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GLOBAL RECYCLING

*The Magazine for
Business Opportunities
& International Markets*



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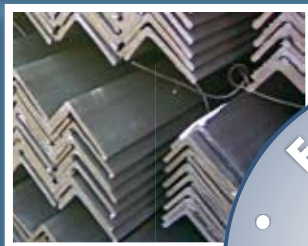
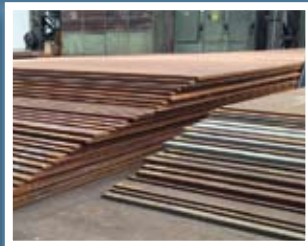
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"Brexit" and the Potential Implications

Since the vote of the UK citizens to leave the European Union, the 'Brexit' was an important issue in the British, European and international waste and resource management industry. You would almost think that the new government of the United Kingdom is absolutely determined to implement this decision. If they realize this goal, there will be a huge uncertainty in the future, according to experts.



David Newman, President of ISWA (International Solid Waste Association), thinks that Britain may become more isolated and return to the economic decline it had before joining the EU. Furthermore, he sees the risk that some of the remaining countries also want to leave the EU. But there is another aspect: In waste and environmental management, policies matter a lot. The industry is driven by regulations, government intervention, government mandated taxation, targets, fines, penalties, enforcement. "So when governments join together collectively and mandate the sort of environmental policies we have enjoyed as citizens over the last 40 years in Europe, it's a big deal for the well-being of hundreds of millions of people," David Newman is convinced. "But when a government leaves this collective bargaining and can decide not to implement such policies, it is a big deal negatively for that population. This may be the case of the UK."

The Bureau of International Recycling (BIR) expressed concern as well. The 'Brexit' will "undoubtedly have a deep impact on trade in the European Union and internationally," said Ranjit Baxi, BIR President, in June. The economic and political consequences of this vote could not be fully assessed at that moment. "We need to continue working together to promote free and fair trade globally while strengthening our diversity and reducing legislative and bureaucratic burdens on businesses".

The UK's decision may also have adverse effects on container shipping. According to Patrik Berglund, CEO of the Norwegian-based Xeneta (a market intelligence platform for containerized ocean freight), it will impact negatively on all parties involved in the segment. He said that anything impeding free trade raises costs, but not to the benefit of any of the parties involved in the container supply chain. For the last 40-plus years the UK had been part of a mega trading block capable of negotiating the most favorable trade treaties. "Now, all of a sudden, it's going to have to sign new treaties with everyone, without the bargaining power of the EU in its corner, and that will undoubtedly lead to higher duties, and therefore costs for shippers."

If the shipping costs would increase, this could have also a negative influence on the trade in recycling materials not just for the UK but also for other countries. But we are not there yet. The international trade in metal scrap and secondary raw materials is still in order. Latin America is considered as a region with growth opportunities for the sourcing and selling of recyclables. In Brazil, Latin America's largest country, recycling is on the rise (page 14). Chile is starting to build up a sustainable waste management (page 17), and in Mexico impulses come from the private sector (page 19). And there are business chances in Colombia (page 4). In other parts of the world recycling becomes more and more important as well: This applies to Australia, where the waste management is not yet an entity (page 20), and Israel (page 23), which is changing due to a "recycling revolution".

We hope you get a lot of new and useful information from reading this magazine.

Yours

Brigitte Weber (weber@msvgmbh.eu)



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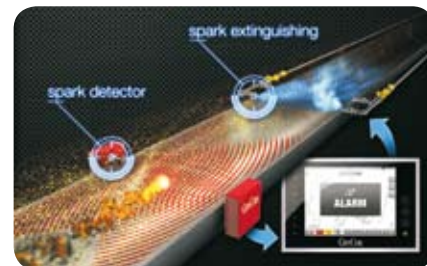
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Brazil: New Guidelines Highlight Trade and Investment

After the suspension of the Brazilian president Dilma Rousseff for an impeachment trial, the new interim government of the country intends to revive the stalled economy.

With this in mind, the politicians worked out a new foreign policy guideline, which underlines trade and investment. As is reported by the Montevideo-based online news agency MercoPress, new foreign minister Jose Serra, nominated by acting president Michel Temer in May this year, said that Brasília will now pursue economic interests over ideological goals. With this he signaled that Brazil would no longer be part of the loose left/leaning alliance that exists across several Latin American countries.

The interim government plans that Brazil's foreign policy and interests will also target economic powers such as China and India. According to reports of the news agencies, China has been the country's top trade partner since 2009 and one of its leading foreign investors.

Jose Serra also said the ministry will focus on bilateral trade treaties, reducing its dependence on the WTO (World Trade Organization). Boosting trade and diplomatic ties with long-time partners in the United States, the European Union and Japan, which in recent years took a back seat to regional integration and multilateral forums, and which do not run counter to Brazil's push to forge ties with new partners, the Foreign Minister was cited by MercoPress.

The exchange of goods between Mercosur ("Common Market of the South"

– an economic and political agreement among Latin American countries to promote the free movement of goods, services and people among member states) and the European Union will be the departure point for concluding a trade agreement that promotes greater reciprocal trade and investment, without harming the legitimate interests of various Brazilian productive sectors, the Chinese news agency Xinhua gave account. With the United States, Brazil plans to look for short-term solutions to remove non-tariff barriers and rules that hamper exchanges.

According to Serra, Brazil will also play "a pioneering role" in climate change policies, underlining the country's role as guardian of most of the Amazon rain forest and some of the world's biggest supplies of fresh water.

Objectives in the environmental area

It can be assumed that another issue will be the fight against the growing amounts of waste. The production of garbage in Brazilian households has increased by 29 percent between 2003 and 2014, while the population only grew by six percent during that period, "The Rio Times" reported in July last year the results of a study, conducted by ABRELPE, the Brazilian Association of Public Cleaning and Special Waste Companies. Per day, the average Brazilian creates 1.062 kilograms of garbage with 41 percent



Photo: lulu / fotolia.com

of the total waste (78.6 million tons) not being adequately treated.

A large part of this amount could possibly be converted into energy. "Brazil's renewed government funding, Congress-backed incentives and expanding power grid speed up the development of waste-to-energy projects in Brazil adding to 16 GW planned renewable energy capacity before 2018," Arc Media Global reported, announcing a waste-to-energy conference in Rio de Janeiro, which took place in July this year. An Investment Program in Electric Energy (PIEE), worth 53 billion US-Dollar, was launched to expand the country's power grid.

According to the provided information, the program will include projects to ensure Brazil can generate electricity at competitive prices at the international market, while increasing the role of clean and renewable energy sources in the grid.



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Colombia Plans Major Projects

Colombia's environmental sector has made strong progress, but recycling rarely occurs.

The lion's share of the Colombian waste lands on authorized disposal sites and waste management facilities. The size of the amount can only be estimated. "According to information of the supervisory authority Superintendencia de Servicios Públicos Domiciliarios (SSPD), Colombia's waste generation reached 26,528 tons per day in 2014", reported the Germany Trade and Invest (gtai), the business-development agency of the Federal Republic of Germany. However, this number does not include the illegally disposed waste. Furthermore, the data of 186 of the 1.102 municipalities were missing. The highest waste generation accrued in the capital district of Bogotá D.C. (6,308 tons/day), followed by the departments Antioquia (3,147 tons/day), Valle del Cauca (2,667 tons/day) and Atlántico (2,044 tons/day).

Thanks to two developments, 96 percent of wastes picked up by different companies are disposed of this way. On the one hand, since 2005 open dumping grounds and other unsuitable disposal sites (burial and incineration, disposal in waters) are forbidden (resolution 1390). The waste disposal is only permitted in authorized disposal sites and integrated waste plants. On the other hand, regional disposal sites were created. A disposal site counts as regional if it can be used by at least two municipalities. "The government subsidizes the facilities", gtai gave account. "The number of municipalities that store their waste on regional landfills increased from 573 per year in 2009 to 803 per year in 2014. This is seen as a success, as there exist less but instead

bigger and technologically more developed landfills."

However, even this disposal method has its disadvantages. Several disposal sites of big cities in Colombia will reach their capacity limits in the foreseeable future. According to estimates of the supervisory authority SSPD in 2015, 38 percent of authorized disposal sites have a lifespan up to three years and 26 percent have a lifespan between three and ten years. Experts are sure, that new projects in the waste sector will result from this. Hence, a solution for Bogotá's major disposal site Doña Juana, which will have reached its maximum lifespan in six years, is necessary in the near future. "The master plan of the public services of Bogotá UAESP therefore is a new disposal site to the west of Bogotá that should be in operation in 2021", gtai found out. It is planned that this facility processes 4,700 tons per day, about half of the prognosed amount of the city. A third landfill is planned for 2026 in the north of Bogotá with a capacity of 2.800 tons per day, which will process about one fifth of Bogotá's waste.

Low recycling quote

Waste separation is new to most Colombian households. Also, there is a no returnable-bottle-concept. Waste separation and recycling are therefore mainly done by informal waste selectors who utilize household waste before it is picked up by the refuse collection. This way, approximately seven percent of waste gets into recycling. According to experts, the 15 percent stated by the government are

unrealistic. All in all around 60 percent of household waste is organic, 20 percent not recyclable, and 20 percent (among others: plastic, glass, and metals) are suitable for recycling processes. This means that for household waste there is further upward potential. Organic wastes could also be used better with modern technological possibilities.

High demand of waste water treatment

The probably biggest project regarding environmental technology is the purge of the Bogotá river over a length of 350 kilometers, which is strongly contaminated through heavy metals and bacteria.

The waste water of the capital Bogotá, which is basically dumped into the river completely uncleaned, contributes up to 85 percent to the pollution.

Therefore, the city's only liquid waste processing system PTAR Salitre to date is said to be expanded and a second facility (PTAR Canoas, capacity 14 cubic meter per second) is said to be constructed for 1,3 billion US-Dollar. It is intended that the Empresa de Acueducto y Alcantarillado de Bogotá (EAAB) runs both facilities as secondary waste water treatment.

According to gtai, further contemporary projects regarding Columbia's water sector are, among other things, a local water supply systems in the city of Cúcuta (177 million US-Dollar) and a liquid waste processing system in the city of Pereira (119 million US-Dollar).



Latin America: A Market with Great Potential

At the recent World Recycling Convention in Berlin, the Bureau of International Recycling (BIR) staged another meeting of its Latin America Committee (LAC).

The gathering provided an opportunity to foster relationships between people already active in the Latin American market and those interested in developing trading links with a region which – according to LAC Chair Alejandro Jaramillo of Glorem SC in Mexico – was alive with “significant growth opportunities” for the sourcing and selling of recyclables.

As reported, in Latin America with 20 countries covering a total of 21 million square kilometers and with a population of close to 600 million people, there is great trading potential. For example, Alejandro Guerra of the Mexico-based automotive components provider Nemak underlined his company’s desire to “develop a sustainable supply chain” to support the steep growth in demand for its products. Given the limited availabil-

ity in Latin America, his company was always seeking additional scrap vendors in other parts of the world who were able to offer reliable supply and quality, he was quoted by BIR.

Personal contact is important

Contributors to the meeting also stressed the challenges of doing business in that part of the world. LAC founder Enrique Acosta of BMB Metals in the USA, who had been conducting business in Latin America for more than two decades, urged container exporters from the region to dedicate human resources to the direct managerial control of shipments so as to ensure, for example, the best freight deals and the proper processing of documentation. In Latin America, he said, it was necessary to be “more proactive” with, for example, shipping

lines in order to “keep the loop moving”.

In addition, Mr Acosta and Mr Guerra agreed on the need for companies to “do their homework” on potential business partners. “I don’t buy from unknown sources,” the former was cited.

According to the information, even a country the size of Brazil had a relatively low number of exporters – often because making initial contacts was “really hard”, explained Sébastien Hidalgo of the Spain-based Reinox Metal. For example, many of its relatively large companies did not have their own websites and detailed information on them was often difficult to secure. Mr Hidalgo hoped and believed the LAC would be instrumental to bridge this gap.

Owners of Polymetrix Plan to Sell Shares to an Industrial Partner

The aim is to combine the company with a strategic buyer who can contribute significant synergies and support Polymetrix’s development into the next growth phase, expanding its technology and service portfolio and securing sustainable business advantages.

According to the provided information, Polymetrix is ranked among the global market leaders in the segment of technology and engineering services for the design, supply and installation of polymer up-grading and reprocessing plants for the plastic industry. It is specialized in proprietary solid state processing and recycling technologies for polymers, material handling systems and proprietary process and equipment design as well as the full range of lean engineering, procurement and construction management (EPCM) services. In 2016, the company expects to achieve a turnover of nearly 50 million Euro at sustainable double digit EBITDA margins.

Following the spin-off from the Swiss-based Bühler Group, and rebranding as Polymetrix AG in 2015, the company is positioned for growth in connection with the packaging and specialty plastics market. It will also focus on supplying technologies and integrated plants for recycling of postconsumer plastics. As reported, the Shareholders of Polymetrix, the Swiss-based financial investor Cross Equity and Bühler Holding AG, have jointly decided to sell all shares in the company to an international industrial partner. They are seeking a new owner that:

- Assures seamless continuity in all business operations with a focus on timely and successful project completion and service reliability for clients.
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- Acts as an attractive and responsible employer for the international Polymetrix team.

The Shareholders are dedicated to sell Polymetrix to an industrial owner with strong financial background and a leading international position in the relevant market segments. Financial investors are explicitly not invited to bid. For all inquiries, please contact: Friedrich Bieselt, Lincoln International AG, Phone: +49 (69) 9710 5426, Email: f.bieselt@lincolninternational.de

Vehicle Airbags: Shredder Operators Have to Be Careful

During the BIR World Recycling Convention & Exhibition in Berlin, organized by the Bureau of International Recycling, the Shredder Committee recommended to improve work safety in shredder plants.

According to board member George Adams Jr. of the US-based SA Recycling, vehicle airbags constituted “a big issue for the shredder industry to worry about” and merited further scrutiny from the safety perspective. “All of us need to be really careful when handling airbags.” He made these comments at the Committee’s meeting on May 30 after having described an incident at his company’s Phoenix facility when an airbag exploded and a metal fragment caused injuries to an employee, including broken ribs and a punctured lung. Employees on the picking belts had since been issued with protective aprons and face shields, he said.

Photo: pixabay



Smart Shredding Systems and Shredder BREF

On another safety-related matter, George Adams urged all operators to protect personnel against the threat of flying objects by installing a roof on their shredder plants. Other simpler and less costly options to a roof or full enclosure could include a chainlink barrier. “It doesn’t have to be high end but it could stop someone from getting killed,” he told.

At the same meeting, Scott Newell III of Newell Recycling Equipment in the USA outlined how Smart Shredding Systems could bring major performance benefits for operators, such as through “minimizing the time periods when the shredder could be shredding but is not” and “minimizing the

effect of operator error”. A computer ran a shredding plant at a high level of efficiency but also “records data and measures as many of the metrics as possible”, he said, before adding: “What gets measured, gets improved.”

Manuel Burnand, who is General Manager of French FEDEREC (Fédération des entreprises du recyclage) and also Chairman of the BIR Shredder Committee, provided the audience with an update on the development of an EU best available techniques reference document (BREF) for shredders. The position of the European Recycling Industries’ Confederation (EuRIC) was that emission levels in the current draft of the document did not appear to be based on a representative sample of plants and that the high monitoring frequencies proposed “would significantly increase operational costs without any added environmental benefit”. The next draft of the Shredder BREF could emerge by the end of 2016, according to Manuel Burnand.

Solvay Realizes Airbag Recycling

Recycling used car airbags is for sure a business opportunity. In Europe alone, there is up to 10,000 tons of post-industrial airbag waste per year.

Worldwide, more than 125,000 tons of end-of-life waste ends up being land filled. In the view of the fact that over 70 percent of car airbags are made of silicon-coated polyamide in Europe, the Belgium-based chemical group Solvay has developed a procedure to recycle technical textile waste from post-industrial sources. As reported, the process delivers a PA6.6 premium recycle with no significant loss in material properties, including stable viscosity and robust mechanical performance.

The international group intends to realize a sustainable solution with its Move4earth project, which is one of several Solvay initiatives supported by the European Commission as

Photo: Solvay



Project site in Gorzów, Poland

part of its Life+ program. The project is focused on designing, implementing and validating an innovative recycling process designed to revalue technical textile waste, initially from airbags, into high-quality polyamide 6.6 (PA6.6) grades with reduced environmental impacts to complement Solvay Engineering Plastics’ Technyl

Force portfolio of engineering polymers. According to Solvay, the validation of the technology has been completed. In 2016, an industrial-scale facility will become operational at the project site in Gorzów, Poland.

Next steps in Move4earth project are to bring the new facility fully on-stream to ensure a continuous target throughput under stable process conditions, and to validate value-creating options for the silicone coating by-product separated from the airbag fabrics, which can amount to 15 percent of the material flow. The company likes to emphasize that the new recycle grades will be manufactured to the same high standards of quality as all Technyl resins.

Malaysia: Exports from Automotive Recycling Industry Will Grow

According to Malaysian Deputy International Trade and Industry Minister Datuk Ahmad Maslan, the country's export of components from the automotive recycling industry is expected to reach more than 511 million US-Dollar (or two billion Malaysian Ringgit) in 2020 through the involvement of 200 remanufacturing companies.

The export of such products to Africa, Pakistan and the Middle East at present is expected to touch 500 million Malaysian Ringgit (or nearly 128 million US-Dollar) for this year, Datuk Ahmad Maslan told reporters after officiating the 9th International Roundtable Conference on Automotive Recycling 2016 in April.

In the opinion of the minister, the target for the year 2020 "can be achieved, despite us having just started the industry through the National Automotive Policy 2014 (NAP 2014). We want to make the '4R2S', namely reuse, repair, recycle, remanufacture – spare parts and services, as the cul-

ture within the national automotive industry, as it is profitable and evident in a number of developed countries, including Japan," he added.

Elaborating further, Ahmad said the development of the automotive recycling industry would be closely monitored via the NAP 2014 to ensure that the quality of recycled components meets the set standards, with manufacturers giving a guarantee for what is sold.

At present, four remanufacturing companies and 5,000 recyclers were operating in the country, and the number is expected to increase within

four years, the minister gave account. He sees the national automotive recycling industry in line with the government's efforts at ensuring that implementation of green technology in the country can be expanded.

As reported, Ahmad Maslan said Bumiputera*) entrepreneurs were encouraged to participate in the industry and help to improve the national income as well as to meet the export target for it.

*) According to Wikipedia, Bumiputera or Bumiputra is a Malaysian term to describe the Malay race and other indigenous peoples of Southeast Asia, and used particularly in Malaysia.

Global Recycled Plastic and Plastic Waste to Oil Market

According to a new report, published by Transparency Market Research (TMR), the global recycled plastic and plastic waste to oil market is primarily driven by the rising need to find sustainable unconventional sources of oil.

"Since plastics are derived from petroleum, they can be reconstituted to obtain oil. This process has become vital in today's environmental scenario, with the rising volume of plastic waste becoming a major ecological concern in several regions around the world," TMR says. "Converting this and other recycled plastic into oil would solve the ecological problems caused by it and assuage the rising problem of scarcity of oil."

As reported, the growing acknowledgment of the benefits of converting recycled plastic and plastic waste to oil has helped the global market for the same massively. The market was valued at 542.8 million US-Dollar in 2014, and now is expected to be valued at more than 1.9 billion US-Dollar by 2024, rising at a sturdy 12.6 percent CAGR (compound annual growth rate) from 2016 to 2024. Geographically, Europe is said to be

the largest market. "Asia Pacific and North America followed Europe in the global recycled plastic and plastic waste to oil market in 2015 and are expected to remain major regional markets in the coming years," TMR informed.

Complete report with table of contents at ➔ www.transparencymarketresearch.com/recycled-plastics-plastic-waste-oil-market.html

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New Logistics Model Developed

The German-based Deutsche Post DHL Group has collaborated with Cranfield University and the Ellen MacArthur Foundation's Circular Economy 100 initiative to develop a new logistics model to support efforts to expand the circular economy.

In a new report published in April – “Waste not, want not. Capturing the value of the circular economy through reverse logistics” – the partners have introduced the Reverse Logistics Maturity Model, a practical tool that helps organizations to map out and continuously improve reverse logistics processes for their products.

The circular economy aims to reduce the consumption of raw materials and energy, and to ensure more sustainable, regenerative production and consumption patterns through the circular flow of goods. Reverse logistics plays a critical role in this sector

by enabling the return of products and components for refurbishment, recycling, redistribution, or extraction and re-use of their useful materials.

The Reverse Logistics Maturity Model was developed based on company interviews, exploratory workshops, as well as applied logistics and academic expertise. “As a first step, the model identifies three main ‘archetypes’ – base scenarios and requirements for reverse logistics set-up, driven by different product and business model attributes,” Deutsche Post DHL gave account. “It then provides a template for mapping out reverse logistics ac-

tivities based on their place in the circular economy value chain and their decision dimension within an organization. After this, it looks at ‘maturity’ – the level of sophistication of project management that is being applied to the reverse logistics activities. Once these steps have been undertaken, organizations can identify how to reach a level of continuous improvement in their supply chain and move further on the path to a circular economy.”

➔ www.dpdhl.com/circulareconomy
 ➔ www.cranfield.ac.uk
 ➔ www.ellenmacarthurfoundation.org/ce100

New Electronic Waste Processing Plant for Qatar

By the end of this year, modern technique will ensure that worn out electric and electronic devices will be recycled without harming the environment in the emirate of Qatar.

In April, the German-based Sicon GmbH received an order for the delivery of a two-staged processing plant of the model “SICON-e” for electric and electronic waste from the emirate. An option for further processing plants has already been completed.

With its system concept, the internationally active company developed a modular system for the processing of electric and electronic waste, which stands out due to its flexibility and productivity. The different materials should especially be taken into account.

Small domestic appliances up to complete three-phase-motors can be chopped up and solubilized for further work steps with the vertical shredder EcoShred Vertec. Productive sieve and metal separators perfect the increase in value. In the second step, the non-ferrous metals are carefully compressed by the EcoShred Sphere and prepared for further use. The “Sicon-e” concept is expanded through multi-sensor-sorting, by the “Varisort WEEE”, for example to separate PCBs



and stainless-steel-compounds from the product flow. For the detachment of synthetic material from the electric and electronic waste, Sicon offers the wet method for separating: Polyfloat.

Waste management and recycling

According to Hukoomi, Qatar's e-Government portal, the country is developing strategies to dramatically curb waste production. The proposals in the National Development Strategy 2011-2016 will set the country on a course to extremely reduce the amount of waste going to landfills by greatly increasing recycling and improve waste management efforts. As reported by the government and

the media, Qatar produces more than 7,000 tons of solid waste every day. Households are responsible for about 30 percent of that waste, while commerce, industry, and construction account for the rest. The vast majority of that non-domestic waste goes directly to the landfill.

The country's waste strategy focuses on several primary goals: recycling and waste reduction as well as convert waste to energy. The target is to reduce the amount going to landfills from 91 percent to 64 percent. It is also planned to improve the amount of household waste being recycled. A central component in Qatar's waste management strategy is an integrated domestic solid waste management center which is responsible to handling the conversion of waste to energy.

➔ <http://sicontechnology.com/en/>
 ➔ <http://portal.www.gov.qa/wps/portal/topics/Environment+and+Natural+Resources/Waste+Management+and+Recycling>

USA: Austin-based Company to Build a Magnet Recycling Plant

Urban Mining Company – developers of the proprietary Magnet-to-Magnet recycling process – have completed a 25 million US-Dollar “Series A financing” for the construction and operation of a magnet recycling and manufacturing facility at its headquarters in Austin, Texas.

“The first step towards commercializing our technology is capital intensive”, commented Scott Dunn, CEO of the privately held Urban Mining Company, “and our Series A financing reflects the confidence of our team and our investors in Urban Mining’s product and business model.” The company’s patented Magnet-to-Magnet recycling approach is meant to take scrap rare earth magnets and reprocesses them into new, high-performance magnets.

As reported, recovered waste NdFeB is directly inserted into the recycling process. The recycling method “does not require that material be chemically reduced/converted to pure el-

ements, and exhibits maximum efficiency by eliminating energy and chemical intensive processes traditionally used including refining, alloying, and strip casting”, the company assured.

Clean Urban Mining process

The Urban Mining process is said to be clean – zero chemical inputs and wastewater. “The magnetic properties of our magnets are designed to customer specifications,” said Miha Zakotnik, COO of Urban Mining. “The final shape of our magnets is not dependent on the feedstock that we use, and our patented Grain-Boundary Engineering process gives us complete

control over the final composition, grade and magnetic performance of our products.”

The company will use the funding to build and operate a manufacturing facility, capable of producing 250 tons of sintered NdFeB rare earth magnets per year within the next two years. Capacity will be expanded to 1,000 tons per year in a second phase of operation. Urban Mining Company has planned early delivery of its laboratory and prototyping capabilities including state-of-the-art equipment for materials processing and advanced property and microstructure analysis. The laboratory should be operational by the end of summer 2016.

Australia: Solar Panel Recycling is an Emerging Business

The Australian solar panel recycling company Reclaim PV is looking to scale up production as the number of broken and end of life systems mounts.

As reported by Australian media, the Adelaide-based company has teamed up with major solar panel manufacturers who distribute in Australia and is refining its processes as well as lobbying for panels to be included in recycling regulations.

Reclaim PV Recycling Pty Ltd was founded in 2014 by the directors of S.M.A.R.T. Pty Ltd (Solar Maintenance and Renewable Technologies), who recognized the waste management challenge that the PV industry is facing. Working closely with a team at Flinders University in South Australia to develop the best practice for recycling PV modules, Reclaim has developed a scalable model in accordance with projections for end of life modules. “A defined course of action is now under way to provide dedicated solutions for PV recycling based in Australia,” as it is stated on the homepage.

A current report predicts solar panel waste could total 78 million tons

globally by 2050. According to the provided information, the Australian Government’s National Television and Computer Recycling Scheme was established in 2011 to provide householders and small businesses with access to industry-funded collection and recycling services for televisions

and computers. The regulations require importers and manufacturers of these goods to fund and implement recycling of their products.

Including solar panels in the regulations would be a great benefit, Reclaim PV Recycling emphasized.



Photo: Lobbe / pixabay

EBRD Acquires Stake in Şişecam's Turkish Glass Recycling Arm

The European Bank for Reconstruction and Development (EBRD) is stepping up its cooperation with Turkish glass producer Şişecam in a move to help Turkey increase its glass recycling rate and boost its circular economy. The Bank is acquiring a minority stake in Şişecam Çevre Sistemleri A.Ş., a newly established recycling arm of Şişecam.

EBRD is extending a 40 million Euro loan to finance glass recycling equipment and energy efficiency investments. The Bank has also mobilized an additional 2 million Euro loan from the Clean Technology Fund, a funding window of the Climate Investment Funds, as well as EU grants. The investment will support Şişecam's efforts to boost glass recycling in Turkey and contribute to a more competitive, resource-efficient circular economy, which is part of the Bank's overall strategy to help the countries where it invests and to tackle global challenges such as climate change.

With over 21,000 employees, production in 13 countries, and sales in as many as 150 countries, Şişecam Group is a global actor in business fields including all main areas of glass such as flat glass, glassware, glass packaging and glass fibre, as well as soda and chrome compounds. Şişecam has been operating for more than 80 years and is the third largest glassware, fourth largest glass packaging and fifth largest flat glass manufacturer in the world in terms of production capacity.

An integrating concept

Professor Ahmet Kirman, Vice Chairman and CEO of Şişecam said: "Şişecam is a group fully aware of its global responsibility as part of the international ecosystem and sees the issue of sustainability not only in terms of financial continuity, but as a concept that integrates environment, natural resources, raw materials, consumption, customers, employees and values. We have been working on one of the most comprehensive sustainability and social responsibility projects in Turkey since 2011 to support the transition into a 'recycling society'."

"With EBRD-supported projects, activities like raising public awareness of separating glass waste at source, improving waste collection infra-



Şişecam is embarking on an ambitious 20 million Euro glass recycling operation backed by the EBRD

structure, modernising and increasing the capacity of recycling facilities have been undertaken and the recycling rate has been increased from 8 percent to 19 percent. The new joint initiative will contribute to the industrialization process of the glass recycling sector in Turkey and triple its production capacity, as well as providing know-how. I believe this unique partnership between Şişecam and the EBRD, our long-standing partner, will play a crucial role in the establishment of a sustainable glass recycling system in Turkey."

With state-of-the-art equipment

Frederic Lucenet, EBRD Director for Manufacturing and Services, judged: "The recycling rate in Turkey remains very low compared to more advanced western European economies. Utilizing cullet glass waste is an economically driven decision. It considerably brings down glass production costs and has huge benefits for the environment in terms of energy and greenhouse gas savings."

This new joint initiative represents an innovative response to the challenges in the Turkish glass recycling market. Şişecam Çevre Sistemleri will provide its cullet suppliers with state-of-the-art equipment which they would not be able to invest in otherwise. This equipment will increase suppliers' collection and treatment capacities as well as the quality of the cullet, strengthening the entire glass recycling supply chain.

Previously, the EBRD has helped Şişecam to increase its glass collection rates. Under a pilot funded by the government of Spain in 2013, Şişecam introduced thousands of bottle banks in several Turkish cities, including Istanbul, Ankara, Antalya, Edirne, Bursa, Konya, Aydın, Adana and Diyarbakir and launched an awareness-raising campaign to encourage households to recycle glass. The success of this initiative paved the way for a 30 million Euro loan from the EBRD which financed the acquisition of new bottle banks, collection vehicles and glass bottle crushers, among other investments. As a result, the amount of glass collected increased considerably and Şişecam is now committed to further increasing the use of cullet instead of mined raw material to produce glass.

Şişecam is a long-standing EBRD partner and the cooperation dates back to 1997. Since then the EBRD has financed Şişecam's operations in Bulgaria, Russia, Ukraine and later in Turkey with over 385 million Euro. Today, the Bank is a 15 percent shareholder in Paşabahçe, Şişecam's internationally renowned glass tableware unit.

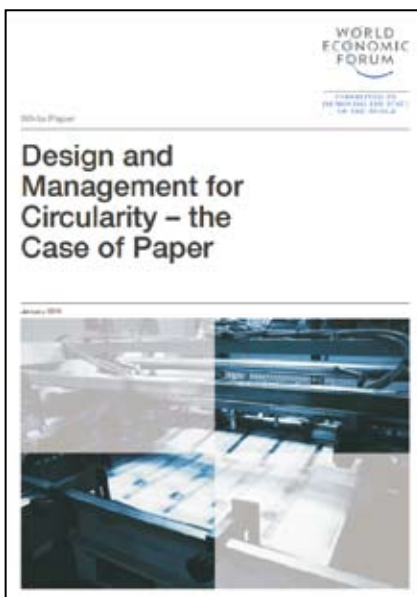
To date, EBRD has invested over 7 billion Euro in the country through more than 180 projects in infrastructure, energy, agribusiness, industry and finance. It has also mobilized about 17 billion Euro for these ventures from other sources of financing. In 2015, Turkey was the top destination for financing, with 1.9 billion Euro invested that year alone.

Circular Economy for Paper: Better Design and Management Guidelines

There is a new publication on paper recycling, compiled in collaboration with the European paper industry.

The Confederation of European Paper Industries (CEPI) was invited to collaborate with the World Economic Forum, the Ellen MacArthur Foundation and the McKinsey Center for Business and Environment on Circular Economy to produce a white paper with guidelines on design and management for circularity. "The new publication provides essential guidance to all actors in the supply chain through simple eco-design rules for paper products, without limiting innovation and the introduction of new techniques," the organization regrouping the European pulp and paper industry reported.

Although highly recyclable, paper is usually converted by industries that add chemicals to it through printing inks and other auxiliary materials. This can lead to problems in subsequent circular chains, as these chemicals cannot easily be removed from the



paper before re-entering the mill. Furthermore, the already highly-optimized recycling process cannot follow the speed of the evolution of inks and toners.

The publication summarizes the key choices to be made by direct (printers, papermakers, collectors) and indirect (such as local authorities, ink producers, equipment manufacturers) stakeholders. More specifically, it identifies the choices that can influence businesses ordering a fiber-based product – printed paper, packaging or other.

The publication is a product of the three pilots under Project Main-Stream, the cooperation between the World Economic Forum, the Ellen MacArthur Foundation and the McKinsey Center for Business and Environment, seeking to remove bottlenecks in the large-scale transitioning to the circular economy.

You can view the publication at ➡ <http://bit.ly/1T7vLVb> and download it at ➡ <http://bit.ly/1QqTqdt>.

USA: Glass Recycling Coalition Launched

The Glass Recycling Coalition (GRC) is a group of organizations that will collaborate on efforts to make glass recycling work in the country.

The Glass Packaging Institute (GPI), along with beverage companies including Diageo and New Belgium Brewing, and the glass processing and recycling industry, are joining forces to create the U.S. Glass Recycling Coalition. Its primary goal is to help build a foundation to make glass recycling a successful industry, and an efficient, high-quality and convenient service consumers want and expect. "An extraordinary aspect of this coalition is the fact that it involves membership and collaboration across the entire glass supply chain," a press release in May said. "For the first time ever, organizations, including consumer brands, glass manufacturers, waste haulers, recycling processors, and trade organizations involved within many of these industries, will work toward this common goal."

Glass containers for food and beverages are 100 percent recyclable, but today the U.S. recycling system faces a perfect storm of economic forces that are making it harder to recycle glass. "Glass recycling can pose unique challenges on the recycling infrastructure if not planned for and executed correctly," the information said. "In addition, a few municipalities have decided to remove glass from their curbside recycling programs and send it to disposal instead."

Coalition members intend to work on bringing best practices to the U.S. glass recycling supply chain to increase the availability of "cullet", the industry term for furnace-ready recycled glass that can become new bottles and jars, as well as fiber-glass. For companies like Diageo and New Belgium Brewing, glass is not being recycled at a rate high enough to meet the beverage makers' needs for recycled glass to make new bottles.



➡ www.gpi.org

Photo: Nik / fotolia.com

Latest Version of National Inventory of Hazardous Wastes Released

In the People's Republic of China, the 2016 National Inventory of Hazardous Wastes was enforced as of August 1, 2016.

"Since the original version was prepared in 2008, the National Inventory of Hazardous Wastes has played an essential role in supporting the hazardous waste management in China," the

Chinese Ministry of Environmental Protection (MEP) reported. "However, with the progressive management of hazardous wastes in China, as well as the enforcement of the Interpretations of the Supreme Court and Supreme Procuratorate on Some Issues concerning the Application of Laws on Settling Environmental Pollution Criminal Cases, the 2008 version no

longer met the requirements for hazardous waste management in China and was in dire need of updating." In this version, the hazardous wastes are reclassified into 479 varieties under 46 categories (including 362 varieties from the previous version and 117 new additions). A List of Exempted Hazardous Wastes is added to raise the management efficiency.

Arrow Value Recovery Opens Sales Office in China

In May this year U.S.-based Arrow Electronics, Inc. opened a new Arrow Value Recovery sales office in Shenzhen, China. According to the company, it will support the full value recovery portfolio, including all IT asset disposition and reverse logistics services, and will work closely with Arrow's new facility in Singapore. The facility in Singapore "provides secure and environmentally-responsible logistics, asset tracking and reporting, data sanitization, testing and screening, recycling, remarketing,

service parts management, and product returns management services for a wide range of electronic equipment," the company assured. "The facility has been designed in compliance with the high standards of the Arrow global compliance program as well as local, national, and international standards for data security and environmental regulations, including the Responsible Recycling Practices (R2), OHSAS 18001, and International Standards Organization 9001 and 14001."

Arrow Electronics is a global provider of products, services, and solutions to industrial and commercial users of electronic components and enterprise computing solutions. The company serves as a supply channel partner for more than 100,000 original equipment manufacturers, contract manufacturers, and commercial customers through a global network of more than 460 locations in 56 countries.

➔ www.arrow.com

Veolia North America Acquires Sulfur Product Assets

Veolia North America intends to take over Chemours' Sulfur Products division, a specialist in the recovery of sulfuric acid and gases of the refining process, which are regenerated in clean acid and steam used in wide range of industrial activities. The division will be part of Veolia North America's Industrial Business. Sulfuric acid is one of the most important compounds made by the chemical

industry and is used to manufacture hundreds of compounds needed by almost every industry. Natural gas and oil contain sulfur compounds, both organic and hydrogen sulfide, which must be removed before they are used as fuels or chemical feedstock. Through the takeover of Chemours' Sulfur Products assets for 325 million US-Dollar, Veolia complements its asset base in the regeneration business,

and thus the circular economy. The company will also be able to rely on the inherent technical expertise relating to sulfur through Chemours' Acid Technology Center, which boasts 18 engineers who exclusively support the Sulfur Products division. Parties anticipate closing the transaction within the second half of 2016, subject to customary closing conditions and regulatory approvals.

USA: New Recycling Exhibit in Las Vegas

In June this year, Republic Services Inc. and the Mirage Hotel & Casino, have unveiled a recycling exhibit inside the Sustainability Discovery Center at Siegfried & Roy's Secret Garden and Dolphin Habitat. According to the information, the exhibit is part of an ongoing commitment made by Republic Services, a leading company in U.S. recycling and non-hazardous solid waste, and MGM Resorts International to increase awareness of sustainability throughout Southern Nevada and

among roughly 42 million tourists who visit annually. As reported, the Sustainability Discovery Center features diverse interactive displays that engage and educate visitors on consequential topics ranging from wildlife preservation to water conservation, as well as addressing the increasingly serious effects of ocean pollution. Republic's new recycling exhibit is said to inform visitors of all ages about the recycling process, and provides practical tips on ways to become a better

recycler in everyday life. In December 2015, Republic Services opened its largest and smartest residential recycling facility in North America, which is based in the City of North Las Vegas. It is capable of processing two million pounds of recyclable material per day, or 70 tons per hour. The facility is also home to an interactive Learning Center that offers visitors a "360-degree view of the recycling process in an observation deck that sits above live operations".

USA: Investor Buys Controlling Interest of Recycler and Furniture Maker

The U.S.-based Woodbridge International, a global mergers and acquisitions firm, has announced the sale of a controlling interest in its client, Casual Living Unlimited, LLC and its affiliate Trigon Plastics, to Argosy Private Equity.

Founded in 2004, Casual Living is headquartered in New Holland, Pennsylvania and is a manufacturer of

high-end 100 percent recycled poly-resin outdoor furniture and accessories. The company markets its collection of products throughout the U.S. and in parts of Europe under the brand name "Breezesta".

Trigon Plastics, which is located in Newmanstown, Pennsylvania, recycles post-consumer plastics and manufactures the poly-lumber used in the

production of Casual Living furniture. Jim Allgyer, the founder of both businesses, will remain with the company and serve as a board member post-closing.

According to the information, Argosy Private Equity, part of Argosy Capital, invests in lower-middle market U.S. companies in a variety of industries.

The Resource Circulation Equipment Market

An upturn in end user markets since 2010 has enabled the global resource circulation equipment market to witness a steady rise in demand, states Transparency Market Research in its report. Titled "Resource Circulation Equipment Market – Global Industry Analysis, Size, Share, Growth, Trends, and Forecast 2013 – 2019", the analysis indicates that developing at a steady

CAGR (compound annual growth rate) of 7.50 percent from 2013, the market is estimated to grow to 17.6 billion US-Dollar by 2019.

According to Transparency Market Research, significant growth in construction and industrial waste, government incentives and funding, shrinking available area for landfill,

upcoming recycling facilities, and escalating need for solutions to reduce the industrial carbon footprint have all contributed towards the development of the resource circulation equipment market.

More information at www.transparencymarketresearch.com/resource-circulation-equipment.html



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Investment Opportunities in Brazil



Photo: pixabay

Recycling is on the rise in the Federative Republic of Brazil, Latin America's largest country.

According to a new study by ABRELPE (the Brazilian Association of Public Cleaning and Special Waste Companies), recycling has increased by around 7.2 percentage points. "In 2010, only 57.6 percent of the towns had some recycling or separate collection initiatives", The Rio Times reported in July 2015. "In 2014, this number was already at 64.8 percent." One of the main findings of this survey was the increase in waste production. Between 2003 and 2014 the waste generation has grown by 29 percent and amounted to 78.6 million tons, while the number of inhabitants grew by six percent during this period to an estimated population of about 203.6 million (2015), up from the 2008 population of 190 million. Every Brazilian inhabitant created 1.062 kilogram of waste per day, the survey revealed.

As ABRELPE found out, in 2014, more than 41 percent of solid waste generated in the country were deposited in dumpsites and unregulated landfills. As reported, in 2013 the percentage of not adequately treated waste had been at 41.7 percent. "This means that more than 78 million Brazilians, or 38.5 percent of the country's population, don't have access to adequate waste treatment services and can dump their waste in facilities deemed safe," riotimesonline.com underlined. "Furthermore, more than twenty million people don't have a regular garbage collection nearby."

Waste Management in Brazil

The last wide research in Brazil on the management of waste was made in 2008 by the Brazilian Institute of Geography and Statistics (IBGE), the Brazilian online portal "The Brazil Business" gave account. According to the survey of that year, 99.96 percent of the Brazilian municipalities (about 5,570), somehow, had a waste management plan.

More than half disposed their junk in open areas without proper precautions; these areas are known as *lixões*. According to the information, also, less than 12 percent of the cities in Brazil had establishments that sorted recyclable litter from organic waste. And only 0.61 percent of all Brazilian municipalities had a place to implement composting of organic waste. In 2010, the Federative Republic of Brazil launched the National Solid Waste Policy (law 12,305). "The division of responsibilities between consumers, sellers, distributors, importers, manufacturers, and government is one of the main achievements," the Brazilian online portal reported.

The portal listed other important points:

- Reverse logistics, one of the most controversial. All sectors believe it is crucial to collect used products and materials that can be repurposed. The problem is that, they have not come to an agreement on who should pay the bill.
- Selective collection of litter and materials, or recycling, which is growing, but needs to be widely expanded.
- Information System about solid waste management, known as SINIR, serves as a database for this subject.
- Other concrete goals to make the Brazilian management of solid waste better.

Since 2011, a commission formed by the federal government has the objective to implement a policy for the return of used packaging to industries and companies, in order to reutilize them in new manufacturing processes. The commission is composed of the Ministries of Environment, Health, Agriculture, and Industry. Other subgroups are responsible for different chains in the reverse logistics process, divided into five main categories (medications; lubricants and its residuals; lamps; electronics; packaging

Tough Economic Situation

The Brazilian economy was hit by a recession in 2015. The prediction for 2015 and 2016 turned out badly and according to the opinion of experts no specific growth impulses should be expected for 2017 as well. However, the economic slowdown affects almost all branches. At the beginning of this year, it was said that machine engineering and automotive industry were the ones who were worst affected. It strongly depends on further political development whether a quick recovery of the overall economy is possible. The area of environment, waste and water economy is still neglected according to expert opinion. Even if the dryness in the south west has indeed enabled some "ad hoc projects" regarding water economy, many projects concerning waste water treatment are stagnating. Only companies who are taking a long view, depending on the exchange rate or who are exporting much, are investing in the industry. The most of it is going to be postponed.

in general). "Each group is responsible for creating goals and action plans in order to establish an efficient program," informed "The Brazilian Business". Four years after the publication of Brazilian law 12,305, "we can observe a slow movement," stated Christiane Pereira, CReED do Brasil – Center for Research, Education and Demonstration in Waste management, Jundial (Brazil), in the conference transcript of the "Waste-to-Resources 2015" congress in Hannover (Germany). "Slow does not mean small when we consider the giant waste market that Brazil represents, expecting for 2016 around 15 billion Euro turn over in waste management where 80 percent is done by private sector," she wrote.

The Brazilian Market

In the wake of Brazil's National Solid Waste Policy, investment in solid waste treatment technologies and waste-to-energy projects in sanitary and hazardous landfills are expanding significantly, the U.S.-based International Trade Administration (ITA) stated in its special interest report last year. According to the information, the Brazilian government planned to invest 870 million US-Dollar in treatment projects, replacement of landfills, introduction of selective waste collection services, and financing cooperatives of waste collectors. Municipal waste management services, in 2015, were valued at ten billion US-Dollar annually with the expectation that the market would be worth 22 bil-

lion US-Dollar annually by 2016. The Brazilian government estimated that the income from recycling activities could increase from 1.1 billion US-Dollar to 4.7 billion US-Dollar annually, the ITA analysis underlined.

As reported, there are following technologies and services in demand:

- Waste collection technologies
- Sanitary landfill systems
- Environmental monitoring and analytical equipment
- Sorting machines
- Crushing and grinding machines
- Materials handling equipment
- Collection services, containers, and vehicles
- Recycling process expertise
- Waste incinerators

Waste-to-Energy

There are hopes that Brazil's renewed government funding, Congress-backed incentives, and expanding power grid will speed up the development of waste-to-energy projects in Brazil, adding to 16 GW planned renewable energy capacity before 2018. Actual waste-to-energy project developments and technologies that will be used and how these projects are going to be funded, regulated and incentivized would be discussed during the Waste-to-Energy Brasil 2016 Conference in July 2016, the organizer of

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In Brazil, due to lack of organization and/or financial resources, activities such as collection, transportation, processing, treatment, and disposal, which were at the responsibility of municipalities, are being outsourced to private companies, in an attempt to soothe public budget constraints and enhance the quality of the services. Due to the low economic feasibility of the current technologies in the country, the Brazilian Innovation Agency (Finep) has sought to assist companies in promoting innovations in solid waste management, either by backing low-interest loans or granting economic subvention for the acquisition of goods, services and labor. The results were encouraging, representatives of the Brazilian Innovation Agency, Department of Energy and Green Technologies in Rio de Janeiro, informed at the "Waste-to-Resources 2015" congress in Hannover (Germany). In their opinion, the main challenges for the next years lie in making several technological routes for waste treatment and recovery economically feasible in Brazil and in developing a highly qualified staff, capable of making rational decisions regarding the best treatment/disposal solutions for each facility's needs and each waste stream. To that end, the participation of public funding agencies will remain important, Finep representatives Erick Meira de Oliveira and Diego de Carvalho Frade are convinced.

this event, Arc Media Global, had announced. In a move to expedite projects to expand power generation and transmission in Brazil, the federal government has launched a program in August 2015, called the Electricity Investment Program (PIEE in the Portuguese-language acronym). According to news agency Empresa Brasil de Comunicação, it will target 53.28 billion US-Dollar to energy projects. By expanding the country's energy supply, the government is looking to increase competitiveness in the sector as a strategy to reduce the cost of energy in the country. In the new plan, the government will seek to provide, through tenders, about 33 billion US-Dollar for energy generation and 20 billion US-Dollar for transmission lines. With two phases of investment set to happen before and after 2018, the ultimate goal of the PIEE is to add between 25,000 and 31,500 MW to the Brazilian grid.

The Brazilian Investment Information Network (RENAI) provides entrepreneurs with investment opportunities in Brazil. It is supported by the Ministry of Development, Industry and Foreign Trade (MDIC) and is networked with state Departments of Industry and Trade as well as entre-

preneurial trade associations. The network aims to provide the necessary information investors need in their business decision-making process, to promote and facilitate the investment process, to stimulate and aid federal and state departments to support foreign investments. To reach its goals, RENAI's team works on the systematic survey of announced investment projects and makes them available at an online databank. It contains detailed information separated by economic sector, company, state and amount of money invested. That report is released only in Portuguese.

More information ➡ <http://investimentos.mdic.gov.br/conteudo/index/item/392>. To learn more about RENAI, please visit the website at ➡ <http://investimentos.mdic.gov.br/index>

Additional information: "Brazilian Official Guide on Investment Opportunities" in English (updated until June/2014, with examples for tenders under the rubric "sanitation and waste") ➡ <http://investimentos.mdic.gov.br/public/arquivo/arq1405631075.pdf>

Aluminum Recycling: Brazil Remains the World-Leader

Aluminum recycling in Brazil is highly effective and virtually all scrap available is recycled.

In 2014, Brazil recycled 540,000 tons of aluminum. "The relationship between this volume and the domestic consumption of aluminum indicates a percentage of 35.2 percent, which exceeds the world average of 29.9 percent (2011 basis)", the Brazilian Aluminum Association (ABAL) reported. "Of this total, 289,000 tons refer to scrap from aluminum beverage cans that correspond to 98.4 percent of the total packaging consumed in 2014, a figure that has placed Brazil in the position of world-leader since 2001." According to data of ABAL and the Brazilian Association of Highly Recyclable Cans

Manufacturers (ABRALATAS), 22.9 billion of packs were recycled last year, which corresponds to 62.7 million per day or 2.6 million per hour. Pindamonhangaba, a city located in the countryside of São Paulo, is the national capital for aluminum recycling. As reported, ABAL granted the city this award in 2003, in recognition of its remarkable role on behalf of the activity. On the occasion, an aluminum-made sculpture was presented to the city, representing the international aluminum recycling symbol. The work by sculptor Hans Goldammer was made from aluminum plate and is installed

at the entrance to the city, alongside the Dutra Highway (linking São Paulo and Rio de Janeiro).

Today, recycling companies headquartered in Pindamonhangaba have the capacity to process nearly 70 percent of all scrap recovered in Brazil. The choice of companies was among other factors, due to the prime location of the city, nestled between the two largest cities in Brazil, São Paulo and Rio de Janeiro, and due to the infrastructure offered by the municipality, which has invested heavily in industrial expansion.

Recycling in Chile: A Promising Start to Close the Loop



On May 17, Chile's President Bachelet signed a new framework law that supports recycling in the country. Consequently, a whole new market will be developed. The South American Country is on its way to build up a sustainable waste management, including waste separation, treatment and processing.

Since 2010, Chile is the first South American country that joined the OECD pledging its full dedication to achieving the organization's fundamental goals. One of the obligations within the OECD framework is the improvement of waste management and the introduction of a circular economy. Due to an insufficient legal basis regarding this topic, a new framework law for the so called extended producer responsibility (EPR) was presented to the Chilean Chamber of Deputies during the second term of 2013. This law would establish a structure for the management of products beyond their end-of-life introducing the concept of extended producer responsibility. Regulated products are packaging, WEEE, batteries, lubricants and waste oils as well as tires. The aim: minimizing waste generation and incentivising reuse, recycling or recovery.

After almost three years of discussions, negotiations and adaptations, the law was eventually promulgated on May 17 by Chile's President and the Minister of Environment, Pab-

lo Badenier. Minister Badenier put emphasis on the necessity of the aforementioned law for the country: "In Chile, we have a high and increasing rate of household waste production, summing up to 7 million tons, but we do not recycle more than 10 percent which is low compared to developed countries."

Having a look at the development of the country in recent years, Chile is on the brink of transition – from being an emerging to a developed country. Chile has been one of Latin America's fastest-growing economies over the past decade; but it still faces important challenges. Notwithstanding its strong growth during the last two decades, the country's per capita income lags behind other developed countries (21,980 US-Dollar was below the 41,035 US-Dollar average of OECD countries according to the World Bank). A World Bank report also states, that due to its ambitious structural reforms, Chile has and will maintain "its status as a Latin American reference of progress



President Bachelet (center) and Pablo Badénier, Minister of Environment (right), signing the law on May 17

whose creative public policies have become international models of good governance. "

So, just like its macroeconomic situation its waste management sector advances. With this new reform in place, the sector will develop from a two-level (waste collection, waste disposal) to a multi-level value chain including advisory, collection, sorting, treatment and – finally – disposal services. This is a necessity. Waste management infrastructure for commingled municipal solid waste is on a more than decent level. Due to the law this will probably have to be developed towards separated collection at household level (Art. 4). In order to do so, a close collaboration between all relevant stakeholders (municipalities, waste management companies, inhabitants, etc.) is needed. Having said that, if one considers sorting and valorization as the following value chain steps, capacities are almost non-existent. Up to date, no industrial sized, fully mechanical sorting plant exists in the country. All sorting is done manually by waste management companies and by waste pickers (in Chile called "recicladores de base").

As the new framework law promotes the commonly known waste hierarchy – including recycling and reuse – building up large scale sorting capacities will be inevitable. Otherwise, recycling targets set in the upcoming regulations will not be achieved. Furthermore, capacities for the valorization of several materials have been built up. Although the markets for glass and paper recycling are well established;

plastic recycling capacities are just sufficient to process mainly post-industrial waste. In this sector, it is obvious that the available capacities will not be adequate to handle the volume sorted from post-consumer waste streams. Thus, technical development and investments are needed in order to foster all possibilities the new law may offer generating business opportunities for private companies.

During the next 12 months, the Ministry of Environment will draft the needed implementation decrees for every priority product; the institution estimates that another six to 12 months are needed for the installation of an operational system.



Launch of the AMUSA/KDM/Reclay pilot for separate collection at a school in Quilicura

Then again, there is much more to it than simply the legal framework as commented by Honorato Merello, professor at DUOC UC in Concepción. "Recycling is a reflex of a mature, interconnected, informed and educated society." Promotional and educational measures are important in order to create awareness among the population and to foster opportunities. A fundamental instrument is the integration of sustainability in children's education. It is at this age where you can influence and have an impact that will be displayed to the rest of the family – children educating the elderly in order to increase interest in recycling in Chile.

Reclay Chile SpA

The EPR consultancy as well as Compliance Scheme operator Reclay Group have been active on the Chilean market since 2012 advising public and private bodies on the introduction of an EPR law. Two years later, in December 2014, Reclay introduced, in collaboration with the Municipal Association for Sustainability, AMUSA, and KDM, the country's leading waste management company, a pilot for selective collection of household waste. This pilot is conducted in four municipalities in Santiago – in Vitacura, Quilicura, Pudahuel and Colina.

In August 2015, the German company established a physical presence in Santiago de Chile founding the Reclay Chile SpA. The main focus of the in Las Condes based company is to give advice on the implementation of EPR in the Chilean market as well as designing and planning pilot projects in this regard. Moreover, the consultants are experienced in the technical areas like eco-design, recyclability and recycling techniques. Reclay Chile SpA is part of the Reclay Group, an international recycling and waste management service provider based in Cologne (Germany).

➔ www.reclay-group.com

Mexico: Councils Have Little Margin for Investments

According to expert opinion, the Mexican economy will probably grow about 2.4 percent in 2016.



However, the Mexican crude oil's low price has caused the government to reduce their expenses. After the Senate and the House of Representatives had already adopted a lower budget for 2016, further cuts were made in February this year. A slight recovery of the oil prices and therefore higher public expenditure is not expected until 2017.

Another factor that influences the economic situation negatively is the weak development in the US, where about 80 percent of Mexican exports go to. In the first three months of this year the production in the US-industry declined by 1.6 percent, a minor improvement is expected in the course of the year. As a result, the Mexican total exports in 2016 will only increase by 1.8 percent. Furthermore, there are not expected any impulses for the export economy from Europe and Asia either. According to information, the exchange rate poses the greatest danger to the trading partner Mexico. After the Mexican Peso, compared to the US-Dollar, had already lost value in 2015, prognoses stated that it would lose again one tenth of its value due to low oil prices. This development was one of the reasons why the Mexican central bank increased the key interest rate by 50 points to 3.75 percent in February. This burdens the economy in the country.

Environmental technology

Water- and waste disposal specifically suffer from the reduced public expenditure. The entire environmental sector had to accept budget cuts of 7.4 percent. According to industry representatives, the responsible municipal councils have very little margin for investments. Impulses come primarily from the private sector, for water treatment for example from the beverage and food industry as well as the textile industry. The energetic use of domestic waste has been a central topic in Mexico for a longer period. So far this predominantly takes place in landfill gas plants. Other technologies like the anaerobic fermentation and thermal processes form the exception.

In the last few years the amount of waste grew parallel to the population- and economic growth. According to a

Mexican statistic in 2012, the Mexican waste generation amounted to 102,894 tons per day.

In the past year, experts expected that the gross domestic product and the private consumption would increase by three to four percent per year within the next five years. According to official prognoses from the Mexican population research institute Conapo (Consejo Nacional de Población), the population will grow from 120.3 million (early 2015) to 126.3 million until 2020, stated the Germany Trade & Invest, the business development agency of the Federal Republic of Germany in 2015. With growing income, the rise of packaging would increase disproportionately in a threshold country like Mexico. Households increasingly bought in formal retail trade and fell back on convenience products more frequently.

According to information of the ministry of environment Semarnat (Secretaría de Medio Ambiente y Recursos Naturales), 30 percent of the waste was not disposed of correctly. This number resulted from 12 percent of waste generation, whose whereabouts are unknown, 16 percent disposed of on open landfills and another two percent that are rejected from landfills and whose whereabouts are also unknown. The share of waste that is being disposed of properly increased from about 50 percent in 2000 to 61 percent in 2013.

The waste collection in Mexico mainly takes place through informal collectors that are partly paid by the municipalities and equipped with garbage trucks and partly operate on the basis of tips. They carry out a first sorting of resalable materials. Moreover, informal waste sorters work on landfills and dumping grounds. These partly well-organized interest groups are opposed to a strong professionalization in recycling and can exacerbate the labor for private operators. In very few municipalities waste collection is performed by formal employees of municipal or private operating companies. The awarding of contracts to private operating companies is on the rise since the municipalities barely have financial resources apart from central and federal subsidies.



Photo: Redjono | Dreamstime.com

Australian Waste Management: Not Yet an Entity

Australia is one of the highest waste generating countries in the world per head of population. Population growth and increasing consumerism have led to increasing solid waste being generated. Traditionally, solid waste has been disposed of in landfills. But “in the past 25 years, recycling in Australia has undergone a revolution, from the introduction of council-operated curbside recycling services in the late 1980s and early 1990s, to more recent initiatives, such as the National Television and Computer Recycling Scheme, from 2012”, the Planet Ark Environmental Foundation summed up the development until 2013.

Disposal + recycling + export

In fact, there were three main destinations for the (estimated) 61.0 million tons of waste produced in 2013-2014: disposal to landfill, recovery for use in the domestic economy and export. Latest estimates by Germany Trade & Invest speak of 48 percent of household waste deposited in - licenced or unlicensed - 1,168 landfills; other figures suggest at least 600 mid to large sites, but potentially as many as 2,000 unregistered and unregulated landfills. The Australian Packaging Covenant, which covers some 900 companies and the state and federal governments, has published an overall recycling rate for post-consumer packaging in Australia at 64.2 percent for 2014. The (calculated) recycling rates in 2013-2014 account for 47.5 percent for glass, 67.5 percent for aluminium cans, 42.9 percent for steel cans, 77.3 percent for paperboard, and 48.6 percent for non-beverage aluminum; the plastic packaging recycling rate reached 43.9 percent. And the 2014 National Plastics Recycling Survey assessing the 2013-14 financial year reports that 161,700 tons i.e. 51.6 percent of collected plastics were exported for reprocessing.

Great differences

But even if the Australian Waste Report (2011), the National Waste Reporting (2013) or the Australian Industry Report (2015) may suggest it: Australian waste management is no entity. Australia comprises of several states: Western Australia, Northern Territory and Southern Australia in the middle, and - from north to south - Queensland, New South Wales, the small Capital Territory and Victoria, not to forget the island Tasmania.

Regarding waste management, they differ and develop in many ways. For example, in 2010-2011 the Capital Territory and Southern Australia reached a total recovery rate of 79 respectively 77 percent, while Western Australia and the Northern Territory recorded 39 respectively 9 percent. And they - amongst others - define different landfill levy policies. While New South Wales charges 133.10 Australian Dollar per ton in metropolises and 76.70 Australian Dollar in the region, Western Australia, Southern Australia, Victoria and the Capital Territory demand between 55 and 60 Australian Dollar per ton of waste.

Small levy – great carting

The Queensland Government only introduced a very small levy of 37 Australian Dollar in 2010 – resulting in a sudden spike in recycling – and removed it in 2012. Owner and director of Polystyrene Recycling Queensland, Leo Sines, described the situation: “When the levy was introduced the phones ran off the hook with enquiries from businesses on how to divert their waste from landfill, how to minimize their waste and what options were available for recycling. The day the levy was removed, the phones stopped ringing.” The incentives for recycling were gone, the landfill diversion rate immediately decreased and shipping became attractive: According to MRA Consulting, 20,000 trucks moved from Sydney to Brisbane and back, carting more than 400,000 tons of waste in 2014 to tip in South East Queensland in 2014.

New South Wales stroke another path. In February 2013, the NSW Government announced the five-year 465.7 million Australian Dollar “Waste Less, Recycle More” initiative to support the Waste and Recycling Infrastructure Package, the Local Communities Fund, the Illegal Dumping Fund and the Litter Fund. As of December 2015, the “Waste Less, Recycle More” programs have awarded 268.3 million Australian Dollar to 653 projects, aiming to process 1,972,762 tons more waste and create 741 jobs. The initiative is funded through the waste levy and is the largest waste and recycling funding program in Australia. And probably the most successful.

A direct benefit of 6.70 Dollar

South Australia too has taken some significant steps to reduce the amount of waste going to landfill: Almost in February 2014 South Australia reached Australia’s second highest resource recovery rate at around 77 percent. This was 17 percent above the national average and reflected a well-developed resource recovery infrastructure (including large organics recycling operations), progressive waste management policies (including broad landfill prohibitions for unsorted waste, recovery targets and government investments in resource recovery infrastructure and programs), and a moderate landfill levy. For every dollar invested by Zero Waste SA’s Industry Program, there was a direct benefit of 6.70 Dollar to the South Australian economy, a consultation paper reported. As a result, South Australia was said to be arguably the nation’s leader in waste management reform and resource recovery.

Low demand for energy from waste

According to a presentation of German VDMA (Verband Deutscher Maschinen- und Anlagenbau) in March 2015, Australia meanwhile possessed some 2,846 waste management plants, 872 transfer stations, 367 recycling facilities and about 114 material recovery facilities. But the last incineration plant closed in 1997, and even energy from waste plants are not in great demand. A factsheet dated 2013 shows that of 48.4 Mt (megaton = one million tons) of generated waste only 1.5 Mt were energetically recovered.



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Meanwhile New South Wales, Victoria and Western Australia have adopted new regulations with preconditions, so that rising landfill diversion rates could offer a perspective for energy from waste for power generation. According to Zero Waste South Africa, in view of rising global wholesale fertilizer prices and given that organic waste contains nutrients, there is likely to be growing interest in converting organic waste to fertilizer.

The market of waste recovery and waste disposal has increased between 2009 and 2014 by 7.4 percent per year and is expected to rise considerably more than the gross domestic product in the next five years. The turnover of the branch accounts for 11.9 billion Australian Dollar, will rise by 4.5 percent per year and reach 15.0 billion Australian Dollar in 2019. The turnover of businesses accounted of 16 percent of the sales volume in 2013-2014, says Germany Trade and Invest.

Below margin of viability

But as a result of the price balance in favor of landfill and a variety of costs and impediments in changing production processes and collection/disposal practices, many resource recovery infrastructure projects are at or even below the margin of commercial viability. Some jurisdictions including those of New South Wales, Victoria and South Australia have established infrastructure investment co-funding grant schemes to support projects that would not proceed without financial assistance. Funding choice can be aligned with agency-identified material types for which resource recovery is sub-optimal and/or for which opportunities for resource recovery can be identified in the supply chain.

These types of funding arrangements have been successful in supporting infrastructure enhancements and new projects and make an important contribution to Australia's resource recovery infrastructure. Indeed: By investing more than 80 million Dollar from waste levy funds in the

industry over the past decade, Zero Waste South Australia built capacity, improved markets and assisted the development of new products and skills. As the Zero Waste South Australia Waste Strategy 2015-2020 points out the benefits: cost ratios for funded projects that improve industry competitiveness achieve ratios of 6.7, and for infrastructure investment between 1.4 and 11.5.

South Australia wants to get further

However, companies will only invest where recycling is commercially viable. To reach the particular state governments recycling targets, further political intervention by regulations, bans, levies, price signals or grants will be necessary. According to MRA consulting group, plenty of new recycling or recovery technology is available and the sector is waiting for capital investment, but the main barrier remains government willingness to shift market economics. Best example: In March 2016 more than 65 million Australian Dollar generated by waste taxes in South Australia remained unspent in the State's coffers. Local Government Association President Dave Burgess clarified: "In 2011/12, there were 4,800 people employed in the waste industry. With strong Government leadership and investment, we should be looking at another 4,000 jobs generated over the next 10 to 12 years. The Waste Strategy talks about 200 - 350 million Dollar of investment opportunities over 10-15 years yet we can not get a cent out of the State to fund a project." And he added: "It is time these funds are invested in keeping South Australia at the forefront of waste management."

And South Australia wanted to get further. Zero Waste South Australia, now replaced by Green Industry South Australia, was already interested in international developments, in some cases with other state government and industry partners, providing advice in forums and assistance to develop strategies. These experiences include a zero waste strategy developed for the United Nations and the capital of Gujarat, India (Ahmedabad), participation in a fact-finding mission to Shandong, China, and advice to UN organizations regarding recovery from the Japan Great Eastern Earthquake and tsunami.

Future acquisitions expected

A Snapshot 2013-2014 by the Construction and Property Services Industry Skills Council Ltd highlights the future international orientation of the Australian waste management sector. In fact, liquid and solid waste collection services have a low globalization level and are expected to continue in future years with low foreign ownership growth expected, while a small number of larger firms will be foreign-owned. But waste treatment and disposal services have a medium globalization level due to high foreign ownership links that offset the lack of international trade levels. Subsidiaries of large global waste management companies operate in Australia such as SITA Australia (now SUEZ), Veolia Environmental Services Australia and Remondis Australia Pty Ltd. Some future acquisitions of major domestic players by foreign companies were expected over the next five years.



Foto: Zero Waste SA

Israel: (Slowly) Changing by a “Recycling Revolution”



“In the State of Israel, we’re used to just dumping our garbage,” Yakutiel Tzipori, a spokesperson for the Environment Ministry, told the Jewish Telegraph Agency in January 2012. And added: “We’re a developing country and everything else was more important, like security and defense; the environment just wasn’t at the top of the list. But now that’s changing.”

In fact, the situation at that time was “worrisome”, according to Israel’s Ministry of Environmental Protection (MoEP): Nearly 80 percent of Israel’s solid waste was landfilled and the municipal waste amount increased by three to five percent each year. So the MoEP proclaimed the “Recycling Revolution” in early 2012, based on the perception that landfilling, no matter how environmentally safe, is no long-term answer to Israel’s solid waste problem. The scheduled measures included a landfill levy, extended producer responsibility, separation at source, recovery and recycling facilities as well as landfill prohibitions.

A little bit too enthusiastic

Israel had already seen a landfill revolution since the 1990s: All 77 unregulated landfills in Israel for municipal solid waste had been closed and replaced by a small number of regulated, state-of-the-art regional and central landfills. Meanwhile, a Solid Waste Management Master Plan was approved, disposal and recycling laws for tires, beverage and packaging came in effect, a Recycling Action Plan followed, and a law regarding the treatment of electronic equipment passed final reading. In October 2012, the Jerusalem Post cited Environmental Protection Minister

Gilad Erdan with the words: “The recycling revolution is already a daily fact that exists in about half-a-million Israeli homes.” And: “Authorities realize the economic potential of recycling ... and therefore, it is not surprising that more and more cities want to take part in the revolution that we are leading.” At that time, it was a little bit too enthusiastic but, however, it was a signal. Until 2015, nine environmental laws already incorporated provisions on the imposition of sanctions, and new bills with similar clauses were in the pipeline in additional areas like contaminated land as well as construction and building waste.

Large sums of money being allocated

The legislation was supported by funding. 92 million US-Dollar went to 31 local authorities that were forerunners in implementing source separation into two streams. In 2011, approximately 74 million US-Dollar helped pay for new recycling sorting facilities, composting bins and environmental education. In 2012, about 28.5 million US-Dollar were allocated towards funding for development and optimization of waste treatment in minority communities and awareness raising. The same year saw the allocation of 11.7 million US-Dollar for a vehicle scrapping program.

Some 66 million US-Dollar were allocated for 19 facilities for energy generation and 37 million US-Dollar for ten material recovery facilities. And 23 additional communities joining the waste separation program in 2014 obtained 450 million US-Dollar as subsidy. In total, some 150 million US-Dollar should be invested in the construction of recycling and waste to energy facilities until 2015.

The MoEP balanced: “Large sums of money are being allocated to local authorities for waste separation and recycling schemes. Also the government is providing financial support for the construction of facilities by the private sector.” So in February 2016, the Ministry wanted to provide up to 26 million US-Dollar to municipal companies created by local authorities in low socio-economic areas that come up with waste treatment plans.

Private waste management sector developing

The private waste management sector began to develop. However, the implementation of glass recycling underwent a false start, as most of beverage in Israel is sold in plastic bottles. And the 90.000 tons per year of glass bottles used for wine and beer are seldom recycled, but run through a deposit system and are reused. But a number of organizations expanded. Israel's first e-waste recycling firm, M.A.I. – Electronics Recycling, exceeded its new legally binding e-waste recycling target of 4.700 tons for 2014 by 300 tons. Ecommunity – Social Corporation for the Recycling of Electronic Waste Ltd. was founded in 2013 and accredited in 2014 as recognized implementation entity according to the Electronic Waste Law. Its stakeholders are the Ecology for Protected Community Ltd and the European Recycling Platform.

In 2014, the biggest Israeli paper-recycling firm Amnir already reached a market share of about 90 percent. In the Hebrew year from September 2013 to September 2014 the enterprise recycled 400,000 tons of paper and cardboard, an increase of 3 percent. T.M.I.R. or “TAMIR” was founded by the Manufacturer's Association of Israel to organize and finance the system for separate collection, recycling and recovery of packaging waste. T.M.I.R.'s business concept takes into account the Extended Producer Responsibility principles and aimed to sign contracts with nearly 30 different municipalities by the end of 2012, while having contracts with obliged industry for at least 60 percent of the total packaging waste.

Even the Garbage Mountain restructured

With help of the ELA Recycling Corporation, a not for profit organization to promote the recycling of drink containers in Israel and has worked since 2001, 59 percent of all plastic bottles in Israel were recycled in 2014, a much higher rate than Europe with 56 percent or the United States with 31 percent. Tyrec Ltd. as the leading tire recycling company in Israel processed quantities representing some 70 percent of the total amount of waste tires in Israel. And the notorious toxic Hiriya Mountain near Tel Aviv, known as “Garbage Mountain” or even “Sh!t Mountain” and brimmed with over 25 million tons of waste, was sanified and restructured. The



area has been changed into the Ariel Sharon Park, within one of the world's largest recycling facilities for sorting of 3,000 tons of household waste, 1,500 tons of construction debris and 250 tons of landscape matter every day.

Failure of valid figures

This progress seems to be successful. The Environment Bulletin for 2012 notified that the voluntary collection of large beverage containers is estimated to reach a 51 percent collection rate in 2013 compared to 8 percent in 2006. A report by the Union for Environmental Defense in 2013 published that half of Israelis living in communities that have joined the waste separation and recycling project. According to the latest (but undated) figures of the Environment Ministry, 25 percent of total waste is recycled, 34 percent of paper and cardboard, 12 percent of organic waste and 6 percent plastic. But in contrast, data collected by the Israeli Central Bureau of Statistics in 2015 showed a recycling rate of roughly 18 percent of the total waste collected and reported that 68 percent of Israelis regularly recycle plastic bottles and newspapers.

This appears to be a fundamental problem in Israeli waste management: the failure of valid figures. In April 2015, Haaretz, Israel's oldest daily newspaper, published an article titled: “How Much Do Israelis Recycle Their Waste? Nobody Really Knows”. The paper said that, regarding tire recycling, the Ministry has not released figures on the recycling of tires since the law was passed in 2007, nor has it published what is supposed to be an annual report on the recycling of packaging materials. Haaretz conclusion: “The result is that eight years after the law was passed, there are no official figures regarding its implementation, and it is unclear whether recycling targets are being met and whether the law was a success or a failure.” And Adam Teva V'Din, the Israel Union for Environmental Defense, claimed that the 2013 packaging report TAMIR was obligated to prepare but was never published nor knowingly submitted to the Knesset.

A shortage of facilities?

Aside from that question, a central problem consists of the failure of a powerful waste treatment infrastructure. According to experts, separation facilities in Israel are not keeping up with the demand. They are told to be old and at some point will become overloaded. Some do not meet advanced environmental standards, others lack proper permits and some are too far from collection points. And the online-newspaper Haaretz not only reported a great need for recycling plant infrastructure that can absorb electronic waste, but criticized a serious lack of waste management facilities, specifically those that deal with organic waste, comprised primarily of discarded food. "There are a few facilities capable of turning organic waste into agricultural fertilizer, but many of them sit idle due to the fact they did not meet certain environmental standards or do not have business licenses", the paper wrote in March 2014. Same with construction and demolition waste: The Germany Trade & Invest agency stated in 2013 that 50 percent of that sort of waste was transformed to building material, but just a fifth of it was really reused thereafter; the remainder was temporarily stored – mostly because of high transport costs from the reprocessing places and "conservative" attitudes of the building companies.

At March 5, 2016, Environmental Protection Minister Avi Gabbay and Director General Yisrael Dancziger spoke plaintext. According to Haaretz, they offered a new line in Israeli recycling policy giving towns more autonomy over waste recycling processes. More than that, they noted that the volume of recycled waste, particularly wet waste, had remained low despite of large investments in infrastructure. That the ministry estimates only 20 percent of waste to be recycled today. That the original target of recycling or recovering half of all trash by the end of the decade should be modified to 35 percent. And they also acknowledged that there remained a serious shortage of facilities and unveiled a plan to build 46 new sorting and treatment facilities.

Proceedings internationally noticed

However, the Israeli proceedings in waste law, material recycling branches and public dissemination were internationally noticed and honored. Already in 2010 – Israel had just accessed the OECD – the government received praise from the OECD Working Group for its achievements in that area including: progress in the comprehensive management of waste as well as the management of facilities for waste and for recycling. The EU Council meeting at December 13, 2010 welcomed new legislation in Israel on packaging waste. Among others, Israel and Germany in July 2015 signed a Joint Declaration of Intent on the implementation of Best Available Techniques in the permitting of industrial installations. And since September 2015, the EU is funding an Israeli-German-Austrian-UK Twinning Project to support to the MoEP "in Improving and Implementing the Environmental Regulatory and Management Framework for Industry and Business".

Number 1 in clean technology

In contrast, the annual Global Cleantech Innovation Index ranked Israel #1 in clean technology. The index ranked 40 countries for their potential for entrepreneurial clean-tech start-ups, took a 10-year look down the line and valued 15 different indicators. The Index wrote that "Israel topped the 2014 index, with its relative outperformance on the measure of start-up companies per capita being a key reason that it did so. The country generates the culture, education and 'chutzpah' necessary to breed innovation, plus it has the survival instincts to manage a resource-constrained geography."

At the end of March 2016, the Central Bureau of Statistics published a survey titled: "Data on Recycling Habits of Israelis". The Environmental Protection Ministry responding to the report announced to continue the promotion of the "recycling revolution" in Israel, with a goal of recycling 50 percent of waste produced in the country by 2020. Maybe. Rome was not built in one day either.

Industrial Waste Management Market Showing Strong Growth

According to global market research and consulting company MarketsandMarkets, the industrial waste management market will grow from an estimated 863.8 billion US-Dollar in 2014 to 1,442 billion US-Dollar by 2019. It is estimated that the compound annual growth rate (CAGR) may be 8.9 percent from 2014 to 2019.

Coupled with rapid industrialization and shifting of industries in other regions towards Asia-Pacific, the region has witnessed exponential growth in industrial activities, resulting in huge amounts of generated industrial waste. "However, as existing industrial waste processing systems are grossly inadequate, the region is expected to witness huge investments in the waste recycling and services industry," the US-based company said. The industrial waste management market in Asia-Pacific is expected to grow at a CAGR of 11.4 percent during the same period.

The report "Industrial Waste Management Market by Services (Collection, Recycling, Incineration, Landfill) & Geography (Asia-Pacific, Europe, Middle East & Africa, Americas) - Global Trends and Forecasts to 2019" defines and segments the global industrial waste management market with an analysis and forecast of the revenue. Download PDF Brochure ➡ www.marketsandmarkets.com/pdfdownload.asp?id=175896158

East African Community Intends to Phase Out Imports of Second-Hand Clothing

Some countries considered used clothing to be a product generated by expert sorting operations according to well-recognized market specifications.

However, there is disagreement within EU member states as to whether used clothing/textiles should be considered waste in different circumstances and when such items cease to become waste. In addition, some countries in other parts of the world regard used clothing as a threat to new clothing production, thus giving rise to calls for a ban on used clothing imports.

According to the information provided at the meeting of the Textiles Division at the BIR World Recycling Convention in Berlin, the East African Community (EAC) intends to phase out imports of used textiles and footwear by 2019. "Second-hand clothing is a product and new clothing is a product – this needs to be understood," division president Mehdi Zerroug of Framimex in France insisted. The EAC comprises six countries, namely Uganda, Kenya, Tanzania, Rwanda, Burundi, and South

Sudan. Guest speaker Jalia Nabukalu Packwood, Business Development Officer at Bangor University's Sustainability Lab in the UK, explained that used textiles traders numbered in the many tens of thousands in Uganda and Kenya, for example. As reported, more than 80 percent of all clothing purchases in Uganda were used clothes; the country imported 80,000 tons of used clothing in 2014 (value: 70 million US-Dollar). Kenya collected 54 million US-Dollar in tariffs on used clothing imports (100,000 tons) in 2013 alone.

But despite the evident social and economic benefits derived from used clothing imports, EAC leaders considered the trade to be a threat to their plans to develop the local textiles manufacturing sector and to grow high-value jobs, Jalia Nabukalu Packwood emphasized. They also wanted

to "increase the taxable base" given that people engaged in the second-hand clothing trade were "not paying that much tax".

The widespread perception in EAC countries was that used clothing imports represented "dumping" and so it was important to change this mindset by emphasizing the benefits of this trade, she argued, and called on exporters to the region to develop "win-win" strategies that took account of the needs and goals of EAC countries.

Eric Stubin of the Secondary Materials and Recycled Textiles Association (SMART) in the USA confirmed in a submitted report that his organization was keen to collaborate with BIR in its response to the proposed EAC import ban. It was important to develop such a partnership approach, agreed Mehdi Zerroug.



Photo: Cellutech/AlphaGalileo

This prototype bicycle helmet is seen as a biodegradable and renewable alternative to Styrofoam

Styrofoam Made of Wood

Wood that cannot be commercially exploited could be used as replacement for less eco-friendly materials. Researchers at Swedish KTH Royal Institute of Technology think maybe we could soon say goodbye to polystyrene, the petroleum-based material that is used to make Styrofoam. They found a way to make a new shock-absorbing material from wood. Trademarked under the name, Cellufoam, the material was developed by Lars Wågberg, Professor in Fibre Technology at Stockholm's KTH Royal Institute of Technology, together with Lennart Bergström, Professor in Material Chemistry at Stockholm University, and Nicholas Tchang Cervin, a former PhD student at KTH, in the Wallenberg Wood Science Center (WWSC). According to KTH, the wood-based foam material offers comparable properties to Styrofoam.

In what looks like an ordinary bicycle helmet, Swedish designers have replaced Styrofoam with the new shock-absorbing material. The helmet was produced by Cellutech, a Stockholm startup that specializes in cutting edge materials made from wood, in conjunction with the Swedish Forest Industries Federation's Ekoportal2035.

The helmet concept is intended to draw attention to the possibilities of using wood cellulose as a sustainable alternative to Styrofoam and other foams from synthetic polymers. The production begins with wood cellulose nanofibres, or fibrils, which are modified and mixed with a foaming agent water and air. Through the process of pickering stabilization, these particles stabilize the air-bubbles in a way that is much better than by using simple surfactants, KTH explained. While the Cellufoam is being showcased as a bicycle helmet material, Lars Wågberg says that by using different surface treatments and combinations with other material components, it could also be suitable for flame retardant materials, water filtration, and antibacterial material.

Do Not Let the Ignition Source Take the Initiative

Modern spark detection and extinguishment systems are imperative as preventive fire protection systems. Basic precondition for danger potentials are combustible raw materials which are processed to small pieces.

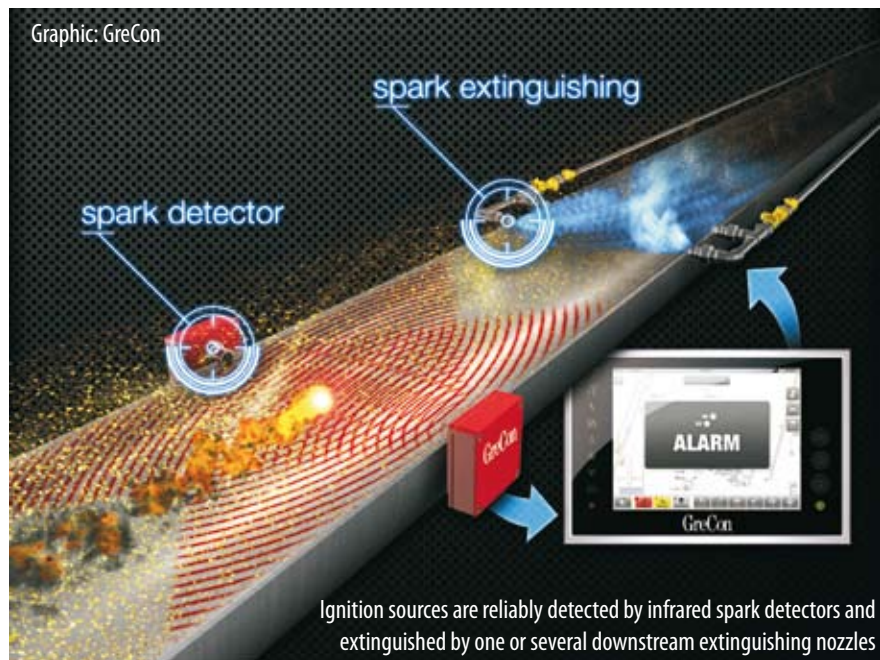
Today's industrial productions are characterized by the fact that all parameters involved in the production process are precisely known and can be influenced at any time and in a controlled way so that the products can be continuously produced in a defined quality and quantity. Moreover, global competition requires an uninterrupted operation of the production plants to achieve the necessary economics.

Unscheduled events and their consequences are therefore to be excluded in any case. Such events include – first and foremost – fire and explosions that, besides property and personal damage, cause expensive production interruptions.

Permanently existing potential

Basic precondition for such danger potentials are combustible raw materials which are processed to small pieces, such as chips or dust in the wood based panel industry. Especially in filters and silos, these materials form an explosive atmosphere in connection with oxygen in the air, which is merely "missing" an appropriate ignition source to cause a damaging fire or explosion.

As machine tools or dryers cannot be prevented from generating sparks or glowing embers, which are transport-



ed via pneumatic or mechanical conveying systems to downstream plant areas that are at risk of explosion, the potential for "unscheduled events" exists permanently.

Extinguish before you get burned

The only possibility is to prevent a meeting of the three elements in a safe and controlled way. As an explosive atmosphere is not to be expected in the exhaust and transport ducts themselves, it would seem to be the thing to do is to nip impending fires and explosions in the bud by means of spark extinguishing systems.

GreCon from Alfeld, Germany, has continuously developed the basic principle of spark detection and extinguishment to a hightech fire protection system. Ignition sources are reliably detected by infrared spark detectors and extinguished by one or several downstream extinguishing nozzles in pneumatic and mechanical conveying systems or drop chutes before they reach filters and silos. The extinguishing nozzles, which are installed approximately four to seven meters downstream of the spark detectors, depending on the conveying velocity, generate a fine water spray within a split second which fills the

User-friendly "blackbox"

The core of each spark extinguishing system is the processor-controlled control console. It collects all information from the individual spark extinguishing zones of a plant, which is the basis for all automatic measures and always available to the operator for evaluation. The events that are stored in the database exactly to the millisecond serve, above all, the purpose to visualize the alarm frequency in form of statistics and to supply information to identify the causes. The systematic structure of the software guarantees that extensions and changes of the spark extinguishing system can be easily implemented in an existing control console.

According to GreCon, the control console can be operated in an easy and intuitive way by means of a touch and slide display, known from modern mobile phones. Information can be selected and called up directly from the current screen content (touch). Details can be zoomed in by spreading fingers, without having to manoeuvre through complicated and time-consuming menus. A big advantage is the possibility to represent complete flow-sheets by zooming and shifting (slide). The patent-protected touch screen display can be easily retrofitted in all control consoles from the model 2003.

entire cross section of the duct. When engineered properly, the ignition sources fly into the water spray and go out. The extinguishing valve closes immediately afterwards. The required water pressure of at least six bar is usually produced by pressure increasing units.

The amount of water used per extinguishment is so low that downstream plant areas and processes are not impaired. In 99 percent of all cases, extinguishment takes place without machinery shut-down and thus without interruption of the running production. The extraction and production systems will only be shut down if spark flight is registered for a longer time period or if a large number of sparks is detected within a short time.

Optimal detectors for any medium

The material flow is preferably monitored in the darkness of closed ducts and chutes. In such environments, the sensitivity of the infrared spark detectors, which are flush-mounted in the duct wall like the extinguishing nozzles, is the highest. According to the company, even small ignition sources, which pass the detectors at an average speed of 25 m/s, are reliably detected.

Besides these ideal installation situations, there are numerous "more demanding" ambient conditions that

are to be met by modified or new concepts and technical solutions to make spark detection possible also in these areas. Due to experiences of many years, GreCon is familiar with any requirements that might occur and has developed appropriate system components. Also areas with high process temperatures, as occur in drying processes, can be reliably monitored. For this, GreCon uses spark detectors, the electronics of which are protected against process temperatures of up to 600 °C by means of light polyps.

For the monitoring of open conveyors or other conveying systems where light ingress cannot be prevented special daylight spark detectors are part of the product range. These detectors ignore the infrared spectrum occurring in daylight or artificial light, which allows a reliable detection of relevant ignition sources nevertheless. Especially in drop chutes with dense material flows, an infrared light sensor that is installed on the chute wall is not sufficient. Therefore, the company developed a linear light polyp (LLQ) which is installed directly in the material flow and with which the optical detection of ignition sources can be substantially improved.

Thermal detectors, which trigger an alarm in case of temperature rises which are typical of fire, as well as conflagration gas detectors which also detect glowing embers that are

located deeply in the material, complete the range of detectors developed by GreCon.

A short way to success

For plant areas in which the required "extinguishing distance" cannot be realized or only realized by construction measures, the German-based provider has developed a new ultra-high-speed extinguishment (UHS). This extinguishing device is based on a special high-speed solenoid valve and one or several full-cone nozzles. Thanks to a significant reduction of the reaction time from spark detection until the complete spreading of the water spray, the length of the required "extinguishing distance" can be reduced to up to two meters.

For applications in which water extinguishment is impossible or not reasonable, GreCon developed special fire traps and diversion gates which interrupt or divert the material flow and thus reliably prevent ignition source and explosive atmosphere from meeting.

The engineering of a spark extinguishing system always starts with a detailed risk analysis to determine the most suitable system components for the protection of the customer's production plant, the German specialist assures.

➔ www.grecon.com

German Company Replaces Shredding Equipment

Andritz MeWa, part of international technology Group Andritz, has received an order from German company Nothnagel Wertstoffverarbeitung GmbH to supply three UG 1600 S universal granulators.

The machines will be used for post-shredding of composite materials and replace the shredding technology used to date. The waste material treated consists largely of steel wire and other iron components requiring a stable and reliable shredding technique. The universal granulator UG prepares the material. The feed material is grasped by the rotor knives and shredded in interaction with the stationary stator knives.

By using a replaceable screen underneath the rotor, with variable perforation diameters, the throughput, and thus the shredding result, can be chosen freely, the provider assures. In addition, the new generation of Andritz MeWa granulators is fitted with a specially controlled pendulum pusher device that increases the throughput.

➔ www.andritz.com



Universal Granulator UG 1600 S

Photo: Andritz MeWa

Machinex Expands its Baler Range

The Machinex Group has introduced its two ram high capacity baler series to the American market.

Designed to meet the multi-purpose needs of recyclers, the new baler series maximizes density while reducing operating costs, the provider is convinced. "The unique pre-fill device increases main ram cycle speed in both forward and reverse modes. This device not only allows the balers to meet and exceed the throughput of competitive equipment, but also results in a significant reduction in energy consumption."

According to Machinex, other exclusive design features include bolt-on liners for ease of maintenance, a single-plate frame construction to provide maximum structural stability, and many other options that would give operational benefits to managers of materials recovery facilities (MRF). The manufacturer has installed several two ram balers in Canada and the United Kingdom, but the first one in the United States.



Photo: Machinex

Until End of May, Machinex has sold 11 two ram balers

Machinex is currently developing a machine designed for the waste to energy industry that will handle refuse derived fuel (RDF) baling. As reported, the first machines will incorporate plastic strapping and bale

wrapping as part of the RDF solution. These balers will be installed by the end of summer 2016 in the United Kingdom.

➔ www.machinex.ca

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Electronics & Cars Recycling November 15 – 18, 2016, Macau, China

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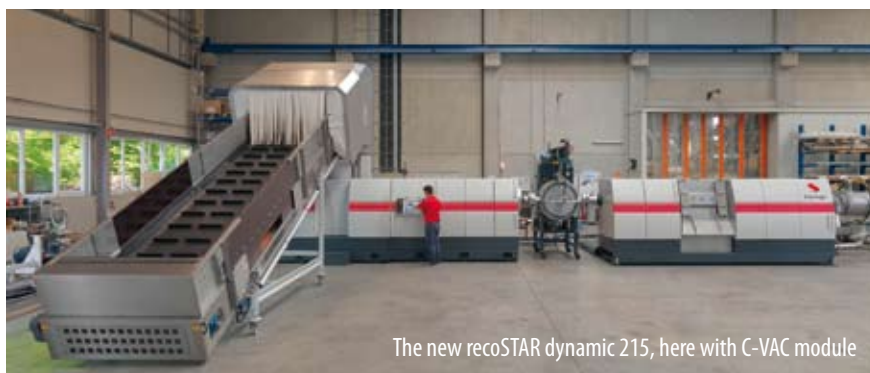
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New Plastics Recycling Line

Austrian-based manufacturer Starlinger unveiled its new plastics recycling line recoSTAR dynamic 215 in June.

According to the company, with this line it has increased its capacity range for polyolefin recycling. The recoSTAR dynamic 215 was purpose-built to customer specifications regarding output and minimized operator involvement. The high degree of automation makes it possible to operate even a line of this size with the same personnel as the smaller lines, working efficiently with minimum energy consumption, Starlinger recycling technology gave account.

With its output range of 2,200 to 2,600 kilograms per hour (kg/h) and power requirement of 0.2 to 0.35 kWh/kg, the recoSTAR dynamic 215 is one of the most energy-efficient lines on the market, the provider is convinced. To achieve this, Starlinger recycling technology developed the "reCO" concept for optimum energy use: Only the most energy-efficient motors are used, energy recuperation systems are integrated into various



The new recoSTAR dynamic 215, here with C-VAC module

process steps, and the extruder barrel is heated with infrared emitters. In addition, the Dynamic Automation Package (DAP) developed by the producer is said to keep the line working at the optimum operating point, thereby maintaining not only constant production of consistent quality pellets, higher output and greater flexibility in material processing, but also reducing energy consumption. "Together with the 'reCO' concept, this realizes energy savings in excess of ten percent," Starlinger emphasized.

The recoSTAR dynamic recycling lines are capable of processing a wide range of plastics and are especially suitable for moist, hygroscopic or highly contaminated input materials. By integrating the optional C-VAC high-capacity degassing module into the line, even heavily printed or heavily soiled input materials such as post-consumer plastic waste or agricultural films can be reprocessed into secondary material.

➔ www.starlinger.com

Photo: Starlinger

USA: New Ash Metal Recovery Facility

In June this year, U.S.-based Republic Services, Inc. and Lab USA unveiled a state-of-the-art ash metal recovery facility at the Roosevelt Regional Landfill (Washington).

According to Republic Services, Inc., the advanced process allows for the reclamation of metals found in ash previously lost through traditional methods of resource recovery. "The facility is set to process all newly delivered ash to the Roosevelt Landfill as well as systematically process all of the existing ash currently in the landfill," the company underlined. "Once recovered, the metals are recycled, shipped to manufacturers and repurposed to make new metal products." The facility is estimated to recover and recycle over 46,200 tons of ferrous metals and 42,900 tons of non-ferrous metals. The volume of metals recovered and recycled through this facility will have measurable environmental impacts, Republic Services, Inc. reported. "According to the American Iron and Steel Institute, the energy consumption of recycling iron is 20 percent lower than that of min-



The Roosevelt Regional Landfill Ash Metal Recovery Facility is to treat more than one million tons of ash

ing and processing iron from natural resources. The International Copper Association reported that the energy saving from recycling copper is approximately 60 percent lower than the saving of mining copper from natural resources. The planned recovery of 46,200 tons of ferrous metals from this facility is equivalent to constructing approximately six Eiffel Towers.

The expected recovery of 4,290 tons of copper could make approximately 24.9 million linear feet of half-inch copper piping used to carry water in households. That is enough pipe to stretch from Roosevelt, Wash. to New Orleans, La. and back. Reclaiming these metals that were previously lost through traditional methods of resource recovery significantly reduces greenhouse gas emissions," the company underlined.

Roosevelt Landfill utilizes the waste collected from municipalities across Washington and converts the methane gas (CH₄) into a renewable energy source. Working with the Klickitat Public Utility District, the landfill currently provides enough energy to power up to 30,000 local households annually.

➔ www.republicservices.com

PRNewsFoto/Republic Services, Inc.

Chemical Products from Plant Residues

A relatively new business line currently being established is the use of fibrous plant residues to generate bio-based chemicals.

For the extraction of reusable substances, German company BHS-Sonthofen has supplied the largest indexing belt filter in the company's history to an undisclosed American customer. Commissioning is planned for autumn 2016.

According to the provider, the indexing belt filter of type BF 350-255 (filter area: 90 m²) will process up to 5,000 kilograms of fibrous plant waste hourly, extracting recoverable liquid components generated in a previous production process. The filtrate is used for the manufacture of basic chemicals, while the remaining solids, which could not previously be used, are reprocessed.

"During project planning, the customer had initially envisaged a multistage process with a sequence of consecutive screening and filtration steps and with the solids being resuspended several times. The proposal from BHS-Sonthofen to use an indexing belt filter of type BF with a single process step convinced the customer, however," the German manufacturer of machines and plants for mechan-

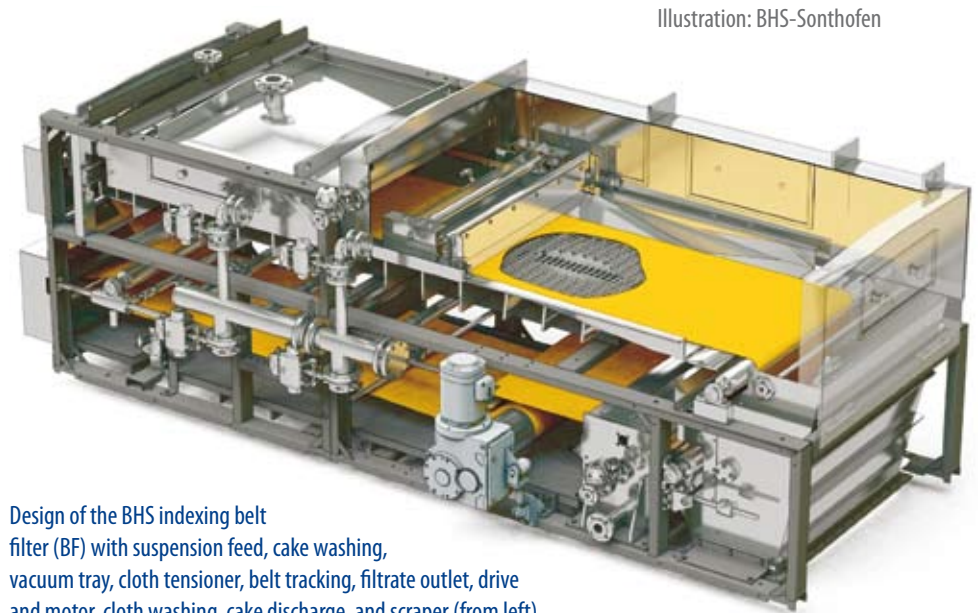


Illustration: BHS-Sonthofen

Design of the BHS indexing belt filter (BF) with suspension feed, cake washing, vacuum tray, cloth tensioner, belt tracking, filtrate outlet, drive and motor, cloth washing, cake discharge, and scraper (from left)

cal solid/liquid separation gave account. "Not only is the process much simpler, but it also concentrates the reusable substances to a greater extent. This means that less energy is required for extracting the substances at a later stage in the process."

As part of the treatment process, the plant waste is first suspended in water. To ensure that the reusable sub-

stances dissolved in this can be extracted as effectively as possible, the German-based provider implements a multistage counter-current wash process in the filter plant. Result: The BHS indexing belt filter "extracts approximately 10 percent more recoverable materials than conventional procedures."

➔ www.bhs-sonthofen.de

Romanian Aluminum Producer Increases Scrap Processing Capacity

Alro S.A., one of the largest aluminum producers in Continental Europe (excluding Russia and Scandinavia) has launched an investment program of more than 53 million US-Dollar.

This program for 2016 includes the expansion of scrap processing capacity of Eco Cast House, such as to reach a capacity of 90,000 tons per year. In addition, the company invests in increasing the energy efficiency of the existing processes. The measures, part of Alro's energy efficiency plan, were agreed with the accredited energy efficiency auditor and notified to the competent authorities. Thus, Alro will commission a new line of aluminum scrap processing, with a capacity of 60,000 tons per year.

As reported, the company has built a new station, Eco Cast House, to provide some of the liquid aluminum from alternative sources, partially replacing the aluminum produced by electrolysis, a process that requires a significant consumption of electricity. "Thanks to the investments made over the last ten years, Alro has reached 99 percent of the maximum possible efficiency of the electrolysis sector," the producer explained. "This result is presented in the study 'Energy Efficiency and Greenhouse Effect Emissions: Possible Scenarios for the Aluminium Industry' published last year by the Joint Research Center, at the request of the European Commission. The study emphasizes that Alro has implemented three out of four possible phases for optimizing the electrolysis process and was ranked fourth among 18 plants in Europe."

Alro S.A. is subsidiary of Vimetco N.V., a global, vertically-integrated primary and processed aluminum producer. The Romanian-based company has an installed production capacity of 265,000 tons per year. ➔ www.alro.ro

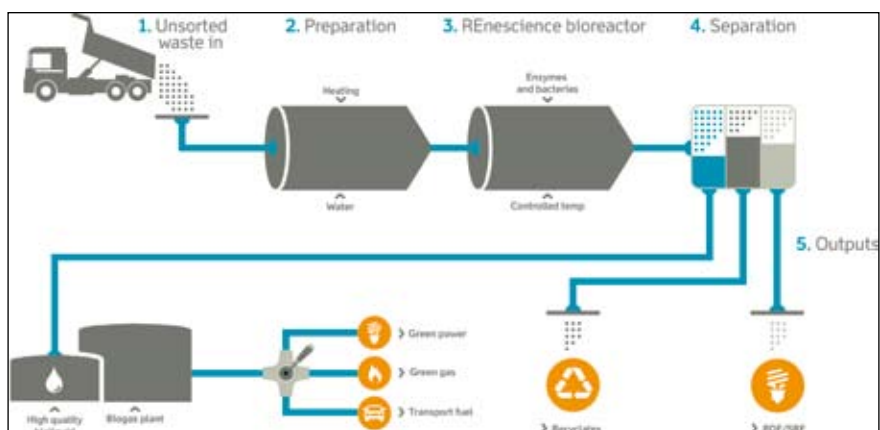
REnescience: A New Technology with Global Ambitions

The Danish-based Dong Energy intends to finance, build and operate the world's first bio plant for handling unsorted household waste without prior treatment.

According to the Danish Company, the developed new technology, REnescience, is able to separate and sort household waste for recycling, by means of enzymes. It has been tested at a demonstration plant in Copenhagen since 2009.

"The new plant, the first commercial full-scale plant, will be built in Northwich near Manchester," Dong Energy emphasized. It will have an annual capacity of 120,000 tons of waste, corresponding to the waste from almost 110,000 households. The input will be supplied by the UK waste management company FCC Environment, which already collects household garbage in the region. Dong Energy expects that the plant will be commissioned in early 2017.

The REnescience facility in Northwich will be able to convert the household waste, among other things, into a considerable amount of biogas as well as recyclable plastics and metals, the Danish provider stresses. The biogas would be converted to green power via gas engines. In April this year, the Danish company has sent a mobile



Credits: Dong Energy

The REnescience technology is a new way of treating household waste

REnescience plant to Malaysia to test whether the country offers a new export market for the technology. In the presence of the Danish Minister for Environment and Food, Esben Lunde Larsen, Dong Energy had entered into a cooperation agreement with Cen-viro, one of Malaysia's largest players within waste management. The parties will now test this technology in a Malaysian context. In the opinion of Dong Energy's management Malaysia is a very interesting market for the REnescience technology, as there is a growing need for exploiting the resources in the increasing waste

volumes. Today, the majority of Malaysian waste ends up in landfill sites and none of the resources are utilized. At the same time, waste volumes are going up – in Malaysia and worldwide. According to the World Bank, waste volumes worldwide will have increased by 70 percent by 2025 compared to 2012.

Dong Energy is planning to send the mobile plant to other Asian countries to test whether there is an export market for it.

➔ www.dongenergy.com

New Generation of Handheld Metal Alloy Analyzers

The metal recycling industry now has access to a new generation of tools that can maximize their sorting processes to achieve higher returns and improve profitability.

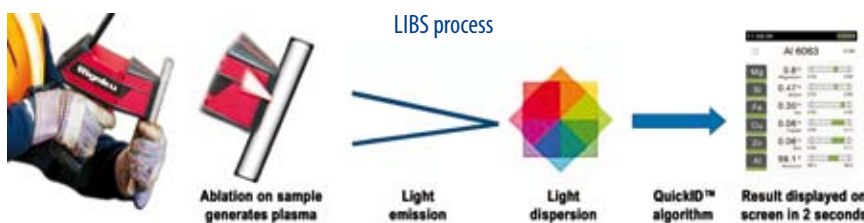
Analytical equipment that can provide scrap yards with accurate alloy identification is not new to the global recycling market. Most metal scrap yards have some sort of analysis equipment in their fleet, or know of a colleague that does. The size and usability of this technical equipment can range from a large, benchtop system that needs to be used in a laboratory by a scientist to a small, handheld analyzer that can be operated by any sorter in the yard. The benefits of using any handheld metal analyzer to provide immediate alloy identification with a simple trigger pull can greatly outweigh the time consum-

ing and costly analysis of larger systems...until now. When considering implementing a new method for scrap metal sorting, there are several factors that need to be considered. For example, if you struggle to identify valuable light alloy elements or if you experiencing high repair costs for your current analyzer due to a lack of ruggedness. The current dip in metal price returns also has an impact on the decision making process for scrap metal sorting equipment; it is now more important than ever that your analyzer meets the demands of modern metal recycling while delivering a return on investment.

An example of the new generation of handheld metal alloy analyzer has been developed by Rigaku Analytical Devices who hit several major milestones this past year with the launch of its KT-100 Katana metal analyzer. KT-100 was developed to address the analysis and usability gaps that similar handheld metal analyzers do not meet. The team responsible has been developing handheld analyzers for use in the harshest environments for years. Furthermore, it was identified early on that incorporating that a different analytical technique was required to take metals analysis to the next level. The analytical capabilities

based on laser induced breakdown spectroscopy (LIBS) provides accurate analysis of light elements – such as aluminum (Al), magnesium (Mg), and beryllium (Be) – which is problematic to previous generation handheld analyzers using x-ray fluorescence (XRF). Therefore, handheld LIBS increase the amount of alloys that can be identified, sorted, and then sold for more profitable gains. By integrating a laser-based technology, there are no radiation concerns that XRF analyzers impose.

Not only does the difference in technology set it apart from traditional handheld methods, the size and ergonomics have also been re-engineered. The device weighs just 1.47 kilogram and is considerably smaller than any other handheld LIBS analyzer. Operators can now sort for longer periods of



time without fatigue, while also benefiting from the 10+ hours of operation the two included batteries provide.

There are many other features that are new to scrap sorting users – GPS tracking, on-board camera, auto surface preparation – but one with the most importance to a scrap metal sorter is the MIL-STD-810G certification KT-100 Katana received in April 2016. These tests involved rigorous vibration, shock and drop testing which focused on impact to every angle of the instrument to evaluate

its durability and performance when exposed to environmental stress. The IP-54 rating means the instrument is protected against wet and dusty work environments – very typical in a scrap metal recycling yard. KT-100 is the only handheld metal analyzer that has successfully passed durability tests achieving both the MIL-STD-810G and IP-54 certification.

(By Jen Lynch, Marketing Director at US-based Rigaku Analytical Devices.)

➔ www.rigakuanalytical.com

Some Solutions for End-of-Life Tires

In Europe, through the joint efforts of recyclers and tire producers, it had been possible to convince the EU authorities not to ban the use of tire-derived granules in artificial turf infill pending further research into their environmental and health impact.

This represented a major issue given that infill constituted a “very big” application area for end-of-life tires (ELTs) in the region, it was explained to the BIR Tires & Rubber Committee meeting in Berlin by its Chairman, Ruud Burlet of Rubber Resources in the Netherlands. As reported, latest studies conducted in Europe had raised no environmental or human health concerns over the use of crumb rubber in infill, it was pointed out by Jean-Pierre Taverne, Coordinator of Environment & ELT Technical Support at the European Tire & Rubber Manufacturers’ Association.

The same speaker emphasized the major boost to the Circular Economy that could be provided by Green Public Procurement (GPP), which accounted for approaching 20 percent of the EU’s GDP (gross domestic product). His organization was therefore pushing for revised GPP guidelines which would “encourage public authorities to foster demand for secondary raw materials and develop new market opportunities”.



Photo: O. Kürth

Wilma Dierkes of the Faculty of Engineering Technology at the University of Twente in the Netherlands provided delegates with an update on some of the different approaches to tire recycling, including her team’s work on the continuous devulcanisation of SBR (styrene-butadiene rubber) in an extruder under protective atmosphere with intensive cooling of the devulcanizate.

Another treatment approach for ELTs, namely pyrolysis, was addressed by

fellow guest speaker Jan van den Brand, Executive Director of Rimal Kargro in the Netherlands. His company was participating in a new pyrolysis venture under the Dutch Green Carbon banner which was engaged in “upcycling carbon black, oil and gas” from ELTs. “Demand in the carbon black market is diversified and offers attractive opportunities,” the speaker stated. Capable of producing 4,500 tons of carbon black on an annual basis, the plant had entailed an investment of around 12 million Euro.

Plans to Launch a “World Council of Recycling Associations”

The Bureau of International Recycling (BIR) is spearheading the formation of a new body “to take forward the message of facilitating free and fair trade of recyclables with minimum regulatory controls,” it was announced at the body’s Annual General Assembly in Berlin.

According to BIR President Ranjit Baxi of UK-based J&H Sales International, the “World Council of Recycling Associations” would bring together the presidents of the various recycling associations of the world in an initiative that would enable them to “work together to tackle the challenges facing the global trade of recyclables.” He also noted that people from 57 countries were participating in the BIR Convention in Berlin – “a great result” given that “our industry is currently going through one of the most testing times we have ever experienced” in terms of the pressure on demand and margins.

Ranjit Baxi expressed also the hope that BIR efforts to launch a “Global Recycling Day” would come to fruition in 2017; this event would be designed to celebrate the importance of recycling and to promote the major environmental contribution of the recycling industry. In this latter regard, BIR’s updated report on “The Environmental Benefits of Recycling” had concluded



Klaus Töpfer expressed the conviction that recycling represented “a huge pre-condition” for furthering the pro-climate agenda

that 572 million tons of greenhouse gas emissions were avoided each year by the recycling industry’s global activities in just three areas, namely ferrous, aluminium and copper. By extension, therefore, the recycling industry’s efforts across all the commodity sectors could be reducing

such emissions by well over 700 million tons per annum, he estimated.

Recycling and the circular economy

Following the Annual General Assembly in Berlin, the Convention’s Key-note Speaker Klaus Töpfer, a former German Federal Minister for the Environment, Nature Conservation and Nuclear Safety (1987 – 1994), underlined the progress of the last 30 years towards making the closing of material cycles “a business case” rather than an environmental issue. Also as a former Executive Director of the United Nations Environment Programme, he identified a shift towards “a sharing economy” in which companies would start to insist that products were returned to them at end-of-life.

The guest speaker expressed the conviction that recycling represented “a huge pre-condition” for furthering the pro-climate agenda and that the “stigma” must be removed from recycled products.

China International Plastic Recycling Conference and Exhibition

September 25 to 27, 2016, Dalian (China)

The 11th China International Plastic Recycling Conference and Exhibition will be organized and sponsored by China National resource recycling association and Gezhouba Huanjia Group at Furama Hotel Dalian, China. According to the organizers, the conference theme is “Building the Green Recycling Industry under the

new normal environment”. During the event important issues will be discussed: how to realize the industrial upgrade and transformation and the sustainable development. This conference will also set up “Servicing green recycle in social life” as a major forum topic and another three sub-forums in

- raw material purchasing under the new pattern,
- application engineering of recycled plastics,
- plastic recycling industry under the internet thinking.

The supervisors and industrial experts from Chinese Ministry of Environmental Protection, Ministry of Industry and Information Technology, General Administration of Quality Supervision, Inspection and quarantine, international organizations, universities and researching institutes will be invited to discuss the relevant issues regarding industrial policies as well as industrial development direction and technology.

➔ www.chinairc.org/en/



Photo: GR-Archive

RECOUP Plastics Recycling Conference 2016

September 29, 2016, Peterborough (UK)

The RECOUP Plastics Recycling Conference 2016 is to be held on September 29 this year at the KingsGate Conference Centre, Peterborough.

According to the organizers, this event will bring the whole plastic

supply and recycling chain together to share knowledge, experience, and insight which is essential to the future of plastics both as material, and as a sustainable and recyclable resource.

The conference attracts industry professionals from a variety of sectors

including packaging producers, retailers, designers, trade associations, local authorities, waste management companies, brand owners, and plastics reproducers.

➔ www.recoup.org/conference-2016

Annual Waste Management Middle East Forum 2016

October 10 – 11, 2016, Dubai (United Arab Emirates)

The Annual Waste Management Middle East Forum 2016 shall extend a platform for studying and updating the regional waste and environment professionals on various new technologies and system specifications adopted and help to find economically feasible and sustainable solutions for the environment sector, the organizers emphasize. Key topics are:

- Development of Waste to Energy plants

- Strategies used for industrial waste reduction and waste resource recovery and utilization
 - Economy, modernity and simplicity in Municipal Solid Waste collection
 - Municipal Solid Waste Treatment & Disposal Project
 - Zero Liquid Discharge (ZLD)/ Treated Water Recycling
 - Pre-collection at source for solid waste management
- Takeaways:

- Finding Local Solutions for toxic and hazardous waste
- How waste can become a new business opportunity
- Realizing the significance of Zero Landfills
- Strategies for handling chemical waste

➔ <https://fleming.events/en/events/hse/waste-management-middle-east-forum>

K 2016: Plenty of Potential for Recycling

October 19-26, 2016, Düsseldorf (Germany)

Although recycling is a much-discussed topic today and is also very much alive in many projects in the European and international plastics industry, experts are repeatedly confirming that too little waste material is used instead of virgin material, yet both the collection systems and technical feasibility have developed enormously. Anyone wishing to find out about these new technical solutions can do so at K 2016, according to the organizers of the world's No. 1 trade fair for the plastics and rubber industry. The event takes place from 19 to 26 October in Düsseldorf.

The exhibition organizers are convinced that recycling rates will continue to rise in the years to come, as there is strong demand for recyclate for both environmental and economic reasons. "Marine litter, i.e. the pollution of the seas with wastes, has internationally highlighted the irresponsible treatment of wastes par-



ticularly in newly industrialized countries and lent added strength to the demands of other consumers for the sustainable treatment of resources."

Plastics recycling in Europe

Technologically, plastic recycling is not a big problem. In-house recycling has now become established right across industry. For plastics processors who work with pure-grade raw materials, the waste-free factory has meanwhile become commonplace. And for post-consumer wastes, there are increasingly mature reutilization strategies, enabling the regranulate produced

with them to substitute virgin material without problem. According to the association of plastics producers, PlasticsEurope, plastics consumption in the European industry as a whole came to 47.8 million tons, with about half, amounting to 25.8 million tons, being collected after use. PlasticsEurope investigated the collection rates in the 28 EU states plus Norway and Switzerland and found that there is still strong variation. Although a ban on the landfilling of plastics residuals has meanwhile been announced in nine countries, the proportion going to landfill in the other countries is still very high at as much as 70 percent. Overall, of the total collected residuals in Europe, about two thirds are now reutilized, while 30.8 percent are landfilled. Of the plastics residuals that are reutilized, about half – 7.7 million tons – is recycled and the rest is incinerated to generate energy.

➔ www.k-online.com

Photo: Messe Düsseldorf / citlmann

Ecomondo + Key Energy

November 8 – 11, 2016, Rimini (Italy)

From November 8 to 11, the Rimini Fiera expo platform intends to increase the ability of its brands to cover all the lines indicated by the European regulations on environmental issues (including water, energy and waste) from a business point of view, following two drivers: circular economy and climate change.

To further strengthen a common identity with an increasingly high profile,

this year the two expos will also have a single coordinated image. As reported, it is "based on the 'green circular economy' - Ecomondo's new pay off, which highlights the mission of the expos and the companies taking part in them: a setup that promotes the economic paradigm connected with regeneration, instead of the end-of-life concept, by means of the use of renewable energies. The aim is thus to eliminate the use of harmful toxic

substances, therefore waste, which is in turn a possible resource."

This edition will feature the new sections Material Handling, Lifting Solutions & Logistics and Monitoring & Control and a series of widespread experiences on the circular economy; plus, a focus on energy efficiency in industrial terms.

➔ <http://en.ecomondo.com/>

Pollutec 2016

November 29 – December 2, 2016, Lyon (France)

For almost forty years Pollutec has been showcasing developments in the environment sector. Back in 1978, this fair was an event for the Water and Waste industries, but over the years it has expanded to encompass all the markets associated with the treatment of pollution. The result

shows eight major sectors: Waste & Exploitation of Materials; Water & Waste Water; Energy; Instrumentation – Metrology – Automation; Air; Risks; Sites & Soils and Ethical Purchasing – CSR. They will serve as a magnet for professionals from around the world, the organizers are convinced. Pollutec

2016 will also be focused on five fields where professionals face major challenges: Sustainable City, Sustainable Industry of the Future, Agriculture, Hospitals and Sustainable Development as well as Oceans, Aquatic Environments and Coasts.

➔ www.pollutec.com/GB.htm

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- **Ride & Drive** - a live showcase of the benefits of trucks and heavy equipment, allowing visitors to gain a practical understanding of their benefits.
- **Co-located shows** - together with the Energy, Renewables and Water events, find answers to all of your sustainability questions.

Major suppliers include: Viridor, Suez, Waste Logics, enevo, Wehrle, Fike, Denis Eagle, Johnston Sweepers, Liebherr, Steinert.

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...featuring international recycling exhibition

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(The Netherlands)

OKURA HOTEL

PROVISIONAL SEQUENCE OF MEETINGS*

SUNDAY
23 October

- Internal meetings

MONDAY
24 October

- Plastics Committee
- World Council of Recycling Associations
- E-Scrap Committee
- Non-Ferrous Metals Division
- Tyres & Rubber Committee
- Textiles Division
- Welcome Reception

TUESDAY
25 October

- Ferrous Division
- Stainless Steel & Special Alloys Committee
- Paper Division
- International Environment Council (IEC)

**Subject to change*

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- **High-level attendance** by industry professionals from across the globe – the best opportunity to meet decision makers relevant to your business and secure deals
- **International platform** for the recycling industry: More than **70 nationalities** from around the world, making the event truly international and a great place to check out new developments and **build partnerships**
- Takes place in a **different country** / on a **different continent** each year, with an unmatched reputation for producing **fruitful networking events** in amazing surroundings
- Featuring a **broad conference programme** including the latest recycling **industry news** and **market updates**

Registration opens end of July!

More information on the Convention Programme, Online Registration and Sponsorship Opportunities on www.bir.org

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