

The Sustainable Development Goals in Protected Areas

An Introduction



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Be creative, be innovative, and become sustainable

The SDGs are the current framework for sustainable development. This booklet combines all SDG.imp learning modules on the SDGs. It provides you with an opportunity to use these materials offline. You can save it on your computer or print it out.

Overall, the learning modules only serve as an introduction into the SDGs. It is up to you, to make further connections to the situation in your protected area. To do so, we offer several tools in our download section. The combination of both, the learning modules and the tools, will help you make decisions and contribute to the achievement of the SDGs.

This collection is part of the intellectual output one of the Erasmus+ project SDG.imp (2019-1-DE02-KA204-006564). The project's purpose is to support protected areas and their regional partners in the implementation of SDGs. The project was coordinated by the Institute for Rural Development Research (Germany). Additional partners were the Europarc Federation, the Bliesgau Biosphere Reserve (Germany), the Baltic Education Technology Institute (BETI), the Association for the Rural Development of the coast of the Janda (Spain), Comunitatea Pentru Invatarea Permanenta (Romania), and the Lomza State University of Applied Sciences (Poland). The SDG.imp team wishes you success on your path towards sustainability!



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The Sustainable Development Goals

In 2015, the United Nations adopted the 2030 Agenda for Sustainable Development. Its aim is peace and prosperity for people and the planet. Partnership is the guiding principal for its implementation. The 17 Sustainable Development Goals (SDGs) are the focus areas of the 2030 Agenda for Sustainable Development. The SDGs comprise 169 sub-goals. These targets address specific conditions in the global north as well as in the global south. In addition, some targets outline activities about how to achieve the respective goal. The targets refer to objectives and measures on the international, the national or the regional level implemented by the state, the private sector and civil society. Therefore, not all targets are equally relevant for protected areas and stakeholder in protected areas.



The SDGs can be seen as a further development of the three pillars of sustainability. Rather than focusing either on economic, social or environmental aspects, the SDGs define goals covering all three pillars.

The SDGs avoid the inherent conflicts between economic, social, and environmental objectives. Nevertheless, conflicting goals may prevail between the individual SDGs. The use of renewable energies for instance has a positive contribution to SDG 7 (Renewable Energies) but might also have a negative one

on SDG 15 (Life on Land). Therefore, it is crucial what to do, how much of it and where in order to successfully implement the SDGs.

The implementation of the SDGs and achieving sustainable development highly depends on activities on the regional level. As model regions for sustainable development, protected areas are the ideal territorial unit to foster the implementation of the SDGs.

Protected areas can develop and test approaches for sustainable development including businesses and the community. If place-specific solutions are not the right fit for all regions, new approaches on how to find and implement sustainable solutions can still be transferred to other protected areas and regions outside protected areas.

In this sense, sustainable development can be understood as an ongoing process of testing and learning and improving. And therefore, the SDGs are the framework for progress in all regions for all people.

The aim of the SDG.imp learning platform is to provide protected area administrations and stakeholders in protected areas with the required knowledge and tools to contribute to the implementation of SDGs.

In order to do so, the SDG.imp learning platform hosts 17 learning modules, one for each SDG. Each module is about 30 slides long and follows a common structure:

- It starts with the introduction of the SDG in general and presents the specific SDG and its targets. Targets are distinguished between those that are more and those less relevant for protected areas. This distinction should give you an orientation on how to prioritize your activities. Obviously, you are free to be creative and contribute to more than the targets listed as most relevant.
- Second, we present major issues related to the SDG and connect them to protected areas. This way, we introduce specific issues of or in protected

The Three Pillars of Sustainability refer to the idea of a „triple bottom line“. First mentioned in the „Brundtland Report“ 1987, the concept states that the three pillars social, economic and environmental have to be equally considered for reaching sustainability.
Source: [ESG – The Report](#)

areas, which might not only relate to the SDGs but also other objectives of your protected area and the people living in it.

- And at last we present target-group specific solutions and best-practice examples. They show that many solutions cannot be implemented only by the protected area administration alone. Therefore, we included activities to be implemented by businesses, by municipalities or civil society organisation.

How can you use the learning modules?

The modules as learning materials

The learning modules on the SDGs serve as a first step for protected areas in their process of becoming sustainable. You can learn about the individual SDGs, its targets and find inspiration in the best practice examples.

You can use the learning material online or print it for reading it at home, outside or whenever you find time for it.

The learning modules as a conversation starter

The learning modules can be used to start a conversation about sustainable development:

- What are the SDGs? Which are the more relevant targets for your protected area?
- How is the situation in your protected area? What are major issues?
- Which stakeholder do you need to collaborate with in order to tackle these issues?
- Which of the proposed activities are relevant for your protected area? What additional activities are needed in order to follow a path towards sustainability?

As Google presentations the learning modules are fully equipped with everything you need for a professional presentation, e.g. a full screen mode or pointer.

The learning modules as a source of knowledge and inspiration

You do not have to remember everything from the learning modules. You can use them as a source of information:

- About the SDGs
- Information about current issues in or with protected areas
- Target-group specific solutions for these issues
- Best practices examples from other protected areas
- Links to additional sources of information.

Overall, the learning modules provide ideas for the implementation of the SDGs by protected areas and their key stakeholders.

What can you do?

Sustainable development depends on people who transform current processes and practices, which consider more environmental and social effects and outcomes. Everyone can support the transformation towards sustainability

- Through acting more sustainable
- Through creating the conditions for others to act more sustainable
- Through incentivising others to become more sustainable
- Through convincing others to become more sustainable.

The following tables provide you with suggestions on how different stakeholder groups can contribute to the SDGs. Think about which approach suggests a quick success for you? Or which approach is the most promising regarding its impact on your protected area? Maybe you can even come up with your own approach?

Administrations of Protected Areas

Becoming more sustainable	Creating basic conditions for sustainable development
<ul style="list-style-type: none"> • Sustainable procurement of office supplies and energy • Sustainable food and beverages for events • Avoiding single-use plastics or disposable dishes 	<ul style="list-style-type: none"> • Establishing a legal framework prohibiting unsustainable activities • Issuing permits for sustainable activities • Developing strategies for sustainable development
Incentivising others	Convincing others
<ul style="list-style-type: none"> • Providing or organising free consultation about sustainability issues • Initiating competitions, awarding prizes • Establishing labels or brands for sustainable products and services • Financial support for specific activities 	<ul style="list-style-type: none"> • Establishing regional networks and short chains • Providing information to the public or specific stakeholder groups • Organising events

Municipal Administrations

Becoming more sustainable	Creating basic conditions for sustainable development
<ul style="list-style-type: none"> • Sustainable procurement of office supplies and energy • Sustainable food and beverages for events • Avoiding single-use plastics or disposable dishes 	<ul style="list-style-type: none"> • Establishing a legal framework prohibiting unsustainable activities • Issuing permits for sustainable activities • Developing strategies for sustainable development

Incentivising others	Convincing others
<ul style="list-style-type: none"> • Providing or organising free consultation about sustainability issues • Initiating competitions, awarding prizes • Financial support for specific activities 	<ul style="list-style-type: none"> • Establishing regional networks • Providing information to the public or specific stakeholder groups • Organising events

Businesses

Becoming more sustainable	Creating basic conditions for sustainable development
<ul style="list-style-type: none"> • Designing durable/ recyclable products • Reducing the use of resources like energy and water etc. • Avoiding / reducing waste and the use of potentially toxic substances • Sustainable procurement of office supplies and energy • Applying sustainable land management methods or increasing biodiversity on company properties • Sustainable food and beverages for canteens 	<ul style="list-style-type: none"> • Participating in regional networks and initiatives for sustainable development
Incentivising others	Convincing others
<ul style="list-style-type: none"> • Sponsorship for regional competitions 	<ul style="list-style-type: none"> • Sharing experiences about activities and measures to become more sustainable

Civil society initiatives and advocacy groups

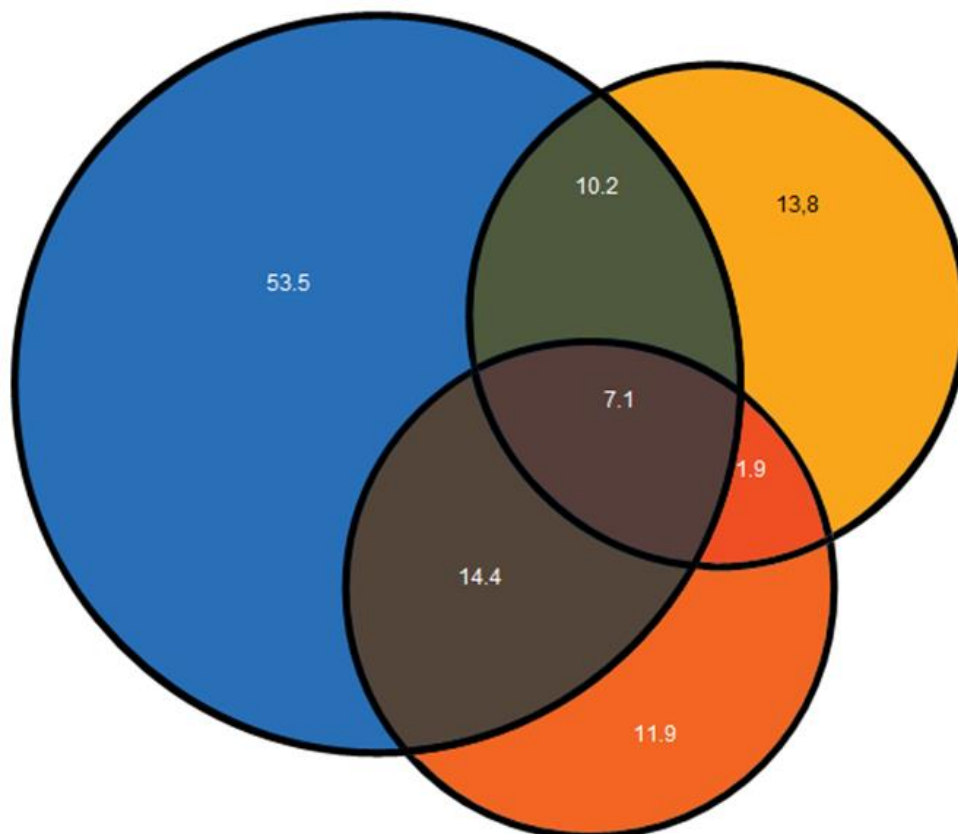
Becoming more sustainable	Creating basic conditions for sustainable development
<ul style="list-style-type: none"> • Sustainable food and beverages for events • Avoiding single-use plastics or disposable dishes 	<ul style="list-style-type: none"> • Initiating regional networks or short chains • Providing or organising free consultation about sustainability issues
Incentivising others	Convincing others
<ul style="list-style-type: none"> • Sponsorship for regional competitions • Issuing labels or awards for sustainable activities 	<ul style="list-style-type: none"> • Organising events to inform, share experiences and promote sustainable activities • Promoting durable / recyclable products, waste reduction, saving of resources like water and energy, the use of renewable energy, the application of sustainable land management technics, biodiversity friendly gardens and business properties

SDG 1: Poverty Reduction

About poverty and this SDG

Poverty reduction is highly relevant for sustainable development:

- Poverty and social exclusion limit the ability of people to live a successful life. These factors also lower educational outcomes, life expectancy and increase vulnerability to natural disasters.
- Poverty reduction not only creates employment (in terms of living wage jobs) but also enables affordable access to infrastructures and services, e.g. sanitation, health care or education.



Population at risk of poverty or social exclusion in the EU 28, 2017:

- **Blue: Poverty** (53.5 million)
- **Yellow: Severe material deprivation** (13.8 million)
- **Red: living in a household with very low work intensity** (11.9 million)

Definitions can be found on the slide "Poverty and Social Exclusion"

Source: [Eurostat](#) (online data code: ilc_pees01)

Relevant targets for protected areas

Target	
1.4	By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services including microfinance
1.B	Establish solid policy frameworks at national, regional and international level based on poverty-oriented and gender-sensitive development strategies to support a faster implementation of poverty reduction interventions

Targets of less relevance for protected areas

Target	
1.1	By 2030, eradicate extreme poverty for all people everywhere, currently measured against people living on less than \$1.25 a day
1.2	By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions
1.3	Implement nationally appropriate social protection systems and measures for all, including basic protection, and achieve a broad provision for the poor and vulnerable by 2030
1.5	By 2030, increase the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters
1.A	Ensure significant mobilization of resources from a variety of sources, including through intensified development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies in order to end poverty in all its dimensions

SDG 1: The status quo

Poverty and the conservation of biodiversity are closely linked because people depend on the use of natural resources, such as land, wood etc. Therefore, there is a complex relationship between poverty and protected areas: On the one hand, protected areas support economic development, e.g. through tourism or the marketing of regional products. On the other hand, in some cases protected areas prevent or limit the use of some resources local communities might depend on (e.g. wood).¹

Poverty and social exclusion

Poverty and social exclusion refer to the relative absence of resources or access to services. They often come with a lower standard of living compared to the overall population.

The **at-risk-of-poverty threshold** is set at 60 % of the national median of the balanced disposable income after social transfers. This does not describe wealth or the standard of living.

Material deprivation is an economic state, in which a person is not able to pay for unexpected expenses, adequate heating or housing, durable consumer goods like washing machines, or arrears (e.g. rent, loans etc.).*²

Households with very low work intensity are those in which people between 18 and 59 (excluding students between 18 and 24) work less than 20 % of their total potential.

At risk of poverty

The following population groups have a higher risk of poverty and social exclusion:

- Women
- Children and young people
- People with disabilities
- Foreign-born people

¹ <https://www.iucn.org/content/can-protected-areas-contribute-poverty-reduction>

² https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Material_deprivation

- Residents of rural areas
- Unemployed / underemployed
- Single-parent households and those living alone
- People with lower educational attainment

Primary Issues – Unemployment and Underemployment

Unemployment and underemployment are by far the most crucial issues in the context of poverty. On average, **economic activities** are lower in rural areas, where many protected areas are located. This is accompanied by a lower number of jobs on the labour market.

Another issue is the availability of affordable and better free care services. Especially women are often **occupied with unpaid care work** in the family, looking after their children or their parents. This is another limitation to the household income not only today but also in the future due to no or lower pension entitlements.

Primary Issues – Material Deprivation

Not all jobs pay enough for people to participate in regular social activities. This is often the case even in protected areas with vibrant economies or in protected areas within commuting distance of urbanised areas. In those cases, there are a number of social inequalities which lead to an increased risk of poverty, such as the lack of affordable housing.³

Material deprivation is highest in countries with a high degree of social stratification (Israel & Spannagel 2013).

In countries with higher social assistance benefit levels, the level of extensive material deprivation is lower (Nelson 2012).

³ Israel, S. & D. Spannagel (2013): Material Deprivation – an Analysis of cross-country Differences and European Convergence. Deliverable D3.2 of the FP7 project ,Combating Poverty in Europe: Re-organising Active Inclusion through Participatory and Integrated Modes of Multilevel Governance. URL: http://cope-research.eu/wp-content/uploads/2013/05/Material_Deprivation.pdf (09.08.2020).

Nelson, K. (2012): Counteracting material deprivation: the role of social assistance in Europe. *Journal of European Social Policy* 22 (2): 148-163.

What can be done?

The role of protected areas

Generally, administrations of protected areas have no responsibility for social assistance, training or labour market policies. However, as a model region for sustainable development, protected areas can establish a network of local stakeholders, including local and regional administrations, businesses and the civil society. These networks are the platform to initiating projects tackling poverty and social exclusion. In this sense, especially biosphere reserves can become an alternative economic strategy, particularly in the case of the tourism sector.⁴

Relevant stakeholders and potential partners of protected area administrations

Public Administrations	Private Sector	Civil Society
Local municipal administrations	Agriculture, forestry, fisheries	Non-governmental organisations
Regional county administrations	Production industry, crafts	Private initiatives
	Service sector, e.g. trade and retail, tourism, transit/transportation etc.	
	Industry advocacy groups	

⁴ Brodda, Y. (2002): Biosphärenreservat Südharz – eine Chance für die Region? In: Mose, I. & N. Weixlbaumer (ed.): Naturschutz: Großschutzgebiete und Regionalentwicklung: 19-39. St. Augustin (Academia).

Solutions: Job opportunities and living wages

Target groups: protected area administrations, regional municipal and county administrations

Administrations of protected areas, local municipalities and counties are often important employers, which offer a wide range of opportunities for highly trained experts but also low-qualified jobs.

- Especially for fixed-term employees, it is important to avoid continuous renewal of working contracts in order to provide financial security.
- The salary should allow to cover costs of living (“living wage”).

Municipal and county administrations

- Capacity building and training
- Providing childcare services
- Providing nursing care services
- Providing social housing
- Providing accessible health care
- Providing training opportunities for employees
- Providing language courses for newcomers

Protected area administration

Initiating projects to

- develop innovative approaches to facilitate suitable conditions for work and family life
- develop new forms of affordable housing
- develop innovative forms of service provision
- present jobs
- facilitate the interaction between the local population and newcomers

Nature – Vocational orientation for young adults from Germany and refugees in the biosphere reserve Schorfheide-Chorin

- A one-year programme introduces “green” jobs in the forest industry, wood processing and gardening and landscaping to young adults without school-leaving certificates.
- The project is supported by the Allianz Environmental Foundation and implemented in close collaboration with the employment office, the Barnim county and regional business associations.

- More information (in German): www.umweltbildung-mit-fluechtlingen.de/fileadmin/umf/Materialien/Praxis_Methoden/Gefluechtete-in-gr%C3%BCnen-Berufen.pdf

Additional information

eJournal: [National Parks' impact on the local Development according to the new paradigm of protected areas' operation – Experience from Polish economy](#)

Working Paper: [Local economic impact of national park visitors' spending in Finland: the development process of an estimation method](#)

Toolbox: [Visitor Spending Effects – Economic Contributions of National Park Visitor Spending](#)

Newspaper: [National parks are beautiful, but austerity and inequality prevent many from enjoying them](#)

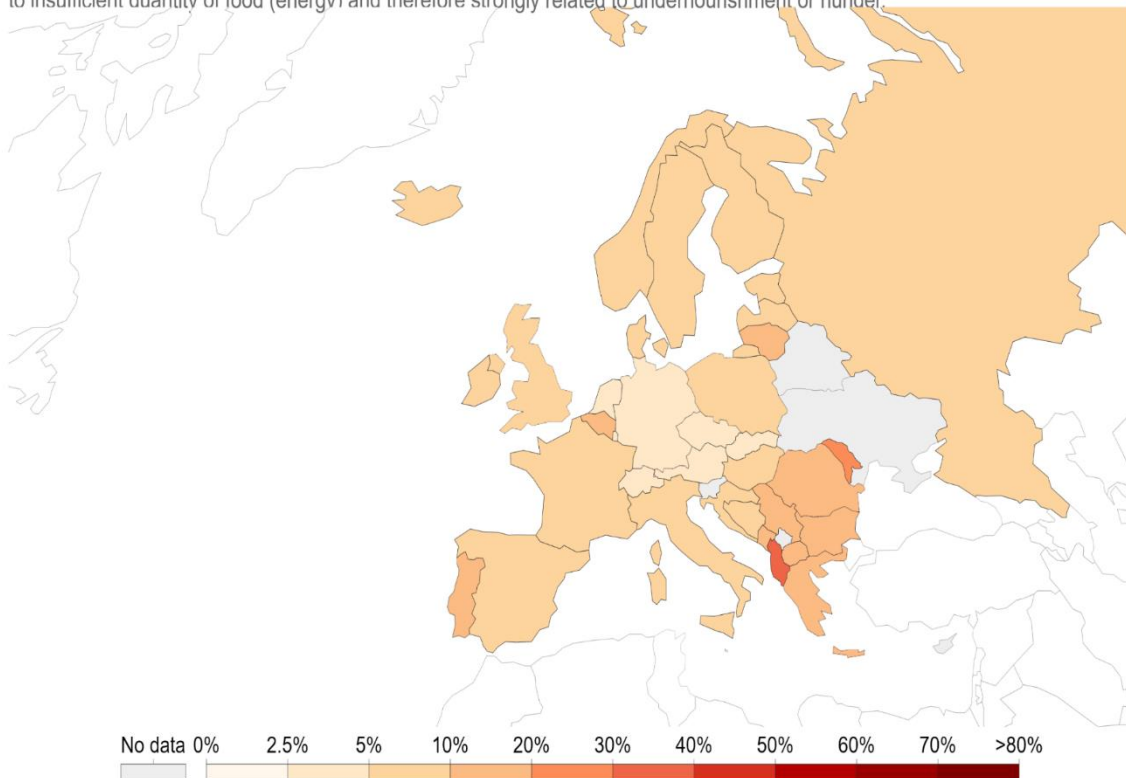
SDG 2: Zero Hunger

About food production and this SDG

Food is a basic human need. The access to food is a central prerequisite for sustainable development. Factors, which influence the availability of food are sustainable and resilient food production e.g. agricultural practices capable of dealing with climate change or preventing the loss of biodiversity, infrastructures for storing and processing food, systems for distributing and sharing food in the community, e.g. grocery stores, farmer’s market, food sharing initiatives etc.

Share of population with moderate or severe food insecurity, 2017

Food insecurity is defined by the Food Insecurity Experience Scale (FIES). Moderate food insecurity is generally associated with the inability to regularly eat healthy, nutritious diets. Severe food insecurity is more strongly related to insufficient quantity of food (energy) and therefore strongly related to undernourishment or hunger.



Source: UN Food and Agriculture Organization (FAO)

OurWorldInData.org/hunger-and-undernourishment • CC BY

Relevant targets for protected areas

Targets	
2.4	By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.
2.5	By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through well-managed and diversified seed and plant banks at the national, regional and international level, and promote access to and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed.
2.a	Increase investment, including through intensified international cooperation, in rural infrastructure, agricultural research and consultation, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries.

Targets of less relevance for protected areas

Targets	
2.1	By 2030, end hunger and ensure access for all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round
2.2	By 2030, end all forms of malnutrition, including achieving the internationally agreed targets on stunting and wasting in children under 5 years of age by 2025, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons
2.3	By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous people, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive

Targets	
	resources and inputs, knowledge, financial services, markets and opportunities for creating value and non-farm employment
2.b	Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round
2.c	Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility

SDG 2: The status quo

Protected area administrations help to establish regional food chains bringing together businesses from food production, food processing and retail.

Their administrations can be valuable partners for farmers and fishers regarding sustainable and resilient agriculture and fishery.

Protected areas also conserve populations of wild species, pollinators and wild relatives of crops, safeguarding species and populations vital for food security and agriculture.⁵

The concept “Zero Hunger” includes ending hunger, achieving food security, improving nutrition and promoting sustainable agriculture. Food and agriculture faces multiple **challenges**:

- **Climate change**
- **Food waste**
- **High uses of resources** like water or oil for the production, processing and transportation of food products

Food shortages and availability are major problems that are mainly due to poor harvesting practices, food waste and wars.

⁵ <https://www.iucn.org/theme/protected-areas/our-work/protected-area-solutions>

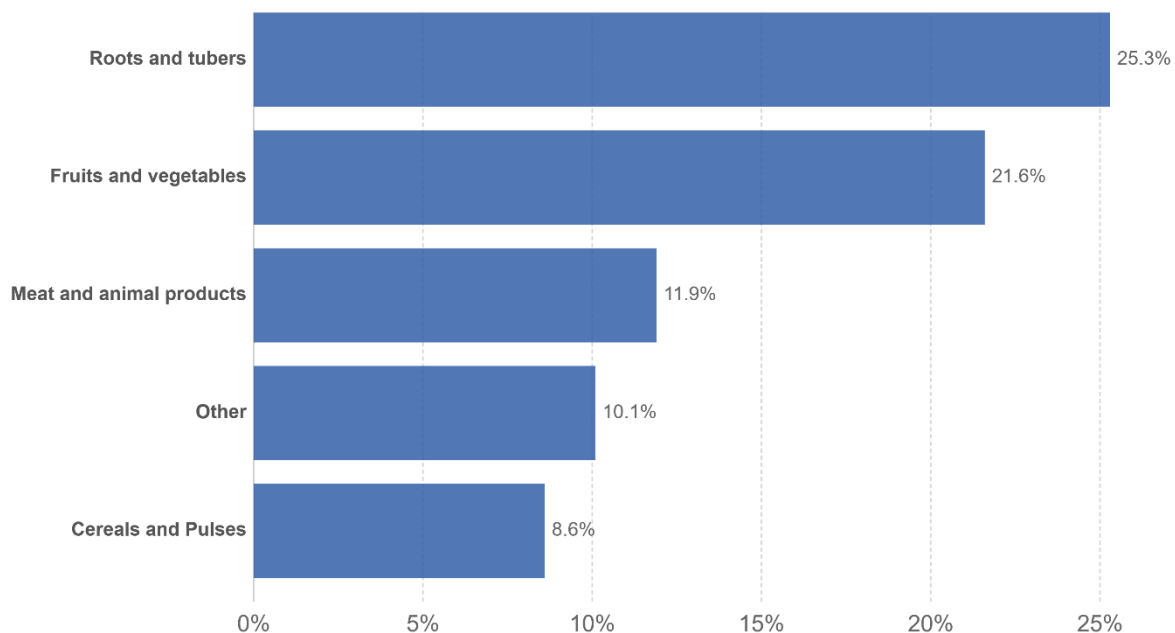
Primary Issues – Food waste⁶

- In the EU, around 88 million tonnes of food waste is generated annually, costing around 143 billion euros.
- This means that around 20 % of total food produced is lost or wasted in Europe, globally approximately a third of all food produced for human consumption is lost.
- Yet around 33 million people in the EU cannot afford a quality meal every second day.
- Food waste generates around 8 % of global greenhouse gas emissions.

Share of food lost in post-harvest processes

Post-harvest losses are measured as the food lost from the farm level up to, but not including, the retail level. This includes handling and storage, food processing, transport and distribution. It does not include consumer waste.

Our World
in Data



Source: UN Food and Agriculture Organization (FAO)

Note: An economic weight is used to aggregate percentages at regional or commodity group levels, so that higher-value commodities carry more weight in loss estimation than lower-value ones.

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⁶ https://ec.europa.eu/food/safety/food_waste_en
https://ec.europa.eu/food/safety/food_waste/stop_en

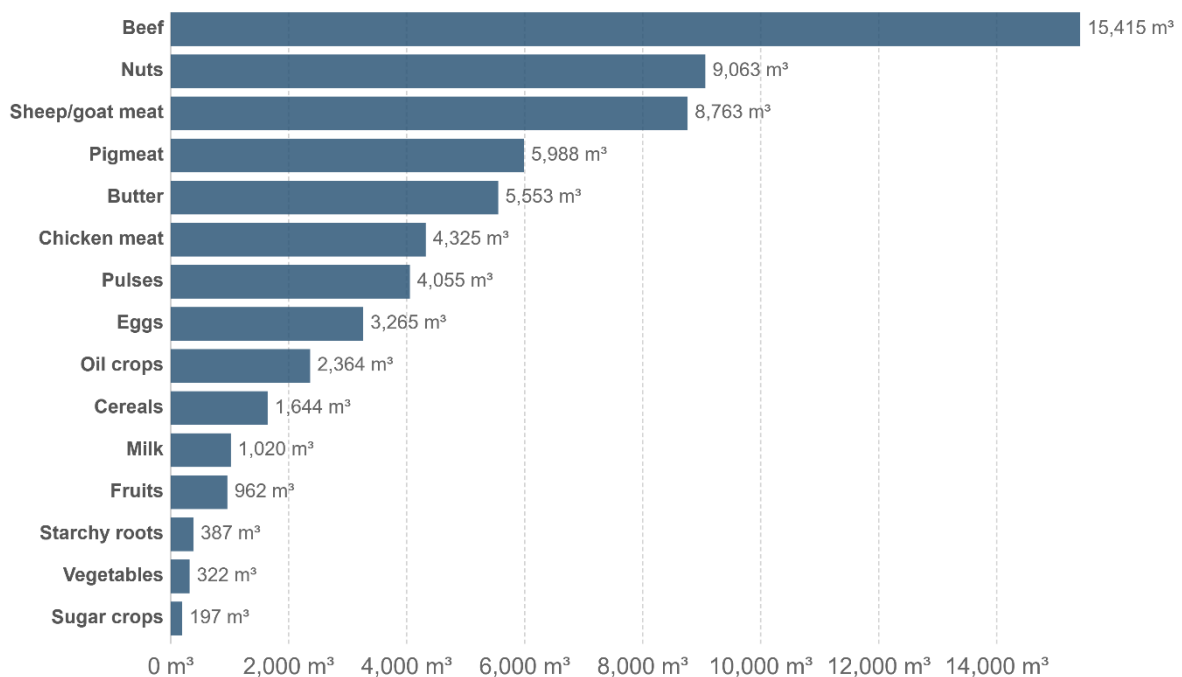
Climate Change Impacts

- Increases in the frequency and intensity of natural disasters and events.
- Extreme weather conditions.
- Sea level rise and contamination or salinization of water and agricultural land.
- Changes in rainfall patterns with consequent reduction in rainfall impacts agricultural production in areas that are already fragile.
- The decline in water availability and quality in arid and semi-arid regions, and the increase in health and sanitation related problems, will have an impact on malnutrition rates.

Water requirement per tonne of food product

Our World
in Data

Global average water footprint of food production, which includes water requirements across its full supply chain and the quantity of freshwater pollution as a result of production.



Source: Mekonnen, M.M. and Hoekstra, A.Y. (2012)

OurWorldInData.org/water-access-resources-sanitation/ • CC BY

Water Scarcity

- An inefficient and unsustainable use of water causes water stress and scarcity of this resource.
- Scarce water availability can have serious impacts on food production, as crops, grazing land and farms rely on water.

What can be done?

The role of protected areas

National parks, UNESCO biosphere reserves, nature parks and other types of protected areas have different approaches to protecting ecosystems. Nevertheless, they share the common goal of connecting the preservation of ecosystems with sustainable economic development.

The goals of a protected area cannot only be implemented by its administration. To truly be a model region for sustainable development, protected area administrations establish a network with regional and local administrations, businesses and the civil society.

Together they can initiate projects and activities that preserve the ecosystem services on which agricultural production depends, in addition to the variety of both fruit and food types that can be found in protected areas.

Relevant stakeholders and potential partners of protected area administrations

Public Administrations	Private Sector	Civil Society
Local municipal administrations	Agriculture, forestry, fisheries	Non-governmental organisations
Regional county administrations	Production industry, crafts	Private initiatives
	Service sector, e.g. trade and retail, tourism, transit/transportation etc.	
	Industry advocacy groups	

The value of preserving biodiversity

Our economy is based on the use of natural resources and on the active use of the environment by different producers, such as fishing, forestry, aquaculture, agriculture and so forth. Each of these economic sectors value natural goods and services that can be directly turned into profit such as fish, seeds, water and fruits.

However, there are other goods and services provided by nature that indirectly benefit the different economic sectors and that have not yet been effected by the market, such as the abundant algae and plants present in coastal estuaries, which provide food for fish and shellfish, which in turn serve as food for other living beings.

The value of human activity in protected areas

Human activity does not solely degrade the environment, it can also create ecosystems and benefit other forms of life. For instance, many of the habitats and species protected under the Habitats and Birds Directives are dependent on or associated with farming practices.

These habitats and species now depend on locally adapted farming practices and systems to ensure their survival. Large-scale farming often stands in direct conflict with the protection of traditional cultural landscapes.

Risks from agriculture

Large-scale farming creates an increased output of food. Highly productive species however, often require specific conditions like enough water, pesticides to avoid extensive infestation. Producing food in pure plantation can be connected with a

- Bigger risk of soil erosion/degradation
- Large demand for water, especially in semi-/arid regions
- Large-scale use of plant protection products with the risks for negatively affecting humans and biodiversity, especially insects

Ecosystem services and other benefits from sustainable agriculture

<p>Provision of ecosystem-services</p>	<p>Maintenance of water quality, conserving soil moisture, reduction of drainage, water infiltration, erosion control, carbon sequestration, pollination, dispersion of seeds from wild plants and refuge for threatened species during droughts</p>
<p>Incentives</p>	<p>Populations needed for agriculture, such as pollinators and beneficial predators, depend on habitat diversity to survive. For this reason, agriculture provides incentives to preserve areas such as hedges and field boundaries. The need for adaptation and the potential for improved productivity provide a stimulus for the conservation of a wide range of genetic resources both in situ and ex situ.</p>
<p>Ecological knowledge</p>	<p>A large part of the human legacy of knowledge about biodiversity, its importance and functions has been and will continue to be acquired in different cultures through agricultural practices passed on from one generation to the next. This knowledge should be used more actively, for example in school programmes, in order to strengthen the ecological education of all citizens.</p>

Solutions: Innovative activities

Target groups: agriculture and fisheries, local municipal administrations

Sustainable food production

- Support farmer's and local markets
- Prepare regional guidelines for agriculture, forestry, fishing, etc., inside protected areas
- Adopt a landscape approach to agriculture to protect biodiversity and connect habitats
- Use little or no pesticides and fertilizers, switch to regenerative farming
- Make use of traditional farming knowledge and techniques to conserve cultural landscapes

Target groups: agriculture and fisheries, local municipal administrations

- Develop group and individual consulting services for farmers to spread knowledge about the newest most sustainable farming techniques

Farmers markets with local products in the Biosphere Reserve Pfälzerwald-Nordvogesen, Germany & France

- On the regularly held markets around 40 to 50 producers from France and Germany sell their environmentally friendly produce, meats, honey, cheeses, wine and breads.
- The markets are a symbol for German-French friendship and show the success of marketing of regional and sustainable food products from the biosphere reserve.
- More information (in German): <https://www.pfaelzerwald.de/bauernmaerkte/>

Eco-village Brodowin, Biosphere Reserve Schorfheide-Chorin, Germany

- The organic farm of the eco-village Brodowin uses a variety of channels for selling its products: farm shop, farm cafe, delivery service for commercial clients like schools, restaurants and offices or private persons. Brodowin also offers so called recipe boxes: a recipe and all required ingredients.
- The company applies various measures for greening its logistical services, e.g. it collaborates with bike logistics service providers, which deliver their products to customers in the central districts of Berlin.
- More information: <https://www.brodowin.de/en/the-company/why-brodowin/>

Target groups: agriculture and fisheries, service sector, municipal administrations

Avoiding food waste

- Ensure high-quality supply chains and storage infrastructure so food is not wasted on its way to the consumer
- Start collecting organic waste from households and public and private facilities to compost them

Target groups: agriculture and fisheries, service sector, municipal administrations

- Issue marketing campaigns for ‘ugly’ local produce and sell it in shops and supermarkets
- Find alternative uses for farm-fresh products with blemishes (juice, purees etc.)

“Cowfunding” in the Biosphere Reserve Black Forest, Germany

- Initially funded by the biosphere reserve, the start-up Cowfunding sells locally, sustainably and climate neutral produced beef and pork via its online shop.
- Farmers get the opportunity to sell their products directly, avoiding volatile global markets, and costumers get a high-quality product for a fair price.
- More information: <https://www.biosphaerengebiet-schwarzwald.de/newsletter/biosphaerische-nachrichten-newsletter-maerz-2019/>

Target groups: agriculture, forestry and fisheries

Making the food system climate resilient

- Store fodder and feed it to cattle in especially dry years
- Install air ventilation in stables
- Switch to regenerative agriculture with crop rotation and humus development
- Use irrigation for special crops
- Switch to heat and drought resistant varieties

VALOR project in the nature park Schwarzwald Mitte/Nord, Germany

- VALOR "Valorisation of ancient farming techniques in resilient and sustainable agriculture,, is a project which aims at reconciling economic and ecological interest in agriculture and to make it future-proof.
- By conducting staff mobilities between the participating regions, best-practices for farming will be transformed into an online learning platform to educate farmers and the interested public.
- More information (in English): <https://erasmus-valor.eu>

Target groups: private sector, civil society and public administrations

- Teach cooking in schools to avoid food waste as a result of ignorance of cooking options of ingredients
- Brand protected areas through high quality food products and gastronomy
- Host food preservation workshops (fermentation, canning, etc.)
- Awareness campaigns on sustainable alternatives for certain ingredients (e.g. Palm oil, animal products)
- Host cooking courses with chefs who teach how to cook regional specialities
- Awareness campaigns on waste recycling

International workshop in the Appennino Tosco-Emiliano Biosphere Reserve, Italy

- After three new sites were added to the World Network of Biosphere Reserves in Northern Italy, a workshop to display the richness of agricultural products the region produces and the way it is marketed was held in 2016.
- The workshop focussed on quality products and gastronomy which uses these ingredients. A focus also lay on how biodiversity connects to agricultural landscapes and how agriculture plays a role in conservation.
- More information (in English): <http://www.unesco.org/new/en/member-states/single-view/news/biosphere-reserves-branding-through-high-quality-food-product>

Additional information

UN-Website: [SDG 2](#)

UNDP-Website: [Goal 2](#)

FAO-Website: [About us](#)

SDG-Tracker: [Indicators SDG 2](#)

Website: [Understanding UN SDG 12.3 on Food Loss and Waste](#)

IUCN-Website: [Protected Area Solutions](#)

Website: [Food mile calculator](#)

SDG 3: Good Health and Wellbeing

About good health and wellbeing and this SDG

Good health and Well-being is important for sustainable development:

- Development and economic prosperity depend on **good health, well-being** and **equitable access to medical care** .
- Ensuring healthy lives and promoting well-being is essential to building **prospering societies**.
- In Europe, diet-related **diseases of civilization** such as obesity, diabetes, heart disease and cancer threaten the health of large parts of the population.

Relevant targets for protected areas

Target	
3.6	By 2020, halve the number of global deaths and injuries from road traffic accidents
3.D	Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks

Targets of less relevance for protected areas

Target	
3.1	By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births
3.2	By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least 12 per 1,000 live births or lower and under-5 mortality to at least 25 per 1,000 live births or lower

Target	
3.3	By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases
3.4	By 2030, reduce premature mortality from non-communicable diseases by one third through prevention and treatment and promote mental health and well-being
3.5	Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol
3.7	By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programs
3.8	Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all
3.9	By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination
3.A	Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate
3.B	Support the research and development of vaccines and medicines for communicable and non-communicable diseases that primarily affect developing countries. Provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to make full use of the provisions in the Agreement on Trade Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all
3.C	Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States

SDG 3: The status quo

Protected areas are connected to **public** and **individual health matters** in various ways. The majority of deaths in Europe can be traced back to non-communicable diseases (NCDs). Many of them are driven by unhealthy environments and unhealthy **lifestyles**. Sport and outdoor activities contribute to physical and **mental health**. Also healthy food and **diets** from products grown in the region can contribute to staying healthy.

Chemicals in the environment have a negative impact on health. Chemicals transpire from building materials (e.g. adhesives or varnishes). Emitted substances and particles from heating and traffic as well as noise emissions also have a negative impact on health.

Many protected areas are located in peripheral rural regions. **Road safety** becomes an issue if the infrastructure is not fully developed or heavily used by visitors. The safety of trails is also a concern of protected areas.

Primary Issues – Access to nature

Modern life is often connected to working indoors, sitting in front of a computer for hours, being in a car or train. Among other factors, the lack of physical activity increases the risk of NCD like heart disease, diabetes and mental health issues.

Natural environments do not only allow physical activities like sports. Experiencing greenspaces also reduces stress, improves the quality of sleep and is related to lower blood pressure. These effects are investigated in a research project in Austria for instance. Its aim is to examine health impacts of visits to alpine pastures on urban populations.⁷

Primary Issues – Lack of medical services in remote areas

Geographical availability of medical services is determined by the availability of health staff. There are great inequalities between rural and urban areas: twice

⁷ : https://www.naturpark-riedingtal.at/naturpark-riedingtal-aktuelles_details/items/vortrag-zu-geoverortete-mikrobiomforschung.html

as many people reported difficulties in accessing medical care due to distance to a doctor or hospital in rural areas than in urban areas.⁸

Lack of access to health services may lead to unmet health needs, delays in receiving appropriate care, preventable hospitalizations and inability to get preventive services.

Primary Issues – Noise pollution

The 2020 report “Environmental noise in Europe” by the European Environmental Agency states that noise pollution, especially from traffic and road noise is affecting the health and well-being of around 100 million citizens in Europe. This means that one out of five people are exposed to long-term noise levels which are harmful to their health.⁹

In protected areas, traffic on roads and trails is the main cause of noise pollution. But not only humans are affected by it: excessive noise frightens wild animals and, in addition, road safety measures, for instance on rock faces and trees, destroys sensitive habitats.

What can be done?

The role of protected areas

National parks, UNESCO biosphere reserves, nature parks and other types of protected areas each have different approaches to protecting ecosystems. Nevertheless, they share the common goal of connecting the preservation of ecosystems with sustainable economic development.

The goals of a protected area cannot only be implemented by its administration. To truly be a model region for sustainable development, protected area administrations establish a network with regional and local administrations, businesses and the civil society.

Together they can initiate projects and activities. These result in healthy environments, which provide opportunities for leisure, access to healthy food

⁸ https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---soc_sec/documents/publication/wcms_secSOC_25201.pdf

⁹ <https://www.eea.europa.eu/articles/noise-pollution-is-a-major>

and clean water, habitats for medicinal plants and an overall healthy lifestyle and well-being.

Protected areas as an approach for securing clean resources

Visiting protected areas can positively influence health and well-being. Additionally, they offer the opportunity to collect clean resources. They can provide clean water, air and soil, good living conditions (absence of noise and exposure to chemicals) and healthy food. These factors are integral for human health and wellbeing.

For example, by using renewable and local resources, sustainable construction presents a way of meeting the needs of current users and not harming future generations with the disposal of toxic or unrecyclable materials.

Relevant stakeholders and potential partners of protected area administrations

Public Administrations	Private Sector	Civil Society
Local municipal administrations	Agriculture, forestry, fisheries	Non-governmental organisations
Regional county administrations	Production industry, crafts	Private initiatives
	Service sector, e.g. trade and retail, tourism, transit/ transportation etc.	
	Industry advocacy groups	

Solutions: Innovative activities

Target groups: agriculture, forestry and fisheries, municipalities, protected area administrations

Protecting ecosystems:

- Establish organic agriculture and eliminate use of pesticides & herbicides, especially close to bodies of water
- Keep grazing livestock to maintain landscape features and increase meat quality
- Introduce nature-sensitive road and trail safety measures in forests which do not harm important habitats

Road and trail safety in protected areas: two examples from Germany

- Rock fall is a longstanding issue in the biosphere reserve Swabian Alb. Conventional measures to secure rock faces are accompanied by excessive pollution, heavily affecting the sensitive habitats of rock faces. The biosphere reserve developed environmentally sensitive measures to secure rock faces.
- Droughts and the bark beetle are causing extensive death of forests in the Harz National Park. Dead trees close to trails are cut in order to prevent accidents with hikers and traffic (in the case of roads). The biomass remains in the forest to provide habitats for species. Information on these measures is given on signs to secure public approval.

Target groups: agriculture, forestry and fisheries, service sector, tourism, local authorities, private initiatives

Promoting a healthy lifestyle:

- Offer events with physical activity, e.g. hiking
- Make cycling to work and elsewhere more attractive
- Support local sport associations
- Expand the array of sports in school so children become more motivated to do sports in their free time
- Sell fresh produce locally to contribute to better health in the region

Target groups: agriculture, forestry and fisheries, service sector, tourism, local authorities, private initiatives

- Offer healthy food from local farmers in canteens, restaurants and supermarkets

Green Care project in the Biosphere Reserve Berchtesgadener Land, Germany

- The project aims at using nature and landscape for mental health prevention and as an addition to psychotherapy as well as for the development of relevant values for the protection of nature.
- The approach combines methods from mindfulness based stress reduction and mindfulness based cognitive therapy. Nature serves as source of strength and health.
- The effects are assessed by the University of Eichstätt-Ingolstadt
- More information (in German): <https://www.brbgl.de/green-care/>

Target groups: local authorities, private initiatives, non-governmental organizations

Increase well-being for all:

- Start inter-generational housing projects where young and elderly people live together
- Encourage large family-like housing to create community clusters
- Support initiatives which represent the interests of both the youth and the elderly people
- Foster and subsidize sustainable building practices with regenerative resources (ideally from your local area) that fulfill the needs of current users and do not harm future generations with the disposal of toxic or unrecyclable materials

Education for Sustainable Development factsheet on health, Biosphere Reserve Elbe River Landscape, Germany

- The biosphere reserve published a factsheet on health within its series of factsheets for education for sustainable development (ESD).
- The factsheet covers topics like recreation, living situations, and growing older, sustainable building materials. It includes inspiring ideas for projects and a contact list with relevant stakeholders
- More information (in German):
https://www.elbtalae.niedersachsen.de/startseite/elbtalae_erleben/information_bildung/bildung/regionale_themenblatter_fur_schulen_und_erwachsenenbildung/themenblatter_konkret/gesundheit-98915.html

Target groups: local authorities, regional county administrations, private initiatives, non-governmental organizations

Increase access to health care:

- Support telemedicine in doctors offices
- Organize on-demand transport to hospitals and doctor's practices
- Organize mobile health services (e.g. doctors visiting villages on a scheduled basis with a bus and providing consultation hours).
- Use local natural infrastructure (e.g. thermal springs, forests, trails) as means of preventative and holistic medicine
- Increase attractiveness for young doctors in rural areas by supporting joint practices with existing doctor's offices - introduce cooperation platforms and foster dialogue

Pick up service for patients, Naturpark Fichtelgebirge, Germany

- A pick-up service collects patients, drives them to doctor's offices and brings them back. The project was initiated by doctors and the association of senior citizens in the Fichtelgebirge.
- More information (in German): <http://www.seniorenbeirat-selb.de/Aktuelles/Arztebus/arztebus.html>

Attracting medical students: an example from the National Park Region Eifel, Germany

- A variety of activities has been implemented by municipalities to inform medical students about the working conditions and quality of life in the national park region. Among these were an information campaign with two video clips and a webpage with relevant information. An informal get-togethers allowed medical students to ask practicing doctors to ask about the working conditions in the region.
- More Information (in German): https://www.landkreis-birkenfeld.de/city_info/webaccessibility/index.cfm?waid=574&modul_id=2&record_id=107190&keyword=5484

Solutions: Collaborations and awareness raising

Target groups: protected area administrations, tourism, local authorities, private initiatives

- Start a questionnaire to measure the level of public awareness on the topic of health and green spaces / protected areas
- Introduce quizzes in schools about healthy lifestyles
- Bundle all health-related tourism and leisure activities (e.g. hiking trails, horseback riding, swimming etc.) in a database on the website of the protected area
- Offer events such as (street)festivals which celebrate protected areas and their local food products and which stress the connection of health, well-being and green spaces
- Initiate activities to reduce noise pollution and pollutant emissions from traffic

Health Day in the Black Forest National Park, Germany

- The health day includes a lecture and a hike. The hike leads through the different types of landscape in the national park. Mindfulness and exploratory exercises help the participants to experience oneself and nature. The communal lunch consists of regional and seasonal foods.
- The long-term project is aimed at employees of corporations and SMEs (as part of corporate health management), multipliers in nature conservation and interested people and is individually adapted to the respective target
- More information (in German): https://www.undekade-biologischevielfalt.de/index.php?id=49&tx_innv_pi1%5Bwettbewerb%5D=2223&tx_innv_pi1%5Baction%5D=show&tx_innv_pi1%5Bcontroller%5D=Wettbewerb&no_cache=1

Symposium on reducing traffic noise, Biosphere Reserve Black Forest, Germany

- Delegates of the tourism industry, gastronomy, motorsport clubs, environmental conservation and various other interest groups came together in the Black Forest biosphere reserve to discuss how to reduce noise pollution resulting from (motorcycle) traffic in southern Germany.
- Strategies of how to combine motorsport tourism with the need for rest and quietness of the local population and other tourists were discussed intensively.
- More information (in German): <https://www.biosphaerengebiet-schwarzwald.de/pressemitteilungen/wie-kann-es-im-schwarzwald-wieder-ruhiger-werden-fachtagung-zur-laermarmen-mobilitaet-am-17-mai-in-bernaul/>

Additional information

Toolkit: [Healthy Parks Healthy People Europe](#)

Book chapter: [Nature-based Solutions and Protected Areas to Improve Urban Biodiversity and Health](#)

Article: [The health and well-being impacts of protected areas in Finland](#)

Guideline: [Healthy Parks Healthy People – Approach and Current Practices](#)

Website: [National parks a boost to mental health worth trillions: study](#)

Article: [Nature in Agriculture](#)

FAO-Report: [Sustainable healthy diets](#)

Lecture Series: [Climate Change and Health](#)

SDG 4: Quality Education

About education and this SDG

Education is highly relevant for sustainable development because:

- Education enables **upward socioeconomic mobility** and is a key to escaping poverty.¹⁰
- Education liberates the intellect, unlocks the imagination and is fundamental for self-respect. It enables people to **contribute to a progressive, healthy society**.¹¹
- Education levels **gender differences**.¹²
- **Education for sustainable development (ESD)** empowers learners of all ages with the knowledge, skills, values and attitudes to address the interconnected global challenges the world is facing such as climate change, environmental degradation, and loss of biodiversity, poverty and inequality. It is an enabler for all other SDGs.¹³

Relevant targets for protected areas

Target	
4.4	By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship
4.7	By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development

¹⁰ <https://www.un.org/sustainabledevelopment/education/>

¹¹ <https://www.globalgoals.org/4-quality-education>

¹² <https://en.unesco.org/themes/education-and-gender-equality>

¹³ <https://en.unesco.org/themes/education-sustainable-development>

Targets of less relevance for protected areas

Target	
4.1	By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and Goal-4 effective learning outcomes
4.2	By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education
4.3	By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university
4.5	By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations
4.6	By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy
4.A	Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, nonviolent, inclusive and effective learning environments for all
4.B	By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmed, in developed countries and other developing countries
4.C	By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing states

SDG 4: The status quo

The effectiveness of environmental protection relies heavily on social factors.¹⁴ **Education for sustainable development (ESD)**, a form of non-formal learning, is suited perfectly to improve these social factors. ESD is a lifelong learning process which enhances the cognitive, social and emotional and behavioral dimensions of learning, targets people of all age groups and aims to enable learners to take responsible actions that contribute towards creating sustainable societies.¹⁵

Protected areas include education both in their management as well as a means to promoting an environmental consciousness.¹⁶ Protected areas are the ideal arenas to provide opportunities for ESD as they hold the potential to fostering environmental knowledge, attitudes and values among local communities.¹⁴

Education for Sustainable Development

The UNESCO defines ESD as an empowerment of learners with knowledge, skills and values to take informed decisions.¹⁷ Therefore, ESD is a key element for the sustainability transition. However, ESD limited by the following:¹⁸

- Many people are **unaware** of ESD. Participation in ESD, or Adult Learning and Education (ALE) and Life Long Learning for adults (LLL) is insufficient. Moreover, **limited data** complicates monitoring of who is participating in ESD (ALE/LLL) and who is not.
- **Policy and governance of ESD, ALE/LLL** is lacking overall and missing mainstreaming into other educational programs. Furthermore **limited funds** can inhibit implementation of ESD or ALE/LLL.
- **Quality** is inconsistent across fields of learning.

Formal education encompasses public or private learning institutions such as schools or universities. **Non-formal education** on the other hand takes place outside formal learning environments but is still within some kind of organisational framework. It is aimed at a broader audience and is more centered on the learner than a general curriculum.

Source:
<https://www.airtract.com/question/what-is-the-difference-between-formal-and-non-formal-education?Answer=725>

¹⁴ http://dx.doi.org/10.1007/978-3-319-26734-0_8

¹⁵ https://en.unesco.org/sites/default/files/issues_0.pdf

¹⁶ https://doi.org/10.1007/978-3-642-60907-7_8

¹⁷ <https://en.unesco.org/themes/education-sustainable-development/what-is-esd>

¹⁸ https://uil.unesco.org/system/files/grale_4_final_summary.pdf

Primary Issues – Participation and insufficient data

National Plans for Sustainable Development have been the initial entry point of inclusion for ESD in many countries. These mandates for ESD do not always translate quickly into strong integration into educational policy.¹⁹

A 2021 UNESCO study on the integration of environmental issues into education showed that only 45 % of the national education documents assessed made reference to environmental themes.²⁰

The 4th global report on Adult Learning and Education by UNESCO found that many countries do not sufficiently assess how many and who is participating in adult education.²¹

Primary Issues – Governance and funding

The lowest levels of Adult Learning and Education were found to be in **recognition, validation and accreditation** of non-formal learning. **Governance structures** to implement policies increasingly include effective coordination mechanisms and build on partnerships, yet, progress has been stagnating lately.²¹

Funding is limited. ESD funding relies on Government grants, private donations or grants and earned income as reimbursement for products and services paid for by the target group.¹⁹

Primary Issues – Quality

Quality is not spread evenly across all fields of learning. Particularly Adult Learning and Education for active citizenship is lacking. The progress on **quality criteria** for curricula is insufficient and mostly absent.²¹

What can be done?

The role of protected areas

National parks, UNESCO biosphere reserves, nature parks and other types of protected areas have different approaches to protecting ecosystems. Nevertheless, they share the common goal of connecting the preservation of ecosystems with sustainable economic development. The goals of a protected

¹⁹ https://en.unesco.org/sites/default/files/issues_0.pdf

²⁰ <https://unesdoc.unesco.org/ark:/48223/pf0000377362/PDF/377362eng.pdf.multi>

²¹ https://uil.unesco.org/system/files/grale_4_final_summary.pdf

area cannot only be implemented by its administration. To truly be a model region for sustainable development, protected area administrations establish a network with regional and local administrations, businesses and the civil society. Together they can initiate projects and activities.

Public Administrations	Private Sector	Civil Society
Local municipal administrations	Agriculture, forestry, fisheries	Non-governmental organisations
Regional county administrations	Industry, crafts	Private initiatives
	Tourism	
	Industry advocacy groups	

Solutions: Innovative activities

Target groups: public administrations, private initiatives and non-governmental organizations

Improve governance and funding:

- Develop a local network for the implementation of ESD activities with regional stakeholders
- Draft a local action plan for ESD for your community or region in an interactive process based on good practices that you collected in interaction with other communities
- Arrange stakeholder meetings with local governments to discuss ESD issues and secure political support for ESD

Guidelines on ESD, Rhein-Taunus Nature Park, Germany

- The ESD concept is a comprehensive approach for developing a regional network and a high quality ESD program based on their individual set of criteria for ESD activities.
- It embeds all existing educational activities of the nature park into ESD, strengthens collaboration with schools, universities and kindergartens and thereby creates a network for sustainable development.
- More information (in German): https://www.naturpark-rhein-taunus.de/de/aktuelles-presse/2021/210610_BNEKonzeptPresse/210610_BNEKonzept/

Target groups: public administrations, private initiatives and non-governmental organizations

Improve quality of educational activities:

- Develop criteria for the quality of ESD activities
- Develop criteria for the training and further qualification of trainers, teachers, guides, rangers etc.
- Build facilitator capacities by educating trainers and teachers
- Develop advanced training courses for different target groups like preschool teacher, elementary school teacher or high school teacher to include ESD in formal education (e.g. project days)

Nature Park Schools in the Nature Park Stromberg-Heuchelberg, Germany

- Three schools are currently certified as nature park schools in the Stromberg-Heuchelberg Nature Park. This means they are following a set of criteria defined by the Network of Nature Park Schools in order to provide high quality ESD activities to their pupils.
- The network is initiated by the Association of German Nature Parks (VDN). All nature park schools are evaluated after a period of five years in order to extend or revoke the label.
- More information (in German): <https://www.naturpark-stromberg-heuchelberg.de/erleben/naturpark-schule/>

A protected area certified as educational institution – Geo-Nature Park Frau-Holle-Land, Germany

- The Geo-Nature Park is a certified educational institution for sustainable development. It means that the ESD-activities for children follow the quality criteria of the federal state.
- In addition, the Geo-Nature Park offers further training and individual consultations for teachers and schools. This enables schools to include ESD-principles in their teaching units.
- More information (in German):
<https://www.naturparkfrauholle.land/kurzlinks/bne/bne-im-geo-naturpark-frau-holle-land>

Target groups: private sector, protected area administrations

Business activities:

- Give students earlier access to the corporate environment by creating programs (e.g., internships, work-study programs, traineeships, etc.)
- Provide employees with continuous opportunities to improve their (job) skills for their current and future employment
- Develop or initiate ESD, LLL activities and services for different target groups and for formal and informal education environments

Training for business partners, Flusslandschaft Elbe Biosphere Reserve, Germany

- Around 20 people, among them representatives of the businesses participating in the biosphere's partner program and other interested persons, came together to exchange ideas about sustainability in their businesses.
- After an introduction into the SDGs by an expert, the participants discussed aspects like waste reduction, sustainable traffic/transit, sustainable cleaning agents but also awareness raising and marketing to create markets for sustainable products and services.
- More information (in German): <http://partner.nationale-naturlandschaften.de/2019/12/09/biosphaerenreservat-partnernetzwerk-nachhaltigkeit-eine-weiterbildung-fuer-aktive-an-der-elbe/>

Free interactive educational program for senior citizens, Biosphere Reserve Bliesgau, Germany

- The biosphere reserve published a free brochure with walks, talks and other activities, particularly tailored to senior citizens.
- This is to address the elderly who are willing to be physically active to engage with nature and learn about their region and environment.
- More information (in German): <https://homburg1.de/saarpfalz-kreis-neues-bildungsprogramm-laedt-senioren-zum-entdecken-des-biosphaerenreservates-bliesgau-ein-91833/>

Educational activities in the National Park Hohe Tauern, Austria

- The National Park offers several educational infrastructures. The science center has two laboratories for children researchers. A workshop program enables participants to experience nature and culture of the Hohe Tauern with all senses. The house of water is a thematic visitor center, where also workshops and seminars take place. In so called “rangerlabs” experiments can be conducted with national park rangers.
- The national park is also partnering with 73 schools, which integrate information about and activities of the national park into their regular curricula.
- More information (in English): <https://hohetauern.at/en/education.html>

Biosphere Primary School Webinars – Kerry Biosphere Reserve and Dublin Biosphere Reserve, Ireland

- Primary schools can sign up for different webinars. The webinars cover e.g. how to explore the seashore, how to be a wildlife detective or champion.
- The webinars are implemented by NatureCubIreland, a Biodiversity Education Service, and hosted by the two biosphere reserves. More than 300 schools participated in the webinar on May 6, 2021.
- More information (in English): <https://www.naturecubsireland.ie/biosphere-primary-school-webinars-in-may/>

Additional information

Video: [Learning Cities and Education for Sustainable Development](#)

Publication: [Agenda 2030 – Education and Lifelong Learning in the Sustainable Development Goals](#)

Article: [Swiss Regional Nature Parks: Sustainable Rural and Mountain Development through Transformative Learning?](#)

Concept: [National Action Plan on Education for Sustainable Development](#)

Study: [Embracing Ecological Learning and Social Learning: UNESCO Biosphere Reserves as Exemplars of Changing Conservation Practices](#)

UNESCO-Website: [SDG resources for educators](#)

UNECE-Resources: [Tools for policy and practice workshops on competences in education for sustainable development](#)

UNECE-Resources: [Learning for the future – competences for education for sustainable development](#)

UNECE-Guideline: [Competences for ESD](#)

SDG 5: Gender Equality

About gender equality and this SDG

Gender equality is a matter of human rights, social justice and a prerequisite for sustainable development.²² Organizations like the International Union for Conservation of Nature (IUCN) or the EU and conventions like the Convention on Biological Diversity (CBD) recognize gender equality as an important issue in environmental management and development.²³

But also the private sector has to acknowledge the competitive advantage of gender (and ethnic) diverse companies, which are more likely to perform above average.²⁴ This potential gives, e.g. women a crucial role in reviving declining rural areas.²⁵

Relevant targets for protected areas

Target	
5.1	End discrimination against women and girls: End all forms of discrimination against all women and girls everywhere.
5.4	Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies, and the promotion of shared responsibility within the household and the family as nationally appropriate
5.5	Ensure full participation in leadership and decision-making: Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life.

Targets of less relevance for protected areas

Target	
5.2	End all violence against and exploitation of women and girls: Eliminate all forms of violence against all women and girls in the public and private spheres, including

²² [IUCN \(2020\): Gender is the key: effective gender mainstreaming unlocks 'Green List' success in Protected and Conserved Areas worldwide](#)

²³ [Schmitt \(2014\): Gender Awareness in European Alpine Protected-Area Management.](#)

²⁴ [McKinsey & Company \(2015\): Why diversity matters.](#)

²⁵ [Euroactive \(2017\): Report: 'Multifunctional' women could save EU rural areas](#)

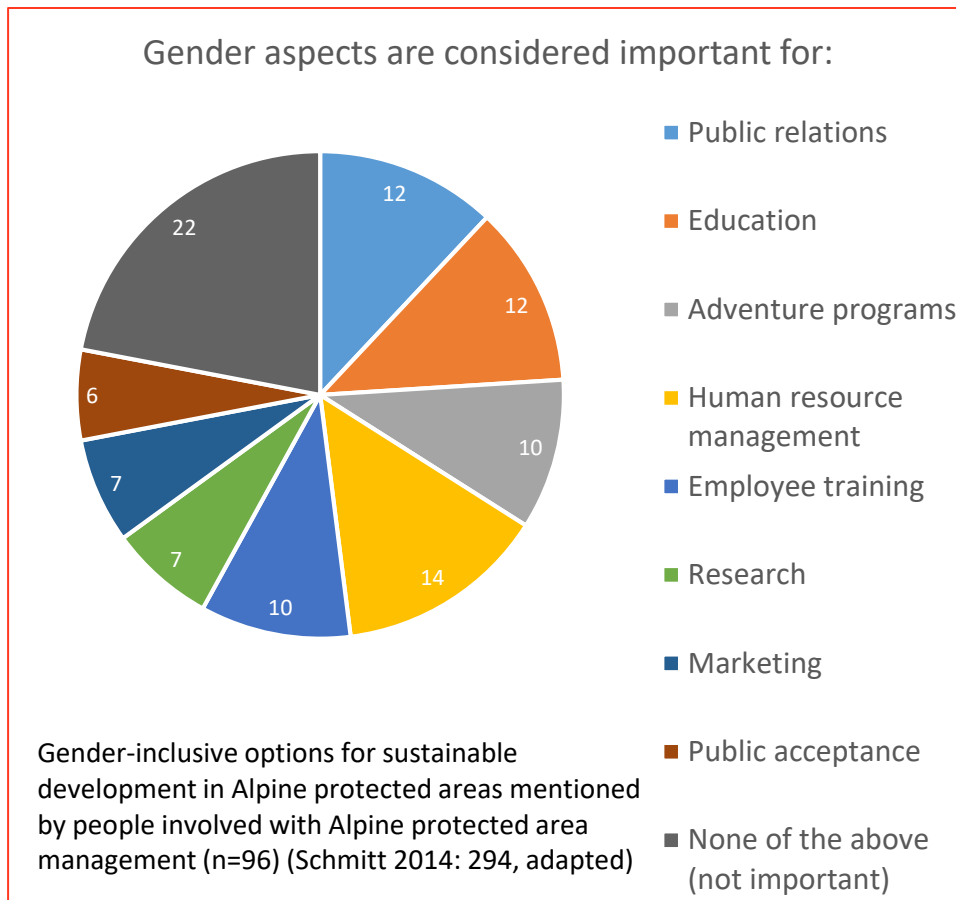
Target	
	trafficking and sexual and other types of exploitation.
5.3	Eliminate forced marriages and genital mutilation: Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation.
5.6	Universal access to reproductive health and rights: Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the programme of action of the international conference on population and development and the Beijing platform for action and the outcome documents of their review conferences.
5.A	Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance, and natural resources in accordance with national laws
5.B	Promote empowerment of women through technology: Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women.
5.C	Adopt and strengthen policies and enforceable legislation for gender equality: Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels.

SDG 5: The status quo

Integrative biodiversity politics have opened the management of protected areas to other social and cultural aspects. Regarding gender-issues this includes:

- The representation of all gender in management and decision-making processes (e.g. jobs, boards).
- The variety of products, services or processes tailored to the reality of all gender and circumstances (e.g. family friendly).
- The way of presenting or targeting gender in communication and public relations (e.g. pictures and text).²⁶

²⁶ [Schmitt \(2014\): Gender Awareness in European Alpine Protected-Area Management.](#)



Primary Issue – Representation of all genders

Local politics, boards etc. are often dominated by male representatives. These structures are reproduced, if new working groups or boards are mainly occupied by male mandate holders. This limited involvement of women can become problematic, for example, with regard to the legitimacy of decisions.

Professions are often chosen with a gender-specific bias. Therefore it is important to encourage all genders equally to choose a profession which fits and to follow a career in this field, e.g. women working in forestry or men working in primary education or education for sustainable development. In addition, all genders should be enabled to pursue their carrier. This requires flexible working arrangements, e.g. enabling care-work in order to include all genders in the work environment and decision-making processes.²⁷

²⁷ [Schmitt \(2014\): Gender Awareness in European Alpine Protected-Area Management.](#)
[Euroactive \(2017\): Report: ‚Multifunctional‘ women could save EU rural areas.](#)
[Svarstadt et al. \(2006\): New Protected Areas in Norway: Local Participation without Gender Equality.](#)
[Biosphere Reserve Rhön \(2021\): Familien.](#)

Primary Issue – Targeting all genders

Activities provided or promoted in or by protected areas should target all genders. This includes, e.g. educational activities but also the imagery on leaflets or the homepage. Thereby it is important to avoid gender stereotypes. Differences between participants are often based on different interests, behaviour, knowledge and experiences, perceptions (e.g. of nature), fear or aversion. The key for gender-sensitive activities or communication is to not generalize these differences and to include all genders equally.²⁸

What can be done?

The role of protected areas

National parks, UNESCO biosphere reserves, nature parks and other types of protected areas have different approaches to protecting ecosystems. Nevertheless, they share the common goal of connecting the preservation of ecosystems with sustainable economic development.

The goals of a protected area cannot only be implemented by its administration. To truly be a model region for sustainable development, protected area administrations establish a network with regional and local administrations, businesses and the civil society. Together they can initiate projects and activities. This can result in increased efforts to close the gender gap and reduce inequalities.

Public Administrations	Private Sector	Civil Society
Local municipal administrations	Agriculture, forestry, fisheries	Non-governmental organisations
Regional county administrations	Production industry, crafts	Private initiatives
	Service sector, e.g. trade and retail, tourism, transit/transportation etc.	
	Industry advocacy groups	

²⁸ [Geist 2016: Implementierung von Gender Mainstreaming in Nationalparks](#)
[ISOE 2005: Leitfaden zur gendersensiblen Gestaltung von Maßnahmen in der Öffentlichkeitsarbeit von Nationalparks: Umsetzung von Gender Mainstreaming in der Öffentlichkeitsarbeit.](#)

Solutions: Innovative activities and awareness raising

Target groups: administrations and businesses

Staffing:

- Establishing ethnically and gender-diverse teams and boards (e.g. through the help of an Equal Opportunities Officer)
- Establishing family friendly working environments (e.g. flexible hours, where possible, working from home)

Empowering all gender:

- Promoting jobs in the field of sustainable development and nature conservation especially for women

Girls Day in the National Park Eifel, Germany

- The national park administration participates in the region wide “Girls Day”
- Girls (and boys) are shown different professions relevant for the national park administration, e.g. woodworking shop, sustainable education (ESD), accompanying rangers on patrol in 2014 or getting to know the diverse activities of a district forester in 2020.
- More information (in German):
<https://www.nationalpark-eifel.de/de/infothek/pressemitteilungen/details/-Girl-s-Day-im-Nationalpark-Eifel-Im-Einsatz-fuer-Wald-und-Wildtiere-3190k/>

Equal opportunities for volunteers in German protected areas

- The umbrella organization of German protected areas “Nationale Naturlandschaften” developed a guideline with experiences and ideas on working with volunteers in parks
- One section is dedicated to gender mainstreaming and equal opportunities
- More information (in German):
<https://nationale-naturlandschaften.de/austauschbereich-ehrensache-natur/files/2017/07/Freiwillige-in-Parks-09.pdf>

Target groups: protected area and public administrations

Acknowledging gender issues in management decisions:

- Promoting gender-sensitive thinking at the regional level
- Increasing the proportion of women in political bodies (e.g. quotas)
- Integrating gender knowledge into educational activities, the training of rangers and other staff as well as in human resource management and public relations

Guidelines for gender mainstreaming developed in the National Park Eifel, Germany

- A pilot project was established in order to develop two guidelines, one for gender-sensitive communication and another for gender-sensitive socioeconomic monitoring.
- More information (in German):
<https://www.nationalpark-eifel.de/de/ueber-uns/berichte-monitoring-und-artikel/gender-mainstreaming/>

Target groups: Industry advocacy groups, protected area and public administrations

Supporting women in the labour market:

- Supporting the formation of companies by women
- Supporting the qualification of women
- Informing women about labour rights
- Increasing awareness for issues like a living wage or equal pay

Plan for Gender Equality and Sustainable Development, Montseny Biosphere Reserve, Spain

- The biosphere reserve developed a Plan for Gender Equality and Sustainable Development
- Workshops were held and a women's association established
- More information (in Spanish):
<https://parcs.diba.cat/es/web/reserva-de-la-biosfera-del-montseny/pla-igualtat-genero>

Additional information

Communication guidelines: [PRCA Diversity and Inclusion Guidelines](#)

Guidelines: [ILO Guidelines on Gender in Employment Policies](#)

Video: [Advancing SDG 5 through Inclusive Sourcing](#)

eBook: [Chapter 5: Gender Equality – A Precondition for Sustainable Forestry](#)

Article: [BBC – Representation of gender](#)

Online Resources: [Media Smarts Resources on Gender Representation](#)

SDG 6: Clean Water and Sanitation

About clean water and sanitation and this SDG

Clean water and water sanitation is highly relevant for sustainable development:

- Development and economic prosperity depend on the **management of freshwater resources and ecosystems**.
- **Safe drinking water, adequate sanitation and hygiene** are pillars of human health and well-being.
- In addition to domestic purposes water is needed for **food production, energy supply and industries** – uses that are highly interconnected and potentially conflicting.
- Due to the significant **impact of climate change** on fresh water ecosystems, appropriate and sustainable water management will be essential.

Relevant targets for protected areas

Target	
6.3	By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally
6.4	By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity
6.6	By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes
6.B	By 2030, support and strengthen the participation of local communities in improving water and sanitation management

Targets of less relevance for protected areas

Target	
6.1	By 2030, achieve universal and equitable access to safe and affordable drinking water for all
6.2	By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations
6.5	By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate
6.A	By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programs, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies

SDG 6: The status quo

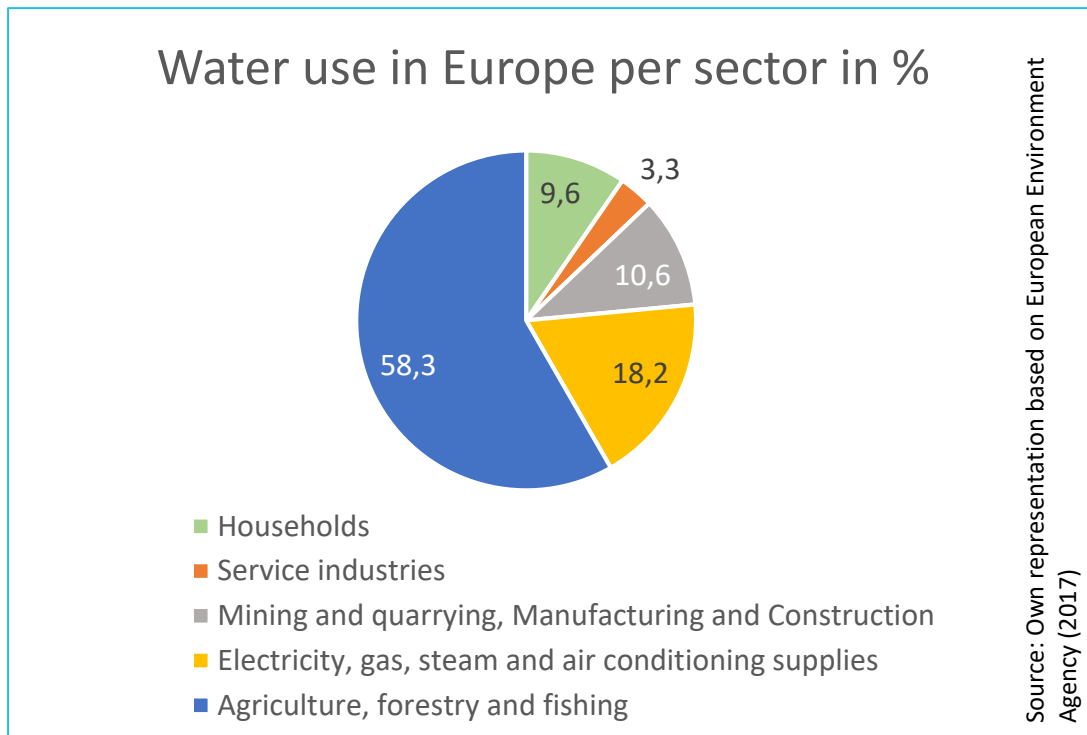
Protected areas provide clean water, benefiting one-third of the world's 105 largest cities. Of these, 10% draw water from protected watersheds. Healthy ecosystems of protected areas can play a role in reducing the occurrence and impact of natural disasters like floods, landslides, wild fires or desertification.²⁹

Water stress is caused by an annual water withdrawal above the total annual renewable supply, accounting also for upstream consumptive use.

The title of SDG 6 “Clean water and sanitation” refers to the overall availability of clean water. Water stress depends on

- The **water supply** from natural sources: such as groundwater, lakes, rivers, water reservoirs etc.
- The **water quality**: if water is polluted, it requires sanitation in order to use it as well as to protect ecosystems and other water bodies.
- The **water demand** mainly by businesses but also households etc.

²⁹ <https://www.iucn.org/theme/protected-areas/our-work/protected-area-solutions>



Primary Issue – Water quality

- Diffuse pollution by agriculture, mainly caused by application of fertilizers and animal waste
- Accidental spills of harmful substances
- Discharge of insufficiently treated domestic and industrial wastewater
- Atmospheric deposition of pollutants
- Eutrophication and loss of biodiversity

Primary Issue – Water use

- Water stress
- Inefficient and unsustainable use of water
- Over-use of water threatening wetlands and groundwater supplies
- Drinking water losses from distribution system

Source: European Environment Agency (2015)

Threats – Climate Change

- Changing water availability
- Increasing frequency of extreme weather events, e.g. droughts and floods
- Change of drains of water
- Rising rate of soil degradation
- Projected aridification in Southern Europe, increased rainfalls in Northern Europe
- Increase in water temperatures

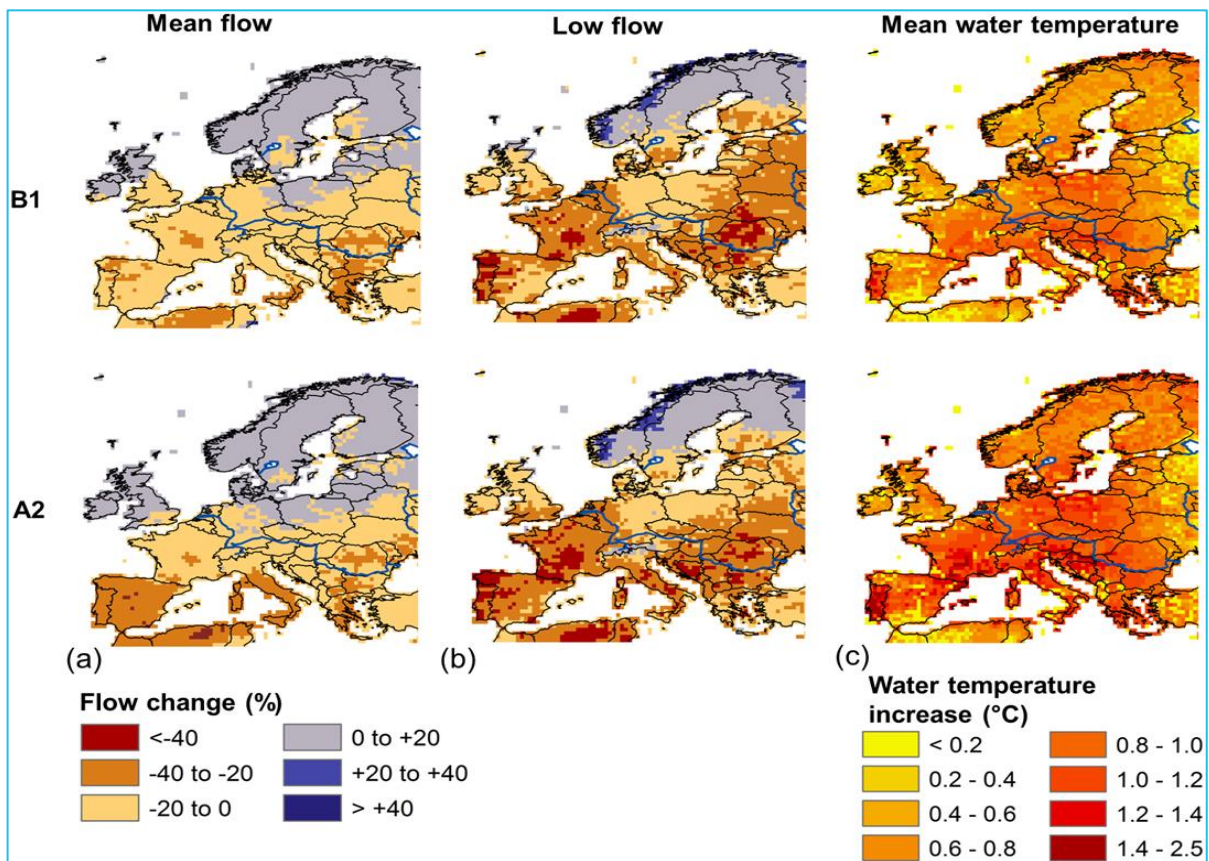


Figure: Climate change impacts on low river flows and water temperatures in Europe. Projected changes in mean flow (a) and low flows (10th percentile of daily distribution of river flow); (b) and mean water temperatures (c) for the 2031–2060 relative to 1971–2000. Changes are presented using the GCM ensemble mean changes for both the SRES A2 and B1 scenario relative to the reference period. Source: Water constraints on European power supply under climate change: impacts on electricity prices Michelle T H van Vliet et al 2013 Environ. Res. Lett. 8 035010 doi:10.1088/1748-9326/8/3/035010. License: [Creative Commons 3.0 BY](#)

What can be done?

The role of protected areas

National parks, UNESCO biosphere reserves, nature parks and other types of protected areas have different approaches to protecting ecosystems. Nevertheless, they share the common goal of connecting the preservation of ecosystems with sustainable economic development. The goals of a protected area cannot only be implemented by its administration. To truly be a model region for sustainable development, protected area administrations establish a network with regional and local administrations, businesses and the civil society. Together they can initiate projects and activities. The result can be healthy habitats, which reduce the risk of water stress and provide important economic functions.

Public Administrations	Private Sector	Civil Society
Local municipal administrations	Agriculture, forestry, fisheries	Non-governmental organisations
Regional county administrations	Production industry, crafts	Private initiatives
	Service sector, e.g. trade and retail, tourism, transit/transportation etc.	
	Industry advocacy groups	

The value of healthy habitats

Environment	Functions	Economic contribution
Watershed	Catchment protection	Avoided costs of floods
	Prevention of soil erosion	Retention of soil fertility, reduced need of artificial fertilizers
	Environments for eco-tourism	Low cost of goods and service for recreation experiences

Environment	Functions	Economic contribution
Instream	Provision of habitats for fish species	Source of food supply for commercial species
Wetlands	Nursery ground	Supply and maintenance of suitable water quality for growth and reproduction of commercial species
	Wastewater treatment & nutrient removal	Provision of biological wastewater treatment functions as alternative/supplement to structural engineering treatment methods

Solutions: Innovative activities

Target groups: agriculture, forestry and fisheries

Efficient and sustainable production:

- Using efficient technologies like drip irrigation
- Cultivating cops and trees with modest water demand
- Efficient water management to reduce soil degradation
- Use of ponds to capture and store rainwater
- Scheduling and monitoring of Irrigation
- Rotational grazing to increase the fields water absorption and decrease runoff

Protecting ecosystems:

- Limiting the distribution of fertilizers or pesticides, especially close to water bodies
- Establishing organic agriculture
- Avoid monocultures to improve soil quality
- Nitrogen fixation by cultivating legumes

Adaptive Management of Wetlands in the Camargue, France

- Testing and validating of management methodologies
- Promoting integrated and/or adapted approaches to management and exploitation methods, e.g. for livestock farming and agricultural production

- More information (in English): <https://tourduvalat.org/en/actions/gestion-adaptative-zones-humides/>

Target groups: industry, crafts, trade & retail

Efficient and sustainable production:

- Participating in knowledge exchange to improve water-efficient processes and technologies
- Investment and innovation focused on areas which lower costs and enhance water efficiency, e.g. water recycling, reusing or exploring alternative sources
- Partnerships with other enterprises and NGOs to improve water management for environmental and economic benefits

Protecting ecosystems:

- Limiting the use of critical chemicals in production processes
- On-site water treatment
- Measures to prevent spills and the damage caused by spills
- Certifications for sustainable productions, e.g. EMAS, for improved brand image

„Bionade“ drinking water forest in the biosphere reserve Rhön

- The Bionade company (a soda producer) sponsors the planting of a deciduous forest in order to permanently increase the formation of groundwater
- More information (in German): <https://www.trinkwasserwald.de/events/bionade-trinkwasserwald-im-biosphaerenreservat-rhoen>

Target groups: service sector (e.g. tourism)

Protecting ecosystems:

- Measurements to avoid littering and pollution by guests
- Providing information about garbage disposal
- Promote saving water and sustainable consumption
- Improve and preserve the regional image by protecting ecosystems
- Improve the regional image by promoting and ensuring clean and sustainable water bodies for leisure and recreational activities

Nature park hotels in the Black Forest

- An annual training and checks result in the permanent optimisation of the environmental footprint of participating hotels.
- Many of them are EMAS-certified businesses
- More information (in German): <https://www.naturpark-suedschwarzwald.de/de/freizeit-sport/naturparkwirte.php>

Solutions: Collaborations and awareness raising

Target groups: protected areas, municipalities, regional initiatives

Sustainable production processes:

- Promoting the replacement or reduction of hazardous chemicals in production processes
- Promoting waste avoidance and recycling to reduce environmental pollution
- Promoting innovative wastewater treatment and efficient water use in agriculture, industry and private households
- Addressing the role of protected areas in water resource management

Protecting ecosystems and biodiversity:

- Restoration and conservation of water-related ecosystems
- Protection of catchment areas, natural floodplains and watersheds
- Raising awareness for economic benefits of intact ecosystems for fishing, aquaculture, agriculture and tourism

Partnerships for water management in biosphere reserves

- Danone Waters Germany collaborates with the German MAB programme and provided financial support for projects
- All projects cover various approaches from education, conservation to innovative technical solutions and are developed and implemented based on regional initiatives and partnerships
- More information (in English): <https://www.unesco.de/sites/default/files/2018-05/water%20key%20element.pdf>

Target groups: municipal or county administrations

Ensuring the supply of clean water:

- Establishing and improving water treatment structure, e.g. sewage treatment plants
- Limiting water use in order to prevent overuse
- Improving resilience of water supply structures to extreme weather events
- Promoting development of new efficient technologies in the fields of water treatment and management

Protecting ecosystems and biodiversity:

- Regulating the use of chemicals in production processes
- Providing incentives for the agricultural sector to reduce use of artificial fertilizers
- Improvement of waste and sewage disposal
- Raising awareness for recycling and waste prevention
- Restoration and conservation of water related eco-systems

Flexible sewage treatment 4.0 in the nature park Diemelsee

- The digital process controlling based on case-based reasoning (CBR) allows the operating system to automatically generate predictions about upcoming operating demands. The forecasts allow an efficient operation of the sewage treatment plant and sewer system.
- The fully automated plant operation saves up to 48,000 tons of green house gas emissions (35 % of the current emissions).
- More information (in German): <https://www.umweltinnovationsprogramm.de/projekte/abwasserflexibilisierung-diemelsee-40>

Additional information

UN Report: [Sustainable Development Goal 6 – Synthesis Report on Water and Sanitation](#)

eBook: [Chapter 6: Clean Water and Sanitation – Forest-Related Targets and Their Impacts on Forests and People](#)

Guideline: [Principles & Practices for Sustainable Water Management in Agriculture – At a farm level](#)

Guideline: [Cost-effective water saving devices and practices – for industrial sites](#)

Guideline: [Best Practice Guidelines for Water Usage in Hotel Industry](#)

eJournal: [Collaborative governance and watershed management in biosphere reserves](#)

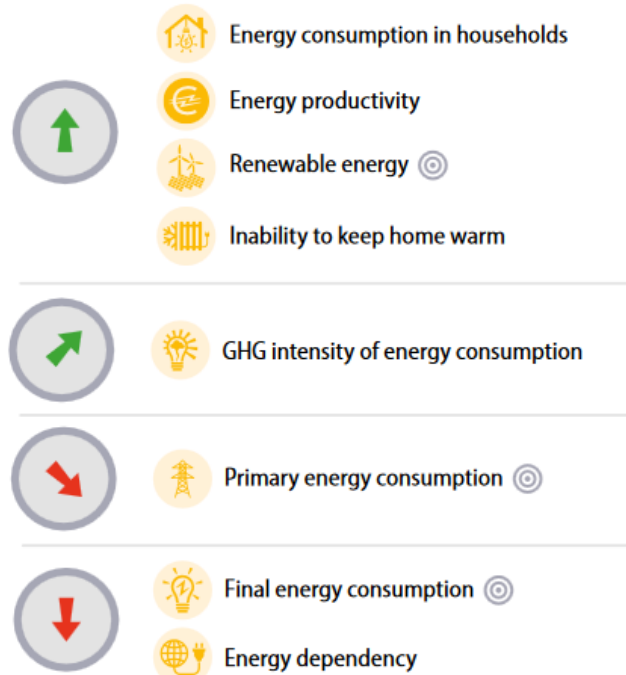
Online resource: [Sustainable Sanitation and Water Management Toolbox](#)

SDG 7: Affordable and Clean Energy

About affordable and clean energy and this SDG

Clean and affordable energy is highly relevant for sustainable development:

- Development and economic prosperity depend on **affordable and clean energy**.
- Emissions from fossil fuels cause **health issues**.
- The extraction of fossil fuels is often accompanied by **degraded ecosystems**, (social) **displacement** (e.g. surface mining), and **political conflicts**.
- Energy production from fossil fuels is a significant **driver of climate change**.



Indicators measuring EU progress towards SDG7, assessment of short-term trends

Source: [Anna Sabadash, Eurostat \(Edt.\) CC-BY 4.0](#)

Relevant targets for protected areas

Target	
7.1	By 2030, ensure universal access to affordable, reliable, and modern energy services
7.2	Substantially increase the share of renewable energy in the global energy mix by 2030
7.3	Double the global rate of improvement in terms of energy efficiency by 2030

Targets of less relevance for protected areas

Target	
7.a	By 2030, enhance international cooperation to facilitate access to clean energy research and technologies, including renewable energy, energy efficiency, and advanced and cleaner fossil fuel technologies. Also promote investment in energy infrastructure and clean energy technologies
7.b	By 2030, expand infrastructure and improve technology to provide modern and sustainable energy services for all developing countries, particularly LDCs and SIDS

SDG 7: The status quo

With the growing use of renewable energy, protected areas are increasingly becoming a site of energy production. Worldwide, there are 2,206 operating renewable energy facilities in protected areas (PA), key biodiversity areas (KBA) or earth's remaining wilderness. Additional 922 facilities are under construction. These facilities have an impact on 886 PAs, 749 KBAs and 40 distinct wilderness areas.

The largest coverage occurs in Western Europe. The expansion of renewable energy production is expected to increase the number of affected PAs, KBAs (about 30 %) and wilderness areas (up to 60 %). Therefore, a thoughtfully planned expansion of renewable energies is crucial in order to avoid conflicts between climate change mitigation and biodiversity conservation.³⁰

Primary Issue – The provision of affordable and clean energy

- **Energy efficiency and sufficiency** reduces the overall costs of energy for consumers, and also the need to build and maintain energy infrastructure.
- **Renewable energies are the most affordable option** for new power generation³¹
- Especially in protected areas, renewable energies must be used in a way that is compatible with nature.

³⁰ [Rehbein et al. \(2020\): Renewable energy development threatens many globally important biodiversity areas.](#)

³¹ [IRENA \(2018\): Renewable Power Generation Costs in 2018.](#)

Primary Issue – Nature compatibility of renewable energies

The deployment of fossil fuels as well as renewable energies has an impact on the environment. Although the overall performance of renewable energies is better than fossil fuels, the same dimensions³² should also be considered in order to use renewable energies sustainably:

- **Resource use** and greenhouse gas emissions (e.g. in the case of bioenergy).
- **Scale and capacity** of a development (ideally a low impact development)
- Sensitive **siting** (e.g. respecting the local biodiversity)
- **Project design** (e.g. avoiding or mitigating impacts)
- Ongoing **management** (e.g. choice of biomass, biodiversity at solar farms)

What can be done?

The role of protected areas

National parks, UNESCO biosphere reserves, nature parks and other types of protected areas have different approaches to protecting ecosystems. Nevertheless, they share the common goal of connecting the preservation of ecosystems with sustainable economic development.

The goals of a protected area cannot only be implemented by its administration. To truly be a model region for sustainable development, protected area administrations establish a network with regional and local administrations, businesses and the civil society.

The sustainable production and use of energy in particular requires intensive cooperation between many different actors. The administrations of protected areas are very good at bringing together different stakeholders. They can actively manage projects and support planning processes. They can also support both the production and sustainable use of energy through education and awareness-raising.

Relevant stakeholder groups and potential partners of protected area administrations:

³² [BirdLife & RSPD: Delivering Renewable Energy in Harmony with Nature.](#)

Public Administrations	Private Sector	Civil Society
Local municipal administrations	Agriculture, forestry, fisheries	Non-governmental organisations
Regional county administrations	Production industry, crafts	Private initiatives
	Service sector, e.g. trade and retail, tourism, transit/transportation etc.	
	Industry advocacy groups	

Solutions: Innovative activities

Target groups: protected areas, municipalities, regional initiatives

Efficient & sustainable production

- Energy use of agricultural residues.
- Energetic use of grass and wood from landscape conservation.
- Establishing a socially and technically appropriate use of renewable energies, adapted to local conditions and benefiting local communities.

Protecting eco-systems and biodiversity

- Combating climate change and its negative effects on habitats
- Preservation of valuable habitats through the use of landscape conservation material

Bioenergy and nature protection in the Biosphere Reserve Elbe River Landscape, Germany

- At 'Round tables', farmers, agricultural associations, nature conservation agencies and other relevant stakeholders discussed bioenergy production
- This has resulted in a comprehensive guideline for the production and use of biomass for energy generation.
- More information (in German):
https://www.elbtalaue.niedersachsen.de/download/58840/Leitfaden_Bioenergie_und_Naturschutz_2._Auflage_2011.pdf

‘Bee-friendly electricity’ in the Swabian Alb Biosphere Reserve, Germany

- The public utility company and the biosphere reserve developed an innovative electricity tariff: a premium of 1 Euro Cent pays for flower strips to increase biodiversity in the production of biomass (e.g. corn fields).
- More information (in German): <https://bienenstrom.de/#sandwich-idee>

Target groups: protected areas, municipalities, businesses

Efficient & sustainable production

- Construction of open space solar plants on areas where biodiversity is increased by the measure.

Protecting eco-systems and biodiversity

- Providing suitable habitats for endangered species
- Improvement of species-poor areas

Open-space solar plant in the former lime pit in the Bliesgau Biosphere Reserve, Germany

- The Saarpfalz District Savings Bank installed a photovoltaic system on the site of the former lime mine near Gersheim, Germany.
- With a total collector area of 2.5 hectares, the system generates 1.6 million kilowatt hours of electricity and thus saves more than 1000 tons of greenhouse gas

Target groups: protected areas, municipalities, regional initiatives

Efficient & sustainable production

- Facade and roof greening as a measure for the thermal insulation of buildings
- Creation of breeding sites for nesting birds in buildings through insulation measures.
- Use of energy-saving and insect-friendly LED lighting.

Protecting eco-systems and biodiversity

- Preservation and creation of habitats in settlement areas
- Mitigation of „light pollution“

Climate protection strategy in the Bliesgau Biosphere Reserve, Germany

- Regional strategy for cutting energy consumption in half and reducing greenhouse gas emissions by 95 % (compared to 1990) until 2050.
- Fields of action: Energy saving/efficiency, energy production and supply, climate protection and nature conservation, housing, spatial development and sustainable transit and transportation
- More information (in German): <https://www.biosphaere-bliesgau.eu/index.php/de/themen-und-projekte/klimaschutz/abschluss-phase-1>

Illumination of a cycle expressway in the Geo-Nature Park Terra Vita, Germany

- In 2018, the city of Osnabrück implemented the lighting of a cycle expressway using lamps with motion sensors. These only light the way when cyclists use the way.
- LED lamps with 4,000 Kelvin and 11 W were used. Dimming reduces the lighting to 1-2 W. Compared with conventional light sources, this significantly reduces the damage to insects and other animals caused by the attraction of the light, as well as energy consumption.
- More information (in German): https://www.osnabrueck.de/fileadmin/user_upload/Daten_Fakten_Gutachten_Radschnellwege.pdf

Solutions: Collaborations and awareness raising

Target groups: protected areas, municipalities, regional initiatives

- **Exchange of information** on the current state of development and best practice at national and international level, e.g. through conferences and events
- Regional **“energy networks”** where businesses or homeowners can exchange their experiences with using renewable energies or increasing their energy efficiency
- Coordinated regional **master plans** on the production and use of renewable energy and energy saving (“renewable energy region”, “zero emission region”)
- **School projects** on renewable energies as part of education for Sustainable Development

International Workshop on Renewable Energies and Biosphere Reserves in the Bliesgau Biosphere Reserve, Germany

- In 2017, 61 participants from 27 countries met in St. Ingbert (Germany) and spent three days exchanging their experiences and expectations in the field of “Renewable energies and UNESCO biosphere reserves”.
- More information:
https://www.bfn.de/fileadmin/BfN/internationalernaturschutz/Dokumente/MAB/Report_UNESCO_Workshop_BR_and_RE.pdf

Energy educational trail in the Geo-Nature Park Frau-Holle-Land, Germany

- The geo-nature park Frau-Holle-Land and the energy cooperative Kassel & Söhre eG developed a 5 km long educational trail through a windfarm.
- Additional educational tours are provided by the geo-nature park and one of the members of the energy cooperative.
- More information (in German): <http://www.be-kassel.de/pdf/StadtZeit.pdf>

Additional information

Online resource: [Overview SDG 7](#)

Report: [Analysis of the voluntary national reviews relating to SDG 7](#)

eBook: [Chapter 7: Affordable and Clean Energy – How Access to Affordable and Clean Energy Affects Forests and Forest-Based Livelihoods](#)

Guideline: [Wind energy developments and Natura 2000](#)

Guideline: [Guideline for Safe and Eco-friendly Biomass Gasification](#)

Guideline: [BRE National Solar Center Biodiversity Guidance for Solar Development](#)

Online resource: [The European Technology and Innovation Platform for Photovoltaics](#)

SDG 8: Decent work and economic growth

About decent work, economic growth and this SDG

Society benefits when there are more productive people contributing to a country's growth. Productive employment and decent work are the pillars for fair globalization and poverty reduction.

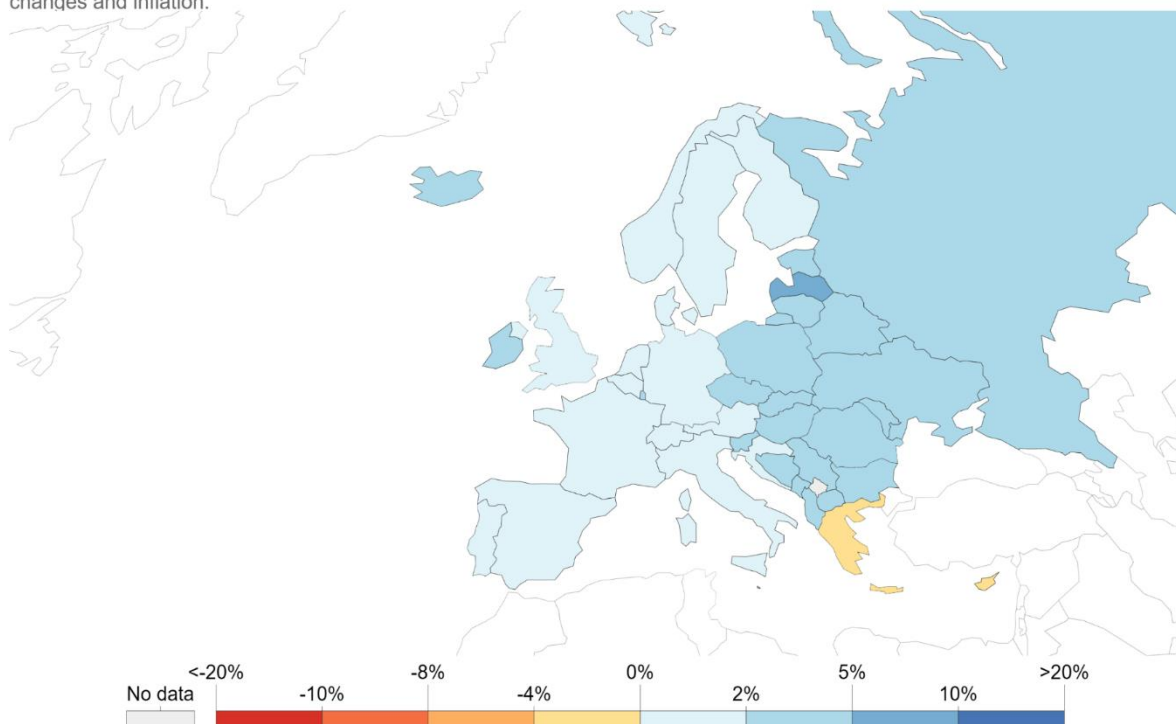
Decent work means that everyone has equal opportunities to engage in work that enables personal development and fosters social inclusion.

To achieve this, the persistent lack of decent work opportunities, insufficient investment, and low consumption must be addressed.

Growth rate of real GDP per employed person, 2018

Annual change in real gross domestic product (GDP) per employed person. Real GDP is adjusted for price changes and inflation.

Our World
in Data



Source: UN Statistics Division

CC BY

Source: <https://ourworldindata.org/grapher/growth-rate-of-real-gdp-per-employed-person?time=2018®ion=Europe>

Relevant targets for protected areas

Targets	
8.3	Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services.
8.9	By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products.

Targets of less relevance for protected areas

Targets	
8.1	Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries.
8.2	Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labor-intensive sectors.
8.4	Improve progressively, through 2030, global resource efficiency in consumption and production and endeavor to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead
8.5	By 2020, substantially reduce the proportion of youth not in employment, education or training
8.6	By 2020, substantially reduce the proportion of youth not in employment, education or training
8.7	Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms

Targets	
8.8	Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment
8.10	Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all
8.A	Increase Aid for Trade support for developing countries, in particular least developed countries, including through the Enhanced Integrated Framework for Trade-Related Technical Assistance to Least Developed Countries
8.B	By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization

SDG 8: The status quo

Properly embedded in local communities, protected areas provide jobs and a steady source of income for the people who live in and near them.

In addition, protected areas offer unique opportunities for sustainable tourism which contributes to the development of the area and its small and medium enterprises that showcase local products and cultural heritage.

The title of SDG 8 “Decent work and economic growth” refers to the amount of job opportunities, working conditions at the workplace and salaries paid. These rely on:

- **Economic health of the region** which determines wages and employment opportunities.
- **Infrastructure & innovation** influencing which businesses and industries might settle in an area.
- **Corruption and nepotism** as an overarching issue.

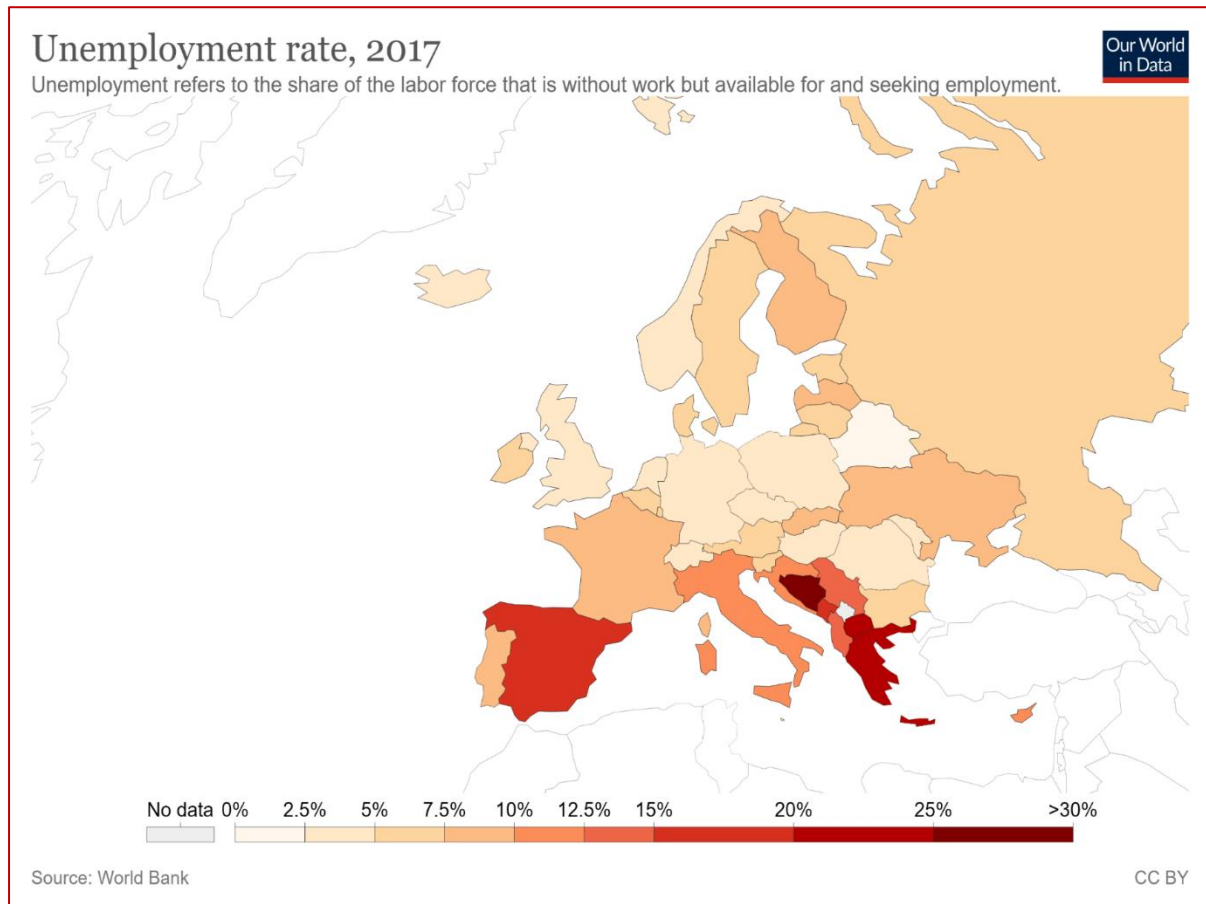
Primary Issue – Economic health

Rural areas have **lower incomes**: Although no significant difference was found between rural and urban areas in terms of employment, GDP per capita was

50% higher in urban areas in 2014.³³

Men earn more than women: The gender gap (employment of women compared to men) was found to be slightly larger in rural areas than in urban areas, 11.6% compared to 13.1% in 2015.³⁴

Income inequality causes social inequality and has a negative impact on integration and life satisfaction.



Primary Issue – Infrastructure and innovation

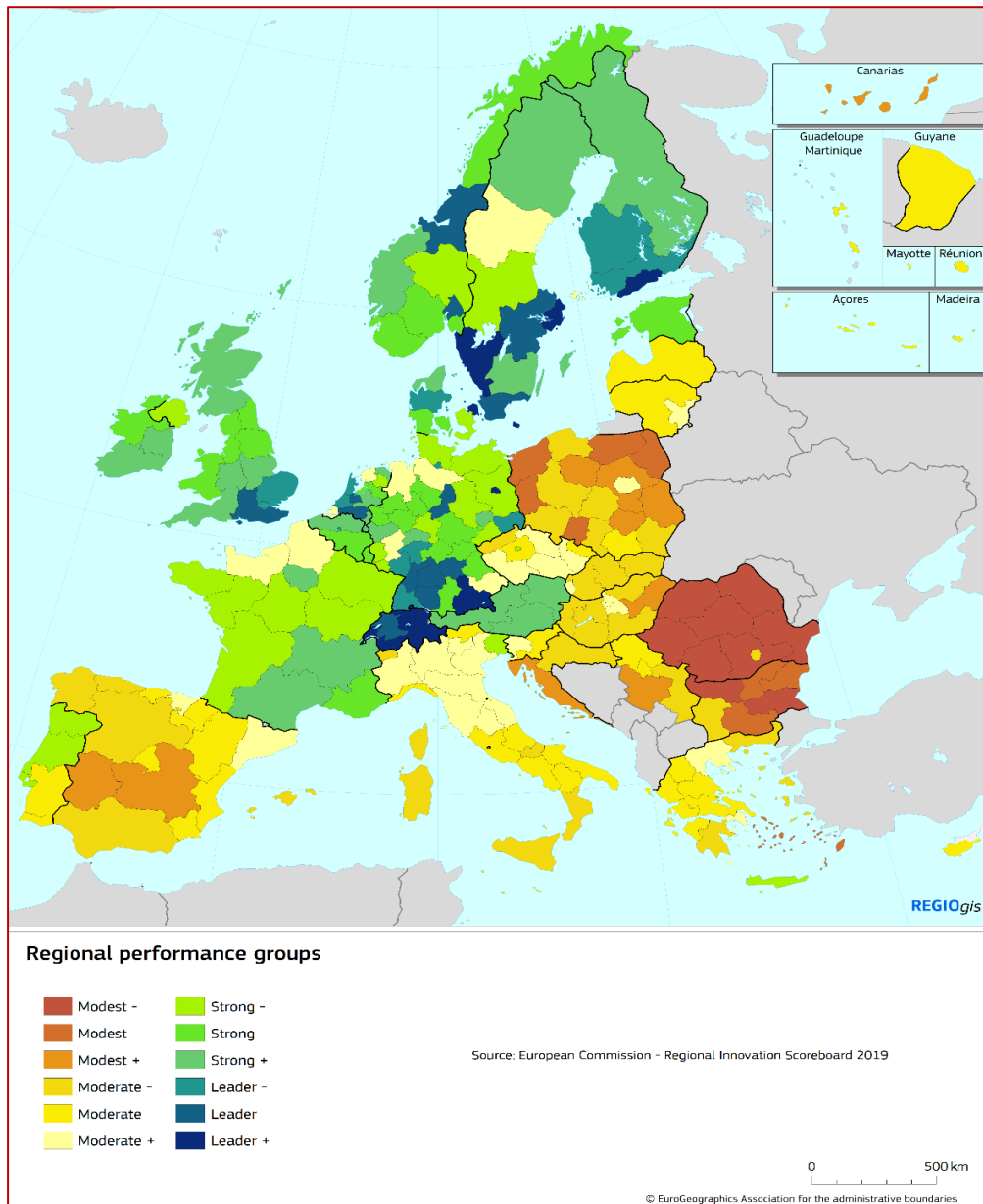
Creating and sustaining more jobs in European businesses requires several external factors, such as sufficient infrastructure, and internal factors, such as innovation in businesses to improve competitiveness.

³³ https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/farming/documents/eu-rural-areas-primary-sector_en.pdf

³⁴ [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Statistics on rural areas in the EU&oldid=391832#Labour market](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Statistics_on_rural_areas_in_the_EU&oldid=391832#Labour_market)

Yet, investment in public infrastructure, basic physical assets and structures that support the economy has been declining since 2009 and is currently below the level needed to sustain and develop sufficient economic activity.³⁵

Innovation is also lacking in many parts of Europe. The most innovative regions are typically located in the most innovative countries, leaving less innovative countries behind.³⁶



The regional innovation scoreboard (RIS) is a regional extension of the European innovation scoreboard, assessing the innovation performance of European regions on 18 indicators.

Source: European Commission under Creative Commons Attribution 4.0 International (CC BY 4.0) license

³⁵ http://www.iberglobal.com/files/2018-2/infrastructure_eu.pdf

³⁶ https://ec.europa.eu/growth/industry/policy/innovation/regional_en

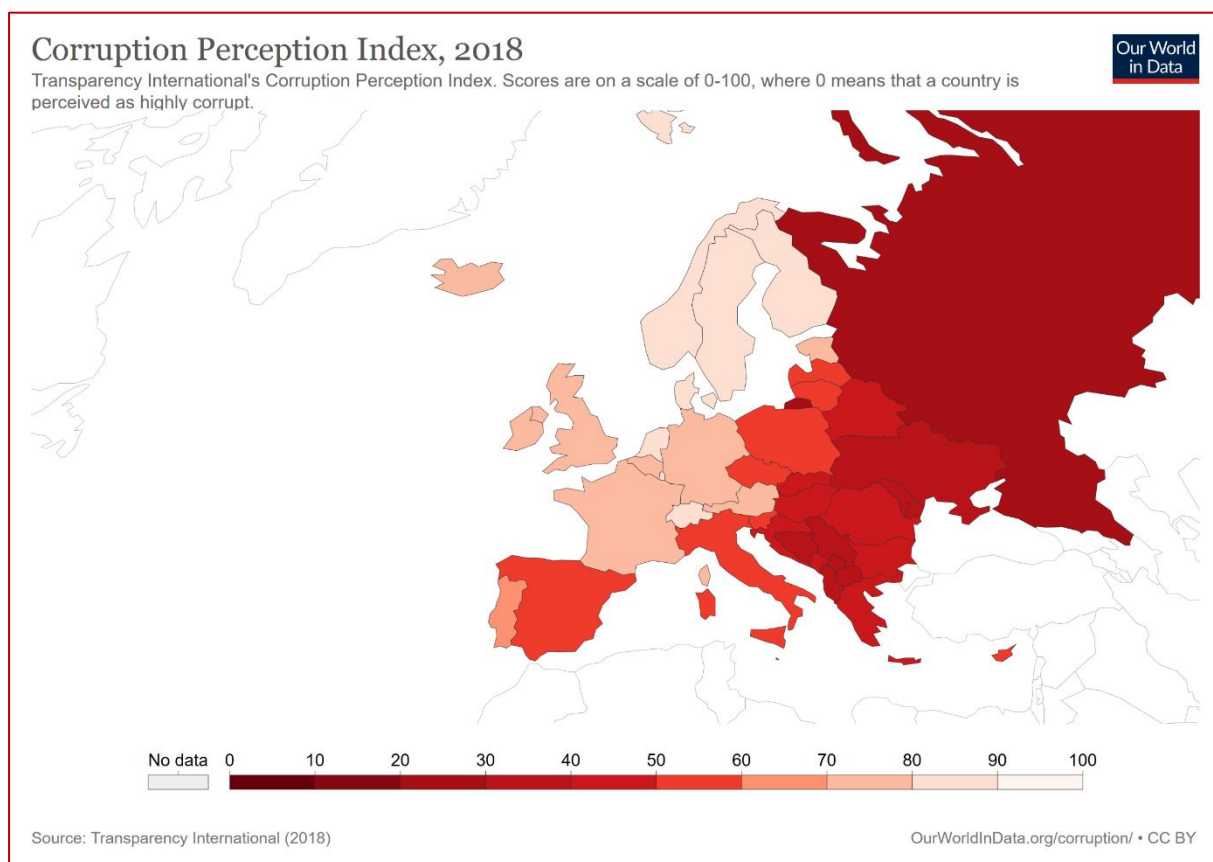
Primary Issue – Corruption and nepotism

Corruption is the abuse of power for private gain and takes forms such as bribery, influence peddling, abuse of position, and nepotism.

Corruption creates business insecurity, slows development, and imposes additional costs.

It worsens income distribution, environmental protection, and undermines trust in governments.

Corruption and nepotism can harm the environment by enabling illegal dumping.

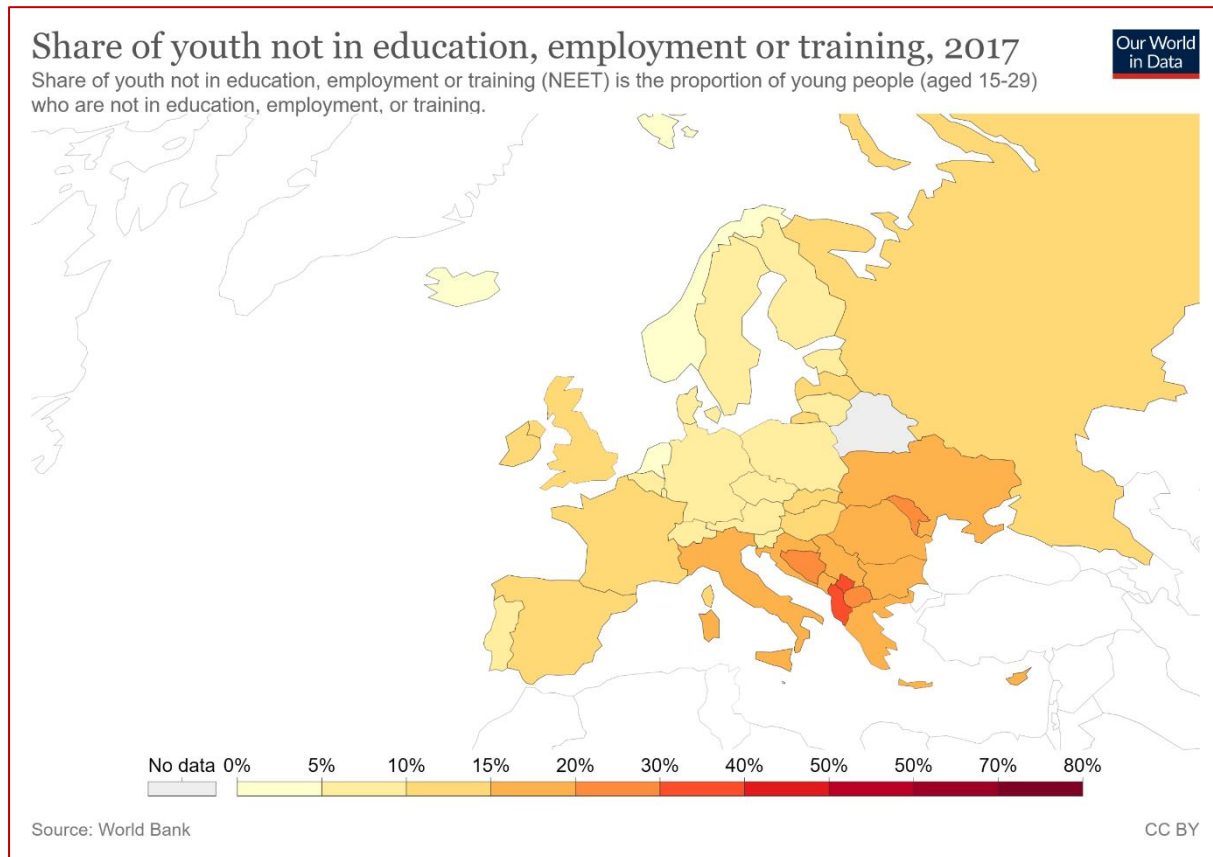


Threats – Youth unemployment

Not in Education, Employment, or Training (NEET) refers to young people between the ages of 15 and 29 who are not participating in the labor market or in any type of education or training.

- These people do not acquire the skills necessary for decent work, so their future employment prospects are reduced.

- In the long run, high youth unemployment hampers the growth of an economy over a longer period and can even lead to a prolonged recession.



What can be done?

The role of protected areas

National parks, UNESCO biosphere reserves, nature parks and other types of protected areas have different approaches to ecosystem conservation. Nevertheless, they share the common goal of combining the preservation of ecosystems with sustainable economic development.

The goals of a protected area cannot only be implemented by its administration. To truly be a model region for sustainable development, protected area administrations need to establish a network with regional and local administrations, businesses, and the civil society.

Together they can initiate projects and activities that contribute to cultural services, improve social relations and cohesion, enhance cultural heritage, create decent work and restore local ecological knowledge.

Protected areas are in reciprocal relationships with local economies and can provide a range of benefits. They contribute to:

- Enhancement of the image of a region
- Increased quality of regional products and their supply
- Direct economic benefits
- Positive multiplier effects
- Long-term development of "soft" location factors

Public Administrations	Private Sector	Civil Society
Local municipal administrations	Agriculture, forestry, fisheries	Non-governmental organisations
Regional county administrations	Production industry, crafts	Private initiatives
	Service sector, e.g. trade and retail, tourism, transit/transportation etc.	
	Industry advocacy groups	

Solutions: Innovative activities

Target groups: agriculture, forestry, fisheries, production industry, service sector

Support local businesses and crafts:

- Develop regional value chains to enable local production of goods and sourcing of materials from the protected area in your region
- Avoid imports of raw materials such as wood for local craftsmen and use regional materials instead
- Promote sustainable tourism that is linked to traditional uses of the area
- Develop a logo for products and crafts from your protected area to define its origin and quality beyond your region
- Set up farmers' and craftsman's' markets where small local businesses can show and sell their products to tourists and local people

Regional added value chains – The Martínez confectionery in the Breña y Marismas de Barbate Natural Park, Spain

- Family business founded in 1886 that is dedicated to the artisanal manufacture of more than one hundred types of cakes, chocolates, cakes, desserts and ice-cream.
- Most of the ingredients used to make this recipes are **local products from the Breña y Marismas de Barbate Natural Park**, such as honey, pine nuts and meloja (unrefined honey). By using local products, the company contributes to the development of the region.



© Martinez Confectionery

- More information (in Spanish): <http://www.tresmartinez.com/tienda/la-empresa.html>

Target groups: local municipal administrations, regional county administrations, production industry, service sector

Improve current employment situation:

- Promote Health and Safety measures at work
- Pay fair wages which provide a reasonable income to employees
- Support businesses with loans and other financial interventions
- Manage conflicts of interest between industry & resource extraction and protected areas to retain jobs in the region

A protected area administration as consultant and marketing partner in the Black Forest Biosphere Reserve, Germany

- Local businesses are valuable in terms of tourism, production, provision of services and protection and maintenance of typical landscapes, and as job provider. The biosphere reserve administration promotes an economic development in the region and helps to position the biosphere reserve as a brand, to sell regional products and to increase the attractiveness of the region for employers and employees.
- More information (in German): https://www.biosphaerengebiet-schwarzwald.de/wp-content/uploads/2019/02/BSG_Unternehmensbrosch%c3%bcrc_web.pdf

Target groups: local municipal administrations, regional county administrations, production industry, service sector

Increase long-term opportunities:

- Promote (gender) equality to close the wage gap
- Invest in public infrastructure to increase attractiveness for businesses
- Promote development-oriented policies which support productive activities, decent job creation, entrepreneurship, creativity and innovation as well as new business creation
- Promote more equitable access to education and integration into the labor market for young people

Creation of a local food system in Mariñas Coruñesas e Terras do Mandeo Biosphere Reserve, Spain

- To counteract the rural exodus, the risk of fire, the loss of the traditional landscape and biodiversity, Mariñas Coruñesas is creating a local food system based on organic farming as an employment opportunity.
- The initiative includes training of workers, farming and marketing of seasonal, regional products as well as school canteens and the recovery of traditional animal and plant varieties.
- More information (in English): <http://marinasbetanzos.gal/en/plan-alimentario/plan-alimentario-2014-2022/>

Target groups: local municipal administrations, regional county administrations, private initiatives

Use protected areas to develop “soft” location factors:

- Establish a continuous management of the region
- Develop a regional identity
- Develop regional decision structures such as biosphere reserve managements
- Intraregional development and transfer of knowledge
- Intraregional/interregional networking
- Foster social integration of disadvantaged groups

Libera Terra – Coop Terre Joniche in Isola Capo Rizzuto, Italy

- Libera Terra is an organization that rehabilitates land that used to be under mafia rule. This land produces various agricultural products that can be purchased online or in stores in the cities. One of the cooperatives, the Terre Joniche cooperative, operates near the Capo Rizzuto marine reserve
- By creating autonomous and cooperative farms that are self-sufficient, Libera Terra can establish a moral economic system and fight crime and corruption.
- More information: <https://www.liberaterra.it/en/>

Target groups: municipal and regional administrations, non-governmental organizations, private initiatives

Demonstrate the benefit of protected areas to society:

- Involve society to get to know and enjoy the tangible and intangible heritage of the protected areas
- Start information campaigns about the ecosystem services that sustain life and create opportunities for work
- Point out how the protected area has traditionally been used in museums, guided tours, workshops etc.

Business network for responsible entrepreneurs in the Berchtesgadener Land Biosphere Reserve, Germany

- Businesses cooperate in the network to develop sustainable business practices in domains such as nature & environment, social interactions and regional economy.
- The network intends to increase the attractiveness of businesses for highly skilled employees, show how protected areas contribute to healthy economies and to streamline the region with the Sustainable Development Goals
- More information (in German): <https://www.brzgl.de/partner-der-biosphaerenregion/vorbildregion-bzgl/>

Additional information

UN-Website: [SDG 8](#)

UNDP-Website: [SDG 8](#)

Website: [SDG 8 indicators and progress](#)

Report: [Natural solutions. Protected areas helping to meet the sustainable development goals](#)

Website: [The big problem of employment in the world: poor working conditions \(Spanish\)](#)

EURPARC-Report: [Society and protected areas programme \(Spanish\)](#)

Research article: [Protected areas as flywheels for communities](#)

SDG 9: Industry, Innovation and Infrastructure

About industry, innovation and infrastructure and this SDG

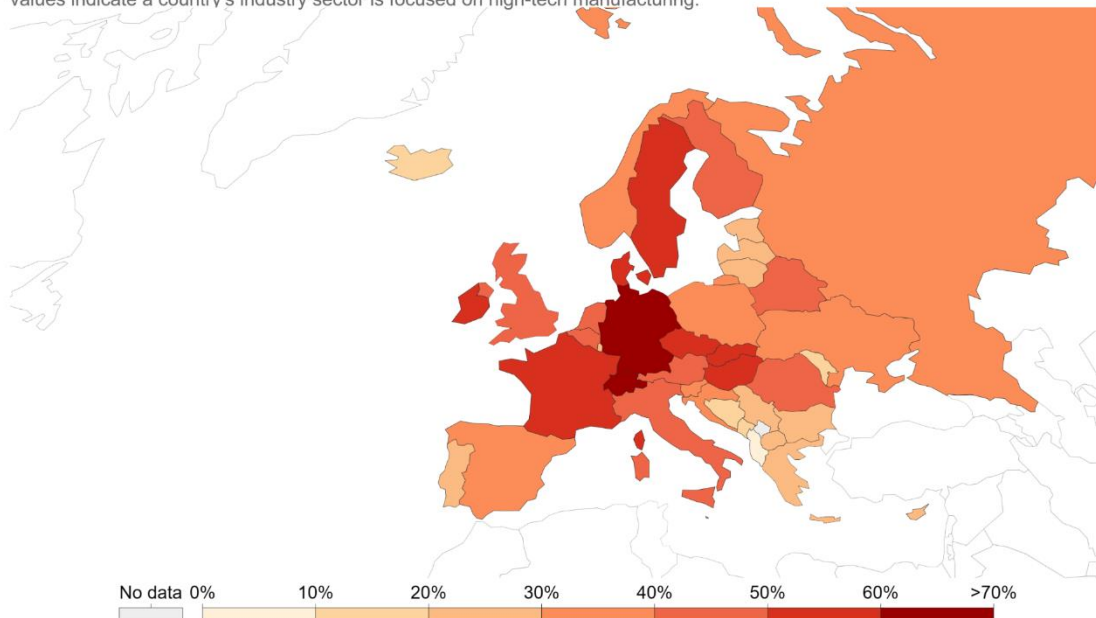
Investment in infrastructure, innovations and a thriving industry are key drivers of a sustainable development:

- An Inclusive and sustainable industrialization in combination with innovation and infrastructure can generate dynamic economic forces which promote employment and income.
- Along with a growth of population and development in cities, mass transportation and renewable energies are becoming increasingly important.
- This is also the case for growth of new industries and information and communication technologies which have to adapt to sustainability in order to find permanent solutions to economic and environmental challenges.

Proportion of total manufacturing value added from medium and high-tech industry, 2016

Our World
in Data

The proportion of medium and high-tech industry (MHT) value added as a percentage of total manufacturing value. Higher values indicate a country's industry sector is focused on high-tech manufacturing.



Source: UN Statistics Division

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Relevant targets for protected areas

Target	
9.1	Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all
9.2	Promote inclusive and sustainable industrialization. By 2030, significantly raise the industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries
9.4	By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes. All countries should be taking action in accordance with their respective capabilities

Targets of less relevance for protected areas

Target	
9.3	Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets
9.5	Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries. Also, by 2030, encourage innovation and substantially magnify the number of research and development workers per 1 million people and raise public and private research and development spending
9.a	Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing States
9.b	Support domestic technology development and research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities

Target	
9.c	Significantly increase access to information and communication technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020

SDG 9: The status quo

Companies located in protected need to participate in the development of infrastructures due to the climatic impacts that they can cause and due to population growth.

Companies must take into account how their activities affect the environment around them, considering factors such as the type of emissions they may emit (acoustic, greenhouse gas (GHG) emissions ...) and the impact of the activity on the environment, so that they can develop and implement sustainable and environmentally friendly infrastructures.

As the title indicates, SDG 9 “Industry, innovation and infrastructure” refers to the condition of the economy and (public) infrastructure. At present, they are geared towards greenhouse gas emissions (especially carbon dioxide) and are therefore largely unsustainable. Aspects are:

- Lack of infrastructure for sustainable development.
- Lack of green economy including greenhouse gas emissions (GHG) from companies.

A **Carbon economy** is reliant on high-carbon power sources and has a significant output of greenhouse gas (GHG) emissions into the atmosphere. These emissions are the lead cause for anthropogenic climate change

Primary Issue – Lack of infrastructure for sustainable development

Traditional infrastructure is still often preferred to green infrastructure. Green infrastructures are natural or semi-natural areas designed and managed to deliver a range of ecosystem services.

Fossil power plants, which require cooling, consume large amounts of water from rivers and can cause water shortages.

In the transport sector, progress has been made with electric cars, however, the infrastructures that allow them to be charged are very scarce or not available in most places, so this sector is still highly dependent on fossil fuels.

Primary Issue – Carbon dependent economy

- Current economies in Europe are too carbon-intensive, resource inefficient and socially exclusive.
- Public and private investments in economic activities, research and development, infrastructure and assets that allow for reduced GHG emissions and pollution, energy & resource efficiency as well as environmental integrity are presently too low.
- European economies are too linear: They do not take into account the full life cycle of products and do not promote circular economy designs enough.

What can be done?

The role of protected areas

National parks, UNESCO biosphere reserves, nature parks and other types of protected areas each have different approaches to protecting ecosystems. Nevertheless, they share the common goal of connecting the preservation of ecosystems with sustainable economic development.

The goals of a protected area cannot only be implemented by its administration. To truly be a model region for sustainable development, protected area administrations establish a network with regional and local administrations, businesses and the civil society. Together they can initiate projects and activities. This can result in a healthy relationship between environmental protection and the development of companies and society with the implementation of renewable energies and innovation.

Public Administrations	Private Sector	Civil Society
Local municipal administrations	Agriculture, forestry, fisheries	Non-governmental organisations
Regional county administrations	Production industry, crafts	Private initiatives
	Service sector, e.g. trade and retail, tourism, transit/transportation etc.	
	Industry advocacy groups	

Protected areas can often be found in peripheral locations. Therefore, the average protected area is not characterized by large industrial companies. Nevertheless, in some protected areas there can be found major industrial businesses and factories. The location within a protected area can be an advantage in the search for skilled employees because protected areas promise a great quality of life connected with many opportunities that come along with access to nature. A common interest of businesses and protected areas is to preserve this value.

Furthermore, the efficient use of resources is in the interest of both protected areas and businesses in order to reduce costs and save valuable resources.

The power grid, gas pipelines, highways and train routes are important infrastructures and the basis of modern economies and lifestyles. However, these infrastructures have a major impact on the surrounding ecosystems and landscape. Careful planning and nature sensitive routing is crucial in order to preserve valuable ecosystems and landscapes. Attractive landscapes and the preservation of ecosystems do not necessarily contradict with modern transit, traffic and energy infrastructures.

Solutions: Innovative activities

Target groups: production industry, service sector, agriculture, fisheries, forestry

Sustainable business practices:

- Adopt sustainable best practices in all facility operations
- Reduce impacts of noise and artificial night-time light
- Invest in renewable energies, digitalization and electric mobility
- Adopt “greener” transportation methods
- Retrofit buildings for increased energy efficiency
- Demand detailed analyses of the life cycle of infrastructures

Workroom Schaffhausen, Nature Park Schaffhausen, Switzerland

- In close cooperation between the local trade association and the Nature Park Schaffhausen, they initiated the Workroom Schaffhausen.

- The Workroom is a novel project in Switzerland. It aims to foster innovation in (construction) businesses and interconnect local companies in the Schaffhausen region. The Workroom's current project is the Schaffhauser house.
- More information (in German): <https://werkraum-sh.ch/>

Target groups: local municipal administrations, private initiatives

Invest in sustainable infrastructure:

- Invest in a dense grid of charging stations for private vehicles
- Invest in electric public transport (buses, trams and trains)
- Fit buildings with solar and wind power stations
- Retrofit public buildings for energy and water efficiency

Electric mobility in the Menorca Biosphere Reserve, Spain

- The "Menorca Smart Island: Energy and Mobility 2020" project plans to increase electric vehicle activity and car sharing. It invests in the infrastructure to charge electric cars and experiments with innovations such as the Vehicle-to-Grid technology, allowing cars to act as energy storage units.
- More information (in Spanish): <http://smartisland.biosferamenorca.org/Contingut.aspx?IDIOMA=1&IdPub=1091>

Village and infrastructure development, Schorfheide-Chorin Biosphere Reserve, Germany

- In order to develop typical settlements of the Schorfheide-Chorin Biosphere Reserve into attractive residential, business and service areas with a high proportion of historic buildings, they will be transformed into bioenergy villages.
- Power and heating are generated from renewable sources, houses are refurbished for energy efficiency and competitions between villages are held to award individual lead-projects.
- More information (in German): <https://www.schorfheide-chorin-biosphaerenreservat.de/unser-auftrag/regionalentwicklung/siedlungs-und-infrastrukturentwicklung/>

Target groups: local municipal administrations, regional county administrations

- Establish rules and regulations to ensure the sustainable management of projects and business initiatives
- Cooperate with universities in training managers for protected areas and facilitate use for academic research and advanced learning
- Promote intelligent management throughout the life cycle of the infrastructure
- Design policies that favor investments in technologies, goods and services associated with a smaller environmental footprint
- Promote the diversification of activities that have a smaller environmental footprint and a greater impact on employment and income
- Encourage to adopt “greener” means of transportation

Sustainable Development Plans (SDP) in Andalucía, Spain

- The objective of SDPs is the revitalization of socio-economic structures which safeguard ecological and environmental stability in protected areas through economic means
- These can include efficient water and energy consumption, the promotion of renewable energy facilities and rainwater harvesting in households as well as strengthening the network of rural roads in nature parks
- More information (in Spanish): <http://www.juntadeandalucia.es/medioambiente/site/portalweb/menuitem.220de8226575045b25f09a105510e1ca/?vnextoid=5b5d74ee211f4310VgnVCM1000001325e50aRCRD&vnextchannel=3bdd61ea5c0f4310VgnVCM1000001325e50aRCRD>

Innovation Award, Nature Park Gantersch, Switzerland

- Together with its partners, the Nature Park Gantersch awards innovation prizes to make innovative companies or individuals and their good ideas known to the public.
- Novel products, services or projects can be nominated in the categories ecology, society and future.
- More information (in German): <https://www.gantersch.ch/wirtschaft/innovation/>

Target groups: all stakeholder groups

Embedding protected areas in a vibrant economies:

- Foster the understanding that protected areas hold the potential for significant economic growth of a region, creating stable and quality employment
- Support projects that emanate from your region and build a network to connect these initiatives
- Establish round-tables for an open exchange between businesses, public administrations and non-governmental organizations to find the needs of each group and approaches how to fulfill them
- Create awareness that industry, innovation and infrastructure secure jobs in rural areas but these must not deprecate the environmental quality of landscapes as healthy communities rely on economic, social and environmental sustainability

Network for sustainability in the Biosphere Region Berchtesgadener Land, Germany

- Over several months 14 innovative businesses in the Biosphere region discussed criteria for sustainable businesses in the region and how to establish a system to support sustainable business initiatives.
- The result of the participation process is a network for businesses on sustainability. The network promotes reciprocal learning, allows for better marketing of products and closing of regional supply chains as well as providing a lobby for issues of corporate sustainability.
- More information (in German): <https://www.berchtesgadener-land.de/presstexte/vorbildliches-unternehmernetzwerk-zur-nachhaltigkeit-startet>

Schaffhauser House in the Nature Park Schaffhausen, Switzerland

- By building a sustainable house from local resources, the project intends to create awareness for regional architecture and local craftsmanship, short supply chains and close material cycles.
- The model project is supposed to become a label and best-practice: when new houses in the region fulfill certain sustainability criteria, connect innovative local businesses and use local resources, they can be honored as a Schaffhauser house.
- More information (in German): <https://naturpark-schaffhausen.ch/de/produkte-gewerbe/schaffhauser-haus.html>

Target groups: municipal administrations, regional county administrations, private initiatives

Finding innovative potential:

- Use bridges (knowledgeable people in positions between two fields or systems) to learn more about where and what to innovate
- Host innovation awards in sustainable development categories for local companies and initiatives
- Fund innovative ideas with grants and other subsidies

“Innovation-cell“ for sustainable development in the Rhön Biosphere Reserve, Germany

- The Rhön Biosphere Reserve plans to establish a think tank for sustainable development. Its task is to organise workshops with regional stakeholders and partners from science and research and to initiate collaborations between regional companies and researchers.
- It is planned to connect regional development agencies, business incubator, chambers of commerce, associations and companies or entrepreneurs, who want to establish their business.
- More information (in German): <https://www.biosphaerenreservat-rhoen.de/mensch/projekte-im-bereich-mensch/innovationszelle-nachhaltiges-wirtschaften-think-tanks/>

Innovative hiking guides in four national parks in the Apennines, Italy

- Hiking guides in the national parks (1) Foreste Casentinesi, Monte Falterona e Campigna National Park, (2) Abruzzo, Lazio and Molise National Park, (3) Pollino National Park (PNP) and (4) Aspromonte National Park (ANP) are the link between tourism and the parks.
- They provide insight into what aspects of tourism and the local economy should be developed further. Using their knowledge, hiking guides help to find innovative and sustainable solutions transforming the tourism of the region.
- More information: <https://doi.org/10.5751/ES-11996-250446>

Additional information

Website: [United Nations Development Program. GOAL 9.](#)

Website: [SDG 9 indicators](#)

Report: [Natural solutions. Protected areas helping to meet the sustainable development goals](#)

Report: [Urban Protected Areas: Profiles and best practice guidelines. Best Practice](#)

Website: [Sustainable Development Plans](#)

Research article: [Toward the development of sustainable ecotourism in Italian national parks of the Apennines: insights from hiking guides](#)

SDG 10: Reduced Inequalities

About inequalities and this SDG

Reduced inequality is highly relevant for sustainable development:

- Development and economic prosperity depend on equal opportunities for all.
- SDG 10 reflects a core commitment within the SDGs – ‘leave no one behind’.
- Reduced inequality contributes to better social cohesion within and between societies.
- Overpopulation can only be addressed with equal access to education for all, especially women.
- Globally concerted efforts to tackle climate change will be more effective if inequalities between countries are reduced.

Relevant targets for protected areas

Target	
10.1	Reduce income inequalities: By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average.
10.2	Promote universal social, economic and political inclusion: By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status.

Targets of less relevance for protected areas

Target	
10.3	Ensure equal opportunities and end discrimination: Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws,

Target	
	policies and practices and promoting appropriate legislation, policies and action in this regard.
10.4	Adopt fiscal and social policies that promote equality: Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality.
10.5	Improved regulation of global financial markets and institutions: Improve the regulation and monitoring of global financial markets and institutions and strengthen the implementation of such regulations.
10.6	Enhanced representation for developing countries in financial institutions: Ensure enhanced representation and voice for developing countries in decision-making in global international economic and financial institutions in order to deliver more effective, credible, accountable and legitimate institutions.
10.7	Responsible and well-managed migration policies: Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies.
10.A	Special and differential treatment for developing countries: Implement the principle of special and differential treatment for developing countries, in particular least developed countries, in accordance with World Trade Organization agreements.
10.B	Encourage development assistance and investment in least developed countries: Encourage official development assistance and financial flows, including foreign direct investment, to States where the need is greatest, in particular least developed countries, African countries, small island developing States and landlocked developing countries, in accordance with their national plans and programmes.
10.C	Reduce transaction costs for migrant remittances: By 2030, reduce to less than 3 per cent the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5 per cent.

SDG 10: The status quo

Socio-political aspects of inequality, including gender and ethnicity, are inextricably linked to the conservation and the sustainable use of biodiversity. This is because local communities and women are important stewards of biodiversity and associated

Equality refers to the right of different groups of people to have a similar social position and receive the same treatment

Source: [Cambridge dictionary](#)

traditional knowledge but are often marginalized and disadvantaged.³⁷

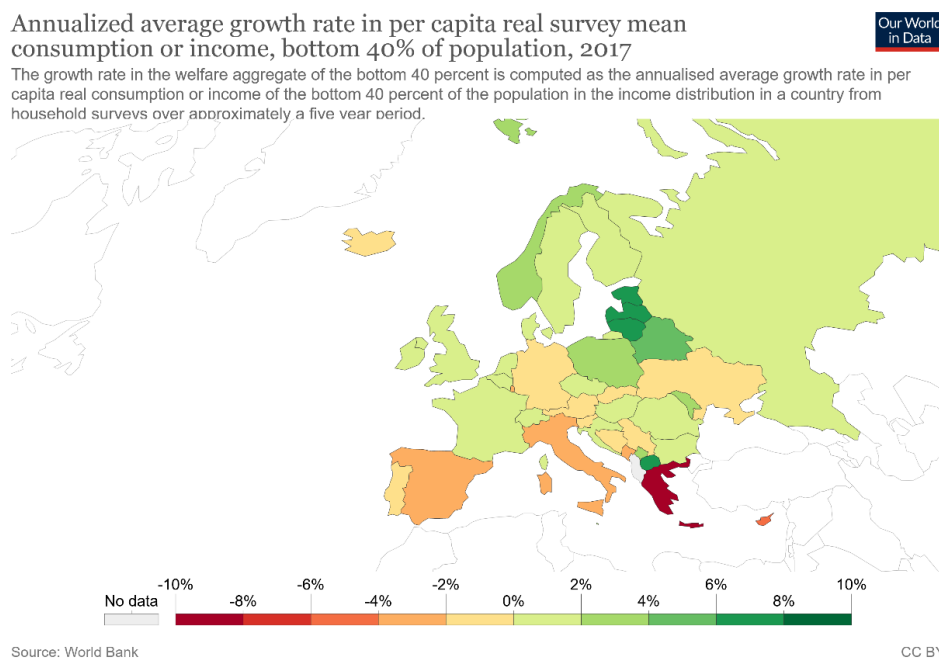
Reducing inequality in protected areas can help improve biodiversity conservation while improving the socio-economic situation of people living within them, too.

The title of SDG 10, “Reduced inequality”, refers to reducing inequality within and between countries. This includes, but is not limited to:

- **Income** inequalities
- Inequalities resulting in social, economic and political **exclusion**
- Unequal opportunities and **discrimination**

Primary Issue – Income inequality

- Income inequality and poverty are closely related. Distribution of income has a direct effect on the extend and depth of poverty.
- 94.8 million people in the EU were at risk of poverty or social exclusion.
- In 2018, the poverty gap between rural areas and cities has almost closed, however, rural exodus, ageing of the population, remoteness, limited access to education, and inefficient labor markets remain a serious issue.³⁸



³⁷ [Biodiversity 2030 Agenda Technical Note](#)

³⁸ https://ec.europa.eu/eurostat/statistics-explained/index.php?title=SDG_10_-_Reduced_inequalities

Primary Issue – Exclusion

- Economic, social, or political exclusion involves the denial of resources, rights, goods, and services and the inability to participate in normal relationships and activities in a society.
- Exclusion affects the quality of life of individuals and the cohesion of society as a whole.
- In Europe, minorities, refugees, and migrants are frequently affected by exclusion.

Primary Issue – Discrimination

- Although the EU and member states have developed broad anti-discrimination policies, discrimination in the workplace persists, especially against migrants and minorities.
- In the criminal justice system, forms of racism lead to unequal sentencing.³⁹
- Moreover, forms of discrimination based on sexual orientation, disabilities, genetics and lifestyle continue to be a problem for many people in Europe.

What can be done?

The role of protected areas

The goals of a protected area cannot be implemented by its administration alone. To truly be a model region for sustainable development, protected area administrations need to establish a network with regional and local administrations, businesses and civil society. Together, they can initiate projects and activities.

The result can be income opportunities for residents of protected areas and opportunities to participate in the social life of the region. This reduces inequalities and exclusion in protected areas.

Public Administrations	Private Sector	Civil Society
Local municipal administrations	Agriculture, forestry, fisheries	Non-governmental organisations

³⁹ <https://www.enar-eu.org/Shadow-Reports-on-racism-in-Europe-203>

Public Administrations	Private Sector	Civil Society
Regional county administrations	Production industry, crafts	Private initiatives
	Service sector, e.g. trade and retail, tourism, transit/transportation etc.	
	Industry advocacy groups	

Solutions: Regulation and service provision

Target groups: local municipal administrations, regional county administrations, transit sector

Inclusive infrastructure

- Retrofit all public buildings to be inclusive to people with physical disabilities (ramps, elevators etc.)
- Retrofit train and bus stations to be inclusive to people with physical disabilities (ramps, elevators etc.)

Inclusive policies

- Develop inclusive policies on the local and regional level which target work and social life

Quality of life for the elderly – inclusive policies in the biosphere reserve Rhön, Germany

- The number of elderly people in the Rhön is steadily increasing. In order to increase the quality of life for this population group, there are numerous projects. Protected area administrations can initiate and network these initiatives.
- Projects include the creation of networks for home care, the age-appropriate conversion of houses and the political representation of interests in local governments.
- More information (in German): <https://www.biosphaerenreservat-rhoen.de/mensch/die-rhoener-im-biosphaerenreservat/senioren/>

Experiencing nature in the high alps for people with disabilities in the national park Gesäuse, Austria

- To enable people with disabilities to visit the national park, special infrastructure has been built. Three visitor centers, two themed hiking trails and several viewpoints have been converted to be wheelchair accessible.
- In addition, rentable Swiss-Tracs (all-terrain tractors for wheelchairs) enable visitors to reach greater heights.
- More information (in German): https://nationalpark-gesaeuse.at/nationalpark-erleben/aktivitaeten/mit_besonderen_beduernissen

Solutions: Innovative activities

Target groups: non-governmental organizations, private initiatives

Increase inclusion

- Develop inclusive projects with marginalized groups such as minorities, migrants, people of color
- Allow all people to learn about and participate in their protected area, e.g., through referendums, roundtables, etc.

“School with courage instead of racism”, biosphere reserve Bliesgau, Germany

- Since 2015, the school in Kirkel has been a "School with Courage instead of Racism". This means that teachers, students and the school management are committed to inclusion, equality and cooperation and try not to reproduce racism.
- More information (in German): <https://www.saarpfalz-kreis.de/pressearchiv/seit-2015-schule-ohne-rassismus-schule-mit-courage>

“Inclusive hiking guides”, nature park Swabian-Franconian Forest, Germany

- The aim of the project is to enable people with physical disabilities to participate in leisure and nature activities. To this end, specially trained guides will test trails that will be advertised as inclusive hiking trails.
- The trails must meet several criteria, such as a length between 3-5 km, parking spaces and accessible public toilets. Testing by guides allows people with physical disabilities to use the hiking infrastructure independently.

“Inclusive hiking guides”, nature park Swabian-Franconian Forest, Germany

- More information (in German): <https://www.naturpark-sfw.de/erleben/barrierefreie-angebote/inklusive-wanderbotschafterinnen/>

Additional information

Guideline: [Planning accessible experiences of nature](#)

eBook: [Chapter 10: Reduced inequalities – An Environmental Justice Perspective on Implications for Forests and People](#)

Article: [Nature – Migrants and refugees are good for economies](#)

Article: [Biosphere Reserve for All: Potentials for Involving Underrepresented Age Groups in the Development of a Biosphere Reserve through Intergenerational Practice](#)

SDG 11: Sustainable Cities and Communities

About sustainable cities and communities and this SDG

Sustainable cities and communities are highly relevant for sustainable development:

- Cities, but also settlements, have a strong impact on their environment through land consumption, waste production, influence on the microclimate etc.
- Residents are also affected by how cities are organized and structured, how polluted they are, and what access there is to (public) infrastructure.

Relevant targets for protected areas

Target	
11.2	By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
11.3	By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries
11.4	Strengthen efforts to protect and safeguard the world's cultural and natural heritage
11.5	By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations
11.6	By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management

Target	
11.7	By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities
11.A	Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning
11.B	By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels

Targets of less relevance for protected areas

Target	
11.1	By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums
11.C	Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials

SDG 11: The status quo

Biosphere reserves and nature parks often contain complete settlements, sometimes city districts or entire cities. As wilderness areas, national parks naturally do not contain any urban and hardly any settlement areas but are often surrounded by settlements.

Therefore, cities and settlements have a significant impact on protected areas, both positive and negative.

Cities and settlements constantly interact with their environment. This creates various negative impacts:

- Environmental pollution caused by the **disposal of waste** materials from cities and settlements, such as waste or sewage disposal.

- **High spatial requirements** of cities and settlements, e.g. for housing and living space or individual traffic, leading to land consumption and competition with e.g. agricultural or nature conservation areas.
- **High levels of pollutants** in the air due to exhaust fumes, smoke and industry.

Primary Issue – Waste disposal

- In 2018, total waste generated in European member states by all economic activity and households amounted to 2.317 million tons, of which waste water, services and households accounted for 22%.
- Recent trends indicate that waste is increasingly being reused (recycled, used for backfilling in earthworks, or incinerated) rather than sent to landfills.⁴⁰
- However, waste generation in Europe is increasing and is far from a closed-loop system.⁴¹

Primary Issue – Spatial requirements

- From 2012 until 2018, land take (land transformed for urban and other artificial land development) in the EU-28 was 539 km²/year.⁴²
- In 2015, 4.2 % of the total area of the EU-28 was covered by artificial land (buildings and non-built-up areas such as roads).⁴³
- There are no binding targets on European level regarding land use and the institutional landscape is fragmented.
- Soil sealing degrades soil, increases risk of flooding and water scarcity, puts biodiversity at risk and contributes to global warming.⁴⁴

Primary Issue – Pollution

- Air pollution is one of the main threats to health in Europe, especially in urban areas. It reduces life expectancy, increases medical costs and reduces productivity in various economic sectors.⁴⁵

⁴⁰ https://ec.europa.eu/eurostat/statistics-explained/index.php/Waste_statistics

⁴¹ <https://www.eea.europa.eu/data-and-maps/indicators/waste-generation-4/assessment>

⁴² <https://www.eea.europa.eu/data-and-maps/indicators/land-take-3/assessment>

⁴³ https://ec.europa.eu/eurostat/statistics-explained/index.php/Land_cover_statistics#Focus_on_artificial_land_cove

⁴⁴ https://ec.europa.eu/environment/soil/sealing_guidelines.htm

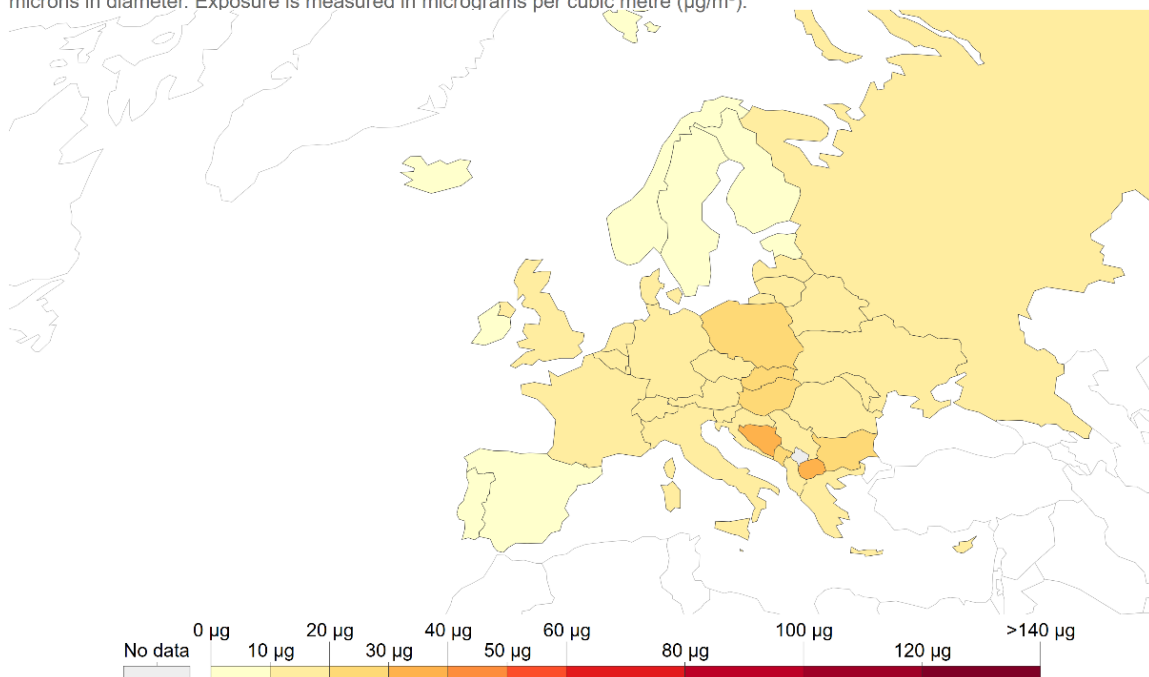
⁴⁵ <https://www.eea.europa.eu/publications/air-quality-in-europe-2020-report>

- Air pollution also damages ecosystems and vegetation, reducing the capacity of ecosystem services and soil and water quality.
- Air pollution is decreasing overall, but exposure to particulate matter reduces life expectancy in Europe by 1 year on average.⁴⁶

Particulate matter air pollution, 2016

Population-weighted average level of exposure to concentrations of suspended particles measuring less than 2.5 microns in diameter. Exposure is measured in micrograms per cubic metre ($\mu\text{g}/\text{m}^3$).

Our World
in Data



Source: World Bank

OurWorldInData.org/air-pollution/ • CC BY

What can be done?

The role of protected areas

National parks, UNESCO biosphere reserves, nature parks and other types of protected areas have different approaches to ecosystem conservation. Nevertheless, they share the common goal of combining the preservation of ecosystems with sustainable economic development. Therefore, large protected areas fulfill various functions regarding cities and municipalities.

For example, the mission of biosphere reserves as model regions for sustainable development naturally also extends to the development of models of sustainable lifestyles in settled areas. Towns and cities are also important

⁴⁶ <https://www.euro.who.int/en/health-topics/environment-and-health/air-quality/data-and-statistics>

consumers of regionally produced products and target groups for local tourism. National parks also often represent an important recreational and adventure area for settlements in the surrounding area.

The goals of a protected area cannot only be implemented by its administration. To truly be a model region for sustainable development, protected area administrations need to establish a network with regional and local administrations, businesses, and the civil society.

Establishing sustainable towns and settlements requires intensive cooperation between many different actors. The administrations of protected areas actively manage projects and support planning processes with different stakeholders. Therefore, they are valuable partners for cities and municipalities.

Public Administrations	Private Sector	Civil Society
Local municipal administrations	Agriculture, forestry, fisheries	Non-governmental organizations
Regional county administrations	Production industry, crafts	Private initiatives
	Service sector, e.g. trade and retail, tourism, transit/transportation etc.	
	Industry advocacy groups	

Solutions: Innovative activities

Target groups: protected areas, municipalities, regional initiatives

Efficient and sustainable infrastructure

- Impetus for sustainable use of old buildings (e.g. sales outlet for sustainably produced regional and seasonal products)
- Mediation of vacant housing, e.g. through online portals
- Utilization and thus maintenance of infrastructure threatened by

Protecting ecosystems and biodiversity

- Preservation and creation of habitats in settlement areas
- Conservation of ecosystems through adapted use for the production of regional

<p>demographic change through sustainable tourism</p> <ul style="list-style-type: none"> • Installation of sustainable street lighting that uses less electricity and reduces light pollution • Construction of housing from renewable materials 	
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Zones for conservation and development in the Abruzzo National Park, Italy

<ul style="list-style-type: none"> • With its autonomous park agency, clear management plan and strict zoning, the reconciliation of conservation and development of local settlements has been successfully implemented. • The park has brought many benefits to the local population while protecting the biodiversity and landscapes of the region. The national park therefore combines conservation with cultural and local revitalization. • More information: http://www.italia.it/en/travel-ideas/the-mountains/the-national-park-of-abruzzo.html

Target groups: protected areas, municipalities, regional initiatives

<p>Efficient and sustainable use of ecosystem services</p> <ul style="list-style-type: none"> • Increasing disaster resilience through nature conservation measures, e.g. flood protection, by creating retention areas as part of renaturation • Strengthening ecosystem services such as air pollution control, groundwater recharge, or CO₂ fixation through zoning and sustainable forest management • Nature based solutions instead of 'hard' infrastructure (e.g. coupling of flood protection and renaturation measures) 	<p>Protecting ecosystems and biodiversity</p> <ul style="list-style-type: none"> • Conservation of ecosystem services through environmental and nature conservation measures • Preservation of attractive landscapes through maintenance measures and nature-friendly management
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Large-scale nature conservation project in Lenzener Elbtalaue, Germany

- Along the river Elbe, a near-natural floodplain landscape was restored by relocating the dike and slitting the old dike. The large-scale nature conservation project "Lenzener Elbtalaue" was implemented in exemplary cooperation between water management and nature conservation.
- As part of a synergy effect, the biotope management measure of the dike relocation led to a significant lowering of the Elbe flood peak during the 2011 and 2013 flood events.
- Link (in German): <https://www.bfn.de/foerderung/naturschutzgrossprojekt/liste-abgeschlossener-vorhaben/ngp-abgschl-wasser-steckbriefe/lenzener-elbtalaue.html>

"Blooming Nature Parks" in the federal state of Baden-Wurttemberg, Germany

- As part of the "Blooming Nature Parks" project, Baden-Wurttemberg's seven nature parks provide information material on biodiversity, green space management and an insect-friendly seed mix for municipalities, businesses and property owners. In addition, consulting and training services enable regional stakeholders to implement biodiversity protection measures.
- In the Southern Black Forest Nature Park alone, more than 60 municipalities, companies, nature conservation associations, beekeeper associations and others have participated in the project. Among them is Novartis Pharma Produktions GmbH, which has designed an insect-friendly green space that is even open to the public.
- To encourage corporate participation, the nature park introduced the "Blooming Companies" initiative. Green roofs, infiltration areas and reduced mowing contribute to increased biodiversity and improved surface runoff while reducing management costs for participating companies
- Links (in German): <https://www.naturpark-suedschwarzwald.de/eip/pages/bluehender-naturpark.ph>
<https://www.naturpark-suedschwarzwald.de/eip/pages/bluehende-unternehmen.php>

Target groups: municipal administrations, county administrations, agriculture, forestry, fisheries, production industry, crafts, non-governmental organizations

Regional food products and short chains

- Regional products can be sold in close-by cities

Rural-urban relations

Target groups: municipal administrations, county administrations, agriculture, forestry, fisheries, production industry, crafts, non-governmental organizations

- Increase the amount of locally produced food for cities – this contributes to food security and shortens supply chains
- Create working groups or networks, so cities and rural areas can discuss their development together

City-and-Surroundings-Management Vienna, Austria

- The City-and-Surroundings-Management enables the city of Vienna and the bordering region of Lower Austria to cooperate in regional development.
- Aspects of mobility, housing, economy, recreation and environmental protection, are discussed jointly between Austria's capital and the bordering rural communities.
- More information (in German): <https://www.stadt-umland.at/>

Target groups: municipal administrations, county administrations, transit sector

Sustainable transit

- Strengthening public transport by bundling tourist and everyday traffic
- Saving CO2 through short transport routes
- Implementation of traffic management to reduce noise and increase safety
- Mobility as a service (MAS)

Linking tourist travel and public transit with the Biosphere Bus, Germany

- The "Biosphere Bus" 501 travels over a distance of 54 kilometres through the Bliesgau Biosphere reserve once an hour.
- It links up everyday life and tourist traffic, and combines numerous leisure, shopping, and nature experiences. And it does so seven days a week, from shortly after 7 in the morning until after 10 in the evening.
- More information (in German): https://www.youtube.com/watch?v=b7G16wm_4NQ

Target groups: protected areas, municipalities, regional initiatives

Recreation and education for sustainable development

- Provision of extracurricular learning locations such as nature trails
- Nature-related leisure activity offers
- School field trips and projects for ecosystem restoration and habitat building
- Creation and securing of recreational areas
- Use of protected areas as "therapeutic landscapes"

Environmental education trail in the Bliesgau Biosphere Reserve, Germany

- The handicapped accessible circular trail "With the ecological backpack through the Blieskastel forest" consists of 11 stations with playground equipment and information boards.
- It tells the story of the fictional Paul, who thinks about how to live well without putting too much strain on the earth. Each station represents a typical everyday activity of Paul's that learners can identify with.
- The trail deals with the overuse of the earth in general and tries to create a connection and concern among the learners as well as to show possibilities for a sustainable lifestyle.

Additional information

UN website: [Overview](#) SDG 11

Website: [International Union for Conservation of Nature and SDGs](#)

Toolkit: [The Earth Observations Toolkit for Sustainable Cities and Human Settlements](#)

Website: [Tackling waste pollution in Ukrainian Protected Areas](#)

Report: [Safe roads for wildlife and people](#)

Article: [Towards Sustainable Business Parks: a Literature Review and a Systematic Model](#)

[Memorandum of Understanding between National Parks England and Highways England](#)

SDG 12: Responsible Consumption and Production

About responsible production and consumption and this SDG

In order to live, we all must consume resources. Food, mobility, housing, clothing, energy, enjoyment, we constantly consume things that are produced for us. In Europe, we live well beyond our means.

How can we use the increasingly scarce resources of our earth in such a way that future generations can still lead a good life?
How can we produce and consume without exploiting other people in other regions of the world?
How can we burden and exploit our earth less?

Our lifestyles and economic practices must change, we must consume and produce sustainably.



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Relevant targets for protected areas

Target	
12.1	Implement the 10-year framework for sustainable consumption and production. Here, all countries are to take action, with developed countries taking the lead and considering the development and capabilities of developing countries
12.2	By 2030, achieve the sustainable management and efficient use of natural resources

Target	
12.3	By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses
12.4	By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks. Also, significantly reduce their release into air, water and soil in order to minimize their negative impacts on human health and the environment
12.5	By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse
12.6	Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate information on sustainability into their reporting cycle
12.7	Promote public procurement practices that are sustainable, in accordance with national policies and priorities
12.8	By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature
12.B	Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products

Targets of less relevance for protected areas

Target	
12.A	Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production
12.C	Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions in accordance with national circumstances. Also, restructure taxation and gradually remove these harmful subsidies where they exist to reflect their environmental impacts. At the same time, take into account the specific needs and conditions of developing countries and minimizing the

Target

potential negative impacts on their development in a manner that protects the poor and the affected communities

SDG 12: The status quo

Protected Areas serve to protect biodiversity and habitats. Yet, they can also provide many renewable and non-renewable resources and be sites of non-industrial production.⁴⁷

Production and consumption are closely interlinked and protected areas are places where the two can come together. The transformation of resources into goods such as food and non-food products implies their consumption by consumers.

The way in which they are produced and consumed has concrete effects on our environment. Here, protected areas can take a lead role and showcase a responsible way of consuming and producing products and services.

The title of SDG 12 “Responsible consumption and production” refers to the creation and consumption of sustainable goods and services and is an essential requirement for sustainable development.

- **Sustainable consumption** relies on consumer behavior which takes into account social and environmental concerns when purchasing goods and services.
- **Sustainable production** places long-term outcomes over short-term gain and is environmentally friendly, energy and resource efficient, safe, economically viable, and benefits employees and communities.

Primary Issue – Unsustainable consumption

- Excessive environmental footprint per capita (around 3 planet Earths in Europe).
- Choosing cheap, low quality products over more robust options.
- Not reusing and recycling things.

⁴⁷ <https://www.biodiversitya-z.org/content/iucn-category-vi-protected-area-with-sustainable-use-of-natural-resources>

- Not taking environmental and social aspects into account when buying, using and disposing of products and services.
- Unconscious consumption – not looking closely and questioning what is needed, what is produced and how.

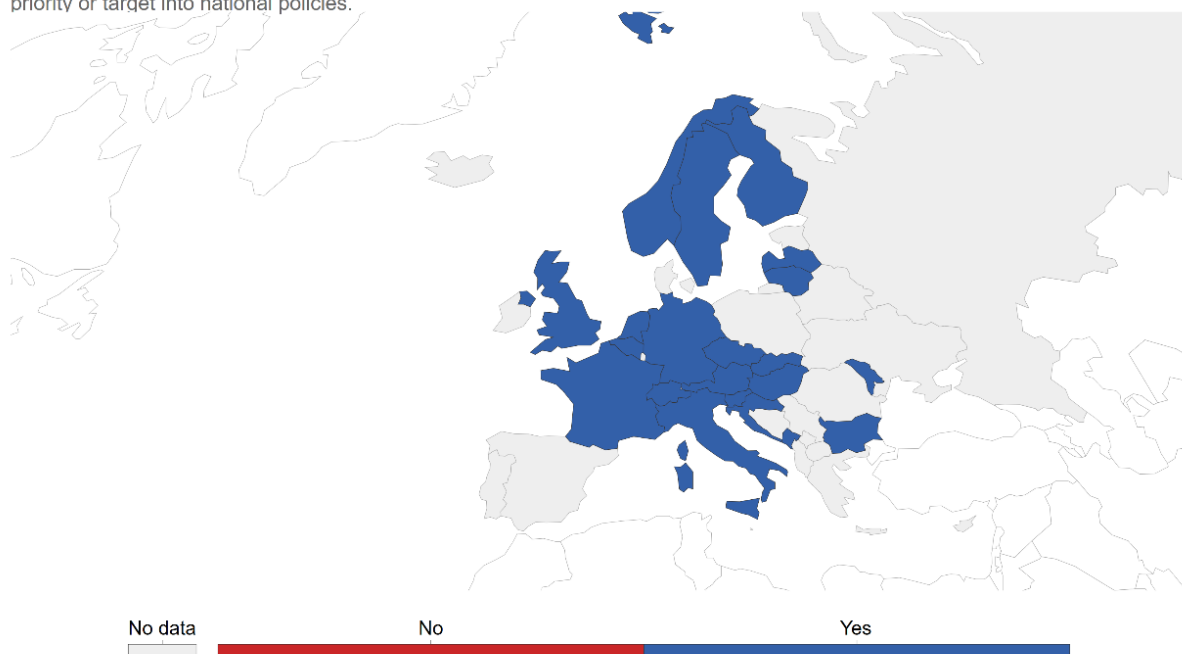
Primary Issue – Unsustainable production

- Production of goods in an accelerated manner (e.g. fast fashion).
- Use of non-renewable energy.
- Non-circular product design, unclosed loops of resource flows in production & inefficient use of resources.
- Prioritization of economic profit over social and environmental concerns.
- Environmental pollution (e.g. air & water) resulting from production.
- Going beyond the regenerative capacity of natural systems when extracting resources.

Does country have sustainable consumption and production (SCP) national action plan?, 2017

Our World
in Data

Countries with or without a sustainable consumption and production (SCP) national action plan or SCP mainstreamed as a priority or target into national policies.



Source: UN Statistics Division (2019)

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Threats – Discrepancy between knowledge and action

- Although knowledge about negative environmental impacts of consumption and production are widespread in Europe - old habits are hard to overcome.
- Short-term economic benefits may continue to outweigh sustainable consumption and production, which are often associated with long-term investments.
- This became especially visible during the Corona pandemic when businesses struggled financially and aspects of sustainability became secondary due to lockdowns and interruption of global supply chains.

→ The result is inaction or insufficient progress at transforming consumption and production despite being aware of the consequences of doing nothing.

What can be done?

The role of protected areas

National parks, UNESCO biosphere reserves, nature parks and other types of protected areas have different approaches to protecting ecosystems. Nevertheless, they share the common goal of combining the conservation of ecosystems with sustainable economic development.

The goals of a protected area cannot only be implemented by its administration alone. To truly be a model region for sustainable development, protected area administrations establish a network with regional and local administrations, businesses and the civil society. Together they can initiate projects and activities.

- Ensuring the support of a **sustainable economy** and the **efficient use of natural resources** are important tasks of protected areas.
- The natural resources of a region are needed for the production of **regional products** and for the generation of **sustainable energy** (wind, sun).
- **Companies** that operate in a particularly sustainable manner are promoted, highlighted and honored by protected areas.
- Protected areas **bring** companies **together** to build new regional value chains.

- The attractive and picturesque landscapes have a high recreational value and are therefore often the basis for the development of **sustainable tourism**.

Protected areas are regional catalysts for sustainable consumption and production patterns:

- Through public relations and education for sustainable development, information about projects, products, initiatives and people is provided in protected areas.
- Through participatory experiences (e.g. workshops), awareness is created and competences for a more sustainable way of life are promoted.
- Connections between global issues and local potential for action are made visible and understandable, also through cooperation in the world network.

Public Administrations	Private Sector	Civil Society
Local municipal administrations	Agriculture, forestry, fisheries	Non-governmental organisations
Regional county administrations	Production industry, crafts	Private initiatives
	Service sector, e.g. trade and retail, tourism, transit/transportation etc.	
	Industry advocacy groups	

Solutions: Collaborations and awareness raising

Target groups: protected areas, municipalities, production industry, service sector, regional initiatives

Education for sustainable consumption

- Promote life-long learning by incorporating ethical consumption and education for sustainable development into kindergartens, schools and adult and senior education
- Host workshops to increase the understanding of the relations between everyday life choices and responsible consumption and production, and provide participants with tangible insights
- Create opportunities for people to actively reflect on the sustainability of their lifestyles, e.g. in the form of new city or region-specific public holiday

Biosphere fair in the Bliesgau Biosphere Reserve, Germany

- To publicly promote the work of the biosphere reserve Bliesgau, the annual biosphere fair is hosted in a village near Saarbrücken, the capitol of the federal state.
- Over 100 exhibitors showcase their products such as honey, meats and wood carvings – all made from regional ingredients and resources.
- More information (in German): https://www.saarbruecker-zeitung.de/saarland/tausende-menschen-stroemen-zum-16-biosphaerenfest-nach-einoed_aid-45377469

Solutions: Innovative activities

Target groups: protected areas, municipalities, production industry, service sector, tourism sector, regional initiatives

Regional marketing

- Introduce trade fairs which showcase newest developments in sustainable production of local companies
- Award leading companies with prizes and promote their products publicly
- Market regional (food) products in supermarkets, online stores and tourism accommodations such as hotels and pensions
- Develop the protected area as a tourist destination/brand in cooperation with

Target groups: protected areas, municipalities, production industry, service sector, tourism sector, regional initiatives

public transport companies and tourist associations

Bliesgau shelves in the Biosphere Reserve Bliesgau, Germany

- Local and seasonal products of the Bliesgau region are marketed in local shops on shelves made from local wood
- Buying the products supports the local economy, contributes to short supply chains and brings enjoyment to customers
- More information (in German): <https://www.saarpfalz-touristik.de/erlebnisse/genuss/bliesgau-regale>

Target groups: industry, crafts, trade & retail, service sector

Efficient and sustainable production

- Stimulate regional business networks/partnerships to shorten supply chains, decrease dependency on inputs from outside the region and increase economic resilience
- Generate energy from renewable resources
- Close material loops by using by-products of other companies for your own production wherever possible

Rhönsprudel beverage company in the Biosphere Reserve Rhön, Germany

- With 300 employees and 14 trainees, Rhönsprudel is an important employer in the region.
- While generating revenue, the company is also eager to protect its mineral springs, which are located in the biosphere reserve, through sustainable water extraction, waste and waste water recycling, as well as supporting local conservation projects.
- More information (in German): <https://www.rhoensprudel.de/biosphaerenreservat/natur-und-wirtschaft-im-einklang/>

Additional information

Website: [SDG 12](#)

Website: [One Planet Network](#)

Website: [Sustainability Compass for public procurement](#)

Website: [Biosphere reserve Bliesgau](#)

Report: [Catalysing Science-Based Policy Action on Sustainable Consumption and Production: The Value-Chain Approach and its Application to Food, Construction and Textiles](#)

Website: [Fourth session of the United Nations Environment Assembly](#)

Website: [Fifth session of the United Nations Environment Assembly](#)

SDG 13: Climate Action

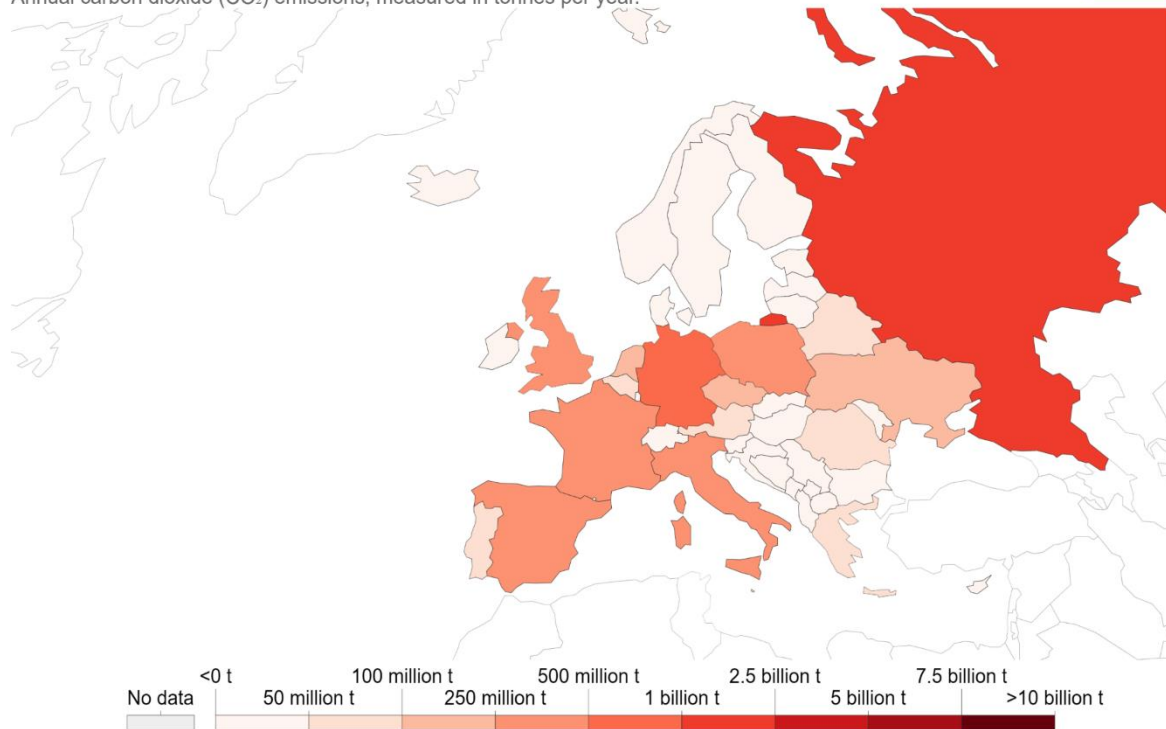
About climate change and this SDG

Climate change is a consequence of human activity and threatens our way of life and the planet's future. In recent years, the concentration of greenhouse gases in the atmosphere has accelerated dramatically.

Direct consequences: warming of the oceans, rising sea levels, melting of the poles, loss of biodiversity and extreme weather events.

Annual CO₂ emissions, 2018

Annual carbon dioxide (CO₂) emissions, measured in tonnes per year.



Source: Global Carbon Project; Carbon Dioxide Information Analysis Centre (CDIAC)
OurWorldInData.org/co2-and-other-greenhouse-gas-emissions/ • CC BY

Relevant targets for protected areas

Target	
13.1	Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.

Target	
13.3	Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.

Targets of less relevance for protected areas

Target	
13.2	Integrate climate change measures into national policies, strategies and planning.
13.a.	Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible
13.b.	Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities. Acknowledging that the United Nations Framework Convention on Climate Change is the primary international; intergovernmental forum for negotiating the global response to climate change.

SDG 13: The status quo

Protected Areas can make a significant contribution to the responses to climate change by⁴⁸:

- The prevention of the loss of carbon already captured in vegetation and soils.
- Avoiding the degradation of natural ecosystems with higher rates of atmospheric carbon sequestration.
- Maintaining the capacity of ecosystems to buffer extreme disturbances and maintain ecosystem services, reducing the vulnerability of human well-being.

⁴⁸ https://www.bfn.de/fileadmin/MDB/documents/ina/vortraege/2010_Report-climate-and-PA-management.pdf

- Long-term monitoring systems for the effects of climate change.

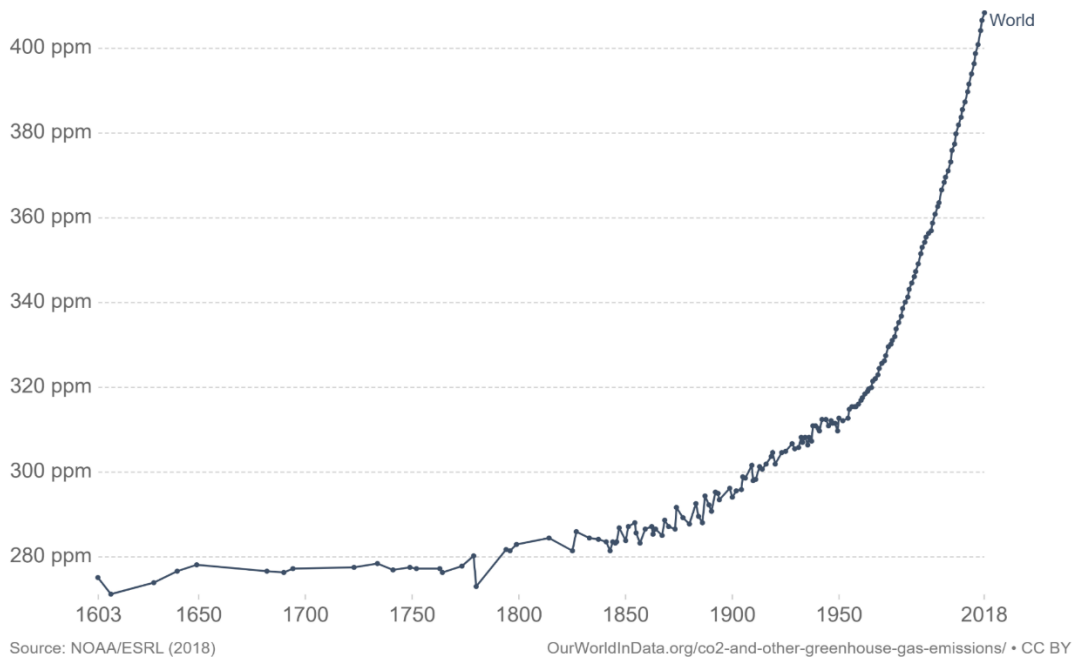
The title of SDG 13 “Climate Action“ refers to reducing carbon emissions in the face of anthropogenic climate change. Climate change has several impacts on our planet:

- **Sea level rise:** Due to rising global temperatures, polar ice is melting, causing sea levels to rise.
- **Extreme weather events:** Climate change threatens to disrupt the earth’s complex weather and climate system. The result is increased frequency of droughts and floods.
- **Decrease in biodiversity:** Species have conquered habitats over millennia and occupied niches, some of them highly specialized. Climate change threatens to disrupt this balance.

Primary Issue – Greenhouse gas emissions

Global CO₂ atmospheric concentration

Global mean annual concentration of carbon dioxide (CO₂) measured in parts per million (ppm).



Anthropogenic greenhouse gas emissions have increased since the pre-industrial era, primarily driven by economic and population growth.

This has led to atmospheric concentrations of CO₂ and N₂O that are unprecedented in at least the last 800,000 years.

These high concentrations of greenhouse gas emissions are most likely the primary cause of warming since the mid-20th century.

Threat – Sea level rise

- Concentrations and emissions of greenhouse gases make it likely that global temperatures will exceed 1.5 degrees Celsius by the end of the century compared to the period 1850-1900.
- This will lead to increased melting of snow and ice, especially polar and glacial ice, and thermal expansion of warming water.
- An average sea level rise of between 24 and 30 cm is projected for the year 2065.

Threat – Extreme weather events

- Frequency and intensity of extreme weather events such as storms and droughts increase.
- Extreme weather events are a growing burden on national economies and insurance companies.
- Changing rainfall patterns and reduced soil fertility negatively impact agriculture and can threaten food security.

Threat – Decrease in biodiversity

- A changing climate affects ecosystems faster than they can adapt.
- This affects especially the most vulnerable ecosystems such as coral reefs, mountains and polar ecosystems.
- Non-endemic species gain the opportunity to disrupt fragile ecosystems.
- Damaged ecosystems provide only partial services which affect humans: e.g., forests provide less clean water.

What can be done?

The role of protected areas

National parks, UNESCO biosphere reserves, nature parks and other types of protected areas have different approaches to ecosystem conservation. Nevertheless, they share the common goal of combining the preservation of ecosystems with sustainable economic development.

The goals of a protected area cannot only be implemented by its administration. To truly be a model region for sustainable development, protected area administrations need to establish a network with regional and local administrations, businesses, and the civil society.

Together, they can initiate projects and activities. The result can be healthy habitats like forests, grazing lands, crops, wetlands and peatlands that contribute to minimizing climate change, since these ecosystems are large carbon deposits.

The Dresden Declaration on Biosphere Reserves and Climate Change

As a result of the international conference „For life, for future: Biosphere reserves and climate change“ the participants issued a declaration demanding action at the policy level and committing to practical activities in biosphere reserves and at UNESCO level.

Public Administrations	Private Sector	Civil Society
Local municipal administrations	Agriculture, forestry, fisheries	Non-governmental organisations
Regional county administrations	Production industry, crafts	Private initiatives
	Service sector, e.g. trade and retail, tourism, transit/transportation etc.	
	Industry advocacy groups	

Solutions: Innovative activities

Target groups: Private sector, Protected Areas and Public Administrations

Mitigation I

- Monitoring emissions and emission reductions to inform the public about climate change mitigation (potentials)
- Reducing energy consumption for heating, manufacturing, processing, transportation etc.
- Switching to renewable energies
- Introducing new and climate friendly technologies like electric cars
- Design of strategies to reduce the vulnerability of nature and humanity to climate change and extreme weather events

Illumination of a cycle expressway in the Geo-Nature Park Terra Vita, Germany

- In 2018, the city of Osnabrück implemented the lighting of a cycle path using lamps with motion sensors. These only illuminate the path when cyclists are using it.
- LED lamps with 4,000 Kelvin and 11 W were used. Dimming reduces the lighting to 1-2 W. Compared to conventional light sources, this significantly reduces damage to insects and other animals due to the attraction of the light, as well as energy consumption.
- More information (in German): https://www.osnabrueck.de/fileadmin/user_upload/Daten_Fakten_Gutachten_Ra_dschnellwege.pdf

Gseispur mobility platform in the National Park Gesäuse, Austria

- Due to the increasing demand for mobility as a result of growing tourism and leisure activities, the national park needed a way to ensure transportation without the need for a car and thus reduce CO2 emissions.
- With the mobility platform, people can now reach the national park without a car. Via app or hotline, they can order a shared cab, no matter what season or location.
- More information (in German): <http://gseispur.at/index.php>

Target groups: Private sector, Protected Areas and Public Administrations

Mitigation II

- Use of natural ecosystems in protected areas to mitigate climate change, e.g., restoration of wetlands and peatlands, implementation of rewetting measures such as blocking drainage ditches
- Territorial planning processes that guarantee the preservation of biodiversity and environmental services in protected areas to stop uncontrolled settlement and prevent land use changes under sustainable development criteria
- Creation of coalitions to collaborate among business, climate science, cultural, and geographic barriers to integrate protected areas into mitigation and adaptation strategies at multiple scales

Life Peat Restore project in Slowinski National Park, Poland

- The aim of the project is to restore the natural water regimes in the wetlands on the edge of the Slowinski National Park by installing dams made of natural materials, thus retaining water in the landscape.
- Not only does this benefit peatland vegetation, but peatlands are extremely effective carbon sinks. Damaged peatlands (e.g., due to drainage), on the other hand, contribute to climate change through CO2 emissions.
- More information (in English): <https://life-peat-restore.eu/en/project/poland/>

Target groups: Private sector, Protected Areas and Public Administrations

Adaptation

- Design strategies to reduce the vulnerability of nature and human society to climate change and extreme weather events.
- Plan building construction to be safe from rising sea levels or flooding rivers
- Engage stakeholders in processes to collaboratively discover adaptation needs and actions to address them

Restoring the Oka Estuary in the Urdaibai Biosphere Reserve, Spain

- The project of restoring the estuary was originally designed to adapt the region to climate change-related increase in sea levels. However, nowadays it includes the creation of pathways that promote social, economic and cultural connections

between the local populations and the environment, as well as sustainable development education initiatives.

- More information (in English): https://www.youtube.com/watch?v=mcHH9IxbNZg&feature=emb_imp_woyt

Solutions: Innovative activities

Target groups: Private Sector, Public administrations and Civil Society

- Incorporating climate change into environmental education activities.
- Communities within and near protected areas understand how climate change affects their environment, biodiversity, and lifestyles
- Encourage the acquisition of environmental certifications (e.g., ISO 14001)
- Promote good environmental practices and education in businesses

Climate neutral tourist accommodation in the Nature Park Nordeifel, Germany

- In 2013, several tourist accommodations in the Nordeifel region concluded their climate neutral certification audit.
- Their goal is to allow tourists to enjoy the Eifel region while maintaining its environmental integrity and not contributing to climate change
- More information (in Germany): <https://plattformklima.nrw/erste-klimafreundliche-gastgeber-im-naturpark-nordeifel/>

Inter-municipal Energy Network in the National Park Hunsrück-Hochwald, Germany

- Municipalities in the Hunsrück region joined forces to set up an energy saving and climate protection management network.
- Representatives meet three to four times a year to exchange ideas and participate in workshops. They initiate projects such as the installation of new heating systems in their municipalities to conserve energy and mitigate climate impact.
- More information (in Germany): <https://www.energieagentur.rlp.de/service-info/die-energieagentur-informiert/presse/presseinformationen/detailansicht/kommunen-des-nationalparks-treiben-klimaschutz-gemeinsam-voran>

Additional information

Guideline: [Nature-Based Approaches for Climate Change Mitigation and Adaptation](#)

Guideline: [Adapting to Climate change – Guidance for protected area managers and planners](#)

Textbook: [Dudley et al. \(2010\). Natural solutions: protected areas helping people cope with climate change. *Natural solutions: protected areas helping people cope with climate change.*](#)

Journal: [Climate change and ecosystems: threats, opportunities and solutions](#)

Report: [Natural solutions. Protected areas helping to meet the sustainable development goals.](#)

Report: [Natural solutions: protected areas helping people cope with climate change](#)

Article: [Callum et al. \(2017\): Marine reserves can mitigate and promote adaptation to climate change](#)

Lecture Series: [Climate Change and Health](#)

Guideline: [Protected areas and climate change: Resilience through site-level planning](#)

SDG 14: Life Below Water

About marine ecosystems and this SDG

Life below water is highly relevant to sustainable development because:

- Fisheries and aquaculture provide food, livelihoods and economic benefits to millions of people in the world.⁴⁹
- Oceans are the planet’s life support and regulate the global climate system.⁵⁰
The world’s oceans – their temperature, chemistry, currents and life – drive the Earth’s system that make the planet habitable for humans. How oceans are managed is essential for humanity as a whole, and to counterbalance the effects of climate change.
- Today 30 percent of the world’s fish stocks are overexploited, reaching below the level at which they can produce sustainable yields.
- Ocean acidification and marine pollution are serious issues which directly affect life below water but also coastal and upstream communities.⁵¹

Relevant targets for protected areas

Target	
14.1	By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution
14.2	By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans
14.3	Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels
14.4	By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at

⁴⁹ <https://unctad.org/system/files/official-document/Background-Note-Second-Oceans-Forum-July2018-v4.pdf>

⁵⁰ https://www.un.org/sustainabledevelopment/wp-content/uploads/2019/07/14_Why-It-Matters-2020.pdf

⁵¹ <https://www.undp.org/sustainable-development-goals>

Target	
	least to levels that can produce maximum sustainable yield as determined by their biological characteristics
14.5	By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information
14.B	Provide access for small-scale artisanal fishers to marine resources and markets

Targets of less relevance for protected areas

Target	
14.6	By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation
14.7	By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism
14.A	Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries
14.C	Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want

SDG 14: The status quo

- Marine Protected Areas (MPAs) also have **social impacts** on coastal communities and contribute to their wellbeing and health, human rights and access to resources, knowledge and education, local culture, social relations and social equity, inclusion and empowerment.⁵²
- MPAs provide **economic benefits** in various areas, especially tourism and fisheries.⁵³ In the case of the MPA of Llevant (Spain) it creates 10 EUR benefit for every invested Euro.⁵⁴
- However, as of 2019, only 1.8% of the EU marine area is covered by MPAs with management plans. According to WWF, 19 out of 23 marine EU Member States **have no or hardly any management plans** in place for their marine protected areas.⁵⁵
- Moreover, MPAs were found to be too small to sustain ecosystem resilience and hence do not fully deliver ecosystem services.⁵⁶ **MPAs fail to function as a network** either because they are too far away from other MPAs or they do not represent enough habitats within their boundaries.⁵⁷
- This leads to a high proportion of marine species and habitat assessments continue to find an '**unfavourable conservation status**', failing to meet legislation and conservation objectives.⁵⁸

SDG 14 refers to the oceans and marine ecosystems which are to be used sustainably. Human interaction with their environment degrades waters because of:

- **Unsustainable use of aquatic resources** such as fishing leads to a decline in biomass.
- **Pollution** with e.g. plastics causes injuries to marine life and threatens human health.
- **Climate change & invasive species** destabilizes the ocean system which accelerates climate change in a vicious circle.

⁵² <https://doi.org/10.1016/j.envsci.2020.06.004>

⁵³ <https://op.europa.eu/en/publication-detail/-/publication/85897a77-b0c7-11e8-99ee-01aa75ed71a1/language-en/format-PDF/source-search>

⁵⁴ <https://marilles.org/en/post/10--de-beneficio-por-cada-euro-invertido-en-la-reserva->

⁵⁵ <https://www.eea.europa.eu/themes/water/europes-seas-and-coasts/assessments/marine-protected-areas>

⁵⁶ <https://www.eea.europa.eu/themes/water/europes-seas-and-coasts/assessments/marine-protected-areas>

⁵⁷ https://d2ouvy59p0dg6k.cloudfront.net/downloads/protecting_our_ocean.pdf

⁵⁸ <https://www.eea.europa.eu/publications/marine-messages-2>

Primary Issue – Unsustainable use of aquatic resources

European fishing zones are heavily overfished: In 2019 About 43 % of stocks in the **North-East Atlantic** were still overfished but biomass recovered by 35 % between 2003 and 2019.⁵⁹

Up to 2017, 93 % of fish stocks were overfished in the **Mediterranean** and are fished at 2.4 times the sustainable yield. Fishing pressure in the Mediterranean is on average two times as great as in the North-East Atlantic.⁶⁰

Primary Issue – Pollution

- In 2018, only 40% of EU coastal waters, lakes, rivers and wetlands were healthy, while 60% were **unhealthy** in Europe.⁶¹
- **Eutrophication** is caused by diffuse agricultural run off which supports the growth of algae that consume a lot of the oxygen in water when they decompose. This can cause ecosystem collapse.
- At least 8,000,000 tons of **plastic** find their way into the oceans annually.⁶² Particularly microplastics pose an increasing risk to healthy and clean water.⁶³

Threat – Invasive species

- In Europe's seas, 1.223 non-indigenous species (NIS) are present of which 80 can be considered **invasive alien species (IAS)**. These have a high potential to cause repercussions on biodiversity and social and economic systems.
- Climate change facilitates the establishment of invasive alien species.⁶⁴

⁵⁹ https://ec.europa.eu/eurostat/statistics-explained/index.php?title=SDG_14_-_Life_below_water&oldid=487776

⁶⁰ <https://publications.jrc.ec.europa.eu/repository/handle/JRC120481>

⁶¹ <https://www.eea.europa.eu/highlights/european-waters-getting-cleaner-but>

⁶² <https://www.iucn.org/resources/issues-briefs/marine-plastics>

⁶³ <https://www.eea.europa.eu/themes/water/european-waters/water-use-and-environmental-pressures/water-use-and-environmental-pressures>

⁶⁴ <https://www.eea.europa.eu/data-and-maps/indicators/trends-in-marine-alien-species-mas-3/assessment>

Threat – Invasive species

- **Ocean surface pH** declined from 8.2 to below 8.1 due to increasing atmospheric CO₂ concentrations (this is an increase of 30 %).⁶⁵
- Change in ocean pH has effects on marine ecosystems: A reduction in carbonate availability reduces the **rate of calcification** of marine calcifying organisms, such as reef-building corals, shellfish and plankton. It also affects **primary production** in the oceans which in turn impacts the global carbon cycle.
- Changes in ocean temperature and oxygen content, and ocean acidification, indicate that systemic changes are taking place in **EU marine regions**, which further reduce marine ecosystems' resilience and hence resilience to the climate crisis.⁶⁶

What can be done?

The role of protected areas

National parks, UNESCO biosphere reserves, nature parks and other types of protected areas have different approaches to protecting ecosystems. Nevertheless, they share the common goal of connecting the preservation of ecosystems with sustainable economic development.

The goals of a protected area cannot only be implemented by its administration. To truly be a model region for sustainable development, protected area administrations establish a network with regional and local administrations, businesses and the civil society. Together they can initiate projects and activities.

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Local municipal administrations	Agriculture, forestry, fisheries	Non-governmental organisations
Regional county administrations	Production industry, crafts	Private initiatives
	Service sector, e.g. trade and retail, tourism, transit/transportation etc.	

⁶⁵ <https://www.eea.europa.eu/data-and-maps/indicators/ocean-acidification-3/assessment>

⁶⁶ <https://www.eea.europa.eu/publications/marine-messages-2/file>

Public Administrations	Private Sector	Civil Society
	Industry advocacy groups	

The value of protected areas to oceans and bodies of freshwater

Ecosystem benefits	Benefits for humans
Maintain biodiversity for both endangered and commercial species	Higher ecotourism value due to higher abundance and diversity
Protect certain habitats from particular destructive fishing practices	More and larger fish to catch
Allows for ecosystem recovery	Improved opportunities for research
Creates areas for fish to spawn and grow to larger sizes	Enhanced food security
Better delivery of ecosystem services	Empowered local communities
Well-managed protected areas can provide a refuge for native species against invasive non-native species	Increased recreational value

Solutions: Innovative activities and awareness raising

Target groups: Private sector, private initiatives, protected area administrations

- Use products without chemicals, additives, or materials that pollute the water or are a physical hazards if they happen to reach marine ecosystems
- Improve the design of products, manufacturing processes or packaging to reduce the amount of waste and pollutants that could potentially enter the environment.
- Increase the sustainability of consumption patterns by raising awareness for reducing waste and managing it correctly (“reduce, reuse, recycle”).

Plastic Free Menorca, Menorca Biosphere Reserve, Spain

- Plastic Free Menorca is an initiative to reduce plastic pollution. It created a certification process for small and medium sized companies that aim to reduce single-use plastic. Accompanying measures are the development of a guideline and technical support and advice for companies. Additionally, public relation activities were carried out to reduce plastic and promote participating companies.
- More information: <https://menorcapreservation.org/grants/obsam-vulnerable-fish-study-phase-3/>

Marine litter watch month to assess waste pollution on beaches, Cabo de Gata-Níjar Biosphere Reserve, Spain

- The Marine Litter Watch Month takes place on two selected beaches. The litter is collected, classified and weighed following a methodology.
- The data is then analyzed, and used to better understand the state of the sea and current issues at the level of each protected areas. This enables administrators and experts to join forces, identify waste-related issues and design solutions.
- More information (in Spanish): <http://rerb.oapn.es/component/k2/item/6-vigilancia-basura>

Solutions: Innovative activities

Target groups: private sector

Sustainable fishing⁶⁷

- Banning of unsustainable techniques like trawling and spear fishing
- Promoting artisanal fishing, e.g. seasonal targeting of species, support for individual métiers
- Regulating recreational fishing, e.g. limiting it to specific areas of the MPA
- Development of fishing regulations adapted to the MPA (e.g. in an Fishing Charter)
- Developing additional sources of income, e.g. in tourism (guided tours) or processing and direct selling (e.g. smoked fish, own fish restaurant, own shop)

⁶⁷

<https://www.researchgate.net/publication/242534717> The management of artisanal fishing within the Marine Protected Area of the Port-Cros National Park northwest Mediterranean Sea a success story

Sustainable tourism and traditional fishing in the Galician Atlantic Islands National Park, Spain

- Fishermen are trained as guides of maritime heritage, value and insights of the National Park. They offer a variety of tours for experiencing the marine ecosystem and presenting traditional fishing including gear and a tour through traditional fishing harbors.
- The National Park administration supports the diversification of the fishing sector unlocking synergies between the tourism sector and sustainable management of marine areas.
- More information: https://www.europarc.org/news/2019/07/mar-das-illas-sustainable-maritime-tourism/?utm_source=ep&utm_medium=search&utm_campaign=linktrack&utm_content=results

Solutions: Collaborations and awareness raising

Target groups: protected area administrations

- Develop management plans for MPAs, preferably in a participatory process with the local community and businesses, especially fishery and tourism
- Increase the connectivity of MPAs in order to improve their ecological value
- Interact and communicate with parties that cause external and internal pressures from inappropriate, illegal, or unregulated land and water management
- Share knowledge and experience of the response of European marine life to pressures with other protected areas. Include the results of management regimes intended to protect it.

Securing pike habitats, Moen Biosphere Reserve, Denmark

- The biosphere reserves cooperates with universities and researchers. For instance, it has been fostering research on the large population of brackish water pikes, in order to recreate former spawning and nursery habitats. This species has a very high recreational and economic value for the local economy and tourism.
- More information (in English): <https://www.youtube.com/watch?v=1Dq-vlq0YxU>

Additional information

Toolkit: [A Governance Toolkit for managing Small-Scale Fisheries in Mediterranean Marine Protected Areas](#)

Guideline: [No Plastic in Nature: A Practical Guide for Business Engagement](#)

Study: [Mediterranean Coastal/Marine Biosphere Reserves: Governance and Management Challenges](#)

Study: [Governance and Management Systems in Mediterranean Marine and Coastal Biosphere Reserves](#)

Research article: [SDG 14: Life Below Water. A review of research needs](#)

Website: [Regional Plan on Marine Litter Management in the Mediterranean](#)

IUCN Blogpost: [Wetlands: the ultimate biodiversity hotspot](#)

Blog and Videos: [Sustainable Fisheries](#)

SDG 6: Life on Land

About terrestrial ecosystems and this SDG

Goal 15 focuses specifically on managing terrestrial and inland freshwater ecosystems sustainably, halting and reversing land and habitat degradation, combating desertification and stopping biodiversity loss.* This is highly relevant for sustainable development because:

- **Terrestrial ecosystems** provide a series of good: food, freshwater, biomass for an extensive list of uses from construction to the chemical industry and energy, and a series of ecosystem services contributing to reducing the risks of natural disasters, regulating climate and maintaining the productivity of agricultural systems.⁶⁸
- However, human activity has altered more than 75% of the planet's surface and over 1,000,000 species are facing extinction.
- Investing in **land restoration** is critical for improving livelihoods, reducing vulnerabilities, and reducing risks for the economy.
- Encroaching on ecosystems helps to spread **zoonotic diseases** such as COVID-19.⁶⁹

Relevant targets for protected areas

Target	
15.1	By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements
15.2	By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally

⁶⁸ <https://www.unep.org/explore-topics/sustainable-development-goals/why-do-sustainable-development-goals-matter/goal-15>

⁶⁹ <https://www.un.org/sustainabledevelopment/biodiversity>

Target	
15.3	By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world
15.4	By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development
15.5	Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species
15.8	By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species
15.9	By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts
15.A	Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems
15.B	Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation

Targets of less relevance for protected areas

Target	
15.6	Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed
15.7	Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products

Target	
15.C	Enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities

SDG 15: The status quo

Biodiversity is steadily declining in the European Union. Yet, it plays a key role in the functioning of ecosystems and the provision of ecosystem services which are essential for human life and well-being. These include provisioning services (e.g. fisheries, biomass), regulating and maintenance ecosystem services (e.g. pollination, nutrient cycling, and water purification) and cultural services (e.g. recreation).⁷⁰

“Our statistical models suggest greater cropland inside protected areas is associated with higher human population density, lower income inequality, and higher agricultural suitability inside protected areas.”

[Vijay, V. & R. Armsworth \(2021\)](#)

Protected areas are the cornerstone of biodiversity conservation - they maintain key habitats, provide a refuge, allow for species migration and movement, and ensure the maintenance of natural processes across the landscape.⁷¹ To better conserve biodiversity on land, the area of protected areas in Europe is increasing. As of 2020, protected areas cover around 25, 7 % of terrestrial landscapes within the EU27. Protected areas also aim to ensure that terrestrial ecosystems and the services they provide are sustainably used and managed.⁷²

The title of SDG 15 „Life on Land“ refers to terrestrial biodiversity, its living conditions and human stewardship of it. It lacks in:

- **Management** of ecosystems is often not sustainable enough.
- **Slow progress** towards “favourable conservation status“ of many terrestrial habitats and species.

Biodiversity

is the variability among living organisms from all sources, including terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems.

⁷⁰ <https://www.eea.europa.eu/soer/2015/europe/biodiversity>

⁷¹ <https://www.cbd.int/protected/overview/>

⁷² <https://biodiversity.europa.eu/protected-areas>

- **Insufficient data** complicates conservation and restoration efforts as for example, wetlands, grassland and cropland are often not fully monitored.

Primary Issue – Unustainable management

- Specialization and intensification of certain agricultural production methods (e.g. heavy machinery and chemicals).
- Unsustainable mix of trees in forests can cause large-scale logging after droughts.
- Marginalization of traditional land management which preserves certain habitats and site-specific biodiversity.
- Loss of freshwater due to high water demand in agriculture, especially in southern Europe.
- Loss of arable land due to development activities and soil degradation.

Primary Issue – Slow progress

- The 2020 State of Nature Report Europe by the European Environmental Agency states that biodiversity continues to decline despite all conservation efforts.⁷³
- At least 226,000 km² of valuable (Annex I) habitats still needs to be restored to ensure their long-term viability* which amounts to the surface area of Austria, Denmark and Portugal combined.
- Land take such as soil sealing continues to increase in Europe which fragments habitats and can cause floods and rapid surface run off.⁷⁴

Primary Issue – Insufficient data

- Insufficient data complicates good policy making and appropriate management.
- Gaps in data exists because, for example, wetlands, grassland and cropland are often not fully monitored.

⁷³ <https://www.eea.europa.eu/publications/state-of-nature-in-the-eu-2020>

⁷⁴ https://ec.europa.eu/eurostat/statistics-explained/index.php?title=SDG_15_-_Life_on_land

- Knowledge gaps can sometimes be closed by expert opinion but this is rather an emergency relief than true monitoring.⁷⁵

What can be done?

The role of protected areas

National parks, UNESCO biosphere reserves, nature parks and other types of protected areas have different approaches to protecting ecosystems. Nevertheless, they share the common goal of connecting the preservation of ecosystems with sustainable economic development.

The goals of a protected area cannot only be implemented by its administration. To truly be a model region for sustainable development, protected area administrations establish a network with regional and local administrations, businesses and the civil society. Together they can initiate projects and activities.

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	Industry advocacy groups	

⁷⁵ https://ec.europa.eu/eurostat/statistics-explained/index.php?title=SDG_15_-_Life_on_land

Solutions: Training and collaborations

Target groups: Public administrations, protected area administrations, private initiatives, non-governmental organisations, businesses

Agriculture:

- Training and support for conversion to organic methods
- Training for marketing of regional/organic products
- Organising visits to model farms

Regional economy:

- Promotion of short chains/ subsequent production/ processing
- Creation of a network of food producers, processing businesses, shops, restaurants, consumer buying groups

The Park Tastes, Dolomiti Bellunesi National Park, Italy

- The administration recovered mountain pastures, which lead to a relaunch of mountain dairy products. Husbandry within the national park covers wild and semi-wild breeding of cattle, sheep and goats. Additionally, ancient varieties of apples, barley, spelt, and nuts are produced by farmers and promoted by the park's administration.
- "The Park Tastes" connects producers and consumers. Traditional techniques in agriculture translate into an additional value for farmers and the tourism sector and directly contribute to preserving plants and animals of the national park.
- More information: <https://www.dolomiti-park.it/en/visiting-the-park/typical-products/>

Solutions: Training and collaborations

Target groups: Public administrations, protected area administrations, private initiatives, non-governmental organisations, businesses

Promoting multifunctionality in agriculture:

- Eco-tourism on farms
- Educational or guided activities, sports on farms/ farm land
- Nature protection services (e.g. mowing grasslands)

Conservation as a service:

- Landscape maintenance as a service from farms for protected area administrations (e.g. mowing of grasslands)
- Growing/ marketing of old varieties
- Husbandry of old species

Target groups: Public administrations, protected area administrations, private initiatives, non-governmental organisations, businesses

Restoring deteriorated ecosystems:

- Restoring landscapes and habitats
- Landscape maintenance in areas where traditional uses are lost
- Re-establishing traditional land-uses

Land management and community:

- Participative development of management plans with land-users
- Community engagement in order to create awareness for the value of regional habitats and specific land use practices

International project "Life Aquatic Warbler", Biebrza National Park, Poland

- Restoring the natural water levels in the area which helped to prevent fens from overgrowing with trees and shrub.
- Application of traditional management techniques, e.g. mowing or grazing in order to eliminate reeds or shrubs and maintain the appropriate structure of vegetation.
- More information (in Polish):
http://otop.org.pl/uploads/media/wodniczka/osi%C4%85gni%C4%99cia_projektu_life_wodniczka_pl.pdf

Broads Plan, Norfolk Broads National Park, England

- The Broads Plan is the key management plan for the Broads executive area. It sets out a long-term vision and guiding actions to protect and enhance the area's special qualities.
- While the Broads Authority is responsible for its production, it is a partnership plan and its success depends on a common vision, joint working and shared resources.
- More information: <https://www.broads-authority.gov.uk/about-us/how-we-work/strategy>

Contracts for the use of public pastures, Las Sierras de Cazorla y Segura Biosphere Reserve, Spain

- Contracts were established between the Ministry of Environment and Land Management and the livestock associations of the Biosphere Reserve to allow a dignified and sustainable continuity of this activity on public pastures.

- It allows farmers to participate in the management of the reserve. The costs are deducted from the price established in their contracts.
- More information (in Spanish): <http://rerb.oapn.es/component/k2/item/8-contratos-de-aprovechamientos-de-pastos-publicos>

Target groups: Public administrations, businesses, private initiatives

Green space:

- Measure, manage and mitigate impacts on ecosystems and natural resources
- Invest in natural infrastructure as a cost-competitive alternative to grey infrastructure
- Finance the restoration of degraded land for production and/or conservation purposes
- Increasing biodiversity in public green spaces, e.g. through flower strips

Biodiversity:

- Promoting biodiversity on private properties, e.g. gardens
- Promoting biodiversity on commercial properties, e.g. office parks
- Promoting biodiversity

Gardening for Biodiversity Program, Vosges du Nord/ Pfälzerwald Transboundary Biosphere Reserve, France & Germany

- Located along the French/German border, the region shares three natural features: water, sandstone and forests. The biosphere reserve is restoring the local environment by planting fruit trees, hedges and natural areas.
- The Gardening for Biodiversity Program is a competition that takes place on both sides of the border to acknowledge and assist residents and communities that make room for wild plants and animals in their garden.
- More information: <https://www.youtube.com/watch?v=ZQCx9MeOtGI>

Ecosystem restoration, Bassin de la Dordogne Biosphere Reserve, France

- Ecosystem restoration in areas that have been previously degraded by human action, such as the old gravel quarry of Veyrignac reverses environmental impacts.
- It has allowed for the recreation of a natural fluvial ecosystem on a former 16-hectare industrial extraction and gravel crushing site.

- More information (in English): <https://www.youtube.com/watch?v=rDmX7b9yu5Y>

Businesses in support of biodiversity, Biosphere Region Schwabian Alp, Germany

- Together with the College for Economics and Environment in Reutlingen and participating businesses, the Biosphere Region developed a set of measures to increase biodiversity on the plots of the businesses.
- The initiative showed great success and made environmental protection perceptible for everyone, also employees. Businesses can still register with the initiative and help to protect biodiversity on their plots.
- Link (in German): https://www.biosphaerengebiet-alb.de/images/lebensraum/forschung/Projekte/UnternehmenBioVielfalt/2015-11-18%20NI_Unternehmen_BiologischeVielfalt.pdf

Additional information

Guideline: [Development Guide For “Pro Biodiversity Business”](#)

Guideline: [Guideline on elaborating a Biodiversity Action Plan](#)

Guideline: [Guidelines for planning and monitoring corporate biodiversity performance](#)

Report: [Protected Areas for Sustainable Agriculture: Sharing experiences from across Europe that support agriculture in Protected Areas.](#)

Report: [The Health and Social Benefits of Nature and Biodiversity Protection](#)

Study: [Sustainable Business Models in Biosphere Reserves: Case of Hungary](#)

Report: [Sustainable Development Goals Policy Brief Global Biodiversity Loss](#)

SDG 16: Peace, Justice, and Strong Institutions

About strong institutions and this SDG

The full title of SDG 16 is “Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels”. This is highly relevant for sustainable development in order to⁷⁶

1. Significantly reduce all forms of violence and abuse.
2. Promote the rule of law and ensure equal access to justice for all.
3. Substantially reduce corruption and bribery in all forms.
4. Ensure responsive, inclusive and participatory decision-making.
5. Assure public access to information and protect fundamental freedoms.

Relevant targets for protected areas

Target	
16.6	Develop effective, accountable and transparent institutions at all levels [here with a focus on the regional level]
16.7	Ensure responsive, inclusive, participatory and representative decision-making at all levels [here with a focus on the regional level]

Targets of less relevance for protected areas

Target	
16.1	Significantly reduce all forms of violence and related death rates everywhere

⁷⁶ <https://www.fdsd.org/ideas/sustainable-development-goal-sdg-16-democratic-institutions>

16.2	End abuse, exploitation, trafficking and all forms of violence against and torture of children
16.3	Promote the rule of law at the national and international levels and ensure equal access to justice for all
16.4	By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime
16.5	Substantially reduce corruption and bribery in all their forms
16.8	Broaden and strengthen the participation of developing countries in the institutions of global governance
16.9	By 2030, provide legal identity for all, including birth registration
16.10	Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements
16.a	Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime
16.b	Promote and enforce non-discriminatory laws and policies for sustainable development

SDG 16: The status quo

Protected areas are the centerpiece of efforts to conserve nature and the services it provides us – food, clean water supply, medicines, and protection from the impacts of natural disasters. They also help mitigate and adapt to climate change; at least 15% of terrestrial carbon is stored in the global network of protected areas.

Strong institutions which help to ensure that protected areas can be managed effectively have been recognized as critical tools for achieving the objectives of the Convention on Biological Diversity and the Sustainable Development Goals.⁷⁷

The title of SDG 16 “Peace, Justice, and Strong Institutions” refers to the societal framework in which institutions play an important role and enable sustainable development. The effectiveness of institutions is dependent on a range of factors:

In the context of SDG 16 institutions can be understood as organizations that exist to serve a public purpose such as education or support for people who need help
(American Dictionary)

- **Legitimacy and voice:** Accepted institutions which seek consensus.
- **Direction:** Inspiring institutions which follow a strategic vision.
- **Performance:** Institutions which achieve their objectives.
- **Accountability:** Institutions which are transparent and committed.

Primary Issue – Legitimacy and voice

Characteristics of weak institutions:⁷⁸

- Institutions that are not accepted and valued in society are ineffective.
- Rights holders and stakeholders are not adequately informed, cannot be represented, and do not have a say in decisions.
- There is no active dialogue and consensus seeking.
- Agreed rules are not honoured.
- No mutual respect from rights holders and stakeholders.
- Discrimination based on ethnicity, gender, social class, financial wealth, etc.

Primary Issue – Direction

Characteristics of weak institutions: *ibid.*

- No clear policy directions are given.

⁷⁷ <https://www.iucn.org/theme/protected-areas/about>

⁷⁸ <https://portals.iucn.org/library/sites/library/files/documents/PAG-020.pdf>

- There is no regular monitoring and adaptive management.
- Innovations are not fostered.
- A strategic, long-term vision grounded on agreed upon values is not pursued.
- Governance & management practices are not in line with the commonly agreed upon values.
- Governance & management practices are not streamlined with the broader regulatory landscape.

Primary Issue – Performance

Characteristics of weak institutions: *ibid.*

- Objectives are not achieved due to lack of management effectiveness and on-going evaluation.
- Learning culture is not promoted.
- No commitment in advocacy and outreach for a cause.
- Unresponsiveness to the needs of rights holders and stakeholders.
- Staff do not have the capacities to effectively assume their role.

Primary Issue – Accountability

Characteristics of weak institutions: *ibid.*

- Lack of integrity and commitment of those in charge.
- Lack of transparency to rights holders and stakeholders.
- No adequate and clear role assignment and line of responsibility and reporting.
- Financial and human resources are not allocated according to stated objectives and plans.
- Performance of decision makers and staff is not evaluated and rewarded/sanctioned.
- Lack of Communication channels (e.g., websites) where records and reports are openly accessible.

- Feedback from civil society is not encouraged

Protected areas as social networks

Protected area administrations work with other regional administrations, businesses, landowners, business associations, NGOs, and the local communities. Four concepts⁷⁹ should shape the relationships between these stakeholders:

- 1) **Collaboration:** sharing rights and responsibilities.
- 2) **Social learning:** support and mutual production and ownership of knowledge.
- 3) **Flexibility:** the ability to adapt policy and management over time.
- 4) **Polycentricism:** management of multiple, semi-autonomous but interlinked nodes of authority and decision-making.

What can be done?

The role of protected areas

National parks, UNESCO biosphere reserves, nature parks, and other types of protected areas have different approaches to ecosystem conservation. Nevertheless, they share the common goal of combining the preservation of ecosystems with sustainable economic development.

The goals of a protected area cannot be implemented by its administration alone. To truly be a model region for sustainable development, protected area administrations need to establish a network with regional and local administrations, businesses and civil society. Together, they can initiate projects and activities. The result can be healthy habitats that reduce the risk of water stress and provide important economic functions.

Public Administrations	Private Sector	Civil Society
Local municipal administrations	Agriculture, forestry, fisheries	Non-governmental organizations

⁷⁹ <https://portals.iucn.org/library/node/45127>

Regional county administrations	Production industry, crafts	Private initiatives
	Service sector, e.g. trade and retail, tourism, transit/transportation etc.	
	Industry advocacy groups	

Solutions: Innovative activities and awareness raising

Target groups: protected area administrations

Strong protected area administrations

Institutions and decisions have greater impact, if they are based on a regional consensus. Participatory processes are key to greater acceptance and legitimacy:

- Advisory boards, working groups or other platforms in order to inform management decisions of protected areas from the perspective of local businesses, municipalities, regional initiatives.
- Collaboration agreements or event contracts in order to include regional stakeholders in pursuing the goals of the protected area (public administrations, tourism destination management organizations or private entities, regional initiatives like associations or LEADER regional managements).
- Using participatory processes in order to establish protected areas or develop strategies.

Designation process of the Gorges du Gardon Biosphere Reserve, France

- By applying participatory methods during the designation process, local stakeholders, researchers, and the public sector worked together to create the Gorges du Gardon Biosphere Reserve.
- More information: <https://www.ecologyandsociety.org/vol21/iss4/art25/>

La Palma Biosphere Reserve Action Plan, Spain

- In its 2013-2022 Action Plan “All Voices, All Hands”, the biosphere reserve emphasizes active participation of citizens
- According to UNESCO, the Action Plan seeks the participation of local citizens and focusses on sovereignty, recycling, responsible consumption, health, and safety

- More information (in English): <http://sdg.iisd.org/news/la-palma-biosphere-reserve-launches-action-plan/>

Participatory management in the biosphere reserve Minorca, Spain

- In the Minorca biosphere reserve, a wide range of individuals and organizations have contributed to the development of policies in participatory processes. This empowered local people while simultaneously using all possible knowledge and skills available.
- More information: <https://portals.iucn.org/library/sites/library/files/documents/PAPS-014.pdf>

“Biosphere Satellites“ a governance model from the Bliesgau Biosphere Reserve, Germany

- The administration of the Bliesgau Biosphere Reserve works closely with a variety of stakeholders such as municipalities, the destination management, an educational organization or a foundation. They support the activities of the biosphere reserve administration or initiate activities for the biosphere reserve in the fields of tourism, transit, energy, education and administration.
- In total, these partners contribute an additional of nearly 6 employees (full-time equivalent) to the biosphere reserve administration.
- More information: <https://www.biosphaere-bliesgau.eu/index.php/de/themen-und-projekte/rahmenkonzept/ergebnisse>

Target groups: protected areas, municipalities, regional initiatives, businesses

Establishing networks, collaborations platforms and processes

- Networks are key for sustainable development on a regional scale. These can be single-issue platforms, e.g., for sustainable hotels or an integrative approach, e.g., on sustainable tourism, including hotels, restaurants, local farmers, tour guides etc.
- Participatory approaches are valuable because of their inclusive nature. Different stakeholder groups contribute their experiences and resources. A broader group can increase the approval and legitimacy and motivate others to join the network or to follow the example of the forerunners.
- Municipalities, regional initiatives and especially protected area administrations can play an active role in facilitating inspiration for action and the exchange of experience.

Cross-sectoral tourism development in the Lake Vänern Archipelago Biosphere Reserve, Sweden

- By identifying and then cooperating with public and private stakeholders involved in tourism development, the Lake Vänern Archipelago Biosphere Reserve has been able to create a system of hiking, biking, and horseback riding trails, train local guides and establish a network for green ecotourism entrepreneurs.
- More information: <https://www.naturvardsverket.se/Documents/publikationer6400/978-91-620-6742-7.pdf?pid=19696>

Role-playing tool to foster communication between stakeholders with diverse interests in the Delta du Rhone Biosphere Reserve, France

- The role-playing tool was based on agent-based modeling that allowed simulating the effects of multiple uses of a wetland on habitat and faunal dynamics. The tool is also used for training graduate students in dialogue and participatory management of natural areas.
- More information: <https://www.ecologyandsociety.org/vol21/iss4/art25/>

“Energy Tours” in the Nature Park South-Black Forest, Germany

- During the annual "Energy Tours" in the Southern Black Forest Nature Park, a specific topic is presented and discussed. For example, how innovative gas and energy measurement technology can help companies monitor their energy flows and identify opportunities to improve production processes, buildings or plant peripherals. Events include visits to industry leaders producing and using these technologies, as well as tours and discussions with CEOs or CTOs.
- The Regional Innovation and Efficiency Cluster organizes the annual event. It is a platform of companies, including a major regional energy supplier, the Freiburg Chamber of Industry and Commerce, and the 100 % Renewable Energy Business Association.
- More information: <https://www.naturpark-suedschwarzwald.de/de/aktuelles/details.php?id=62>

Additional information

eBook: [Protected Area Governance and Management](#)

Article: [Administration and management effectiveness of protected areas: stakeholders' vies of Dadia National Park, Greece](#)

Article: [Participation and Protected Areas Governance: the Impact of Changing Influence of Local Authorities on the Conservation of the Bialowieza Primeval Forest, Poland](#)

Article: [Co-management of protected areas to alleviate conservation conflicts: Experiences in Norway](#)

Article: [Does stakeholder participation increase the legitimacy of nature reserves in local communities? Evidence from 92 Biosphere Reserves in 36 countries](#)

SDG 17: Partnerships for the Goals

About the implementation of SDGs

SDG 17 underlines the importance of global cooperation while working towards a better world. Developing countries need to be supported continuously in their development.

The plan to achieve this bases on improving the financial situation of developing countries through development aid, on exchanging knowledge, expertise, technology and financial resources and finally, establishing and promoting an open, non-discriminatory and equitable trading system.

Creating North-South, South-South and triangular regional and international partnerships is essential to accomplish Sustainable Development.

Relevant targets for protected areas

Target	
17.16	Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries
17.17	Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships

Targets of less relevance for protected areas

Target	
17.1	Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection
17.2	Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent of ODA/GNI to developing countries and 0.15 to 0.20 per

Target	
	cent of ODA/GNI to least developed countries; ODA providers are encouraged to consider setting a target to provide at least 0.20 per cent of ODA/GNI to least developed countries
17.3	Mobilize additional financial resources for developing countries from multiple sources
17.4	Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries to reduce debt distress
17.5	Adopt and implement investment promotion regimes for least developed countries
17.6	Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism
17.7	Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favorable terms, including on concessional and preferential terms, as mutually agreed
17.8	Fully operationalize the technology bank and science, technology and innovation capacity-building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology
17.9	Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation
17.10	Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda
17.11	Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020

Target	
17.12	Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access
17.13	Enhance global macroeconomic stability, including through policy coordination and policy coherence
17.14	Enhance policy coherence for sustainable development
17.15	Respect each country's policy space and leadership to establish and implement policies for poverty eradication and sustainable development
17.18	By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts
17.19	By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries

SDG 17: The status quo

Protected areas are globally interconnected including numerous long-term partnerships between protected areas.

In their development cooperation, countries provide targeted support for the establishment of protected areas such as biosphere reserves in countries of the global South as an instrument for helping people to help themselves.

Worldwide, 714 biosphere reserves work together in a World Network, which is comprised of thematic and regional sub-networks. It aims to foster the integration of people and nature. The Network is one of the main international tools to develop and implement sustainable development approaches in a wide array of contexts.⁸⁰

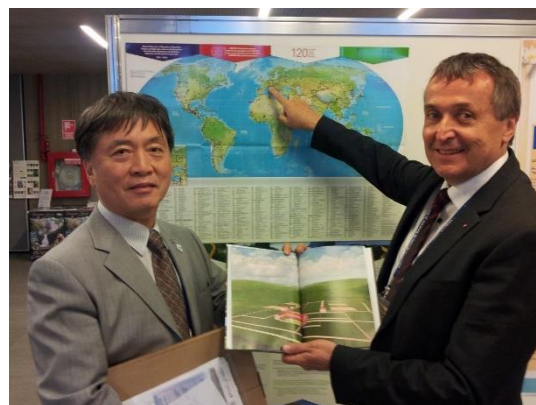
⁸⁰ <https://en.unesco.org/biosphere/wnbr>

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Primary Issue – Global partnerships in protected areas

- High effort in establishing and maintaining contacts, e.g., through long journeys, language barriers, costs.
- Wide range of regional tasks in the protected areas, global partnerships are seen as an on-top task.
- The choice: Which is more interesting or has the greater benefit for your own region - similarities or differences between your protected area and the potential partner region?
- Securing the long-term financing for regional administrations in order to develop partnerships beyond projects.



© Herbert Hamele, World Summit of Biosphere Reserves in Lima

What can be done?

The role of protected areas

National parks, UNESCO biosphere reserves, nature parks and other types of protected areas have different approaches to protecting ecosystems.

Nevertheless, they share the common goal of combining ecosystem conservation with sustainable economic development.

The exchange of knowledge on different ways to achieve a common objective can be very helpful for the further development of protected areas and broaden the horizons of residents.

The objectives of a protected area cannot be achieved by its management alone. In order to truly be a model region for sustainable development, protected area administrations are building a network with regional and local administrations, businesses and civil society. Together, they can initiate projects, activities and partnerships.

According to this model, establishing new protected areas can be helpful in supporting developing countries.

- Networking people
- Arranging contacts
- Creating opportunities for exchange
- Sharing experience and knowledge
- Making global problems visible (e.g., stating the consequences of climate change on coasts clearly)
- Enabling views of other world regions

→ Open horizons

Public Administrations	Private Sector	Civil Society
Local municipal administrations	Agriculture, forestry, fisheries	Non-governmental organisations
Regional county administrations	Production industry, crafts	Private (regional) initiatives

Public Administrations	Private Sector	Civil Society
Schools	Service sector, e.g. trade and retail, tourism, transit/transportation etc.	
Universities and other research institutions		

Solutions: Innovative activities

Target groups: national administrations, private (regional) initiatives, research institutions, protected areas

Marketing of regional products

- Establishing protected areas to boost sustainable economic development while maintaining environmental integrity in developing countries is a holistic approach
- It creates trade opportunities: protected areas are good markets for fair products, and in combination with regional products, completely new products can be created
- Model region: trying out ideas for sustainable solutions to similar problems in common projects

Cooperation of the Bliesgau-Kosmetik company with the Ragussi women's initiative, Burkina Faso

- regional fair cosmetic products are produced from Bliesgau oils and shea butter
- Fair Trade district and municipalities with many publicity activities and world shops with regional products to complement the fair-trade assortment
- Create awareness: Sustainable consumption: regional + fair + organic

Solutions: Collaborations and awareness raising

Target groups: schools, universities and protected areas

- Global partnerships can broaden horizons: global dimensions of problems become real and comprehensible, e.g., consequences of climate change, extinction of species, effects of one's own actions on other world regions become visible
- Digital world opportunity: today, we have a multitude of time- and cost-efficient possibilities for virtual global exchange and networking of administrations and regional actors
- But also, physical exchange is a valuable experience. Voluntary services, school partnerships and (student) exchanges can lay the foundation of lasting relationships

Biosphere Reserve Rhön-Kruger to Canyons

- Partnership exists since 2008
- Voluntary services for young people
- Partnership between schools, e.g., Südafrika AG at a grammar school
- Placement of internships, e.g., voluntary service in South Africa or internship in the catering trade in the Rhön

Target groups: private (regional) initiatives, service sector, government organizations, non-governmental organizations

Knowledge exchange

- The network of parties within a protected area can be linked with other networks from different regions to facilitate knowledge exchange
- This can happen in North-North, North-South and South-South exchanges. These interactions should be a two-way road, benefitting all parties
- By linking former individual networks (e.g., regional tourism networks in protected areas from two different countries), knowledge-flow is ensured and is likely to promote the exchange of best practices, increase resilience and foster cooperation

Management Manual for UNESCO Biosphere Reserves in Africa

- Instrument for sustainable development in nature conservation-related development cooperation
- Practical suggestions for participation, dealing with conflicts, e.g., between land use and nature conservation
- German Commission for UNESCO edited the handbook and coordinated the participatory process in close cooperation with AfriMAB and ArabMAB as well as UNESCO.
- Source: : <https://www.unesco.de/publikationen?page=13#row-503>

Knowledge exchange in the World Network of Biosphere Reserves – The example of an international conference at the Bliesgau Biosphere Reserve, Germany

- International UNESCO Conference “Renewable Energies and Biosphere Reserves”
- Global exchange on the sustainable use of renewable energy in protected areas

Additional information

Government Strategy: [Global Partnerships](#) (German)

Report: [Management Manual for UNESCO Biosphere Reserves in Africa](#) (English)

Website: [UNESCO publications](#) (German)

Report: [The Impact of Climate Change and Sustainable Development of Island and Coastal Biosphere Reserves](#) (English)

Report: [Biosphere Reserves – inspiring action for Agenda 2030](#) (English)

Website: [Unsere Partner weltweit](#) (German)

Website: [Bliesgau Kosmetik](#) (German)

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