Stimulating circularity during a healthcare crisis

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This project is part of the THRIVE PhD Academy of THRIVE Institute, a community of young ambitious researchers who express a desire to go beyond their own research and boost societal impact. During this 11 month project, our team of 5 ambitious PhD researchers has set to tackle the task of making healthcare responses during emergencies more circular. Our interdisciplinary team includes technical researchers (Sarwan and Oscar), researchers that understand the healthcare systems and health economics (Dilnoza and Lisa), and creative researchers that are able to design circular solutions (Theresa).

Crises such as pandemics, earthquakes, floods, fires or any other unforeseeable events disrupt and destabilize the functioning of worldwide systems. The COVID-19 pandemic brought such a crisis to the Netherlands; implications of the worldwide lockdowns caused disruptions of supply chains, business shutdowns, and challenged the healthcare systems at their core.

During a healthcare crisis, emergency centres require vast amounts of resources, such as food, medical equipment, and other supplies that have to be accessed on short notice. However, most of these resources are scarce. The WHO (2020) estimated a global shortage of at least 40% in personal protective equipment[6]. This means that the current crisis response requires an unsustainable use of scarce resources.

Another problem in crisis response is that immense amounts of waste are produced through the use of (single use) medical supplies and food packaging. Large amounts of raw materials and food are lost during a crisis. A vivid example of wasting resources during crisis response is that 1.5million MT of excess potatoes in the Dutch warehouses. The closure of restaurants during COVID-19 led to a shortage of demand and the greenhouse farms were forced to suspend operations due to the lack of seasonal field workers.

Mission & Objectives

As one can see from the shocking figures above, crises expose the existing problems and fragilities related to the circularity of the system. A circular economy framework can offer several solutions for this. In a circular economy, resources are strategically used through slowing, narrowing, closing, and regenerating loops and can, therefore, minimize the negative environmental and financial side effects of a crisis.

The COVID-19 crisis has encouraged us to have a more critical look at the use of limited resources and the production of waste. Our mission is *to make healthcare crisis response more circular* through three objectives: 1) minimizing waste that is produced 2) decreasing the number of limited resources used and 3) thereby saving financial resources.

Our goal is to develop an innovative tool that helps to reduce healthcare waste and addresses the shortage of resources during the healthcare crisis. By seeking collaborations with organizations in the field of circularity, healthcare innovation, crisis management and festivals we aim to achieve this goal through the following deliverables:

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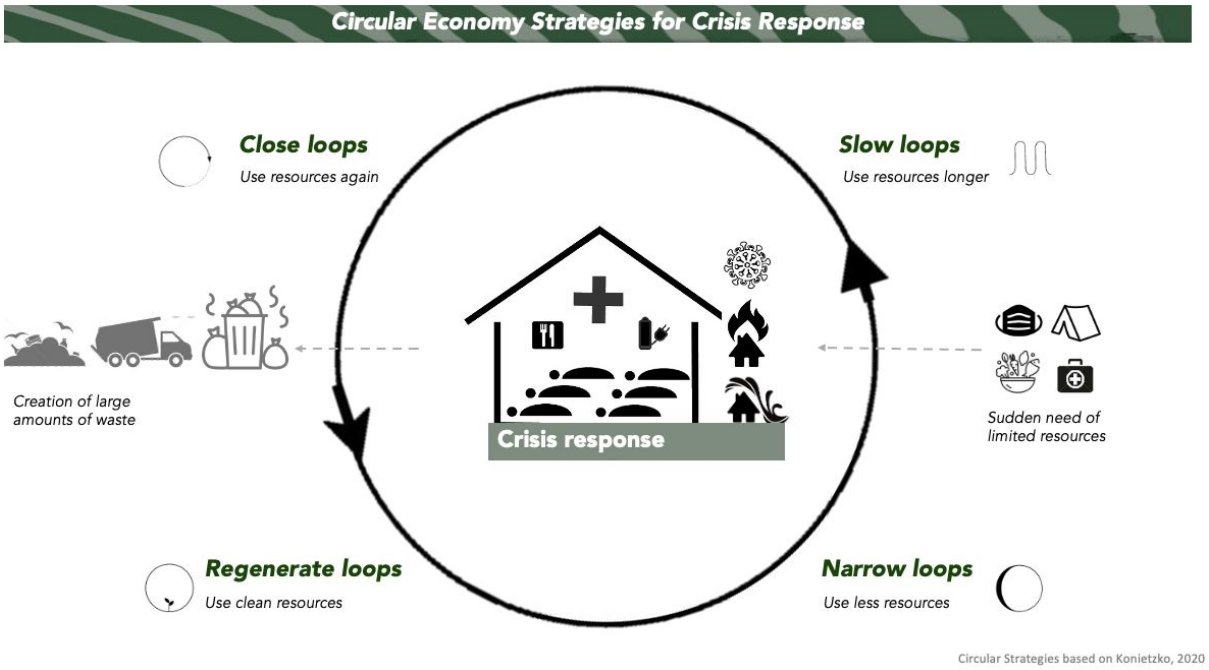
[6] WHO (2020). Shortage of personal protective equipment endangering health workers worldwide. See: https://bit.ly/3dvelJ4

1. **Circular emergency response research report** with 1) **insights** in the demand and supply of healthcare resources, 2) **overview of strategies** to make healthcare circular in times of crisis;
2. **Innovation and implementation plan** of a circular framework to healthcare emergency response;
3. **A research-based innovative tool** for users and suppliers of resources in healthcare which is pilot-tested.



Our methods

Research forms the basis of our implementation plan and tool. Our research question is: How can we make healthcare responses circular in times of crisis? Within our project we focus on solutions that originate from research, strategies, and innovation on how to A) reduce the amount of waste produced during a crisis response, B) economical use of scarce resources, and/or C) reduce the costs of healthcare response in times of crisis.

We employ the following methods:

- Literature review on circularity, healthcare facilities and supply chains
- 25 - 30 semi-structured interviews with experts in the field of circularity, healthcare innovation, crisis management and festivals to identify challenges in implementing circular practices
- Interactive co-creation sessions with collaborating parties
- 5-10 structured interviews or surveys to evaluate the pilot tool.

Collaborate for a circular future

We seek collaborations with healthcare consultancies, NGOs (e.g. Red Cross, WHO), hospitals, crisis response teams, stakeholders in healthcare supply chains (farmers, caterers, etc.), and organizers of sustainable festivals. Together with these organizations we discover current practices and develop valuable solutions to encourage a circular crisis response. We offer our collaborators the opportunity to be part of our innovation tool, aiming at minimizing waste, decreasing the number of sparse resources used and thereby saving financial resources.

Interested in participating in our project, receiving the latest academic insights on circularity in crisis, and contributing to developing pilots? Don't hesitate and reach us at circularhealth@thriveinstitute.nl.