NO. 2025-18, JANUARY 2026
ISSN: 2086-8154

Economic Research Institute for ASEAN and East Asia

Policy Brief

Policy Design for Tackling Single-Use Plastics Consumption in ASEAN+3 in the Post-COVID-19 Society

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Single-use plastics (SUPs) remain a major contributor to environmental degradation in ASEAN+3 despite a decade of national bans, regional declarations, and growing circular economy commitments. Yet most policy frameworks continue to rely on product-focused interventions – bans, charges, and recycling mandates – without adequately considering the behavioural drivers that shape everyday consumption, particularly in the post-COVID context. This Policy Brief draws on a survey of 1,492 respondents across five Asian cities (Hanoi, Phnom Penh, Depok, Harbin, and Shanghai) conducted between 2022 and 2023. The findings reveal substantial disparities in weekly SUP consumption – ranging from 55 to 132 items per person – with Shanghai recording 2.4 times the levels observed in Hanoi and Depok. Across the five surveyed cities, about 56% of SUP items are disposed of without separation, while single-use face mask usage remains about 2.6 times as high as pre-pandemic levels. Demographic factors strongly influence consumption: shopping bags are widely used (higher amongst women but lower amongst higher-educated respondents), while on-the-go SUPs are higher amongst younger, male, and higher-educated individuals and are more pronounced in urban areas.

The evidence underscores that one-size-fits-all approaches are unlikely to achieve significant reductions. Instead, cities require tailored policy roadmaps that integrate behavioural insights, infrastructure reforms, demographic-targeted interventions, and circular economy mechanisms, supported by adaptive ASEAN+3 cooperation aligned with the emerging global plastics treaty. A post-COVID plastics policy framework must balance environmental sustainability with public health, local consumption cultures, and evolving economic activities such as food delivery and e-commerce.

Key Messages:

- **SUP consumption differs by two- to threefold across the five surveyed cities**, underscoring the need for tailored, city-level strategies rather than uniform regional mandates.
- **Demographic segmentation matters:** shopping bag use is widespread (higher amongst women, lower amongst the highly educated), while on-the-go SUPs are higher amongst men, younger and highly educated consumers, and are more pronounced in urban areas.
- **Post-COVID hygiene habits persist**, with mask consumption remaining significantly above pre-pandemic levels.
- **Infrastructure gaps persist across the five surveyed cities**, with 56% of SUPs disposed unsorted, limiting recycling and circularity efforts and highlighting the need for stronger collection and separation systems.

Context

Southeast and East Asia together account for nearly a quarter of global marine plastic leakage. The proliferation of SUPs – plastic bags, cups, straws, food containers, and other disposable items – has amplified environmental pressures across waterways, coastlines, and urban centres. In response, ASEAN has adopted a series of commitments, including the 2019 Bangkok Declaration on Combating Marine Debris and the 2024 ASEAN Declaration on Plastic Circularity. ASEAN+3 cooperation has expanded in parallel through shared action plans and growing ambition for a regional circular economy.

Countries in the region have made notable progress. China's phased ban on non-degradable bags and restrictions on plastic imports, Indonesia's commitment to reduce marine debris by 70% by 2025,

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and Viet Nam's planned SUP ban by 2030 illustrate strong national momentum. Malaysia and Thailand have similarly developed phased roadmaps.

However, supply-side policies alone cannot fully address the plastics challenge. COVID-19 reshaped consumption habits through expanded delivery services, higher reliance on disposable packaging, and intensification of hygiene-related items such as masks, gloves, and sanitiser bottles. While some behaviours have stabilised, many persist, with sanitary concerns continuing to influence consumer choices. Despite such shifts, limited empirical data exist on city-level behaviour and demographic drivers.

This Policy Brief addresses this gap by analysing SUP consumption patterns amongst 1,492 respondents in five cities in ASEAN+3, focusing on disposal practices, demographic determinants, and post-COVID behaviour. The analysis contributes evidence necessary for designing more responsive policies that reflect real-life consumption drivers.

Findings

1. Regional Consumption Disparities

Weekly per-capita SUP use varies significantly across cities:

- Shanghai records 132 items per week – 2.4 times the levels found in Hanoi and Depok (55 items).
- China's long-standing plastic bag restrictions lowered bag use, but rapid growth in food delivery services increased demand for takeout containers, beverage cups, and cutlery.
- Phnom Penh reports the highest bag use (about 34 items per week), reflecting the prevalence of plastic in retail settings and weaker enforcement.
- Hanoi maintains relatively low consumption due to traditional home-cooking patterns, while
- Depok exhibits elevated use of party cups linked to communal gatherings.

These city-specific patterns illustrate the limited effectiveness of uniform regional or national bans without behavioural alignment.

2. Disposal Infrastructure Gaps

Waste management practices remain a structural constraint. Across the five cities, 56% of SUP waste is disposed unsorted, severely limiting recycling potential.

- Unsorted disposal peaks in Harbin (67.2%) and Phnom Penh (66.2%).
- China's national sorting mandates improve outcomes in Shanghai (34.3% sorted) and Harbin (21.9%), though gaps remain.
- Plastic bag reuse is common – 93.8% in Depok, 76.7% in Hanoi – delaying disposal but not preventing waste generation.
- Informal recycling ranges from just 2.7% to 8.6%, constrained by undervalued recyclable materials and fragmented systems.

Infrastructure limitations undermine regulatory efforts, reinforcing the need for enhanced circular economy investments.

3. Demographic drivers of SUP Consumption

Behavioural patterns vary across demographic segments:

- Gender: Women consume more plastic bags due to household shopping roles; men consume more takeout containers and coffee cups linked to convenience.
- Age: Youth under 30 are the highest consumers of straws, cups, and containers. SUP usage declines steadily with age.
- Education: Highly educated individuals use fewer bags but consume more bottled beverages, packaged goods, and takeout containers, suggesting a coexistence of bag reduction driven by environmental awareness and continued reliance on other on-the-go SUPs linked to busy, convenience-seeking lifestyles.
- Urban–rural divide: Urban residents consume significantly more convenience-oriented SUPs.

These findings highlight the need for demographic-targeted interventions.

4. Post-COVID Consumption Persists

Mask usage surged from 1.46 items/week pre-COVID to 6.81 during the pandemic and stabilised at 3.73 items/week in 2023, remaining about 2.6 times as high as pre-pandemic levels. Hygiene-related plastics such as sanitiser bottles and wet wipes remain elevated. Out-of-home foodservice SUPs (straws, cups) declined during lockdowns but are now returning to pre-pandemic levels as social activities resume.

COVID-19 has therefore had a lasting influence on SUP demand, underscoring the need for policies that integrate public health considerations.

Policy Directions

1. Localised Plastic Reduction Strategies

City-specific strategies should be tailored to local consumption profiles and infrastructural contexts.

- Shanghai / Harbin: Expand beyond existing bag bans to strengthen food-service packaging regulation; introduce deposit-return systems for beverage containers; promote reusable carrier systems for delivery platforms.
- Phnom Penh: Introduce bag charges for small retailers; formalise informal recyclers; expand municipal sorting centres via public–private partnerships.
- Hanoi: Promote reusable food storage through subsidies for eco-wraps and cloth bags; incentivise household oil collection with vouchers for biodegradable wraps; partner with markets and retailers to scale reuse and refill options for commonly packaged household items.
- Depok: Mobilise religious and community leaders to distribute 'Eco-Party Kits' during communal events and provide training on reusable alternatives.

2. Accelerating Circular Economy Systems

A transition to circularity requires systemic changes:

- Strengthen collection and sorting systems with standardised containers and smart sorting technologies.
- Implement Extended Producer Responsibility (EPR) with modulated fees based on recyclability.
- Promote reuse models – reusable container discounts, subscription-based rental packaging for e-commerce and delivery services, and app-based waste-reduction incentives.
- Reinvest EPR revenues in recycling facilities, community-level innovation, and municipal upgrades.

3. Targeted Behavioural Interventions

Policies must reflect demographic differences:

- Gender-responsive incentives for reusable bags and utensils.
- Youth-focused interventions on university campuses, including reusable container rental systems and influencer-led campaigns.
- Education-linked initiatives such as discounts for reusable tumblers in corporate cafés and digital tracking of avoided SUP use.
- Senior-friendly distribution of lightweight reusable alternatives through community centres.

4. Adaptive ASEAN+3 Regional Cooperation

Regional cooperation can amplify national progress:

- Harmonise SUP definitions, targets, and data collection across ASEAN+3.
- Establish shared databases to monitor consumption trends and infrastructure needs.
- Mobilise an ASEAN+3 Green Bond for circular economy infrastructure and R&D on alternative materials.

- Align regional frameworks with the emerging global plastics treaty, including life-cycle assessment provisions.

- Introduce flexible regulatory mechanisms to adjust quickly during public health emergencies or climate-related disruptions.

Conclusion

ASEAN+3 faces diverse and evolving challenges in addressing SUP consumption, particularly as post-COVID behaviours reshape demand for convenience and hygiene products. This Policy Brief shows that city-level disparities are significant – Shanghai's per-capita weekly SUP consumption is about 2.4 times that of both Hanoi and Depok– and demographic determinants strongly influence behaviour. With unsorted disposal at 56% and mask usage still far above pre-pandemic levels, there is a clear need for targeted, context-specific interventions.

An integrated policy approach – combining localisation, circular economy reforms, behavioural insights, and regional cooperation – offers a pathway toward meaningful reductions in SUP consumption and leakage. By adopting tailored city-level plans, strengthening EPR systems, targeting demographic segments, and aligning with global negotiations, ASEAN+3 can develop a resilient plastics governance framework that supports environmental sustainability, economic development, and public health.

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Acknowlegements:

This Policy Brief was prepared under the ERIA–IGES Fund 2022–2025, with support from the IGES Strategic Research Fund 2024 and the Environment Research and Technology Development Fund (PMEERF23S12100, JPMEERF23S12107) of the Ministry of the Environment, Japan. The author also thanks local partners – ISPONRE (Vietnam), CSEAS (Indonesia), the Royal University of Phnom Penh (Cambodia), and Northeast Forest University (China) – for their support. The author is grateful for constructive comments from the reviewers: Atsushi Watabe, Yasuhiko Hotta, Reo Kawamura, Ayako Mizuno, and Aulia Salsabella Suwarno.

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