Instructions for the course on Intellectual Output 1

Disclaimer
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Introduction

The purpose of this module is to help students better understand the complexities of modern urban systems. Going through this module, the students will be:

- Introduced to main definitions used in the societal metabolism analysis, and familiarized with these definitions through examples of and inference from real-life applications.
- Presented with displays and descriptions of formal theoretical models based on real-life cases. This should help them understand how these theoretical notions can be translated to elements of everyday life, and make it easier for students to transfer/translate them to any context.
- Acquainted with the rationale and the concepts that are in the background of the SUSTAIN game.

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SUSTAIN GAME-BASED LEARNING ON URBAN SUSTAINABILITY

Introduction

The concepts introduced here will be used and useful throughout the entire course. The module is aimed at students who do not have a background in environmental sciences or urban development studies, who are new to this field, and who do not intend to specialize further on societal metabolism-related research. In addition, it is structured with the intention to encourage students to critically analyse and arrive at the understanding of the advantages and disadvantages of different consumption practices in urban settings.

The module contains links to videos, pictures and interactive exercises that clarify the definitions and elements with the purpose of helping students understand the complexities of modern urban systems.

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O1 Chapter 1: Introduction

- The scope of the current subchapter is to briefly present the current state of the world that leads to the need of a shift in how the society perceive development, and the opportunity of using the societal metabolism framework to address some of the pressing problems related to development. It also introduces the aim of the module in connection to the overall course.
- The students are expected to become more sensitive to the global problems, be able to understand how their lifestyles contributes to the global issues, and be curious to explore what the societal metabolism framework has to offer.
- The teacher is advised to present the clear link among O1, O2, O3 and O4, and also refer to the game that the books are introducing. Simple examples can be described at this stage of the course.

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O1 Chapter 2: Societal metabolism

This chapter focuses on introducing the concepts, defining them, and exemplifying with real-life examples. It is advised that the teacher encourages students to come up with other examples.

It is also advised that the teacher consults the provided references in advance.

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O1 Chapter 2: Societal metabolism

Subchapter 2.5: Environmental Impact

After introducing the examples, ask students:

- What other negative human impacts on the environment in a city do you know of?
- Why is it a negative impact and how does it happen?
- Can you think of a positive impact on the environment of a human activity in a city?

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SUSTAIN GAME-BASED LEARNING ON URBAN SUSTAINABILITY

O1 Chapter 2: Societal metabolism

Subchapter 2.7: Systems thinking

After introducing the examples, ask students:

- What other systems can you think of?
- What are some of the components of the system?
- What are some of the relationships between its components?

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O1 Chapter 3: Understanding the Key Terminology in this Course

In this section, the terminology defined in the previous sections is illustrated by using examples from real life. Students are expected to explore the real-life cases, and become more familiar with this new way of looking at the various issues related to development. They are also expected to start mastering better the new vocabulary and use it when talking about similar issues.

It is advised that teacher encourages students to use the new terminology as much as possible. It is also recommendable that students think of similar examples themselves. The teacher may chose the format in which to facilitate student sharing of their examples.

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O1 Chapter 3: Understanding the Key Terminology in this Course

Subchapter 3.10: Sustainable urban mobility

Ask students to:

- Brainstorm and compile a definition for it as a group.
- Browse internet for examples. Explain what makes those examples sustainable. In explaining that, use some of the terminology introduced in this chapter.

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Homework

Homework is thought of as an occasion for students to work individually and in groups, so as to cement the new concepts in their vocabulary and world view.

They will have tasks that range from interpreting information from cases that are given to them, to studying their surroundings and coming up with relevant examples.

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Homework

It is advised that, besides the exercises included in the module, the teacher asks students to check the following readings at home and come with some facts / figures that surprised them the most.

- Europe is one of the most urbanized regions in the world: 73% percent of Europeans live in urban areas (data from 2014).
- Number is expected to reach 80% by 2050: https://esa.un.org/unpd/wup/Publications/Files/WUP2014-Highlights.pdf
- Cities in Europe increasingly face problems caused by transport and traffic: congestion, social problems (mobility and accessibility issues), and environmental problems (air pollution, noise pollution, energy consumption and CO2 emissions): (pages 6-13 https://ec.europa.eu/transport/sites/transport/files/2017-sustainable-urban-mobility-policy-context.pdf
- Global Urban Growth Map: https://esa.un.org/unpd/wup/Maps/CityGrowth/CityGrowth.aspx