

SUMMARY

Creating Market Incentives to Reduce Urban Waste



A law in the Philippines encourages communities to set up material recovery facilities, which offer livelihood incentives for people to recycle waste. Photo credit: ADB.

Asia's cities need innovative solutions to manage increasing volumes of waste.

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Overview

With a population of 4.5 billion people and rapidly rising incomes, Asia is seeing an unprecedented increase in consumption levels. Its urban populations are growing at close to 2% per year, among the fastest of all major regions in the world (United Nations, 2018). Medium-sized cities and cities with fewer than one million inhabitants are growing the fastest. These cities must be able to cope with increasing volumes of waste to ensure sustainable growth.

Projections suggest that global solid waste generation will increase to 2.59 billion tonnes by 2030, with growth in waste quantities being among the fastest in Asia (Kaza et al, 2018). Waste production in East Asia, the Pacific, and South Asia, is expected to more than double by 2030 from their 2016 levels. Nine out of the top 10 countries according to annual plastic emission into the world's oceans are located in Asia (Meijer et al, 2021).

Urgent action and better tools are needed to address the waste problem in the region. Otherwise, unmanaged waste is likely to have severe environmental and social consequences in the coming decades, especially in rapidly growing cities.

Market-based instruments have the potential to promote flexibility and spur innovation in finding solutions to improve resource use and environmental quality, as well as create incentives to minimize the costs of achieving environmental goals, including waste reduction.

This summary is based on the chapter on waste of *Greening Markets: Market-Based Approaches for Environmental Management in Asia* published by the Asian Development Bank. It provides an overview and assessment on the suitability of using different market-based instruments to address growing amounts of waste in Asia. It also shares recommendations and enabling conditions for the use of specific interventions for more efficient and effective waste management.

Market-Based Instruments for Waste Management

Properly designed and implemented market-based instruments can reduce pollution at the lowest cost with the potential to facilitate even greater reductions in waste than standards set by command-and-control regulations.

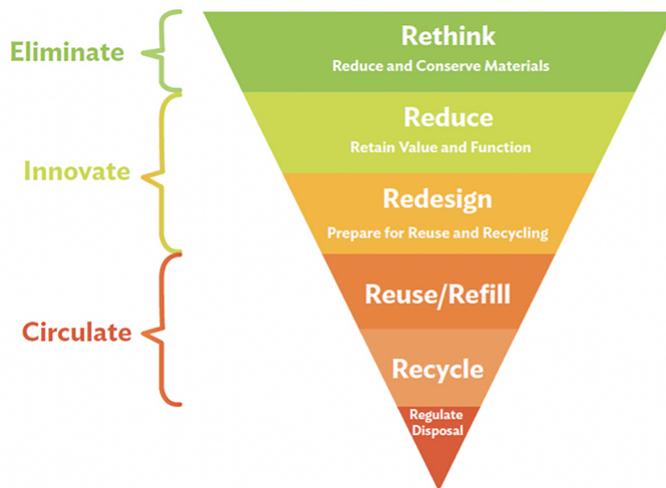
Based on a systematic analysis synthesizing findings from previous studies of selected countries in East Asia, South Asia, and Southeast Asia, five types of market-based instruments are used in the region to address upstream waste reduction (through changes in production and distribution processes and consumer choices), household and industrial waste collection, and waste processing. These are (i) tradable permits, (ii) taxes, fees, and charges, (iii) subsidies, (iv) hybrid policies, (v) extended producer responsibility, and (vi) information provision, labels, and voluntary agreements. A review of these instruments produced the following findings.

Well-designed waste management policies need to be integrated and cover the full waste stream.

In many lower-income countries in Asia, there is a lack of enabling legislation that covers all waste streams and incorporates the private sector. Traditional policy instruments for waste management are based on command and control, where regulatory bodies evaluate each instance of waste and then decide on the treatment. However, to transition toward a circular economy, emphasis should be on reducing waste by making changes in production methods and consumption choices. The following figure shows the hierarchy of moving from the least desirable to the most desirable to achieve this

transition.

Action Hierarchy in the Circular Economy



Sources: Adapted from European Commission's Waste Framework Directive and M. Goorhuis and A. Bartl. 2011. *International Solid Waste Association Key Issue Paper on Waste Prevention, Waste Minimization and Resource Management*.

It has been difficult to implement policies other than dumping and landfilling in lower income countries in Asia because of lack of enabling legislations that incorporate private actors and all types of waste. Formal waste markets can be developed through overarching waste management legislation that allows flexibility for private actors to process all kinds of waste. Market-based instruments have gained increasing traction in the waste management sector in Asia over the past 2 decades. They can impose an explicit cost on waste and disposal and help raise revenues to offset processing and recycling costs. They can also reduce the information and enforcement burden, incentivize producers to adopt less waste-generating production technologies or to reuse materials, and change consumer attitudes and behaviors toward waste.

Waste management policies need to take an integrated approach to the full waste stream—from production to waste processing. As the overall policy goals become more advanced, different policies are created for every part of the waste hierarchy, and both markets and government regulations are crucial to move up the waste hierarchy over time.

Asian countries can consider a mix of complementary command-and-control regulations and market-based instruments suited for their particular context. For example, an alternative to a plastic bag ban is to charge bag fees to encourage business and consumers to use multi-use substitutes. Setting performance standards on the production of plastic bags can also make the bags easier to reuse and recycle.

In Southeast Asia, many countries already have national strategies and regulatory frameworks to address challenges related to waste management. Malaysia has significantly improved its environmental quality by combining command and control approaches and economic instruments. The Philippines successfully implemented the Industrial Waste Exchange Program (Abrera 2011), while Thailand

boosted recycling of lead-acid batteries through excise tax reduction (Tularak 2011).

A more holistic “zero waste” approach also encourages better waste management practices on the production and consumption sides of the market. For example, products must be redesigned to take account of their end-of-life uses, reuse, and/or decomposition. This entails policies that provide incentives for producers to shift to a more sustainable way of manufacturing (Singh and Ordoñez 2016 and Stahel 2016).

There is a critical need for better data and monitoring of waste levels, performance of policy tools, and environmental health.

Many Asian countries lack a real-time system for measuring waste generation to monitor and enforce regulations effectively and may not have the capacity to implement policies as well. Improved data gathering and monitoring will help determine the effectiveness of a policy on a system-wide level and foster transparency and accountability.

Voluntary agreements and information-related campaigns are underutilized instruments for solid waste management.

Information campaigns have been successful in reducing waste. Increasing public awareness improved hazardous waste collection and encouraged recycling behavior (Lim-Wavde, Kauffman, and Dawson 2017 and Rhodes et al. 2014).

Requiring producers to label products based on their waste-minimizing methods can discourage wasteful production processes (Aramyan, Valeeva, and Vittuari 2016). In Indonesia, the Program for Pollution Control, Evaluation and Rating, which rated companies according to their river pollution control efforts, raised the level of environmental compliance among industrial firms and prompted companies to adopt greener production practices.

Extended producer responsibility schemes are underutilized.

Producers may be held accountable for wasteful production processes. Extended producer responsibility policies have resulted in products being designed with their entire life cycle in mind and improved collection of used products. Take-back requirements have emerged as the most used policy, ensuring that producers or retailers are responsible for the end-of-life management of their products. They comprised 72% of global extended producer responsibility policies in 2013. However, Asian countries only accounted for 4% of these efforts (Kaffine and O'Reilly 2013).

Global experiences suggest that these schemes require strong complementary policy frameworks to be effective. Policies are needed to also promote innovation and require the use of recycled components in product design. High recyclability will be important for sustainable production and consumption of exported products.

The People's Republic of China has been effective in steering its waste electrical and electronic equipment recycling industry toward a more environmentally friendly direction. It has been promoting

standard disposal and recycling procedures and encouraging manufacturers to adopt environmentally friendly design features.

Taxes, fees, and charges for waste collection can facilitate cost recovery for utilities and reduction of waste generation.

Used by most countries in Asia, taxes, fees, and charges are simple in design, facilitate cost recovery, and often effectively reduce upstream waste generation. Many jurisdictions find it easy to collect these taxes by charging them as part of the property tax.

If well designed, these policies also discourage producers and consumers from generating waste, promote the adoption of more resource-efficient processes, and generate income for waste utilities. For example, treatment fees by weight or pay-as-you-throw programs have decreased waste from households and firms. However, most countries impose very low charges and cover only a portion of the waste management cost, or their enforcement is weak. The success of such schemes depends on proper design, regular data collection, and strict monitoring and implementation.

There is high potential for economic benefits from various sectors in the waste stream.

Waste segregation at source—meaning within the home for households and at the place of production for firms—is one of the quickest and easiest interventions that can catalyze downstream waste beneficiation initiatives in both the public and private sectors. In informal communities, micro waste depots that offer differentiated bins for different types of wastes (e.g. organic wastes, packaging, glass and electronic wastes) can also help achieve separation at source in poor areas. Policies that provide behavioral nudges, bolstered by incentives—such as pay-as-you-throw schemes and information campaigns—will encourage households and firms to manage their waste more judiciously and promote the proper treatment of that waste. Efforts must be coordinated at the municipal level to ensure the harmonious integration of public and private sector waste management activities.

Integrating the informal sector into waste management frameworks may bring economic benefits and help achieve environmental and social goals.

The large informal sector in many parts of Asia derive their livelihood from waste collection and processing. Despite hazards and social vulnerabilities, the sector's wide network and greater efficiency improve recycling rates and lead to savings for city authorities (Wilson et al. 2012).

Given these benefits and the collection inefficiency of many municipalities and authorities, it is essential to institutionalize the role of the informal sector. Entrepreneurs in the informal recovery process can be trained and integrated into the formal resource recovery system to reduce the amount disposed and recover valuable products (Qdais 2007). This will help provide safe working conditions and reduce pollution. Formalization will help provide safe working conditions and also help reduce environmental pollution by informal sector recyclers. In order to ensure formalization, tax incentives need to be provided and maintained and land and energy supplied at subsidized rates to the formal sector. In a study in Bangladesh, Alam and Bahauddin (2015) suggested registering the informal e-waste recycling

plants to formally recognize and track the sector. Integrating the informal sector into waste management frameworks also has the potential to serve additional goals, such as job creation and poverty alleviation.

Recommendations

The following are recommendations for future applications of market-based instruments for waste management

- Introduce initiatives and policies that promote separation of waste at source and enable markets for downstream waste beneficiation while ensuring integration of public and private sector waste management programs.
- Set up micro-waste depots and create incentives for informal sector waste pickers to deposit waste in safer designated areas.
- Scale up complementary command-and-control regulations in critical waste streams to hasten consumer and producer behavior change.
- Provide a suitable legal and regulatory framework to encourage public–private partnerships to facilitate the transition to using market-based instruments for waste.
- Set aspirational goals, such as zero-waste policies and transitioning to a circular economy, to help introduce and implement economic instruments, which can catalyze public and private sector initiatives in the waste generation and beneficiation industries.
- Employ market-based instruments, such as extended producer responsibility schemes and deposit-refund schemes, to facilitate a transition to a circular economy and enable more efficient use of resources and less waste generation.

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