

The ESSA program

Mainstreaming
strong sustainability
and agency into
teacher education



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SWEDESD Gotland University

The ESSA program

- Who we are
- How we did it
- The results
- Further planes



Jönköping

Zambia

Zimbabwe

Swaziland

South Africa

The ESSA program

Teacher Education 1.0

- Syllabi
- Methods
- Approaches

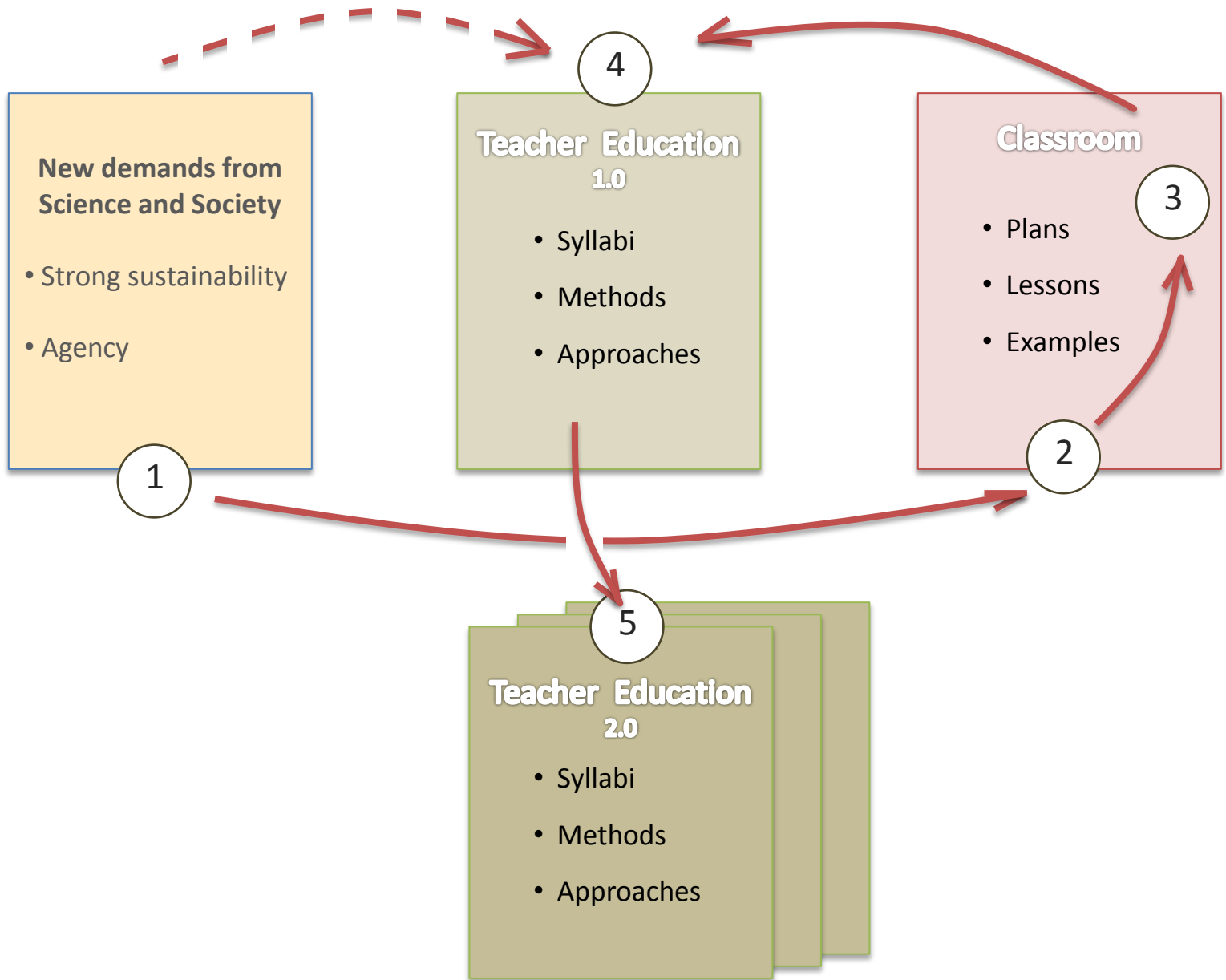
Teacher Education 2.0

- Syllabi
- Methods
- Approaches

In the ESSA program we explore ways for teacher educators and their institutions ...

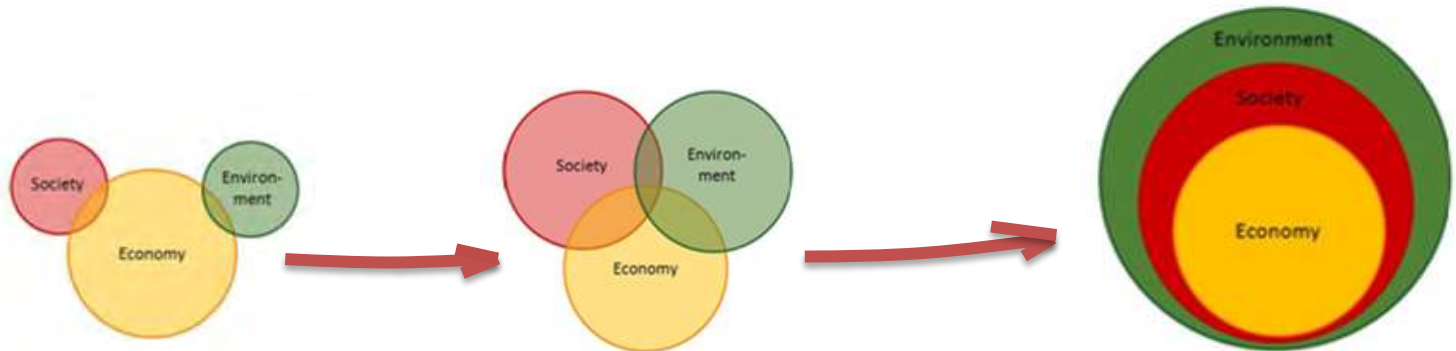
... to initiate a systematic and thorough implementation of strong sustainability and agency ...

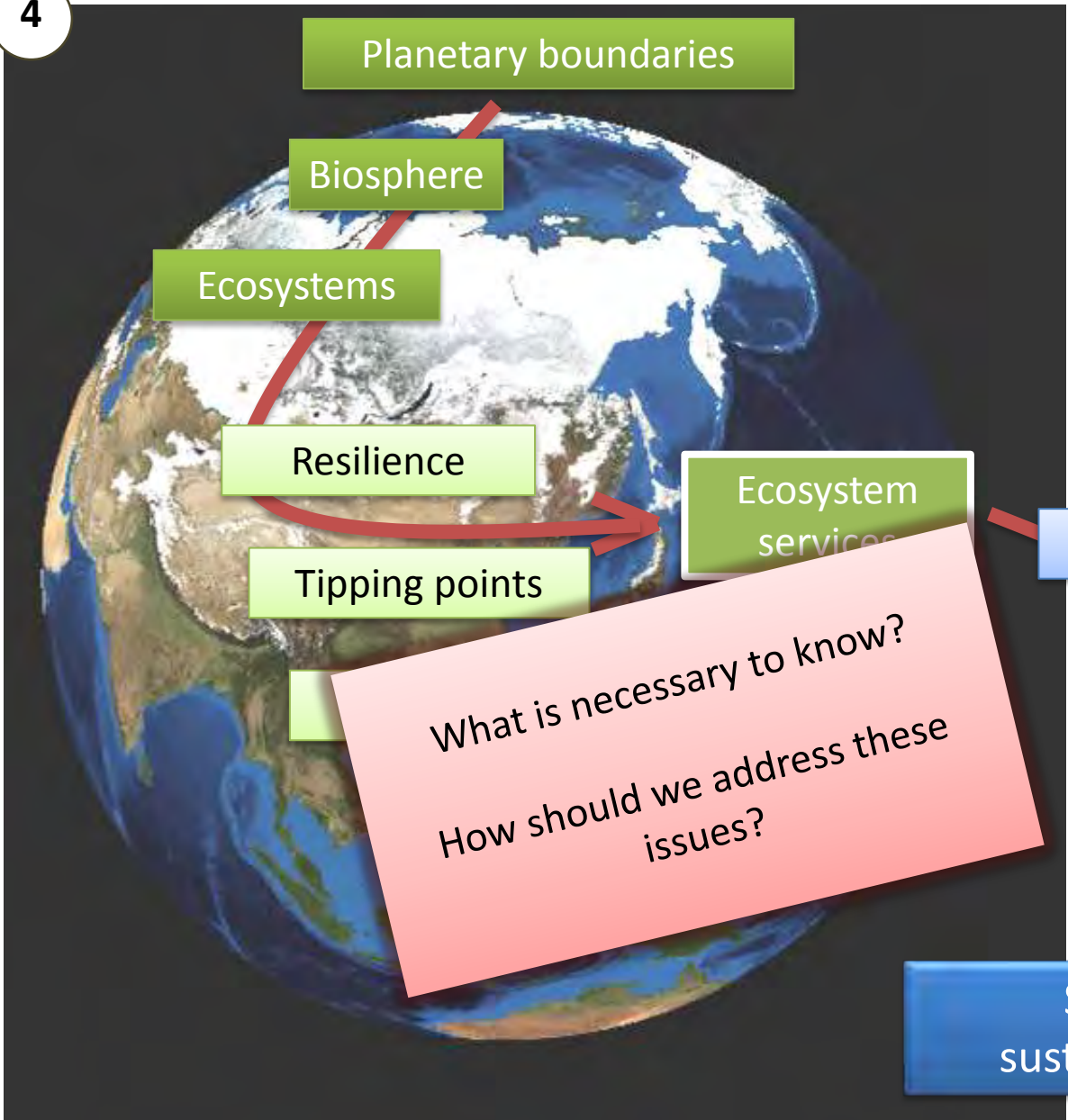
... into their syllabi and working practices.



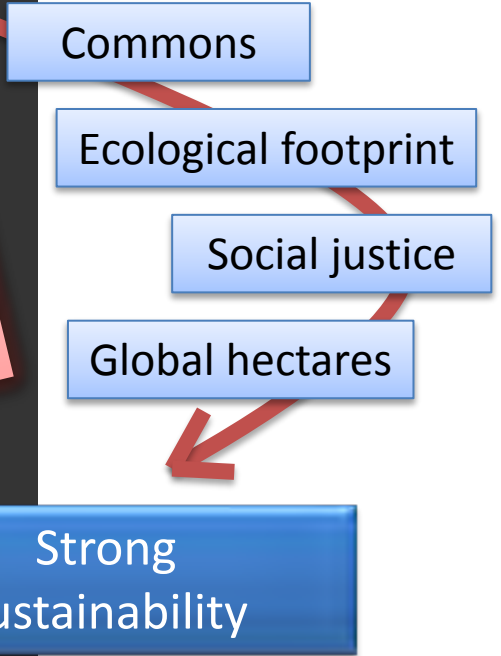
1

Understanding strong sustainability





New demands from science and society!



"All social and economic development within planetary boundaries"

1



Higher consumption



Sustainability matrix

Unsustainable



Sustainable



Lower consumption



1



10,0 gha

Higher consumption

Sustainability matrix

Unsustainable

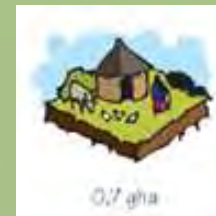


Sustainable



1,5 gha

Lower consumption



0,7 gha

1



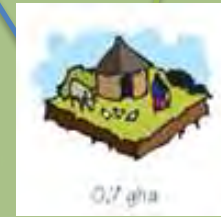
Higher consumption

Sustainability matrix

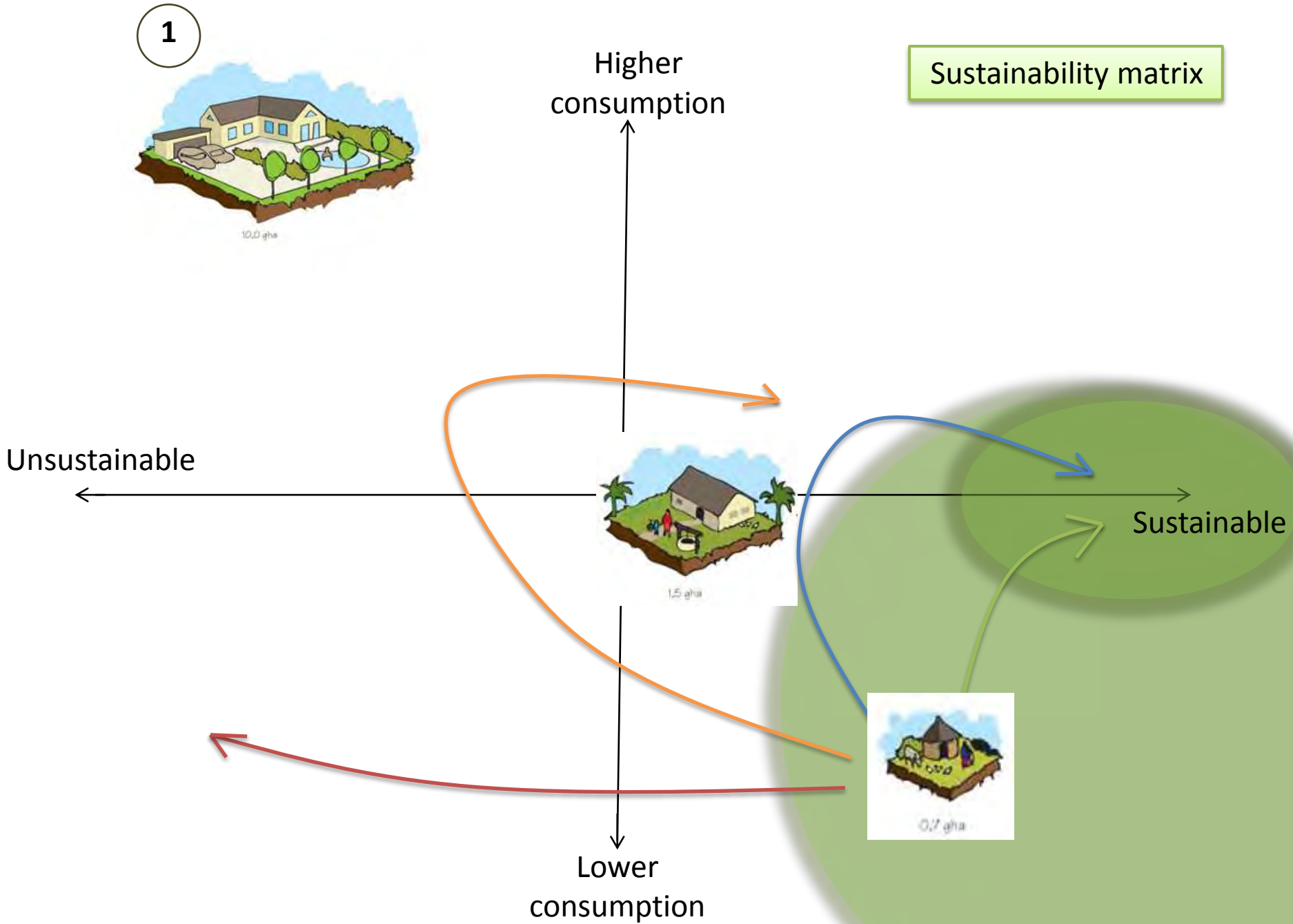
Unsustainable

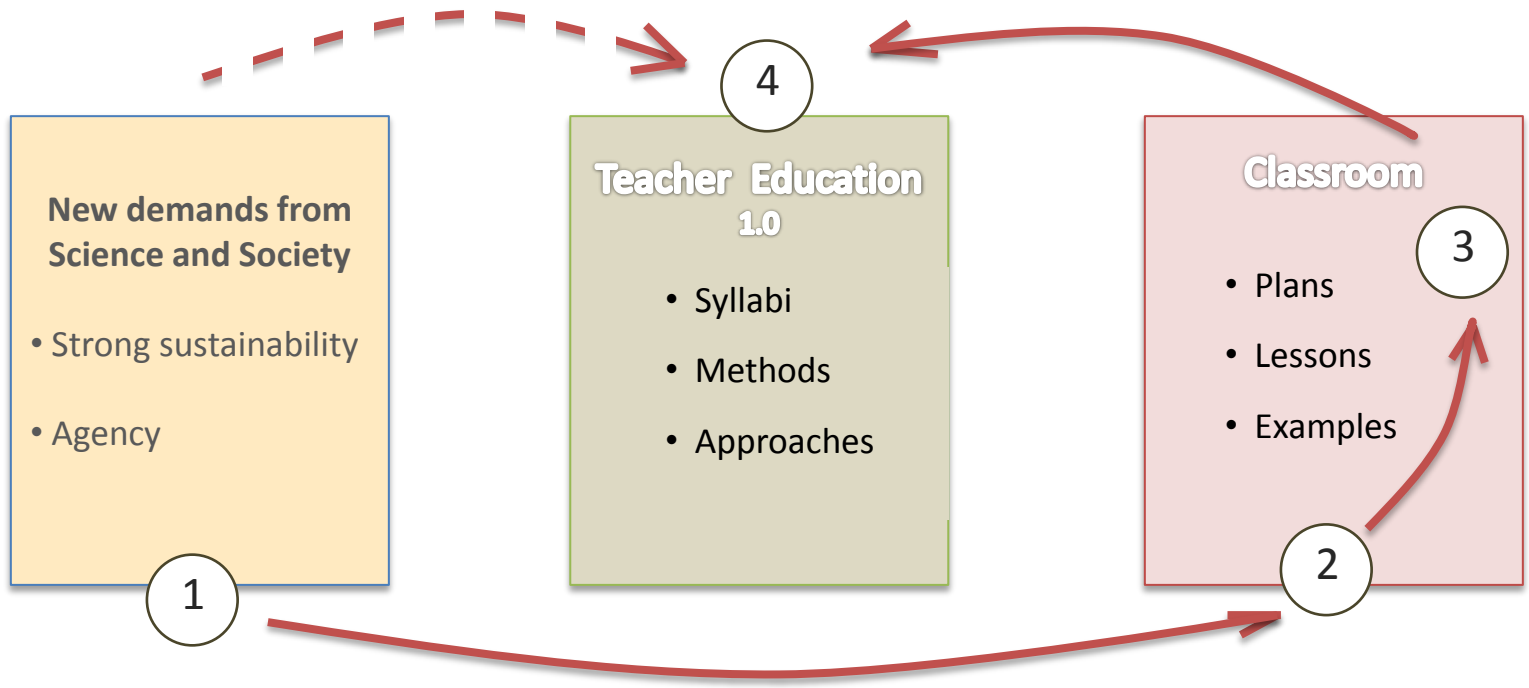


Sustainable

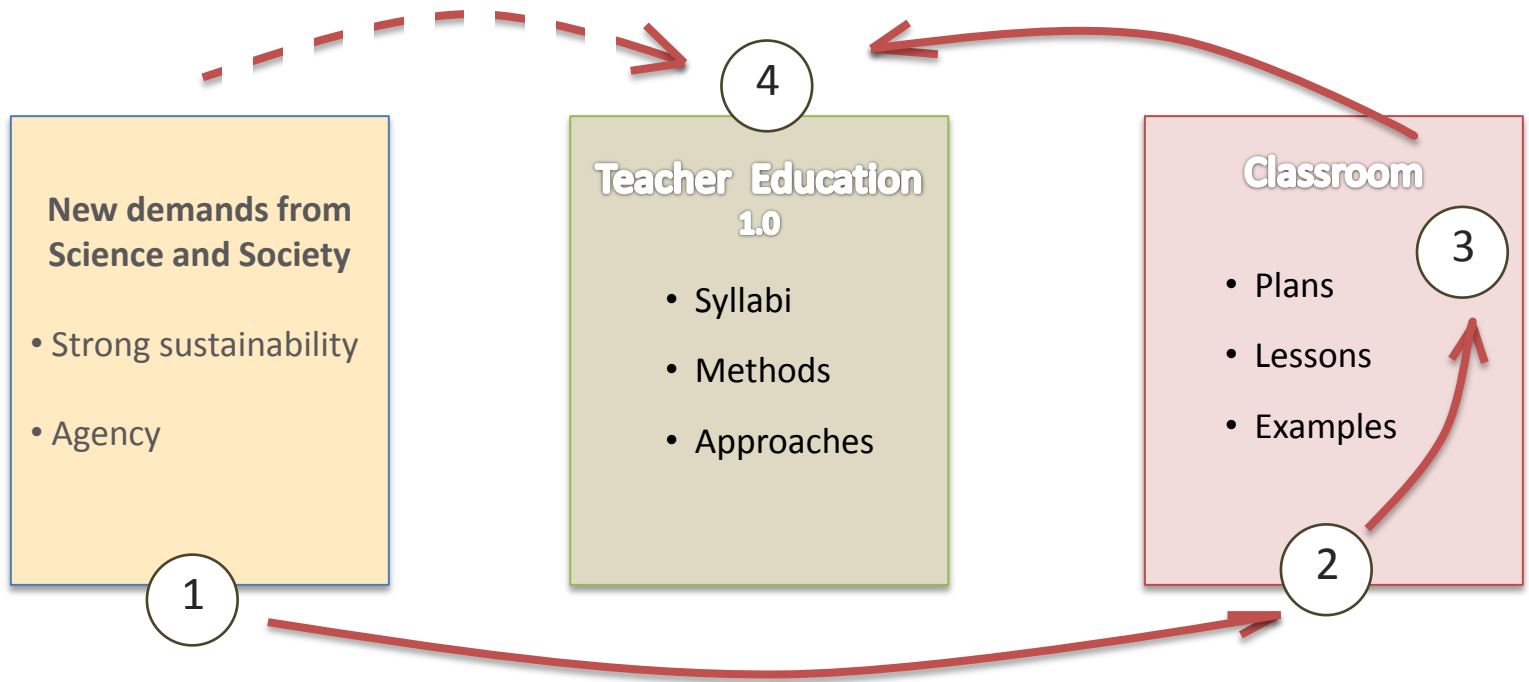


Lower consumption





2 What is necessary to know?
How should we address these issues?



Global Hectares and Eco-footprints of Nations

1. The concept of a global hectare (gha) is a useful tool of the ecological footprint between persons or countries.

If the global hectares were shared in a fair way, everyone would all have access to, in round figures, the size of about four football fields, or the size of about four football fields, the eco-footprint for different nations. In fact, the eco-footprint for different nations developed since 1961. Study the table below.

Fig 1.

Country	Population (million)
Denmark	5
United States	30
Sweden	9
Norway	
Germany	
United Kingdom	
Botswana	
South Africa	
Available Global hectares	
Swaziland	
Zimbabwe	
Lesotho	
Angola	
Zambia	
Mozambique	
Dem. Rep. of Congo	
Malawi	

Eco-footprint and Fairness

Holistic Examples Ecological Footprint

Worksheet 4

Background

The size of the personal eco-footprint differs greatly, both within countries and between countries. If fairly distributed every person should have access to approximately two global hectares (gha) each, but in reality we are far from that goal. What could be done in order to reduce these inequalities?



Task

You and your class have been selected to represent your country at an International Youth Conference about Lifestyles, eco-footprints and fairness. As preparation for this conference you will work in groups of 3–4 people with the goal of coming up with smart, strong and wise arguments that should influence the choices and lifestyles of young people in other countries.

Option 1

You live in a developing country. You have learnt that the ecological footprint of wealthy nations is increasing and is far beyond what is sustainable. Write a letter to learners in a developed country informing them of the consequences of their way of life. Suggest to them sustainable ways of living that could help reduce their ecological footprint.

Option 2

You are in a developed country. You have learnt that the ecological footprint of wealthy nations is increasing. Write a letter to learners in a developing country informing them of the consequences of your way of life. Inform them of the choices that you can make and those you have made to reduce your eco-footprint at individual, societal and national levels.

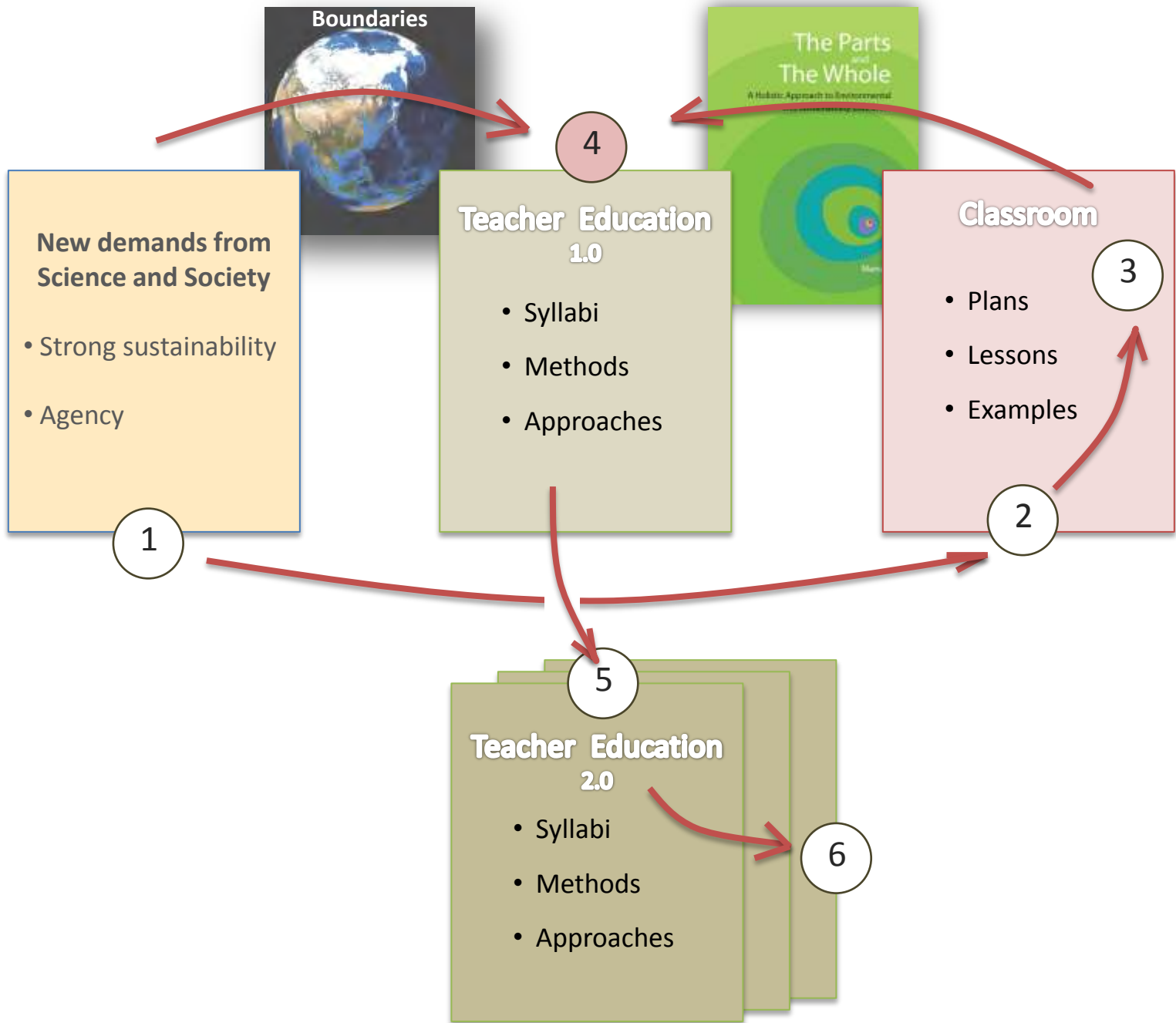
Which sustainability practices would you encourage people in developing countries to maintain in order to reduce their ecological footprint?



MAND
of person
standing
etc

Holistic Examples Ecological Footprint Worksheet 2





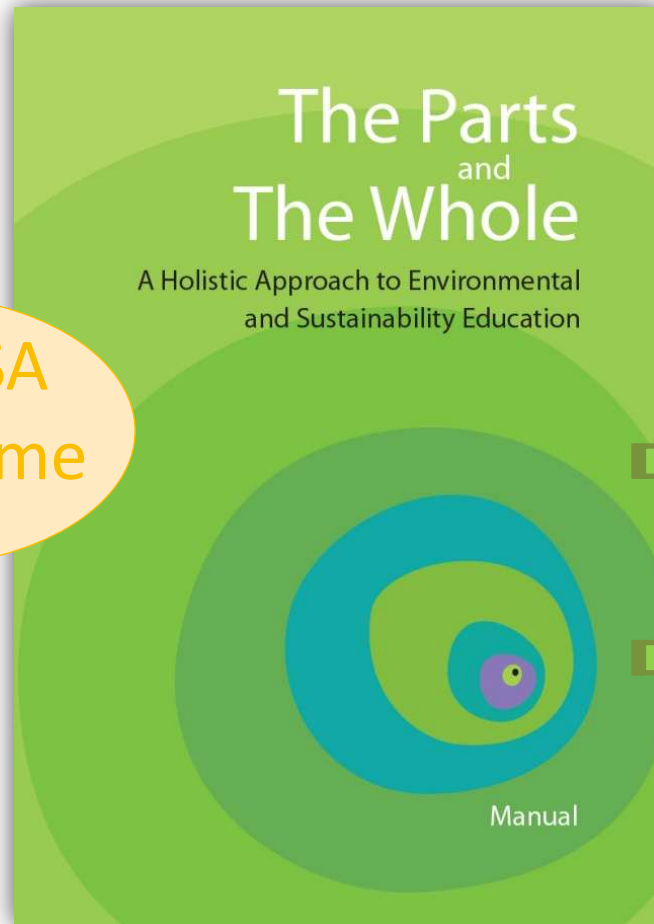
Teacher Education 1.0

- Syllabi
- Methods
- Approaches

The ESSA programme

Teacher Education 2.0

- Syllabi
- Methods
- Approaches



- Lesson ideas and approaches for the classroom.

- A tool for discussions on enlarged implementation of sustainability issues in teacher education.

essa **on line**

an open interactive internet platform

On line courses for teacher educators and trainees

Living resource of tools, methods and approaches

Global ESD community of practice



The diagram features a central yellow box with the text 'essa programme 2012-2014'. Three red lines radiate from the bottom of this box to three separate orange boxes: 'ESSA on line', 'Workshops for teacher educators in Africa and Asia', and 'Nagoya DESD 2014 UN Decade of Education for Sustainable Development'.

essa

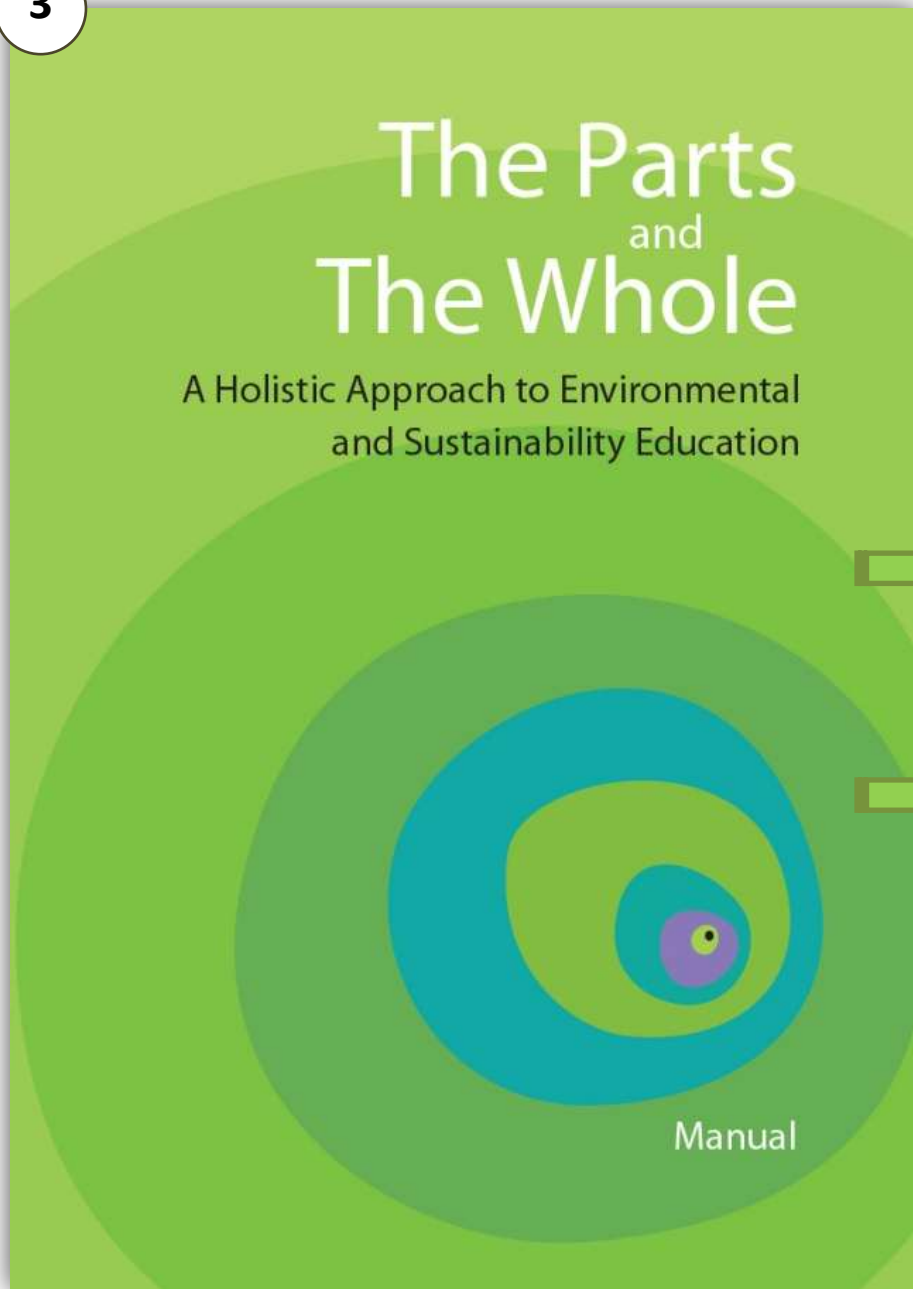
programme

2012-2014

ESSA on line

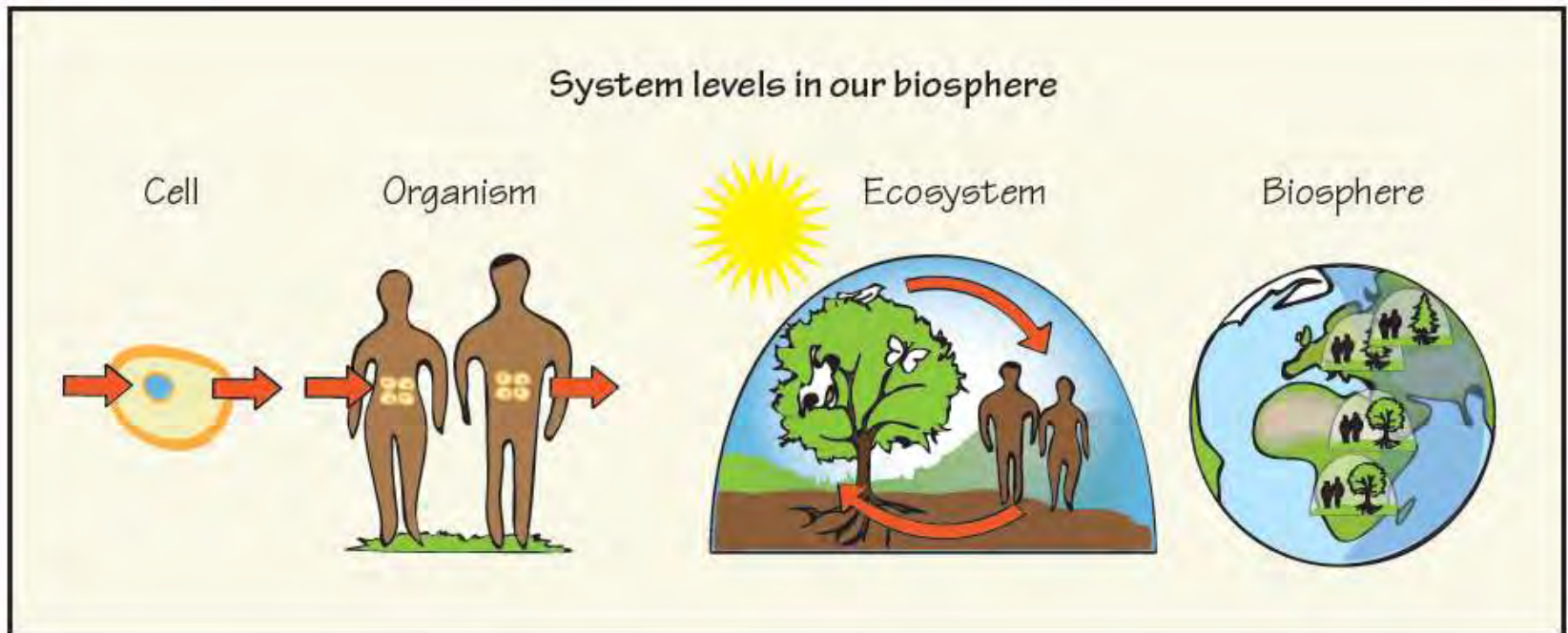
Workshops for
teacher educators in
Africa and Asia

Nagoya DESD 2014
UN Decade of Education for
Sustainable Development

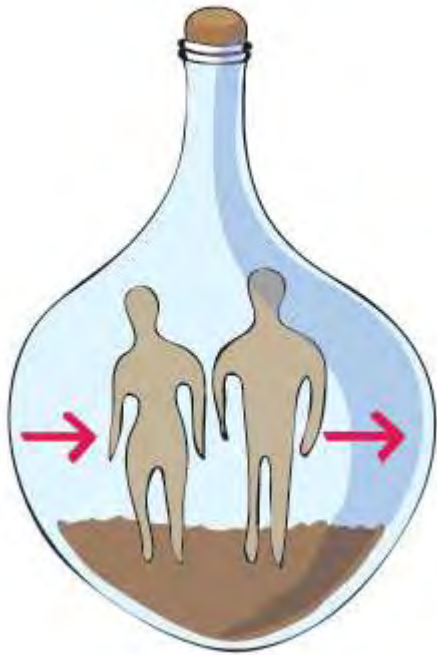


- Lesson ideas for the classroom.
- A tool for discussions on enlarged implementation of sustainability issues in teacher education.

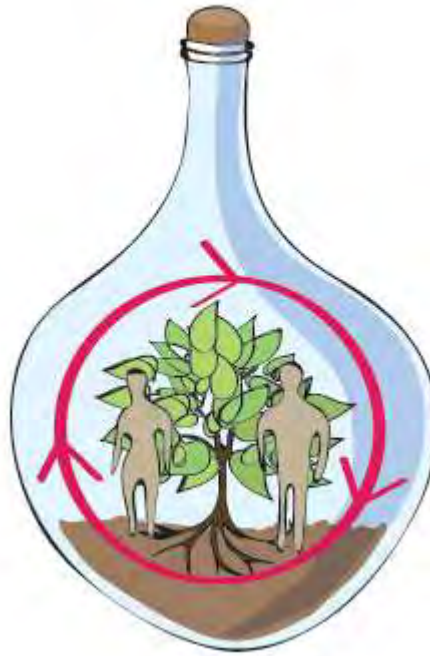
Understanding systems



Using models



Linear flow

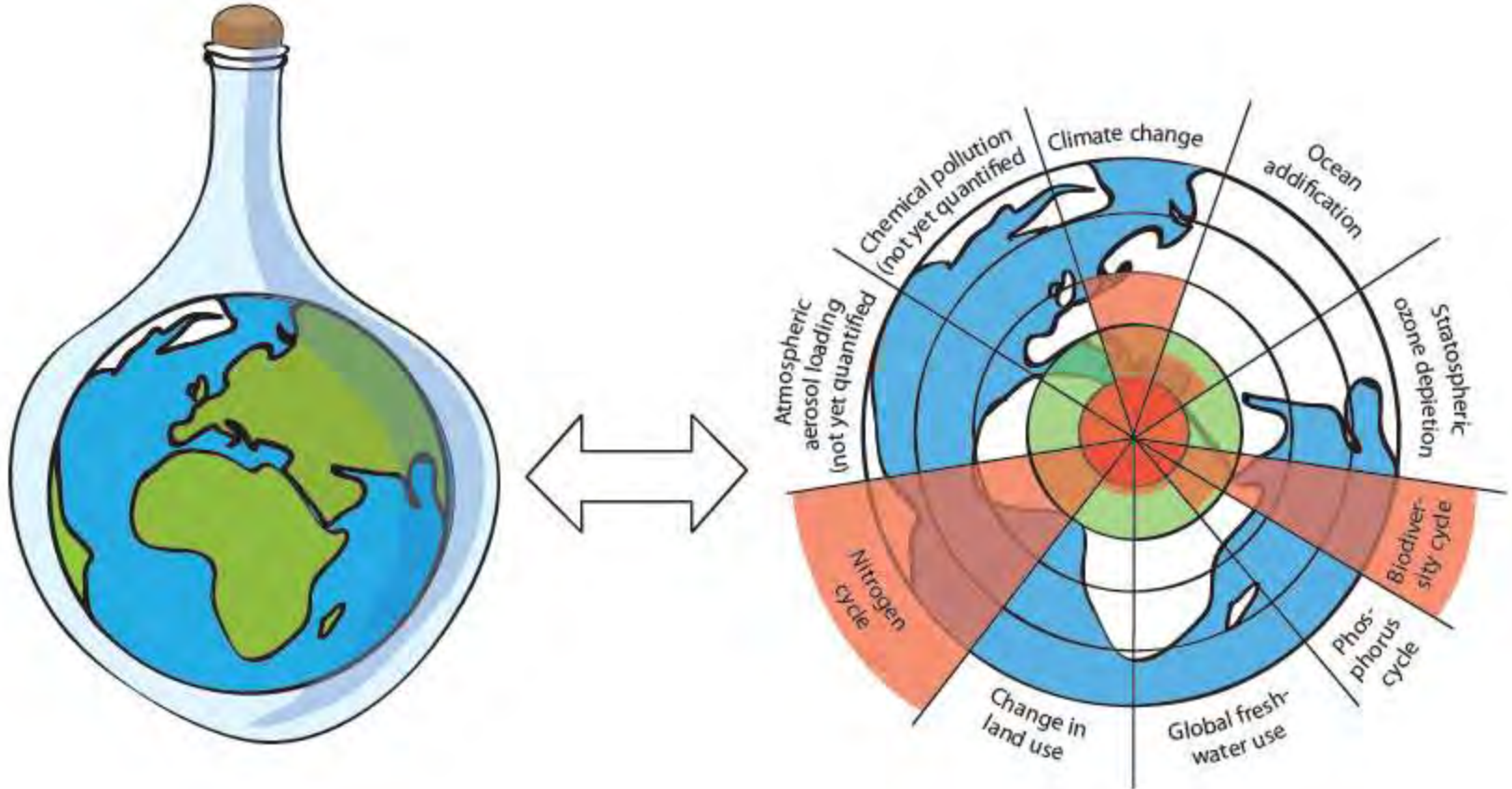


Recycling



Homeostasis

Planetary boundaries



Holistic Examples

Lesson duration:
 100 minutes
 100 minutes
 100 minutes

Objectives

- To understand and use the concepts: eco-footprint, global hectares (gha).
- To reflect on and have ideas about how to influence the eco-footprint in a fair and sustainable way.

2-3 hours

Necessary equipment

For this task your learners might need computers with a good connection to the Internet.

Useful links

www.footprintnetwork.org
www.footprintnetwork.org/en/index.php/GFN/page/personal_footprint/

Ecological Footprint

Introduction

The ecological footprint is a measure of the demand on the Earth's ecosystem. It is the amount of biologically productive land and sea area necessary to supply the resources that humans demand on nature with to regenerate and provide services. Ecological footprint is a measure of our dependence on the Earth's natural resources (adapted from www.footprintnetwork.org)

Working process

The eco-footprint is very useful when making lifestyle comparisons and when making lifestyle comparisons. It is also quite a complex and advanced concept. Learners need to have knowledge in a number of subjects and the necessary skills and that they are interested in the internet. Prepare a list of questions to be asked as an example.

1 Introduce the eco-footprint to the learners. Give them a basic understanding of how it is calculated. Make sure they have access to computers that can access the website www.footprintnetwork.org/

2 Introduce the concept of global hectares. Explain that a certain footprint is from a certain country. Compare average footprints from different countries in the development of the eco-footprint.

3 When the learners are familiar with the concept, introduce them on how to find a fair and sustainable footprint for planet Earth. In this example, use the data from the International Youth Conference on the Environment. Divide the learners into groups of 3 or 4. Give them a task. The learners are faced with the task of finding a fair and sustainable footprint for planet Earth. It is up to their level of understanding and background information. Give them a task. The learners are faced with the task of finding a fair and sustainable footprint for planet Earth. It is up to their level of understanding and background information. Give them a task. The learners are faced with the task of finding a fair and sustainable footprint for planet Earth. It is up to their level of understanding and background information.

Worksheet 1

Objective
 Understand the Ecological Footprint
1

Ecological Footprint

Ecological footprint is now widely used around the globe as an indicator of environmental sustainability.

1. What is an ecological footprint? Write down a short definition of the concept.
2. The ecological footprint is often divided into seven categories according to the impact across these seven periods. Look at the illustrations below and give a short description of services you get from these areas.

1. **Terrestrial Land**

2. **Marine Waters**

3. **Energy Land**

4. **Built Land**

5. **Carbon Footprint**

Worksheet 2

Objective
 Understand the Ecological Footprint
2

The Ecological Footprint is the sum of the ecological footprints of all individuals in a given territory. It is the sum of the ecological footprints of all individuals in a given territory. It is the sum of the ecological footprints of all individuals in a given territory. It is the sum of the ecological footprints of all individuals in a given territory.

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Worksheet 3

Objective
 Understand the Ecological Footprint
3

Global Hectares and Ecological Footprints of Nations

1. The concept of a global hectare (gha) is a unit of measurement for the size of the ecological footprint. Write down a short definition of the concept.

2. If the global hectares were divided in an equal way between all citizens of the world, all would have access to around 1.6 global hectares per person (1.6 gha) or the size of about four football fields. In Fig. 1 you will find figures on the average ecological footprint for different nations. In Fig. 2 you can see the trend on how they have developed since 1970. Study the tables.

Country	Population (millions)	Ecological Footprint (gha)
Australia	20	15.2
Canada	32	14.2
USA	266	14.2
Japan	127	11.8
Germany	82	11.8
France	64	11.8
UK	61	11.8
Italy	59	11.8
Spain	45	11.8
China	1,210	2.2
India	1,020	2.2
South Africa	45	2.2
South America	450	2.2
Sub-Saharan Africa	600	1.2
Latin America	500	1.2
Central Asia	35	1.2
Eastern Europe	250	1.2
Western Europe	250	1.2
North America	250	1.2
South America	250	1.2
Asia	250	1.2
Africa	250	1.2
Oceania	250	1.2
World	6,000	1.6

Fig. 1 Ecological Footprint per person 1980-2000

Worksheet 4

Objective
 Understand the Ecological Footprint
4

Eco-footprint and Fairness

1. The size of the personal eco-footprint differs greatly, both within countries and between countries. If fairly distributed every person should have access to approximately 1.6 global hectares (gha) per person. But in reality we see that this goal is not reached. Write down a short definition of the concept.

0.7 gha

1.6 gha

2.2 gha

2. You and your class have been asked to measure your country's ecological footprint. Write down a short definition of the concept. In this conference you will work in groups of 3-4 people with the goal of coming up with ideas, strong and new arguments that should influence the choices and lifestyles of young people in other countries.

Ecological Footprint



Ecological footprint is now widely used around the globe as an indicator of environmental sustainability.

1. What is an ecological footprint?
Write down a short definition of the concept.

2. The ecological footprint is often divided into sectors according to the main services these areas provide. Look at the illustrations below and give a short description of services we can get from these areas.



a. Bioproductive Land _____



b. Bioproductive Sea _____



c. Energy Land _____



d. Built Land _____



e. Biodiversity _____

Global Hectares and Ecological Footprints of Nations

1. The concept of a global hectare (gha) is a useful tool when we compare the size of the ecological footprint between persons or countries. What is a global hectare?

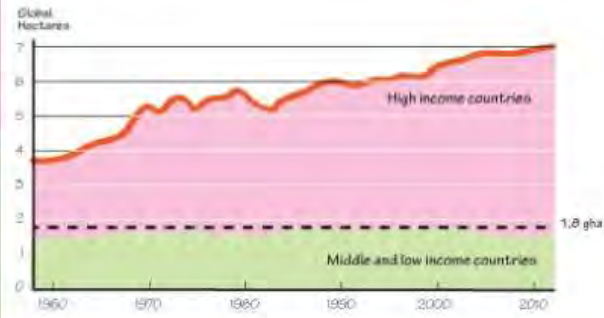
If the global hectares were shared in a fair way between all citizens of the world we would all have access to, in round figures, two global hectares per person (= 20.000 m² or the size of about four football fields). In fig. 1 you will find figures on the average eco-footprint for different nations. In fig. 2 you can see the trend on how they have developed since 1961. Study the tables.

Fig 1.

Country	Population (millions)	Eco-footprint (gha)
Denmark	5	8.3
United States	308	8.0
Sweden	9	5.9
Norway	5	5.6
Germany	82	5.1
United Kingdom	61	4.9
Botswana	2	2.7
South Africa	49	2.3
Available Global hectares	6.7 billion	1,8
Swaziland	1	1.5
Zimbabwe	13	1.3
Lesotho	2	1.1
Angola	18	1.0
Zambia	12	0.9
Mozambique	22	0.8
Dem. Rep. of the Congo	63	0.8
Malawi	14	0.7

Eco-footprint, adapted from Wikipedia (24/04/2012)

Fig 2. Ecological Footprint per person 1960-2010

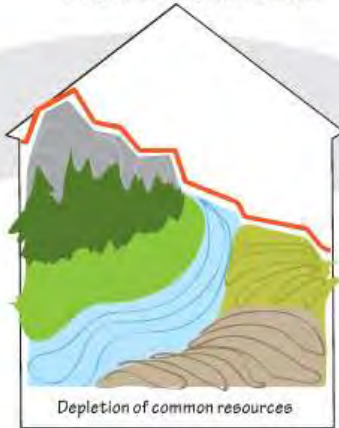


Ecological Footprint Atlas 2010

1. Why do countries have different eco-footprints? Give three good reasons.

2. What has happened with the eco-footprint over time? Describe the trend and come up with three good explanations why.

GLOBAL STOREHOUSE



SUPPLY

DEMAND Consumption

BIOCAPACITY

Area x bioproductivity
1.8 gha / person 2010



How can the biocapacity:

grow _____

diminish _____

How can the eco-footprint demand:

grow _____

diminish _____

ECO-FOOTPRINT DEMAND

Population x consumption/person
x resource and waste intensity
2.7 gha / person 2010



Holistic
Examples
Ecological
Footprint
3
worksheet

Eco-footprint and Fairness

Background

The size of the personal eco-footprint differs greatly, both within countries and between countries. If fairly distributed every person should have access to approximately two global hectares (gha) each, but in reality we are far from that goal. What could be done in order to reduce these inequalities?



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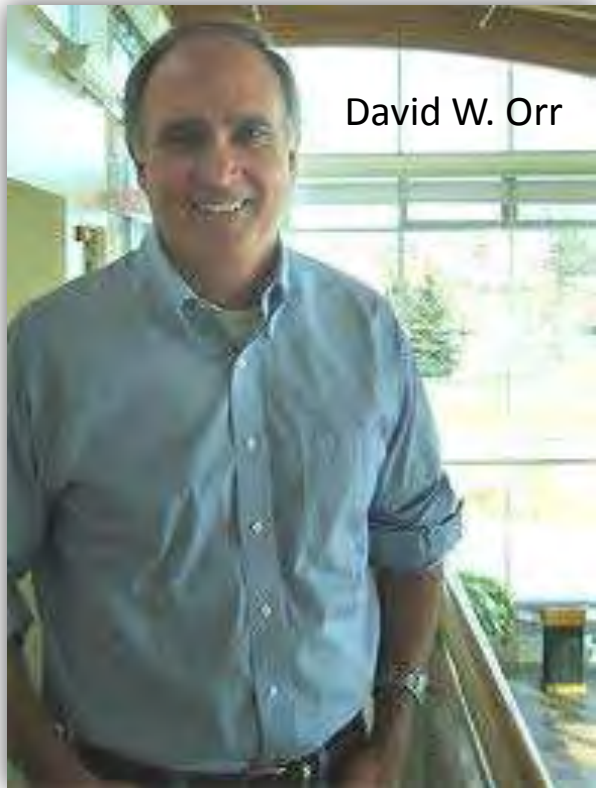


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David W. Orr

Professor of Environmental Studies and Politics
at Oberlynn College, Ohio, US

"However conceived , described, or analyzed, ...

*... sustainability is **the** issue of our time,...*

...all others being subordinate to the global conversation now under way about ...

...whether how, and under what circumstances the human experiment will continue."

The Mission

Worksheet 1

You have been appointed by the Planetary Council to plan and take part in the greatest adventure in the history of mankind. You shall equip a giant spaceship to make a journey into space and the future. These are the conditions:

- The journey will last for 6000 years.
- You will have access to a shining sun throughout the journey.
- No more than 100 persons are allowed onboard the ship at the same time.

What will you bring?



The Mission

Worksheet 1

You have been appointed by the Planetary Council to plan and take part in the greatest adventure in the history of mankind. You shall equip a giant spaceship to make a journey into space and the future. These are the conditions:

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- No more than 100 persons are allowed onboard the ship at the same time.

What will you bring?



www.swedesd.se

The Parts and The Whole

A Holistic Approach to Environmental
and Sustainability Education

WORKSHOP TODAY
11h00

Anthro 2