BIP DIGEST

Bangladesh Institute of Packaging

Issue 01 | January 2026

"BIP MAKES HISTORY— Representing Bangladesh in the Global Packaging Community"

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BIP Digest: A Bridge Between Knowledge, Technology, and Sustainable Packaging

Packaging today is no longer merely a supporting function; it has become a strategic industry closely connected with industrial development, export growth, food safety, brand value, and environmental protection. The Bangladesh Institute of Packaging (BIP) has long been working to promote skill development, research, and knowledge sharing within this vital sector. In continuation of that commitment, the launch of "BIP Digest" marks a timely and proud milestone for us.

The primary objective of this magazine is to serve as a reliable platform highlighting the latest technologies, global trends, sustainable and eco-friendly solutions, research findings, and practical industry experiences in the field of packaging. BIP Digest aims to be a valuable resource for students, researchers, industry professionals, entrepreneurs, policymakers, and all stakeholders associated with the packaging sector.

Globally, Sustainable Development Goals (SDGs), plastic waste management, recycling, biodegradable and compostable packaging, food safety, and smart packaging are shaping the future of the industry. Bangladesh must align itself with these global transformations to remain competitive and responsible. BIP Digest seeks to illuminate this path by sharing insights, analysis, and real-world practices.

We strongly believe that sustainable industrial growth is not possible without skilled human resources and knowledge-driven development. Through this publication, we intend to present articles by local and international experts, case studies, research papers, and industry news. At the same time, we aim to encourage young professionals and students to share their ideas and innovations.

Finally, we invite active participation and cooperation from readers, contributors, and all stakeholders to help transform BIP Digest into a dynamic knowledge hub. Your feedback and engagement will play a vital role in enriching this publication.

Let us work together to lead Bangladesh's packaging industry toward a more efficient, competitive, and environmentally responsible future.

BIP ডাইজেস্ট: জ্ঞান, প্রযুক্তি ও টেকসই প্যাকেজিংয়ের সেতুবন্ধন

প্যাকেজিং শিল্প আজ আর কেবল একটি সহায়ক খাত নয়; এটি শিল্পায়ন, রপ্তানি, খাদ্য নিরাপত্তা, ব্র্যান্ড ভ্যালু এবং পরিবেশ সুরক্ষার সঙ্গে গভীরভাবে সম্পৃক্ত একটি কৌশলগত ক্ষেত্র। বাংলাদেশ ইনস্টিটিউট অফ প্যাকেজিং (BIP) দীর্ঘদিন ধরে এই শিল্পের দক্ষতা উন্নয়ন, গবেষণা এবং জ্ঞান বিনিময়ে কাজ করে আসছে। সেই ধারাবাহিকতায় "BIP Digest"-এর যাত্রা আমাদের জন্য এক গর্বের ও সময়োপযোগী উদ্যোগ।

এই ম্যাগাজিনের মূল লক্ষ্য হচ্ছে প্যাকেজিং শিল্পের সর্বশেষ প্রযুক্তি, আন্তর্জাতিক ট্রেন্ড, টেকসই ও পরিবেশবান্ধব সমাধান, গবেষণা ফলাফল এবং শিল্প-অভিজ্ঞতার একটি নির্ভরযোগ্য প্ল্যাটফর্ম তৈরি করা। শিক্ষার্থী, গবেষক, শিল্প উদ্যোক্তা, নীতিনির্ধারক এবং পেশাজীবী-সবার জন্যই BIP Digest হবে জ্ঞান ও দিকনির্দেশনার একটি কার্যকর সহায়ক।

বিশ্বব্যাপী টেকসই উন্নয়ন লক্ষ্যমাত্রা (SDGs), প্লাস্টিক বর্জ্য ব্যবস্থাপনা, রিসাইক্লিং, বায়োডিগ্রেডেবল ও কম্পোস্টেবল প্যাকেজিং, ফুড সেফটি এবং স্মার্ট প্যাকেজিং-এই বিষয়গুলো আজ আমাদের শিল্পের ভবিষ্যৎ নির্ধারণ করছে। বাংলাদেশকেও এই বৈশ্বিক পরিবর্তনের সঙ্গে তাল মিলিয়ে এগিয়ে যেতে হবে। BIP Digest সেই পথচলায় তথ্য, বিশ্লেষণ ও বাস্তব অভিজ্ঞতার আলো জ্বালাতে চায়।

আমরা বিশ্বাস করি, দক্ষ মানবসম্পদ ও জ্ঞানভিত্তিক শিল্প উন্নয়ন ছাড়া টেকসই অগ্রগতি সম্ভব নয়। এই ম্যাগাজিনের মাধ্যমে দেশীয় ও আন্তর্জাতিক বিশেষজ্ঞদের লেখা, কেস স্টাডি, গবেষণা নিবন্ধ এবং শিল্প সংবাদ পাঠকদের সামনে তুলে ধরা হবে। একই সঙ্গে তরুণ পেশাজীবী ও শিক্ষার্থীদের চিন্তা ও উদ্ভাবন প্রকাশের সুযোগও সৃষ্টি করা হবে।

সবশেষে, BIP Digest-কে একটি জীবন্ত জ্ঞানভান্ডারে রূপ দিতে পাঠক, লেখক, শিল্প সংশ্লিষ্ট সকল অংশীজনের সক্রিয় সহযোগিতা একান্তভাবে কাম্য। আপনাদের মতামত, প্রস্তাব ও অংশগ্রহণই এই প্রকাশনাকে আরও সমৃদ্ধ করবে।
আসুন, সম্মিলিত প্রচেষ্টায় বাংলাদেশের প্যাকেজিং শিল্পকে আরও দক্ষ, প্রতিযোগিতামূলক ও পরিবেশবান্ধব ভবিষ্যতের দিকে এগিয়ে নিয়ে যাই।

Mohammad Abdul Hakim
Editor, BIP Digest
Bangladesh Institute of Packaging

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BIP President's Message

It gives me immense pleasure to share this message in the first edition of BIP Digest, the official publication of the Bangladesh Institute of Packaging (BIP). This milestone marks an important step in our mission to advance the science, technology, and management of packaging in Bangladesh.

Since its establishment, BIP has been committed to developing a skilled and knowledgeable packaging community through training, research, consultancy, and collaboration. Over time, we have successfully conducted ten professional training sessions, building capacity and creating new opportunities for professionals and industries alike.

A proud achievement for all of us is BIP's recognition as a Full Voting Member of the World Packaging Organization (WPO), making Bangladesh the 66th member country. We sincerely thank Mrs. Luciana Pellegrino-President-WPO, Mr. Johannes Bergmair-Secretary General-WPO, and all WPO members for their guidance and support.

We express heartfelt gratitude to our Advisors, Faculty, Members, Participants, and to all sponsoring and advertising organizations for making this publication possible.

As we launch this inaugural issue on the occasion of IPF 2026, Dhaka, let us move forward together to build a sustainable and innovative packaging future for Bangladesh.

বাংলাদেশ ইনস্টিটিউট অব প্যাকেজিং (BIP)-এর অফিসিয়াল প্রকাশনা 'BIP Digest'-এর প্রথম সংখ্যায় বার্তা দিতে পেরে আমি অত্যন্ত আনন্দিত। এটি বাংলাদেশের প্যাকেজিং শিল্পের বিজ্ঞান, প্রযুক্তি ও ব্যবস্থাপনা উন্নয়নে আমাদের যাত্রার এক গুরুত্বপূর্ণ মাইলফলক।

প্রতিষ্ঠার পর থেকে BIP প্রশিক্ষণ, গবেষণা, পরামর্শ ও সহযোগিতার মাধ্যমে দক্ষ ও জ্ঞান সমৃদ্ধ প্যাকেজিং পেশাজীবী তৈরি করতে কাজ করে যাচ্ছে। এ পর্যন্ত আমরা সফলভাবে ১০টি পেশাগত প্রশিক্ষণ সম্পন্ন করেছি, যা এই খাতের উন্নয়নে নতুন দিগন্ত উন্মোচন করেছে।

আমাদের জন্য একটি গৌরবজনক অর্জন হলো বিশ্ব প্যাকেজিং সংস্থা (WPO)-এর Full Voting Member হিসেবে অন্তর্ভুক্ত হওয়া - যার মাধ্যমে বাংলাদেশ এখন এই বিশ্ব পরিবারের ৬৬তম সদস্য দেশ। আমরা Mrs. Luciana Pellegrino-President-WPO, Mr. Johannes Bergmair-Secretary General-WPO এবং WPO-র সকল সদস্যকে তাঁদের সহযোগিতার জন্য কৃতজ্ঞতা জানাই ।

এই প্রকাশনা বাস্তবায়নে সহায়তা প্রদানকারী সকল পরামর্শক, প্রশিক্ষক, সদস্য, অংশগ্রহণকারী, স্পন্সর ও বিজ্ঞাপনদাতা প্রতিষ্ঠানকে আন্তরিক ধন্যবাদ জানাই।

IPF ২০২৬, ঢাকা-এর এই বিশেষ মুহূর্তে আমরা সবাই মিলে বাংলাদেশের জন্য একটি টেকসই ও উদ্ভাবনী প্যাকেজিং ভবিষ্যৎ গড়ে তোলার প্রত্যয় ব্যক্ত করছি।

Mosharraf H Bhuiyan
President
Bangladesh Institute of Packaging (BIP)

WPO President's Message

It gives me great pleasure to extend my warmest congratulations to the Bangladesh Institute of Packaging (BIP) on the publication of the first edition of BIP Digest. This milestone reflects the remarkable progress that BIP has made in advancing packaging education, innovation, and professional development in Bangladesh.

As the 66th Full Voting Member of the World Packaging Organization (WPO), Bangladesh now stands as an important part of our global packaging community.

Through BIP's active involvement, we look forward to greater collaboration in promoting sustainable packaging, food safety, and circular economy principles — areas that are at the heart of WPO's global mission.

Publications like BIP Digest play a crucial role in spreading knowledge, connecting professionals, and inspiring the next generation of packaging leaders. I am confident that this initiative will strengthen the exchange of ideas and drive continuous improvement in the country's packaging sector.

On behalf of the WPO, I wish the entire BIP team continued success in their endeavors to promote packaging excellence and sustainability in Bangladesh and beyond.

বাংলাদেশ ইনস্টিটিউট অব প্যাকেজিং (BIP)-কে আন্তরিক অভিনন্দন জানাই BIP Digest-এর প্রথম সংখ্যাটি প্রকাশের জন্য। এটি একটি গুরুত্বপূর্ণ মাইলফলক, যা বাংলাদেশের প্যাকেজিং খাতে শিক্ষা, উদ্ভাবন ও পেশাগত উন্নয়নের ক্ষেত্রে BIP-এর উল্লেখযোগ্য অগ্রযাত্রার প্রতিফলন।

বিশ্ব প্যাকেজিং সংস্থা (WPO)-এর ৬৬তম ফুল ভোটিং মেম্বার হিসেবে বাংলাদেশ এখন আমাদের বিশ্ব প্যাকেজিং পরিবারের একটি গুরুত্বপূর্ণ অংশ। BIP-এর সক্রিয় অংশগ্রহণের মাধ্যমে আমরা টেকসই প্যাকেজিং, খাদ্য নিরাপত্তা এবং সার্কুলার ইকোনমি প্রচারে আরও নিবিড় সহযোগিতার প্রত্যাশা করছি - যা WPO-এর বিশ্ব মিশনের মূল লক্ষ্য।

BIP Digest এর মতো প্রকাশনা জ্ঞান সম্প্রসারণ, পেশাজীবীদের সংযুক্ত করা এবং নতুন প্রজন্মের প্যাকেজিং নেতাদের অনুপ্রাণিত করার ক্ষেত্রে গুরুত্বপূর্ণ ভূমিকা পালন করে। আমি বিশ্বাস করি, এই উদ্যোগ বাংলাদেশের প্যাকেজিং খাতে নতুন দিগন্ত উন্মোচন করবে এবং ক্রমাগত উনয়নের পথ প্রশস্ত করবে।

WPO-এর পক্ষ থেকে আমি BIP-এর সকল সদস্যকে অভিনন্দন জানাচ্ছি এবং ভবিষ্যতে প্যাকেজিং উৎকর্ষতা ও টেকসই উনয়নের পথে তাদের অব্যাহত সাফল্য কামনা করছি।

Mrs. Luciana Pellegrino
President- World Packaging Organization (WPO)

Executive Director's Message

from ACI Flexible Packaging PLC (Premiaflex)

It is a great honor to congratulate the Bangladesh Institute of Packaging (BIP) on the launch of its inaugural BIP Digest. This publication marks an important milestone for Bangladesh's packaging industry, providing a valuable platform for sharing knowledge, innovation, and global best practices.

BIP has consistently played a pioneering role in advancing packaging science, technology, and professional development. Through its training, certifications, and industry engagement, it has strengthened capabilities across the value chain, promoting innovation, sustainability, and excellence.

As a market leader in flexible packaging, ACI Flexible Packaging PLC (Premiaflex) recognizes the vital role of knowledge, technology, and collaboration in shaping a competitive and future-ready industry. The BIP Digest will serve as a expressive forum for connecting professionals and inspiring progress.

On behalf of ACI Flexible Packaging PLC, we extend our warm congratulations to the BIP team and look forward to continued innovation, growth, and sustainable development in Bangladesh's packaging sector.

বাংলাদেশ ইনস্টিটিউট অব প্যাকেজিং (BIP)-এর প্রথম প্রকাশনা "BIP Digest"-এর শুভ সূচনা উপলক্ষে আন্তরিক অভিনন্দন জানাতে পেরে আমি অত্যন্ত গর্বিত। এই প্রকাশনাটি বাংলাদেশের প্যাকেজিং শিল্পের জন্য একটি গুরুত্বপূর্ণ মাইলফলক, যা জ্ঞান বিনিময়, উদ্ভাবন এবং বিশ্ব সেরা অনুশীলন-সমূহ তুলে ধরার একটি মূল্যবান প্ল্যাটফর্ম হিসেবে কাজ করবে।

বাংলাদেশ ইনস্টিটিউট অব প্যাকেজিং দীর্ঘদিন ধরে প্যাকেজিং বিজ্ঞান, প্রযুক্তি এবং পেশাগত উনয়নে অগ্রণী ভূমিকা পালন করে আসছে। এর প্রশিক্ষণ কার্যক্রম, সার্টিফিকেশন এবং শিল্পখাতভিত্তিক সম্পৃক্ততার মাধ্যমে পুরো ভ্যালু চেইনে দক্ষতা বৃদ্ধি পেয়েছে, যা উদ্ভাবন, টেকসই উন্নয়ন এবং উৎকর্ষতা অর্জনে উল্লেখযোগ্য অবদান রাখছে।

ফ্লেক্সিবল প্যাকেজিং খাতে একটি শীর্ষস্থানীয় প্রতিষ্ঠান হিসেবে, এসিআই ফ্লেক্সিবল প্যাকেজিং পিএলসি (Premiaflex) দৃঢ়ভাবে বিশ্বাস করে যে জ্ঞান, প্রযুক্তি ও পারস্পরিক সহযোগিতাই একটি প্রতিযোগিতামূলক ও ভবিষ্যৎমুখী শিল্প গঠনের মূল ভিত্তি। BIP Digest প্যাকেজিং পেশাজীবীদের মধ্যে সংযোগ স্থাপন এবং অগ্রগতিতে অনুপ্রেরণা জোগানোর একটি কার্যকর ও প্রাণবন্ত মঞ্চ হিসেবে গুরুত্বপূর্ণ ভূমিকা পালন করবে।

এসিআই ফ্লেক্সিবল প্যাকেজিং পিএলসি-এর পক্ষ থেকে আমরা BIP টিমকে জানাই আন্তরিক শুভেচ্ছা ও অভিনন্দন। একইসাথে বাংলাদেশের প্যাকেজিং শিল্পে অব্যাহত উদ্ভাবন, প্রবৃদ্ধি এবং টেকসই উনয়নের প্রত্যাশা রইল।

Md. Anisur Rahman
Deputy Executive Director
ACI Flexible Packaging PLC (Premiaflex)

Sustainable Packaging Practices for a Competitive Global Supply Chain

By R. N. Paul
Managing Director, RFL Group

In today's global economy, supply chains are no longer evaluated solely on speed, cost and scale. Sustainability, compliance and environmental responsibility have become defining factors in competitiveness. Within this landscape, packaging plays a pivotal role in determining how supply chains perform, adapt, and sustain themselves over time.

For export-oriented economies like Bangladesh, packaging has become a strategic differentiator in international trade. Global brands and retailers now assess packaging practices with the same scrutiny they apply to product quality and pricing. Material responsibility, regulatory compliance, waste reduction and environmental impact are now central to supplier selection. As a result, sustainable packaging has evolved from a supporting function to a core business imperative.

At Advance Trims Solution BD Limited (ATSBL), we work within this global framework as a solutions provider to leading apparel and retail brands. Our experience across international markets has taught us a fundamental truth: packaging decisions directly impact supply chain efficiency, brand credibility and long-term business viability. Effective packaging must protect products through complex logistics networks while meeting increasingly rigorous sustainability standards.

Sustainable packaging is fundamentally about achieving the right balance by reducing environmental impact without compromising performance, safety or compliance. Practices such as optimized material usage, recyclable designs and biodegradable alternatives have become essential capabilities for manufacturers competing in global markets that increasingly reward environmental responsibility.

Biodegradable packaging solutions deserve particular attention for their potential to address long-term environmental challenges. When properly designed and implemented, these materials can significantly reduce persistent waste while maintaining the durability required for international transportation and handling. However, successful adoption requires careful evaluation of material performance, supply chain compatibility and economic viability, especially critical in high-volume export operations.

At ATSBL, we treat sustainability as an ongoing operational commitment, not a one-time initiative. Our approach focuses on informed material selection, efficient production processes and intelligent packaging design that eliminates waste without sacrificing international standards. By integrating sustainable and biodegradable solutions into our packaging offerings, we help our clients meet environmental commitments while maintaining operational excellence and competitiveness.

Bangladesh's packaging sector has made significant progress through technology adoption and alignment with international sustainability standards. Export-focused companies are investing in modern manufacturing capabilities, robust compliance systems and environmentally responsible practices. These efforts not only advance environmental stewardship but also strengthen Bangladesh's position as a reliable and progressive sourcing partner in global supply chains.

Yet sustainable progress cannot happen in isolation. Real transformation requires collaboration across the entire supply chain. Manufacturers, brands, policymakers and research institutions must work together to ensure sustainable packaging solutions are practical, scalable and economically sound. Organizations like the Bangladesh Institute of Packaging (BIP) play a crucial role by promoting education, research and industry-wide knowledge sharing.

Looking ahead, competitive advantage in global supply chains will increasingly depend on the ability to integrate sustainability into core operations. Companies that invest in sustainable packaging practices, biodegradable innovation and process optimization will be better positioned to meet evolving regulations and buyer expectations. At ATSBL, we see this as extending beyond business performance to contributing meaningfully to Bangladesh's long-term industrial development.

The journey toward sustainable packaging is complex and ongoing. However, with strategic focus, technological investment and collective commitment, it represents a significant opportunity. By embracing responsible packaging practices today, Bangladesh's export and packaging industries can strengthen their global competitiveness while contributing to a more sustainable future, an outcome that serves both business success and environmental responsibility.

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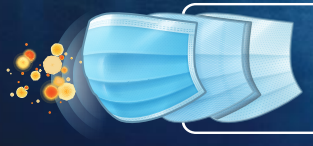

3 LAYERS OF PROTECTION

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Our Esteemed Members

At this milestone, the Bangladesh Institute of Packaging (BIP) wishes to express its deepest gratitude to all its respected members. Your trust, partnership, and active engagement have been foundational in our journey to become Bangladesh's first dedicated packaging learning institute.

The Bangladesh Institute of Packaging (BIP) wishes to express its deepest gratitude to all its respected members. We especially acknowledge:

- **Mr. Abdus Samad Azad — CEO, Holoplus Techno System**
- **Mr. Md. Mesbah Ul Alam Rasel — CEO, Z Pack**
- **Mr. Shahidul Islam — CEO, Taqwa Printers**
- **Mr. Nazmul Huda — Director, Vision Induction Wads Ltd.**
- **Mr. Md. Sajjadul Islam — Entity Manager, Siegwerk Bangladesh Ltd.**
- **Mr. Md. Shafiqul Islam — Managing Director, Rapid Pack Ltd.**
- **Ms. Shayena Haque — GM-Technical Commercial, Elite Paint & Chemical Industries Ltd.**
- **Mr. Mithu Kanti Barua — Director, PackFusion Global**

Your collaboration inspires us to push further. Together, we are shaping the future of packaging in Bangladesh. Thank you for standing with us.

Our Valued Clients

বায়োডিগ্রেডেবল শপিং ব্যাগ: সময়ের দাবি ও পরিবেশ রক্ষার কার্যকর সমাধান

Md. Mahabubul Hasan
Business Head
BRAC Green Packaging

পলিথিন দূষণ বর্তমানে বাংলাদেশের জন্য একটি মারাত্মক পরিবেশগত সমস্যায় পরিণত হয়েছে। প্রতিদিন ব্যবহৃত লক্ষ লক্ষ পলিথিন শপিং ব্যাগ আমাদের নদী-নালা, খাল, মাটি ও কৃষিজমিকে মারাত্মকভাবে ক্ষতিগ্রস্থ করছে। এই সংকটময় বাস্তবতায় বায়োডিগ্রেডেবল শপিং ব্যাগ পরিবেশ রক্ষার একটি কার্যকর ও সময়োপযোগী সমাধান হিসেবে সামনে এসেছে।

প্রচলিত পলিথিন ব্যাগ সাধারণত ৩০০ থেকে ৫০০ বছর পর্যন্ত মাটিতে অবিকৃত অবস্থায় থেকে যায়। ফলে মাটির উর্বরতা নষ্ট হয়, পানি নিষ্কাশন ব্যবস্থায় প্রতিবন্ধকতা সৃষ্টি হয় এবং বন্যার ঝুঁকি বৃদ্ধি পায়। অন্যদিকে, বায়োডিগ্রেডেবল ব্যাগ প্রাকৃতিক উপাদান যেমন-স্টার্চ, ভুট্টা, আখ, ক্যাসাভা বা অন্যান্য জৈব উপকরণ দিয়ে তৈরি হয়, যা নির্দিষ্ট সময়ের মধ্যে জীবাণুর মাধ্যমে পচে গিয়ে প্রকৃতিতে মিশে যায়।

বায়োডিগ্রেডেবল শপিং ব্যাগ ব্যবহারের অন্যতম প্রধান প্রয়োজনীয়তা হলো পরিবেশ দূষণ হ্রাস। এসব ব্যাগ মাটিতে পচে গিয়ে ক্ষতিকর মাইক্রোপাস্টিক তৈরি করে না। ফলে মাটি, পানি ও খাদ্যচক্র নিরাপদ থাকে। বিশেষ করে নদী ও সমুদ্রের জীববৈচিত্র রক্ষায় এর অবদান অত্যন্ত গুরুত্বপূর্ণ, কারণ প্লাস্টিক বর্জ্যের কারণে প্রতি বছর অসংখ্য জলজ প্রাণী মারা যাচ্ছে।

স্বাস্থ্য সুরক্ষার দিক থেকেও বায়োডিগ্রেডেবল ব্যাগ গুরুত্বপূর্ণ ভূমিকা রাখে। পলিথিন ব্যাগে বহন করা গরম খাবার বা কাঁচা সবজিতে ক্ষতিকর রাসায়নিক মিশে মানুষের শরীরে প্রবেশ করতে পারে, যা দীর্ঘমেয়াদে ক্যান্সারসহ নানা রোগের ঝুঁকি বাড়ায়।

বায়োডিগ্রেডেবল ব্যাগ সাধারণত খাদ্য-বান্ধব (food grade) হওয়ায় এ ধরনের ঝুঁকি অনেক কম।

অর্থনৈতিক দৃষ্টিকোণ থেকেও বায়োডিগ্রেডেবল ব্যাগ সম্ভাবনাময় একটি খাত। স্থানীয়ভাবে এসব ব্যাগ উৎপাদনের মাধ্যমে নতুন শিল্প গড়ে উঠতে পারে, কর্মসংস্থান সৃষ্টি হবে এবং পরিবেশবান্ধব ব্যবসা সম্প্রসারিত হবে। ইতোমধ্যে বিশ্বের অনেক দেশ প্লাস্টিক ব্যাগ নিষিদ্ধ করে বায়োডিগ্রেডেবল ও রিইউজেবল ব্যাগ ব্যবহারে আইনগত বাধ্যবাধকতা তৈরি করেছে।

তবে শুধু বিকল্প থাকলেই যথেষ্ট নয়; প্রয়োজন সচেতনতা ও নীতিগত প্রয়োগ। সরকার, ব্যবসায়ী, সুপারশপ ও সাধারণ ভোক্তাদের সম্মিলিত উদ্যোগ ছাড়া এই পরিবর্তন সম্ভব নয়। দোকানে বায়োডিগ্রেডেবল ব্যাগ ব্যবহার বাধ্যতামূলক করা, কর ছাড় দেওয়া এবং জনগণকে সচেতন করার মাধ্যমে এই উদ্যোগ আরও জোরদার করা যেতে পারে।

পরিশেষে বলা যায়, পরিবেশ রক্ষার লড়াইয়ে বায়োডিগ্রেডেবল শপিং ব্যাগ একটি ছোট কিন্তু অত্যন্ত কার্যকর অস্ত্র। আজকের সচেতন সিদ্ধান্তই আগামী প্রজন্মের জন্য একটি বাসযোগ্য পৃথিবী নিশ্চিত করতে পারে। প্লাস্টিকমুক্ত পরিবেশ গড়তে এখনই সময় বায়োডিগ্রেডেবল বিকল্প গ্রহণ করার।

Better quality of life, through
better packaging, for more people

The Role of Packaging Technology in Accelerating SME Growth

Kofi Essuman
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Trade, which is the exchange of goods, services and capital between two or more parties either within a country or across international borders, has been going since time immemorial. Today trade contributes significantly to the gross domestic product (GDP) of countries and is a reflection of the level of development. In developing countries SMEs are crucial and act as the backbone for economic development by creating jobs, reducing poverty, and diversifying the economy. In many African countries SMEs contribute 30-70% of GDP and provide job opportunities for women and youth. In Asian economies, SMEs make up over 97% of businesses and contribute significantly to GDP, and employment across the region.

SMEs in developing countries are involved in a wide array of sectors, particularly services, manufacturing, trade, and agriculture industries, constituting the backbone of the private sector, often operating with lower capital investments and focusing on local markets. Most of these trading activities involve the movement of goods from the source of production to the point of consumption. A product has little value unless it is delivered to the final consumer unspoiled, undamaged and functional for its intended purpose. This can only be achieved through effective packaging. For this reason one can conclude that packaging - defined as the technology of enclosing or protecting products for distribution, storage, sale and consumption - facilitates business growth and transformation especially in merchandise trade.

Packaging is used in a wide range of industries across the food and drink, healthcare, cosmetics, and other consumer goods. Packaging is also used for handling a wide range of industrial goods and agricultural commodities. A wide range of materials are used to manufacture packaging. The types include flexible plastics, rigid plastic, flexible foil, glass, metal, paper and paperboard, wood and composite materials. Packaging is usually available as primary (the first level package for containment of the product), secondary (the second level package which holds several primary packages together) or tertiary (this groups and protects several packages for handling and shipping).

Today packaging has evolved from a simple containment utility into a strategic driver and a marketing tool for the growth and competitiveness of SMEs. By adopting advanced packaging systems, SMEs can overcome traditional barriers such as high costs, limited floor space, and stringent trade barriers such as environmental regulations. Packaging technology can accelerate SME growth in the following aspects:

- Operational Efficiency through the adoption of automated and semi-automated systems to increase packing speed and minimize capital expenditure.
- Competitive Edge and Regulatory Compliance by adopting eco-friendly packaging to gain market access
- Smart Packaging using low-cost technologies like QR codes is facilitating e-commerce, enhancing digital brand engagement with consumers, provide digital receipts, and offer loyalty rewards
- Build Consumer Trust using smart labels that change colour to indicate product freshness or authenticity.
- Supply Chain Resilience and Quality Control with integrated sensors to allow SMEs to track shipments in real-time, reducing losses from spoilage or theft. Basic packaging lines can also integrate technologies to detect defects instantly, ensuring consistent product quality and prevent costly returns.

For small and medium size businesses in developing countries these technological innovations in packaging present immense opportunities for growth. However these packaging developments offer significant challenges due to the limited capacity of SMEs to adopt and sustain the changes. Packaging associations play a vital role in supporting SMEs to overcome these challenges by providing crucial resources, advocacy, research and development, networking opportunities, and educational initiatives. These efforts help SMEs overcome common challenges like navigating complex regulations, accessing new markets, and adopting technologies and sustainable practices.

The World Packaging Organisation (WPO) acting as the global voice for packaging, unites industry bodies to advance packaging science, sustainability education and Innovation through its vision of "Better quality of life through better packaging for more people." WPO fosters collaboration, promotes packaging education, drives sustainability especially reducing food waste and promoting post-consumer packaging waste recycling, shares knowledge and recognizes packaging excellence.

At the 114th WPO Board Meeting in Colombo, Sri Lanka in late October 2025, the Bangladesh Institute of Packaging (BIP) was admitted to the WPO as a full member thus enhancing BIP's status as a leading packaging body and opening doors for partnership with global packaging organisations. This is in line with BIP's vision to be a packaging centre of excellence in Bangladesh; and its mission to build a stronger and more innovative packaging industry in Bangladesh through comprehensive education, practical training, and professional development.

BIP's membership of WPO provides an opportunity to leverage its resources and expand the networks offered by the WPO to support SMEs in Bangladesh to enhance their competitiveness, improve efficiency, and achieve sustainable growth through better packaging. The World Packaging Organisation extends its congratulations and best wishes to BIP in their initiative for the development of the packaging industry in Bangladesh.

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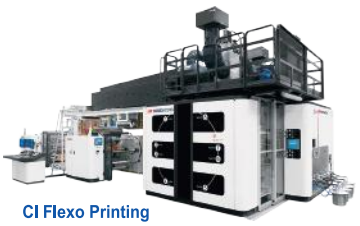
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Linear to Circular: The New Age of Sustainable Packaging

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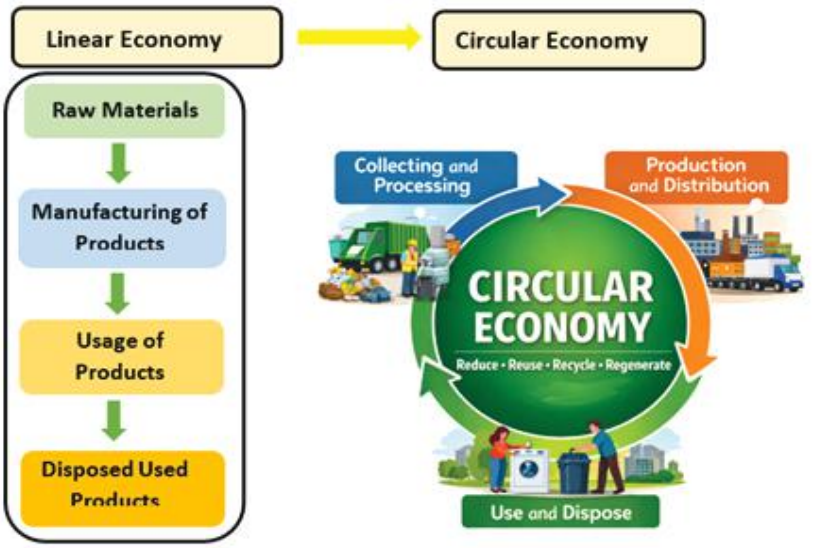
The conventional linear packaging model- "take, make, use, and dispose" is no longer sustainable in a world facing resource inanition, climate change, and rising waste. Virgin plastic, paper, aluminum, and multilayer materials—all of which are challenging to recycle—are major components of traditional packaging systems. After a package has fulfilled its function in a linear system, it frequently ends up in landfills or the environment. Three main issues are brought about by the linear system: resource depletion, carbon emissions, and environmental pollution. The packaging industry is now transitioning toward a circular economy, where materials are designed to remain in use for as long as possible through reducing, recycling, reusing and regeneration.

In the new age of sustainable packaging, design for recyclability is a key driver. Complex material structures of flexible packaging are being replaced by mono-material that provides barrier, mechanical, optical and other required performance while remaining compatible with existing recycling systems. Advances in polymer science, coatings, and nano technologies have made it possible to achieve sustainability without compromising functionality.

Reduce the uses of packaging materials is another pillar of circularity. Lightweight materials consume less energy during production and transportation compared to thicker or more weight packaging. This helps to reduce the carbon emissions with maintaining product protection and shelf life, reducing food and product waste. Now, recyclable and renewable materials are increasingly integrated into packaging structures. Post-consumer recycled (PCR) plastics, bio-based polymers, and paper-based laminates are helping brands close the material loop. At the same time, improved collection systems and extended producer responsibility (EPR) programs are encouraging accountability across the value chain.



Innovation also extends beyond materials. Design for recycling and traceability solutions can enhance the consumer awareness and proper disposal behavior, strengthening recycling outcomes. To make an effective circular system, need to collaboration among material suppliers, converters, brand owners and recyclers. A strong industry-academia collaboration may also help to develop this system.

In conclusion, the shift from linear to circular packaging marks a fundamental transformation of the industry. Sustainable packaging today is not just about reducing environmental impact—it is about redesigning systems, embracing innovation, and creating long-term value for businesses. The business advantages of circular packaging are low material costs through recycling, low environmental risk, strong brand loyalty, access to eco-conscious consumers etc.

The sustainable packaging represents a future where packaging protects not only products, but also the planet. The future of packaging is not disposable.

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Photo-Oxidation: The Silent Enemy of Packaged Food Products

Md. Mazharul Islam
Vice President, Bangladesh Institute of Packaging
MSc in MSE, PhD Fellow (Food Packaging)

Introduction

Packaging serves much more purposes in the contemporary food industry than just holding a product. It acts as a shield against environmental elements that can compromise the safety, quality, and shelf life of food. Among these risks, photo-oxidation is still one of the most damaging yet invisible processes that affect packaged foods.

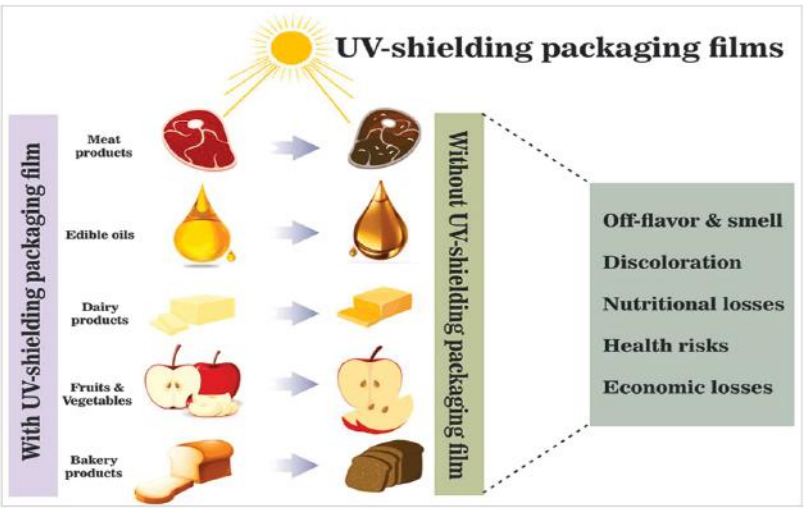
Photo-Oxidation

Photo-oxidation is a chemical reaction that occurs when light—especially ultraviolet (UV) ray interacts with oxygen and food components such as fats, proteins, vitamins, and pigments. This interaction produces free radicals that initiate a chain reaction, leading to rapid deterioration of food quality.

Unlike thermal or microbial spoilage, photo-oxidation can occur even in sealed packages when light penetrates the packaging material.

How Photo-Oxidation Affects Food Quality

A lot of common food items are extremely light-sensitive. Particularly at risk are milk, edible oils, fruit juices, spices, prepared foods, and nutraceuticals. For instance, milk exposed to fluorescent light can oxidize fats and break down riboflavin, giving it a "sunlight flavor" that consumer can easily detect.



The effects of photo-oxidation include:

- Development of off-flavors and rancid odors
- Loss of essential nutrients such as vitamins A, C, and B2
- Discoloration and fading of natural pigments
- Texture changes in fats and emulsions
- Shortened shelf life

Role of Packaging

Packaging becomes the first line of defense because light is the main cause of photo-oxidation. UV and visible light can enter transparent, inadequately shielded packaging, hastening chemical reactions within the product. Contemporary flexible packaging prevents photo-oxidation by:

- Metallized and aluminum foil laminates that reflect light
- Pigmented films that block UV radiation
- UV absorber additives and coatings
- Multilayer structures engineered for light protection

The Commercial Impact

Photo-oxidation affects not just the quality of the product but also the profitability and reputation of the brand. A customer is unlikely to buy the product again if they notice rancid taste, color fading, or nutritional loss. Packaging that safeguards and maintains food quality becomes a crucial differentiator in cutthroat retail settings.

The Way Forward

As consumer demand grows for longer shelf life, cleaner labels, and minimal preservatives, packaging will continue to play a central role in food protection. The future of light-protective packaging lies in high-barrier recyclable materials, nano-coatings, and smart films that indicate light exposure.

Conclusion

Photo-oxidation is truly the silent enemy of packaged food products. Invisible to the eye, yet powerful in its impact, it silently degrades food quality long before the expiration date. Through intelligent packaging design and advanced barrier technologies, the food industry can successfully protect products from light damage—ensuring freshness, nutrition, and consumer satisfaction from factory to table.

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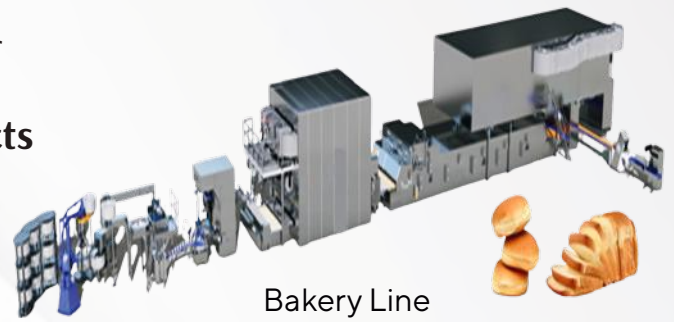

Bakery Line

GET IN TOUCH

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Modified Atmosphere Packaging (MAP) and Thermoform Rigid Trays: Enhancing Food Preservation and Sustainability

Md. Masudur Rahman
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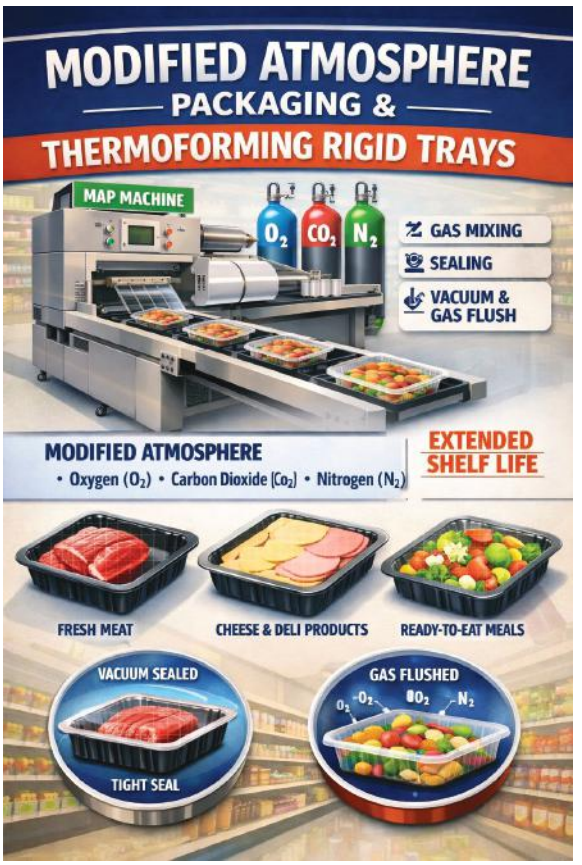
CEO, FBM Technologies Ltd.

Modified Atmosphere Packaging (MAP) and thermoform rigid trays represent a powerful combination in modern food packaging, significantly extending shelf life, preserving quality, and minimizing waste. MAP replaces regular air inside a package with a tailored gas mixture—typically nitrogen (N_2), carbon dioxide (CO_2), and oxygen (O_2)—to slow microbial growth, oxidation, and spoilage. High CO_2 levels suppress bacteria and fungi, low O_2 reduces oxidation (especially in meats), and N_2 prevents collapse as an inert filler. Since the 1970s, advancements in gas mixing and high-barrier films have improved effectiveness. MAP can be active (gas flushing during sealing) or passive (relying on product respiration), often doubling or tripling shelf life compared to conventional packaging, without chemical preservatives.Thermoform rigid trays, produced by heating plastic sheets (e.g., PET, PP, or PS) and molding them into durable shapes, provide a strong, stackable base. These thicker-walled trays offer structural integrity for transport and display, protect against physical damage, enable clear labeling, and support high-volume automated production with minimal waste. Innovations include bio-based or recycled plastics, aligning with sustainability goals. The integration of MAP with thermoform trays creates an efficient system: product is placed in the tray, air is evacuated, the modified gas mixture is injected, and a high-barrier lidding film is heat-sealed for an airtight seal. Tray-sealing machines ensure stability during this process. Trays often feature compartments, anti-fog coatings, or custom designs. Success relies on multilayer barrier materials (7–11 layers), such as EVOH for oxygen blocking, PVDC, or metallized coatings, in trays and especially lidding films. These prevent gas permeation, maintaining the atmosphere long-term. Emerging intelligent features like oxygen scavengers or CO_2 emitters further enhance preservation and presentation.

This technology excels in food applications:

- Fresh meats/poultry: High CO_2/low O_2 extends shelf life to 21 days (vs. 3–5 days in air), preserving color and safety.
- Ready-to-eat meals/salads: Supports respiration, delays browning.
- Dairy: Inhibits mold in cheeses/yogurts.
- Bakery: Reduces staling/mold.
- Fruits/vegetables: Balances gases via equilibrium MAP.
- Non-food uses include pharmaceuticals and electronics protection.



Benefits include reduced global food waste (30–40%), improved safety, and sustainability via recyclability. Challenges involve precise gas control (to avoid off-flavors) and high equipment costs, though scalable for larger operations.In Bangladesh, rising exports (seafood, poultry, produce, ready meals) drive MAP adoption, creating opportunities for backward integration. Localizing production of multilayer films, rigid trays, resins/masterbatches, industrial gases, machinery assembly, and R&D/testing labs could cut import dependency by 50–70%, reduce costs 20–30%, create jobs, lower emissions, and boost export competitiveness. With incentives and collaboration, Bangladesh can become a self-reliant regional hub.

In conclusion, MAP with thermoform rigid trays balances preservation, aesthetics, and efficiency, supporting fresher foods, reduced spoilage, and a resilient food system amid growing demand for convenience and sustainability.

The discussion on Modified Atmosphere Packaging and thermoform rigid trays closely aligns with the mission of the Bangladesh Institute of Packaging (BIP) to promote advanced, safe, and sustainable packaging in Bangladesh. Through training, knowledge sharing, and initiatives like the BIP Digest, BIP is building local capability in modern packaging technologies critical for food safety, waste reduction, and export growth.

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BIP Makes History - Representing Bangladesh in the Global Packaging Community

Bangladesh Institute of Packaging (BIP) has written a new chapter in the country's history by becoming the 66th country and Full Voting Member of the World Packaging Organization (WPO).

BIP President Mosharraf Hossain Bhuiyan and Director Mohammad Abdul Hakim attended the 114th Board Meeting at the official invitation of WPO, which was held in Colombo, Sri Lanka from 27-31 October 2025. It is worth noting that the headquarters of the World Packaging Organization (WPO) is located in Vienna, Austria.

This event is jointly organized by the World Packaging Organization (WPO) and the Sri Lanka Institute of Packaging (SLIP).The five-day international event included the WPO Executive Board Meeting, Working Groups on Sustainability, Education and Marketing, Global Packaging Forum 2025, and the Sri Lanka Packaging Awards & Packaging Ball 2025.

Bangladesh Institute of Packaging (BIP) was established in July 2024 by three experienced packaging experts from Bangladesh—Founding President: Mosharraf Hossain Bhuiyan, Founding Vice President: Mazharul Islam, and Founding Director: Mohammad Abdul Hakim. BIP is the country's first professional packaging education and research institute, which works to develop packaging education, build a skilled workforce, promote sustainable packaging, and align Bangladesh's packaging industry with international standards.

BIP's vision is to establish a center of excellence in packaging education, innovation, and sustainability at the national and international levels, and its mission is to develop the skills of packaging professionals, promote science and technology, ensure quality, safety, and compliance in the industry, and enhance collaboration with international organizations.

BIP expresses its sincere gratitude to WPO President Luciana Pellegrino, Secretary General Dr. Johannes Bergmeyer, and all members present at the 114th Board Meeting for their warm hospitality and cooperation. The Bangladesh Institute of Packaging (BIP) is delighted and proud to represent the packaging industry of Bangladesh on the international stage and participate in the global sustainability and innovation discussions.

বাংলাদেশ ইনস্টিটিউট অব প্যাকেজিং (BIP), বিশ্ব প্যাকেজিং সংস্থা (WPO)-এর ৬৬তম দেশ এবং Full Voting Member হিসেবে অন্তর্ভুক্ত হয়ে দেশের ইতিহাসে এক নতুন অধ্যায় রচনা করেছে ।

BIP-এর সভাপতি মোশাররফ হোসেন ভূঁইয়া ও পরিচালক মোহাম্মদ আব্দুল হাকিম WPO-এর আনুষ্ঠানিক আমন্ত্রণে ১১৪ তম বোর্ড মিটিং-এ অংশগ্রহণ করেন, যা অনুষ্ঠিত হয় ২৭-৩১ অক্টোবর ২০২৫ শ্রীলঙ্কার কলম্বো শহরে। উল্লেখ্য, বিশ্ব প্যাকেজিং সংস্থা (WPO) এর সদর দপ্তর অস্ট্রিয়ার ভিয়েনা শহরে অবস্থিত।

এই অনুষ্ঠানটি যৌথভাবে আয়োজন করে বিশ্ব প্যাকেজিং সংস্থা (WPO) এবং শ্রীলংকা ইনস্টিটিউট অফ প্যাকেজিং (SLIP)।
পাঁচ দিনব্যাপী এই আন্তর্জাতিক আয়োজনে ছিল WPO Executive Board Meeting, Sustainability, Education ও Marketing বিষয়ক ওয়ার্কিং গ্রুপ, Global Packaging Forum ২০২৫, এবং Sri Lanka Packaging Awards & Packaging Ball 2025.

বাংলাদেশ ইনস্টিটিউট অব প্যাকেজিং (BIP) প্রতিষ্ঠিত হয় জুলাই ২০২৪ সালে বাংলাদেশের তিনজন অভিজ্ঞ প্যাকেজিং বিশেষজ্ঞের উদ্যোগে, প্রতিষ্ঠাতা সভাপতি: মোশাররফ হোসেন ভূঁইয়া, প্রতিষ্ঠাতা সহ-সভাপতি: মাজহারুল ইসলাম এবং প্রতিষ্ঠাতা পরিচালক: মোহাম্মদ আব্দুল হাকিম। BIP দেশের প্রথম পেশাদার প্যাকেজিং শিক্ষা ও গবেষণা প্রতিষ্ঠান, যা প্যাকেজিং শিক্ষার বিকাশ, দক্ষ জনশক্তি গঠন, টেকসই প্যাকেজিং প্রচার এবং আন্তর্জাতিক মানের সঙ্গে বাংলাদেশের প্যাকেজিং শিল্পকে সামঞ্জস্যপূর্ণ করার লক্ষ্যে কাজ করে।

BIP-এর ভিশন হলো দেশে ও আন্তর্জাতিক পর্যায়ে প্যাকেজিং শিক্ষায়, উদ্ভাবনে ও স্থায়িত্বে উৎকর্ষতার কেন্দ্র প্রতষ্ঠা করা এবং মিশন হলো প্যাকেজিং পেশাজীবীদের দক্ষতা উন্নয়ন, বিজ্ঞান ও প্রযুক্তি প্রসার, শিল্পে মান, নিরাপত্তা ও কমপ্লায়েন্স নিশ্চিতকরণ, এবং আন্তর্জাতিক প্রতিষ্ঠানগুলোর সঙ্গে সহযোগিতা বৃদ্ধি করা। WPO-এর সভাপতি Mrs. Luciana Pellegrino, সেক্রেটারি জেনারেল Mr. Johannes Bergmair এবং ১১৪ তম বোর্ড মিটিং-এ উপস্থিত সকল সদস্যের প্রতি তাঁদের উষ্ণ আতিথেয়তা ও সহযোগিতার জন্য BIP আন্তরিক কৃতজ্ঞতা প্রকাশ করেছে। বাংলাদেশের প্যাকেজিং শিল্পকে আন্তর্জাতিক মঞ্চে প্রতিনিধিত্ব করতে পেরে এবং বৈশ্বিক স্থায়িত্ব ও উদ্ভাবনের আলোচনায় অংশ নিতে পেরে বাংলাদেশ ইনস্টিটিউট অব প্যাকেজিং (BIP) অত্যন্ত আনন্দিত ও গর্বিত।

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Global Position Paper Navigating the Food & Packaging Waste Paradox

Nerida Kelton FAIP
Executive Director – AIP
Vice President Sustainability & Save Food - WPO

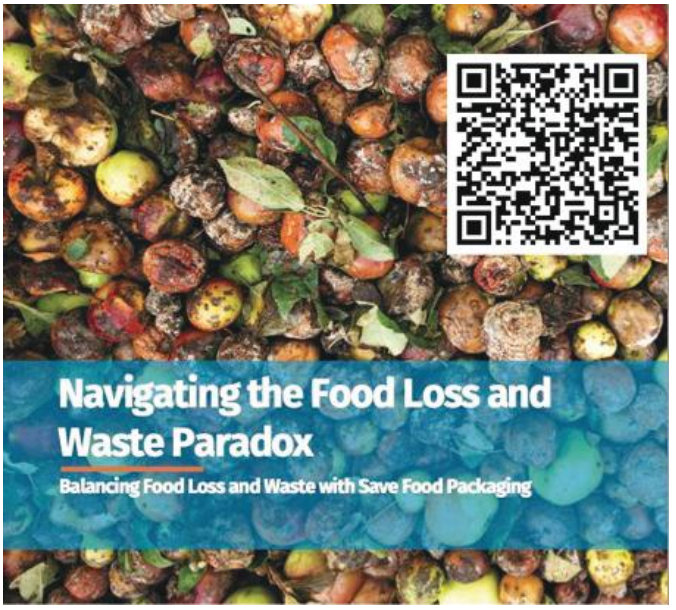
The United Nations Industrial Development Organisation (UNIDO), the World Packaging Organisation (WPO) and Wageningen University & Research have announced the global release of a collaborative position paper 'Navigating the Food Loss & Waste Paradox: Balancing Food Loss & Waste with Save Food Packaging'.

The Food & Packaging Waste Paradox position paper was co-authored by Eelke Westra (Wageningen University & Research), Nerida Kelton (World Packaging Organisation) and Aleksa Mirkovic (UNIDO).

This collaborative effort leverages the diverse expertise and perspectives of these esteemed institutions to provide a nuanced understanding of the complexities involved in achieving a sustainable and resilient global food system. By unravelling these intricacies, the team seek not only to inform, but to inspire actionable solutions that resonate across sectors, borders, and industries.

The Food & Packaging Waste Paradox position paper explores the complex interactions that exist between sustainability challenges posed by food loss & waste and the environmental impact of food packaging.

The purpose of this position paper is to explore the intricacies of the Food & Packaging Waste Paradox, delving into the challenges, opportunities, and potential solutions that lie at the intersection of Food Loss & Waste and Save Food Packaging.



Packaging Plays an Important Role in Minimising Food Loss and Waste

Save Food Packaging is designed to minimise or prevent food waste from paddock to plate using innovative and intuitive design features that can contain & protect, preserve, extend shelf life, easily open and reseal, provide consumer convenience and portion control; all the while meeting global sustainable packaging targets *(Francis, C., Kelton, N., Ryder, M., Lowenstern, B. Lockrey, S., Verghese.K, 2023)*

Navigating the Food & Packaging Waste Paradox is a challenging landscape for governments, and therefore requires tailored support to develop actionable, coherent, and context-specific policies. Aligning national regulations with international frameworks, whilst considering local production and waste, recovery and recycling infrastructure, is critical to ensure effective implementation and sustainable industrial development.

Collaboration across the supply chain, from producers to retailers and consumers, is essential to implementing effective and scalable solutions. As the industry struggles with the Food & Packaging Waste Paradox, a delicate equilibrium between consumer demands, industry innovations, and environmental sustainability emerges as a crucial imperative.

We strongly recommend that you download the position paper and the global consultation report and share with your own team and network. If more packaging professionals, researchers and food organisations across the globe start to follow the same guidance and use the Save Food Packaging Design Guidelines, the ability to improve the food and packaging waste paradox will become possible.

An overview of Packaging Materials

Azizul Haque
With a B.Sc. and M.Sc. in Organic Chemistry from the University of Chittagong I currently lead Quality, R&D, and Compliance at Consort Flexipack Limited. My career includes over 25 years in quality assurance, notably as a Manager at Unilever Bangladesh Limited E-mail: azizul.haque6602@gmail.com, Cell: +8801313032712, +8801912520492.

Packaging materials and its Sustainability, benefits vs. disadvantages

Packaging provides a means to preserve, transport, store, distribute and merchandise of a product. Product packaging plays a vital role to reach the product to its consumer safely without compromising its quality. Packaging isn't just about wrapping, it's about protection, storytelling, efficiency, and sustainability. Done right, it builds trust and loyalty while aligning with modern consumer expectations. Sustainability is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Packaging has a significant role in sustainability nowadays as it reduces food loss, keeps food quality better for a long period and reduces wasteful consumption and use of products. In developed and developing countries, concern about packaging design and wastes that are generating from it has arisen as poor packaging design and disposal of packaging wastes are creating frequent environmental problems. In the year 2012, 80 million tons of wastes were generated in Europe coming from packaging which is composed of 38 % paper, 21 % plastic, 20 % glass, 15 % wood, and 6 % metals (Eurostat, 2019).

Environmental footprint of Packaging materials
A proper management system at the end of life of packaging can play an important role in reducing environmental burden. Life cycle assessment (LCA) is an environmental management tool that is used to identify the environmental impact of a product, process or service from "cradle to grave".

Packaging materials vs. SDGs
Packaging's can be used sustainably through the responsible production, can support the SDGs through innovative products and practices that minimize negative impacts, protect the environment, promote social progress, and support economic growth. Key examples include the resilient infrastructure and innovation (SDG 9), responsible consumption & production (SDG 12), urgent climate action (SDG 13) and Marine & terrestrial ecosystem health (SDGs 14 & 15).

Importance of packaging material testing and BIP
Packaging material testing is the scientific process of evaluating the physical, chemical, and mechanical properties. In a globalized market, testing is no longer optional; it is a critical safeguard for brand reputation, consumer safety, and financial stability.

Category	Common Tests	What it Prevents
Mechanical	Drop, Vibration, Compression	Crushing, breakage, and transit damage.
Barrier	OTR, WVTR, Leak testing	Spoilage, mold, and loss of efficacy.
Chemical	Migration, pH, Solvent resistance	Toxicity and flavor/odor contamination.
Material	Grammage, Tensile, Puncture	Tearing and structural failure.

BIP is the premier institution for mastering these technical parameters of modern packaging.

Advancing Bangladesh's Packaging Industry Through Science, Sustainability, and Skilled Professionals

Dr. Mohammad Mohiuddin
Assistant Professor
School of Packaging
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Email: mohiud18@msu.edu

Packaging has evolved from a basic means of containment into a strategic driver of product quality, safety, and market competitiveness. For Bangladesh's rapidly growing food, pharmaceutical, and consumer goods industries, modern packaging systems play a critical role in meeting export requirements, extending shelf life, ensuring regulatory compliance, and reducing environmental impact.

At the industrial level, packaging performance is governed by mass transfer phenomena, including oxygen and moisture permeation, aroma loss, and chemical migration between product and package. These processes directly affect product stability and safety. Inadequate packaging design can lead to premature spoilage, quality degradation, or non-compliance with international standards—challenges that become more significant as Bangladeshi products expand into global markets.

Recent advances in multi-layer polymeric barrier films provide practical solutions to these challenges. By engineering functional layers with distinct roles, packaging structures can be optimized for barrier performance, mechanical strength, sealability, and machinability while minimizing material usage and cost. Such designs are particularly important for high-speed packaging lines, where consistency and process efficiency directly influence productivity.

Sustainability has become an industrial imperative. Global brands, retailers, and regulators increasingly demand recyclable, downgauged, and bio-based packaging solutions. However, adopting sustainable materials without proper scientific evaluation can compromise line performance, package integrity, or shelf life. Effective sustainable packaging must balance environmental responsibility with functionality, safety, and economic feasibility.

Ongoing research in bio-based polymers, fiber-based coatings, and hybrid material systems shows that sustainability and performance can coexist when packaging is designed using a science-driven approach. For Bangladesh, locally adapted solutions—compatible with existing machinery, climate conditions, and waste-management infrastructure—are especially important. This creates opportunities for innovation tailored to national industrial realities rather than imported, one-size-fits-all solutions.

Another emerging opportunity lies in smart and active packaging technologies. Freshness indicators, antimicrobial surfaces, and time–temperature monitoring systems can help reduce food waste, improve quality assurance, and strengthen consumer trust. For manufacturers, these technologies also offer better visibility across supply chains and improved risk management, particularly as cold-chain infrastructure continues to develop.

Central to all these advancements is workforce capability. Sustainable industrial growth requires trained packaging professionals who understand materials, processes, machinery, quality systems, and regulatory frameworks. Packaging education and training must therefore extend beyond traditional practices to include shelf-life analysis, migration assessment, sustainable design, and global compliance.

Institutions and professional organizations, especially the Bangladesh Institute of Packaging (BIP), play a vital role in connecting industry, academia, and policymakers. Short courses, professional certifications, applied research collaborations, and industry-focused training programs can significantly strengthen local expertise.

In conclusion, the future of Bangladesh's packaging industry depends on integrating scientific understanding, sustainable thinking, and skilled professionals into everyday manufacturing practice. Packaging is no longer a cost center—it is a value-adding system that supports food safety, export competitiveness, and environmental stewardship. Initiatives such as BIP Digest provide a timely platform to share knowledge, inspire innovation, and advance the packaging sector in Bangladesh.

Advanced Packaging: Reducing Food Loss and Waste

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Assistant Professor & Head of the Department
Materials Science & Engineering
Rajshahi University of Engineering & Technology (RUET)

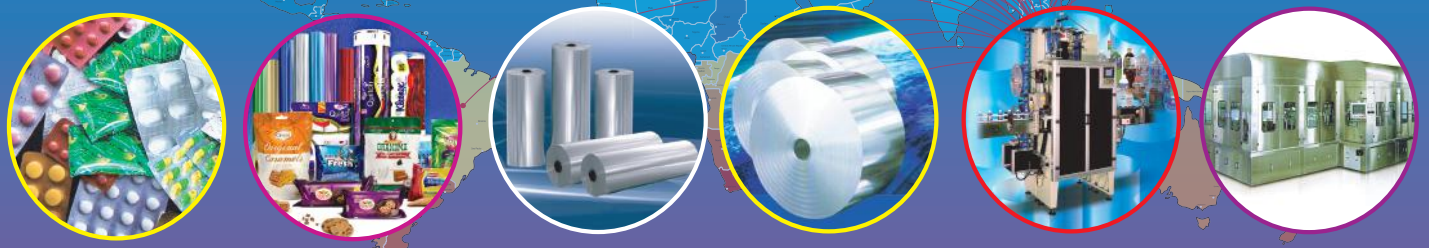
Food loss and waste is one of the most insistent global challenges, with nearly one-third of all food produced worldwide being lost or wasted before it reaches consumers. This circumstance not only threatens food security but also results in economic losses, excessive use of natural resources, and increased greenhouse gas emissions. Advanced packaging technologies have emerged as a powerful solution to mitigate food loss and waste by extending shelf life, maintaining food quality, improving safety, and enhancing supply chain efficiency. Unlike traditional packaging, advanced packaging systems actively interact with food and its environment to preserve freshness and prevent spoilage. Food loss occurs primarily during production, post-harvest handling, storage, and transportation. Food waste happens mainly at the retail and consumer levels due to over-purchasing, improper storage, and misunderstanding of expiration labels. Microbial spoilage, Oxidation and moisture loss, Mechanical damage during transportation, Poor temperature control, Inadequate packaging systems etc. are the key causes for the food loss and waste.

Advanced packaging refers to innovative packaging solutions designed to go beyond basic containment and protection. These systems actively or intelligently interact with food products and their environment. Active Packaging contains components (oxygen Scavengers, moisture absorbers, and antimicrobial agents) that actively modify the internal conditions of the package to slow food degradation. Intelligent Packaging systems monitor, detect, and communicate information about food quality and safety by various indicators (time-temperature indicators, freshness indicators, RFID, QR Codes etc.). Modified Atmosphere Packaging is also another food preservation technique that replaces normal air inside a package with a custom gas mix (often nitrogen, carbon dioxide, and low oxygen) to slow spoilage, inhibit microbial growth, and extend shelf life naturally. Sustainable Advanced Packaging ensures waste reduction without increasing plastic pollution. This packaging may develop using biodegradable and compostable materials, edible coatings, and environment friendly design.

As global food demand rises and environmental pressures intensify, the advanced packaging will be one of the key technological solution in the fight against food loss and waste. By extending shelf life, improving safety, enhancing traceability, and supporting sustainability, it helps to create a more efficient and resilient food system.

WE ARE DEALING IN

Printing | Film | Aluminium Foil | Polymers
Packaging | Labeling | Food & Beverage



FILMS, PAPER & POLYMERS

BOPET (Polyester) Film
VMPET (Vacuum Metallized Polyester) Film
PVC Shrink Film (Calendared / Blow)
PET Shrink Film
PVC Twist (Metallized Biaxially Oriented PVC Twist)
MPET Twist (Metallized PET Twist)
Metalized CPP (MCPP), CPP (Metalizable & Plain)
BOPP / MBOPP / Pearlized BOPP / Mat BOPP & Heat Sealable BOPP, White BOPP, Ziplock
Nylon (BOPA), Cellophane Paper, Stretch Film
Holographic Film, Barrier Films, Wicket Bags
Stretch Hood, Heat Shrink Film, POF, POE Shrink,
Heat transfer film, BOPP for in Mould Label
Paper (Craft, Art, Coated, Newsprint, Board etc.)
Petro-Chemicals, Plastic Resin , Masterbatch & Additives.

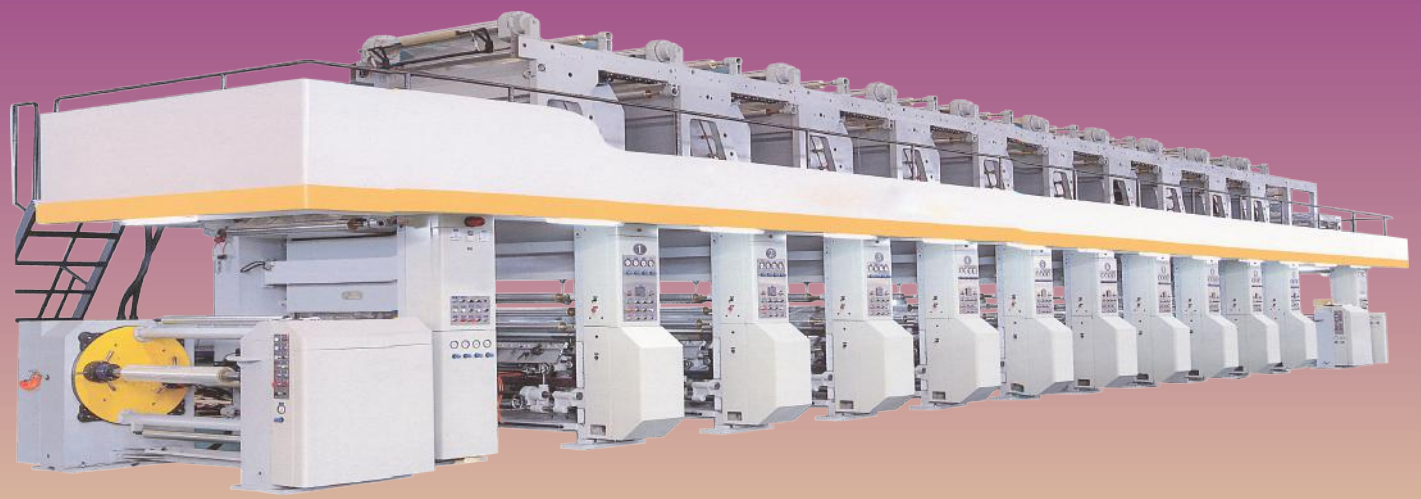
ALUMINIUM FOIL

(Food, Flexible Packaging & Pharmaceuticals)

PLANT & MACHINERIES

Gravure Printing Line (Sectional / Mechanical Drive)
Extrusion Coating, Co-Extrusion Laminating Machine
Tandem Extrusion Line, Slitter Winder Machine
Inspection Re-winder, Dry / Wet / Solvent Free / Laminator Machine
Web Control & Inspection Equipment
Cylinder Plating / Making Line, Cylinder Cleaning Machine
Filling Machine (Liquid/Semi-Liquid, Granules, Powder)
Thermoforming Line, Foil Container Making Line
Paper Container Forming Machine
Bag/Pouch Making Machine, Labeling Machine
Food and Packaging Machinery/Equipment

PRINTING INK, SOLVENT, CHEMICALS & ADHESIVE



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BIP

Bangladesh Institute of Packaging

Pioneering Packaging Learning & Innovation in Bangladesh

WPO WORLD PACKAGING ORGANISATION FULL MEMBER

OUR ACTIVITIES

Training

Plastic Packaging
- Flexible Packaging
- Rigid Packaging

Paper Packaging
- Bags
- Boxes
- Corrugated Cartons

Metal Packaging

Glass Packaging

Consultancy

- Project Development
- Laboratory Setup
- Structural & Aesthetic Design Development
- GMP, SOP & ISO Implementation
- Calibration Services
- Troubleshooting & Process Improvement
- Quality Assurance & Quality Control

Research, Development & Publication

Industry-focused research, applied development, and professional publications supporting sustainable and compliant packaging solutions.

Empowering Packaging Professionals | Strengthening Industry | Advancing Innovation

2025 HIGHLIGHTS

- **12 Professional Training** Sessions Completed
- **150+ Participants** Upskilled
- Industry Coverage: Food & Beverage, Pharmaceuticals, Toiletries, Cosmetics & Agro
- **50 Corporate Participants** & 100 Individual Packaging Professionals

5 Factory-Based Trainings Conducted

- Consultancy Services for 10 Corporates & SMEs
- 10 Corporate & Professional Members
- Participation in 3 International Exhibitions
- Industry–Academia Collaboration Meet at RUET

- BIP at 114th WPO Board Meeting, Colombo
- BIP achieved WPO Full Voting Membership
- BIP in Global Packaging Forum 2025, Colombo

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BIP Showcases at IPF & Food Pack Expo 2025

BIP Represents Bangladesh at WPO, SLIP & Global Packaging Forum 2025, Colombo

বাংলাদেশে এই প্রথম

পিপিপি নিউজ

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for Plastic, Printing
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১. www.pppjobsbd.com সাইটে ভিজিট করুন
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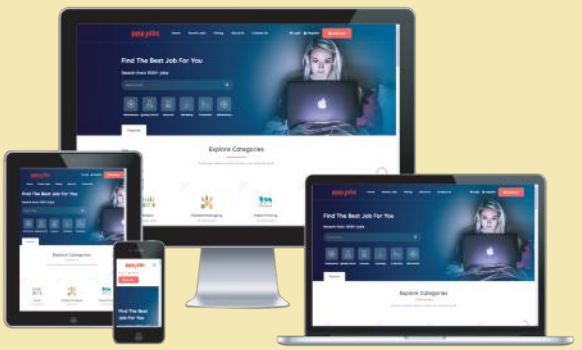
৫. এবার Login করে Job এ Apply করুন



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