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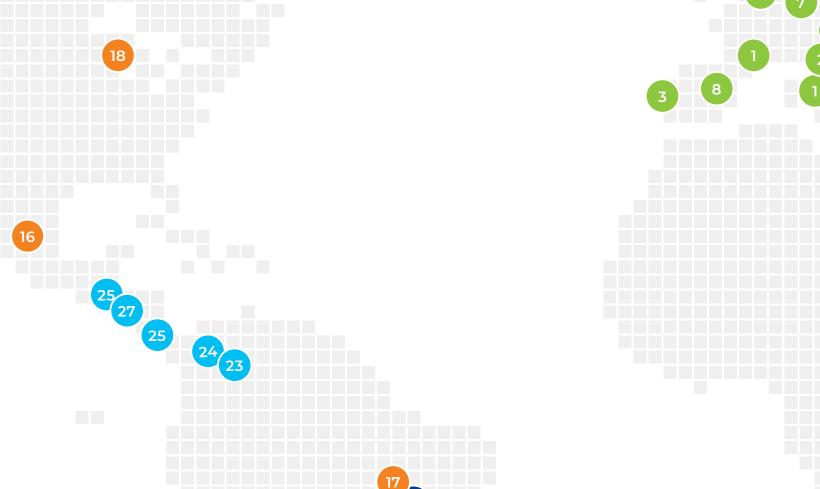
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Driving higher recycling performance

1. Lucart Italy expands polyAl recycling

After some trials, in 2010 Lucart devoted a paper production line to the recycling of carton packages and started the "Natural project". The project objective was to enhance the characteristics and natural colour of fibres for a new ecological line of paper products, both for the household sector with GrazieNatural and for the professional sector with EcoNatural.

Several joint communication activities followed the launch of the products promoting recycled carton packages as source material for these high-value paper products. The label Fiberpack® was then developed as a "mark of origin", emphasizing recycled cartons as the source material. A few years ago, to close the loop, Lucart also started to use polyAl to produce soap and paper dispensers for the EcoNatural product line. Now, following an increase in production capacity, Lucart is expanding.

With this addition, Lucart is not only making the recycling process more efficient but also creating a market outlet for all components of the carton package.



Italy and France



Lucart and Newpal



In collaboration with Newpal, Lucart Italy has completed the installation of a polyAl line in 2022, producing polyAlbased granules used for the production of pallets. Lucart facilities have recycled more than 50,000 tonnes of carton packages in Italy and France in 2022, an approximate increase of about 50% from 2021.

2. Circularity gets a boost in Southern Europe

Packaging circularity turns into life when all materials are recycled and turned into new valuable products.

In Italy, our collaboration with the PolyAl recyclers
Ecorevive and Ecoplasteam draws on our network
to promote their products and find new market
opportunities for recycled materials. We also
facilitate the collaboration between fibre recyclers
with polyAl recyclers and work to strengthen
relations throughout the recycling value chain.

The two polyAl recyclers have a combined annual capacity of 14,000 tonnes and the objective for 2023 is to utilise this entire capacity while promoting sustainable and long-term business. Ecorevive focuses its production on polyAl agglomerates, used for garden furniture and building construction applications, while EcoPlasteam produces high-quality granules used for several applications for household, gardening and bathroom items, toys and automotive components.

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Ecorevive and EcoPlasteam

3. Working with PROs to increase the collection and recycling of beverage cartons in Italy and Portugal

In Italy and Portugal, Tetra Pak collaborated with voluntary agreements with Producer Responsibility Organisations (PRO*) to drive collection and recycling of beverage carton packages.

In Italy, since 2003 we are working with Comieco (Consorzio Nazionale per il Recupero e il Riciclo degli Imballaggi a base cellulosica) to promote a separate collection of beverage cartons with the ultimate goal of increasing recycling. In 2022, the recycling rate for beverage cartons in Italy was 40%, equivalent to about 36,000 tonnes of material. The industry target supported by Tetra Pak is to reach 60% by 2025.

In Portugal, to consolidate the existing collaboration and having already developed several joint initiatives, we signed a voluntary

agreement with the Portuguese PRO Socieded Ponto Verde (SPV), with the purpose of increasing the recycling and collection rates for beverage carton packages. This new agreement aims to promote packaging circularity through several associated projects and awareness-raising activities. In 2022, the recycling rates for beverage cartons in Portugal was 38%, the equivalent to about 10,500 tonnes. The goal is the same as in Italy: to achieve 60% by 2025.



Italy and Portugal



Comieco and SPV



Benches made from recycled polyAl

Collection and recycling initiatives



4. Expanding market for recycled polyAl with new recycling technology

We are supporting Plastigram to expand the market for their new polyAl recycling technology which separates LDPE, high-density polyethylene/ polypropylene (HDPE/PP) and aluminium by a patented technology.

Currently, evaluations are ongoing with different producers of compounding and masterbatch, packaging film, profile extrusion and injection moulding. The initial potential to use the materials has been confirmed by different companies, including the use for applications in secondary packaging like wrapping and shrinking foils by Tetra Pak.

Plastigram Industries is a Czech company based in Prague, owned by Meridon Innovative Technologies Fund. The company has developed and patented a new way of recycling polyAl from carton packages. It started construction of the first recycling factory in Czechia in August 2019 and expects to commence production in 2023.

Czech Republic and Poland



Plastigram

In 2021, Tetra Pak and Stora Enso joined forces, alongside Plastigram, to triple the recycling capacity of beverage cartons in Poland. The collaboration introduced a large-scale carton repulping line at Stora Enso's Ostrołęka production unit in Poland to triple the annual carton package recycling capacity in Poland to 75,000 tonnes, allowing recycling of the entire volume of beverage cartons sold in the country as well as from neighbouring countries, including Hungary, Slovakia and the Czech Republic. The polyAl remaining is then recycled using Plastigram's patented technology.

5. Expanding polyAl recycling in the **Netherlands**

Recon Polymers has been developing a new technology to recycle PolyAl for a few years. In 2017, they built a pilot plant to further improve the technology, and with support from Tetra Pak, it led to a commercial plant that started operations in the beginning of 2021.

We are now co-investing with Recon Polymers to support them become a full-size industrial player in polyAl recycling by renewing equipment to increase capacity and to be able to run continuously. After completion, which is expected by summer 2023, the plant will be able to recycle around 8,000 tonnes of polyAl per year, which will mainly be used in the production of recycled plastic pallets. Tetra Pak continues to support the efforts by helping with developing the market for recycled material. This project has shown the full recyclability of carton packages creating value for polyAl, which is in turn raising the overall interest in recycling carton packages in the Netherlands.



Netherlands



Recon Polymers

6. Forward-looking regulation is set to accelerate recycling in **Austria and the Netherlands**

Separate collection or recycling targets for beverage cartons are not yet implemented in many EU countries, with these containers currently falling under either composite packaging or paper packaging targets.

In Austria, thanks to continuous efforts from the beverage carton industry to achieve separate collection and/or recycling targets by law, the amended packaging ordinance now includes an 80% collection target for beverage cartons as of 2025. This supports our overall industry ambition to achieve a 70% recycling rate by 2030.

In addition, the Netherlands is setting an effective beverage carton recycling rate of 34% by 2023, which will gradually increase to a 55% effective recycling rate by 2030.



Austria and Netherlands

7. Transforming polyAl back into secondary raw materials in Germany

We've combined expertises with Palurec in Germany to advance polymer recycling technologies and extrusion pelletising. With the investment in the construction of the Palurec recycling plant near Cologne, Germany, full recyclability of carton packages is confirmed.

Palurec is the first recycling facility in Germany to be able to recycle polyAl from cartons into marketable secondary raw materials for a wide range of industrial applications such as injection moulding. With a capacity of up to 18,000 tonnes per year, it can recycle more than around 40% of the polyAl from Germany.

In 2022, Palurec underwent technical modifications to secure a more efficient production of the extruded low-density polyethylene (LDPE) which is used in injection moulding applications, the HDPE which is used for non-food plastic products, and the aluminium which is again used in aluminium production.







Granules from recycled polyAl

8. Spain focuses on expanding market demand for polyAl

In Spain, you can find some of the largest paper mills in Europe, where more than 100 kilotonnes of beverage cartons are being recycled every year. Tetra Pak is investing and providing technical support to local recyclers to facilitate and accelerate the recycling of polyAI, the non-fibre fraction of beverage cartons made up of polymer and aluminium.

One of these projects is the polyAl recycling line being developed and financed by Alier, a leader in sustainable manufacturing since 1948, currently operating in more than 30 countries around the

world. This initiative will allow Alier – one of the largest post-consumer carton recyclers in Europe - to recycle all components of used carton packages, creating the conditions to transform them into quality materials and goods.

In the same country, Trans Sabater, a company established almost 40 years ago and specialised in the use and recovery of waste from the industrial and municipal sector, has been identified as a further partner to accelerate the recycling of polyAl.





Alier and Trans Sabater

9. Beverage cartons included in mandated collection fraction in **Denmark**

Since 2021, all Danish municipalities are mandated to collect 9 fractions of recyclables, and beverage cartons are one of those fractions. However, several municipalities have applied for an exemption, pushing the effective date up to December 31, 2023.

Beverage cartons can either be collected as 1) an individual fraction, 2) along with plastics, or 3) along with plastics and cans/metal.

Tetra Pak has been tracking the progress of the implementation of this new legislation with the objective to establish the carton package recycling chain in Denmark.



Denmark

10. Investments in carton recycling in Ireland

As a member of The Alliance for Beverage Cartons and the Environment (ACE), Tetra Pak participated in the investment of £249,000 in robotic sorting technology to improve the sorting of beverage cartons in Ireland for onward recycling. The funding was allocated to Panda, for the installation of robotic sorting equipment dedicated to picking cartons at its Ballymount materials recovery facility in Dublin. This is the first-time cartons will be sorted in Ireland from the mixed paper stream. We expect 500 tonnes of sorted cartons to be available annually once the robot is up and running by the end of Q2 2023.



Panda Recycling

11. PolyAl recycling in **Türkiye**

In Türkiye, Tetra Pak started collaborating with Ayti entegre, a construction company from Bursa, to recycle polyAl in their new plant in Emirdağ, Afyonkarahisar province. The plant has a total carton packages annual recycling capacity of 5,000 tonnes. It recycles carton packages into construction boards, Oriented Strand Board (OSB), plywood equivalent panels, and roofing panels without any additives through hot/cold pressing methods.





Construction boards made from recycled polyAl

12. Evaluating additional recycling capacity for Benelux

Together with Stora Enso, Tetra Pak is evaluating the launch of a new recycling line in Langerbrugge, Belgium, that would initially process an estimated 50,000 tonnes of recycled cartons per year - with the potential to increase capacity even further.

The new recycling process would allow the recovery of the fibres of collected beverage cartons in the region. The recycled fibres would be used as source material for producing recycled containerboard at Stora Enso's Langerbrugge site. The remaining polyAl would be processed and recycled by another dedicated partner.





☐ Stora Enso

Advancing and transforming the recycling valuechain

13. Carton Recycling **Industrial Coalition certifies** two new recyclers

In China, the Carton Recycling Industrial Coalition, of which Tetra Pak is an active member, certified two new carton package recyclers in 2022 despite the challenging environment.

The two new recyclers, Kaiyuan and Shunrunkang, were able to recycle together a total of 23,000 tonnes of carton packages in 2022.





☐ Kaiyuan and Shunrunkang



14. New automated sorting plant for beverage cartons in operation in China

In Xiamen, China, a first-of-its-kind automatic sorting centre for low-value recyclables has started operation.

As part of the project, Tetra Pak provided both technical and financial support to Luhai Proenvironment, the company's long-standing waste management partner in the country, who kicked off the initiative. The new facility not only creates a new collection model for the low-value recyclables waste stream to supplement the current beverage carton collection network, it offers a blueprint for other cities seeking to establish their collection systems.



China



15. First dedicated carton package recycling facility in Australia

In Australia, saveBOARD Sydney, the first dedicated used beverage carton recycling facility in the country, and the second in Oceania, started operating in December 2022. The saveBOARD process allows whole cartons including caps and straws to be recycled into panels for the construction industry, offering a one-for-one replacement for plywood, oriented strand board, and plasterboard.

Funding for a third saveBOARD plant to be built in Queensland has been approved by the Queensland Government. The Victorian Government has awarded a grant of AUD 1 million for a fourth saveBOARD plant to be built in Melbourne.

In New Zealand, the plant in Te Rapa, has completed one year of successful operation.



Australia and New Zealand



saveBOARD





16. Mexico sees carton recycling growth of 13% in 2022

Tetra Pak worked to boost the recycling of carton packages in Mexico by 13% (over 52,000 tonnes) compared to 2021, despite the change in the board used in the packages to duplex.

The growth was the result of an action plan which included several initiatives, among them supporting the main partner Bio Pappel® to reach full capacity, in addition to adding capacity for polyAl recycling, and supporting activities to boost collection. For 2023, additional recycling installed capacity will continue to be developed, alongside efforts around growing collection coverage in the north and northeast region of the country.



Mexico



Recicla Cidade Project, Brazil

17. Tetra Pak collaborates with NGO in Brazil to raise awareness around collection

The Recicla Cidade Project has collected 1.374 tonnes of recyclable waste (995 kg of those were carton packages) over the past 3 years, with the participation of 21 municipalities.

Developed in partnership with the NGO Espaço Urbano, the Recicla Cidade Project aims to expand the capacity for collection in collaboration with municipal government, collectors' cooperatives, and consumers. The initiative offers training courses for municipal employees and cooperative members, in addition to public awareness campaigns.

Since the beginning of the project in 2018, more than 552 awareness actions have been carried out, over 10,000 people have participated in training, and 6 million people have been impacted in different municipalities through mobilization actions.



NGO Espaço Urbano



18. Recycling infrastructure improvements in Michigan, US

Through Carton Council – of which Tetra Pak is a founding member – we joined forces with Michigan-based organisations to improve the recycling of all components of post-consumer food and beverage cartons in the US. The new equipment installed at the Great Lakes Tissue Company allows the paper mill to process more cartons, as well removing 75% more water from the polyAl material. This means that its weight is reduced, for more efficient transportation.

The polyAl is currently sent to St. Mary's Cement in Charlevoix, Michigan, to offset the use of coal as fuel. As part of this process, Great Lakes Tissue Company is able to reuse the captured water.



Carton Council, Great Lakes Tissue Company and St. Mary Cement

Activating collection and recycling



19. Working with PRO in Vietnam to promote collection of used beverage cartons

In Southern Vietnam, Tetra Pak launched a project in March 2022 in collaboration with PRO Vietnam and BVRio to promote the collection of used beverage cartons (UBC) through the informal sector.

One of the key activities of the project is to engage and connect Tetra Pak's partner recycler – Dong Tien, in which we are co-investing – to other stakeholders in the UBC value chain (i.e., aggregators, redemption centres and waste pickers), making sure the price and demand for the material are known. By the end of 2022, the project had onboarded three aggregators and delivered 339 tonnes of UBC to Dong Tien, where both fibre and polyAl components are recycled. After the successful pilot period, PRO Vietnam has confirmed it will continue to run this model to promote the UBC collection in Vietnam.



Vietnam



PRO Vietnam, BVRio and Dong Tien



20. Working with junk shops in the Philippines

In the Philippines, our Field Sales Rep Program engaged with 64 junk shops, located in the most populated areas of the country, to increase the collection of cartons in the country.

As a result of the effort, the junk shops together collected ~70 metric tonnes of carton packages between September and December 2022, which were sent for recycling at the local recycler Rural Industrial Corporation.



Philippines



Rural Industrial Corporation

Agreement with Uniboard signed in Egypt

21. Joining forces with leading paperboard producer to set up a new recycling plant in Egypt

In Egypt, Tetra Pak signed an agreement with Uniboard, the leading paperboard producer in the country, to set up a new recycling plant for carton packages with an annual capacity of 8,000 tonnes. The state-of-the-art facility involves a joint investment at over €2.5 million, and will be operational in 2024 at the Uniboard Paper Mill site, in Sadat City. Tetra Pak's support includes its expertise in recycling technologies and the knowhow developed through long-standing relationships with suppliers of recycling solutions across the globe.

As part of its continuous efforts to advance the collection and recycling of carton packages, Tetra Pak aims to collaborate with other industry players and relevant stakeholders in the public and private sectors. The objective is to develop industry coalitions complementing the efforts driven by local authorities, the final goal being to foster the development and implementation of waste management policies and best practices.





Uniboard

22. Recycling all components of carton packages in Saudi Arabia

In Saudi Arabia, Tetra Pak is working with the recycling facilities of Obeikan Paper Industries (OPI) and Saudi Top Plastics (STP) to ensure that recycling solutions are available for all packaging components in the country.

OPI has been recycling fibres from our cartons to manufacture folded cartons for applications such as tissue boxes, cereal boxes, etc. while STP has been recycling polyAl from OPI and producing granules for injection moulding. These granules are then sold and utilised by third parties to produce pallets, crates, bins, and other materials.



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cle used

Saudi Arabi



Obeikan Paper Industries (OPI) and Saudi Top Plastics (STP)

23. Working with PRO in Colombia to improve collection

In Colombia, we are working with 15 companies, including customers and other industry players, as part of a PRO which is managed by Cempre to establish circular economy strategies, with projects in Atlantic Coast, Bogota, Cali and other regions.

Some of the strategies include alliances to recover carton packages, consumer awareness campaigns, public-private alliances to strengthen the collection infrastructure, organizing recyclers by trade and connecting with marketers and processors of the material.



Colombia



PRO managed by Cempre



24. Enabling expansion of capacity for carton recycling in Colombia

In 2022. Tetra Pak has collaborated with a local bank to enable the recycler Proplanet to expand its recycling capacity for carton packages. The recycler has bought an automatic line to start the expansion of capacity, initially adding 400 tonnes, to transform carton packages into new moulded fibre products. The investment will allow for an incremental 200 tonnes/month, with an end- goal of reaching a capacity of more than 11,000 tonnes/year.

"Thanks to Tetra Pak's culture of shared value thinking and constant support, the growth of our recycling rates will not only contribute to the environment but will also benefit more than 10.000 recyclers by significantly increasing their income, which will help our economy to be

Santiago Cáceres, CEO, Proplanet

constantly stronger."







25. Carton recycling receives new boost in **Panama and Guatemala**

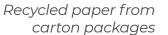
Tetra Pak supported the revamping of the Tu Papel Cuenta initiative. The newly revamped initiative saw over 57 million cartons collected and recycled, six new collection centres built, 14 recycling stations brought onstream and nine Ecobot machines installed in 2022, plus four weekly educational campaigns.

In Guatemala, Tu Papel Cuenta was awarded first place in the environment category by a trade.



Panama and Guatemala







26. First recycling facility for beverage cartons in Paraguay

Fully integrated plant, with fibres recycled into secondary packaging and polyAl into boards and tiles.

In Paraguay, the first post-consumer carton packages recycling facility was commissioned in 2022, with the capacity to handle 1,500 tonnes of material per year. The facility is fully integrated: the fibres from carton packages will be used to produce secondary packaging and paper boards for palletising purposes, while the polyAl will be recycled into boards and tiles.



Paraguay

27. One additional recycler in Nicaragua

Tetra Pak supported Innova Industrias Mills in becoming the new mill able to recycle carton packages in Central America with the installation of a line to recycle the fibre from the packages. Innova produces toilet paper containing up to 25% recycled content from carton packages.

In 2022, Innova recycled more than 350 metric tonnes of carton packages. The goal is to raise that amount to 1,000 metric tonnes per year by 2025.



Nicaragua



Innova Industrias Mil

Cataki project Brazi

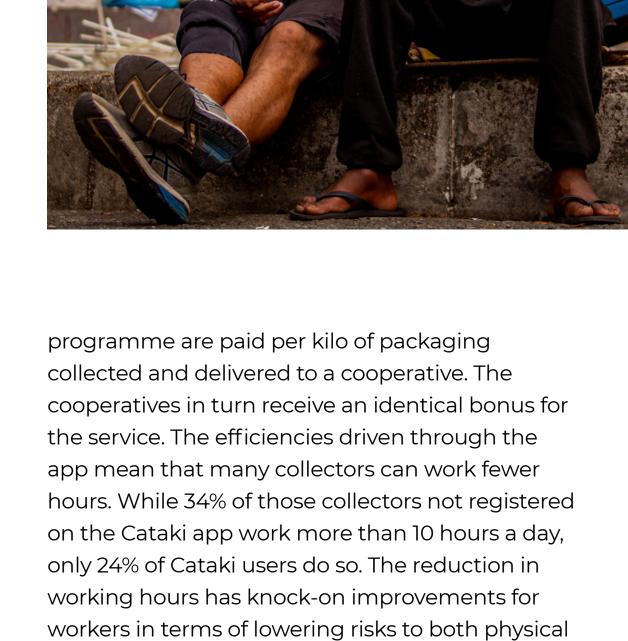
Supporting workers in collection and recycling



28. Collaborating with waste pickers in Brazil

We put collaboration at the centre of our approach in Sao Paulo and Belo Horizonte, Brazil, through the Cataki Project which aims to improve workers' sense of autonomy and their ability to sustain themselves and their families.

The project includes the Cataki app, connecting waste pickers with recycling cooperatives and providing financial incentive that increases the value of waste material thereby providing a new source of income. Pickers participating in the



and mental health and well-being. An unseen

To boost the collection of carton packages in Brazil, a material historically not being routinely collected, Tetra Pak supported the introduction of subsidies for autonomous waste pickers through the Cataki Project. Collected carton packages are sold to waste pickers cooperatives and both parties receive a subsidy. The project covers 2 cities, 6 waste pickers cooperatives and 111 autonomous waste pickers participate, resulting in almost 100 tonnes of carton packages sent to recyclers in one year.

Cataki project, Brazil

impact on waste collectors is the social stigma attached to their work and the way this can affect basic human dignity. The waste collectors using the app reported that they had an increased perception of the social and environmental importance of their job, while 86% felt renewed pride in their profession. Additionally, over 57% of Cataki app users have improved their incomes by receiving more collection requests and consequently collecting material for sale, and 31% now receive payment for the collection activity in addition to the sale of waste material.

"It changed a lot in my life. They call me through the application to make withdrawals and I can charge them." One collector using the Cataki app



Brazil



29. Supporting Bal Vikas Dhara (BVD) in India to empower marginalised women and children

In India, we support the work of Bal Vikas Dhara (BVD), an NGO that works in the South-West areas of Delhi and Haryana to empower marginalised women and children.

The initiative aims to improve the livelihoods of waste-collecting communities through several interventions. To improve children's education, six Non-Formal Education Centres (NFEs) have been established in the waste-collecting communities to provide direct education to 125 children from the ages of 5 to 12, as well as ensure the children receive nutritious meals and enjoy games and play, a key part of early childhood development. BVD has also supported 116 children to enrol in formal Government-run and private schools. To take care of maternal and child health, BVD runs the "Arogya Health Clinic" at Rangpuri Pahari to provide maternal health services at subsidised rates for women in the waste-collection communities. For women's empowerment, BDV runs a Cutting and Tailoring Centre for Women,

which teaches sewing skills to enable women to generate an income in a safe working environment. Moreover, BVD organised 'health camps' in waste-collection communities in South-West Delhi to provide curative treatment as well as advice and counselling on personal hygiene, child immunisation and prevention of dysentery and diarrhoea to 762 patients throughout 2022.

"I'm 9 years old... We are 3 brothers and 2 sisters.

My father does the work of sorting garbage. And I used to separate garbage and sell them at different rates... One day my sister told me that a centre for children's education has been opened in Dharmakanta by Bal Vikas Dhara... Now I go to the study centre every day. Earlier I could not read anything but now I know how to read and write".

One of the children benefiting from the NFEs

"Now I earn 3000 to 3500 by getting more stitched clothes...I will always be grateful to Bal Vikas Dhara and the sewing teacher who taught me, because of them I am now independent and am also expanding my career and taking good care of my child and running the house well." One beneficiary of the Cutting and Tailoring Centre training



India