

**First Issue**  
1. Volume 2015

# GLOBAL RECYCLING

*The Magazine for  
Business Opportunities  
& International Markets*



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**GLOBAL RECYCLING**  
**The Magazine for Business Opportunities**  
**& International Markets**

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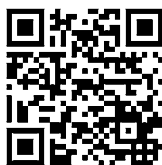
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## Recycling will Prevail – Worldwide

*This new magazine is dedicated to the business opportunities in the recycling industry because we are convinced that recycling will become increasingly more important all over the world.*



*Recent initiatives have meanwhile been created on all continents in order to launch a circular economy. The reason for this is very simple: The increasing amounts of waste pose a danger to the community and to the environment, even though municipal solid waste will always be associated with human civilization. According to a recent study of the British company Future Markets Insights, it is to be expected that the global volume of such residues will continue to increase from 1.5 billion tons in 2014 to 2.3 billion tons by the end of 2025.*

*Simultaneously, products and materials, which are no longer used, can begin their "second life" as raw materials. This encourages a more sustainable way of doing business. Several secondary raw materials are even traded globally.*

*The governments of many countries have meanwhile increased the legislative pressure so that the recycling rates will continue to rise. Due to the growing number of recycling programs, the global recycling industry and the size of the market for all sectors of the waste management (including collection, recycling and reuse segments) are gaining in importance. In 2014 a market study by Frost & Sullivan predicted that the international municipal solid waste management market should reach 300 billion US-Dollar in 2020. The international market for service in the field of industrial waste management is estimated to reach approximately 750 billion US-Dollar by 2020.*

*The recycling activities still differ highly in the regions of the world. In this issue you will find several examples: In the USA (p. 12) approximately 134 million tons of the annual 254 million tons of waste end up in landfills, the recycling rate amounts to 34 percent. In South Africa (p. 20) the annual volume of municipal solid waste is significantly smaller with an estimated 19 million tons, whereas 3.3 percent of the urban population is recycling their waste. While India (p.28), where approximately 15 percent of the household garbage is recycled, is struggling to gain control of the extent of construction and demolition waste (approximately 531 million tons per year) through recycling.*

*Many countries cannot afford an expensive waste management. However, the editors of GLOBAL RECYCLING are convinced that the international recycling industry is able to find appropriate solutions for such situations.*

*We wish you a useful reading and we kindly invite you to join us in developing our new magazine. We are looking forward to your suggestions and wishes.*

Yours

Oliver Kürth (kuerth@msvgmbh.eu)



Photo: Rawpixel / fotolia.com



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## Austin (Texas): New Industrial Park for Recycling and Reuse Industry

**Interested companies should hurry: Until 19 October 2015 the City of Austin is accepting letters of interest from potential recycling and reuse industry tenants interested in locating at Austin's [re]Manufacturing Hub.**

This new industrial park, located on redeveloped land owned by Austin Resource Recovery, is positioned to become a home for the local circular economy which will attract, retain and grow zero waste businesses. According to the city administration, the project is expected to be an economic driver for new jobs and investments throughout the Central Texas region. Currently, many of the recyclable items collected in Austin are sent out of state or overseas for manufacturing. The [re]Manufacturing Hub aims to be a place where recyclables can be transformed into new products locally. The co-location of multiple firms within the recycling and reuse industry will create opportunities for synergistic buyer and supplier relationships. The project will also incorporate sustainable design principles, green infrastructure and upcycled signage.

Austin's ambition is to reach zero waste in an economically and environmentally sustainable manner. The redevelopment of the Hub is part of the Austin Recycling Economic Development Program, an effort to drive local recycling markets and create green jobs. A recent study (➔ [http://austintexas.gov/sites/default/files/files/EGRSO/TXP\\_Austin\\_Recycling\\_Report\\_Final.pdf](http://austintexas.gov/sites/default/files/files/EGRSO/TXP_Austin_Recycling_Report_Final.pdf)) commissioned by



The City's Zero Waste goal is to reduce the amount of waste its one million households send to landfill by 90 percent by the year 2040

the program found that reuse and recycling have an economic impact of 720 million Dollar, which has the potential to grow to one billion Dollar. Ten acres of the Hub will be offered for sale and the remaining 95 acres will be leased. Basic infrastructure construction will begin in summer 2016 and the first phase will be tenant-ready in early-mid 2017. In addition to primary manufacturing tenants, the City is interested in hearing from recycling research and development facilities, incubators and smaller firms interested in subleasing space. Interested businesses or real estate professionals can download the letter of interest form and view a webinar on becoming a tenant at ➔ <http://austintexas.gov/ecopark>.

### About Austin Resource Recovery

Austin Resource Recovery provides a wide range of services designed to transform waste into resources. Services include curbside collection of recycling, trash, yard trimmings and large brush and bulk items; street sweeping; dead animal collection; household hazardous waste disposal and recycling; and outreach and education. In December 2011, the Austin City Council approved the Austin Resource Recovery Master Plan, which is the City's roadmap to zero waste.

The City of Austin is committed to reducing the amount of waste sent to area landfills by 90 percent by 2040 or sooner.

## Scholz Holding Aims to Strengthen its Capital Base

**German Scholz Holding GmbH has initiated a structured investor process, in the context of which it is intended to strengthen the equity basis of the company. Strategic partners as well as financial investors with an interest in the sector from Germany and abroad are being addressed.**

As reported, this step was prepared during the course of the summer and concludes the successful restructuring process of the Group. The international recycling Group has retained KPMG as its financial advisor. The investor process is aimed at obtaining a positive outcome in the next few months. Since 2013, the Scholz Group has been the subject of a restructuring and realignment process. Significant elements of the process

have been completed and the overall process has reached an advanced stage. The business has successfully disposed of non-strategic activities, as well as substantially reducing costs and simplifying structures. Already today, the Scholz Group has become considerably more efficient and effective. Furthermore, the business has identified a number of promising growth areas. Toyota Tsusho Corp. (TTC), which has held a 39.9 percent

share in Scholz Holding GmbH since mid-2014, informed the co-shareholder, the Scholz family (60.1 percent shareholding), that – whilst not participating in the capital measures – it has no reservations about the entry of new investors in the business. This decision has no effect on the ongoing operational business of the Scholz Group.

➔ [www.scholz-ag.de](http://www.scholz-ag.de)

## Austrian Machinery for South Africa

**Pioneering a new and better way of doing business: That is the goal of Mfangano Solution, working with municipalities and contractors to deliver the right recycling machinery, at the right price, with the best environmental performance.**

"We do not push our equipment onto the market but are, instead, driven by our customers' needs. I enjoy sitting down with clients to understand their challenges and then assist them to find solutions – that is why we are called Mfangano Solutions," says managing director James Kamau. Mfangano Solutions is situated in Johannesburg (South Africa) and is an environmental waste management company, supporting the vision of zero waste to landfill by providing a wide range of high-quality recycling machinery that meets Level V US emission limits for superior environmental performance.

### Six Crushers for Pikitup

At the beginning of this year, James Kamau, the new Rockster dealer for South Africa sold six impactors R700S to Pikitup, Johannesburg's official waste management service provider. Pikitup services the entire 1,625 square kilometers of Johannesburg. They use the Rockster crushers for producing recyclate used in roads construction and other carbon-based materials. Landfills should be minimized; they want to establish processes of recycling and immediate re-use of the final grain on site. Additionally, transport costs and associated pollutants



Rockster R700S at a landfill in Johannesburg, using the return belt as a stockpile conveyor

can be reduced. Mfangano and Rockster offer the necessary technology and know-how to reach these targets. "Mfangano has trained Pikitup operators and keeps spare parts available at its premises. These measures prevent avoidable downtime and allow Pikitup to manage our building rubble and green waste more effectively," says Christa Venter of Pikitup.

The Rockster R700S mobile impact crusher was specially developed for jobsites with limited space, as is typically the case for metropolitan municipi-



Two crusher operators in front of their new Rockster R700S

palities. "The well definable final grain was another argument for purchasing a Rockster crusher. The hydrostatic drive allows a continuous adjustment of the crusher speed and therefore guarantees an optimal modification of the final product. Furthermore, the hydrostatic drive has no wear compared to usual clutch systems," James Kamau says.

➔ [www.rockster.at](http://www.rockster.at)

## GreenParts International Intends to Expand its Business Globally

GreenParts International, a metal and textile recycling company with multiple locations in Atlanta, Georgia, has recently signed a term sheet to provide recycled oil to its South Korean partner and has already begun to implement the first order. "In addition, we have delivered on approximately 150 thousand dollars of our first shipment to SAH Global\*) for our previously announced concrete recycling agreement. In both cases we see growth and very good margins in these new ventures," Chief Executive Officer Asif Balagamwala stated. "It is a major component of GreenParts International's strategic five-year plan

to diversify our business and be less dependent on metal recycling."

### Second Quarter Results 2015

As GreenParts International reported, the company's second quarter results reflected benefits from the cost reduction plan that was implemented the previous quarter. The company reduced expenses by 30 percent and saw revenues grow by nearly 35 percent, while gross margins returned closer to the company's historical average. "We are still recovering from the industry decline which has impaired shipments well into the sec-

ond quarter and adversely altered our ratio of inventory cost to selling price. Additionally, we assumed new debt to take advantage of the opportunities, not only in cheaper inventory, but, most importantly, to execute on our developing new divisions. We expect the benefits from these efforts, combined with more stable market conditions, to provide further improvements in our operations," said Asif Balagamwala.

\*) Strategic Alliance Holdings (SAH) is an Atlanta-based company to handle diverse investment projects and was founded by Feroz Agad.

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## Confidence in Operational Reliability

**Smurfit Kappa in Neuburg an der Donau / Germany uses a new channel baling press “VK 7215” from HSM since September 2014. Concerning the processes, the corrugated cardboard plant has quite special requirements for the baling press.**

In the past, one bale of cutting waste at Smurfit Kappa in Neuburg weighed 380 kilogram. Today it is 520 kilogram – for the same size of bale. This is made possible by the high compression capacity of the HSM VK 7215 baling press. This has significant advantages for the transportation of bales to the paper factory for recycling. On the whole, there are fewer bales, the forklift truck can make fewer trips and lorry utilization to the paper factory has increased by 30 percent.



*“The under-utilization of the lorries is now finally a thing of the past for us”, said Rüdiger Graf, operations manager at Smurfit Kappa*

Smurfit Kappa in Neuburg produces up to 48 tons of cutting waste every day. The Bavarian plant has specialized in the food sector with 180 employees. The plant typically dispatches yoghurt trays and boxes for transporting milk packaging. Cutting waste is not put into temporary storage but is moved directly from production to a baling press to be transported to one of the Group's paper factories for recycling. Rüdiger Graf, operations man-

ager at the Neuburg plant, describes the requirements on the paper press at the end of the production line, saying, “If the baling press malfunctions, the entire production comes to a standstill.” In a plant which produces round the clock there are maximum requirements regarding the operational reliability of a press. After 20

years of operation, the existing baling press in the corrugated cardboard factory had reached the end of its life. Downtime was increasing, so that the search was on in Neuburg for a successor. According to Rüdiger Graf, several suppliers were in the race and all machines were evaluated. He said that two small HSM presses had already been running at Smurfit Kappa in Neuburg for some time and that they had had “good experience” with them. This assessment was verified in the new selection procedure.

### Hydraulic fluid from aircraft engines

“Implementation of the new investment in Neuburg was not easy. HSM could not simply take the ‘VK 7215’ from the assembly line and leave it with us”, said Graf. The new press is much larger than the replaced machine, but had to get by with the space available, in particular, fitting in with the current ventilation technology. In turn, the provider had to make centimeter adjustments to the machine on-site at various points. As a supplier to the food industry, Smurfit Kappa also has high requirements regarding health & safety and risk management. This meant that instead of the usual hydraulic oil, they had to work with a fire-resistant fluid which was specified by the firm and which is normally used in aircraft engines. HSM modified the machine accordingly and enabled the use of this hydraulic fluid for the first time.



Smurfit Kappa in Neuburg needed a reliable baling press for the disposal of larger volumes of cutting waste

➔ [www.hsm.eu](http://www.hsm.eu)

## Global Market Outlook: Paper and Paperboard Packaging

The Global Paper and Paperboard Packaging market accounted to reach 210.4 billion dollar by 2022, a new report of the U.S.-based market research and consulting firm Statistics MRC revealed. According to the information, the key factors of the market include recyclability of paper and also growing consumer awareness. “Replacing plastic and market diffusion are the major factors for restraining the growth of the market,” the consulting company said. “The challenges faced beside the market are adhering to environmental standards through production and unproductive recycling of paper.”

For more information about the report titled „Paper and Paperboard Packaging Global Market Outlook (2015-2022)“, visit ➔ [www.strategymrc.com](http://www.strategymrc.com) or write at [info@strategymrc.com](mailto:info@strategymrc.com).





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## The Dutch Way to Use Leftover Concrete

Disposing of leftover concrete is not only expensive, but also a waste of material. Betonblock, a Dutch company, has found a way which could be beneficial for recycling firms and other businesses, who sell semi-finished goods.

In the opinion of management, the production of concrete blocks by means of moulds – which are available in a wide range of types and sizes – can generate additional sales.

As reported, at its own factory Betonblock produces concrete moulds made from low-alloy construction steel with very long durability due to the powder coating. "Since the first generation of steel moulds 20 years ago, the design and effectiveness have been improved by innovations," the company emphasized. "This makes the Betonblock system the fastest growing system on the market with over 3,000 customers in 35 countries around the world. Betonblock keeps all its products in stock and delivers across Europe in a few days."

The concrete blocks can be used to build almost anything – similar to the Lego bricks many people knew as child. "The studs on the top, holes on the bottom and the weight of the concrete blocks mean that they can be stably stacked on top of each other," Betonblock states. "No cement is



Photo: Betonblock

According to the company, the Betonblock system has more than 3,000 customers in 35 countries around the world

needed. This means that changes and expansions can be made at any time. In practise the stackable concrete blocks are used for bulk goods boxes, halls, walls (even fire walls!), fences and counterweights." According to the company, concrete blocks are also used in infrastructure and (road) construction. Furthermore, these blocks are suitable for constructing sheds or other (storage) buildings – in this case stricter demands are made on the concrete.

Concrete slabs are used particularly in the Netherlands as paving on industrial premises because they do not sink in (on a good surface and when well positioned) and are very suitable for truck, (heavy) transportation, fork-lift truck traffic and for parking spaces. "The big benefit is that the industrial slabs are laid quicker than paving stones and are very easy to remove", Betonblock stressed.

➔ [www.betonblock.com](http://www.betonblock.com)

## Norwegian Firm Invested in New Technology to Reuse PVC Leftovers

An investment of 1.2 million euros in an upgraded recycling facility to handle PVC production leftovers paid for itself in 18 months at Protan Group, a Norway-based manufacturer of roofing foils and ventilation tubes for tunnels and mines.

According to German size-reduction technology supplier Pallmann, the investment realized cost savings and increased capacity.

In the new facility, grinding is undertaken by Pallmann's knife mill-type PS 4-7,5; agglomeration is carried out in a Plast agglomerator PFV 250; and a PolyGrinder PM 300 unit takes care of the pulverizing. The machines are connected via conveying units, silos and collection units. The German company supplied and commissioned the entire package of components. It is in its roofing products that Protan uses most of its recycled materials. On average, it incorporates six percent recycle in its production process, most



PolyGrinder PM 300

of which is sourced in-house. Owing to their complexity, it is difficult to dispose of or use these materials in other applications. However, the materials are of high value, making internal re-use worthwhile.

The company started recycling two decades ago and Pallmann's engineers have been involved from the beginning. The size-reduction technology major installed was a reconditioned PFV agglomerator in 2000. But over the years, this solution has become outdated – new products required new particle sizes, which could not be produced with the old technology.

➔ [www.pallmann.eu](http://www.pallmann.eu)

Photo: Pallmann



## The Millionth Shredder Hammer – Made by SWB

In September this year, German-based Stahlwerke Bochum GmbH (SWB) had reasons to celebrate: Its Bochum factory finished the 1,000,000th differentially hardened shredder hammer, which will serve an important task in scrap recycling and thus help to conserve natural resources.

The success story of this best-seller, invented by SWB 30 years ago and further developed up to this day, has been celebrated with some 140 employees, international representatives, and special guests. Plus, the company's freshly designed Internet presence went online exactly in time for the jubilee.

The differentially hardened shredder hammers which are used in shredders for cutting secondary raw material scrap have been sold to customers in 48 countries worldwide. This makes SWB the world leader in this market segment. Exports account for 75 percent of their turnover. Main buyer countries are the USA with Canada, followed by France, England, Belgium, Spain, and Japan.

### New Internet Presence

On the occasion of the jubilee, the Internet presence of Stahlwerke Bochum GmbH (👉 [www.stahlwerke-bochum.com](http://www.stahlwerke-bochum.com)) has been completely revamped. The site, available in six languages, has been expanded with a wealth of information and optimized for mobile device displays.

SWB products are used in processing plants like car shredders, scrap shears, stone crushers and other recycling



Photo: SWB / Volker Wiclok

equipment subjected to highest levels of wear. SWB wear parts have the highest resistance to abrasion, erosion and impact and therefore significantly improve the efficiency of the processing equipment in which they are used. The service offered by SWB includes application consulting and matching the wear parts to the design and application of the respective machines.

SWB production is based on computer-aided simulation of the casting technology. The pattern production is followed by machine moulding for series in a semi-automatic moulding plant or by hand moulding for piece production of wear parts up to 7,000

kilogram. Depending on the level of wear, SWB supplies wear parts made of low and high alloyed steel as well as of cast materials for highest levels of wear. A final individual heat treatment ensures that the quality and performance of the parts will match the high future requirements in any case.



## Appliance Recycling Centers of America Reports Declines in Revenues

**Appliance Recycling Centers of America, Inc., a Minneapolis-based provider of appliance recycling and retailing services, has reported declines in operating results for the second quarter ended July 4, 2015.**

Revenues from April to June 2015 were 30.2 million dollar, down 8.1 percent compared with the same period in 2014, as a result of decreased recycling division program sales and lower byproduct revenues. The net income amounted to 600,000 dollar, compared with earnings of 400,000 dollar reported in the period of last year – this was mainly due to the timing of 600,000 dollar in carbon off-

set revenues during the three months in 2015. There were no carbon offset revenues in the second quarter of 2014. According to the report, the quarter results continued to be impacted by customer driven delays in deliveries under one of the company's largest appliance energy efficiency programs and lower byproduct revenues that have resulted from the significant drop in steel and other non-

ferrous metal prices in the markets in which the enterprise operates.

For the first six months in 2015, total revenues decreased 12.5 percent to 57.7 million dollar. Overall, the company reported a net loss for the time January to June of (1.1) million dollar compared with a positive net income of 1.1 million dollar for the same period in the prior year.

## Success Fueled by Growth: RiverRoad Waste Solutions Inc.

For the second year in a row, RiverRoad Waste Solutions Inc., headquartered at Tinton Falls, New Jersey, and specialist in waste and recycling solutions, has earned a position on the 2015 Inc. 5000 list which is published by the American Inc. magazine. Therefore, the company belongs to the fastest-grow-

ing private companies in the United States. RiverRoad has experienced 133 percent growth over the past three years. As reported, a key driver of that growth was the implementation of myRoad 2.0™, an enhancement of the company's operational analytics and business intelligence portal, providing improved visibility

and access to customizable waste management services and recycling metrics.

RiverRoad's Inc. 5000 profile can be found at [www.inc.com/profile/riverroad-waste-solutions](http://www.inc.com/profile/riverroad-waste-solutions).

[www.riverroadwaste.com](http://www.riverroadwaste.com)

## KMR Stainless Changes Brand Name to Oryx Stainless

Since the start of September, the Oryx Stainless Group is realizing its global single-brand strategy. Therefore the business group changed the brand names of its companies that were still operating under the KMR Stainless brand to Oryx Stainless. The old name, which had been introduced in 1997, was still being used by the holding and the German- and Netherlands-

based businesses. With operations in Germany, the Netherlands, Malaysia and Thailand, the firm belongs to the leading companies in the global industry for stainless steel scrap. Oryx Stainless generated a turnover of 590 million euros in 2014. "It's just logical against the backdrop of the continued internationalization and the growing networking of our operations that we

move to a single-brand strategy," explained Tobias Kämmer, CEO at Oryx Stainless Holding BV. "The brand name of Oryx Stainless, which we already introduced as the umbrella brand with a view to further expansion in 2008, is well-known in our markets and sectors and carries positive associations, which we intend to utilize even more effectively in future."

## Strongco Corporation Extends Distribution of Material Handlers in Canada

Strongco Corporation has announced the expansion of the distribution relationship with Sennebogen LLC, a provider of machines to suit material handling applications, headquartered in Stanley, North Carolina. The Canadian firm will be the exclusive dealer for the full range of green line material handlers for the Province of Quebec. "This arrange-

ment builds on the existing agreements that Strongco has with Sennebogen in Ontario, New Brunswick, Nova Scotia, Newfoundland and Labrador, and Prince Edward Island, and further extends the Company's geographic reach in the forestry, scrap, ports and recycling markets in Canada", the Mississauga-based (Ontario) company informed. Strongco

Corporation is a mobile equipment dealer with operations across Canada and in the United States, operating through Chadwick-BaRoss, Inc. Strongco sells, rents and services equipment used in diverse sectors such as construction, infrastructure, mining, oil and gas, utilities, municipalities, waste management and forestry.

## CarTakeBack Expands Scrap Car Recycling Service to Ireland

**Recyclers who join the network will benefit from effective marketing activities.**

Scrap car recycling in Ireland is set to change as international scrap car recycling company. Now CarTakeBack launches its service. Car recyclers who join the CarTakeBack network will benefit from effective marketing activities aimed at securing vehicles from both the public and trade, with CarTakeBack's customer services team being on hand to offer support to customers and recycling partners alike. Members of the network also have exclusive access to a bespoke vehicle management system. Westlink Recovery Services in Dublin are the first authorized treatment facility to sign up with CarTakeBack. Westlink Direc-



Photo: O. Kürth

tor Peter Kinsella stated: "We are very pleased to be part of the network from launch. Being able to offer customers an instant online quote for their old cars through the CarTakeBack website is an exciting prospect and teamed with its marketing expertise and industry knowledge we are already seeing the benefits."

Steve Norgrove from CarTakeBack explains that the instant online quote website connects customers wanting to get rid of their old cars with the scrap car recycling centers.

[www.cartakeback.ie](http://www.cartakeback.ie)



# Scrap Processing is SICON's Passion

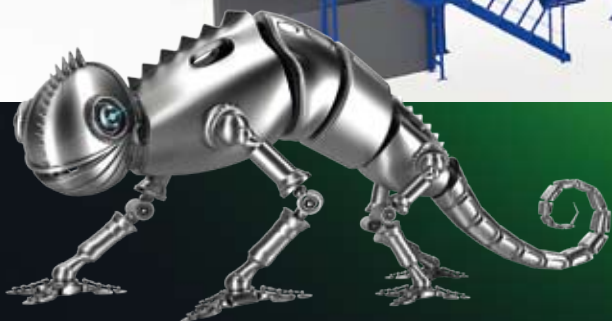
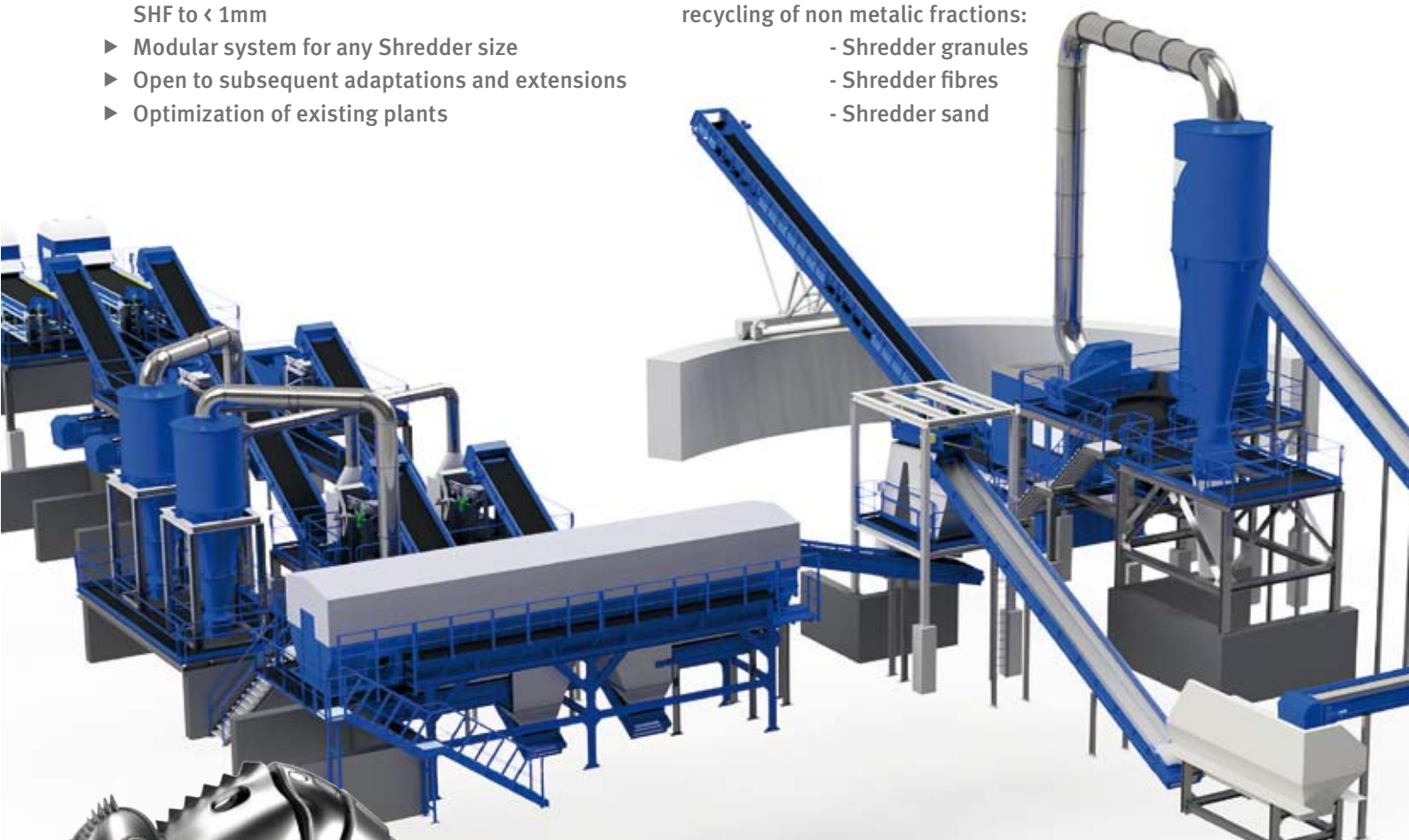
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# Major Investments in U.S. Recycling Infrastructure Necessary

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The recycling rate in the United States has been stagnating at 34 percent for several years. There is a particular pent-up demand in the reutilization of plastics, electronic scrap and construction waste. New concepts are already being tested for this. This is accompanied by an increasing demand for modern treatment and processing facilities and equipment.



According to the U.S. Environmental Protection Agency (EPA [www.epa.gov](http://www.epa.gov)), in 2013 the total quantity of municipal waste was 254 million tons in the USA. A national Waste Management Act, which regulates the disposal, treatment/exploitation and landfilling of different material flows and material fractions does not exist. The respective quotas, in terms of recycling goals, are specified by the individual U.S. Federal States or the local communities. However, many landfills have already reached their capacity limits and the total number of installations has also been greatly diminished in recent years. A market study by Frost & Sullivan confirmed that the transport volume and transport distances for the waste collection vehicles have increased enormously.

More and more major cities are concerned with "Zero Waste Programs", because the recycling rate (including composting) is barely above the 34 percent mark since 2010. Due to the intended landfill rates of almost zero percent, recycling plays a central role. Pioneers of these initiatives are San Francisco and other Californian cities. Following Rochester/New York State, New York City now relies on so-called "Single Stream Recycling": In April 2015, the city council announced that, compared to the base year of 2005, the amount of waste going to landfills will be reduced by 90 percent until 2030. The Single Stream Recycling is to be extended to the entire metropolis by 2020. However, in Rochester the process is already being tested in 4,000 households. The investment volume for disposal vehicles and containers is 600,000 US-Dollar.

### Outdated technology in action

The Single Stream Recycling concept means that all waste is collected in a combined bin and the separation of waste takes place in the local recycling yards. The waste separation behavior of the population is still clearly behind and it is not comparable with Germany and Western Europe. About half of the approximately 570 recycling plants were designed for this type of material recovery in the United States in 2014 and this number is growing significantly. Thus, there is a growing demand for an infrastructure system, from the waste collection to the sorting and recycling, which is aligned with this collection system.

Large-scale investments are due for the shift towards the Single Stream Recycling. In order to meet the partially ambitious "Zero Waste" goals, there is also an increased demand for new recycling facilities. According to the U.S. Institute of Scrap Recycling Industries ([www.isri.org](http://www.isri.org)), numerous treatment plants in the United States are technically outdated. There are still, for example, optical sorting systems from the 1990s in use. Especially in more rural regions, modernizations were only tackled sporadically. Last year, a high-efficient material recovery facility, 35 million USD worth, went into operation in Montgomery in Alabama.

According to market experts, efforts to modernize the recycling infrastructure and to implement a Single Stream system often fail due to financing. Therefore, many major companies (WalMart, Unilever, Procter & Gamble, Coca

Cola, etc.) have launched a fund of 100 million US-Dollar in 2014. Soft loans from this fund should help to kick-start appropriate investments.

### Disposable packaging must be recyclable

For the recycling programs of municipalities and cities it is very important to increase the low recovery rates for plastics. "Research and Markets" expects that the revenues for the recycling of plastic bottles are averagely growing by 3.7 percent every year in the period 2014 to 2019. In this context some Federal States have already introduced systems for the legal collection of returnable bottles. In more and more major cities, the non-reusable packaging available in trade must be recyclable. Moreover, California will let its citizen's vote on a prohibition of disposable plastics packaging in 2016. Then Supermarkets should offer their customers appropriate paper bags from recycled materials for the price of at least ten US-Cents.



Photo: © Empire331 | Dreamstime.com

Leading companies in the soft drinks segment are increasingly relying on recyclable packaging materials. Coca-Cola had introduced a "PlantBottle" with 70 percent plastic and 30 percent sugar cane base in the market in 2009. Currently, in cooperation with environmental technology, the company is developing PET bottles, which are made of one hundred percent vegetable-based raw materials. Within five to eight years they could reach the market. However, in the food industry and especially in fast food chains, there is still a considerable degree of catching up to do in the supply of recyclable plastic packaging. Thereby, the relatively low oil price could slow down the development of the last few years. As industry experts report, it is more advantageous for manufacturers of plastic containers and bottles to purchase non-recycled raw materials in the summer of 2015. Due to that, recycling companies came under pressure.

An increasing number of companies from various sectors are setting sustainability goals. Part of the plans is a minimal landfill rate. For example, Nestlé USA has allegedly modified its 23 production sites in the country in order that no waste accumulates in landfills anymore. The consumer goods company Procter & Gamble is planning to compensate for the disposal in landfills without production waste by 2020. According to the Environment Agency EPA, 7.6 billion tons of industrial waste emerged in the United States in 2013. There is no official information for recycling. The rate of landfilling is expected to be significantly higher than in the municipal waste.

### Progress starting from low level

Another very important issue is the disposal, treatment and recycling of used electrical (electronic) scrap in the



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#### MONDAY, 26 OCTOBER 2015

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14.00	Non-Ferrous Metals Division
16.00	Plastics Committee
17.30	E-Scrap Committee
19.30	Welcome Reception

#### TUESDAY, 27 OCTOBER 2015

09.00	Ferrous Division
11.00	Stainless Steel & Special Alloys Committee
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15.30	International Environment Council

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United States. Standard & Poor's predicted in 2012 that the nationwide accruing amount of waste will approximately double until 2025. After EPA information, only about 29 percent from the 3.4 million tons of discarded computers, monitors, television sets and mobile phones were recycled in 2012.

However, for some years now, progresses are made starting from a low level. For instance, the rate was still slightly below the 20 percent mark in 2010. In the course of a stricter legislation in the Federal States, providers of electronic devices are obliged to establish their own systems for the return and the disposal as well as the recycling of

these. In New York, for example, both manufacturers and retailers are prohibited to store electrical (electronic) scrap in landfills. Furthermore, private consumers are legally not allowed to dispose of their electronic waste in the household waste since January 2015. However, the segment construction waste is only at the beginning of a positive development. According to a report of "Waste Business Journal", the recycling rate was at 29.6 percent in 2013. Concerning this matter, only a few cities and municipalities have laid down guidelines.

*Author: Christian Janetzke*

*Source: Germany Trade & Invest*

## Global E-Waste Management Market: A Billion Dollar Business

According to a new report by U.S.-based market research and business-consulting company Allied Market Research, the global e-waste management market is expected to reach an amount of 49.4 billion dollar by 2020, registering a compound annual growth rate of 23.5 percent from 2014 to 2020. "The ever-growing need for adapting the latest technology is the prime factor for a large volume of e-waste generated across the globe," the authors of the study stated. "The Asia Pacific region contributes to the

largest revenue share in the global e-waste management market, followed by European countries. Analysis of the market indicates that the global volume of e-waste accounted for 57.7 million tons in 2013." Key findings from this analysis include that presently the trashed e-waste holds a larger percentage share as compared to the recycled e-waste. In the global market, household appliances generate the largest amount – approximately 46 percent – of e-waste as compared to other sources, followed by the IT and

Telecommunications sector which is expected to produce a large volume of e-waste by 2020. Furthermore, the Asia-Pacific region would generate the highest revenue for the e-waste management market by 2020.

To view the report titled „Global E-Waste Management Market – Size, Industry Analysis, Trends, Opportunities, Growth and Forecast, 2013 - 2020“, visit the website at [www.alliedmarketresearch.com/e-waste-management-market](http://www.alliedmarketresearch.com/e-waste-management-market).

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# Scrap Recycling in U.S. Has Increased Economic Impact

According to a recent study – published by Washington-based Institute of Scrap Recycling Industries (ISRI), Inc. – purchasing, processing and brokering old materials to be manufactured into new products provide more than 470,000 persons with jobs and generate nearly 106 billion dollar annually in economic activity in the United States.

**T**his analysis, conducted by the independent consulting firm of John Dunham and Associates, New York, documents the contribution of the scrap recycling industry to the economy of the country in terms of employment, tax generation and economic benefit. The authors of the study found that in 2015 round about 149,000 jobs are being directly supported by the manufacturing and brokerage operations of the business branch. In addition to this, more than 322,500 jobs in the U.S. economy are indirectly supported by the scrap recycling industry through suppliers (firms providing goods and services to scrap recyclers and brokers) and the indirect impact of the industry's expenditures (re-spending of wages by workers in the direct and supplier sectors).

As reported, the U.S. scrap recycling industry accounts for 0.68 percent (or 105.81 billion dollar) of the nation's total economic activity. This makes the branch similar in size to the data processing and hosting industry, the dental industry and the automotive repair industry. Federal, state and local governments benefit also from the scrap recycling industry, because this sector of the U.S. economy generates about 4.39 billion US-Dollar in state and local revenues annually. Another sum of 6.76 billion US-Dollar in federal taxes is paid per year by the industry and its employees.

In the United States exports of scrap commodities account for 26.79 percent of the industry's economic activity and are connected with some 125,000 jobs. The authors of the economic impact study found that in this year about

39,000 jobs are directly supported by the export activities associated with the processing and brokerage operations of U.S. scrap recyclers. Further jobs (more than 86,000) are created as a result of supplier operations and through the indirect effects of scrap recycling exports. All of this activity generates 28.34 billion US-Dollar in economic benefits in the United States and contributes 1.31 billion US-Dollar in tax revenues for the federal government and 1.65 billion US-Dollar in state and local taxes, concludes the report.

The export plays an important role in the industry. Many materials (such as ferrous and nonferrous metals, post-consumer paper or electronics) would probably not be recycled because there is no demand for them in the United States, says the ISRI study. According to the information, China imports large quantities of paper for reprocessing because wood pulp is expensive in Asia. This also applies to electronic products. As reported, there is not enough demand in the United States for the more expensive post consumer materials (like gold and titanium) that may be smelted out of circuit boards, capacitors and other electronic parts. But countries like India, where the demand for gold is high, would see value in these materials.

The growing international demand for all manner of commodities ranging from iron and steel to paper, nonferrous metals such as aluminum, copper and zinc, plastics, rubber and more sustains the U.S. foreign trade activities. In 2013, the industry exported nearly 23.7 billion US-Dollar in commodity grade scrap products to more than 160 countries.





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## Latin America: On the Way towards Legal E-Waste Frameworks

**As a result of technological innovation – the trend to upgrade devices and products' ever-shorter life span – e-waste is now the largest growing flow of waste. In 2012, the world's biggest generators of e-waste were the United States, China, Japan, Germany, and Russia, with quantities ranging between 1.5 and 9.4 million metric tons.**

An obvious solution, already in place, is to recycle. Most recycling of used electrical or electronic goods is carried out informally in developing countries: According to the International Labour Organization, 80 percent of the e-waste that is collected and sent for recycling in developed countries – mainly the US – ends up being shipped to developing countries. In Latin America, countries both produce and import e-waste, forming an intra-regional flow that exists mostly on the margins of regulation.

Smail Alhilali of the United Nations Industrial Development Organization (UNIDO) says the export of e-waste to the developing world “often leads to obsolete products being recycled in poor, marginalized areas using risky, rudimentary techniques”. Informal sector workers are usually the first victims of this practice because, Alhilali explains, “being unaware of the dangers, they are exposed to health risks, ranging from inhalation of toxic fumes to dermal exposure. In addition, toxic substances, including POPs, are being released into the atmosphere, causing environmental damage that could be avoided with the right regulation in place.”

Alfredo Cueva, UNIDO Industrial Development Officer, says, “Due to the region's accelerated economic growth and level of development, the amount of e-waste is growing even faster than in other regions”. Cueva cites Brazil as an example, explaining that it “was the sixth biggest generator of e-waste in the world in 2012, with 7.1 kilogram of e-waste generated per person that year”. Cueva goes on to say that e-waste has become a very prominent issue on national agendas across Latin America. “Private sector and civil society organizations have a growing interest in solving the e-waste problem. This is not only due to political pressure and public concerns about the hazardous components of e-waste, but also due to the attractive business opportunities that e-waste management offers. Increasingly Latin American countries are seeing e-waste management as a generator of new green enterprises and employment.”

Of particular concern in Latin America is the smuggling and informal collection and dismantling of e-waste, which leads to unfair competition and unpredictable dangers. This, UNIDO's Cueva argues, “can be addressed by

having the right systems in place, including policies and regulations, e-waste service providers, sound financing and properly functioning markets, appropriate technology and skills, societies that are well-informed and aware, and, of course, good monitoring, control and enforcement bodies”.

According to the Solving the E-waste Problem (StEP) Initiative, around one third of the countries in Latin America and the Caribbean have so far established regulatory instruments related to e-waste. Argentina, Brazil, Colombia, Costa Rica and Peru are regional leaders, while others are on their way towards developing and implementing legal frameworks.

### New project

Currently, UNIDO is developing a project titled „Strengthening of National Initiatives and Enhancement of Regional Cooperation for the Environmentally Sound Management of POPs in Waste of Electronic or Electrical Equipment (WEEE) in Latin American Countries“. The project will be implemented in Argentina, Bolivia, Chile, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Peru, Uruguay and Venezuela. It is co-funded by the Global Environment Facility (GEF), national bodies and the private sector.

With this project, UNIDO will assist the 13 countries both technically and financially, advising on policies, business, legislation, technology and awareness-raising. At the national level, it will help to strengthen policies and train technicians and public officials, developing information and awareness. It will also scale up existing infrastructure or establish new infrastructure where needed. At the regional level, it will work towards harmonizing key aspects of e-waste policies, strengthening regional cooperation, knowledge management and information exchange systems.



Photo: O. Kürth

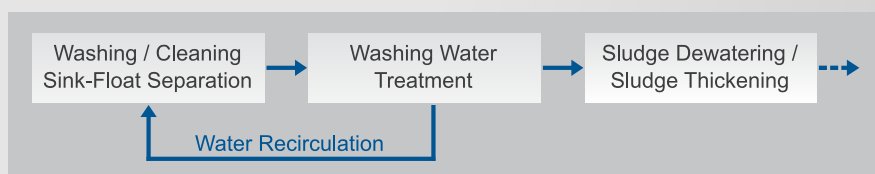


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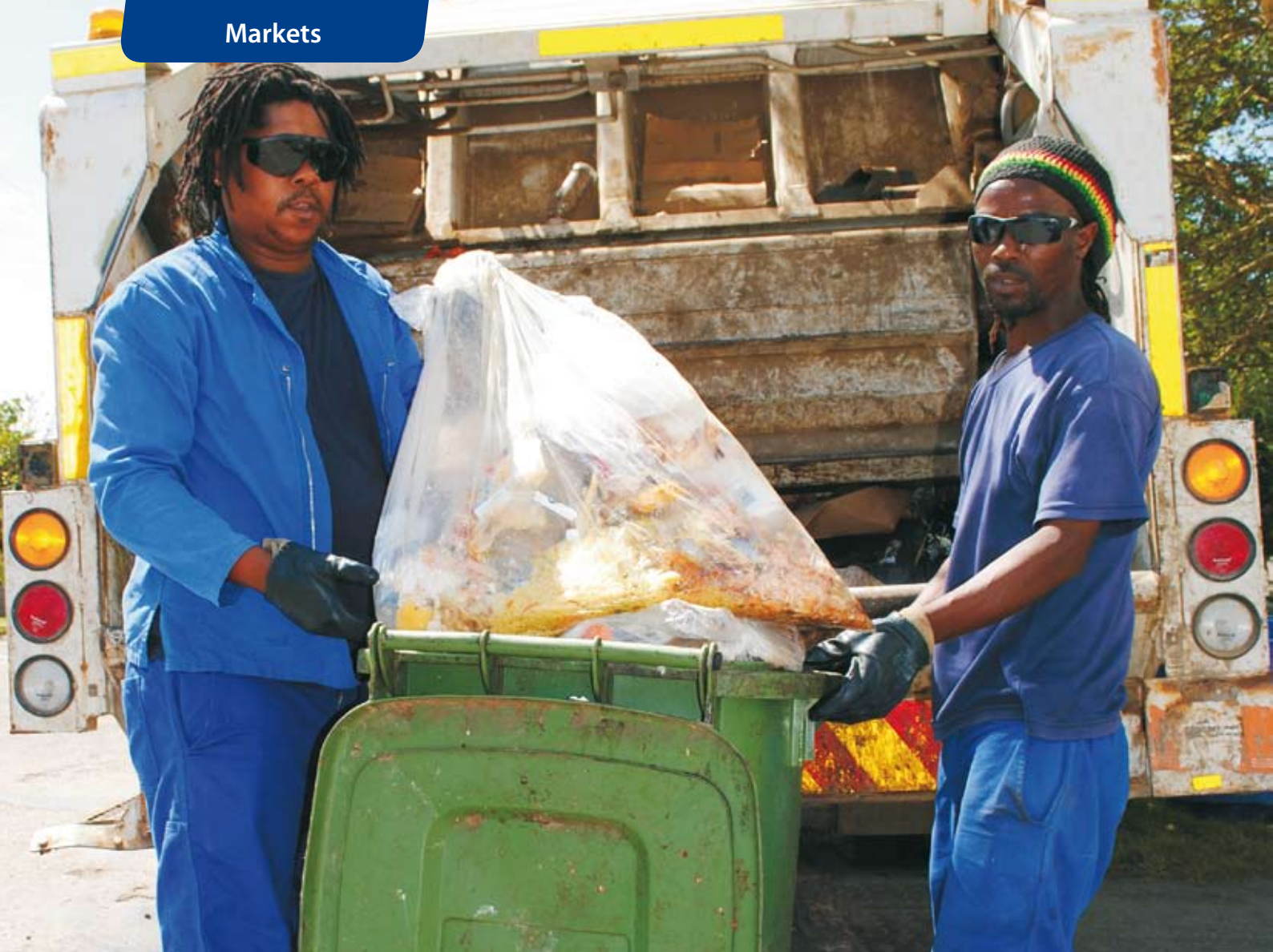
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# Waste Recycling in South Africa: The Private Sector is Called upon

South Africa aims to have all households in the country's large centers separating their own waste into recyclable and non-recyclable material by 2016.

**T**he National Waste Act supports this by encouraging separation of recyclable waste at household level to be implemented in all municipalities over time. And the National Waste Management Strategy not only wants to see 25 percent of recyclables diverted from landfill sites for re-use, recycling or recovery, but urges all metropolitan municipalities, secondary cities and large towns to have initiated separation at source programs by 2016. But developing countries, such as South Africa, face a number of challenges to the successful implementation of tailored waste policy instruments.

## Waste collection services: improvable

Yet, the participation of households in these programs to achieving the 2016 target will be crucial, according to

Dr Suzan Oelofse, principal researcher of the Council for Scientific and Industrial Research (CSIR). 61 percent of all South African households had access to kerbside domestic waste collection services in 2007, but this access relates mostly to more affluent and urban communities, while the country has access to rather inadequate waste services. The Department of Environment in 2007 revealed that 54 percent of the national backlog in waste service delivery can be found in metropolitan and secondary municipalities. A study published by the CSIR in 2012 revealed that only 3.3 percent of the country's urban population regularly recycled household waste in 2010. And another study conducted by the CSIR shows that, of the estimated 19 million tons of municipal waste generated in South Africa in 2011, about 25 percent were mainline recyclables such as glass, paper, tins and plastics.





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In detail, the 2010 survey reveals that more than 73 percent of South Africans living in urban areas reported no recycling at all; about 27 percent of urban South Africans reported some recycling behavior; and only 3.3 percent of the respondents indicated that they sort most or all of the selected five recyclables from their household waste and recycle it on a frequent basis. "It is alarming that two thirds of the more than 2,000 urban South African households surveyed do not know where to dispose of their household recyclables. Furthermore, the majority of the participants in the study said that they do not know how nor what to recycle," commented Wilma Strydom, project leader at the CSIR.

#### For each municipality: local collection standards

The National Waste Act of 2010 not only encourages separation of waste at the point of generation at national level, but provides for municipalities to set local standards for the separation, compacting and storage of waste that is collected as part of the municipal service. This means that each municipality may prescribe, within their area of jurisdiction, how the waste generated at households must be separated and stored for collection. That was bone and bane to the municipalities. Investigating the state of domestic waste management in South Africa in 2009, the CSIR found a bundle of obstacles for municipalities like capping of municipal budgets, ineffective cost recovery for disposal at landfills, delays in finalizing municipal budgets, theft of infrastructure, reduced operational budgets and/or ineffective utilization of equipment and personnel. The relevance of these barriers lies within the fact, that of the non-permitted or unknown permit status of landfill sites, more than 90 percent are thought to be municipal landfills.

Photo: © Christopher Elwell | Dreamstime.com



But South Africa's waste management problems are not only caused by the municipalities. Or – not unusual in waste management developing countries – by sluggish and insufficient political support. The waste sector has to face several wide ranging challenges like a raising waste amount through growth of population and economy and an historical backlog of waste management services, but also because of an increasing complexity of the waste stream and a limited understanding of the main waste flows including the national waste balance. One of the biggest handicaps was (and is) the lack of valid statistics. The (third) National Waste Information Baseline Report stated: "The accuracy of general waste generation data in South Africa is often very low and typically based on estimates. Domestic waste quantities are often estimated based on population statistics and economic activity within the municipality, while industrial waste quantities are largely estimated based on production figures."

#### Statistical monitoring: meanwhile developed

This can best be shown by the figures of the South African Waste Information Center (SAWIC). Its Tonnage Report for 2004 resulted in 200,000 tons of waste including all activity types of all provinces. 2010 balanced 14.4 million tons, in 2012 there were 23.4 million tons, and 2014 finally accounted for 105.8 million tons. Even if the South African waste amount might have been exploded, the figures reflect the development of statistical monitoring as well. However, the data reveal a total of 40,324,835 tons disposal of waste to land (e.g. specially engineered landfill), 28,878,392 tons disposal of waste to landfill (e.g. non-engineered landfill), 15,004,539 tons direct recovery of raw material from waste (divided in general 9,347,992 tons and 5,656,601 tons of hazardous waste), 8,787 tons direct recovery of energy from waste (separated into general 4,761 tons and 4,026 tons of hazardous waste), a total of 2,706,935 tons recycled from metals and metal compounds, and thermal treatment like incineration or pyrolysis of 30,658 tons of hazardous waste. The recycling of organic substances aggregated to 804,371.6 tons, of other inorganic materials to 16,653,775.6 tons. Waste recovery or recycling totaled 35,179,841.3 tons, including 5,735,715.6 tons of hazardous waste. All in all, hazardous waste added up to 11,974,517.4 tons – 11 percent of all registered waste.

#### National recycling rate: estimated 10 percent

Besides the statistics of the SAWIC (who's methods are not beyond dispute), the National Waste Information Baseline Report 2012 delivered further facts. The reports show that of 108 million tons of waste in 2011 generated approximately in South Africa, 98 million tons or 90 percent were disposed of at landfills; estimated 10 percent was recycled. About 59 million tons or 55 percent was general waste, 48 million tons or 44 percent were then unclassified waste and the remaining one million tons or one percent hazardous waste. Respective the waste type, the study revealed that commercial and industrial waste was assumed to contribute about 21 percent of the municipal waste stream in South Africa, household waste about 44 percent, construc-





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tion and demolition waste 20 percent and organics 15 percent. And the non-recyclable municipal waste contributes 35 percent (by weight) of the overall general waste, construction and demolition waste 20 percent, followed by metals (13 percent), organic waste (13 percent) and mainline recyclables including paper, plastics, glass and tires (19 percent). Looking at the specific waste recycling rates totaling 59.3 million tons, commercial and industrial waste was recycled by 77 percent, metals by 80 percent, paper by 57 percent, organic waste by 35 percent and glass by 32 percent, followed by plastic (18 percent), construction and demolition waste (16 percent) and tires (4 percent). Among the hazardous waste types, the 32,912 tons of generated batteries reached a recycling rate of 98 percent and waste oils 44 percent. The report concludes that “waste management in South Africa is thus still heavily reliant on landfilling as a waste management option”.

### Running out of landfill space

In the medium term, this might cause problems, especially for provinces like Gauteng and Western Cape. The waste amount of the regions Gauteng, Western Cape, Northern Cape and Mpumalanga come to 761, 675, 547 and 518 kilogram per capita and annum, other provinces only produce between 199 and 68 kilogram. So Gauteng, Western Cape and Mpumalanga contribute to 45, 20 and 10 percent – together 75 percent – of the South Africa’s municipal waste, while other provinces remain in the single-digit range. Not to mention the growth of waste amount: Depending on baseline and prognosis method, the National Waste Information Baseline Report 2012 reckoned with a general waste growth rate of 1.57, 3.26 or 3.95 percent per annum.

As CSIR indicated 2012, only a few landfills in the Gauteng have a lifespan of ten years remaining. And the City of Cape Town, contributing 70 percent of the municipal waste in the Western Cape, was rated as also running out of landfill airspace. A research in Cape Town, Durban and Johannesburg showed that landfill space is mainly consumed by green waste, builders’ rubble and “mainline recyclables”. The latter – paper, plastics, glass, tins and tyres – contribute to 25 percent of the municipal waste generated in Gauteng and 22 percent in Cape Town. CSIR researcher Suzan Oelofse drew the simple conclusion: “The best solution for reducing pressure on available landfill space is a reduction in waste through waste minimization and recycling.” And she argued that if the composition of waste in Gauteng is comparable to the rest of the country’s municipal waste, “then it can be concluded that 25 percent of the 19 million tons of municipal waste is mainline recyclables” and 4.75 tons of recyclables could have been recovered. Projected, 70 percent of all households could achieve a 70 percent recovery rate of their household recyclables, “we will be able to achieve a recovery rate of 49 percent”, Suzan Oelofse concluded.

### Private sector: greater innovation activity

What about the actors? At the ISWA Solid Waste World Congress in September 2014, a group of researchers presented

their findings on “The state of innovation in the South African waste sector”. Their results showed a surprisingly high level of waste innovation activity, with the private sector showing greater innovation activity than the public sector. An estimated 51.9 percent of private enterprises compared to 41.2 percent of municipalities indicated they had introduced new product innovations during the past five years, while 56.3 percent of private enterprises compared to only 35.3 percent of municipalities indicated they had introduced new process innovations.

The private waste sector also showed a greater tendency to introduce new technological innovations to the South Africa waste market, compared to municipalities who typically only introduced technological innovations to their own operations, with over 50 percent of private sector respondents indicating that they had introduced product or process innovations that were new to the South African waste market. And the private waste sector also showed a greater tendency than municipalities to introduce technological innovations from overseas, with 26.1 percent of private enterprises indicating that they had sourced their product innovations mainly from abroad and 34.7 percent of their process innovations.

### Waste sectors: private and public

An insight into “the formal private and public waste sectors in South Africa” offers the first South African Waste Sector Survey, published 2012 by the Department of Science and Technology. (The authors admitted, that the size of the private waste sector in South Africa is not known. The study was based on a survey among known companies representing 443 organizations of the private and 234 of the public waste management sector with a response rate of 31 percent.) According to the resulting report, a minimum number of people were employed within the formal South African waste sector is 29,833 – 9,741 in the private, 20,092 in the public sector.

The majority of these employees are situated within large enterprises: 77.5 percent of private waste sector employees and 64.9 percent of public sector employees in metropolitan municipalities. The minimum financial value of the formal South African waste sector including public and private in 2012 is 15.3 billion South African rand (about one billion euro) or 0.51 percent of GDP. If the contribution of the waste sector to the green economy – as envisaged in the National Waste Management Strategy – would become reality, 69,000 new jobs and 2,600 additional SMEs and cooperatives participating in waste service delivery and recycling by 2016 are forecasted.

### Technology solutions: different

The majority of this revenue is situated within large enterprises: 88.0 percent of private sector revenue and 80.4 percent of public sector revenue in metropolitan municipalities. 62.0 percent of the total revenue generated from waste activities in 2012 was done by companies which had been in the industry for more than 25 years. Companies that started up waste activities in the past five years

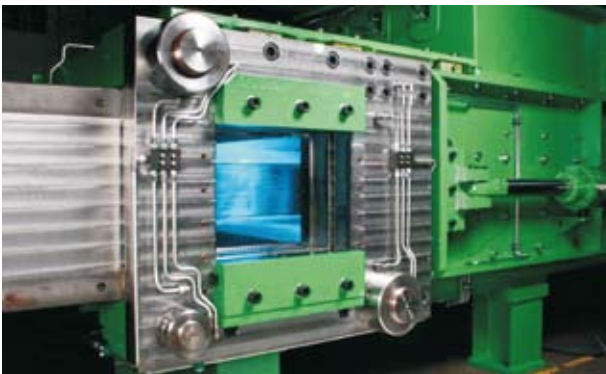


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contributed a minimum of 188 million rand (12 million Euro) into the economy in 2012. The two waste management sectors revert to different technology solutions. As the private sector uses mostly material recycling (37.4 percent), landfilling (23.0 percent), mechanical options (21.6 percent) and several others, municipalities still rely very heavily on landfilling by 89,9 percent as the primary solution for the management of waste, followed by material recycling (46.4 percent); the use of other technology options is negligible. As figures of the report show, the better financially positioned an private organization, the greater the probability of innovative technological and non-technological activity. But the greater the municipality, the more it shows increasing livelihood of innovative orientation.

So – the report balanced – innovation “is being done largely by the private sector and possibly a few metropolitan municipalities”. This suggests that the private sector might have a very important role and be “a potential stepping-stone for technological innovations from supplier into municipalities”. As the report underlines, “the positive response by the private waste sector to introduce new technological and non-technological innovations to the South African waste market, suggests that they have an important role in transferring these innovations into the public sector. The private waste sector is a potential partner to support the transfer of technological innovations from supplier (local and abroad) into municipalities. Mechanisms to further support partnerships between the public and private sectors must be explored.” Therefore

opportunities for growth in the private waste sector have to be found.

### No business-as-usual: alternatives wanted

In the Waste Research, Development and Innovation Roadmap, the Department of Science and Technology developed and set an ambitious goal of a “20 percent reduction (by weight) in industrial waste and a 60 percent reduction (by weight) in domestic waste, to landfill by 2024” in support of government policy to move waste up the hierarchy. Achieving these goals will require alternatives to „business-as-usual“, supported by both technological and non-technological innovation.

That’s exactly what the Department of Environmental Affairs asked for in the National Waste Management Strategy, published 2011. According to the paper, the Industry must institute cleaner technology practices to help minimizing waste and have accessible take-back facilities for particular products or waste streams. And: “Private service providers play key roles in all stages of waste management, including in waste service delivery and recycling. An expansion of waste services to un-served communities will require municipalities to explore alternative service delivery mechanisms, including public private partnerships.” Or, in the words of Suzan Oelofse: “Financial incentives are the main drivers for recycling from an industry point of view while environmental awareness supported by convenience are factors influencing post-consumer household recycling behavior.”

## Tunisia: Waste Management on the Rise

In November 2014, the GIZ/SWEEP-Net project “Structural Integration of the Informal Sector into the Municipal Solid Waste Management in Tunisia” presented the pilot operations with its respective partners, the municipalities of Ettadhamen-Mnihla and La Marsa. The actions were implemented this year January and lasted until June 2015.

The SWEEP-Net (Solid Waste Exchange of Information and Expertise Network in the Middle East and North Africa [MENA] Region) regional network connects experts from national public institutions, local authorities, business, the scientific community and civil society (☞ [www.sweep-net.org](http://www.sweep-net.org)). According to German GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH), the project is working on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) to turn informal contacts in the waste



Rising quantities of waste are posing increasing problems for Tunisia (photo) as well as for other Mashreq and Maghreb countries

management sector into a functional and formal network structure.

The network secretariat is located in Tunisia and actually technically assisted by the GIZ and hosted by the Tunisian Government through AN-

Ged (Agence Nationale de Gestion des Déchets - the National Waste Management Agency). The nine member countries of SWEEP-Net are Algeria, Egypt, Jordan, Lebanon, Mauritania, Morocco, Palestinian Territories, Tunisia and Yemen.





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# Recycling of C&D Waste in India: First Steps Taken



Photo: © Jorg Hackemann | Dreamstime.com

The Delhi government has decided to mandate recycled products from C&D waste in prospective contracts for building works and road works to be taken up by the government and its agencies. Following the decree, all Delhi government authorities are required to incorporate a clause in their tenders: It mandates use of a minimum of two percent recycled products from construction waste in all future contracts for building works and ten percent recycled products for road works. Five percent use of such products is expected for non-structural applications during examining and approving building plans.

The megacity's government has acknowledged that processing of construction and demolition waste has great potential to save urban space, will reduce negative environmental impacts, can conserve natural resources and will address the shortage of building materials. Anumita Roychowdhury, head of the Center for Science and Environment's Sustainable Urbanization team, commented: "This is an important move forward as construction and demolition of buildings cause enormous waste – about half of all materials used – that degrades the land and environment."

## Found to be suitable, but few demanded

Delhi produces about 4,000 to 4,600 tons of C&D waste per day. The inert but bulky waste is either disposed in city landfills or dumped in open spaces, water bodies and flood plains. Now the Municipal Corporation of Delhi and IL&FS Environment Infrastructure Services Limited have implemented a pioneering initiative of setting up a 500 tons per day capacity processing plant in Delhi on Public Private Partnership model to manage construction and

demolition waste. The resulting aggregates are converted to ready-mix concrete, pavement blocks, kerb stones and concrete bricks.

The products have been tested and are considered to be suitable for specific purposes. But as the inflow of waste is almost three times of its capacity, the plant is overwhelmed. The Municipal Corporation of Delhi East has built a new C&D waste recycling plant to cater to the waste being generated in its area, that is expected to become operational in the next weeks. However, the products manufactured by the recycling plant have difficulties in finding any takers due to lack of information and the absence of a C&D waste policy or standards. This is not only a problem of Delhi, but a structural problem of India's waste management.

## Few estimates on amount existing

Following estimates of the Union Ministry of Urban Development in 2000, India produced ten to twelve million tons of C&D waste annually. This has remained unchanged in the ministry's report of 2015. In 2001, the Technology In-



formation, Forecasting and Assessment Council calculated waste from the construction industry accounting for 25 percent of solid waste or twelve to 14 million tons per annum – this estimate has not been changed in the official documents.

But in January 2014, the then Minister of Urban Development has told the parliament that no estimates exist for C&D waste in the country. According to the Center for Science and Environment, in 2013 the total C&D waste generated by buildings alone was estimated by 531 million tons, about 50 times higher than the existing official estimate. If C&D waste generated by infrastructure projects like roads, dams, etc. is added, then India is already drowning in its C&D waste.

### A lack of effective national laws

Not well quantified and grossly underestimated because of lacking systematic database is not the only problem connected with Indian C&D waste. According to the Center for Science and Environment, India extremely lacks of effective national laws on C&D waste: The Municipal Solid Waste Management and Handling Rules in 2000 was „inadequate“, and the Manual on Municipal Solid Waste Management in 2015 delivers basic guidelines on its handling, but no standards. Although the draft of Municipal Solid Waste Management Rules of 2015, published by the Ministry of Environment, Forest and Climate Change, includes a chapter on C&D waste, the rules are not notified yet.

The lack of standardization, missed listing in Standard Codes and/or Schedule of Rates, poor policy push and lack of awareness are other key barriers. Though a number of innovative cost-effective recycled building materials, components and construction techniques have been developed, the Indian housing and building agencies have not adopted them in their construction practices. Furthermore, up to now Indian laws permit use of only naturally sourced building materials. “Naturally sourced” means that only virgin materials like sand and aggregate mined directly from nature can be used. The use of recycled or reused components is not yet allowed. IL&FS Environment Infrastructure Services Limited re-

ports, that this has lead to private contractors utilizing unscientific dumping methods by putting severe pressure on scarce urban land as well as reducing life spans of landfills. Meanwhile, the partial use of recycled C&D waste as substitution in concrete mix is envisaged and expected to be notified soon.

### Limited steps

Another sticking point is the proactive action needed in municipalities. After Western India adopted an action plan including separate collection of C&D waste, the Municipal Corporation of Greater Mumbai (MCGM) came out with Construction & Demolition & De-silting Waste (Management & Disposal) Rules 2006, one of its kind in India, and so did Pune. But the state failed to implement the policies; so the sole C&D waste recycling unit in Mumbai was shut down in 2009. Recently, the Government and Municipal Corporation of Delhi have taken steps and are to set a good precedent for governments and municipalities across the country. Additionally, several creative architects have taken steps to reuse waste in their buildings: a school building in Rajkot and the Institute of Rural Research and Development (IRRAD) building in Gurgaon. But these are limited steps.

### Construction waste as a resource

Anumita Roychowdhury urges the Delhi government „to take the next steps to announce a composite policy on C&D waste like other states for improved collection, segregation and handling of waste. Organizing more decentralized collection and recycling centers. Penalize wrongful disposal and littering and implement tax measures to lower the cost of recycled products to make them competitive. At the same time, take steps to build public awareness.“ Aiming at the Delhi government, these recommendations apply to whole Indian C&D waste management policy as well. The demand for this material will rise. For two-thirds of the buildings that will stand in India in 2030 are yet to be constructed. But the environmental cost will only compound with the anticipated construction boom unless immediate steps are taken to recycle and reuse construction waste as a resource.



Foto: O. Kirth

## Doppstadt Solutions for Japan/Fukushima: Skimming Radioactive Soil

Since the nuclear incident in Fukushima on 11th March 2011, many areas of cultivable land are contaminated with radiation or covered by a thick salt layer. In order to use the land again for agriculture, a certain layer must be removed. In search of a capable environmental enterprise, the Japanese government came across the Doppstadt Company.

The Japanese government ordered to skim the affected surfaces by five centimeters. This should reduce the radioactivity or remove the salt so that a non-hazardous use of the area for agriculture would become possible. The storage capacities for the skimmed soil of the whole were very limited, and due to the large dimensions of the contaminated areas, every unnecessary millimeter that was removed required an enormous need for storage capacities. Therefore, it was necessary to skim the soil as precisely as possible, thus exactly in five centimeters depth. This is nearly impossible with usual construction machinery.

In order to meet the challenge, the Doppstadt company chose an unusual way: They used the cleaning machine "Puma 2400", which is actually designed for filter basin cleaning

in the water treatment. The advantage of the machine: Even in case of uneven surfaces it removes the surface exactly in the required depth thanks to the sensors mounted at the feed table. They scan the surface and hold the feeding unit in the required removal depth at +/- two millimeter precision thus reducing the removal of excess material. The machine was particularly adapted to the special task in Japan. The Doppstadt experts made sure to use parts and components of renowned manufacturers and also Doppstadt standard components, in order to ensure a quick and worldwide spare part supply. Meanwhile, eight Puma 2400 machines and nine Puma 2400 eco machines, the successor of the Puma 2400, are in operation in Fukushima and they are supporting Japan in the recovery of their agricultural areas.

Photo: Doppstadt



New design, higher driving comfort, lower consumption: At present there are eight Puma 2400 and nine Puma 2400 eco in operation

Karsten König, construction department, USG Umweltservice GmbH & Co. KG: "We are glad that we are able to help the agriculture in Fukushima with our technical know-how to resume its activity step by step."

➔ [www.doppstadt.com](http://www.doppstadt.com)

## Polystyrene Market is Projected to Reach 28.2 Billion Dollar

A new study, published by the Indian company Markets and Markets, Pune, revealed that the global polystyrene market is expected to reach 28.2 billion US Dollar by 2019, in terms of value, at a compound annual growth rate (CAGR) of 5.1 percent from 2014 to 2019. Recycling of polystyrene also creates potential growth opportunities for key market players.

The polystyrene market is mainly driven by the increasing rate of industrialization and globalization, as the demand for this hard and solid plastic is growing across varied industry verticals. Packaging is the largest application segment and accounts for more than one-third share of the global market. The Asia-Pacific region dominated the application of the packaging market, followed by North America and Europe. The electronics application is estimated to witness the highest CAGR of 5.9 percent between 2014 and 2019. As is reported, other factors influencing the demand for polystyrene are the increasing application of this thermoplastic in the manufacturing of rubber and plastic, high production cost of substitutes, and growth of the respective industries in the Asia-Pacific, South America, and MEA regions. "The ma-

China is anticipated to be the largest market for polystyrene, followed by other emerging economies in the Asia-Pacific region

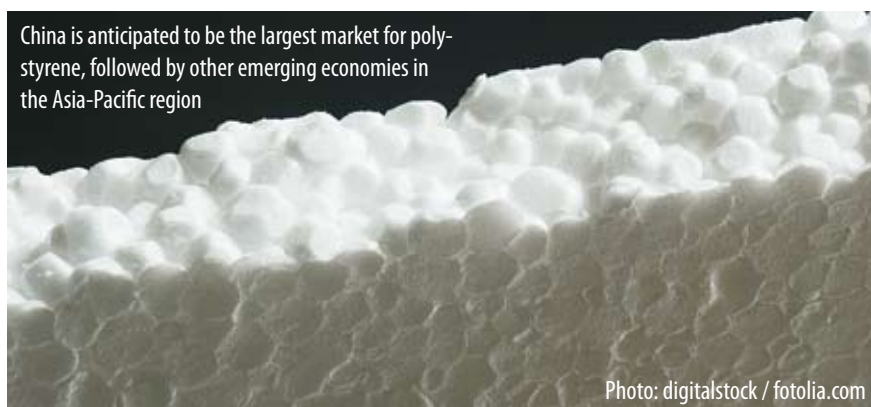


Photo: digitalstock / fotolia.com

jor restraining factors of this market is the increasing awareness regarding the negative impacts of polystyrene, which in turn has led to a shift in the consumers' preference towards the consumption of organic products", says Markets and Markets. The report "Polystyrene Market by Application (Packaging, Electronics, Consumer Goods & Appliances, Construction,

and Others) & Geography – Global Trends & Forecast to 2019" covers the global market and its trends in specific regions – Asia-Pacific, Europe, North America, and South America & MEA.

More information ➔ [www.marketsandmarkets.com/Market-Reports/polystyrene-market-148308682.html](http://www.marketsandmarkets.com/Market-Reports/polystyrene-market-148308682.html)



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## E-Scrap Recycling: Efficient by Image Processing and LED Flashlight

Swedish Refind Technologies develops systems that automatically sort electronic waste and thus ensure greater sustainability. A sophisticated image processing system, which has access to millions of reference images, is responsible for the recognition of the respective objects. Thanks to digital image processing and LED strobe controllers, Refind was able to double the throughput of its machine.

The idea of the Swedish start-up team was to quantify the value of the waste before it is even recycled – perfect for recycling management with its slim profit margins. “But the actual implementation in the industry proved to be much more difficult. The batteries aren’t lying on the table under laboratory conditions; rather, they come in highly diverse angles and conditions,” says Farshid J. Harandi, head of mechatronics at Refind, explaining the challenges. A lot of research and development was necessary to complete the first model of the “Optical Battery Sorter”, which currently sorts eight batteries per second. The company from Göteborg, with six employees, is now generating around half a million euros in turnover annually, and it is the sole solution provider.

It is difficult to determine manually where the best returns can be achieved when recycling en masse. For example, certain models can be sold in emergent markets. “Here is where we come into play, because we can say exactly what is contained within a mobile phone and how much it may still be worth in another market. Then it can be sold at a completely different price than could be achieved by recycling,” the head of mechatronics explains.

The technology and algorithms behind the Refind systems are elaborate; the centerpiece is the image recognition and processing for controlling the machine in the sorting process. Batteries, for example, can come in many different forms: for torches, fire alarms or toys. Batteries

can lie in the most diverse angles in the spectrum of 360 degrees; sometimes they are damaged or contaminated. No wonder that sorting is not a matter of child’s play. “We have to be able to say what we are dealing with, with just this one glance. We have information about 2,500 types of battery and over two million images in the database,” says Harandi, describing the process.

Light is especially decisive for automatically recognizing objects. “There was congestion with the old lighting control system, because when there were more batteries, there was less light exposure time. Therefore, we needed a stronger light,” Farshid Harandi reports. The head of mechatronics browsed the market and, in doing so, came across the LED Strobe Controller IPSC2 from Smarek Vision, which, with its two channels, is the only device that operates with high-voltage pulses of up to 200 volts. “We can strobe the light with four times the intensity, using the Smarek strobe controller and, at 20 batteries per second, can now sort twice as many as before,” says Harandi.

The machines sort half a million batteries per day, equating to a minimum of 600 kilograms per hour. The IPSC2 Controller actually even makes it possible to sort one metric ton per hour. However, this capacity is used to re-image problematic batteries. The clients are highly satisfied with this solution.

Source: Framos GmbH





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## Solutions for the Tough Demands in Recycling

Recycling waste places enormous demands on the equipment. In order to stay productive and competitive, it is vital to use materials and components that stand up to these tough demands.

By using Hardox steel, which is produced by Stockholm-based Swedish company SSAB, recyclers and recycling equipment manufacturers are able to cut costs, improve service life and optimize the production. Examples of components in recycling process are scrap containers, grabs, shredder knives, crusher hammers and liners. They all significantly increase the service life. There are solutions for all kinds of recycling situations: metal scrap, glass, plastic, wood, paper, etc.



Photo: SSAB

Hardox can be used in shredders; the high toughness of Hardox steels provides shredders with higher resistance against cracking and cleavages

### Solution for Shredders in Australia

Australian recycling equipment specialist Pacific Shredder, located in Newcastle, New South Wales, was looking for a kind of steel that was stronger and lasted longer. Normal steel is prone to cracking and wear and needs to be replaced frequently.

"A car shredder is basically a 60-ton drum made of eleven rotor disks, with twelve or 16 manganese hammers attached to it," said Joe Beentjes, owner of the company. "The rotor rotates at 500 rpm and the hammers smash the car against a series of anvils, breaker bars and grids. The inside is armored with wear plates that stop the flying metal from simply eroding the whole structure."

In a business where a breakdown does not just mean loss of productivity, it means bringing in a 200-ton crane to lift the rotor out and repair it, durability is everything. "Steel recycling is all about dollar-cost per ton," stated Beentjes. "The cost of scrap and the price for recycled steel

are pretty much fixed, so one of the only ways to boost the bottom line is by improving the life of the shredder. This is why we use Hardox HiTuf steel for our components. We build quality-engineered machines", he stressed, "and a quality product like Hardox HiTuf certainly enhances our reputation. SSAB's steel is the best we have ever used for these components, for a number of reasons."

### Hardox Wearparts

According to SSAB, the company has been a forerunner in developing wear steel. Today, the know-how has been extended to the Hardox Wearparts network, a global provider of wear parts and services. There are 159 Hardox Wearparts Centers around the world, so availability is not an issue. The original idea has extended from ensuring steel material quality to become a true "one-stop-wear-shop" with the ability to support customers for any kind of wear challenge.

➔ [www.hardoxwearparts.com](http://www.hardoxwearparts.com)  
➔ [www.ssab.com](http://www.ssab.com)

## Terex Finlay C-1545 Tracked Mobile Cone Crusher

Operators will be offered a "high capacity and aggressive machine for the surface ore mining and aggregate industries".

According to Terex Finlay, the model C-1545 incorporates the new TC1150 cone crusher with direct variable speed clutch drive, automatic tramp relief and 'on-the-fly' hydraulic adjustable closed side setting (CSS) adjustment. The large hopper/feeder has an automated metal detection and a purge system to protect the cone and reduce downtime by removing metal contaminants via the purge chute – from feed belt at the touch of a button. Additional benefits include rapid set up time, ease of maintenance, high reduction ratio, advanced electronic control system, high output capacity and gives, as the manufacturer further states, excellent product cubicity. The TC1150 cone crusher provides high reduction and produc-

tivity ratios; fully Hydraulic CSS adjustment with electronic monitoring system ensures ease of operation; fuel efficient direct drive transmission through wet clutch; hydraulic Tramp Relief System with automatic reset protects the chamber and minimizes

downtime; metal detection system on feed belt with 'auto-stop' protects the cone from tramp metal and the purge system removes contaminants from the machine.

➔ [www.terexfinlay.com](http://www.terexfinlay.com)



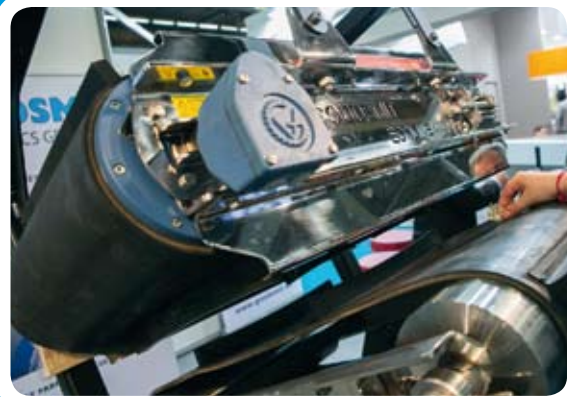
Photo: Terex Finlay



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## Processing Experts

### Sicon's Effective Solutions for Scrap and Metal Processing.

The scrap recycling industry is currently marked by sinking scrap prices, narrow margins and a high level of competition. And signs indicate that the situation is not about to improve. The time has come to rethink and reinvent scrap recycling. That means solutions which venture off the beaten path. Sicon offers solutions that are sophisticated, reliable and economical.

Sicon GmbH has been involved in the scrap recycling industry for more than 17 years, and during that period the company has developed many groundbreaking solutions and installed them in plants all over the globe. Today the firm delivers machines and systems for crushing, shredding and separating scrap and metals. A prime example is the

EcoShred® Compact, a new generation of shredders for end-of-life vehicles and mixed scrap, which makes shredders profitable once again by increasing productivity and significantly reducing operating costs. This is accompanied by an optimized ferrous downstream (ScrapTuning®), which results in a clean shredded scrap with reduced copper content and better sale opportunities.

"Sicon is currently the only supplier of complete package solutions for shredder residue, be it light or heavy shredder residue. A precisely adjusted module system offers an optimum solution for both small and large-scale shredder plants, even just to supplement or optimize existing machinery. Our solutions are not only able to re-

cover all metals but also plastics and other non-metals," the firm stresses. "Shredder residues are translated into valuable products with the aid of solutions based on the SICON 75 / 100 / 120 and 120+ technology, which are modeled after the patented VW-SICON process and thus make the entire shredder process uniquely effective." Sicon is not only a supplier of machinery and systems. The company also advises its customers intensively from the very first idea through to implementation and is available to provide professional and high-quality service quickly with replacement parts, maintenance and repairs. In this way Sicon forms the basis for scrap and metal recycling.

➔ [www.sicontechnology.com](http://www.sicontechnology.com)

## New Sensor Sorter for Better Results

**Plastic foils are among the most important raw materials for recycling and are already reused to a substantial extent. On account of its light weight and high space occupancy, plastic film sorted on a standard sorting machine is hindered by restrictions and reduced conveyor speeds.**

To meet the today's demands, sorting systems have to be efficient. Specifications are becoming more and more stringent and users of processing and sorting plants are constantly required to respond to improved recycling rates whilst being called on to reduce the overall volume of waste following processing. Sensor technology potential in the recycling sector – or to be more precise, detection of the wide variety of different plastic materials

emanating from different material-flow sources – have remained largely untapped.

The UniSort Film sensor sorter is the newest machine from German Steinert Group for this sector and has been designed specifically for improving the sorting potential. The machine is equipped with the state-of-the-art Active Object Control-System (AOC), engineered by RTT Steinert and originally developed for fine-product sorting on the UniSort Flake range for larger particle sizes. As in the case of small objects, the sorting of buoyant flat objects is governed by the motion behavior of the material being sorted in terms of material detection and ejection – having a substantial impact on purity and efficiency. "AOC is a stabilisation system catering for defined motion paths controlling the material sorted, hence delivering a distinct improvement in quality of the final product," Steinert explains. "Stable motion of the objects even



Photos: Steinert

at double conveying speed results in higher throughput rates while enhancing the efficiency of the system." According to the company, the system is universally suitable for all functions involving the sorting of air worthy objects, e.g. paper and film, including agricultural film.

In addition to this, the UniSort Film system is equipped with modern HSI (Hyper Spectral Imaging) camera technology, ensuring a high degree of flexibility and future sustainability.

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The UniSort Film also has up to three times higher belt speed in comparison to standard settings





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## Mechanical Belt Fasteners Reduce Downtimes

**Flexco makes maintenance and repair work easier with mechanical belt fastening systems and belt cleaning systems.**

Flexible Steel Lacing Company (FLEXCO), headquartered in Downers Grove, Illinois, is one of the leading international providers of mechanical belt fastening systems, vulcanizing presses, belt cleaners, belt positioners, impact beds and pulley lagging for light- and heavy-duty applications. With its mechanical belt fasteners, the specialist provides solutions that enable the operators of conveyor systems, such as those used in recycling plants, to considerably simplify their maintenance and repair work. Mechanical belt fasteners can be installed and removed more easily, faster and more independently of the weather than the common vulcanizing. This makes it possible to considerably reduce downtime and increase productivity.

Faults and machine failures on conveyor systems often lead to lengthy downtime. Production and delivery can come to a complete standstill. For many operators, this often involves high costs, especially considering the international competition. When conveyors are damaged, service personnel usually need to get them up and running again, although such per-



The mechanical fasteners from Flexco can be applied in recycling plants

sonnel are not always immediately available on site. So far, conveyors were generally vulcanized in order to repair them. This can often take between four to six hours. The ends of the belts have to be prepared and specially treated for this purpose. In some cases, it is no longer possible to splice older and worn belts. With mechanical belt fasteners, however, the belts can be spliced in less than an hour – depending on the belt width and thickness. The operator's maintenance personnel can install the fasteners easily and quickly. All that is required is a portable installation tool, a hammer, a power tool or a wrench. The specialists at Flexco have the right type of fastener for each application:

sand and gravel plants, foundries, the cement or wood industry, in recycling plants, or for underground mining. These fasteners can be used for belts between 3 and 30 mm thick and with a nominal belt tensile strength of up to 2,500 Newton/mm. To ensure the splice has the longest possible service life, the provider always chooses the material that suits best the specific environmental and operating conditions.

Depending on the application, Flexco offers two types of conveyor belt fastener systems: hinged or solid plate. Hinged fasteners are suitable for belts that need to be frequently changed, cleaned or renewed. They can easily be separated by releasing the hinge pin. Additionally, these fasteners can be used for belts with different thicknesses. Another advantage of hinged fasteners with pin is that belts can be prepared in the workshop prior to installation. Solid plate fasteners are used in installations with large pulleys or in cases where high wear resistance and fastener strength are required.

➔ [www.flexco.com](http://www.flexco.com)

Photo: Flexco Europe GmbH

## New: Mobile Eddy Current Separators

**Goudsmit Magnetic Systems, a part of the globally operating Goudsmit Magnetics Group, is specialized in design and manufacture of high quality metal separators for, amongst others, the recycling industry.**

Recently, the company has supplemented its current line of eccentric Eddy Current separators with a mobile Eddy Current line. "This installation is constructed on a trailer and proves its value in the field. The separator is equipped with the most recently developed, super-strong Eddy Current separator type NF1500/38HI and includes the largest internal magnet rotor on the market," the company underlined. Due to this, the magnetic force on the belt surface, the magnetic angle of influence and the magnetic field depth would be considerably raised. This results in improved separation yields not only of the fine fractions less than 5 millimeters but



Photo: Goudsmit Magnetics Systems

The mobile Eddy Current separators are available in machine widths from 600 to 2.000 millimeters



also of the medium-sized fractions (+5 - 50 fractions), in many cases up to 30 percent more. Goudsmit Magnetic Systems refer to this as the following generation of Eddy Current separators, appropriate for particles from 0.5 millimeter. Areas of application are domestic waste (shredded), combustible slags from domestic waste, WEEE-scrap, glass recycling, heavy

and light shredder residues (e.g. vehicle shredder residues), wood and/or chipboard recycling. Goudsmit Magnetic Systems forms part of the globally operating Goudsmit Magnetics Group, a family business incorporated in 1959 with branches in the Netherlands, France, Germany, the UK, and the Czech Republic. The range of metal separators produced by Goud-

smit varies greatly – from magnetic head rollers, electromagnetic and permanent over belt magnets, drum magnets, i-sens and high-gradient separators, to metal detectors and non-ferrous Eddy-Current separators, of which the latter is available in a mobile execution.

➔ [www.goudsmit-magnetics.nl](http://www.goudsmit-magnetics.nl)

## Modular Plastics-Recycling-Systems

**The Austrian Artec machinery GmbH, founded in 1998 by a group of technicians, has 250 recycling systems worldwide in production use at prominent recyclers.**

2013 Artec has started a fundamental re-engineering, targeting a comprehensive modularization of the machine technology. It now consists of six technology modules that are available in stepped sizes and performance levels and can be combined flexibly. Thus, the systems can be tailored to the specific input materials and the required discharge capacities. That is complemented by the extended possibilities for the processing of post-consumer materials with higher levels of contamination and moisture contents.

The modular system is the basis for a comprehensive model range of recycling plants with processing capacities in the range of 200 to 2,500 kilogram post-consumer plastic material per hour. The primary benefit of modularity is the potential to adapt a recycling plant during its operation life-cycle to change material qualities or to change conditions of operation through the exchange or the retrofit of specific machine modules. Examples are the material-specific adaptation of the cutter-compactor, the equipment of the extruder with up to four degassing zones or the material-related layout of the plasticizing screws. One of the most visible progresses is that the Artec-machine-system features a consistently ergonomic execution



Photo: Reinhard Bauer

The modularity of the system technology is implemented consistently for all plant components, which can be combined individually depending on the required plant capacity

of all system components. To name a few: the cutter-compactor features an enlarged maintenance aperture, or the redesigned, easy accessible condensate containers of the degassing system, and last but not least a new, movable control cabinet, which is height-adjustable, to adapt to the ergonomic requirements of the operator. Additionally, a remote operation panel is available, which allows the operator to supervise and control the start-up and production supervision not exclusively from the fixed panel-position but also ambulant, supervising of the cutter-compactor. That is complemented by the development of the new system control with easy to use features high on the agenda.

The presentation of the new plant modules is currently supplemented by – patent-pending – technological innovations.

In 2013 Artec concluded a partnership agreement with a leading manufacturer of extrusion systems, Krauss-Maffei Berstorff in Hanover. Object of the cooperation is the combination of Artec recycling and system engineering expertise with the compounding technology from KraussMaffei-Berstorff. The combination of both technologies and machine systems provides the options for a wide spectrum of high-performance compounds.

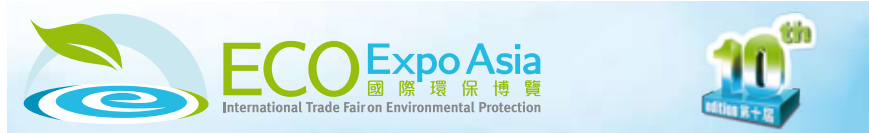
➔ [www.artec.at](http://www.artec.at)

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## Eco Expo Asia

October 28- 31, 2015, Hong Kong



Entering its 10th edition this year, Eco Expo Asia, the preeminent trading platform for green businesses in Asia, will once again gather industry experts and internationally renowned brands. The show is organized by Messe Frankfurt (HK) Ltd and the Hong Kong Trade Development Council, with co-organization by the Environment Bureau of the Government of the Hong Kong Special Administrative Region (HKSAR). The event also has the full support of Chinese mainland and international governments as well as influential industry associations. Last year, the show welcomed 308 exhibitors from 22 countries and regions and received 10,817 visitors from 89 countries and regions.

To reflect the new theme “Embracing a Green and Sustainable Future”, this year’s show will feature special themes including “Global Green Insights”, “Cleaner Production and Waste Management”, “Green Building and Energy Efficiency” as well as “Green Living”. Prominent brands and

speakers will share valuable insights on trending industry developments across Asia at concurrent events. Furthermore, the fair will host a strong line-up of exhibitors. A number of high-profile companies have already shown great interest in returning to the show.

Business opportunities for the green industry in Asia are bountiful while the region’s economy and population continue to grow. Driven by favorable government policies, the region’s annual revenue generated from building energy conservation-related technologies and services is expected to more than double from 2013 figures to 91.6 billion dollar by 2022. As for annual expenditure on solid waste management, it is expected to reach 50 billion dollar by 2025. With Chinese mainland gradually steering their focus towards green and sustainable construction, it is predicted that the demand for building energy conservation products and materials will exceed 6.5 billion dollar in just two years. In addition, the gov-

ernment’s ambition to curb building energy consumption by increasing the use of renewables and complying with the revised Green Building Evaluation Standard has also created immense business opportunities for the entire industry.

Moreover, in an attempt to minimize landfill saturation problems, the Hong Kong government targets to convert 3,000 tons of municipal solid waste (MSW) and 1,500 tons of sludge into energy by introducing state-of-the-art integrated waste management facilities by 2020. This is bound to boost the demand for waste management solutions, waste treatment technologies and waste-to-energy facilities. With a number of pressing environmental challenges worldwide, Eco Expo Asia 2015 aims to serve as a holistic platform that offers greener solutions, as well as enables companies, government officials and individuals to connect.

➔ [www.ecoexpoasia.com](http://www.ecoexpoasia.com)

## Electronics Recycling Asia WRF 2015

November 10-13, 2015, Singapore



The world’s reliance on electronic products and digital information continues to feed into the corresponding challenge of how best to recycle the electric- and battery-powered devices that touch all aspects of daily life.

The 2015 edition of Electronics Recycling Asia, the premier electronics recycling conference in the Asia-Pacific region, will again explore the considerable challenges and bountiful opportunities in this sector. Conference organizer ICM AG is hosting the 2015 Electronics Recycling Asia conference from November 10 – 13, 2015 at the Shangri-La Hotel Singapore.

As in prior events, the 2015 conference will feature speakers from Asia and around the world. They will address a wide spectrum of topics per-

taining how to recycle safely and profitably end-of-life computers, office equipment, consumer electronics, cell phones and other devices. Topics that are scheduled to be part of the program include:

- manufacturer take-back schemes and recycling efforts
- government initiatives such as the Circular Economy policy in China
- processing technology advances and trends
- precious metals recovery
- battery recycling
- environmental and safety compliance

Again in 2015, ICM AG will be organizing optional recycling plant tours and will offer access to an exhibit area that features leading technology and ser-

vice providers. The conference is also offering additional workshops before and after the main event. “Electronics Recycling Asia is the best conference for understanding the present policies and different recycling schemes for WEEE used in the EU, North America and Asian countries,” says Hsiao Kang Ma, who is professor at the National Taiwan University and a frequent speaker at Electronics Recycling Asia. Some 300 recyclers, OEM delegates and government policy makers are expected to attend the Electronics Recycling Asia 2015 conference. Last year’s event attracted delegates from more than 30 nations, including China, India, Japan, South Korea, Taiwan, Singapore the United States and nations throughout Europe.

➔ [www.icm.ch/wrf-2015](http://www.icm.ch/wrf-2015)



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## China International Recycled Fiber Conference

December 2-4, 2015, Shenzhen/China

The conference is organized by RISI, the leading information provider for the global forest products industry, and supported by UM Paper, China Resources Recycling Association, China Packaging Federation Paper Products Committee and Moore & Associates. Industry experts will share their insights regarding the recovered paper market and discuss emerging industry topics. Top management and recovered paper procurement managers from paper companies, foreign recovered paper suppliers, domestic collec-

tors, brand owners, financial institutes and consultants will be in attendance. This event is one of the most important forums in China focusing on the recovered paper market. Topics at this year's conference will include:

- Analysis & Outlook on Global Recovered Paper Trading Trends
- Analysis & Outlook on Asian Recovered Paper Market – where are the growing supply regions for imports of RCP, other than the established areas of Japan, US and Europe?

- China Domestic Recovered Paper Outlook & Policies Analysis – could the domestic recovered paper output meet the current and future market demand?
- “One Belt, One Road” – the New Economic Strategy and its Influence on Recovered Paper Industry
- The Development Trends of China Recovered Paper Market and its Influence on Other EU/US/Asian Countries

➔ <http://2015.rcpconference.com/en>

## 16th International Automobile Recycling Congress IARC 2016

March 16-18, 2016, Hotel Palace, Berlin/Germany

Delegates from industry, authorities and academia will discuss and present news and challenges of the manufacturing and end-of-life vehicle (ELV) business. The congress will bring together the various links in the ELV recycling chain such as car manufacturers, metal and plastic scrap traders, recyclers, shredder operators and policy-makers from around the world. Over 250 industry leaders from all over the world will be expected.

Topics of the conference: The role of different stakeholders in the ELV recycling chain, Best available re-

cycling technologies, How can car manufacturers and the dismantling industry close the recycling loop?, Life cycle and sustainability aspects of car recycling, Can illegal treatment and exports of ELVs be countered by deregistration and implementation of a Certificate of Destruction?, Next generation recycling processes and equipment, How to recycle electronics in cars?, Report on actions by global car manufacturers on how to facilitate achieving recycling goals, Update on new laws and regulations, Recycling capabilities of new and emerging technologies, Circu-

lar economy and resource efficiency and Carbon tech/tire recycling. The conference program includes also company spotlight and tech talks. A large exhibition area is integrated into the conference facilities, where vendors meet their clients. Cocktail receptions and a networking dinner create an excellent atmosphere to get in touch with business partners, colleagues and competitors. The conference is also organizing plant tours to leading recycling companies and various workshops.

➔ [www.icm.ch/iarc-2016](http://www.icm.ch/iarc-2016)

## 23rd European Tyre Recycling Conference

Photo: O. Kürth

March, 16-18, 2016, NH du Grand Sablon, Brussels

End of life tires remain an issue around the world, and the European Tyre Recycling Association (ETRA) is at the forefront of searching for new technologies to create better routes to recycling. The annual European Tyre Recycling Conference, organized by ETRA, offers an opportunity for researchers, financiers and entrepreneurs to come together to exchange views and information on some of the leading technologies in the sector. The theme of the conference for 2016 is the “Economics of Recycling” and how we can build solutions to end-

of-life tire issues that are both ecologically and economically beneficial to the environment and the business world.

Technologies discussed range from the promising area of pyrolysis, which could offer not only the recovery of steel and oil, but the production of a new raw material in recovered Carbon Black (rCB), through to projects that involve blending rubber materials or textiles with other polymers and processes to produce new materials and end products from road



surfacing, through insulation to automotive components. ETRA will release more information about the conference program as the details become available.

The association is also in the process of planning seminars that will bring the recycling sector and the civil engineering sector closer together, with two events planned for Venice and Brussels, details to be announced shortly. ➔ [www.etra-eu.org](http://www.etra-eu.org)





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# Save the Planet

April 5-7, 2016, Sofia/Bulgaria



The circular economy approach is replacing the "take, make, dispose" model across Europe. Following this trend, Save the Planet – Exhibition & Conference on Waste Management & Recycling for South-East Europe is a well-timed event which will present a wide range of technologies covering the whole process of waste management: treatment, transport, collection, disposal, recovery and recycling. Practice-oriented topics in the conference program will provoke discussions and the exchange of views. For international companies intending to enter the emerging

South-East European market, Save the Planet is a cost-efficient way to showcase their technologies and to collect qualified prospects with key industry players from the industrial, commercial and public sectors in the Region. The format "exhibition-conference" creates the best B2B environment for a beneficial performance. Waste management can be considered a win-win business ground in South-East Europe. On the brink of the updates on the action plan for a competitive circular economy, the Region is a crucial factor for achieving the European

targets in waste management. The countries are updating their legislation and policy measures, speeding up investments in new installations, rehabilitation of old dump sites and setting up of new regional landfills.

The 2015 edition at a glimpse: The exhibition featured a strong international presence – 71 percent of the participants were from abroad; for the 6th year in a row there was an Austrian Pavilion; Italian participations were realized for the first time.

➔ [www.viaexpo.com](http://www.viaexpo.com)

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