



# IMPRINTING SUSTAINABILITY: From Theory to Practice

## PART II - IMPRINT+ CASE STUDIES

Part II presents an overview of selected project case studies.

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## FOREWORD

This report is the materialization of IMPRINT+ Output 1. It consists of a multidisciplinary evidence based state-of-the-art summary research report regarding environmental sustainability, best practices and environmental action and is divided in three separated but complementary parts available to download at <http://imprintplus.org/>

**Part I** ENVIRONMENTAL SUSTAINABILITY FRAMEWORK: an overview

In Part I you get all the basic introductory theory and data to contextualize IMPRINT+.

**Part II** IMPRINT+ CASE STUDIES

Read Part II for inspiration and a quick introduction to green entrepreneurship!

**Part III** IMPRINT+ PRACTICAL GUIDELINES FOR OFFSETTING ACTIONS

Part III is all about action and getting your hands dirty!

The authors would like to thank all project partners for their contributions and express gratitude to the projects, organizations and researchers that kindly provided images to illustrate the report.

## ABOUT IMPRINT+

IMPRINT+ aims at the promotion, at a transnational level, of an ecological reasoning based on the changing power of local community and on the participation, empowerment and entrepreneurship of young European citizens. IMPRINT+ is a transectorial project that brings together 6 partners from 5 countries, each with different experiences and perceptions. The project's methodology is based on establishing the state-of-the-art approaches regarding education for sustainability, IT technologies and ecological footprint offsetting. The project starts with an integrative research that will enable the project team to consolidate already existing know-how in the above-mentioned areas and better define the project's innovative edge within its context of use. It will also help the team establish a roadmap that will reinforce the project's up-to-date nature in the long run.

IMPRINT+ is coordinated by the [University of Aveiro](#), in Portugal, in partnership with the [Municipality of Lousada](#), where the project's field actions are taking place; [LeaveNoTrace Ireland](#), a leading Irish NGO in the field of environmental good practices; [IIS Cipolla-Pantaleo-Gentile](#), a science school of Sicily, Italy; [IES Pedro Jiménez Montoya](#), a secondary school of Baza, Spain; and [E.N.T.E.R.](#), the European Network for Dissemination and Exploitation of EU Project Results, located in Graz, Austria.

For more information visit <http://imprintplus.org/> and follow us at <https://www.facebook.com/erasmusimprint>

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## 2.1 WEB-BASED TOOLS FOR SOCIAL ENGAGEMENT AND ENVIRONMENTAL EDUCATION & COMMUNICATION

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First, in section 2.1, are presented projects that share similarities with IMPRINT+ concerning:

- 1) conceptual framework;
- 2) use of information technologies;
- 3) training techniques. The methodologies and overall results collected from the case studies will help to further improve **IMPRINT+** methodology and to maximize innovation opportunities.

Second, in section 2.2, demonstrative examples of green economy are presented.



## PROJECT

### School's Global Footprint (Scotland)

**PARTNERS:** 2<sup>nd</sup> edition: WWF, Sustainable Scotland Network, Eco-Schools Scotland, Improvement Service, Scottish Government and ScottishPower.

**TARGET AUDIENCE:** Schools: first, second and third levels.

**GEOGRAPHICAL SCOPE:** Scotland.

**OBJECTIVES:**

- Study the ecological footprint concept by engaging in cross-curricular and interdisciplinary work.
- Understand how individual actions affects the ecological footprint.
- Calculate the school's ecological footprint.
- Explore ways to reduce the school's ecological footprint.

**TEACHING RESOURCES:**

**IT AND WEB-BASED TOOLS:**

- Online footprint calculator for educators.
- Website.

**COMMUNICATION AND TRAINING TECHNIQUES:**

- Series of training videos for teachers.

**OTHER:**

- [Teacher's handbook](#) and [workbook](#).

**OUTCOMES/RESULTS:** Not available, although two video case studies are available at the project's website.

**HIGHLIGHTS:**

- Directed for teaching and integration in the schools curriculum and Eco-schools.
- Well structured teacher's manual and workbook.
- Series of training videos for teachers and videos of school case studies.
- Online ecological footprint calculator.

**LINK:** [School's Global Footprint](#)

## PROJECT DESCRIPTION

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“Schools Global Footprint is a resource designed to help your learners examine, measure and reduce their school’s Ecological Footprint. It is made up of two main teaching and learning tools which work hand in hand: the handbook for teachers and an online footprint calculator for learners (...). The online footprint calculator introduces and enables the calculation of their school’s Ecological Footprint and Carbon Footprint. The calculator is divided into the six components of an Ecological Footprint; Buildings, Energy, Food, Transport, Waste and Water. (...) The handbook of practical teaching and learning ideas and materials; set in a broad global context, introducing and investigating each of the six components that make up an Ecological Footprint, and exploring their interconnections. The understanding of this global interconnectedness lies at the root of sustainable development education (...) It is intended that by using this handbook, and the online footprint calculator, your school will be able to draw up an Action Programme which contains actions designed to reduce the size of your school’s Ecological Footprint.”

## PROJECT

CO<sub>2</sub>nnect – CO<sub>2</sub> on the way to school | 2009 – present |



**ORGANIZATION/FUNDING:** EU Comenius Lifelong Learning project “SUPPORT: Partnership and participation for a sustainable tomorrow”.

**TARGET AUDIENCE:** Schools

**GEOGRAPHICAL SCOPE:** International.

### OBJECTIVES:

- Engage a large number of schools, pupils, parents and communities internationally to work with sustainable development in the field of climate and transport.
- Increase schools’ competency to deliver high quality Education for Sustainable Development.
- Provide information and communication technology based tools including guidelines, links, a CO<sub>2</sub> transport emissions calculator and opportunities for partnership.
- Generate information useful to research and management about transport and climate issues (including an international database on CO<sub>2</sub> emissions from school transport).
- Generate innovative ideas for sustainable transport.

### TEACHING RESOURCES:

#### IT AND WEB-BASED TOOLS:

- CO<sub>2</sub> transport emissions calculator
- Website

#### COMMUNICATION AND TRAINING TECHNIQUES:

- Facebook

**OUTCOMES/RESULTS:** Not available.

### HIGHLIGHTS:

- Teacher handbook.
- 10 steps of the campaign.
- National and international comparison of results.
- Multi-language website (17 languages)

**LINK:** [CO<sub>2</sub>nnect](#)

## **PROJECT DESCRIPTION**

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“The idea with CO<sub>2</sub>nnect is to support learning activities that help provide pupils with abilities, skills, attitudes and awareness as well as knowledge and understanding of issues related to sustainable development. Teachers can use the website as a support for organizing teaching activities or school projects, adjusted to the age of the pupils and local setting. The aim is that schools, researchers, local decision makers and other actors in the local community will collaborate on the theme of CO<sub>2</sub> emissions from local transportation. The website contains a CO<sub>2</sub>-from-transport calculator, a shared database for the results, possibilities to compare results in order to analyse and discuss different outcomes, pupil questionnaires, about 50 pages of help sheets for teachers and an evaluation module.”

## PROJECT

### AQUAPATH | 2014 - 2016

Project code: 2014-1-IT02 KA200-003610.



**FUNDING:** Erasmus+

**PARTNERS:** France, Germany, Italy, Netherlands, Spain and Portugal.

**GEOGRAPHICAL SCOPE:** European

**TARGET AUDIENCE:** Children and adults but not specifically directed to schools.

#### OBJECTIVES:

- Reduce individual direct water consumption.
- Change consumption habits from water intensive products to those with a sustainable water footprint.
- Apply pressure on brands and manufacturers to increase the supply of products with sustainable water footprints.

#### RESOURCES:

##### IT AND WEB-BASED TOOLS:

- Website.
- [Water Footprint Calculator](#) including practical suggestions for water consumption through a drop-down menu and guidelines for household management.
- [Report local water issues](#): online tool that uses [SeeClixFix](#) to identify locations on a map that need fixing regarding water issues. It is possible to describe the problem and upload a picture.

##### COMMUNICATION AND TRAINING TECHNIQUES:

- Six online training modules: Awareness, Sustainability, Consumption and Production, Lifestyle, Household, Public Sector. Each module consists of one online document and one quiz.
- Video "[What do you know about your water footprint?](#)"
- Newsletter, Facebook.

##### OTHER:

- [Teacher textbook](#)
- [Textbook for children](#)

**OUTCOMES/RESULTS:** Website (8000 visitors); 17 multiplier events in 6 countries (1009 participants).

#### HIGHLIGHTS:

- Water Footprint Calculator.
- Training modules and quiz.
- Good design of the Water Footprint Calculator and project website, in contrast with the less advanced design of the textbook for children.

**LINK:** [Aquapath](#)

## ***PROJECT DESCRIPTION***

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“Aquapath project aims at fostering citizens awareness (children – tomorrow’s citizens – and adults) regarding water consumption in Europe. Taking into account populations’ various backgrounds, the objective is to educate Europeans at making responsible choices and eventually assist the implementation of law directives, which will only become effective when followed by a real mind shift.”



Children event. Aquapath



Children event. Aquapath



Game. Aquapath



Children event. Aquapath



Children event. Aquapath



Children event. Aquapath



Municipality of Monza event. Aquapath

## PROJECT

LEAF – LEARNING ABOUT FORESTS | 2000 to present.



**ORGANIZATION:** Foundation for Environmental Education (FEE) and Forest in Schools programmes in Norway, Sweden and Finland.

**GEOGRAPHICAL SCOPE:** International.

**TARGET AUDIENCE:** Students, teachers and the wider community.

### OBJECTIVES:

- Increase the level of awareness and knowledge about the key role that forests play for sustainable life on our planet.
- Promote activities to help students increase the level of environmental knowledge regardless of age or previous knowledge.
- Ensure students learn to enjoy the outdoors, experience and observe nature.
- Ensure students understand the ecological web and the interplay of man and nature.
- Ensure students are capable of making decisions on environmental issues and take responsibility for their future.

### RESOURCES:

#### IT AND WEB-BASED TOOLS:

- Website

#### COMMUNICATION AND TRAINING TECHNIQUES:

- [Tree Planting Video](#) series.
- The Forest Cycle methodology: a series of carefully engineered measures to help schools maximise the success of their LEAF ambitions.
- LEAF newsletter, Facebook, Twitter, Flickr.

#### OTHER:

- [Environmental Education Principles](#)

### OUTCOMES/RESULTS:

- 23 participating countries.
- In 2015, over 1,000 tree-planting activities took place and over half a million trees were planted, 9,836 participating schools (from pre-school to universities), 17,600 teachers and 556,754 students.

### HIGHLIGHTS:

- Teacher handbook.
- 10 steps of the campaign.
- National and international comparison of results.
- Multi-language website (17 languages)

**LINK:** [LEAF](#)

## PROJECT DESCRIPTION

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“Learning about Forests aims to increase knowledge about the key role forests play in sustaining life on our planet. The programme encourages students to reconnect with our woodland heritage and imbue students with a sense of ownership of their environment which, in many places, has become lost over time. This reconnect with the environment is intended to reassert the idea that our forests are a natural asset to be treasured and kept safe for future generations, an idea which has for decades been neglected as our trees fuelled economic expansion and lifestyle improvements. The myriad of ways in which forests show a beneficial impact on our lives is stressed to students, often during field trips out into the woods to see first hand where they can be educated on the importance of the ‘lungs of the planet’. (...) The LEAF programme aligns itself with Education for Sustainable Development (ESD), the Global Action Programme (GAP) and the new Sustainable Development Goals (SDGs). The LEAF programme is operated in a thematic manner. Participating countries encourage schools to work on the current LEAF theme. The programme looks at all the functions of forests: forests and biodiversity, forests and water, forest and products, forests and climate, forests and community, forest laws and codes, forests myths, creativity and innovation.”



FEE Learning about forests. Leaf Belgium 2014



FEE Learning about forests. Leaf Belgium 2014



FEE Learning about forests. Leaf Belgium 2015



FEE Learning about forests. Leaf Netherlands 2016



FEE Learning about forests. Leaf Bulgaria



FEE Learning about forests. Leaf Belgium 2015



FEE Learning about forests. Leaf Czech Republic - Celebrating 15 years of Leaf



*FEE Learning about forests.  
Leaf Belgium 2015*



*FEE Learning about forests.  
Leaf Belgium 2015*



*FEE Learning about forests.  
Leaf Uganda*

## PROJECT

### Future Happiness Challenge!

**ORGANIZATION:** Developed in collaboration between Mistra Urban Futures, Region Västra Götaland, the City of Gothenburg, the Pedagogical Centre and IUS Innovation. The development of the game was funded by Region Västra Götaland and the City of Gothenburg.

**GEOGRAPHICAL SCOPE:** International.

**TARGET AUDIENCE:** Upper secondary school students (15-19), but the game can be played by both younger and older students.

**OBJECTIVES:**

- Encourage a political dialogue about sustainable living, based on science.
- Increase students' level of understanding for the changes needed on both individual level and as a society to halt global warming.
- Increase young people's interest in political debate, participation in public elections as well as other democratic work.
- Encourage healthy lifestyles.

**RESOURCES:**

**IT AND WEB-BASED TOOLS:**

- Electronic pedagogical game (multi-platform)

**COMMUNICATION AND TRAINING TECHNIQUES:**

- Videos

**OTHER:**

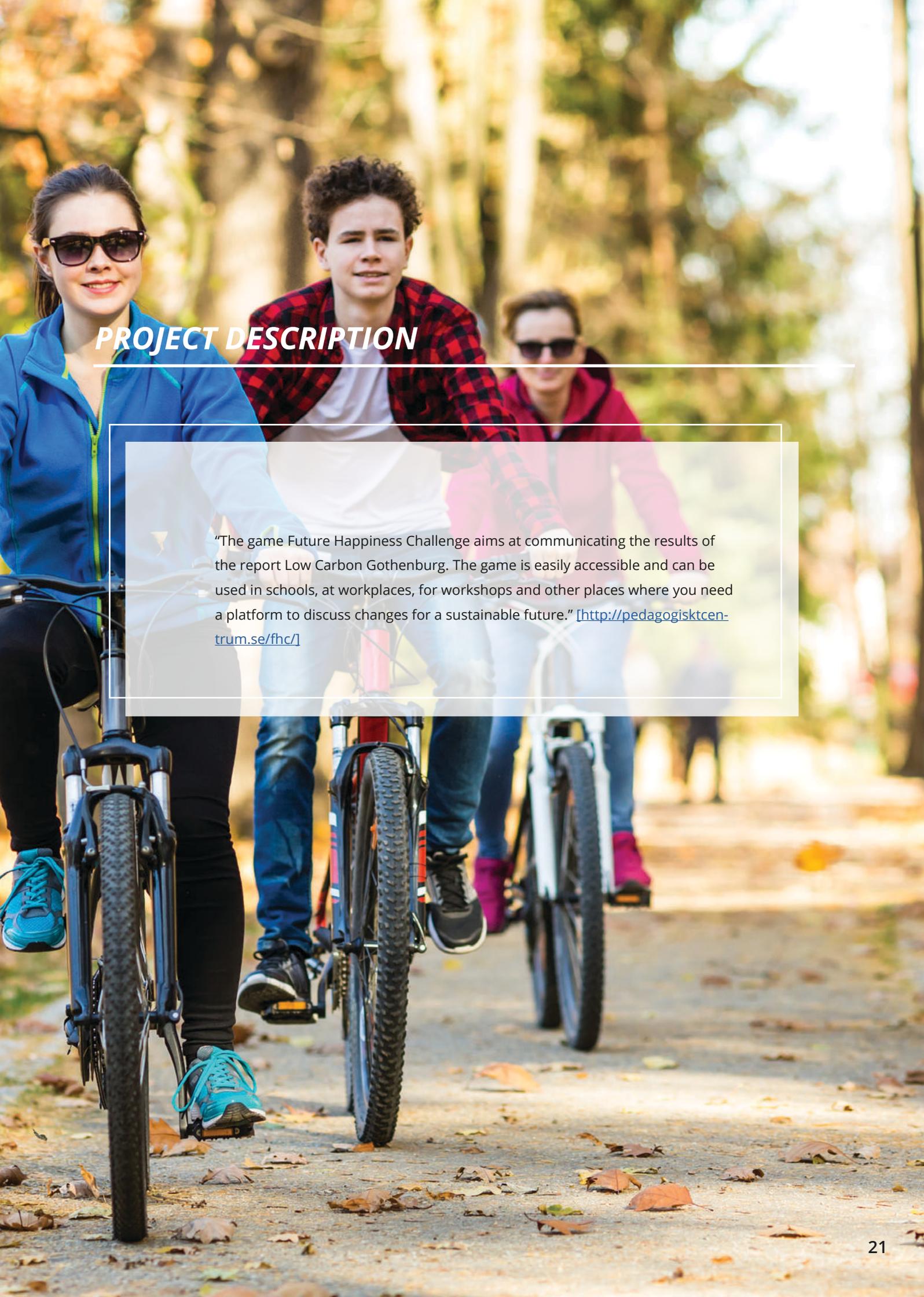
- Teacher's guide

**OUTCOMES/RESULTS:** Not available.

**HIGHLIGHTS:**

- Theme of the electronic game, objectives, functionality and design.

**LINK:** [Future Happiness Challenge](#)

A photograph of three people riding bicycles on a paved path in a park during autumn. The path is covered with fallen yellow and orange leaves. The background shows trees with similar foliage, creating a warm, golden atmosphere. The person in the foreground is a woman with dark hair, wearing sunglasses and a blue jacket. The person in the middle is a young man with curly hair, wearing a red and black plaid shirt over a white t-shirt. The person in the background is a woman wearing sunglasses and a red jacket. The text 'PROJECT DESCRIPTION' is overlaid in white, bold, italicized font on the left side of the image.

## *PROJECT DESCRIPTION*

“The game Future Happiness Challenge aims at communicating the results of the report Low Carbon Gothenburg. The game is easily accessible and can be used in schools, at workplaces, for workshops and other places where you need a platform to discuss changes for a sustainable future.” <http://pedagogisktcentrum.se/fhc/>

## 2.2 GREEN ENTREPRENEURSHIP AND ALTERNATIVES TOWARDS A GREEN AND SOCIAL ECONOMY

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Have you heard about green economy? What business opportunities can be presented by green economy? Is it possible to combine social and economic well being with nature protection? Can companies profit and contribute to sustainable development goals? How can natural protected areas and biodiversity be a driver for local social and economic development?

In this section we present a brief overview about green economy followed by a few examples of green entrepreneurship.



## 2.2.1 Green economy

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The green economy is a broad term that refers to a type of economy where profit, the environment and social responsibility are not in contradiction. As well as supporting economic development, the green economy aims to reduce pollution, biodiversity loss, improve nature conservation, resource efficiency and social fairness. An important feature is the attempt to internalize the environmental and social costs of the products and services, for instance, by making polluters pay for the pollution. This approach can be an important incentive to implement sustainable business practices. For example, from the green economy standpoint, it makes much more sense to sustainably manage a forest in the long term, considering not only the timber that a forest produces, but also other forest products, environmental protection aspects, the provisioning of ecosystem services and the well-being of local communities, rather than exploiting intensively to maximize economic profit at the short term, despite causing environmental, societal and economic damages (negative externalities). In general, the green economy approach minimizes environmental and social damage and it is more sustainable at the long run, even from an economic perspective.

Presently, many companies already have their business models aligned with green economic principles. Some

sectors, due to the nature of their activity, are closer to transitioning to a greener economy, such as (eco) tourism, renewable energy technology, waste, forestry or agriculture, just to name a few. The green economy extends beyond the scale of business: cities are starting to adapt to the green economy by making strategic choices and investments in key areas such as transport systems, waste management, green spaces or energy efficiency. At a larger scale, regions and countries around the world are already developing green growth strategies and planning the transition to low carbon economies. Some are even setting ambitious goals such as achieving fossil fuel independence within the next years.

Old economic models and business premises were partially responsible for the path that led humanity to some of the current environmental and social challenges.

Nowadays, if the objective is to achieve sustainable development, environmental equilibrium and social equity, than it no longer makes any sense to continue with the same models and premises. As seen in Part I, to solve current and future challenges, it is imperative to change at the individual, collective and system level.

How can we accelerate the transitioning to a greener economy?







## 2.2.2 Examples

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### Sustainable natural resource management in Portugal

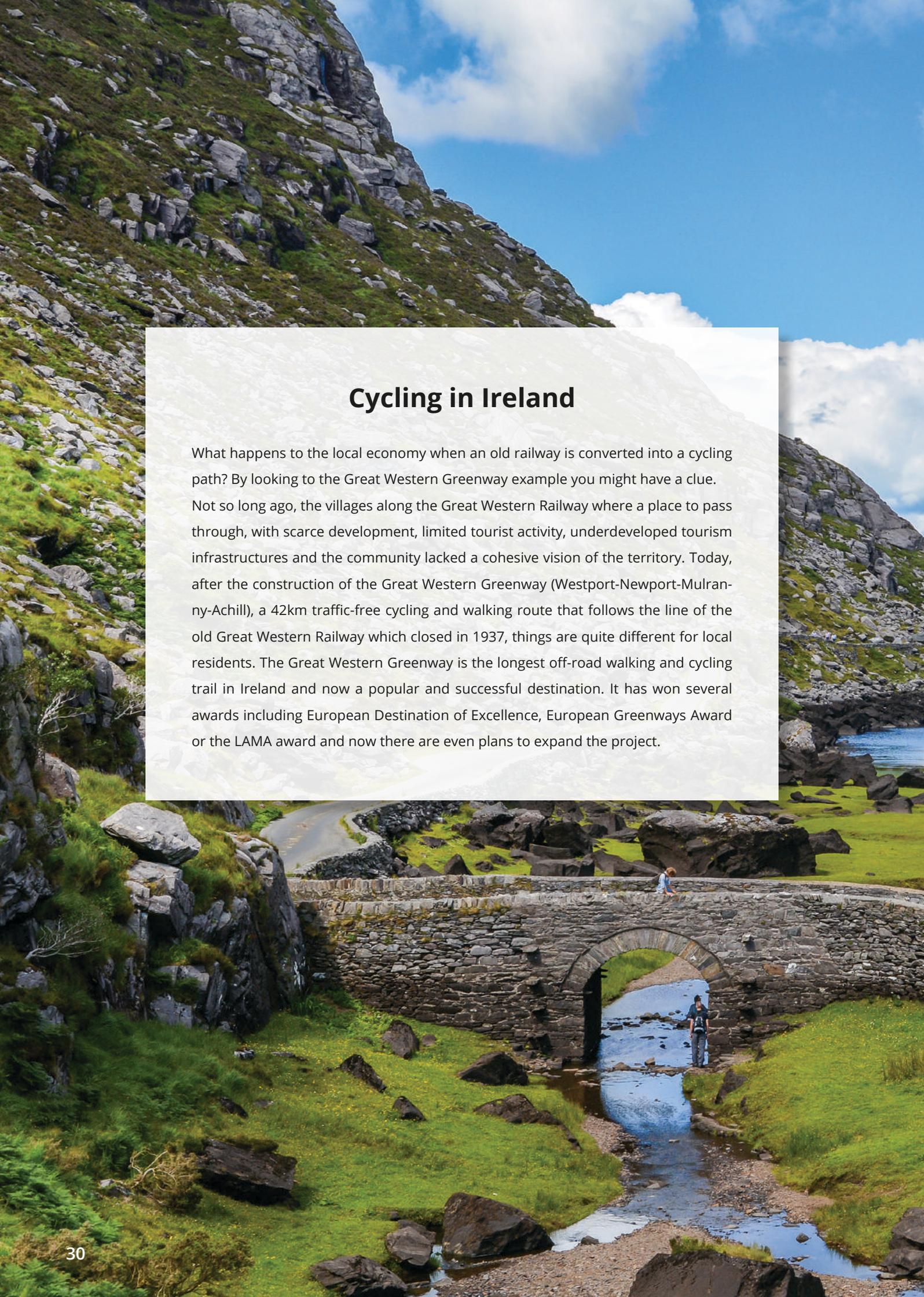
The *montado* is probably Portugal's best example of sustainable management of natural resources and an inspirational model. The *montado* is an old agro-sylvo-pastoral system where economy, biodiversity and sustainability coexist in harmony through careful human management of the natural resources. The forest is usually dominated by cork oak-trees (*Quercus suber*) or holm-oak trees (*Q. rotundifolia*) and the under cover is used to to feed cattle, grow rain-fed or dry farming arable crops.



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This extensive production system promotes soil conservation, local biodiversity and multiples sources of income, providing cork but also other products with economic interest, such as meat, honey, medicinal and aromatic plants, mushrooms, wild berries and nuts. Tourism is another potential source of income. Considered a biodiversity hotspot, the *montado* is an important ecosystem for many species of animals such as the emblematic and endangered Iberian lynx (*Lynx pardinus*) or the Iberian imperial eagle (*Aquila adalberti*) and is home to many other species of invertebrates, amphibians, reptiles, birds, mammals and more than 700 plants can be found in the Portuguese *montado*. Think of the business possibilities that exist associated to the *montado* ecosystem. Feeling inspired to be an eco-entrepreneur?





## Cycling in Ireland

What happens to the local economy when an old railway is converted into a cycling path? By looking to the Great Western Greenway example you might have a clue. Not so long ago, the villages along the Great Western Railway were a place to pass through, with scarce development, limited tourist activity, underdeveloped tourism infrastructures and the community lacked a cohesive vision of the territory. Today, after the construction of the Great Western Greenway (Westport-Newport-Mulranny-Achill), a 42km traffic-free cycling and walking route that follows the line of the old Great Western Railway which closed in 1937, things are quite different for local residents. The Great Western Greenway is the longest off-road walking and cycling trail in Ireland and now a popular and successful destination. It has won several awards including European Destination of Excellence, European Greenways Award or the LAMA award and now there are even plans to expand the project.



## Quick facts:

- Growing number of users 145,000 in 2011 and 265,000 in 2014.
- 54% hired a bike.
- Average daily spend €62/person/day.
- New business opportunities: bicycle hire, guided tours, hospitality services, local shops, accommodation, taxi services, etc.
- 38 new jobs created and supports 56 existing jobs.
- Estimated economic benefit: 7.2 € million to the local economy (2.8 € million - overseas visitors)

## Nature tourism in Spain

Natural areas around the world attract enthusiastic nature lovers presenting many business opportunities for green entrepreneurship.

The Delta de l'Ebre Natural Park is Catalonia's largest wetland, a place of ornithological and ecological importance where more than 95 species of birds breed and about 300 come to stopover. This biodiversity attracts thousands of visitors annually. Tourists can also find beaches, sand dunes, rivers, estuaries, salt pans, lagoons and marshes. Specialized companies provide visitors many ways to explore the Delta de l'Ebre Natural Park, from guided walking tours, to horseback riding, bird watching, biking, etc.

Another successful example of the green economy in a natural protected area can be found in the Natural Parks of Arribes del Duero (Spain), Douro International (Portugal) and in the Natural Park of Sanabria (Spain), where a private company operates environmental cruises, taking every year more than 60,000 tourists to visit the protected areas. As part of the strategy of the company, some of the economic resources are allocated to projects of research, conservation and enhancement of natural resources of the protected areas in which it operates.

Which areas of natural, cultural or historical importance can you identify near you? Would you dare to be an entrepreneur?



## Eco-innovation in Italy

An important part of the green and circular economy is about operating in closed production cycles. Many companies and industries are investing in research and innovation not only to reduce the production of waste, but also to give waste a second life by using it as a raw material. Some of the advantages for companies consist of lower production costs with materials and transportation, reduction of the carbon and ecological footprints, reputable environmental certification, access to new markets and jobs creation.



For example, tonnes of hazelnut and cocoa beans are used everyday in the production lines of a famous confectionery Italian company. Now, through research and innovation, the company has developed an industrial process that enables the incorporation of shell and peel left over into a new type of packaging cardboard that is used in the packaging of their products. With this innovation the company has reduced production costs and improved environmental performance by reducing waste and environmental pollution.

Another Italian company, specialized in recycling, is giving glass from old television screens a new life by transforming into a new environmental certified product. The company processes the glass and transforms into a new raw material that is used in the production of high quality designer ceramic tiles. The floor of a 70m<sup>2</sup> apartment requires 30 television sets. Until now, more than 500,000m<sup>2</sup> of ceramic tiles have been produced from 2,500 tons of glass from old televisions. By using this process it is estimated that the carbon dioxide emissions reduction is about 0.7 kg per square meter of manufactured tiles.



