

How to Create Self-Motivating Agents in the System to Promote Sustainable Development

Kriengsak Chareonwongsak

Senior fellow, Harvard University, Chairman of Nation-Building Institute International (NBII)

ABSTRACT

A system that endures should be a self-organizing or self-motivating system; that is, agents in the system themselves consider sustainable development worth undertaking. Waste management is critical for sustainable development, particularly as the costs of waste cleaning often exceed what users are willing to pay, leading to environmental and health issues, especially with non-biodegradable materials like plastics. The circular economy concept emphasizes resource circulation and cost-sharing among users, allowing for multiple recycling cycles to mitigate waste generation and improve waste cleaning efficiency. To achieve this, understanding public willingness to pay (WTP) for improved waste management and establishing a minimum recycling rate for cleaning (MRC) are essential, alongside addressing transaction costs and effectively communicating recycling cycles to users. Thus, to promote sustainable development is to create a self-motivating system. Sustainable development itself certainly has benefits over an unsustainable one; however, the problem is that agents in the system may not perceive its benefits, which sometimes can only be seen in the long run. Therefore, a key action point is to convince agents in the system to perceive the benefits of pursuing sustainable development. The implementation of a system that makes agents account for their activities is a challenge that will be addressed in this paper. This paper assumes that agents base their behavior on cost-benefit analysis. It also conceptualizes how to generate motivation within a system to promote sustainable development.

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