

Introduction:

Sustainable Landscapes



**SUSTAIN  
PROJECT**

**TEACHING  
MATERIALS**



A global biodiversity crisis is happening. Some examples:

- Koala populations have been significantly affected by forest fires.
- The loss of sea ice habitat is a big threat to the survival of polar bears.
- Insect populations have plummeted with a staggering 75% in the last 25 years

These organisms play important roles in their natural environment. However, the landscapes in which they live are under pressure.



These landscapes are important for both the natural world and the human population that inhabit them. Landscape functions are incredibly diverse. A landscape can be a place to live, a place to travel on, a place to work, a place that provides food or a habitat for flora and fauna.

## Landscape functions



All these landscape functions can be divided into three categories: (1) societal, (2) economical and (3) ecological functions. Each of these functions affect the way we use our landscape in their own way.



Societal functions are related to our quality of life. Examples are recreation and good living conditions (such as housing and facilities).



# ECONOMICAL

Economical functions have to do with prosperity and wealth. Examples are industry and infrastructure.



Ecological functions are also called environmental functions. Examples are pollination, natural pest control and natural resources - such as food and wood provided by forests.

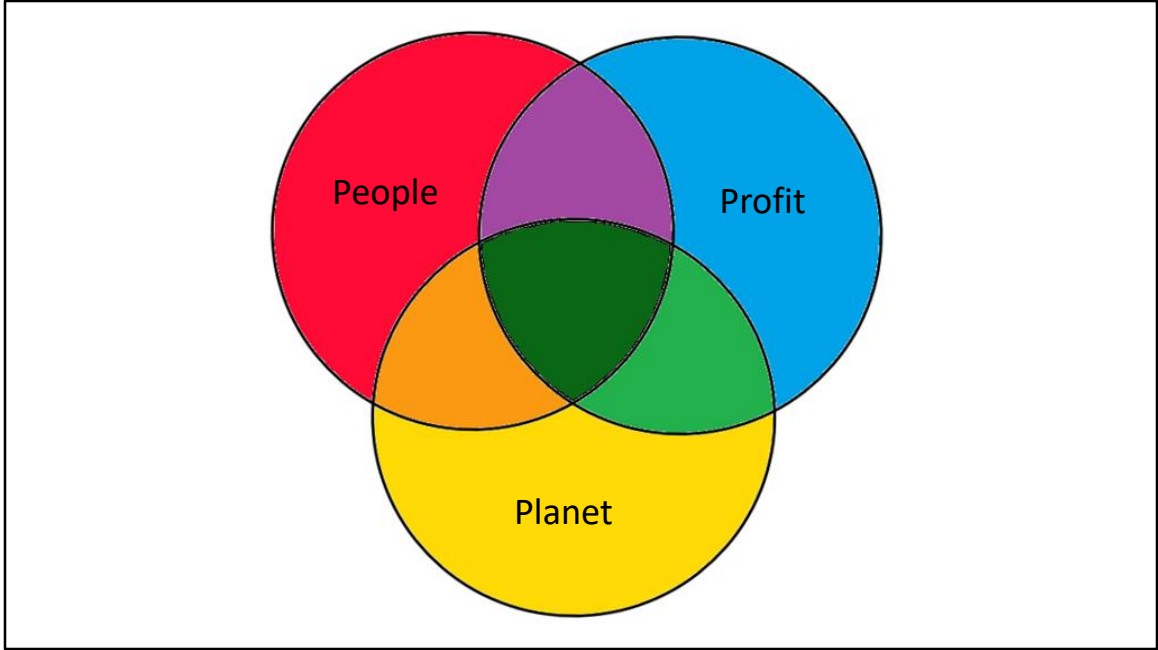
## Sustainable landscape

*A landscape in which **social**, **economical** and **ecological** goals compliment each other and an optimal compromise exists when these goals are in conflict with each other*

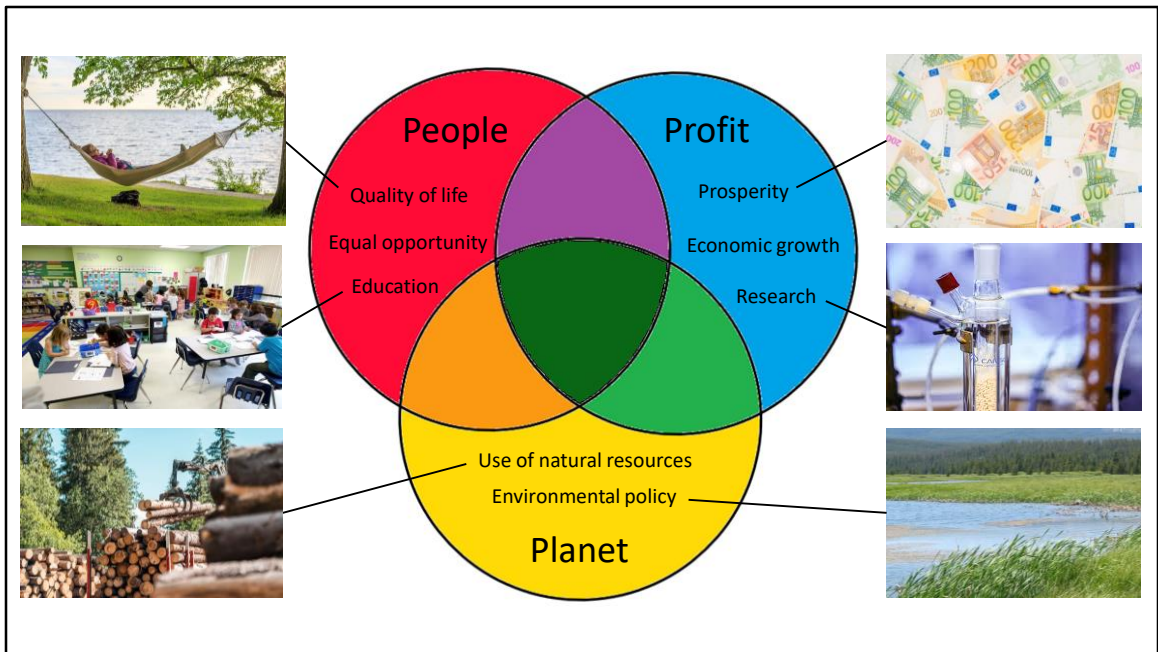


If we want our planet to stay healthy for future generations, we need to strive for balance between all functions. This is called sustainable development.





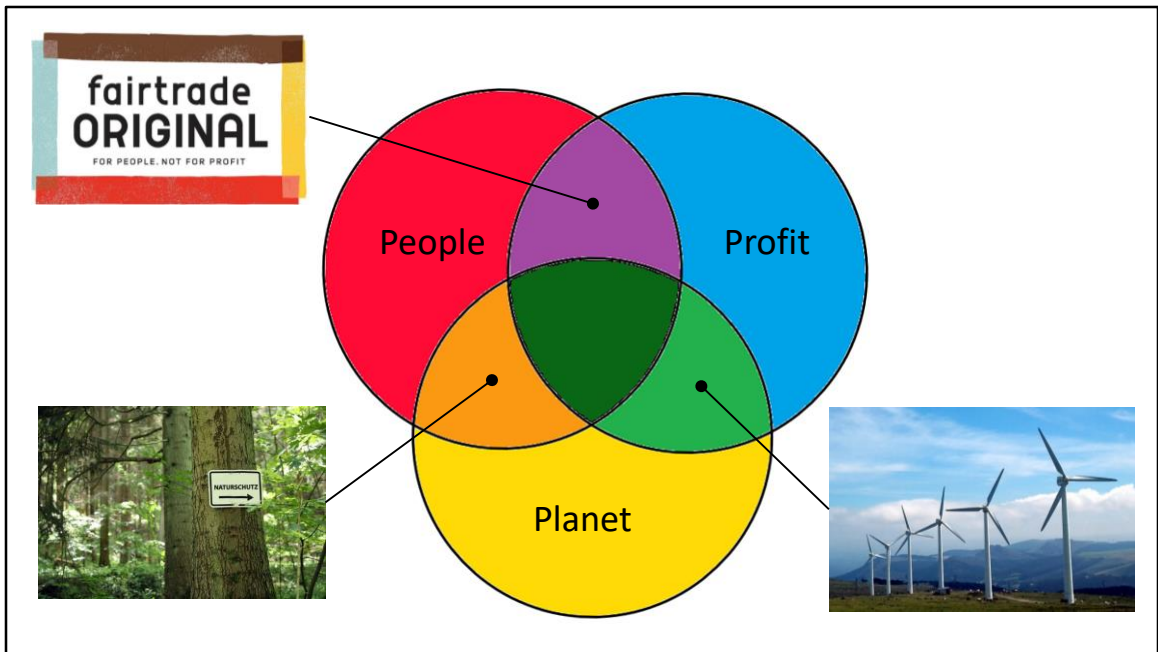
A popular way of describing sustainable development is People Planet Profit. This is often illustrated with a Venn diagram depicting the societal functions as People, the ecological functions as Planet and the economical functions as Profit.



Quality of life and education are societal functions and are represented in the red circle (under People)

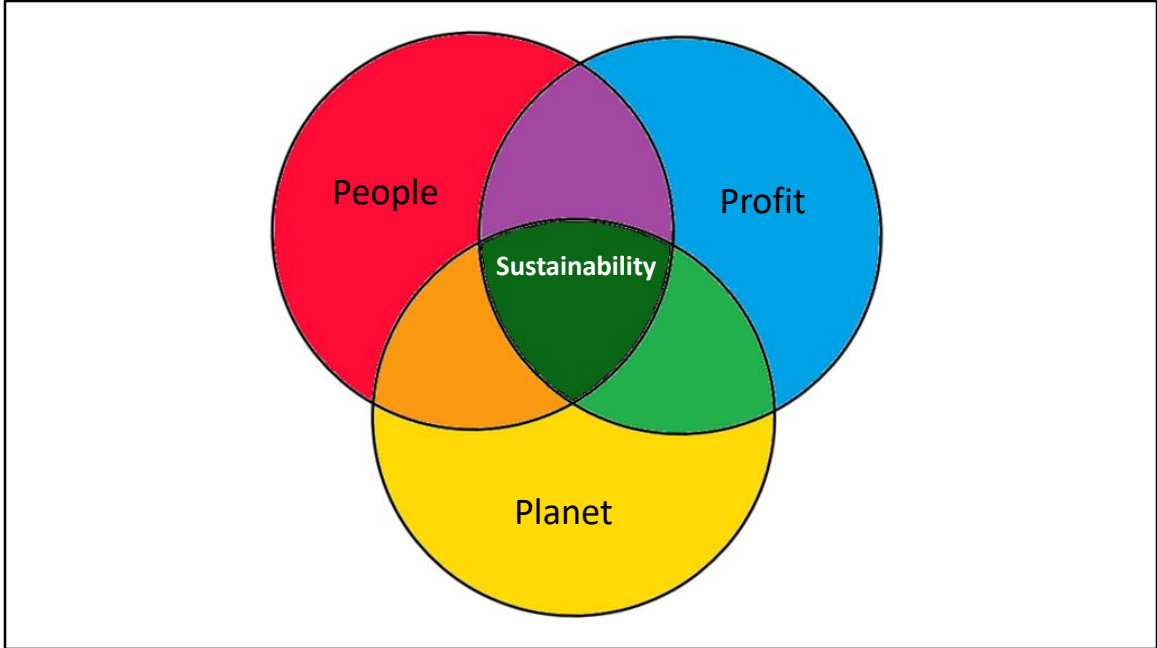
Natural resources and environmental policy are ecological functions and are represented in the yellow circle (under Planet)

Prosperity and research are economical functions and are represented in the blue circle (under Profit)



As you can see, in parts of the diagram the circles overlap. That is when landscape functions are more balanced. For example, the orange part of the diagram is where People and Planet overlap. This part of the diagram represents environmental conservation. Protecting the environment is important for both humans and the organisms that inhabit our planet, because both need healthy ecosystems to survive.

The purple part is when People and Profit overlap, illustrated by fairtrade products. The light green part is when Planet and Profit overlap, illustrated by sustainable energy.



The dark green area is the sweetspot where all three categories overlap. This means societal, ecological and economical functions are balanced. The balancing of functions is called **sustainability**. To protect the environment and prevent further loss of biodiversity (the Planet part), we need to think about ways we can use our landscapes in a sustainable way. This is a challenge.



Currently, the human population on our planet has increased exponentially to over 7 billion people. And it is still growing. This means more and more mouths to feed and we require more housing, food production and industry.

In other words, there is a huge demand to use our landscape for **societal** and **economical** gain and less focus on the **ecological** side.



In Australia, forest clearing for agriculture and logging for timber have directly destroyed thousands of hectares of forest. Moreover, bushfires are shrinking available habitat for koalas and other endangered animals as an indirect result of climate change.

Koalas have a key part in keeping the eucalyptus woodlands in Australia healthy by browsing the upper leaves of eucalyptus trees.



Because of ongoing and potential loss of their sea ice habitat resulting from climate change, industrial development and illegal hunting, polar bears are in danger of becoming extinct.

Polar bears are at the top of the food chain and have an important role in the overall health of the marine environment.



Recently, a German study found that in 25 years time, insect populations have dropped with 75%, the result of intensive agriculture, the use of pesticides and climate change.

The loss of insects has major consequences for entire ecosystems. They are an important source of food for many animals and plants rely heavily on insects for pollination.



## SUSTAINABLE DEVELOPMENT GOALS



Global policy is important to set goals that help to pursue sustainable development. The United Nations have proposed a list of goals for countries, which are called the **Sustainable Development Goals**. These goals aim to fight global problems like poverty, inequality, war, climate change and environmental issues.



The change to a sustainable landscape is a joined effort. Many different parties are involved in this challenge. Some of them are: politicians, farmers, nature organizations and consumers.

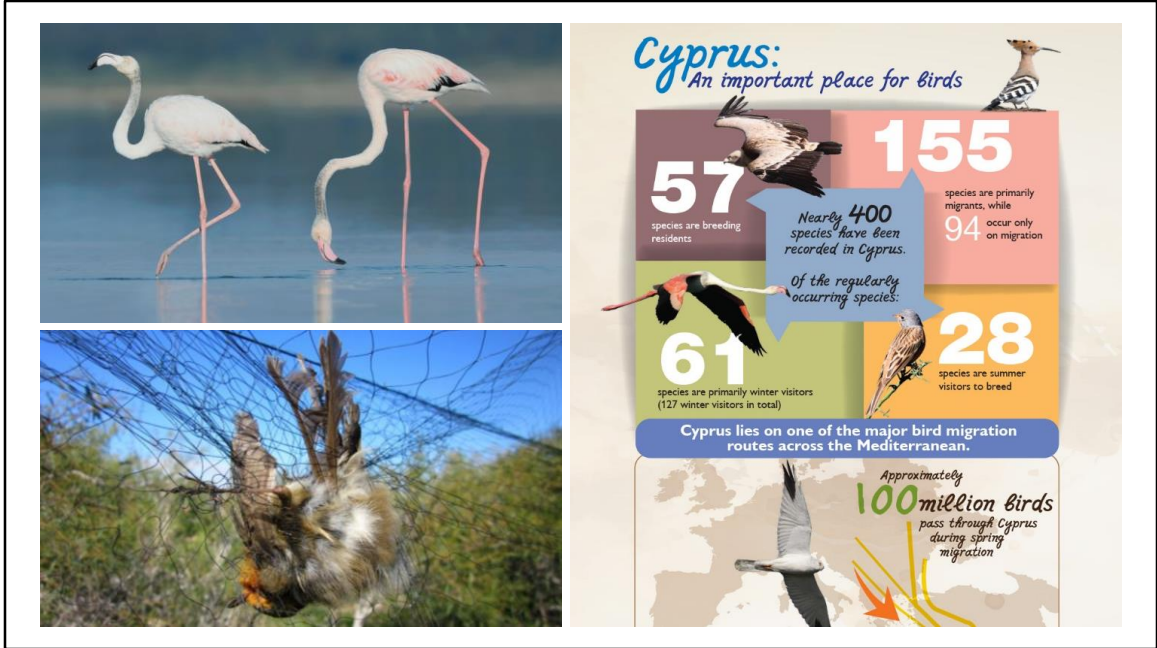


ABOUT PROJECT

The SUSTAIN project offers lesson modules for secondary education with topics related to sustainable landscapes. These topics are biodiversity, bird migration and water management. The modules are based on regional themes that deal with the human impact on ecosystems in Spain, Cyprus and the Netherlands.



SPAIN - The wetlands of Albufera National Park in Spain are only 10 kilometers from València. This Mediterranean freshwater ecosystem is of great ecological interest with rare species of birds and other wildlife. Human impact through fishing, agriculture and industrialization is threatening biodiversity in these wetlands.



CYPRUS - Cyprus lies on one of the major bird migration routes across the Mediterranean with over 200 species occurring as regular passage migrants. Illegal bird trapping with mist nets and lime sticks takes place on an industrial scale. Trappers sell these birds as delicacies and also change the environment by planting invasive Acacia bushes in which the birds are trapped.



THE NETHERLANDS - The Netherlands are one of the most densely populated countries in the world. Despite its relatively small size, it is the world's second-largest exporter of food. The wet, green and open land is ideal for dairy farming. The grasslands that are used to pasture cows also attract a large community of birds known as meadow birds. Due to intensive land use, the number of meadow birds have declined dramatically.



The Spanish lesson module deals with water management and the impact of fishing and rice production on biodiversity.

The Cypriot lesson module focuses on bird migration, the dangers birds encounter on their travel and the consequences of these dangers for the bird populations.

The Dutch module is about food web structures in grassland ecosystems and the impact of dairy farming on biodiversity.



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