on the global markets."

These activities are perfectly aligned with the sustainability mindset guiding all operations of the global aseptic packaging and processing technologies leader Tetra Pak.

"Our vision for packaging in a Circular Economy is simple: Packaging

The new Signature Pack aseptic paperboard beverage carton from SIG Combibloc made entirely from renewable plant-based materials is being launched across multiple global markets this year.

Isabelle Faucher, managing director the Canadian Carton Council (CCC), says it is essential to identify and develop promising end-use markets for recycled packaging waste to help the Circular Economy grow and evolve.

material made of renewable content, sustainably sourced, and recycled at the end of its life-cycle," states Elisabeth Comere, Tetra Pak's director of environment for the U.S. and Canada.

"We recognize that the linear 'make, use, dispose' model puts significant pressure on natural capital and drives the need for energy/fossil fuel and, consequently, the generated carbon emissions," Comere explains.

"On the other hand, the Circular Economy, both recognizes both the potential of using renewable materials from sustainable sources, and the converting of waste into new resources to help reduce greenhouse emissions and their climate impact," she states.

According to Comere, about 57 per cent of all food and beverage cartons consumed in Canada are currently recycled into new products—more then double the 26-percent rate only 10 years ago.

Considering that the Tetra Pak cartons are for the most part largely constructed from renewable materials sourced from certified forests and sugar-cane plantations, the company's contribution to the development of a Circular Economy puts it right at the front of the movement, Comere contends.

"Our ultimate goal is to produce packages derived entirely from renewable resources," she points out. "We made great strides in 2011 when we were first to market plastic closures made from sugar-cane derived ethanol, and in 2014 with the launch of the first milk package made entirely from plant-based materials, an achievement recognized at the 2016 Circular Awards."

Flow Water founder Nick Reichenbach says using the Tetra Pak paperboard beverage cartons to package the company's mineral water has significantly contributed to obtaining the B Corporation certification for outstanding social and environmental performance.

Says Comere: "Tetra Pak is well positioned to tackle the transition to a Circular Economy.

"Through our R&D investments, we continuously test new technologies and explore the use of new materials in our packaging, says Comere, noting that the Tetra Pak cartons out in the market today are on average 20 per cent lighter than they were 30 years ago.

"This is how we deployed bioplastics derived from sugar cane, which replaced traditional fossil-fuel based plastic for the caps and protective layers in our cartons, for example," she adds.

"We are also exploring the use of 'new' raw materials such as algae or biomass as feedstock for our carton packages," says Comere, while urging Tetra Pak's vast customer base in the global food industry also to adopt a more circular mindset.

"The food packaging industry has an essential role to play in reducing impact on the environment and consumption of natural resources," Comere asserts,.

"It has a unique opportunity to help accelerate the transition to a Circular Economy by promoting and investing into recycling and by embracing the use of renewable materials from sustainable sources in packaging."

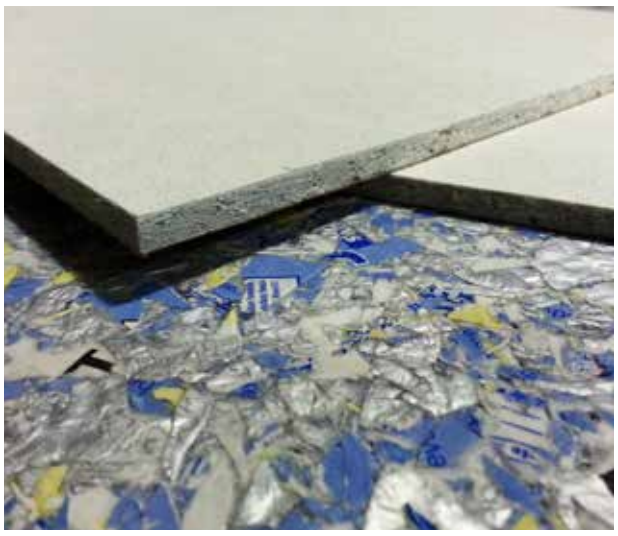
Like Morier and Faucher, Comere stresses the vital importance of the need to evaluate a product's end-of-life legacy early in the product design stages.

"Considering a package's end of life treatment when choosing materials and design is key," she states.

"That's why Tetra Pak designs its cartons not only with recycling in mind, ensuring they fit with the existing recycling infrastructure, but that they can also be converted into useful new paper-based products or building materials, for example."

Nicholas Reichenbach, founder and president of upstart Canadian water bottler **Flow Water**, says he is proud of the fact that the company's flagship brand is packaged exclusively in Tetra Pak's ***Tetra Prisma Aseptic Edge*** cartons incorporating the ***DreamCap*** and ***HeliCap*** resealable closures made from bioplastic polymers derived from sugar cane.

As Reichenbach relates, his deliberate selection of Tetra Pak packaging for the brand played a big role in obtaining the coveted **B Corporation** certification of **B Lab** for top-level "gold standard" social and environmental performance.



ReWall Company now has the capacity to recycle over 600 tonnes of used beverage cartons each month to make a growing range of quality building products.

"We were actually awarded one of the highest-ever scores for a Canadian company," says Reichenbach, citing exceptionally high audit scores for the company's waste management, recycling and material sourcing programs.

"This was all very much inspired by the Circular Economy model," he states, "which is really the mantra for our company.

"We have a responsibility to our customers and our staff to be the highest-quality sustainable company on the planet.

"In fact I created Flow with the idea of being the world's first socially and environmentally responsible water—a carbon-neutral, fully sustainable water company with a positive impact on the world around us.

"The use on nonrecyclable or noncompostable plastic bottles is still a major problem for the world's water industry," Reichenbach says, "and being the first Canadian company to put high-quality mineral still water inside a Tetra Prisma carton aligns us with Tetra Pak's acknowledged status as one of the world's leaders in environmentally-friendly packaging solutions."

Adds Reichenbach: "I am a firm believer in the Circular Economy, which is already taking shape in part due to the economic necessity of having to maximize the planet's resources.

"With the world's population growth continuing to accelerate, we all must be able to master the art of doing more with less for the sake of humanity's future well-being, and the Circular Economy model offers the best path forward to achieving that goal."