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From value chains to circular economic systems

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While value chains and product networks are often optimised for efficiency at the levels of products, firms and transactions, the overall systems they form part of may not be optimally efficient from a resource utilisation perspective. For instance, the May 2016 edition of National Geographic highlighted the staggering wastage in the food production system, where “ugly” produce not deemed suitable for retail or imperfect food is wasted. While the food value chain may appear efficient at the level of the supply chain, at a broader system or society level the system is inefficient. It is characterised by overproduction, waste and other inefficiencies, such as wastage of water, energy, etc. Taking this higher-level perspective of production and consumption systems is the first step towards understanding the concept of the circular economy.

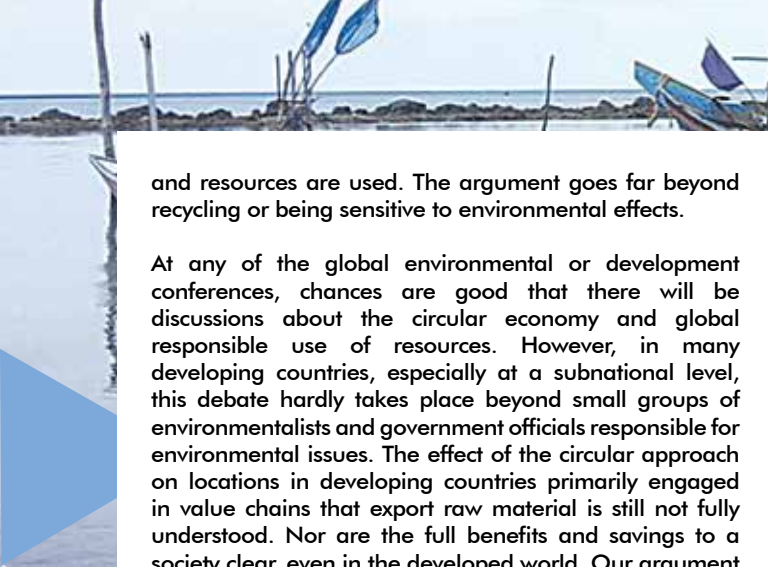
The Ellen MacArthur Foundation describes circular economy as “restorative and regenerative by design, and aims to keep products, components, and materials at their highest utility and value at all times”. A circular economic system seeks to rebuild or preserve capital, whether this is financial, manufactured, human, social or natural. This ensures enhanced flows of goods and services, and challenges today’s model, which depends on the

continuous extraction and unidirectional conversion of raw materials that have physical, capital and environmental limits.

The shift towards a circular economy is driven by a combination of factors such as:

- The increased awareness of the costs of our lifestyle to the environment
- The effect of our environment on our collective wellbeing and health
- Successful lobbying by environmental groups
- The effects of urbanisation and densification and the accompanying increase in waste
- The increasing costs of products that need to comply with regulations with regard to packaging, disposal, etc.

While increased environmental awareness and improved regulations have resulted in more of the indirect costs to society being allocated to producers, many of the costs cannot be attributed to producers and users, and so the society or future generations must pay. However, the logic of the circular economy goes beyond arguing about who should pay for the direct and indirect effects of the production and consumption of products and resources – it highlights the fact that even when costs are fully accounted for, many products and services are still inefficient at a higher system level in terms of how raw materials, capital



and resources are used. The argument goes far beyond recycling or being sensitive to environmental effects.

At any of the global environmental or development conferences, chances are good that there will be discussions about the circular economy and global responsible use of resources. However, in many developing countries, especially at a subnational level, this debate hardly takes place beyond small groups of environmentalists and government officials responsible for environmental issues. The effect of the circular approach on locations in developing countries primarily engaged in value chains that export raw material is still not fully understood. Nor are the full benefits and savings to a society clear, even in the developed world. Our argument is that locations or industries depending on global chains that become “circular” could be vulnerable. In a circular model, industrialised countries would seek to reduce their dependence on “fresh” raw materials such as food, natural fibres or minerals that many developing countries depend on for export and employment.

There are three implications for developing countries as the global trend of the circular concept increases. Firstly, local stakeholders must become aware of the opportunities, threats and benefits of a more circular logic in the economy they are part of. If stakeholders are not aware of these shifts or they ignore these changes, then they may be caught by surprise when local industries become unable to export, or when key inputs suddenly become harder to find. Just as with other technological shifts, incumbent enterprises may at first ignore these coming shifts due to sunk costs, path dependence or ignorance.

Secondly, many developing countries are struggling to cope with rapid urbanisation, increased waste created by urban lifestyle, deteriorating environments combined with climate change affecting the rural areas. The circular logic could be beneficial as it saves resource consumption and at the same time seeks to improve the environment.

A third implication is that developing countries will have to invest in publicly funded programmes to promote exploration and discovery of the circular logic. The circular





logic could be used as a topic to enable dialogue and an opportunity to mobilise a broad range of stakeholders to explore ways of better using all kinds of resources in a society. It may require investments in applied research, or in funding experimentation with new ideas. Creative ways must be found to turn the dialogue and concerns about sustainability into an ongoing discovery process supported by demonstrating innovative ways of reconceptualising how a society designs, makes, uses and reuses natural resources.

Some argue that the circular economy is overhyped and will only benefit the well-off consumers and producers who can afford the luxury of superior design, materials and reuse options. Even if there is a lot of hype generated around the circular economy in the media or at global events, there are still important principles that should be considered by policy makers, development practitioners and innovators. It is to be expected that some would be threatened by this circular logic, as it could disrupt established norms, supply chains, investments and markets.

For existing enterprises, rethinking their whole business model, product design, processes, supplier networks and relations with clients is an expensive, risky and time-consuming effort. It may simply be too difficult to think beyond a certain paradigm. The required public infrastructure or coordination with many other actors may be prohibitively expensive. Or customers may simply not

be interested in paying more for a “circular” product when cheaper alternatives exist. As with other technological shifts, many companies will probably not consider changing much until they sense a strong demand, or when competitors, key markets or regulations leave little choice but to respond. But this could be too late. For new entrants not trapped in current paradigms, the costs of rethinking or re-imagining how a system could work may be lower than for an existing enterprise. They will, however, also face risks and costs when they have to try their ideas in markets, or coordinate their own investment and development with those of others.

For territories in developing countries, a starting point could be in food production and consumption. Areas of excessive wastage of resources could be identified, and collective action could be taken to reduce all forms of wastage. There are also interesting advances in the use and processing of natural fibres. Another starting point could be to identify enterprises, groups and scientists who are interested in promoting a more circular approach, and to nurture their exploration and experiments by providing public support and investment. Once there is sufficient interest and initial champions have emerged, forward-thinking territories should invest in developing pilot programmes to reduce risks and test ideas, promote uptake or to demonstrate concepts. Eventually investments in applied research, technology transfer and education programmes would be needed to broaden the uptake in a society.

In conclusion, while the circular economy concept is still fairly new and in some instances abstract, development practitioners working in territorial economic development should take note of its implications and its logic. Some of the ideas are valuable, such as broadening the understanding of “resource use” beyond raw materials, conversion and energy consumption, or thinking of the product from the start all the way back to a new beginning. As cities grow faster, resources become more stretched, waste increases and environmental effects become more pronounced. Therefore finding ways to conserve resources, reduce wastage and at the same time attempt to improve the environment will become more important. Above all, for us the circular economy creates an opportunity for innovation while improving the environment.