

What is the content of the workshop?

The workshop grants a fast-forward glimpse into the extensive learning unit “Developing a sustainability concept for the city” developed for the EU project Eco Green. It presents the initial setting as well as some teaching material to allow teachers grasp the outline and objectives of the unit. Moreover, the abstract invites participants to discuss impacts from the point of view of different stakeholders.

What is the intention/goal of workshop?

Participants analyse ecological and social consequences of habits and behaviour in urban areas.

Participants assess the impact of macroeconomic policies.

Participants consider measures of environmental policies regarding a sustainable urban development.

Participants discuss the stakeholders’ influence on political decisions in sustainable urban development.

What is the main method used for the workshop?

During the workshop, participants acquire basic economic knowledge in a setting of station learning, compile ideas about environmental policy instruments in a gallery work, discuss possible solutions in a placemat session, and finally discuss demands of different stakeholder in a fishbowl discussion.

What makes the workshop meaningful/...?

The workshop is an engaging approach to allow a first idea of the extensive learning unit.

Further reading:

Mark Taylor, N. Mankiw: Economics

Learning Simulation

Vocation/Course:	EQR 4
Curriculum:	
Learning environment:	(can be integrated into learning environments)
Title:	Develop a sustainability concept for the city
Extent (hours):	10 – 12 lessons
Authors	Claudia Frank, Dunja Gremmelmaier, Anja Stedeler
Situation (Political problem/conflict):	
<p>You are the student representative in your school. You are interviewing the mayor for an article in your school newspaper. You want to find out whether your city will develop sustainably and forward-looking in the interests of future generations.</p> <p>You: The economic growth of this city is obvious and undisputed, but the negative effects of economic growth are also having a decisive impact on our lives: illnesses such as respiratory diseases and allergies, many deaths from the heat last summer... And the climate changes in the city are no longer to deny: heat, drought and air pollution lead to dead trees in the city park and in the streetscape. Just think of the Bahnhofsallee, a picture of horror! And that's just the beginning. Action must be taken as soon as possible and you as the mayor have the opportunity to do so. You must make this city sustainable in the face of climate change! This is your duty, because after all there are environmental laws!</p> <p>Mayor: All the citizens of this city have a responsibility. We should all review our consumer behavior and make our direct surroundings environmentally friendly. This starts right in front of our doors, for example in the gardens and front yards. And every day, we make choices about how to get around.</p> <p>You: It is obvious that these measures are not sufficient to fight climate change in our city. Environmental protection has been an issue since I was a child, but the environmental situation is now escalating. I see the responsibility in you and the companies in this city. It is obvious that we</p>	



cannot overcome the climate crisis if we only rely on capitalist economic growth at the same time. They have to adopt bans, ordinances and regulations in order to consistently ban environmental sins and punish environmental offenders. You must take political action to develop this city into a viable and sustainable city! After all, you want to be re-elected.

Mayor: At the end of the month, the “Our Sustainable City” round table is meeting in the town hall with representatives from politics, local companies, the health department and environmental organizations. Everyone will be there to voice their ideas and demands for a sustainable city. I would like to cordially invite you to participate as a listener in order to be able to report on the points of view in your school newspaper. I will send you a flyer about the round table.

You leave the discussion feeling motivated. Presenting the points of view and demands of the participants at the round table seems a good idea as a contribution to the school newspaper.

Outcome (product/solution):

Contribution to the school newspaper:
own statement on the topic based on a common list of demands from various stakeholders with regard to sustainable urban development

Topics covered:

Magic square/polygon, economic growth, sustainability, legal basis for sustainability, environmental policy instruments, effects of environmental policy measures on the market, requirements for a catalog of demands

School-based specifications:

The students should already have some prior knowledge on the following topics for example:
the magic square, graphical representation of a Venn-diagram, price-volume diagrams, gross domestic product (GDP).

Indications online teaching:

Lessons can also be carried out cooperatively in distance learning using selected tools.

Phases	Intended competences	Topics covered	Methods	Material/Media	Outcome (Product/Solution)
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	Specialist competences	Personal competences				
	Students ...					
Information Students analyse the situation/ problem/conflict considering a possible outcome	<ul style="list-style-type: none"> analyse the situation/the setting. 		<ul style="list-style-type: none"> conflict area of economic growth, environmental protection and health 		<ul style="list-style-type: none"> M00a situation/setting M00b situation/setting audio M01a invitation flyer Rosenlohe round Table M01b invitation flyer Rosenlohe round Table audio 	
Planning Students plan an approach for an outcome. They detail a work schedule and fix quality criteria for the outcome.	<ul style="list-style-type: none"> collect questions raised by the situation/setting. identify topics/content. structure the topics in a mind map. 	<ul style="list-style-type: none"> plan the procedure (topics/content) and collective results. formulate their work goals in a comprehensible way. 		<ul style="list-style-type: none"> digital tool for a card query (e.g. Oncoo) 	<ul style="list-style-type: none"> T1 catalog of questions expectation horizon 	<ul style="list-style-type: none"> catalog of questions as an advance organizer on the subject areas in the form of an overview of (digital) cards
Decision making Students choose a plan/schedule and determine responsibilities and results	<ul style="list-style-type: none"> research suitable structures as quality criteria for a position paper. (alternatively: analyze the given structure of a position paper with regard 	<ul style="list-style-type: none"> assign themselves to a shareholder group according to their interests. 	<ul style="list-style-type: none"> requirements for a position paper positioning of all shareholders 	<ul style="list-style-type: none"> group work for research and analysis Market of possibilities characterizing the stakeholders 	<ul style="list-style-type: none"> M02 method sheet "position paper" M03 characterization of the shareholders by means of posters/caricatures/photos/place cards 	<ul style="list-style-type: none"> checklist as template for a position paper classification of the teams according to the shareholders

<p>Execution Students execute the plan and collect further information for implementation</p>	<p>to the quality criteria.)</p> <ul style="list-style-type: none"> ➤ explain the concept of sustainability. ➤ represent the dimensions of sustainability graphically (e.g. in a Venn diagram). ➤ explain the target conflicts of the Stability and Growth Law. ➤ discuss the need to add sustainability goals to the Stability and Growth Law. ➤ name legal bases for sustainable action. ➤ explain the concept of economic growth. ➤ represent the GDP as a key figure for economic growth. ➤ criticize GDP as an indicator of prosperity. 	<ul style="list-style-type: none"> ➤ improve their independence by working through the stations according to specifications. 	<ul style="list-style-type: none"> ➤ sustainability (definition and dimensions, goals) ➤ "magic square/polygon" ➤ economic growth (GDP) ➤ legal basis for sustainability (Stability Act, catalog of fundamental rights (Preamble and Article 37), Articles 14 and 20a of the Basic Law, Federal Forest Law) 	<ul style="list-style-type: none"> ➤ learning stations (mandatory stations according to shareholders, optional stations) ➤ plenum (results discussion) 	<ul style="list-style-type: none"> ➤ M04 routing slips and tasks ➤ M05a sustainability concept ➤ M05b sustainability goals ➤ Lower Saxony ➤ M06 externalities ➤ M07 GDP way with it ➤ M08a podcast urban greening ➤ M08b transcript Podcast ➤ explanatory video "The Magic Hexagon" 	<ul style="list-style-type: none"> ➤ questionnaire with corresponding results/answers
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<p>Execution Students execute the plan and collect further information for implementation</p>	<ul style="list-style-type: none"> justify the need for sustainable action (health and environmental damage due to heat in the city). 					
	<ul style="list-style-type: none"> evaluate environmental policy instruments with regard to their impact on the market (GDP). represent the effects of environmental policy measures graphically in a diagram. 		<ul style="list-style-type: none"> environmental policy instruments (planning, regulatory and economic instruments) effects of environmental policies on the market (equilibrium prices and quantities) 	<ul style="list-style-type: none"> group work (mixed, not according to stakeholders) gallery walk 	<ul style="list-style-type: none"> M09 a gallery Walk work orders posters M09 b method sheet: gallery walk (optional) M10 environmental policy instruments 	<ul style="list-style-type: none"> representation of environmental policy instruments on posters
	<ul style="list-style-type: none"> independently develop a catalog of demands from the perspective of one stakeholder. 	<ul style="list-style-type: none"> strengthen their team skills by working together in groups on a result. strengthen their sense of responsibility by contributing their ideas to the group result. improve their communication skills by pur- 	<ul style="list-style-type: none"> measures or demands on the city council and the mayor 	<p><i>Work-sharing group work</i></p> <ul style="list-style-type: none"> Group 1: <i>resident business association</i> Group 2: <i>Public Health Department</i> Group 3: <i>Nature Conservation Association</i> Group 4: <i>City Representatives</i> 	<ul style="list-style-type: none"> M11 placemat tasks 	<ul style="list-style-type: none"> catalog of demands of the individual shareholders for the "round table"

		posefully exchanging ideas in group work.				
<p>Execution Students execute the plan and collect further information for implementation</p>	<ul style="list-style-type: none"> ➤ use moderation cards to combine the individual demands of the stakeholders into a collection of demands. ➤ develop together a catalog of demands for the city. 	<ul style="list-style-type: none"> ➤ increase their self-confidence by taking a stand in the fishbowl discussion. ➤ practice arguing from different perspectives. ➤ improve their flexibility by specifically understanding the arguments of a stakeholder as an observer of the fishbowl. 	<ul style="list-style-type: none"> ➤ Measures or demands on the city council and the mayor 	<p><i>Fishbowl discussion</i></p> <ul style="list-style-type: none"> ➤ handouts for the audience ➤ in a circle: group representative plus an empty chair ➤ Outer Circle: Observers in the role of city council politician ➤ Moderator: Teacher as mayor 	<ul style="list-style-type: none"> ➤ M12a method sheet fish bowl ➤ M12b Fish bowl tasks ➤ M12c Fish bowl observation bow ➤ Moderation cards 	<ul style="list-style-type: none"> ➤ Common list of demands for the city of Rosenlohe
	<ul style="list-style-type: none"> ➤ make a well-founded value judgment based on the sustainability criteria 	<ul style="list-style-type: none"> ➤ practice drawing a conclusion. ➤ practice taking a well-grounded position of their own. 	<ul style="list-style-type: none"> ➤ requirements for a political value judgment/statement 	<p><i>Individual work:</i></p> <ul style="list-style-type: none"> ➤ Everyone develops an individual assessment of sustainability in the city based on criteria 		<ul style="list-style-type: none"> ➤ individual contribution to the school newspaper
<p>Monitoring/Assessment Students assess outcome</p>	<ul style="list-style-type: none"> ➤ critically evaluate a classmate's contribution to the 	<ul style="list-style-type: none"> ➤ practice giving and receiving criteria-based feedback. 	<ul style="list-style-type: none"> ➤ requirements for a political value judgment/statement 	<ul style="list-style-type: none"> ➤ Individual work 	<ul style="list-style-type: none"> ➤ M13 method sheet statement 	<ul style="list-style-type: none"> ➤ feedback on student contributions

according to fixed quality criteria	school newspaper by comparing it with the requirements.					
Reflection Students reflect on implementation, pros and cons of plan as well as gained competences		<ul style="list-style-type: none"> ➤ carry out a self-assessment of their competencies. ➤ reflect on their work process. 	<ul style="list-style-type: none"> ➤ alignment of optional list with Advance Organizer 	<ul style="list-style-type: none"> ➤ individual work ➤ <i>round robin</i> 	<ul style="list-style-type: none"> ➤ M14 "I can-list" 	<ul style="list-style-type: none"> ➤ completed "I can-list"



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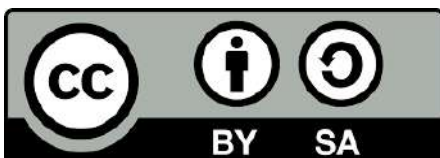
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Mayor: All the citizens of this city have a responsibility. We should all review our consumer behavior and make our direct surroundings environmentally friendly. This starts right in front of our doors, for example in the gardens and front yards. And every day, we make choices about how to get around.

You: It is obvious that these measures are not sufficient to fight climate change in our city. Environmental protection has been an issue since I was a child, but the environmental situation is now escalating. I see the responsibility in you and the companies in this city. It is obvious that we cannot overcome the climate crisis if we only rely on capitalist economic growth at the same time. They have to adopt bans, ordinances and regulations in order to consistently ban environmental sins and punish environmental offenders. You must take political action to develop this city into a viable and sustainable city! After all, you want to be re-elected.

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Round Table Our Sustainable City

A. Meyer Rosenlohe Environmental Department

The protection of the environment and the preservation of the natural basis of life is the mission and constant challenge of the Environmental Department.



U. Schmidt Rosenlohe Business Association

As their regional voice we represent the economic and social policy interests of companies from the areas of industry, trade, services, and agriculture.



L. Müller Rosenlohe Health Department

Our tasks are to sustainably stabilize the health of citizens, avert risks and promote a health-conscious attitude in the people of Rosenlohe.



M. Schulz Rosenlohe Nature Conservation Association

As a conservation association we are dedicated to practical environmental and nature conservation on biotopes in Rosenlohe and the surrounding area.



City of Rosenlohe—Mayor

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Stadt Rosenlohe



Round Table

Our
Sustainable
City



Date:
Time:
Altes Rathaus
Europaplatz 1
49200 Rosenlohe

More Green against Fatal Heat Strokes

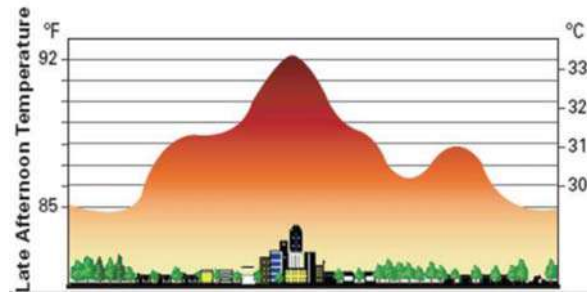
More trees in European cities could have prevented the deaths of more than 2,600 people in the summer of 2015, so health scientists proved in a study that was published in "The Lancet", a scientific magazine. The international team of scientists wanted to ascertain which effects trees have in Europe's heated up cities – and how this effect could be used intentionally if more trees were planted.

The summer of 2022 was the hottest summer since weather recordings. In early November 2022 the WHO announced that approximately 15,000 people died of heat stroke. In Germany, so the WHO, it was 4,500 people who died due to the heat.

The scientists focused on cities because they turn into urban heat isles in summer. Road surfaces such as asphalt and building materials that absorb the heat as well as a lack of a natural vegetation cause cities to heat up more than their urban hinterland.

Urban Heatisles

For the summer of 2015 the scientists ascribed the premature deaths of 6,700 people to higher temperatures in the cities. The death toll was highest in eastern and southern European cities. The Romanian metropolis of Cluj-Napoca registered a heat-related death toll of 32 people per 100,000 inhabitants. The Swedish Goteborg on the other hand registered a heat-related death toll of zero.



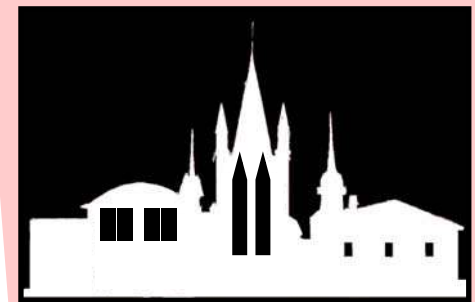
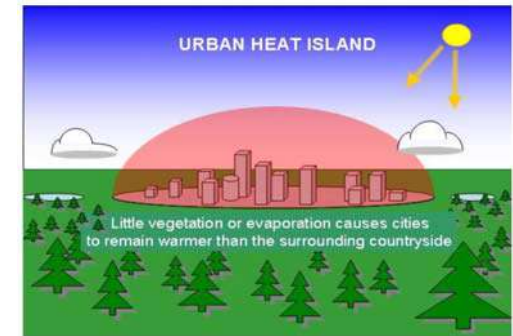
Lowering temperatures

Using computer simulations, the scientists calculated that a tree population of 30 % would reduce the temperature by 0.4 degrees Celsius on average. They established that more natural shade and cooling would prevent heat-related deaths by 40 %. Currently, the average tree population in European cities totals about 15 %.

DER SPIEGEL. Nr. 6/4.2.2023, S. 93, translated

Pictures:

- <http://www.cham.co.uk/>
- <https://this-person-does-not-exist.com/>
- <https://labs.openai.com/>



City of Rosenlohe Mayor

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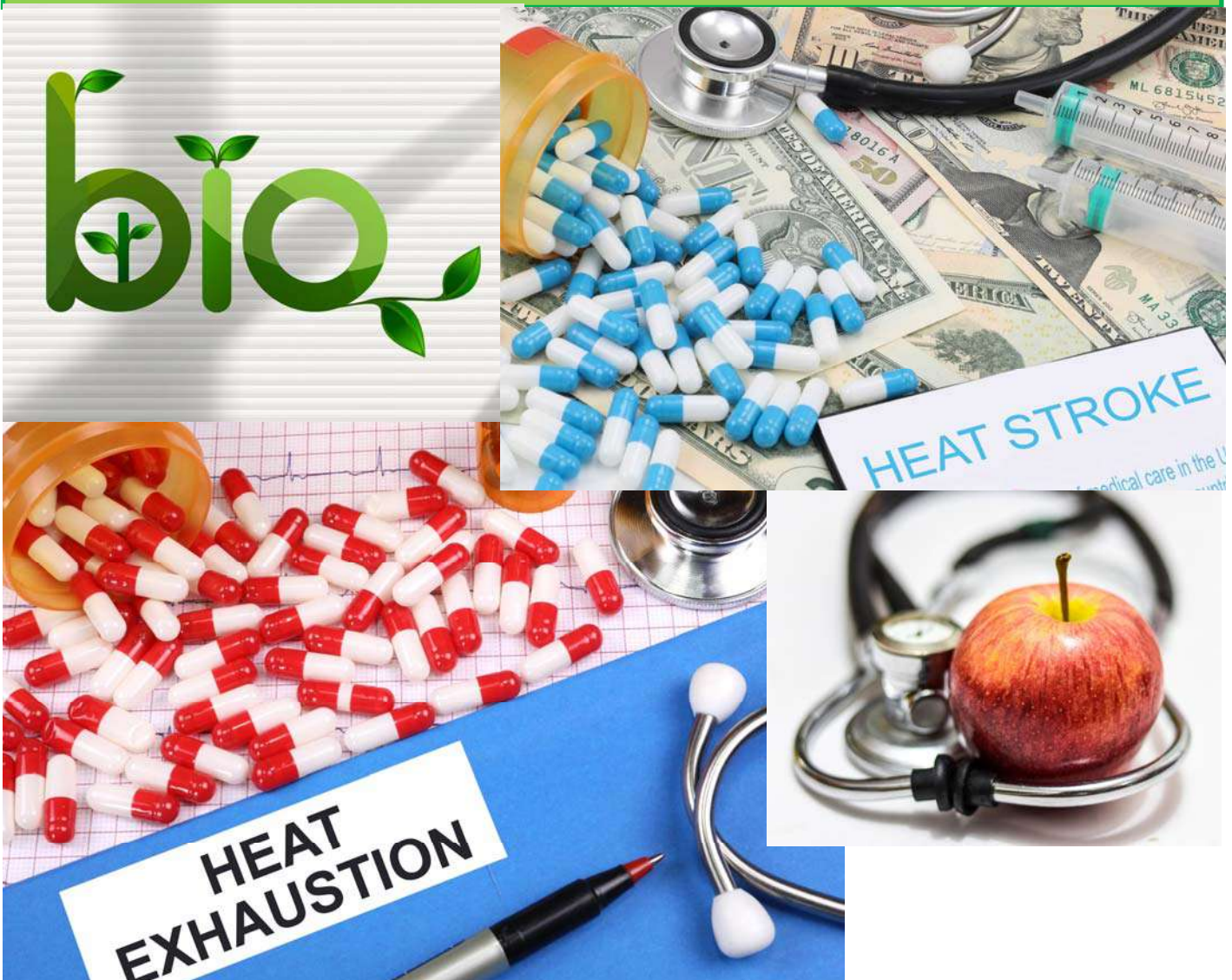
Contact:
Mrs Becker
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<https://institut-fuer-welternaehrung.org/der-wandel-muss-von-unten-kommen-kommentar-von-wilfried-bommert>

Ersteller: Stephan Roehl | Credit: Stephan Röhl, CC BY SA 4.0

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Station Learning (Method)

The rules:

1. I work on all stations independently. I can choose the order myself.
2. I go to a station only if a maximum of three other people are already working at this station.
3. I work calmly and with concentration.
4. I'll get in touch if I have a question.
5. I record all my answers to the tasks at the stations in writing so that I can later present and compare my results in the plenary session.
6. I process the docket and the tasks completely.



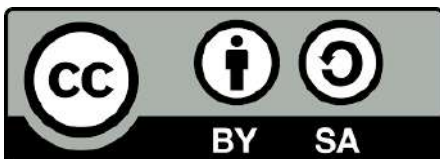
Source:

carlesrgm, Depositphotos, <https://de.depositphotos.com/320939296/free-stock-photo-aerial-view-big-parking-lot.html>, CCO, called on May 25, 2023

Docket with tasks

Station/Tasks	open question/s	completed?
<p>A Macroeconomic objectives</p> <p>Tasks:</p> <ol style="list-style-type: none"> 1. Watch the video on macroeconomic objectives and macro stability. 2. Should the status of environmental protection be enhanced so it will be regarded as one of the key macroeconomic policies instead of just an additional one? Write down three pros and cons each. 3. Describe three consequences of this enhancement <ol style="list-style-type: none"> a) for you personally, b) for companies, c) for urban development. 		<input type="checkbox"/>
<p>B Externalities</p> <p>Tasks:</p> <ol style="list-style-type: none"> 1. Read the article. 2. Define what externalities are. 3. Explain how the externalities of building more parking spaces affect life in the city. 4. Illustrate the supply and demand of public parking spaces in a price-quantity diagram. 5. Add the curve for the external costs of soil sealing by building a parking lot to your diagram. 6. Analyze the change in price, demand and supply after internalizing the external costs. 		<input type="checkbox"/>

<p>C Gross domestic product (GDP)</p> <p>Tasks:</p> <ol style="list-style-type: none"> 1. Read the article. 2. Explain GDP as an indicator to measure prosperity in an economy. 3. Research three alternative wealth indicators online. Record your results on a moderation card. 4. Take your cards with you to secure the results in the plenary session. 		<input type="checkbox"/>
<p>D Urban greening</p> <p>Tasks:</p> <ol style="list-style-type: none"> 1. Listen to the interview/podcast. (Alternatively: read the transcript.) 2. Outline various impacts of climate damage, that cause the damage as well as possible solution strategies. 		<input type="checkbox"/>



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Transcript Podcast Stadtbegrünung

<p>Anja Stedeler</p>	<p>Good morning, Mr. Bohne, permanently rising temperatures, increasing heat, extreme weather events. Climate change is in full swing and doesn't stop at cities. Today, we would like to talk about the effects climate change has on cities. How does the ecosystem of a city change? We are going to focus on the changing plant population in the cities. You are an expert in this field. You are a specialist in plant life, author of guidebooks on plants and gardening, and a consultant on urban gardening as well as plant encounters and sustainable gardening. Thank you so much for being our interlocutor today! Let's start with our first question: How does climate change affect the flora and the fauna, that is the plants and the animals, in our cities?</p>
<p>Burkhard Bohne</p>	<p>We can observe different transformations. On the one hand, it is getting warmer. On the other, it is becoming dryer. This leads to numerous periods of draughts. In the cities, this means some plants must withdraw while others become stronger. Overall, diversity decreases. Mediterranean plants or plants that need a Mediterranean environment are on the rise. Different plants in turn feed different insects. And where there are no plants, there are not insects. And where there are no insects, there are no birds. This is a downward spiral, a race to the bottom.</p>
<p>A</p>	<p>In your opinion, which of these effects are the most dangerous?</p>
<p>B</p>	<p>The most dangerous effect is the declining biodiversity, also leading to decreasing feed for insects. And heat increases the less plants there are. In consequence, the climate becomes incompatible for human beings.</p>
<p>A</p>	<p>Who is the main origin of this climate damage?</p>
<p>B</p>	<p>Well, in the end, it is the human being. But in different fields. Climate damage we notice in the city was not caused in the city, that must be pointed out. Industrial activity pollutes the air, traffic routing is unfortunate. Land consumption is a dominant issue. Also industrialized farming that sets limits to biodiversity. CO₂ emissions as a matter course. All these are origins of climate damage. We notice this in the cities especially because of the soil sealing and concrete buildings that absorb the heat and very little air exchange and air pollution at the same time.</p>
<p>A</p>	<p>Who pays the price, both monetary and non-monetary for these climate damages?</p>
<p>B</p>	<p>Let's start with the non-monetary price. This is paid by people who already are under the weather. People suffering respiratory problems and cardiac conditions, elderly people, they are affected directly since they experience an entirely different quality of life, a worse one, mind. The monetary price will sooner or later be paid by all of us. Climate change is a continuing process. Eventually, we will have a water problem, and a lack of resources or raw materials. The longer we do not act, the higher the price will be.</p>
<p>A</p>	<p>Do you have a proposal for solution to avoid or to at least ease climate damage in the cities?</p>

B	Yes, there is a number of proposals. First, cities shouldn't consist of only concrete and tar. Fortunately, there already is a movement in this direction. Plants must permeate the cities. We need to develop a different approach and an according mindset. What we can do at once without changing procedure elaborately is to vegetate balconies, to establish common green areas, to uncover soil, to vegetate roofs and building faces where possible. As immediate measures, this would lower the temperature, increase air humidity, and air cleanliness.
A	What would a strategy for cities look like?
B	We must count in that climate change can be worked against. This starts when planning a city. Adequate green areas between the buildings, vegetated in a more sensible way than lawns or parking spaces. Biodiversity must be included from the beginning. There must be common areas where wild plants and crops can thrive, cool the air, feed insects, and improve quality of life. All this must be counted in right from the beginning.
A	Who in your opinion is responsible for implementing this strategy?
B	We all secretly wish for the property developers to become active in this sense. There always are rules and recommendations, but I am convinced it is the policy makers who are responsible. Regulations must be changed in a positive way. There are certain regulations for investing into the social housing schemes for example. If agricultural crop land must give way to a building area, we need a specific package of measures, for example vegetated roofs, faces, maybe compulsory cultivation of crops on balconies. And an obligation to farm the areas between the houses intensively. Intensively not in the sense of monetary yield but in the sense of biodiversity.
A	Which economic policy measures do you think are necessary for facilitating a sustainable development of our city?
B	On the one hand, we need guidelines and specifications. And on the other, it needs financial aid. It will cost money. The price cannot be imposed on investors alone, who then will pass it on to buyers and tenants. There must be grants. To facilitate the development, it needs subsidies and direct means of conveyance. Cost of change needs to be allegorized. Moreover, awareness raising must be addressed. We need to make room in education for broaching the issue of sustainable development.
A	What are the costs to society if either we do or do not act?
B	If we act as necessary, we would have to dedicate financial grants and allow subsidies accordingly. Sustainable development is not for free. If we do not act, there would be immense costs in the future. Cities would not be habitable for weak or sickly human beings. There would be problems with the quality of air and water. The price would be a multiple of what we would have to pay if we invested today.
A	In your opinion, Mr Bohne, what does the city look like in 20 years?
B	I am an occupational optimist. Cities will be wonderfully green, building faces will be vegetated, there will be fruit orchards on the rooftops. There will be no individual traffic between buildings, but kitchen gardens. The air will be clean, and there will be water to cool the air. Most utopian: a garden of trees in which there are buildings.

A	If we planned a school trip into a sustainable city or a sustainable urban district, where would we go?
B	Sustainable cities are not common, but the city of Andernach for example has introduced the concept of the Edible City. All over the city, in parks as well as in front gardens, there are fruit trees, both berries and pome fruit. In parks there are kitchen gardens as well and visitors help themselves and nibble. Where food is grown there also is space for insects, so this is an example for a forerunner of a sustainable city. A sustainable district can be found in Berlin. A Berlin garden project called Prinzessinnengarten has recently moved to Neukölln, a moloch of a city district. It is the most densely populated district of Berlin. The garden project has implemented urban gardening on a former cemetery. They have created an oasis, an oasis with clean air for flora and fauna, and for the human beings who live there. This project is worth a visit!
A	Mr. Bohne, all this has been a lot of very interesting information. You have shown us corelations and effects and possible solutions, including a tip for a school trip. We have to think this through to grasp the situation in our cities to prevent the consequences. As city inhabitants we must become active ourselves, but we also have to demand political action of the people responsible. Thank you very much, Mr. Bohne, for this inspiring conversation!

Informations for 05 Station Learning

Internet Links:

Objectivs and Macro Stability

<https://padlet.com/dEDUm/workshop-bnwz88ytxf17ywbe/wish/2690557974>

Externalities

<https://padlet.com/dEDUm/workshop-bnwz88ytxf17ywbe/wish/2690574495>

Limitations of GDP

<https://padlet.com/dEDUm/workshop-bnwz88ytxf17ywbe/wish/2690573416>

Placemat – Tasks

Individual work

1. Derive interests from your notes that correspond with the position of your stakeholder group.

Record your results in your area of the placemat.

Work in groups

2. Present your collected interests to the group.
3. Agree on three core interests of your stakeholder group. Capture these core interests in the common field in the middle.
4. Select effective environmental policy instruments (see posters) to implement your interests.
5. Develop requirements for your stakeholders and record your results in writing.
 - a. State demands for implementing your interests using the environmental policy instruments that you want to present at the round table “Our Sustainable City”.
 - b. Justify these demands.
6. Designate one person to represent your group first at the round table.



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„Round table“

Fishbowl–discussion

Representatives of the individual stakeholders

1. Take your seat at the round table in the circle of chairs.

Listener assignment

2. Follow the discussion.
3. Edit the observation form for the stakeholder group assigned to you.

Evaluation phase

Work in groups

4. Record on **green cards** the demands that are compatible with the interests of all stakeholders.
5. Record on **red cards** the demands that cannot be reconciled with the interests of all stakeholders.
6. Record on **yellow cards** the demands whose implementation requires a compromise among the stakeholders.

Plenum

7. Create the “Round Table” list of demands by prioritizing the cards on the pin board.



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Instruments of Environmental Policy

Planning instruments

The federal government, federal states or cities plan public construction work.

- Public budget plan dedicates a budget considering environmental issues (railway or motorway?).
- Plan approval procedure is binding for large scale projects affecting private and public interests (airport, water development).
- Impact assessment evaluates direct and indirect damage to human beings, flora and fauna, land, water, air, climate and cultural heritage.

Instruments of Environmental Policy

Informal instruments

Measures based on voluntariness or the companies' own accord

- agreements between the state and the companies regarding environmental objectives
- company self-commitment to certain environmental objectives
- awareness initiatives such as labels stating energy efficiency, origin or ethics of a product

Instruments of Environmental Policy

Economic Instruments

Measures in accordance with the theory of external effects when using free factors of production such as the air.

- o **Taxes:**
State-regulated fee on harming the environment, for example a carbon tax
- o **Subsidies:**
governmental financial support for investing into protective measures, for example industrial smoke stack filter systems

Instruments of Environmental Policy

Regulatory instruments

State authorities impose conditions.

- o bans: waste dumping at sea
- o orders: compliance with maximum values
- o registration obligation: authorities have to be informed before a mobile phone base station goes live
- o duty of disclosure: the public has the right to information about ingredients
authorities have to be informed about spills or system failures in nuclear plants