



Business-as-usual - is not an option anymore. An introduction to sustainable development through the concept of planetary boundaries

(Resource ID: 358)

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Work in pairs
Group work
Plenum



11 to 30
students



4-7 lecture
units



Internet
connection
necessary



English, Shqip

The teaching resource aims to introduce the idea of sustainable development by using the concept of 'planetary boundaries' in order to visualize various planetary systems and their limits. In an interactive process the students gain knowledge in the field of sustainability science and develop an understanding of humanity's impact on the Earth's systems. Additionally, later on the focus is set on the boundary of climate change, concentrated on the Balkan area, in order to understand regional consequences of climate change. Striving to offer global as well as local perspectives.

This teaching resource (TR) can be used as an introduction to sustainable development using the concept of 'planetary boundaries' as one example to visualize the need for a more sustainable development. The concept addresses the discourse on limits of the Earth's systems and focuses on the ecological aspects of sustainability. It visualizes the impact of humanity on various, previously defined systems and further stresses the importance of staying in the defined boundaries to keep a "safe operating space for humanity" (Rockström et al. 2009).

Students ought to gain knowledge in the field of sustainability science, develop an understanding of human pressure on the Earth's systems, along with a broadened understanding of systems thinking in view of complex systems.

After a short introduction on sustainable development and sustainability understandings - held by the lecturer -, the TR starts by showing an excerpt of the TedTalk by Johan Rockström. The first excerpt focuses on the 'quadruple squeeze'. This concept describes the four forces - population growth, biodiversity loss, climate change and surprise - which put various pressures on ecosystems. These pressures ought to be visualized through the example of Kelp Forests. Moving on, the TR concentrates on the concept of planetary boundaries showing a second, introductory excerpt of the TedTalk. After this short input, the students work in pairs/small groups, each group preparing and presenting one individual boundary. This first part is laid out to take about 120 minutes. Here, if necessary, the TR could be split into two consecutive sessions.

After the first part of this teaching resource the result ought to be that "business-as-usual' is not an option anymore". Moreover, the students should be able to reflect on current societal and individual behavior and conclude that a more sustainable development is necessary.

The second part of the TR focusses on climate change - as one major boundary - in the Balkan region combined with the idea of sustainable development. For the necessary input a stakeholder, preferably working on climate change adaptation/ mitigation in the region, could be invited (for suggestions see below). They ought to give an overview of the impacts of climate change in the region, adaptation measures and also offer ideas what could be done to prevent further climate change. The stakeholder should work with the students on ideas how gained knowledge could be transferred into their daily lives as well as their field of study.

If a stakeholder is not accessible or desired, the lecturer gives an input on climate change in the region and its consequences on the various dimensions of sustainability.

Here, in order to gain a better understanding of how individuals affect the climate, the ecological footprint or the carbon footprint could be

calculated through suggested calculators. After the input and the calculation of their ecological/ carbon footprint a discussion in form of a brainstorming session or a silent reflection on paper should follow. Aiming to develop ideas on what society and students themselves can do to think and act in a more sustainable way.

After concluding the resource, students ought to understand the impact of humanity on the Earth and how this impact consequently endangers the Earth's ecosystems. They should have gotten an overview of the pressures under which our planet and their regional environment suffers, gained an understanding of sustainability as well as the ability to reflect on their own behavior.

Teaching Tools & Methods



Written material Video Measurement device

Integration of Social Stakeholders

Various stakeholders can be considered to give an overview on regional impacts of climate change.

Suggested Stakeholders:

- Institute For Development Policy (Kosovo),
- Kosovo Agency for Environment Protection,
- Protection and Preservation of Natural Environment in Albania,
- Institute for Environmental Policy of Albania.

The stakeholder ought to give an overview of the impacts of climate change in the region, adaptation measures and also offer ideas what could be done to prevent further climate change. S/he should work with the students on ideas how gained knowledge could be transferred into their daily lives as well as their field of study.

Strength

- Interaction between lecturer and students as well as amongst students
- Flexible time structure (either one session of about 4 hours or 2 sessions of 2 hours)
- Accessible; no prior knowledge required

Weakness

- Introductory: many aspects could be discussed further

Learning Outcomes

- Knowledge of various sustainability understandings, different planetary systems as well as exemplary the ecosystem of Kelp Forests
- Realizing of the interdependency between and complexity of systems
- Understanding of humanities influence on Earth systems
- Understanding of the goals of sustainable development
- Deeper knowledge in one segment of the introduced concept
- Communicating and presenting of scientific knowledge
- Reflecting critically on their own behaviour as well as different concepts
- Developing and strengthening of scientific thought pattern
- Reflecting on problems from various perspectives/angles
- Relating of global and local problems or phenomenon's

It is an introduction to further learning about sustainability, sustainable development and why it is such an important issue.

Relevance for Sustainability

By using the concept of planetary boundaries the teaching resource focuses on the ecological dimension of sustainability. In order to gain a full understanding of the concept the resource begins and ends with integrating the social and economic dimension of sustainability. The resource introduces various understandings of sustainability briefly in order to gain a broadened understanding of the idea. By elaborating the individual planetary boundaries, the students gain deeper knowledge of planetary systems and understand the independence between them. Moreover, by concentrating on climate change in the Balkan region the local relevance of sustainability is stressed and students develop an understanding for local and global perspectives of sustainability. Students gain an understanding of the goals of sustainability as well as knowledge of affiliated systems which is necessary to gain transformative knowledge.

Related Teaching Resources

No specific previous knowledge / related resources required

Preparation Efforts

Low

Preparation Efforts Description

Lecturer needs to print documents for group work and discussion and needs to make sure that there is a possibility to show a video. The lecturer should know the material. If a stakeholder is available the lecturer needs to invite the stakeholder in and discuss what they will need to prepare for the session.

Access

Free

Assessment

- students could write a review
- students could write a reflection about the whole topic with focus on the boundary they explained, focus on regional effects, focus on their field of study and the influence of a sustainable development in it (for further information see the "Teaching Resource Instruction File"

Credit/Certification Description

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Sources and Links

TedTalk Johan Rockström:

http://www.ted.com/talks/johan_rockstrom_let_the_environment_guide_our_development

Carbon footprint calculator: <http://www.carbonfootprint.com>

Ecological footprint calculator: <https://www.greencred.me/index.php>

- Rockström, Johan et al. (2009): Planetary Boundaries: Exploring the Safe Operating Space for Humanity. In: Ecology and Society, 14(2), 32.
- Steffen, Will et al. (2015): Planetary boundaries: Guiding human development on a changing planet. In: Science, 347(6223).
- Steneck, Robert S. et al. (2002): Kelp forest ecosystems: biodiversity, stability, resilience and future. In: Environmental Conservation, 29 (4), 436-459.
- Wu, Jianguo (2013): Landscape sustainability science. In: ecosystem services and human well-being in changing landscapes. In: Landscape Ecology, 28, 999-1023.

- Environment and Security Initiative, United Nations Development Program, Venice International University, Siena University & Zoi Environment Network (Eds.) (n.d.). Climate Change. Adaptation in South Eastern Europe. A Background Report. Online: http://www.unep.at/documents_unep/ENVSEC/Climate_Change/CCSEE-Final.pdf (19.12.2015).
- The Ministry of Environment and Spatial Planning (Eds.) (2014): Climate Change Framework Strategy for Kosovo. Kosovo.

Further Literature: See list of references (PlanBound_ListofReferences)

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