

Asia's Developing Future



ASIAN DEVELOPMENT BANK INSTITUTE

How to boost the circular economy and potential for a green recovery in Asia

COVID-19 recovery in developing Asia could follow a traditional growth path that relies on carbon- and resource-intensive production. By contrast, the transition to a circular economy could deliver greener and more enduring post-pandemic growth in the region.

In this podcast, ADBI's Linda Arthur and Derek Hondo, describe the prospects for achieving such a breakthrough and associated principles and policy priorities.

[Interviewer]

Hi Linda and Derek, thanks for joining Asia's Developing Future. To begin, can you briefly explain the concept of circular economy?

[Hondo]

The concept of circular economy has been around for a long time, though only fairly recently has the term gained traction. There are three types of models that fall under the circular economy concept: slowing flows (extending the use of products); narrowing flows (changing utilization patterns through adoption of new business models); and creating loops and additional life cycles for products (repairing, reusing, remanufacturing, and recycling). Transitioning to a circular economy is a systemic shift, which supports a sustainable and resilient economic growth that can provide new business opportunities and promote innovation, all while providing environmental and social benefits. Lastly, I would like to emphasize that a circular economy addresses at least 11 of the 17 Sustainable Development Goals (SDGs) and now, as we search for innovative solutions to support recovery from the COVID-19 and how to build back smarter and stronger, these principles check a lot of these boxes and should definitely be prioritized and incorporated into policies and business models.

[Interviewer]

How will economies need to change to effectively transition to a circular economy and realize its benefits?

[Hondo]

Traditionally, a linear consumption model follows three steps, take (extract natural or virgin materials), make (manufacture a product or good), and then after being used (thrown out for disposal), which poses significant threats to our already fragile ecosystems. On the other hand, a circular economy aims to bring together the push for economic activity and growth with rebuilding our natural ecosystems. In order to achieve this, keeping products and materials in use is key. I should also note that it's important not to confuse circular economy with the 3Rs - reduce-reuse-recycle - or solid waste management, even though these are vital components; it's not the same thing repackaged. While natural ecosystems have their own circularity to them, humans have been accustomed to a take-make-dispose linear model, generating enormous amounts of waste and pollution, and depleting our natural resources.

[Interviewer]

Are there any sectors that have successfully incorporated circular economy principles in Asia?

[Hondo]

There are many examples from a wide range of sectors that incorporate circular economy principles such as plastics, food, fashion, electronics, appliances, and even cars. Let's take a quick look at food, where there are a lot of opportunities for circular economy to help with reducing waste, keeping materials in use and slowing down flows, and regenerating natural systems. Let me briefly explain these three. Reducing waste – through matching supply with fluctuating demands; holding stores and businesses accountable for their waste; discounting soon-to-be-expired food; utilizing expired foods and ingredients in in-store restaurants; policies that allow for redistribution of excess food and promote the use of edible food that might not necessarily be considered aesthetically pleasing. Keeping materials in use – organic waste being utilized for organic fertilizers, energy recapture through methane fermentation, packaging materials,

furniture, and even clothing. Regeneration of natural systems – managed grazing and regenerative crops; important to bring together suppliers (farmers) with purchasers and businesses who use the crops for food or food products so they can shift their demand based on what is best for the ecosystem. So here you have three ways in which circular economy principles can be applied to the food industry and it has already been adopted in many municipalities and businesses to some extent, but it's a matter of scaling up as we move forward.

[Interviewer]

Can you talk about sectors in Asia where circular economy principles and practices have not yet taken hold?

[Arthur]

I think the infrastructure sector is probably one of the most urgent in which to focus on circular economy principles. It is estimated that production of the most commonly used construction materials for infrastructure – cement, steel, plastic, and aluminum – accounts for approximately 12-15% of global emissions. This is particularly important for developing Asia, where the Asian Development Bank (ADB) estimates the cost of critical infrastructure is \$1.5 trillion per year. Also, ADB forecasts that in 2025, 21 out of 37 of the world's megacities – cities with 10 million or more people – will likely be in the Asia and Pacific region. It's these megacities that are really driving the bulk of world demand for new infrastructure. For these reasons it's imperative for the construction industry to embrace circular economy principles, by focusing on reducing the amount of extraction and manufacturing required for infrastructure.

[Interviewer]

How can the infrastructure sector and governments take the circular economy forward?

[Arthur]

The starting point is better design, which focuses on improving the durability of infrastructure, thereby keeping materials in the system for longer. Also, designing infrastructure with end of life in mind, so that components can be dismantled instead of demolished. This requires more modular design and less mixing of materials. Also, the infrastructure sector should replace high carbon materials for low carbon ones, which can be done by prioritizing the use of recycled or

remanufactured materials where possible, from the secondary materials market, and by utilizing innovative low carbon materials, such as green steel, which uses hydrogen power in the manufacturing process. There are also alternative green cement products, which have a significantly lower carbon footprint. Governments need to support innovation in infrastructure, both in terms of circular design and alternative low carbon materials. Developing countries may need to look toward other countries that have innovated in this space and adapt circular innovation to their own country contexts.

[Interviewer]

What are some key obstacles to the region's circular economy transition in infrastructure?

[Arthur]

Regarding the need for better designed and longer lasting infrastructure, the biggest problem for developing countries is weak regulation in the sector, particularly for residential or factory buildings contracted and built in the informal sector. This will continue to be a challenge in Asia, particularly in emerging economies with rapidly expanding urban populations. Governments need to address infrastructure governance to ensure longer asset lifespans, as well as to realize the potential of material reuse. For secondary materials, the biggest obstacle for low-income countries is that the amount of material stocks for reuse is quite low, probably 5 to 10 times lower than in developed economies. This points to the necessity of establishing trade links, perhaps on a regional basis, to support the market for secondary materials, and establish flows of such materials to emerging economies. Also, to verify the origins of materials, data, and monitoring systems will be essential. We are already seeing the use of digital material passports in Europe, which contain comprehensive information about the origin and composition of building materials and components. Digital passports are key for creating more circularity in infrastructure because they increase the likelihood of deconstruction and retaining the value of component materials and parts rather than demolishing into unusable waste.

[Interviewer]

To wrap up, how can governments in developing Asia support circular economy-oriented business models?

[Arthur]

There does seem to be growing investor and public interest in sustainability and sustainable business models. For example, one of the world's largest investment firms, BlackRock, has a Circular Economy fund, which does quite well. While this bodes well for the future of the circular economy business model, the current reality is that governments need to actively support circular economy ventures, just as they have done with green technology.

At the moment, the process of remanufacturing or repurposing materials may be more expensive than using new materials, so market failure is a major obstacle. To level the playing field, governments should price in the negative externalities of linear business models through a tax, or by subsidizing circular business activities. Also, governments need to spur innovation that could assist the growth of circular economy. For example, platform technology can match supply and demand for residual waste streams and secondary products, thereby reducing information costs. To conclude, I would say that a fundamental decoupling of economic growth from resource use, which lies at the heart of circular economy, will require different ways of doing business, different financing approaches, and a different mindset that recognizes the inherent risk of linear activities, and the environmental and economic opportunities of circular alternatives.

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