

Instructions for the lecturer

Dimensional sustainability concepts – with particular focus on the three dimensional concept and its practical application.

This teaching resource is a first introduction to sustainability and its conceptualisation with a focus on dimensional concepts. Therefore it can be chosen for students without any pre-knowledge concerning sustainability.

The Instruction file is structured into:

- 1.) Description of the teaching resource
- 2.) Lecture overview with time recommendations
- 3.) Annex
- 4.) References

1.) Description of the teaching resource

The resource is divided into two sessions.

The **first session** is dedicated to a content-based introduction on sustainability and dimensional sustainability concepts with the help of an exemplary sustainability issue explained by a local stakeholder.

The **second session** is a practical exercise based on the three dimensional concept from the first session. On the basis of the interactive methodological mixture of elements of a World Café/ role play students gather awareness in the complexity of sustainability issues and try to find potential sustainable solutions.

The primary **learning objective** is to strengthen the knowledge on sustainability and the dimensional conceptualisation approach, which constitutes the main concepts of the industrialized countries of the North. The focus is set on the three dimensional concept which tries to structure sustainability topics in the scopes of ecological, social and economic dimensions while also taking care of possible linkages between aspects of different dimensions. Concepts with less and more dimensions are mentioned shortly.

Further learning objectives are for instance to encourage the students to work in teams, to negotiate and discuss, as well as to strengthen the personal ability of systems-thinking and reflectivity. The students will be encouraged to develop an open-minded thinking referring to the terms of sustainability that leads to the acquisition of skills needed to structure complex sustainability topics and see linkages between different aspects. Then, this might be the basis of reflecting their own actions in everyday life.

The regional connection of the teaching resource will be obtained by engaging a **local stakeholder** of the waste management sector. The decision for the waste management sector as an appropriate example is based on reports of the European Environment

Agency (2013)¹ and of the Ministry of Environment and Spatial Planning of the Republic of Kosovo (2012)². They show that waste management is a problematic issue in Albania and Kosovo.

The stakeholder is asked to present and describe the current situation of the waste management in town, in the region or the country. Together with the students he or she should apply the three dimensional concept of sustainability in the waste management and should therefore be briefed by the lecturer beforehand.

First Session

1. Programme: Introduction into the topic of sustainability. Hereby every student should make up his/ her mind and try to find an own definition of sustainability or at least brainstorm important aspects of sustainability.

What is sustainability? How could it be defined? Which important aspects does sustainability contain?

Goal: Initial thoughts about sustainability by the students, which makes the topic more available and interesting for them. The students will be invited to open their minds and concentrate on an unknown issue.

Method: Metaplan/ card technique³.

Each student writes down an own approach of a definition or aspects of sustainability on cards (one idea, one card). The cards are then clustered at the pin board and should remain there the whole session so that the students can reflect their initial definition with the input they get during the session. But also the lecturer might refer to some of these thoughts at later times. *If the students find it hard to make up definitions or aspects by themselves group work in pairs might be possible.*

2. Programme: Short introduction by the lecturer into selected historical milestones of sustainability. Hereby the timeline with selected milestones in the presentation has a special focus on the major actions of the United Nations on sustainability, environment and development (see annex).

Goal: Students understand the context and the importance of the topic and get an insight of historical background, which led to sustainability discussions nowadays. They are encouraged to acquire new knowledge as a basis for the following steps.

¹ EEA (2013): Municipal waste management in Albania. Online: <http://www.eea.europa.eu/publications/managing-municipal-solid-waste/albania-municipal-waste-management>.

² Ministry of Environment and Spatial Planning (2012): Strategy of the Republic of Kosovo on waste management 2012-2021. Online: http://mmpk.rks-gov.net/repository/docs/+SRKMM_Ang_270038.pdf.

³ Metaplan GmbH (n.y.): Primer for the Metaplan Technique. How to moderate group discussions using the metaplan technique. Online: http://www.sswm.info/sites/default/files/reference_attachments/METAPLAN%20GMBH%20c%20ny%20Primer%20for%20the%20Metaplan%20Technique.pdf.

Method: Presentation of the timeline with selected sustainability milestones by the lecturer.

(Brief information on the milestones can be found in the annex of this instruction file. For further information on sustainability events, see: Heinrichs et al. (2016) and Worldwatch Institute (2015))

3. Programme: Presentation of different dimensional sustainability concepts with main focus on the three dimensional concept. A short discussion concerning the weighting of the different dimensions of the three dimensional concept follows. For a deeper understanding of the concept a practical example from the waste management sector shall be included here with the help of a societal stakeholder. He or she shall introduce the topic and the current state of waste management while referring to the problematic aspects. Together with the students he or she shall collaboratively further structure the topic into the three dimensions of sustainability (ecological, social and economic). Therefore a preparative meeting between the lecturer and stakeholder is needed (*see preparation chapter in the template*)! Further dimensions as a political or institutional dimension might be useful to give a comprehensive view on the topic of waste management (*see presentation slides*). This shall be discussed with the students.

Furthermore a personal connection to the students should be obtained.

Why should sustainability concern them, too? What does sustainability have to do with them?

Goal: Students understand that the dimensional concepts help to structure the variety of sustainability aspects and tensions/ contradictions between them. They are able to critically reflect the concepts. They can deepen this insight by the example of the waste management sector and they are able to analyse a newly given sustainability case concerning the new-learned parameter.

Method: Presentation of the concepts up to the three dimensional concept by the lecturer and short discussion about two different versions of the three dimensional concept in the plenum moderated by the lecturer. Presentation of the current situation of the waste management sector concerning different scopes by the stakeholder. Together with the students the stakeholder is then asked to interactively elaborate the application of the three dimensional concept of sustainability on the topic of waste management. Presentation of the four or more dimensional concept by the lecturer. Discussion of the appropriateness of additional dimensions with regard to the example from the waste management sector with the stakeholder.

4. Programme: Preparations for the following lecture, which will be a mixture of a World Café and a role play on another sustainability topic. Brainstorming on other topics that might be interesting under sustainability aspects (e.g. mobility, electricity, cloths, food, water) and decision on one example that is of interest of the students as it concerns their daily life. Group building with groups of each dimension (ecological, social and economic).

Guiding questions for the decision on the sustainability topic: What kind of (sustainability) topic are the students interested in? Why could this topic be important for a sustainable development of the region?

Goal: Decision on the topic for the World Café/ role play so that students have time to gather information on the issue regarding their dimension.

Method: Brainstorming of the students moderated by the lecturer. Decision is made by voting. A simple majority is enough to decide for one topic. The lecturer builds three groups of students according to their own interests so that each group represents one dimension (ecological, social or economic).

Between this session and the next one students have to research on the particular dimension of the chosen topic. Therefore not only literature work and internet-based research is possible, but also interviews with stakeholders to get information on the topic.

Break between the sessions

There should be at least a week of time between the two sessions of this module in order to give the students enough time to research on their topic.

Second session (for time recommendations see lecture overview)

1. Programme: Short introduction into the teaching method, which can be seen as a mixture of World Café and role play. The single methods of World Café and role play are further described in the “ConSus Teaching Methods Handbook”⁴ and at “Sustainicum Collection”⁵.

Goal: Students know what is on the agenda for the lesson and understand how the mixture of World Café and role play is going to proceed.

Method: Instruction of the session’s schedule by the lecturer.

2. Programme: The students get together in their focus group representing one dimension (as selected in the first session) and discuss within these groups, gathering all aspects concerning their own dimension.

Goal: Focus on only one dimension and therefore getting a lot of information according to this scope.

Method: Group discussion led by students.

3. Programme: Mixing of the groups with at least one person from each focus group so that in every new group every dimension is represented. Exchange and discussion of arguments.

⁴ O’Grady, A., Mader, M., Kromp, R. & Meyer, J. (2015): ConSus Teaching Methods Handbook.

⁵ Renner, R. (2012): Role play “Scientific Conference – Panel Discussion”. Sustainicum Collection. Online: <http://www.sustainicum.at/en/tmethods/view/19.Role-Play-Scientific-Conference-Panel-Discussion>

Possible guiding questions through the lecturer in advance: Which ecological, social and economic aspects matter in this case? Which problems occur? Which problems are the major ones in the long run?

Goal: Students become aware of other perceptions and aspects. They are also trained in systems-thinking.

Method: Discussion led by the students within the new, mixed groups.

4. Programme: Development and negotiation of potential sustainability solutions (in the same groups). Visualization of results.

Possible guiding questions through the lecturer in advance: What has to be done to solve these problematic aspects in each dimension separately? How could a possible sustainable solution with an improvement in all dimensions look like? Take care: A sustainable solution has to work in the long run!

Goal: Awareness of the complexity of and tensions between aspects affecting a sustainability topic and the difficulty to find a comprehensive sustainable solution. The negotiation process is central in these two subunits (2.3 and 2.4). Students are encouraged to balance their thoughts and aspects on their dimension against others.

Method: Group discussion and brainstorming moderated by the students within the new, mixed group. Creating a poster with the illustration of the developed sustainability approach within each group.

5. Programme: Final presentation of the sustainability approaches of each group in the plenum.

Possible guiding questions through the lecturer in advance: What kind of sustainable solution approach did your group develop?

Possible question for plenum discussion: Does it take care of all identified problems in all three dimensions?

Goal: Visualizing how different potential sustainability approaches emerge on the same topic.

Method: Short presentation of the posters by the students.

6. Programme: Reflection on one's own role during the World Café/ role play, on the negotiation process and the application of the three dimensional model (in the plenum).

Guiding questions:

What did the students realize regarding the World Café/ role play or the content? Was it difficult to find consensus? Was it possible to take all dimensions equally into account while developing a solution approach? And why? Did the different dimensions help to structure the case?

*Are these three dimensions appropriate in this case? Is any dimension missing? Or is another classification better? And why?
What do they take home from this experience?*

Goal: Reflection on the three dimensional sustainability concept, the difficulty of finding consensus and whether dimensional sustainability concepts help to structure the complexity or to broaden the view. But also a reflection on the World Café/ role play and the procedure of the whole module (meta level) is possible here. The student's reflective ability is central in this subunit.

Method: Discussion in the plenum and reflection moderated by the lecturer.

7. Assessment of the students:

The students could be assessed by writing a seminar report on one of the guiding questions at the concluding reflection part of the second lesson (see 2.6). Thus it is possible to reflect the negotiation process, the own role in the process or whether the three dimensional concept was appropriate in this case or if not, what was missing. Furthermore the students might investigate whether the different dimensions reduced the complexity of the chosen topic.

2.) Lecture overview:

Session. Subunit	Time	Programme	Goal	Method
1.1	15-20 min	<p>Introduction into the topic by trying to find a definition of sustainability or at least important aspects of sustainability.</p> <p>(individual definition of each student – in case it is hard to make up a definition, pairs might be possible as well)</p>	Visualizing the variety of sustainability definitions and aspects and make it more available and interesting for the students.	<p>Metaplan/ card technique: Students write down an own approach of a definition or aspect of sustainability – one idea, one card.</p> <p>The cards are collected on a pin board and clustered according to their content.</p> <p>These should stay there the whole session, in order to reflect one's initial definition with the on-going lesson and also for the lecturer to refer to some of these thoughts.</p>
1.2	15-20 min	Short introduction into the historical background of sustainability and selected major milestones.	Getting a first insight into sustainability, its historical background and importance and understand the context of sustainability discussions nowadays.	Presentation by lecturer with the help of a timeline showing selected major sustainability milestones (especially according to UN policies).
1.3	45-60 min	<p>Presentation of different dimensional sustainability concepts with main focus on the three dimensional concept and a practical example from the waste management sector.</p> <p>A societal stakeholder from the waste management sector should be included here, giving an introduction into the topic and structure problematic aspects into the three (or more) dimensions of sustainability together with the students.</p> <p>Hereby a connection to the students should be obtained – what does sustainability have to do with them?</p>	Conceptualisation helps to understand and analyse sustainability issues and with the help of the example from the waste management the students can get an insight on why sustainability concerns them, too.	<p>Presentation of the conceptualisation by the lecturer and additional input by the stakeholder as well as a collaborative elaboration of the sustainability issues of waste management according to the sustainability dimensions by the students and the stakeholder.</p> <p>Discussion concerning the weighting of the different dimensions is recommended.</p>
1.4	15min	Preparations for the following lesson (World Café/ role play):	Decision on the topic, so that the students have time until the next session	Brainstorming of the students moderated by the lecturer. Literature work, internet-based

		Brainstorming on other topics that might be interesting under sustainability aspects, decision on the topic and group building by the lecturer with enough students in every of the three dimensions – one focus group, one dimension.	to gather information concerning their perspective.	research, interviews with stakeholders,... by the students.
Break between the sessions to have time for research on the topic (1 week)				
2.1	5 min	Introduction to the mixture of World Café/ role play.	Students know how the lecture is structured and understand how the World Café/ role play is going to proceed.	World Café/ role play is instructed by the lecturer.
2.2	20-25 min	Students get together in the focus groups (each dimension, one group) and discuss all aspects found during the research within these groups.	Focus on one dimension.	Discussion within each dimension.
2.3	20-30 min	Mixing of the groups – in every new group each of the three dimensions needs to be represented. (At least one student of each focus group) Exchange and discussion with the arguments discussed in the focus group.	Students become aware of other perceptions and aspects. They are also trained in systems-thinking.	Discussion led by the students.
2.4	30-40 min	Development and negotiation of potential sustainability solutions (in the same groups).	Awareness of the complexity of and tensions between aspects affecting a sustainability topic and difficulty in finding a comprehensive and sustainable solution.	Discussion and brainstorming.
2.5	20-30 min	Final presentation of the potential solution approaches of every group in the plenum. Every group has 5-10min time for the presentation.	Visualizing how different potential sustainability approaches emerge on the same topic.	Presentation by the students.

2.6	10-15 min	Reflection on one's own role during the teaching method, on the negotiation process during the development of potential solution approaches and the application of the three dimensional model (in the plenum).	Reflection on the three dimensional concept, the difficulty in finding consensus and whether concepts help to structure the complexity.	Plenums discussion and reflection on the whole lecture, especially on the negotiation process and one's own role.
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3.) Annex

Sustainability Milestones

First definition of the term „sustainability“

- 18th century in **forestry business** by **Carl von Carlowitz** (1713) who demanded for a continuing, consistent and sustaining use of the forest
→ in one year only as many trees should be cut as could be regrown
(Heinrichs et al. 2016: 6f)

End of 18th century: Industrialisation

- mostly social and economic aspects important – not so much ecological
(Heinrichs et al. 2016: 7f)

Environment- and Sustainability politics

Decade	Year	What	Information
1970-80	1972	“United Nations Conference on Human Environment” in Stockholm	First international conference of the UN on the human environment in Stockholm, Sweden. The delegates adopt recommendations for government action and push for the creation of the UN Environment Programme (UNEP). Furthermore it is realised that environmental, economic and social aspects presuppose and affect each other.
1980-90	1980	The World Conservation Union (IUCN) developed the World Conservation Strategy	Core thesis: The economic development won't be maintained if the function of ecosystems will not be conserved.
	1980	Independent Commission on International Development Issues with the Brandt Report	North-South-Commission of UN Topics: - lack of food - population growth - growing environmental issues - growing resource scarcity
	1983	Palme Report	Result of North-South-Commission of UN
	1984-87	“World Commission on Environment and Development”(Brundtland Commission)	The World Commission on Environment and Development published <i>Our Common Future</i> (The Brundtland Report), which analyses global problems as well as it demonstrates specific solution approaches. For the realisation of sustainable development three key aspects need to be maintained: Conservation of the environment, social justice and political

			<p>participation. The Brundtland-Commission defined Sustainable Development as: <i>“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs“</i> (UN 1987)</p> <p>(This is the most familiar definition of sustainable development.)</p>
1990-2000	1992	“United Nations Conference on Environment and Development” (Earth Summit) in Rio de Janeiro	<p>Most countries and 117 heads of state participated in the groundbreaking UN Conference on Environment and Development (Earth Summit), in Rio de Janeiro, Brazil. Participants adopted five different documents: <i>Forest declaration, Convention on Climate Change, Convention on Biological Diversity, Rio-Declaration on Environment and Development</i> and <i>Agenda 21</i>. Agenda 21 is a worldwide action programme with recommendations that counteract a further deterioration of the condition of humans and the environment and in order to secure a sustainable use of natural resources. Furthermore a global partnership between the states is requested.</p>
	1994-97	Following Conferences	<p>Different UN conferences following the Earth Summit, trying to concretize the recommendations from Agenda 21</p>
2000-10	2000	“Millennium Assembly” with eight “Millennium Development Goals”	<p>Millennium Development Goals combine the requirements from the big 1990’s conferences and demonstrate a reorientation in the development policy. Key aspects concern:</p> <ul style="list-style-type: none"> - Peace, safety and disarmament - Development and poverty reduction - Conservation of the common environment - Human rights, democracy and good governance <p>The Millennium Development Goals should be accomplished by 2015.</p>
	2002	“World Summit on Sustainable Development” in Johannesburg	<p>104 world leaders and thousands of delegates met at the World Summit on Sustainable Development in Johannesburg, South Africa, and agreed on a limited plan to reduce poverty and protect the environment.</p>

2010-20	2012	“United Nations Conference on Sustainable Development” (Rio+20) in Rio de Janeiro	Central part of Rio+20 are questions concerning “Green Economies”
	2015	“United Nations Sustainable Development Summit” in New York with “Sustainable Development Goals”	More than 150 world leaders adopted the 17 Sustainable Development Goals (SDGs), which build upon the Millennium Development Goals. They seek to complete what the MDGs did not achieve and aim at ending poverty, fighting inequality and injustice, promoting prosperity while protecting the planet in the next 15 years.

Table based on:
Heinrichs et al. 2016: 8-12, Worldwatch Institute 2015 and UN-DESA (2016)

4.) References

All information in this instruction file is based on the following sources:

- EEA (2013): Municipal waste management in Albania. Online: <http://www.eea.europa.eu/publications/managing-municipal-solid-waste/albania-municipal-waste-management> (last seen on 28.01.2016).
- Heinrichs, H., Martens, P., Michelsen, G. & Wiek, A. (Eds.) (2016): Sustainability Science. An Introduction. Heidelberg, New York, London. Springer.
- Metaplan GmbH (n.y.): Primer for the Metaplan Technique. How to moderate group discussions using the metaplan technique. Online: http://www.sswm.info/sites/default/files/reference_attachments/METAPLAN%20GMBH%20c%20ny%20Primer%20for%20the%20Metaplan%20Technique.pdf (last seen on 25.02.2016).
- Ministry of Environment and Spatial Planning (2012): Strategy of the Republic of Kosovo on waste management 2012-2021. Online: http://mmph.rks.gov.net/repository/docs/+SRKMM_Ang_270038.pdf (last seen on 28.01.2016).
- O'Grady, A., Mader, M., Kromp, R. & Meyer, J. (2015): ConSus Teaching Methods Handbook.
- Renner, R. (2012): Role play "Scientific Conference – Panel Discussion". Sustainicum Collection. Online: <http://www.sustainicum.at/en/tmethods/view/19.Role-Play-Scientific-Conference-Panel-Discussion> (last seen on 25.02.2016).
- United Nations (UN) (1987): Report of the World Commission on Environment and Development: Our Common Future. A/42/427. Online: <http://www.un-documents.net/wced-ocf.htm> (last seen on 10.01.2016).
- United Nations Department of Economic and Social Affairs (UN-DESA) (2016): Sustainable Development Knowledge Platform. Transforming our world: the 2030 Agenda for Sustainable Development. Online: <https://sustainabledevelopment.un.org/post2015/transformingourworld> (last seen on 22.02.2016).
- Worldwatch Institute (2015): Environmental Milestones. Online: <https://www.worldwatch.org/brain/features/timeline/timeline.htm> (last seen on 10.01.2016).