

**Intellectual output 3. Educational support content targeting instructors****Learning sheets for HERA activities**

## City preparedness for Covid-19

Topic: preparedness, prevention, infection, control

### Introduction

The current Covid-19 pandemic constitutes a global emergency. All regions of the world are affected, with the disease having spread often too quickly for cities to organize a response.

The Covid-19 pandemic has the potential of challenging even well designed health systems. In the absence of a solution such as a vaccine, addressing the current Covid-19 pandemic requires well thought planning for stopping the spread of and limiting the harm from the disease. Cities are in need of scaling-up their health care plans within existing budgets for ensuring that citizens receive the necessary care for overcoming infection at home or in the hospital.

As the number of cases increases, cities need to develop additional health care infrastructures, such as hospitals or smaller scale facilities, as well as supporting services for access and education in relation to desirable behavior that helps contain the pandemic.

### Context

The game is situated in a city that needs to prepare for preventing the spread of Covid-19 infection through infrastructure and planning. The city authorities need to plan for ensuring that health care facilities are adequate for the population of the city.

#### **Role 1: Health care response planner**

The response planner aims to ensure that health care facilities, such as hospitals and other services, are adequate for addressing the needs of the city population. To achieve this goal, she must build hospitals in easy to access locations that address the needs of different neighborhoods in the city. This task may require changing the function of existing buildings if there is not enough space in dense



Figure 1. The scenario starts with a basic city that includes housing as well as energy, internet, and phone networks.

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areas for building new ones. Finally, the response planner must ensure that health care services are equipped with the appropriate vehicles for transporting patients.

#### **Role 2: Urban planner**

The urban planner designs a traffic network that ensures easy access through roads to health facilities around the city. The urban planner further develops energy, internet, and telephone infrastructures that are critical communication and an effective response to Covid-19.



Figure 2. Students are called to introduce city enhancements that support health provision to inhabitants.

#### **Role 3: The city mayor**

The city mayor is responsible for ensuring the smooth function of all city services and that quality of life is high in the city. In practical terms, for the scenario purposes this means that citizens are happy. The city mayor is also responsible for ensuring that the city financial resources are responsibly used towards building the necessary infrastructure. The mayor can contribute to the development of infrastructure as well as businesses and industrial activities that contribute to city revenue.

#### **Role 4: Education planner**

The educator aims to raise awareness on the characteristics of the virus and to build knowledge on how responsible behavior helps contain the pandemic. The education planner builds educational and cultural facilities that may be used for awareness building and response training in relation to Covid-19.

The following picture demonstrates the activities of each role and the interaction between them.

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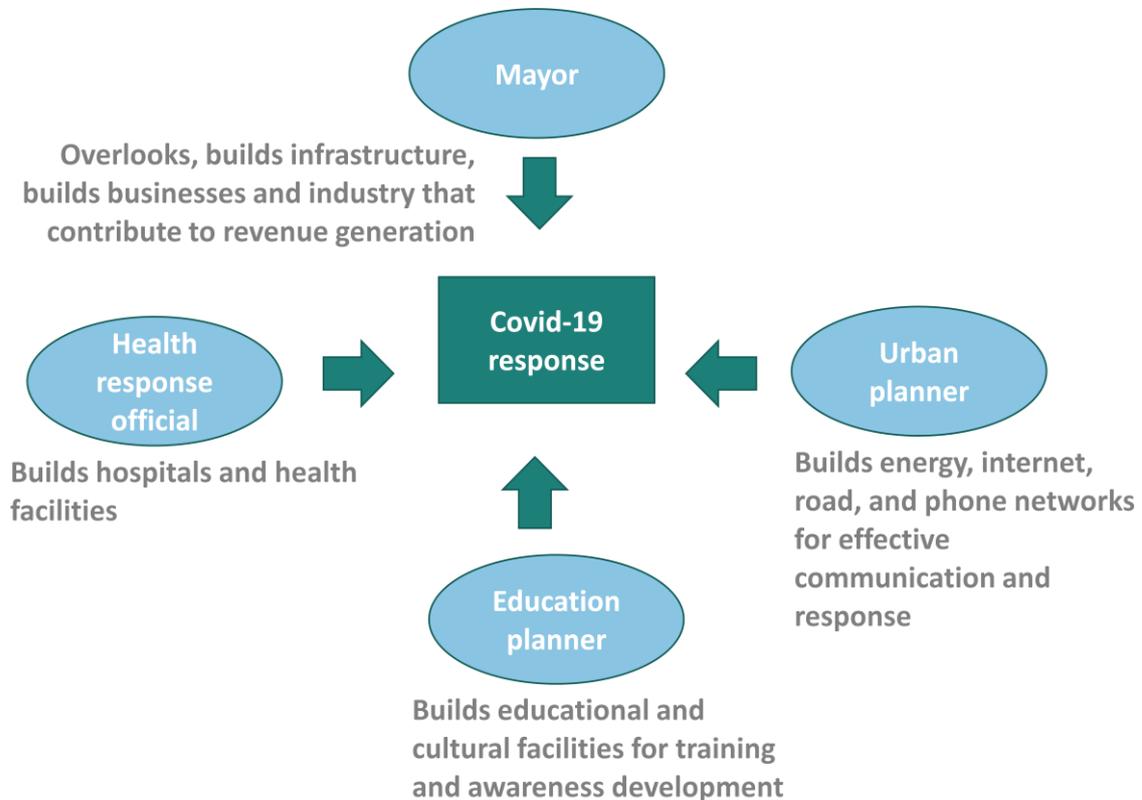


Figure 3. Role actions and dependencies.

## Learning goals

Upon completion of the activity students will:

- Understand the threat and consequences of the Covid-19 pandemic.
- Have developed critical thinking towards synthesizing a coordinated response towards addressing the pandemic, containing the spread, and minimizing the harm.
- Have developed responsible behavior in the pandemic area.
- Have experienced how to achieve cooperation between different parties with different goals and needs.
- Have built capacity to prioritize objectives and to work within a specific budget.

## Prerequisites

The activity is built on the common experience of all individuals today in relation to the Covid-19 pandemic. It does not require extensive medical knowledge. Rather, it requires

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students to be exposed to the emerging challenges that society faces today in relation to pandemics.

## Audience

The activity is interest to all engineering and economics as well as more general audiences. It can be deployed for raising awareness on pandemic challenges and management.



Figure 4. Office buildings provide working space for city economic activities.

## Core concepts

- **Pandemic:** An epidemic of an infectious disease that has spread across a large region and affects a broad number of individuals.
- **Virus transmission response and preparedness:** A strategy and plan for addressing the spread of a virus and reducing harm.
- **Emergency care:** The first point of contact of the health system with infected individuals.

## Description of the scenario

The overall objective is to design an appropriate response and preparedness plan for addressing the Covid-19 threat and minimizing the harm from the pandemic.

This can be achieved by designing a comprehensive strategy that addresses therapy measures at home and in the hospitals while at the same time educating citizens on how they can contribute to containing the spread.

Students are encouraged to think out of the box and to introduce alternative potential ideas the combination of which may lead to a city-wide strategy for protecting public health.

## Class activity

1. The teacher presents the problem to the class and introduces the scenario and game.

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2. The students are challenged to critically analyze the problem and to reflect on how the pandemic affects individuals, communities, social cohesion, and the economy.
3. The students are encouraged to introduce a breath of ideas towards mitigating the spread of the virus. The ideas do not necessary need to be a complete solution, but each may address a specific aspect of emergency preparedness and response.
4. The students are asked to prioritize their ideas and to select the ones that will be integrated into a cohesive response plan.
5. The teacher allocates roles and allows the necessary time for students to explore the learning scenario through the HERA game.
6. The students play the game according to their roles striving to achieve individual and group objectives.
7. The students discuss their experiences, findings, and results; the teacher and their peers provide feedback.

## **Assessment methods**

The activity is open-ended and aims to build student awareness on the Covid-19 threat, to encourage them to behave responsibly, and to build critical thinking towards understanding Covid-19 response solutions. There is not a single correct answer to the problem. Rather, student teams introduce their own solutions. A class discussion follows in which the students have the opportunity to present their work, to see that of others, and to reflect on different approaches. Students receive constructive feedback from the teacher and their peers. Alternatively, during the class discussion a common solution may be introduced that combines the suggestions of all teams.