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USED BEVERAGE CARTON (UBC) MANAGEMENT STUDY FOR INDIA

Executive Summary

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Preface

In India, Tetra Pak was among the first carton packaging companies started in the year 1987. The main focus of Tetra Pak is to provide safe food which is accessible and sustainable in nature to benefit lives of many. Tetra Pak is actively involved and has taken up various initiatives to ensure protection of food as well as future of the people (aligning its activities towards SDGs). With the sole purpose to understand the management of used beverage carton, Tetra Pak appointed The Energy and Resources Institute (TERI) to undertake this study. We laud the efforts of corporates like Tetra Pak who come forward voluntarily to commission such comprehensive studies.

Tetra Pak is consistently being proactive for safeguarding environment and has been involved in many cities to set up collection centres for Used Beverage Cartons (UBCs) as well as raising awareness among public through information, education and capacity building programs. This is a third report in the series by Tetra Pak to help understand management of UBCs and evaluate recycling rates in Indian subcontinent, after years 2011 and 2015. Every report has extended its horizon as well as number of stakeholders for interaction to assess collection and recycling of UBCs. Tetra Pak has been doing voluntary EPR for more than 15 years now and has been continuously working with recyclers across South Asian region to develop solutions, technologies and applications. Through constant interactions and tie ups with recyclers to develop solutions, technologies and applications of UBCs, Tetra Pak has always tried to bring up the level of active sorting of UBCs and reduce mixed waste recycling. Thus, making recycling of UBCs more effective, efficient and economical.

The span of this study was spread in 20 selected cities of India and 03 cities of Kathmandu, Sri Lanka and Bangladesh. This particular report specifically talks about 20 Indian cities. Compared to the earlier study conducted by TERI on UBC management (also called Post-consumer carton management) for Tetra Pak it was observed that recycling rate was about 29% in 2011, about 43% in 2015 and is now increased to about 54% in 2019.

We hope this type of study will definitely help Tetra Pak to formulate appropriate strategies to enhance the recycling rates of UBCs and help achieve SDGs. This report will also be helpful to policy makers, urban local bodies, think tanks, NGOs and waste processors to understand the scenario of UBCs management and it's potential.

Dr Ajay Mathur
Director General
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Executive Summary

Beverage cartons allow distribution of liquid & food products at ambient temperature or under refrigerated conditions by extending shelf life of foods and beverages. A beverage carton is majorly made up of 75% paperboard, 4% aluminium and 21% polymers, thus categorizing these cartons as paper-based packaging. Paperboard used in beverage carton is a valuable raw material that can be easily recycled for making new paper-based products. Aluminium present in the carton is very thin and similar to human hair. It helps in creating a barrier for oxygen, flavours and light. Polymer acts as an inner layer which seals the liquid and acts as an adhesive to aluminium, fibre and external layer as well to keep out the moisture. These paper-based cartons are fully recyclable.

In India, Tetra Pak was among the first carton packaging companies started in the year 1987. It created a lot of job opportunities. The company brought in newer technologies that were customized for Indian markets. The main focus of Tetra Pak is to provide safe food which is accessible and sustainable in nature to benefit lives of many. Tetra Pak India is way ahead of many countries and is one of the fastest growing markets globally.

Tetra Pak offers a wide variety of openings and closures for the cartons, which are bio-based caps made up of HDPE (High Density Poly-ethylene) which is derived from sugarcane. Tetra Pak is one of the first among all other companies to use bio-based HDPE. This is helping improve the environmental performance of packaging, making recycling much more convenient and therefore is economically beneficial.

In India, Tetra Pak is leading and is the first manufacturing company for beverage cartons. Over the last 30 years many packaging formats have been introduced and advanced in different sizes and these packages are kept at different prices so they could suit different consumer requirements.

Tetra Pak is actively involved to ensure that its cartons don't end up in landfill from last 15 years and has taken up various initiatives to make sure the cartons are collected, sorted and recycled and ensure protection of food as well as future of the people (aligning its activities with the SDGs). With the sole purpose to understand the management of used beverage carton, Tetra Pak appointed TERI to undertake this study and help them formulate appropriate strategies to enhance the recycling rates of UBCs.

The paper-based beverage cartons manufactured by Tetra Pak are fully recyclable and out of the overarching 161,000 Tonnes per day of Municipal Solid Waste our urban cities generate, they form only a miniscule part. Tetra Pak is consistently being proactive for safeguarding environment and has been involved in many cities to set up collection centres for Used Beverage Cartons (UBCs) as well as raising awareness among public through various information, education and capacity building programs. This is a third report of its kind within this decade by Tetra Pak to help evaluate recycling rates of UBCs, after year 2011 and year 2015. Every report has extended its horizon as well as number of stakeholders for interaction.

Tetra Pak has been fulfilling extended producer responsibility (EPR) voluntarily for more than past 15 years now and has been continuously working with recyclers across South Asian region to develop solutions, technologies and applications for UBCs. Through

constant interactions and tie ups with recyclers to develop solutions, technologies and applications of UBCs, Tetra Pak has always tried to bring up the level of active sorting of UBCs and reduce mixed waste recycling. Thus, making recycling of UBCs more effective, efficient and economical.

This study was undertaken with the overarching objective to explore the perceptions of waste generators and waste collectors on UBC management, and evaluating the quantity of UBCs collected for recycling with mixed waste paper through scrap dealers,. The span of this study is spread across 20 cities of India and 03 cities of Kathmandu, Sri Lankaand Bangladesh. This particular report specifically talks about 20 Indian cities.

Sub Objectives of this study:

- Study the current quantum of UBC getting procured/ retrieved at the waste dealers' level for further recycling with mixed waste paper.
- Understand the value chain and economics involved in UBC collection and recycling.
- Assess the actual quantum of UBC reaching the paper mills which recycle paper from low grade paper waste.
- Understanding the composition of paper waste and quantity of UBC reaching dumpsites in the surveyed cities.
- Gauge, what critical stakeholders (low grade paper waste dealers and recycling paper mills) believe, is needed to upscale collection and recycling.

Methodology consists of selecting cities with highest beverage carton sales and spread across South, North, East and West regions of the country and conducting primary field surveys with various stakeholders as Waste generators (10/city), Waste collectors (20/city), Small scale scrap dealers (14/city), Large scale waste dealers(07/city), Dumpsite (03/city), Paper Mill (1/region). Local survey agencies were identified in each of the project city to carry out on ground data collection and survey. Reputed NGOs/ agencies active in the field of solid waste management were selected for the study with help from Tetra Pak India Pvt Ltd (TPIPL)

For the selected study area i.e. the selected city, detailed secondary data collection in relevance to waste management and waste characterization was carried out. Under the guidance and monitoring of TERI research staff, primary survey was conducted through questionnaire seeking information from all the major stakeholders involved in the management of the UBC including the consumers (from different socio-economic backgrounds), waste collectors, different levels of waste / scrap dealers (small and large scale waste paper dealers) spread across the city. This study also included surveys at recyclers / paper mills using mixed waste paper as raw material to understand the fate of UBCs getting mixed with it. Survey also involved evaluation of UBC reaching the disposal site (Landfill) in the selected city.

The key findings of the study are as follows:

The study revealed that UBCs are being collected by rag pickers, small scale waste paper dealers, and large scale dealers and are then sent to recycling units. The outcomes of the study revealed the percentage of dealers dealing with UBCs and are depicted in figure below.

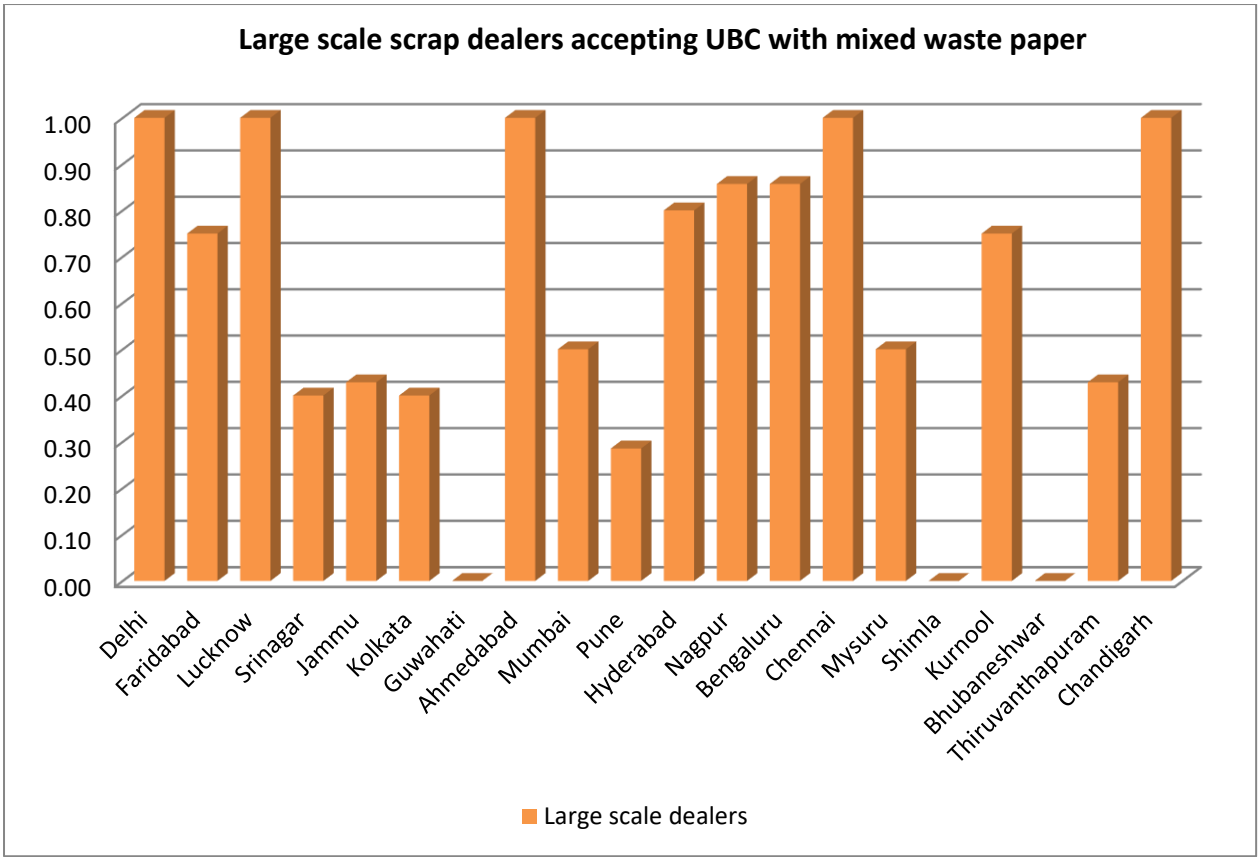

Figure 1 Fraction of Large scale scrap dealers accepting UBCs in the survey cities

It was found that in cities like Ahmedabad, Chandigarh, Chennai, Delhi and Lucknow 100% of dealers were accepting UBCs.

Figure2 depicts average UBCs found with mixed waste paper bales at respective cities.

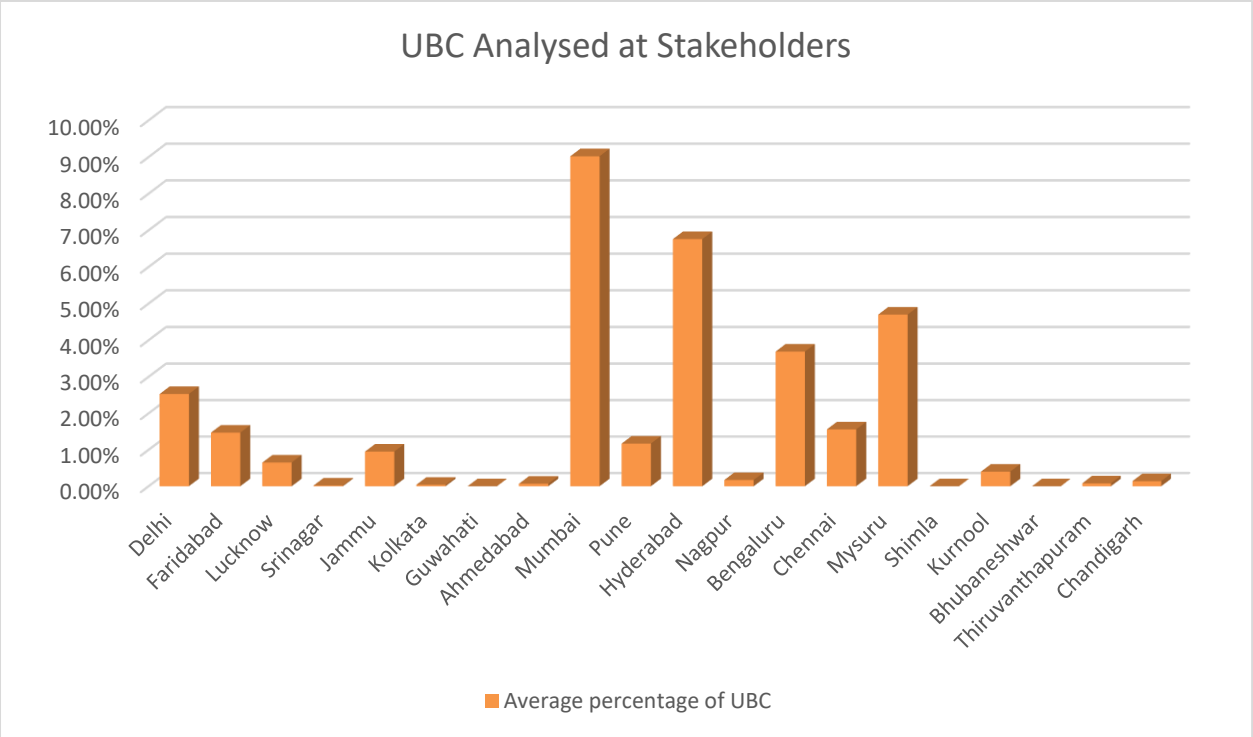

Figure 2 UBC found with mixed waste paper at dealers in the survey cities

The figure 3 depicts recycling rate with limitation of 100% recycling revealed after surveying various cities.

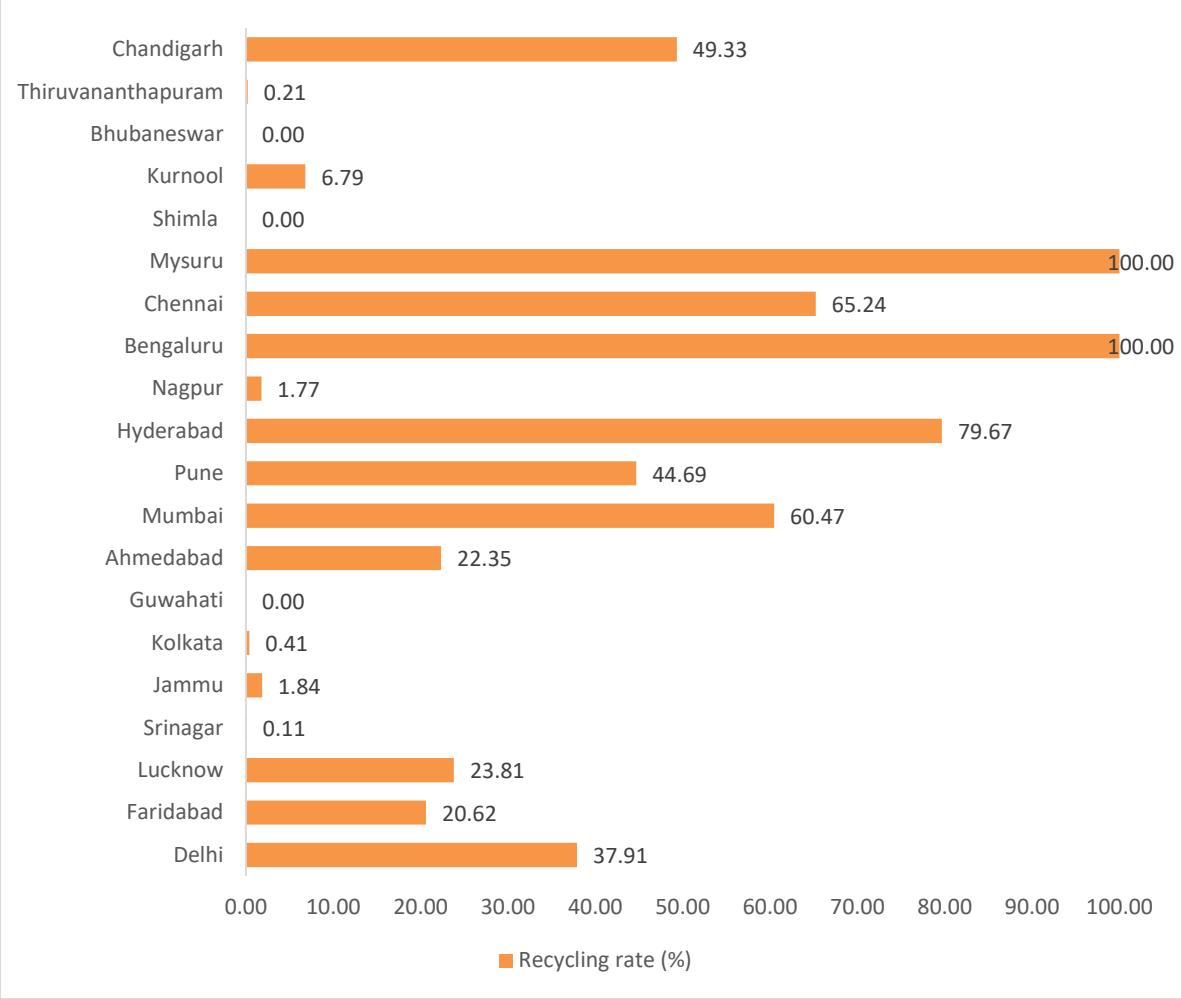

Figure 3 Recycling rates of UBCs in the survey cities by informal sector

The study also showed that 60% of the paper mills surveyed were involved in collecting UBCs from dealers but none of them dealt with UBCs separately. Compared to the earlier study conducted by TERI on Post-consumer carton (also called UBCs now) management for Tetra Pak it was observed that

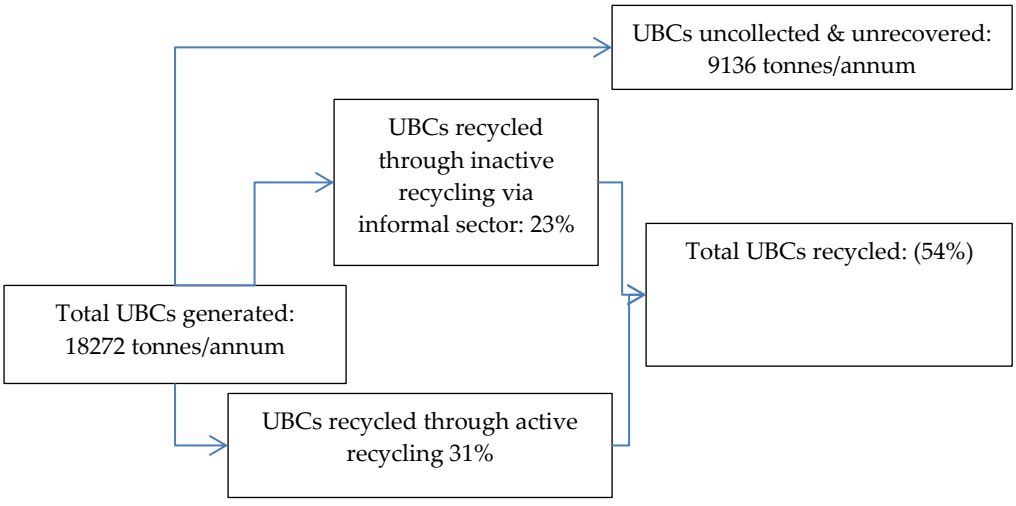

Figure 4: UBC management in India

recycling rate was about 29% in 2011, about 43% in 2015 and is now increased to **about 54% in 2019.**

It was thus clear that recycling rates have increased due to interventions of Tetra Pak, by virtue of working with numerous recyclers and associations to develop solutions, technologies and applications of UBCs. Due to these interventions, the quantity of UBCs going along with mixed paper has reduced and separate collection and recycling of UBCs have been achieved especially in cities like Delhi, Ahmedabad, Mumbai, Pune, Hyderabad, Bengaluru, Chennai, Chandigarh, Mysuru, and Faridabad.

Few of the key recommendations of the study which can be beneficial and help in further improving the recycling rate of UBCs are as follows:

1. As compared to the 2015 study, UBCs collected by informal sector in cities of Ahmedabad, Hyderabad and Bengaluru has reduced and viz a viz UBCs entering into formal active recycling has increased. This indicates the impact of interventions by Tetra Pak to make UBCs sustainable. There is a further need to get the UBCs into active recycling chain as this will not only increase the market potential but will also reduce the number of stakeholders involved in recycling chain. This will increase the price value for those on the front end of the recycling value chain i.e. waste collectors.
2. In cities of Jammu, Kolkata and Guwahati; an urgent attention is required, as due to the lack of acceptance of UBCs by paper mills, the amount of UBCs collected by informal sector has substantially reduced. Active UBC collection and tie ups with recycling units can help push UBCs collection and recycling in these cities again.
3. Pertaining to other surveyed cities, acceptability of UBCs via paper mills is the first key imperative that can help improve the UBCs acceptability among waste dealers. This will require information, education and capacity building activities with paper mills along with a strong business case depicting profitability scenarios through fibrous contents of paper based UBCs.
4. A separate collection centre for UBCs should be made which should be linked with material recovery facilities (existing/coming up under the Solid Waste management rules 2016) to facilitate active recycling of UBCs
5. More awareness among waste generators, waste collectors, small and large scale waste dealers can help in segregation of UBCs at source along with straws, however this should be a concerted effort by each stakeholder in the value chain i.e. government, NGOs, industry, etc
6. Higher prices of UBCs can effectively drive the informal recycling and increase recycling rates. Higher prices can be achieved in two ways a) by reducing the chain for collection and recycling and b) Upcycling UBCs through different products and interventions like sheets being used for making mobile toilets/ material recovery facilities etc.
7. The management of UBCs should be further studied and successful lessons should be replicated at other places
8. Such an exercise (to study the management of UBCs in major cities and identify the recycling rates) may be repeated in every 03 years to reassess the improvement in recycling rates and plan interventions and strategies.

About TERI

TERI is an independent, multi-dimensional organization, with capabilities in research, policy, consultancy and implementation. We are innovators and agents of change in the energy, environment, climate change and sustainability space, having pioneered conversations and action in these areas for over four decades.

We believe that resource efficiency and waste management are the keys to smart, sustainable and inclusive development. Our work across sectors is focused on; a)Promoting efficient use of resources, b)Increasing access and uptake of sustainable inputs and practices, and c)Reducing the impact on environment and climate.

Our research, and research based solutions have had a transformative impact on industry as well as communities. We have fostered international collaboration on sustainability action by creating a number of platforms and forums. We do this by translating our research into technology products, technical services, as well as policy advisory and outreach.

Headquartered in New Delhi, we have regional centres and campuses in Gurugram, Bengaluru, Guwahati, Mumbai, Panaji , and Nainital. Our 1200-plus team of scientists, sociologists, economists and engineers delivers insightful, high quality action-oriented research and transformative solutions supported by state- of-the-art infrastructure.

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