

Lessons learned from COVID-19 Pandemic towards SDG 11 – What can 3R & CE offer at local, national, and regional levels?

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Waste Generation: Solid, Toxic, and Hazardous Waste



Increase in demand for online purchases, and home deliveries of food and other necessities.

Waste Generation: Solid, Toxic, and Hazardous Waste

Table 1. Additional medical waste generated in response to COVID-19

City	Population (World Population Review)	Additional Medical Waste	Total Possible Production Over 60 Days
Manila	14 million	280 t/d	16,800 tons
Jakarta	10.6 million	212 t/d	12,750 tons
Kuala Lumpur	7.7 million	154 t/d	9,240 tons
Bangkok	10.5 million	210 t/d	12,600 tons
Ha Noi	8 million	160 t/d	9,600 tons

*Hazardous biochemical wastes
become even more prevalent.*

Waste Sanitation, and life below water

Foremost among the recommended containment measures is handwashing, which has led to a *rise in domestic water consumption and wastewater generation*.

The upside Marine environment was able to recover in lieu of reduced human economic activities



Energy Demand

The lockdowns resulted to a *sharp decline in the demand* for oil, and subsequently to its price, *decreasing the motivation* for clean energy transitions that has been underway.



Consumption and Production

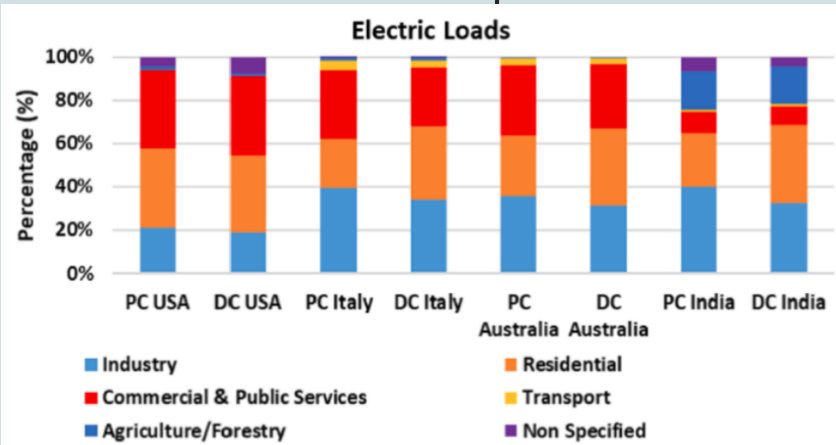
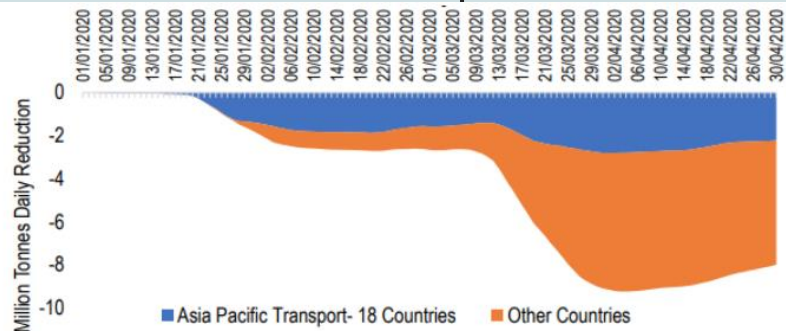


Figure 1. Pre-COVID and During-COVID % electricity demand by major sectors

The lockdowns and mitigating measures impacted household consumption of food, packaging materials and energy among others.

Environmental Emissions



Note: Asian Development Bank members considered: Armenia; Australia; Azerbaijan; Bangladesh; Cambodia; Hong Kong, China; India; Indonesia; Iran; Japan; Kazakhstan; the Kyrgyz Republic; Malaysia; Mongolia; Myanmar; Nepal; New Zealand; Pakistan; People's Republic of China; the Philippines; the Republic of Korea; the Russian Federation; Singapore; Sri Lanka; Taipei, China; Tajikistan; Thailand; Turkmenistan; Uzbekistan; and Viet Nam.

Figure 2. Transport-related carbon dioxide emissions reduction in selected countries

A significant decrease in NO_2 and $PM_{2.5}$ concentrations has been observed in cities that have strictly implemented lockdowns.

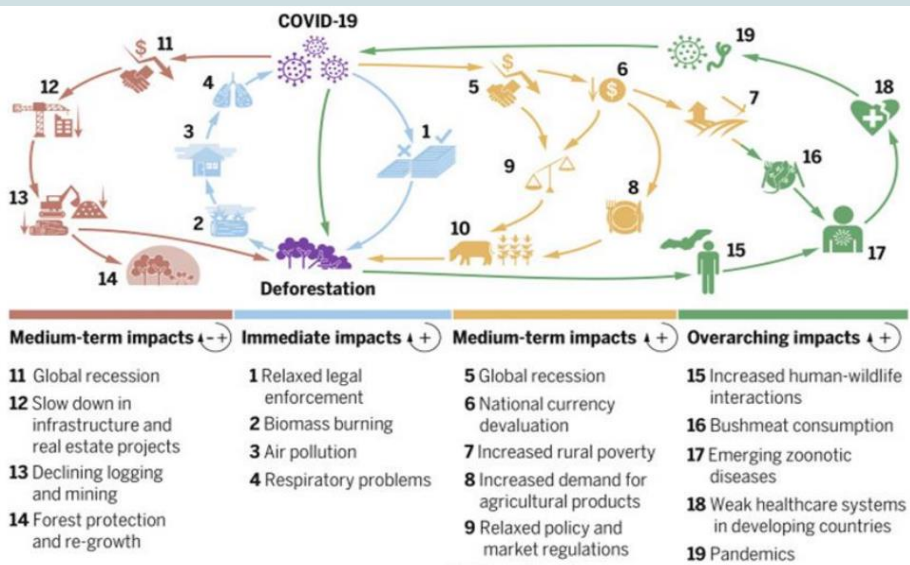


Figure 3. Feedback loops between tropical deforestation and the COVID-19

Resource Management

One month into the lockdowns in tropical countries, illegal forest clearing has nearly doubled to that of 2019, where a total of 9583 km² of deforestation alerts were detected, threatening forest ecosystems and human settlements.

Sustainable Growth: Build back better through 3R and circular economy

The COVID-19 has affected SDG responses by causing disruptions in supply chains and shifting the focus of authorities towards fighting the virus and economic recoveries.

Waste Management

*COVID-19 pandemic has highlighted the vulnerabilities of current waste management systems and infrastructures to fluctuations in waste generation resulting to **more wastes disposed in landfills, accumulation of hazardous wastes and improper waste disposal.***



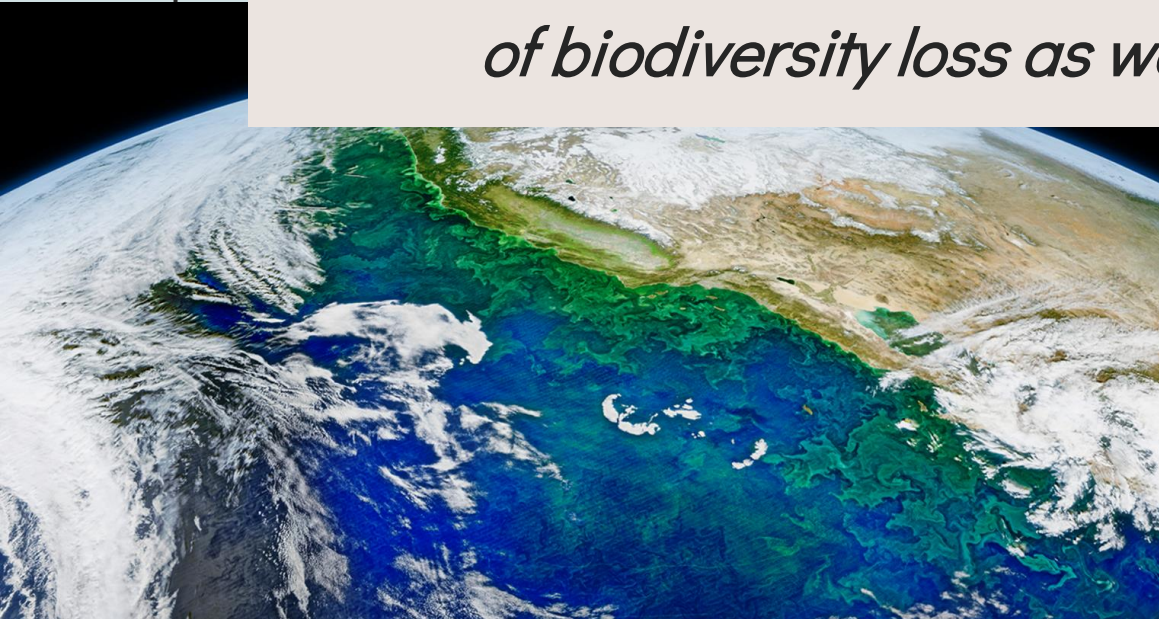
Preventing future emergence of infectious diseases

City Development and Natural Resource Management

The COVID-19 pandemic has highlighted biodiversity decline and the unique interconnectedness of humans and nature; and the need for effective waste management systems, better ecosystem and natural resource management, and access to clean water and sanitation.

Climate Change

Fighting climate change as a root cause of disease transmission can simultaneously mitigate the threats of biodiversity loss as well as future pandemics.



Regional Response

- Strengthening regional supply chains and easing regional barriers to trade of essential goods will prevent delays in pandemic response.
- Fostering regional commitment to a green recovery.
- Coordinating regional action on environment and natural resource management, such as an ASEAN regional SCP Framework or ASEAN Resource Panel.

National Response

- Adaptability of infrastructure and response for sustainability.
- Ensuring access to water and sanitation for all.
- Prioritizing and investing in green sectors in national economic recovery packages.
- Embracing sustainability with projects, initiatives, with national policies.
- Planning for resilience of systems and infrastructures
- PPP facilitating private sector-led actions.
- Using sustainability metrics in choosing and implementing solutions to the pandemic.

Local Response

- Rethinking rural and urban development with respect to ecosystem boundaries and carrying capacity.
- Circular local economy based on resource flow and value chain
- Responsive governance and social services
- Redesigning business models including symbiosis, SCP-management system, and product-service system.

The Way Forward

Essence of building back better

New meanings for resiliency

Climate goals

Localized actions and global impacts

Raw materials in waste