Addressing the plastic waste crisis in Vietnam: Integrating education, policy, and motivation for effective circular economy practices

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"After some thinking, Kingfisher reckons that only by uniting the power of the entire village could they chase Snake away."

—In "The Virtue of Sacrifice"; *The Kingfisher Story Collection* (2022)

[SCIENCE COMMUNICATION]

Plastic waste pollution has become a significant issue, with global plastic production rising sharply over the decades [1]. This dramatic increase has resulted in severe environmental and health consequences, affecting both terrestrial and aquatic ecosystems and potentially leading to serious health problems in humans [2]. Addressing this crisis requires an approach that involves enhancing public capability, implementing effective policy interventions, and fostering motivation toward sustainability [3].

The recent study conducted by Nguyen [4] emphasizes that shifting from a linear economy to a circular economy is crucial for addressing plastic waste pollution. A circular economy for plastic (CEP) model aims to optimize resource use and minimize waste by encouraging the reuse and recycling of materials. Vietnam, which significantly contributes to marine

plastic pollution, faces both challenges and opportunities in adopting these circular practices. The effectiveness of this transition relies on how ready consumers are to embrace circular economy principles and how actively various stakeholders participate in the process [4].

The study provides insights into the factors influencing readiness for CEP among Vietnamese consumers, emphasizing the significant roles of educational capability, policy-driven opportunities, and motivational strategies. It also highlights how age affects engagement in circular economy practices, suggesting that targeted strategies can be developed to address the specific needs of different demographic groups.

Illustration. A pile of plastic bottles and other objects in the water (https://www.imagine.art/)

Education is fundamental in enhancing individuals with the knowledge and skills needed to manage plastic waste and engage in recycling. Integrating environmental education into school curricula and launching comprehensive public awareness campaigns can lay a strong foundation for circular economy practices. Countries like Japan, Taiwan, and Singapore have demonstrated that robust educational frameworks can significantly elevate environmental awareness and promote action [4].

Building on this foundation, it is crucial to consider how policy interventions and motivational strategies further influence CEP readiness. Economic measures, like fees on plastic bags, can help lower plastic use, but their success depends on how high the fees are and how well people understand them. In Vietnam, for example, the environmental tax on non-degradable plastic bags has not been very effective due to low rates and limited consumer awareness. Raising these fees and making the costs of plastic waste clearer could lead to more significant changes in behavior [4].

Moreover, policies such as bans on single-use plastics can strengthen people's commitment to sustainability and encourage them to use reusable alternatives. However, people's decisions often involve balancing conflicting values, like the convenience of single-use items versus the need to protect the environment. By understanding how these different values interact, policymakers can create strategies that better align with public preferences, making sustainable practices more effective and widely accepted [5].

Finally, motivation is crucial for encouraging sustainable behaviors, such as recycling and reducing plastic use. Cultivating positive attitudes toward sustainability and creating personal norms aligned with circular economy goals can drive greater public engagement. Effective strategies to achieve this include targeted communication campaigns that emphasize the benefits of recycling and community-based programs that reward sustainable actions, helping to build a culture of sustainability [6].

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