

VIEWPOINTS

Challenges of a Circular Economy for Post-Pandemic Environmental Recovery

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The COVID-19 pandemic has had a huge impact on almost every sector, particularly public health and the global economy. The Malaysian government has outlined strict Standard Operating Procedures (SOP) and enforced Movement Control Orders (MCO) in several phases to control the disease's transmission. During this time, economic activity was halted, with the exception of essential sub-sectors to meet daily living needs. As a result, small businesses and low-income workers who live on daily wages have seen their earnings plummet drastically, meaning they now struggle to sustain their lifestyles. A slew of financial assistance worth billions of ringgit has been channelled by the government to these afflicted groups. Everyone had to live with the pandemic for a year before the vaccine was developed, passed the trials, and became commercially available. The government then implemented a nationwide vaccination programme for all citizens, including locals and foreigners, to boost immunity against the virus.

These measures have depleted the government's cash reserves. As a result, the focus of post-pandemic recovery has been on generating income by continuing and intensifying business and economic activities. Rebuilding the economy is critical and a top priority for all countries for the people's well-being. The public must be assisted in regaining their earnings and returning to work in a safe and healthy manner.

Apart from recovering the economic and financial sectors, environmental sustainability is also important to maintain a good living standard following the pandemic. Therefore, industries involved in improper waste disposal should not be allowed to continue their operations. Environmentally-friendly economic activities are required in order to reset, recover, and restore the country's resources and future earnings. During the early stages of lockdown, air pollution in major cities was significantly reduced. It appeared to pause greenhouse gas (GHG) emissions as well as global warming. However, once the lockdown was lifted, the pollution returned to pre-pandemic levels when carbon emitting industries resumed their activities.

Unfortunately, additional coal power plants have been approved in some countries in order to boost production and profit following the pandemic, which will exacerbate the above situation. The level of GHG will not only rebound, but exceed the previous highest level, setting a new record. This scenario pushes our target far beyond the critical global 2°C limit for combating climate change. Such an economic move is not sustainable long-term for both the economy and the environment. Economic sustainability requires environmental sustainability as one of its main components. All resources come from the environment, but pollution and excessive exploitation will result in irreversible depletion.

The idea of sustainable industrial practices through a circular economy is one of many solutions capable of addressing post-pandemic environmental issues as it reduces resources exploitation, maximises their utility, and reduces waste from landfill. Unlike the conventional linear economic system that practises ‘take-make-waste’ and continues to deplete natural resources, the circular economy is primarily concerned with reducing waste through redesigning, reducing, repairing, reusing, refurbishing, recycling and recovering processes that will eventually allow natural ecosystem regeneration. Ideally, it will avoid waste collection in landfills and, to some extent, will be capable of discarding existing waste.

However, in reality, there are challenges to ensuring environmental recovery through this measure in the post-pandemic period. As previously stated, the government must prioritise public health so as to maintain resilience against current and future pandemic events, empower support systems to help affected individuals and businesses, and, most importantly, revive the economy, which will benefit all in the long run. To ensure that the environmental recovery does not fall behind in the ‘priority challenge,’ the integration of long-term sustainability must be considered as part and parcel of policy decisions.

When long-term investment is involved, strategic thinking and systematic assessment are required when identifying policy options to ensure long-term benefits from immediate short-term actions. Short-term support should be linked to long-term economic growth that is beneficial to social and environmental well-being. For example, boosting the industrial sector to stimulate the economy by constructing more coal power plants is not the best long-term strategy for the people, economy, or environment. Instead, expanding reliable greener energy facilities is more feasible as it will fulfil energy demand, create jobs, and reduce pollution.

The circular economy is currently a well-received approach for effective resource management and waste handling, especially in European countries, the United States, Japan, and China, to name a few. The United Kingdom, Germany, and France have topped the ranking of circular economy scores in Europe, based on their robust recycling systems and high levels of innovation in circular

economy sectors. This transition includes the transformation of waste to energy (WTE) through incineration plants by recycling collected wastes to generate electricity to be used by industry and consumers.

Energy recovery from waste is the process of converting non-recyclable waste materials into usable heat, electricity, or fuel through a variety of processes such as combustion, pyrolysis, gasification, anaerobic digestion, and landfill gas recovery. WTE is an imperative for sustainable waste management because it converts landfill waste into a renewable energy source and reduces reliance on fossil fuels, which can help to reduce carbon emissions. There are very few incineration-based WTE plants in Malaysia. The first known WTE plant was built in Langkawi, with an incineration capacity of 100 tonnes per day that can generate 1 MW of electricity. Another WTE plant is in Kajang, Selangor, which consists of a refuse-derived fuel (RDF) facility. It has the capacity to process 1100 tonnes of waste per day that can produce 8 MW of electricity.

The latest active WTE plant in Malaysia is located in Port Dickson, Negeri Sembilan, and which started operation in June. It has the capability to process 100 tonnes of waste per day to generate 25 MW of energy. More WTE plants are expected to be built in Sungai Udang, Melaka; Bukit Payung, Terengganu; Seelong, Johor; Samling, Selangor; and Jabor, Pahang. As Malaysia's population grows, more waste will be produced, requiring the construction of more WTE plants to address the landfill issue. With the anticipated increase in the number of WTE plants, operators and the government must ensure that these facilities do not emit hazardous pollutants, and can capture and store carbon.

Some other countries, such as Sweden and the Netherlands, have incineration overcapacity, which means that they are not only consuming all of their landfill waste, but importing waste from neighbouring countries for incineration. From one point of view, these countries' waste-to-energy policies and implementation have been successful, demonstrating their capability to be circular-economic nations. However, from another perspective, this ambitious waste-free economy may have ramifications for the recycling industry. Despite the benefits of reducing pollution and landfill waste, excessive waste-to-energy incineration will discourage the use of some useful reusable material such as plastics, cans, and paper. Consequently, the demand for more raw materials cannot be reduced because the recycling sector is unable to make a significant contribution. That incineration is a less complicated process than a series of lengthy recycling stages that include collection, transportation, sorting, cleaning, and complex reprocessing is also an issue. The recycling sector also faces significant challenges, such as mismanagement, inefficient cost-cutting, energy waste, poor working conditions, the environmental impact from a mix of dirty and hazardous wastes, as well as income loss and social cost.

Whatever challenges the recycling sector faces in most countries, it must be improved, encouraged, and empowered because recycling is a critical component of the circular economy. Therefore, waste-to-energy should not be regarded as an alternative to recycling or as the only and simplest way to wipe out all waste. Recycling can be a profitable business opportunity for many industries. The producer, for example, can change packaging and product design to increase market demand for recycled materials and reduce price volatility. In addition, if the cost of materials collection by consumers or communities can be incorporated into large corporations' socially responsible investment (SRI) strategies, such could encourage and further help recycling sector growth by overcoming extra operating cost.

Last but not least, for a long-term solution, the waste sorting system must be made efficient and empowered. WTE incineration will be a short-term solution to manage the waste crisis, while good waste sorting systems will benefit both recycling and WTE sectors. Moreover, the COVID-19 pandemic has resulted in a large increase in medical and plastic waste; emphasising the growing importance of waste sorting. In the future, the government must consider and adopt new waste-sorting technology to protect the environment. With an integrated and systemic solution involving waste management, recycling and WTE initiatives, doing so will support post-pandemic environmental recovery by implementing the right circular economy strategy, which will also create jobs among affected groups and allow the country to re-establish a resilient economy.

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