



उपभोक्ता मामले विभाग
DEPARTMENT OF
CONSUMER AFFAIRS

BIOPACKATHON 2026

Reinventing Sachets for a Litter-Free India

BIODEGRADABLE PACKAGING SOLUTION CHALLENGE FOR PAN MASALA & GUTKHA SACHETS

PROBLEM STATEMENT

Provide plastic-free, biodegradable, functional and scalable sachet packaging solutions for pan masala and gutkha as an alternative to non-biodegradable sachets, which continue to contribute significantly to litter and environmental pollution.

PROBLEM DESCRIPTION

Pan masala and gutkha are widely consumed across India and are predominantly sold in small flexible sachets (typically under 10 g). These sachets, designed for mechanical strength, moisture protection, aroma retention, and shelf-life stability, represent one of the highest-volume single-use packaging formats in the country, with tens of billions of units produced annually.

In view of environmental and health-related consequences of plastic used in such packaging, Hon'ble Supreme Court of India vide order dated 07 December 2010 prohibited use of plastics in packaging of gutkha and pan masala. This prohibition was further reinforced through the Plastic Waste Management Rules, 2016, notified by the Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India, which specify:

Rule 4 (1) (f): *“Sachets using plastic material shall not be used for storing, packing or selling gutkha, tobacco and pan masala.”*

Rule 4 (1) (i): *“Plastic material, in any form including Vinyl Acetate - Maleic Acid - Vinyl Chloride Copolymer, shall not be used in any package for packaging gutkha, pan masala and tobacco in all forms.”*

To comply, manufacturers shifted to multi-layered paper based laminates. However, these sachets remain largely non-biodegradable and are extremely difficult to collect, segregate, and recycle due to their small size and mixed material layers. Most escape formal waste collection systems, accumulating as litter on streets, in drains, agricultural fields, and water bodies, posing a serious environmental challenge. Moreover, the use of plastic-based adhesives and heat-seal coatings continues, particularly in the informal sector, undermining regulatory intent.

In this context, there is an urgent need to develop biodegradable, plastic-free, functional, and scalable sachet packaging for pan masala and gutkha as an alternative to conventional non-biodegradable sachets.

CHALLENGE REQUIREMENTS

Participants should provide packaging solutions for pan masala and gutkha sachets that:

- are biodegradable under ambient environmental conditions including soil, freshwater, and marine environments,
- are food-grade and comply with the legal prohibition on plastics,
- provide robust functional performance, including mechanical strength, moisture and aroma barrier, and shelf-life stability, and
- are feasible for mass production, cost-effective deployment, and industry adoption.

EXPECTED OUTCOME

Participants are expected to present already developed or prototype-ready plastic-free, biodegradable sachet packaging solutions for pan masala and gutkha that satisfy the challenge requirements outlined above.

All submissions should be supported by evidence of biodegradability, food safety, functional performance and scalability & economic viability. The evidence may be in the form of relevant data/test reports/certifications or any other evidence, as available.