



Biography

Dr. Keshav Parajuly holds a master's degree in waste process engineering from the University of Stuttgart, Germany and a PhD degree in circular economy and e-waste management from the University of Southern Denmark. Following his master's and prior to his PhD, Dr. Parajuly earned research experience from Palo Alto Research Center, California and was also involved in consulting and implementation projects around waste management and resource efficiency in Nepal and Bhutan. Currently Dr. Parajuly is based in Bonn, Germany at the United Nations University

Circular Economy and Waste Management in Nepal

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Abstract

Waste management is a lingering problem for cities in Nepal. With the rapid urbanization and the country adapting to the decentralized system of governance, it is imperative to have a set of national policies on waste and resource management and to build infrastructure as well as the capacity of regional and local governments based on these policies.

Introduction

Kathmandu was recently crowned as the most polluted Asian city, for which the poor state of solid waste management in the capital city is partly to be blamed.^[1] Overflowing landfills, streets full of garbage, foul smells, and bad sights are regular phenomena for Kathmandu. While the debate and finger pointing among stakeholders goes on for decades, little has been done to understand scientifically why waste management issues persist. Kathmandu is only a representation; other cities are facing the same set of problems, as they grow bigger. While the pollution is what gets our attention, there are other longer-lasting impacts. Besides health and environmental impacts of pollution, the reputation of 'polluted city' can harm the tourism-based economy of Nepal.

The Problem

The diagnosis of Kathmandu's waste situation, and scientific insights for tackling the problems, can be summarized in following three points:

a) Not the lack of technology, but of local knowledge

Waste management technologies have been around for more than a century. Nevertheless, there is no ‘one-size-fits-all’ solution. We need customized solutions for the local context. For this, local research is vital. Scientific tools such as waste characterization and material flow analysis help us understand quality/quantity of waste streams. These analyses can then be used for techno-economic assessment of waste management options and for prioritizing between recycling and waste-to-energy or biogas and composting.

b) Not the lack of regulations, but of policies

Nepal’s Solid Waste Management Act can fine polluters 15,000 Rupees but offers no technical details on waste collection and recycling. Informal recyclers are not officially recognized, whereas municipalities spend only on collection-and-dumping of waste that brings no economic return.^[2] We can learn from Europe where the recycling industry provides 2 million jobs and 1% of GDP. Good policies should consider the overall system. Investment in pollution control means savings in health sector, and waste recycling means jobs creation and recovery of valuable resources (metals, plastic etc.). Policies should address waste not as a burden, but as secondary resources.

c) Not the lack of action, but of coordination

Several local clubs, NGOs and informal workers are involved in managing waste. However, these actors define their own work areas and operate independently without any collective goal in the lack of national policies. There is hardly any exchange of ideas and information between authorities and local scientists. This has become a crucial issue particularly in the context of the new decentralized system of governance in Nepal.

Circular Economy for Waste and Resource Management in Nepal

“A circular economy is based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems”.^[3] This concept offers an entirely different perspective to the issue of waste and resource management considering the whole lifecycle of products and services. It includes implementing options such as reuse and repair of products before they come to the end of their useful life, and recovering resources from the products once they become waste. It is not only about avoiding pollutions caused by waste, but also about utilizing business opportunities that the sector offers.

Innovative business models and product as well as system designs are key to the transition towards a circular economy. However, the transition will not be possible without matching infrastructure and policies in place. This calls for a cooperation between all the stakeholders along the product lifecycle including producers, retail businesses, and the waste management sector.

Final Remarks

The dreadful waste management situation today is a result of failing to address the problem early on. This could repeat again in the future with several new product streams entering the developing market. Increasing amount of packaging materials as well as the growing use of electrical and electronic products, electric vehicles, solar photovoltaic panels, are few of the examples. They pose new challenges to the already poor waste management situation, but at the same time, offer opportunities to make use of the valuable material resources in these product streams. A good place to start will be to take inventories of the flows and stocks of materials, which will allow estimating the potential for a circular economy in the context of Nepal. In terms of sustaining research and actions in this domain, a ‘knowledge center’ is needed that will bring together industries, academia, government and non-government actors. Such an initiative can serve as a focal point for policy makers and funding agencies to help make better decisions.

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