



Methodological guide

Managing sustainable economic activities in natural areas





CITATION AND CREDITS



HOW TO CITE THIS GUIDE

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CREDITS

This methodological guide has been developed by the European and International Delegation of the Conservatoire du littoral (Cyrielle GROUARD), with the assistance of Luth Médiations (Olivier COURBON), Virginie HUGUES (consultant), Philippe ROSSELLO (GeographR) and PIM Initiative (Angélique TRIGUEL).

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THE COGICO TRAINING

CONSERVING AND MANAGING ISLANDS, COASTS AND OCEANS



The ICO Solutions (Islands - Coasts - Oceans) approach, developed by the Conservatoire du littoral in partnership with Agence de l'eau Rhône Méditerranée Corse and the Aix-Marseille-Provence Metropolitan Chamber of Commerce and Industry, has shown the need to break the silos between the areas of expertise, knowledge and skills of key actors involved in the management of ICO areas.

In this context, and drawing on its long-standing experience organising regular capacity-building activities – from technical training sessions and webinars to experience-sharing workshops, etc. – Conservatoire du Littoral promotes a long-term, multi-disciplinary training approach (COGICO, Conservation and Management of Islands, Coasts and Oceans) targeting managers who share a global vision of the management of coastal, marine or island territories, as inseparable ecosystems.



The present course offers a combination of methodological training documents (guides), video-testimonials of experts and people working in the field, and the direct support from Conservatoire du Littoral team and associated partners through a series of webinars and Q&A sessions. It applies a range of tools that combine different learning approaches for reaching a broad audience.

COGICO was initially designed for young French-speaking professionals already working in the field of environmental management, or wishing to change career paths. Its main objectives are:

- ❖ To strengthen the skills of (future) professionals in the management of ICOs by means of a transdisciplinary approach
- ❖ To create a network of French-speaking international actors while encouraging the exchange of experiences
- ❖ To share the values of the Conservatoire du Littoral and its partners: preserving, restoring, strengthening resilience, promoting co-management, enhancing the value of heritage and enabling access to natural areas with healthy biodiversity
- ❖ To offer a professional-level training programme, based on theoretical content and practical feedback from professionals.



The **COGICO** training course is structured in 8 modules, all of which must be completed in order to validate the training :

- ❖ Governance and operational co-management
- ❖ Knowledge management
- ❖ Visitor management
- ❖ Communication
- ❖ Ecological restoration
- ❖ Management of economic activities
- ❖ Production of management documents
- ❖ Project design and management

Through these modules, **COGICO** aims to develop a common base of relevant knowledge, skills and values for managing coastal, marine and island natural areas, to be shared across a network of actors, potential future managers and partners involved in the conservation of natural ecosystems and biodiversity.

COGICO TRAINING PARTNERS

Sponsors



Technical partners



ENTITY RESPONSIBLE FOR THIS PUBLICATION

CONSERVATOIRE DU LITTORAL



Recognising the ecological, social, economic and cultural values of its coastline, France has chosen to preserve a significant portion of its natural coastal areas whilst making them publicly accessible. In 1975, the French government decided to create the Conservatoire du Littoral - a public body currently placed under the authority of the Ministry of Ecology, which pursues a land acquisition policy aimed at protecting natural areas and landscapes on sea and lake shores.

It can intervene in coastal districts in mainland France and the French overseas territories, as well as in municipalities bordering estuaries, deltas and lakes of more than 1,000 hectares.

The objectives of the Conservatoire are: to preserve outstanding and threatened natural areas and landscapes, to ensure public access and successful visitor reception whilst promoting respect towards natural areas and raising environmental awareness, to mainstream sustainable development practices in all activities (agriculture, heritage management, etc.) that are present at the sites, preserve the balance of coastal environments, and incorporate the issue of climate change through concerted management with local partners. The Conservatoire owns the sites it acquires, and entrusts their management to other public or private bodies (whether regional, department-specific or local authorities, syndicats mixtes, associations, etc.) which employ coastal wardens responsible for maintaining the sites, enhancing their value and welcoming the public.

Conservatoire du Littoral is also developing international cooperation initiatives, based on the values and management principles it promotes and disseminates in France. The European and International Delegation works to share coastal preservation practices implemented in France, primarily on the coasts of regional seas where France is present. The strength and uniqueness of the institution's international action lies in supporting the development of its partners through tangible projects at pilot sites, at both institutional and technical levels.

Conservatoire du Littoral also deploys actions to promote and enhance ecosystems and natural areas, while prioritising wetlands and small islands. The intervention strategy for the Conservatoire's European and international action can be summed up in one strategic vision: *'Working together to develop integrated coastal zone management policies and taking action to ensure that more protected coastal areas are better managed'*.



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TECHNICAL PARTNERS

PIM INITIATIVE FOR SMALL MEDITERRANEAN AND MACARONESIAN ISLANDS



PIM Initiative is an international NGO committed to protecting the rich natural heritage of Mediterranean and Macaronesian islands. Created in 2005 by the French Conservatoire du littoral and operating independently since 2017, PIM focuses on islands smaller than 1,000 hectares. Through concrete conservation efforts and a strong international network of experts and local managers, PIM plays a key role in creating and strengthening protected areas. Its global and ground-up approach makes it a standout force in island conservation, involving:

KNOWLEDGE ACQUISITION and monitoring ecosystems over the long term using simplified, standardized protocols, regular naturalist monitoring, data collection and analysis, capitalizing on information and knowledge;

CAPACITY-BUILDING THROUGH WORKSHOPS or on-site training sessions, enabling international and multidisciplinary stakeholders to share their experiences;

The protection of emblematic species and their habitats, through **ECOLOGICAL REHABILITATION ACTIONS** (such as the eradication/control of invasive species) and an ecosystem approach with better integration of issues relating to the land-sea continuum;

The development of management techniques, and **THE SUPPORT FOR MANAGEMENT OF ISLAND NATURAL AREAS** involving a variety of stakeholders and supporting partnerships between them: public institutions, municipalities, universities, local and international NGOs, managers, multidisciplinary experts, private companies, etc.

Promoting the high ecological values of the islands, thanks to **ADVOCACY AND COMMUNICATIONS** actions for the reinforcement of their protection on an international scale.



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THE FRENCH FACILITY FOR GLOBAL ENVIRONMENT (FFEM)



In support of France's cooperation and development policy to preserve the global environment, the French Facility for Global Environment (in French, FFEM) subsidises sustainable development projects related to the Multilateral Environmental Agreements signed by France, with the aim of protecting biodiversity, climate, international waters, land, the ozone layer, and combatting chemical pollution.

FFEM extracts the lessons learned from these pilot projects to enable the replication of the most effective solutions in other sites or at a broader scale.

For several years now, FFEM has supported Conservatoire du Littoral to assist tangible site management operations and capacity-building actions aimed at managers and key actors involved in protecting natural coastal and island areas in developing countries, by funding of various cooperation projects (COGITO, SMILO, WACA...). Every year, face-to-face courses – with sessions held in classrooms and in the field – or virtual training courses, have been organised for Mediterranean and African partner-countries.

www.ffem.fr



AGENCE DE L'EAU RHÔNE-MÉDITERRANÉE-CORSE

The Agence de l'Eau Rhône-Méditerranée-Corse is a public establishment of the Ministry of the Environment devoted to water conservation. It collects the water tax paid by all users. Every euro collected is reinvested through local authorities, economic actors and farmers to combat pollution and make better use of the water available, with a multi-annual intervention programme. In addition to organising consultations with local stakeholders, Agence de l'Eau produces and disseminates knowledge related to water management. Agence de l'Eau is a key partner of the Conservatoire du littoral in France and abroad, supporting institutional and technical cooperation projects on the conservation of wetlands and small islands.

www.eaurmc.fr

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CITY OF MARSEILLE



Historically open to the world and nurturing a long tradition of hospitality, Marseille has become a leading European and Mediterranean metropolis by developing its international image and areas of excellence. These strengths also stem from the increasing number of missions abroad, which have aimed to share its experience in a wide range of fields, including the sustainable development of its territory.

For a number of years, the City of Marseille has supported the Conservatoire du Littoral and its initiatives to conserve, manage and enhance the small islands and shores of the Mediterranean, to raise awareness of the importance of protecting them, as well as to share knowledge, experience and know-how between conservation actors.

www.marseille.fr



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BUILDING A MEDITERRANEAN COMMUNITY **FOR BIODIVERSITY** CONSERVATION

Created in 2025 at the initiative of the Mediterranean Biodiversity Consortium (MBC), the training framework that includes this module on sustainable economic activities, pursues a clear ambition: to build and foster a community of expertise, practice and exchange involving key stakeholders in the conservation of Mediterranean ecosystems.

Rather than enabling a simple transfer of technical knowledge, it seeks to cultivate collaborative thinking within a dynamic and continuously evolving network, to strengthen the resilience of ecosystems and communities in the face of global environmental changes. From islands to shorelines, from forests to seagrass beds and wetlands, the multi-ecosystem approach has guided the Consortium's actions since 2021. The training modules offered are aligned with this vision. Their design is based on the needs expressed by the managing partners of the pilot sites supported by the MBC across the Mediterranean region. Backed by the expertise of the Consortium members, this training framework covers topics that are both specific - linked to the characteristics of certain environments - and cross-cutting, addressing issues common to all the sites.

Beyond their educational aims, these modules seek to strengthen cooperation between a wide range of stakeholders with complementary expertise and responsibilities - from conservation managers to researchers, institutional partners, civil society organisations and economic actors. By fostering dialogue, the sharing of experience and networking, they contribute to the design of Nature-based Solutions that can be replicated and adapted to local contexts. This spirit of dialogue and synergy has inspired the design of the training courses. Some are tailored to meet needs that are common to several sites, while others target more specific contexts.

This Managing sustainable economic activities in natural areas guide is the central resource of the MBC's dedicated training course on the same topic, structured around a series of webinars followed by a face-to-face session.



A CONSORTIUM BRINGING TOGETHER SEVERAL NATURE PROTECTION ORGANISATIONS FOR MORE EFFECTIVE AND COORDINATED ACTION TO PROTECT THE MEDITERRANEAN BIODIVERSITY HOTSPOT

Drawing on years of experience in shaping and sharing solutions for the conservation of **interconnected natural areas**, the organisations gathered within the Consortium form a **coalition** aimed at bringing **integrated, adaptive and effective solutions to tackle global challenges in the region**. Its **multi-ecosystem approach amplifies** the impact of conservation actions across the diverse natural habitats of the Mediterranean - from forests, wetlands and coasts to islands and marine areas, aiming to restore **the services they provide to society**, for the benefit of **nature and people**.

The Consortium provides a wide range of support to natural area managers and local stakeholders:

❖ **Leading a community of practice:** The Consortium brings together experts, practitioners, site managers, regional organisations and NGOs within a Think & Do Tank, translating conservation concepts, such as Nature-based Solutions or climate-adaptive management, into concrete effective actions.

❖ **Supporting the implementation of actions on site:** The Consortium provides technical and financial support for marine and terrestrial ecological restoration. In close collaboration with institutional stakeholders and civil society, it enables the implementation of multi-ecosystem projects, Nature-based Solutions on site and supports the development of co-management and local governance systems.

❖ **Strengthening skills:** The Consortium promotes experience sharing among site managers through tailored capacity-building: learning by doing onsite, bilateral coaching, and regional training on common topics of interest.

The **RESCOM project** running until **2029**, is the Consortium’s first initiative to test the implementation of this **multi-ecosystem approach**. It aims at strengthening the resilience of ecosystems and populations to climate change, through **Nature-based Solutions**, combining regional activities with concrete on-the-ground actions across the pilot sites in the Mediterranean basin.



Tour du Valat, research institute for the conservation of Mediterranean wetlands.



Conservatoire du littoral, with expertise in preserving coastal areas and integrated coastal zone management.



The IUCN Centre for Mediterranean Cooperation, working for the conservation of natural resources with a collaborative approach.



The International Association of Mediterranean Forests with expertise in sustainable forest management.



MedWet with expertise and experience on wetland conservation and management.



MedPAN with expertise in the preservation of marine ecosystems.



PIM Initiative for Mediterranean small islands with expertise in island territories conservation.

This methodological guide, initially developed by the Conservatoire du littoral in 2024 for the COGICO training programme, has been translated into English as part of the RESCOM training programme, which includes a module on sustainable socio-economic activities.

With the support of:





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INTRODUCTION



Why should economic activities be considered when discussing the management of natural areas? Do natural areas exist in a separate bubble, shielded from all human influence? **Natural areas are not only a source of biodiversity, but also of human activity, both recreational and economic**, i.e. fishing, farming, honey production, salt production, tourism, sporting activities. All these uses involve economic activity, generate wealth (in economic terms, but not only!), and therefore support the livelihoods of many people. This is particularly true in the coastal zones of major port cities and main touristic areas, where more than half the world's population is concentrated.

Natural areas thus underpin economic activities and social well-being - by providing sites for leisure or recreational activities, well-being and peace - but also constitute **a distinctive component of each territory** and of the economic activities that develop within it. Inhabitants, users and, in particular, economic actors all benefit directly from natural areas. The converse, however, does not always hold true, as shown by the rise of pollution, over-exploitation of resources, habitat fragmentation and destruction, and disturbance of biodiversity. **As a result, a tension emerges between the economy - especially economic development - and the protection and conservation of the environment.**

Yet, the economy is one of the pillars of sustainable development, alongside environmental and social challenges, which lead to one of the major issues of our society - **Ensuring the convergence of social and economic objectives with those of preserving natural areas and ecosystems**. Creating a link between these spheres therefore appears as an important step for achieving greater sustainability. Managers of natural areas have indeed a key role to play in tackling this issue. In this methodological guide, we aim to **support managers in facilitating a transition of existing economic activities within their sites towards more sustainable practices**. We view natural areas as an integral part of a territory, supporting biodiversity and ecosystems, along with all their associated benefits - but also in terms of their socio-economic roles. We will look specifically at the **links that exist between economic activities and natural areas**, including both positive and negative relationships, at local scale and in a context of global environmental change. Additionally, we will dive into the **main concepts that currently attempt to create a virtuous link between economy and the environment**, through ecosystem services and other means of determining the value of natural areas, alongside the many notions surrounding sustainable tourism and blue-green economies.

In light of these different elements, we will attempt to define what a ‘sustainable economic activity’ is. **A series of activity factsheets will focus on different elements** and promote better understanding of various economic activities, while highlighting – above all - the **good practices to promote sustainability and ensure respect** for the environment and natural areas.

And because a manager should never work alone, we will **examine a number of tools that can be used to work with local actors on economic issues in natural areas**.

Consultations are a complex and pivotal stage in the construction of multi-stakeholder projects, but all the more necessary when it comes to **building a shared vision** between stakeholders with totally different objectives and constraints, namely natural area managers and business entrepreneurs.

But before all that, it is essential to set our context.





PART I

LINKS BETWEEN THE ECONOMY, THE ENVIRONMENT AND NATURAL AREAS



A/ WHAT ACTIVITIES AND ACTORS ARE WE REFERRING TO?

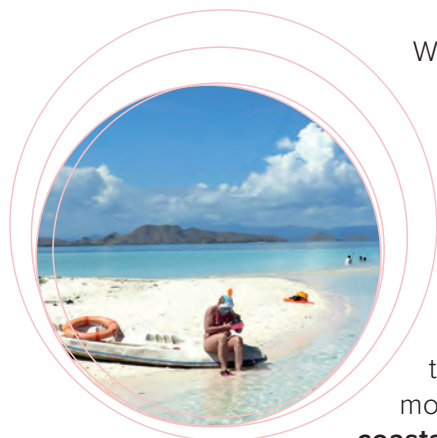
What exactly do we mean when we speak of economic activities in natural areas? What are the main types of activities that take place in natural areas? Who are the key actors involved? What are the direct and indirect linkages between the environment and economic activities? What is the role of natural areas in relation to territorial economic development? Before attempting to tackle these questions, it is essential that site managers achieve understanding of the entire context, as well as of the related issues.

a. Tourism and exploitation of natural resources

Not all economic activities take place in natural areas. For instance, it is unlikely that a laundry will be set up in the heart of a nature park, or that a petrol station will be established on a 3-hectare island. But then, what type of economic activities are we referring to?

In this section, we describe the main activities that you, as a manager, could be confronted with.

◆ Tourism



What better way to open this guide than discussing tourism-related challenges! According to France's National Institute for Statistics and Economic Studies (INSEE), tourism 'covers the activities people engage in while traveling and staying outside their usual environment for less than a year, whether for leisure, business, or other purposes, provided these are not linked to paid work in the place visited'¹. Prior to the COVID19 pandemic, the tourism and travel sector contributed to **10.4% of the world's Gross Domestic Product (GDP)**, accounting for nearly 10.5% of employment and having reached similar levels again in 2024². Tourism is therefore an important economic sector, and one that concerns us all the more because **a large proportion of tourist activities are concentrated in coastal, marine and island areas**. We are specifically referring to **coastal and maritime tourism**, as defined by UN Tourism - UNWTO, the United Nations agency responsible for promoting responsible, sustainable and universally accessible tourism. According to UN Tourism, coastal tourism refers to 'land-based tourism activities such as swimming, surfing, sunbathing and other coastal leisure, recreation and sports activities which take place on the shore of a sea, lake or river. Maritime tourism refers to sea-based activities such as cruising, yachting, boating and nautical sports and includes their respective land-based services and infrastructure.

Inland water tourism refers to tourism activities such as cruising, yachting, boating and nautical sports which take place in aquatic- influenced environments located within land boundaries and include lakes, rivers, ponds, streams, groundwater, springs, cave waters and others traditionally grouped as inland wetlands.'

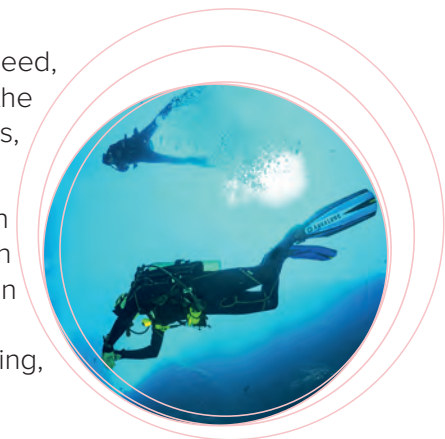
¹ <https://www.insee.fr/fr/metadonnees/definition/c1094>

² <https://wtc.org/research/economic-impact>

This type of tourism therefore covers a wide range of activities, including many which are water-related (sporting and non-sporting), yachting and other navigation-related activities, as well as cruise ship activities. Cruises represent a major part of the maritime tourism economy, accounting for 35.9% of total revenue in 2021 – a trend that continues to grow, **since the number of cruise passengers has risen from 17.8 million in 2009 to 30 million in 2019, according to CLIA - Cruise Lines International Association** ³.

It should be noted that tourism is certainly not confined to natural areas. Indeed, some forms of tourism focus on urban or even industrial environments. In the context of this guide, we will outline the different forms of tourism in natural areas, several of which are defined below: ⁴

- ❖ **Adventure tourism:** ‘A type of tourism that generally takes place in destinations with specific geographical features and landscapes, and which tend to be associated with physical activities, cultural exchanges, interaction and engagement with Nature. Adventure tourism generally includes outdoor activities, such as hiking, trekking, climbing, rafting, canyoning or diving.’
- ❖ **Cultural tourism:** ‘Cultural tourism is a type of tourism activity in which the visitor’s primary motivation is to learn about, discover, experience and consume the tangible and intangible cultural attractions/products of a tourist destination. These attractions/products are linked to a set of features [...] that apply to arts and architecture, historical and cultural heritage, culinary heritage, literature, music, creative industries and living cultures with their lifestyles, value systems, beliefs and traditions.’
- ❖ **Health Tourism:** ‘Health tourism covers those types of tourism whose primary motivation is to contribute to physical, mental and/or spiritual health through medical and wellness activities that increase the ability of individuals to satisfy their own needs and to function better as individuals in their environment and in society.’
- ❖ **Rural tourism:** ‘Rural tourism is a type of tourism activity in which the visitor experience is linked to a wide range of products usually related to nature-based activities, agriculture, rural lifestyle/culture, angling and sightseeing. Rural tourism activities take place in non-urban areas with different characteristics: low population density, landscape and land use dominated by agriculture and forestry and traditional social structures and lifestyles.’
- ❖ **Sports tourism:** ‘Sports tourism is a type of tourism activity that refers to the travel experience of the tourist observing as a spectator or actively participating in a sporting event usually involving commercial and non-commercial activities of a competitive nature.’



In these different forms of tourism we find economic activities that are linked to natural areas - from **restaurants and food services and accommodation** (hotels, private homes, camping or rented accommodation) to **leisure activities** - whether sporting (diving, hiking, climbing, canoeing-kayaking, mountain biking) or **non-sporting** (visits to natural areas on land or at sea, discovery of built heritage, observation of fauna and flora, cultural activities, boat hire, events, cruises), as well as **commercial activities** (sale of more or less local, more or less artisanal products, linked or not to the natural area).

³ <https://www.grandviewresearch.com/industry-analysis/coastal-maritime-tourism-market-report>

⁴ <https://www.unwto.org/glossary-tourism-terms>

AMENITIES, FEATURES AND ATTRACTIONS⁵

Amenities are ‘natural elements of the area that represent an appeal for permanent or temporary residents. The term amenity most often covers elements of the landscape or environment, perceived as ‘natural’ and offering touristic or residential appeal’.⁶ Amenities encompass what is seen, but also what is experienced and felt, and therefore refer to all the senses: sight, touch, smell, flavour and taste, hearing (Mollard, 2007). It is worth mentioning that amenities are a subjective approach to the various elements that make up a place. A place may be experienced by one visitor as calm, pleasant, beautiful, another person can perceive it as a dangerous, distressing and therefore unpleasant space.

Given the subjectivity of amenities, the notion of **‘features’** makes it possible to consider more objectively the values of an area that could be developed for tourism.

Features include natural or cultural resources (mountains, landscapes, climate, local customs). These amenities and features only represent real added value for the area if **management policies** are put in place to enhance this natural capital.

Finally, **attractions** refer to what is available for tourists – meaning, what is developed and offered, the products and services developed to attract tourists based on the amenities and features of an area.

Your natural area has a number of amenities and features, thanks to which various actors can offer a number of economic activities and attractions within or around the natural area. All of which contribute to the area’s tourism offer and, therefore, to its economic development.

If you wish to examine these issues in detail, the first step will be to **identify these different characteristics:**

- ❖ What are the amenities and features of your natural area?
- ❖ What are the intrinsic characteristics of your area that can attract visits?
- ❖ What activities and attractions take place in your natural area?
- ❖ Who are the actors offering these activities, and therefore, who do you need to work with?

As you will have understood, as a manager of a natural area where a number of tourist activities can take place (adventure, health, sports, cultural, coastal or maritime), you have a distinct role in managing these activities within the natural area. However, tourist activities are not the only economic activities that can take place in natural areas.

◆ Exploitation of natural resources

Although the term ‘exploitation of resources’ may sound scary, it is a reality that no manager can avoid. Natural areas are more or less exploited, depending on their natural resources but also on their levels of protection. The exploitation of natural resources can range from small-scale to industrial, depending on the scale of the operations and the actors involved.

⁵ <http://publis-shs.univ-rouen.fr/rmt/index.php?id=498#toctoIn1>

⁶ <https://geoconfluences.ens-lyon.fr/glossaire/amenites>

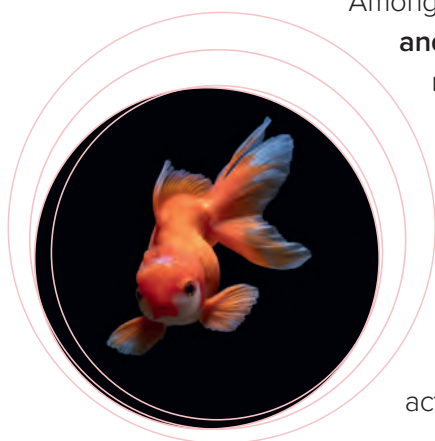
Certain exploitation activities are concentrated in marine environments, i.e. fisheries and aquaculture represent important economic activities that provide food for people worldwide.

- ❖ **Fisheries:** whether carried out by individual fishers using traditional practices, or by large industries, fishing practices exploit the resources naturally produced by marine ecosystems (fish, molluscs, crustaceans or algae).
- ❖ **Aquaculture:** consists of the rearing and production of animals or plants in fresh, brackish or marine water. This includes the farming of fish, molluscs, crustaceans and algae. Farming can be extensive⁷ or intensive⁸, with a real environmental impact, particularly in the case of intensive farming.

Many exploitation activities also take place in terrestrial areas:

- ❖ **Agriculture:** involves human activities developed to produce plant and animal food resources. This involves exploiting land areas to produce fruit, vegetables, cereals, milk or meat.
- ❖ **Forestry:** covers wood harvesting activities, from cutting to processing (notably for furniture or fuel).
- ❖ **Non-timber forest use:** covers forestry activities - other than timber harvesting - of products or by-products derived from plants, such as wild fruit, berries, mushrooms, maple products, plants gathered for medicinal, aromatic or ornamental purposes, honey or game meat. These products may be cultivated or simply collected for resale or for processing into food or craft products.
- ❖ **Hunting:** it can constitute an economic activity of resource use, as indicated above in the case of hunting meat as a non-timber forest use, or a form of tourist economic activity, in the case of hunting tourism which exists in certain countries.

Among other forms of resource exploitation taking place in natural areas, **quarries and mines** can also be mentioned. These activities, whose purpose is to extract materials from the subsoil (fossil fuels, metals, radioactive elements, sands, rocks etc.), can take place on land, or on the high seas. They may be carried out using explosives or heavy machinery, and are intended to provide resources used in construction and infrastructure work, making it possible to supply fossil fuels and metals useful in many industrial fields. In addition to the environmental issues involved, it is also important to mention the **value addition of products resulting from these operations**. Indeed, catching fish, harvesting fruit and vegetables, or harvesting wood only become economic activities if the product is subsequently sold.



7 'Extensive or 'productive' aquaculture utilises the natural productivity of water, possibly reinforced by fertilisation (in the case of fish farming ponds). No exogenous food is supplied by the aquaculturist. It is the environment that provides the source of food.'

<https://www.larousse.fr/encyclopedie/divers/aquaculture/22502>

8 'Intensive aquaculture, also known as 'processing', aims to transform products and by-products of low market value into noble species appreciated on the market. Following the example of soilless pig and poultry farming, the environment is no more than a physical support and the feeding is entirely exogenous.' <https://www.larousse.fr/encyclopedie/divers/aquaculture/22502>

The result of this sale - the actual profit - goes to the person or organisation who produced or harvested the resource in question. These goods can be sold unprocessed or processed (e.g. a fish can be sold raw, or cooked and resold), as part of a direct or indirect sale. **These different criteria will have an impact on both the selling price and the producer's level of income.** The impact in this case is primarily social, since the producer's income will partly define their quality of life and well-being, but also environmental, in an indirect way. For example, a fisher who does not earn enough income from fishing is likely to want to fish more to increase their income. For this reason, in parallel with the exploitation activities that take place in a natural site, within a **sustainability approach to these activities**, it will be important to **look at their social impact, and therefore at the added value created through the processing or sale of the products.**

Finally, concerning extraction activities, we can also mention the **transport of goods**. Products resulting from exploitation - more specifically the ones from industrial-scale exploitation - are mostly transported for sale or taken to the processing facility. In natural areas, this applies to land transport, mostly by car and lorry, but also to **sea transport** and thus to the presence of port activities.

These exploitation activities have a direct link with natural areas, as they extract resources, shape landscapes, and can disturb ecosystems by introducing pollutants, agricultural inputs, and both animal or plant species. Where tourism brings together 'recreational' economic activities, **resource exploitation activities aim to respond to 'human needs'**, including first and foremost food security and the supply of materials necessary to support our modern lifestyles, all of which **take priority over environmental preservation issues** - at least as far as food needs are concerned. As noted earlier, these exploitation activities can also form the basis for cultural and even industrial tourism attractions.

Furthermore, **exploitation activities can vary according to the context**, as for instance, ancestral and ancient practices, innovations, regulations, environmental conditions, available equipment or available knowledge - all these differences prevent any standardisation of practices towards sustainable and environmentally-friendly methods.

However, as we shall see, many practices can be generalised or, conversely, abandoned in all of these contexts, in order to meet the challenges of sustainability.

b. Understanding and identifying the stakeholders to engage with

The diversity of economic activities that can take place in your natural area implies a **diversity of economic actors**, whom you will have to work with.

This diversity concerns not only the **types of activity** - restaurant and food services, accommodation, guides and instructors for nature or sports activities, agriculture, fishing, hunting etc. - but also the **types of structures** - individual businesses, small and medium-sized enterprises, large companies, major chains and multinationals.



The diversity of economic activities in your natural area implies a diversity of economic actors, taking different forms and organisational structures. Each of these structures and organisations may be subject to **different regulatory constraints**, such as **internal** regulations and practices and **national or international regulations** imposed on the type of structure and/or field of activity in question. Why is it important to know and take into account these aspects? Because **an economic actor may not have the capacity to change a specific practice**, either because it is imposed internally or by law. So which organisations are we talking about? We will distinguish here between **companies, individual economic actors, and associations**.

◆ Companies

These are defined by INSEE as ‘*an economic, legally autonomous unit whose main function is to produce goods or services for the market*’. In France, businesses are categorised according to their number of employees and their sales figures, ranging from the **Micro-enterprise** (fewer than 10 employees and less than €2 million in sales), through the **Small and Medium-sized Enterprise** (SME, fewer than 250 employees and €50 million), the **Intermediate-Sized Enterprise** (ETI, fewer than 5,000 employees and €1500 million), to the **Large Enterprise** (any structure that does not fit into the other categories). A business may therefore consist of a **single entity** - a restaurant, for example, or a fishing company - or **several** in the case of a chain, a group, or even a multinational company - such as a hotel chain. **Companies operate in different ways** depending on their size, their field of activity and the country in which they are based, and therefore the regulations imposed on them. It is important to try to **understand what their legal, regulatory and internal constraints** are so that you can engage in an informed dialogue with them.

Questions to ask yourself:

- Do they have an internal CSR (Corporate Social Responsibility) strategy?
- Are they legally obliged to do certain things, particularly from an environmental point of view?
- Do they have the capacity and flexibility needed to adapt their practices?

CORPORATE SOCIAL RESPONSIBILITY (CSR)

CSR was defined internationally in 2010 by the ISO 26000 standard as the 'responsibility of an organization for the impacts of its decisions and activities on society and the environment', which translates into:

- ▶ Adopting transparent and ethical behaviour that contributes to sustainable development including the health and well-being of society;
- ▶ Taking into account stakeholders' expectations;
- ▶ Complying with applicable laws and being compatible with international standards.⁹

This standard defines 7 core subjects: governance, human rights, labour relations and conditions, the environment, fair operating practices (including the fight against corruption), consumer issues (such as digital data processing), communities and local development.

It aims to implement the principles of sustainable development within a company, thereby seeking to have a positive impact on society, while respecting the environment and remaining economically viable. The CSR strategy of a company describes what it will implement to meet the principles of sustainable development - **which is not imposed by law**. Indeed, on a global scale there is no legal obligation, and the definitions adopted for CSR even vary from one country to another.

◆ Individual economic actors

Individual actors are another form of economic actor, which refers to people working **independently and autonomously**. These economic actors work in a wide range of service activities, particularly tourism (e.g. nature guides, hiking guides, kayak guides, climbing instructors, canyoning instructors, mountain bike instructors, skippers, sailing or diving instructors, etc.). This category may also encompass small-scale farmers or fishers, for example. What characterises these professionals is that most of them tend to **work in a variety of locations, both permanently and often seasonally**, i.e. for only part of the year (often in conjunction with the tourism seasons). **They may or may not be grouped together and/or organised in associations, federations or clubs**. These individual actors are also subject to regulations that vary from one country to another, and from one area of activity to another.

This is why, as a manager of a natural area, it is important to ask yourself certain questions:

- ▶ What are the constraints and specific functioning of the self-employed status?
- ▶ What rules must be followed in their field of activity?
- ▶ What accreditations, licences and other rights to practice must they hold ?

⁹ <https://www.novethic.fr/entreprises-responsables/quest-ce-que-la-rse.html>

◆ Associations

Last but not least, **some associations** may also carry out economic activities in a natural area. But unlike businesses, generating profit isn't the primary goal of an association. Not only do they hold a different status, but they are also subject to different regulations and operating constraints, and pursue objectives and rationales that differ from those of purely economic actors.



For this reason, it is essential to distinguish between different types of economic actors and their different statuses. **This will help us identify the economic actors with whom you will need to engage in dialogues**, bilateral exchanges and any potential negotiations.

These different statuses, areas of activity, constraints and objectives will influence their position in relation to conservation issues in the natural area. In conclusion, you should ask yourself a number of questions to identify, tackle and understand these economic actors:

❖ **Which economic actors have links with your natural area and have an impact on it? What are these links and impacts?** Identifying all the economic activities that take place in an area can be particularly complex. Some facilities are permanent and easier to identify - such as the ones relating to farming, forestry, fish farms, restaurants, campsites, hotels, etc. You may even have signed an agreement with them, or they may already be paying you rent, for example, for the right to use the natural area. But others are less permanent and more difficult to identify. This is particularly true of freelancers who work in several natural areas, without necessarily being attached to a clearly identifiable structure. On the one hand, there are economic activities that take place directly within the natural area, and on the other, those that, despite not being physically established there, operate in or exert an impact on it - in the same way as a company located off-site could discharge pollutants into the sea, reaching the marine protected area.

- ❖ **What regulations govern their activities and structures?** Do the actors actually comply with them? Could some of these regulations prevent certain changes in practices?
- ❖ **Does the company have a CSR strategy?** This can imply a level of awareness and a (varying) degree of commitment to adopting a sustainable approach.
- ❖ **What are the actors' capacities to change their practices?** If operating rules and practices are set and imposed by the company's management, they may be difficult, if not impossible, to change. By contrast, if one person works alone or the company is just one entity, change will be easier to envisage.
- ❖ **What is the entrepreneur's relationship with the natural environment and the territory?** A local entrepreneur who has known the area since childhood and is attached to it will probably have a greater level of involvement and interest in preserving the area than someone who has no connection with it. Similarly, an economic actor whose activity depends on the good condition of the natural environment will be more likely to support its preservation.
- ❖ **What level of information, awareness and interest do economic actors have in environmental issues?** Some actors are already very sensitive to environmental issues, while others are much less so. This will influence their willingness to act in favour of the environment, but also their ability to act. They may need training to improve their practices, or simply meetings, exchanges and site visits with experts who can raise their awareness.



Many other questions apply to this subject, for example, what is the role of these businesses in the territory? Since when have they been established? Are there examples of good practice in their fields of activity that could serve as models to follow? What are their links with local decision-makers? What are the recent changes in regulations? etc.

In fact, **your goal should be to gain a clear understanding of the economic landscape at and around the site, and to understand the context in which these economic actors and activities operate. This will allow you to engage them in dialogue, take into account their constraints, objectives, issues, etc.**

Moreover, in your role as a manager of a natural site, would you say your challenges and goals are the same as those of these economic actors? Probably not. Your goals are to conserve and restore the ecosystems that are part of the area you manage, in addition to expanding knowledge about the area and its biodiversity, and welcoming, informing and raising the awareness among the public. So what are the challenges and objectives of economic actors? Saying there's just one wouldn't be exactly accurate. But, at first glance, a primary and fairly central objective is **to make a profit** - this works for companies but not for associations. Behind this objective are simply people looking to 'earn their living', pay their employees, hire new ones, invest in newer equipment, meet the objectives set by the management, etc. However, **profitability is probably not the only objective of entrepreneurs working in your natural area.** Some may want to play their part in preserving the area - a desire linked to the economic activity itself, like a fishing company or a nature guide whose activities depend directly on the health of ecosystems - or simply on personal sensitivity. Some may want to inform and raise awareness among the general public; whereas others may be seeking to have a social impact, by creating jobs for instance. **There are probably as many objectives as there are economic actors, and it will be your task to identify them** among those who have a direct or indirect impact on the site.



You now have in mind the diversity of economic activities that can be linked to your natural area, but also the diversity of actors who carry out and support these economic activities. But as mentioned, the links between these economic actors and the natural, social and economic environment are complex and multifaceted. You must of course understand them well in order to identify the challenges and objectives, and learn how to engage and communicate effectively with them.

Understanding these relationships can also help when dealing with local decision-makers, who could support your efforts to reduce the negative impacts of economic activities on your site. Once again, your aim is to move beyond the classic 'Nature versus Economy' opposition, and to develop a well-reasoned, objective and convincing narrative that helps change practices.

B/ WHAT ARE THE LINKAGES BETWEEN NATURE, MANAGED (OR PROTECTED) AREAS AND THE ECONOMY?

How can we understand and analyse the relationship between Nature, Protected Areas and the Economy? Managers of natural areas need to understand and take into account a number of factors if they are to create a link between their sites and the economic territory in which they are located.

a. The values and services provided by nature and natural areas

The first widely recognised concept that can be used to assess the links between people and nature is that of **ecosystem services**. Emerging in the 1990s, this concept is defined as ‘the benefits provided by ecosystems to humans, that contribute to making human life both possible and worth living¹⁰. These services are divided into 4 categories, and each ecosystem simultaneously provides several services¹¹:

- ❖ **Provisioning services:** these are the goods delivered by ecosystems (food, firewood, fossil fuels and agrofuels, textile fibres, and even medicines);
- ❖ **Regulating services:** these are the services provided by the environment in terms of climate regulation (carbon storage, the effect of vegetation on heat or rainfall), floods, disease etc.;
- ❖ **Cultural services:** they encompass leisure activities, art and scientific innovations that are inspired by Nature;
- ❖ **Support and maintenance services:** including ecosystem properties that enable the other three types of service to be provided (pollination, nutrient recycling - between plants, bacteria, fungi, etc.) or soil formation.

This classification by ecosystem service is not universally accepted, but it does provide a certain idea of what Nature provides in light of socio-economic considerations. However, while these ecosystem services help us understand how Nature is an integral component of our human societies, they do not, in themselves, make it possible to assign an economic or monetary value to the role of natural areas.

‘Studies are ongoing, but to date, ecosystem services are not valued in monetary terms. If they were, their value would often exceed the one created by economic activities.’

Matthieu DELABIE, thematic coordinator ‘finance, economic instruments’ at Office Français pour la Biodiversité (France)



¹⁰ Díaz, S., Fargione, J., Chapin, S., & Tilman, D. (2006). Biodiversity Loss Threatens Human Well-Being. *Plos Biology*, 4, e277. <http://doi.org/10.1371/JOURNAL.PBIO.0040277>

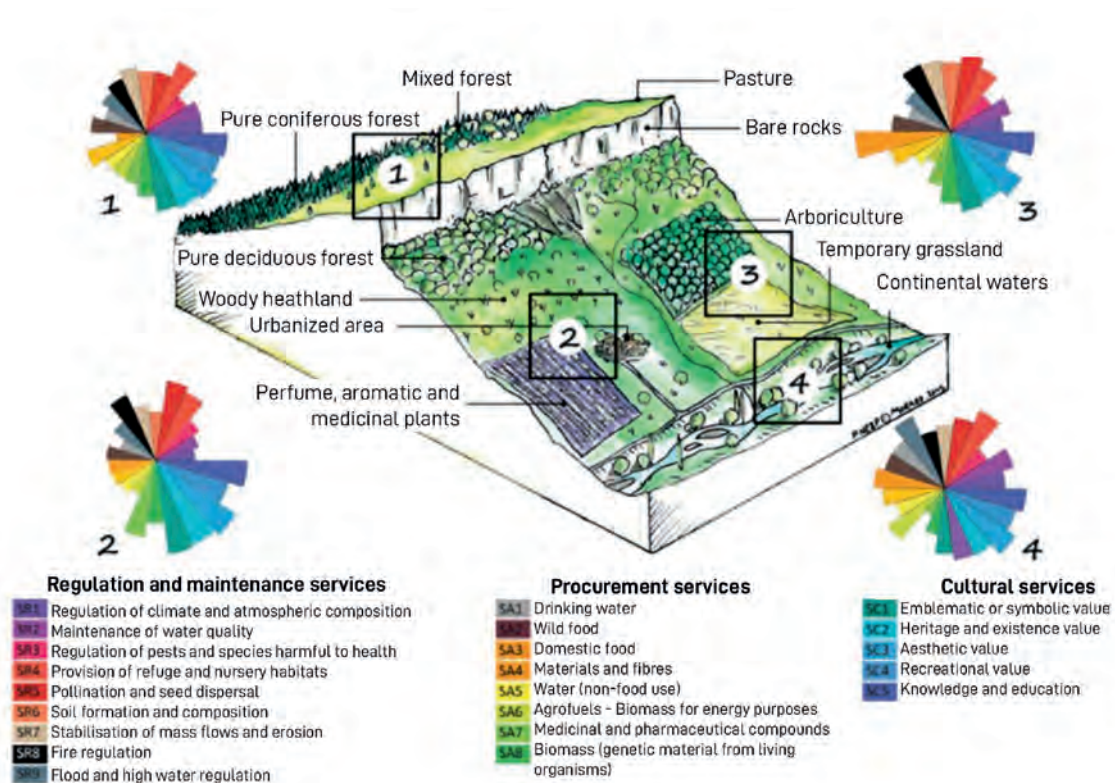
¹¹ <https://planet-vie.ens.fr/thematiques/ecologie/les-services-ecosystemiques>

ECOSYSTEM SERVICE BUNDLES

The ‘Ecosystem service bundles’ approach aims to account for the diversity of services provided by a single ecosystem, but also for their interdependence. Indeed, **the same ecosystem provides various services, which are themselves influenced by factors that are sometimes common.** This concept aims to represent, first of all, the role of each service within a single ecosystem, and therefore to build a multi-functional territorial approach, but also to characterise the interactions between services. The method involves **mapping habitats**, and using a **matrix in which a score is given, according to expert opinion, to a habitat based on its ability to provide a service.** For example, one score will be given to the recreational service provided by an area, and another to the ‘agricultural exploitation’ service, etc.). The aim is to **highlight the trade-offs to be made between services in order to optimise their use.**

For example, a forest will have several uses in its bundle of services - from silvicultural exploitation to hunting, foraging and the cultural and leisure dimensions. And these levels of service will evolve according to the state of the forest. If it is heavily exploited, the share of the ‘silvicultural exploitation’ service will increase, but the share of ‘recreational’ service will decrease. **This helps to clarify management choices.**

An example of a schematic representation of four sites in the French Baronnies provençales, showing their associated bundles of services. (source : <https://www.baronnies-provencales.fr/wp-content/uploads/sites/3/2020/05/2018-12-Obs-ter-bdef..pdf>)



The representation can be greatly simplified, and developed according to different possible management scenarios as shown in the diagrams below (source : <https://planet-vie.ens.fr/thematiques/ecologie/les-services-ecosystemiques>). In this way, we can assess the different levels of ecosystem services on the basis of different management choices.

In this diagram, three uses of a coastal zone are represented (i. e. multiple uses, offshore wind farm, integral reserve), and the different ecosystem services are represented:

- ▶ **Sailboat** = recreational activities
- ▶ **Carbon and nitrogen flows** = regulation of the quality of the environment through the maintenance of biogeochemical cycles
- ▶ **Hook and fish** = food supply
- ▶ **Thermometer, sun and cloud** = climate regulation
- ▶ **Crab, Whale and Fish** = maintenance of life cycle, habitats, and genetic diversity
- ▶ **Wind turbines** = energy supply



This tool may thus be employed not only as a tool for diagnosis at a given moment in time, but also as a forward-looking tool to examine the impacts of alternative management choices within a given area. It is important to bear in mind that such an analysis must be conducted with reference to broader territorial dynamics and in relation to the multiple dimensions at stake, from social, to economic, and environmental, as well as those concerning biodiversity, landscapes, and beyond.

When addressing **the issue of monetary valuation** of a natural site, the question proves complex, as we are talking about a ‘non-market’ good. Indeed, the question can be raised about a protected area to **argue in favour of financing its preservation**, and therefore help decision-makers and managers decide on policies and strategies. Nonetheless, there is currently no consensus on these values and the means of assessing them.

A natural area can represent three major value dimensions which, together, make up the total value - or almost total value - of a natural area:

- ▶ **socio-economic values** (jobs, production, skills, governance);
- ▶ **social values** (heritage, recreational, scientific and educational uses, health and quality of life);
- ▶ **ecological values** (services provided by environments and species, protection against risks, biodiversity and genetic heritage).

Given that this guide dives into the link between a natural area and its economic activities, we will now look more specifically at the notion of economic value. To assess the economic value of a natural area, CREDOC (Centre de Recherche pour l'Etude et l'Observation des Conditions de vie) proposes three main approaches (2008):

- **The 'goods and services provided' approach**, which aims to translate into monetary units the services provided by the natural area in terms of water supply, food, raw materials, regulations, culture or heritage;
- **An approach based on the economic spin-offs of protecting the area**, that aims to measure the added value of a protected area by means of an analysis focused on the socio-economic dynamics of the territory, directly linked to the fact that an area is protected;
- **An approach based on the total economic value**, which broadens the range of values taken into account, by taking into account both use and non-use values (see box below¹²).

Approaches to Assessing the Value of Protected Areas			
	GOODS AND SERVICES PROVIDED BY ECOSYSTEMS	ECONOMIC IMPACTS OF PROTECTED AREA DESIGNATION	TOTAL ECONOMIC VALUE OF THE NATURAL AREA
PURPOSE	To analyse the contribution of an ecosystem to the wealth of a territory.	To evaluate the impacts of a protected area designation.	To identify the different facets of the value of a natural site.
OBJECT	The ecosystem and its characteristics.	The socio-economic dynamics of the territory concerned by the protection.	The natural site (its uses and representations).
VALUE ELEMENTS	<ul style="list-style-type: none"> • Value of marketable production. • Value of ecological services provided. • Value of recreational and cultural services. 	<ul style="list-style-type: none"> • Job creation and development. • Development of economic activities. • Cooperation and governance dynamics. • Development of specialised skills. 	<ul style="list-style-type: none"> • Direct use of the environment (extractive, recreational activities, etc.). • Indirect use of the environment (flood protection, etc.). • Non-use values (existence, bequest, option values).

Source : Credoc 2008

¹² <http://www.espaces-naturels.info/sites/default/files/revues/revue-30.pdf>



USE AND NON-USE VALUES

Different types of value are attributed to ecosystems and biodiversity:

- **Use values**, which include direct (immediate) and indirect (regulating or supporting) uses, as well as potential future or option uses (value attributed according to utility);
- **Non-use values**, attributed to the mere existence of a good or service.

VALUES ATTRIBUTED TO BIODIVERSITY

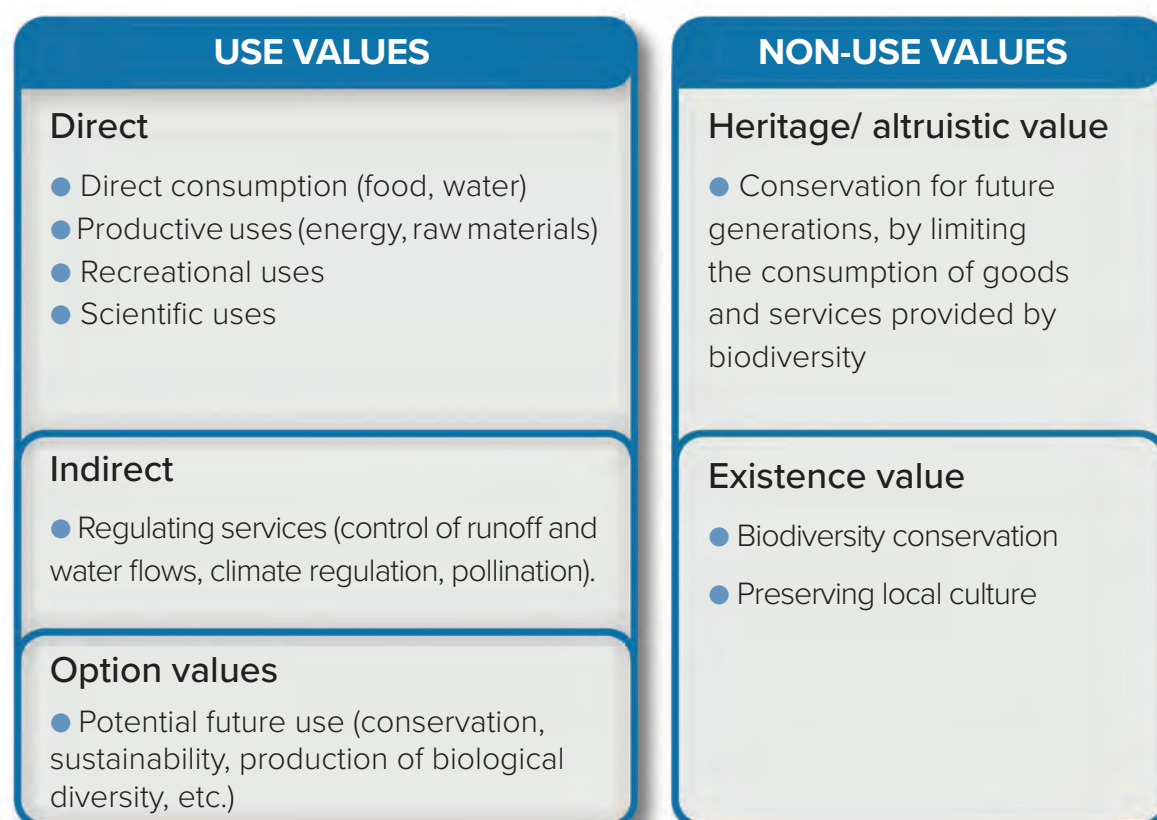


Table reproduced on the basis of the Report for the Centre d'analyse stratégique, *Approche économique de la biodiversité et des services liés aux écosystèmes*, Olivier Debuf, 2009.

FACTSHEET N°. 1

CONDUCTING A STUDY ON THE VALUE OF A PROTECTED AREA



Assessing the value of a protected area is a complex task, for which it is both possible and recommended to rely on a specialised service provider. It also requires bringing together and integrating different topics and areas of expertise (economics, environment, social dynamics, etc.). For this purpose, Bruno Maresca and Anne Dujin offer guidance on how to conduct a study on the value of a protected area (*Evaluation monétaire des espaces naturels, Economique, sociale, patrimoniale, écologique. Quelles valeurs prendre en compte?*, *Revue Espaces Naturels* n°30, Avril 2010), included in this factsheet.

1. Set up a multidisciplinary steering committee, and mobilise it at the key stages for drafting the terms of reference, choosing the service provider and defining the expected results: e.g. economists, people who have already led this type of study and people with a good knowledge of the area and the activities that take place in it.

2. Identify the most relevant value elements to be examined: build an exhaustive list of the potential economic effects generated by the protected area (employment, production, tourism uses, skills, amenities, etc.) and identify potential sources of information from relevant organisations (i. e. managers for the number of visitors, activities taking place at the site, etc.; chambers of commerce, statistical services for agriculture, the internet ...). The ultimate aim will be to identify which of these elements are the most relevant to study.

3. Draft the terms of reference: set up a "study/survey module" to evaluate each of the selected value elements. There are several methods that vary in suitability to assess the different types of value, and potential biases must be taken into account (such as double counting, if we count the jobs of farmers and shepherds, but also evaluate the primary production of grassland - which are two ways of understanding the same economic impact of a natural area with grazing).

Kindly note: the methods for analysing and assessing values are many and complex. They are not developed in this guide as they fall within a certain field of expertise. A natural area manager is not expected to calculate these values and should rely on an expert capable of identifying and implementing these methods. However, you can find out more about assessment methods in the document available on the CREDOC website: 'Les retombées économiques et les aménités des espaces naturels protégés', Rapport général, B. Maresca et al, 2008 from page 73.

[FACTSHEET N°1]

Methods for Evaluating Different Values of a Site		
TYPE OF VALUE	VALUE ELEMENTS TO BE EVALUATED	POSSIBLE ANALYSIS METHODS
Economic Value	<ul style="list-style-type: none"> • Employment • Production • Local development • Skills 	<ul style="list-style-type: none"> • Budgetary analysis • Input-Output analysis • Activity systems analysis
Ecological Services	<ul style="list-style-type: none"> • Services provided by habitats • Services provided by species • Protection against risks • Biodiversity, genetic heritage 	<ul style="list-style-type: none"> • Avoided costs • Replacement costs • Opportunity costs
Social Value	<ul style="list-style-type: none"> • Heritage value • Scientific and educational uses • Recreational uses • Health and quality of life 	<ul style="list-style-type: none"> • Joint analysis • Contingent valuation • Travel cost method • Hedonic pricing

4. Choosing the service provider: the cost is obviously important, but the offer and the candidate's mastery of the subject are also essential considerations. It's a complex subject and fairly recent expertise, requiring genuine, demonstrable skills.

5. Follow up and support the development of the study: it's necessary to monitor this type of study and pay particular attention to certain key stages. For example, the definition of the survey targets (who, when and where are they to be surveyed?), the content and type of questionnaire (which will need to be tested), having the surveyors visit the area to explain the issues at stake, having them meet the management team, etc.

6. Sharing the findings of the study: This is obviously an essential step, and needs to be designed in a clear and understandable way for the various audiences, particularly non-economists.



The identification of the different ecosystem services provided by natural areas and **the assessment of their multiple values and their services makes the link between natural sites and the economy increasingly obvious**. Moreover, it helps curb the classic Nature versus Economy opposition. **Economic actors' understanding of the ecosystem services** provided by natural areas, on the one hand, and **managers' understanding of the economic values of natural sites**, on the other, are basic conditions for an informed dialogue between these actors. The aim is to understand the interrelationships between these two ecosystems - Nature and Economy - to co-construct common approaches, strategies and policies. To do this, the various concepts presented here are important (i. e. bundle of ecosystem services, use and non-use values, ecological, social, socio-economic values etc.) but they are not the only elements that need to be known and understood.

From a more direct and concrete point of view, the various economic activities that take place in or around a natural area inevitably have an impact on it, and the natural area itself also has an impact on these various economic activities. **These impacts need to be known and understood, once again, in order to foster reflection and dialogue.**

b. The main impacts and intersecting consequences

This section does not intend to go into detail about the impacts of all the economic activities that may have been identified in the previous section. Instead, the aim is to address, in a general way, **the impacts that can be observed with regard to the two main categories of economic activity, tourism and resource exploitation.**

◆ Negative impacts of tourism-related activities

On a regional scale, tourism, or rather mass tourism, is a sector of activity that is particularly criticised nowadays because of the impacts it generates. For example, the concentration of tourist areas - particularly on coasts and islands - **leads to an increase in the price of land**. The purchase of land for the construction of hotels or holiday homes, or the purchase of property by individuals for the sole use of tourist accommodation, creates pressure on property prices, **thereby excluding part of the population**. In some more serious cases, urbanisation driven by tourism can result in **the displacement of residents or entire communities**, either to build areas dedicated to welcoming tourists, or by privatising certain areas, thus denying access to beaches or islands to local communities that used to frequent them. The rise in property prices can be observed more widely across all prices. In fact, the presence of a 'more affluent' population, represented by tourists, in a given area can lead to **an increase in prices generally** (for everyday consumer goods as well as for the prices of leisure activities). In addition, tourism pressure, which is often seasonal, causes **a significant variation in the population over a period**, thus raising the demand for resources - in particular water and energy, with impacts on both resource availability and costs - besides increasing the need for waste management: 'In 2013-2014, the French Ministry of the Environment, Energy and the Sea observed that drinking water abstraction per inhabitant had become three times higher and electricity and natural gas consumption per inhabitant was four times higher in municipalities where tourism intensity was highest compared to the national average.'

Furthermore, waste production per inhabitant was, on average, greater than 700kg per year in French departments with a high tourist function rate, compared to 574kg on average nationally [...] ¹³. These variations make waste management by local authorities even more complex.

Tourism can also cause **changes in local behaviour and cultural values, destabilising communities** and even wiping out cultural assets. Similarly, the marketing of certain ‘tourism experiences’ based on local culture can have perverse effects, by exposing local communities and their practices. Furthermore, issues relating to working conditions in the tourism sector can also arise, all of which can **lead to social conflicts, particularly between local people and tourists.** ^{14, 15}

‘DISNEYFICATION’¹⁶

The notion of **Disneyfication**, coined by Sylvie Brunel (French geographer and academic), refers to one face of tourism and its globalisation. It is defined as **‘the transformation of local societies and cultures, through the presence of tourists, and to meet their expectations. It can also be a form of museification in that it freezes landscapes and practices in order to match the representations (or clichés) attributed to a place or a population.’**

This expression refers to images that can be found in theme parks, illustrating these preconceived ideas that tourists may have about different places on the planet, which they expect (and seek) to find on their travels: *‘Mexicans with sombrero and cactus, Tahitian women dancing the tamouré, Japanese women in kimono and in Paris the Moulin-rouge and the dancers at the Crazy Horse’.*

MACDONALDISATION OF TOURISM LANDSCAPES

In many mass tourism areas, a specific architectural and botanical ‘grammar’ - made up of certain codes and representations - is employed to cater to the imagined expectations of consumer-travelers. Moroccan-style palaces in Cape Verde, Swiss chalets on the shores of Corsica’s natural beaches, agaves, cacti, Australian pines, eucalyptus and palm trees (lots of them!) to create a ‘holiday’ atmosphere. **In the same way as MacDonalds, whose restaurants maintain a unified architectural style throughout the world, certain tourist areas (fortunately not all!) are built following the same codes** to satisfy an audience that perceives this uniformity as something reassuring. As a result, this type of mass tourism may actually deny the codes that are specific to the local culture - a form of ‘landscape Macdonaldisation’, as described at the time by Nicolas Gérardin, former Scientific Director of the Port Cros Parc National Park in France. ¹³

¹³ https://agence-cohesion-territoires.gouv.fr/sites/default/files/2023-08/publi_fp_tourisme_26_juillet_2023_montee.pdf

¹⁴ <https://www.proparco.fr/fr/article/le-tourisme-un-danger-pour-les-pays-en-developpement>

¹⁵ https://agence-cohesion-territoires.gouv.fr/sites/default/files/2023-08/publi_fp_tourisme_26_juillet_2023_montee.pdf

¹⁶ <https://geoconfluences.ens-lyon.fr/glossaire/disneylandisation>

From an economic point of view, tourism can also represent a threat when an area is too dependent on it. It should be noted that tourism is an **unstable sector, vulnerable** to natural, climatic, meteorological, geopolitical and health fluctuations, as clearly illustrated by the COVID 19 crisis. **An economy that is too dependent on tourism is a vulnerable economy.**

Indeed, the environmental impacts of tourism can be numerous, including:

- ❖ **Habitat fragmentation and destruction caused by housing development** - potentially causing urban sprawl, further accentuating these phenomena - as well as the construction of concrete walls so each hotel and villa has its own private access to the beach, and all the necessary infrastructure (roads, airports, car parks);
- ❖ **Destruction of ecosystems** directly caused by tourists through trampling and soil erosion, uprooting of seagrass beds by boat anchors, destruction of the seabed and coral reefs by divers' fins;
- ❖ **Fauna disturbance driven by motorised equipment** (boats, jet skis, quad bikes, etc.), repeated passage (walkers, cyclists, etc.) and noise pollution;
- ❖ **Introduction and/or spread of invasive exotic species**, which have a particular impact on island environments;
- ❖ **Alterations in wildlife behaviour** (through feeding by tourists, etc.);
- ❖ **Air pollution due to increased mobility requirements**, mainly based on fossil fuels and greenhouse gases emissions;
- ❖ **Decline in the quality of so-called 'bathing water'** caused by frequentation, products used by tourists (sun cream, etc) or poor water treatment;
- ❖ **Pollution** linked to waste left behind by visitors.

◆ **Negative impacts of activities linked to the exploitation of resources:**

The exploitation of natural resources can also have severely damaging socio-economic and environmental impacts, depending on how they are carried out.

The negative impacts of resource exploitation in natural areas are well known, and are regularly used as arguments to build acceptance for new laws and regulations. **These impacts are mainly environmental and social**, since the related activities are primarily economic and (theoretically) provide jobs besides generating a local economy. The social impact of industrial-agricultural activities can be massive, including exploitation of low-cost employees with limited rights depending on their status (migrant, immigrant, poor worker), poor access to social welfare benefits in the country for workers on the fringes of the law), etc.



From an environmental perspective, the use of agricultural inputs, phytosanitary products and others causes pollution of the soil, watercourses, water tables and the air, while exerting a direct impact on fauna and insects in particular. The construction of quarries and mines fragments, and can even destroy, natural habitats, with a direct impact on both biodiversity and the landscape. Similarly, over-exploitation or highly intense exploitation of various resources (fishery resources, soils, etc.) can cause a total loss of productivity in the environment, and impoverish its functioning (i.e. capacity of soils to absorb rainwater, capacity to maintain soils, protection against heat, role as a nursery for coastal ecosystems, etc.).

From a social point of view, certain resources are sometimes targeted by some of these operations, particularly water - whether the facility is in a natural area or not. Health impacts can also be observed, particularly in connection with the use of chemicals. Most importantly, the destruction of certain areas has a direct impact on recreational zones and landscape amenities. Once again, all this can lead to social inequalities or social conflicts in the worst cases.

◆ Impacts of the degradation of natural areas on tourism and exploitation activities:

The previously mentioned negative impacts on natural areas, which drive their degradation, also adversely affect the economic activities taking place within these areas and their surroundings.

Ultimately, these negative impacts caused by tourism and development activities - certainly accumulated with the negative impacts of all human activities - **are part of a vicious circle.** These activities are indeed dependent on natural areas and the biodiversity they support. **Agriculture** is dependent on crop pollination, soil fertility, climate regulation and soil erosion levels, as is **timber and non-timber forestry.** **Fishing and seafood-related activities** obviously depend on the health of the oceans and their capacity to renew fish stocks. The same applies to the **tourism sector** - in France, for example, 30% of holidays and 33% of overnight stays take place in natural areas¹⁷. As we have seen, this form of tourism covers many outdoor activities, which are directly dependent on the quality of ecosystems, whether in terms of landscape or biodiversity. Among the negative consequences of the degradation of natural areas on the economic activities in question, we may cite, for example:

- ❖ Lower agricultural yields, due to soil pollution and reduced fertility, besides the disappearance of pollinating insects;
- ❖ Lower fishing yields, as fish stocks struggle to recover due to overfishing and the degradation of environments, particularly coastal nurseries (seagrass beds, coral reefs, etc.);
- ❖ The increase in natural hazards (fires, storms, extreme temperatures, etc.), which threaten agricultural production and forest areas, as well as amenities, features and tourist attractions in all natural areas.

¹⁷ <https://naturefrance.fr/la-dependance-de-leconomie-la-biodiversite>



In the long term, **all these negative impacts lead to an increase in production costs for exploitation activities on the one hand, and have an impact on tourism yields on the other.** All of these impacts have a direct effect on the local, national and even global economy, as well as on the social and societal conditions that from it (level of employment, level of income, etc.).

The relationships between economic activities and natural areas are therefore very clear: **all economic activities** - and human activities, more generally - **can have many negative impacts on ecosystems. Once degraded, the ecosystem services provided by these ecosystems diminish, which in turn impacts economic activities.** These are key arguments for respecting and preserving ecosystems in order to maximise the levels of ecosystem services provided, and raises the question of **the position of natural areas within a region.**

c. Natural areas at the heart of the development of a region

Are natural areas and protected areas an indirect form of economic actor? Is there a direct link between the presence of a natural area and the economy of a region? In any case, it is increasingly recognised that these areas play a role in, and even stimulate, local economic development. In her article '*La création d'espaces naturels protégés stimule-t-elle le développement économique local ? Une revue de la littérature*', Chloé Duvivier (2021) notes the various effects of protected areas on local economic dynamics, direct, indirect and induced effects, considering three main sectors: tourism, traditional sectors and residential attractiveness of an area.¹⁸

¹⁸ Source of graph: Duvivier, Chloé. '*La création d'espaces naturels protégés stimule-t-elle le développement économique local ? Une revue de la littérature*', *Revue d'économie politique*, vol. 131, no. 6, 2021, pp. 849-886.

Figure 1 - Summary of the effects of a protected area on the local economy¹⁹



The (in)direct effects refer to the effects according to the Economic Base theory, while the (in)direct effects refer to those according to Carlino-Mills.



In the **tourism sector**, the direct effect of a protected area is an increase in tourism frequentation, which, in turn, leads to higher spending among related sectors (for example, more restaurant owners buying from local vegetable growers - the indirect effect). All of which contributes, in broader terms, to a rise in spending by employees of local businesses in other local businesses - the induced effect.

These impacts are however neither mechanical nor automatic once the protected area has been established. They depend in particular on the protected area designation, i.e. Unesco World Heritage Site, National Park, Regional Park, Strict Nature Reserve, Biosphere Reserve. These designations become landmarks for tourists, reducing the cost of searching for information, once they are recognised.

¹⁹ This diagram is a reproduction of the one contained in the article 'La création d'espaces naturels protégés stimule-t-elle le développement économique local? Une revue de la littérature', Chloé Duvivier (2021)

UNESCO WORLD HERITAGE LISTING, NATIONAL AND REGIONAL PARKS

Research shows that listing a protected area as a **Unesco World Heritage Site** has **little or no effects** on its attractiveness. According to Hall and Piggitt (2001), half of the managers of Unesco sites in 22 OECD countries reports that Unesco recognition has had no impact on visitor levels. This lack of effect has been confirmed by various studies, also on tourism operators that are active in the vicinity of Unesco sites.

Conversely, **'National Park'** designations seem to generate **tangible positive impacts**. For example, the designation of Fulufjället Park in Sweden generated a 40% increase in the number of visitors to the area in one year (Fredman et al., 2007). As another example, 'National Monument' sites that have been promoted to 'National Park' in the United States have seen a significant increase in visitor use (Cline et al, 2011). In fact, according to the existing studies, this designation is a **guarantee of environmental quality**, more widely recognised than UNESCO or Biosphere Reserve listing. In Poland, 97% of the mayors of municipalities situated in the vicinity of national parks acknowledged benefits for tourism development, and 76% declared tourism was their main asset (Zawilińska and Mika, 2013).

A few studies have also analysed the impacts of **Regional Nature Parks (RNP)** designations in France, demonstrating a **density of tourist accommodation** in municipalities located inside a PNR **'significantly higher than in municipalities that lie outside a RNP'** (Chloé Duvivier 2021), even if not specialising in tourism.





The impact of natural area designations and listings therefore depends on **individuals' knowledge** - both of the designation and its significance – which generates, for some, a certain level of popularity, and for others a lack of awareness. This impact is therefore based, in part, on the **efforts made by local management bodies to promote the natural area and its designation(s)**, or on the **appropriation of this designation by local tourism operators**. Finally, a designation is one thing, but the tourist's choice of destination is also based, as we have seen, on the potential to engage in activities, and therefore on **the 'attractions' available in the area**. Thus, a designation or listing is **not sufficient in itself to serve as a 'tourism promotion tool' for a protected area**. More generally, the impact of designations and classifications is **greater on distant and international tourists** - who seek to make the most of their trip - and target 'renowned' destinations. A new protected area listing therefore creates a 'discovery effect' for international tourists. Furthermore, **studies show contrasting results about the effects of the establishment of protected areas on tourism spending and tourism-related jobs**. This is largely associated with the availability of infrastructures (accommodation, restaurants, etc.) around the protected area. Notably, the increase in visitor numbers linked to a new protected area will not necessarily have an impact on tourist spending if tourists have nowhere to spend their money.

In the **traditional sector** - meaning, sectors related to the exploitation of resources such as livestock farming, forestry and agriculture - the designation of a protected area also entails direct, indirect and induced effects. Indeed, **the establishment of environmental rules and constraints can represent a direct negative effect, as opposed to local product labeling - which is positive**. Moreover, this designation can lead to indirect effects - 'if livestock farming declines, local veterinarians will be impacted' (Chloé Duvivier, 2021) with potential induced effects. The results of studies on the effects of protected area designation on environmental rules and constraints aren't systematic or necessarily long-lasting. These would depend on the context, more specifically on the applicable laws, the surface placed under protection, officially authorised concessions for farms within the areas, etc. On the other hand, **the promotion of the territory through the establishment of a protected area can create a real opportunity to label products**, highlighting their origin, the sustainability of production processes, the authenticity of the know-how, etc. What's more, labeled products tend to break away from the 'classic' market, entering a more local 'niche' market, where there is less competition. **All of this benefits producers, who obtain more added value**. This greater gain can therefore balance out any negative impact of the new regulations and constraints imposed by the establishment of the protected area. In this sense, a study by Knaus et al. (2017) sought to **quantify the regional economic spin-offs of implementing a label for local products following the designation of a protected area** - the Entlebuchen Biosphere Reserve in Switzerland, listed by Unesco. *'Thirteen years after its creation, it is estimated that it has had a significant effect on the local economy. The estimated added value accounts for 2% of the agricultural sector and 19% of the forestry sector. Additionally, since much of the processing of products is carried out on a small scale, directly by farmers, the establishment of a label enables small farms to diversify and maintain a certain level of dynamism'*. (Chloé Duvivier, 2021).



Finally, **residential attractiveness** is based on the arrival of new populations generated by the various impacts linked to the establishment of a protected area, which ultimately increase the attractiveness of the area. **The direct effects of a protected area are driven by the amenities, features and attractions that lure new individuals seeking a better living environment - all of which have an impact on employment.** *'The indirect effects on employment, via the population, are explained by the fact that the designation of a protected area attracts new inhabitants seeking a better living environment, which in turn creates jobs. These effects will be felt in particular in the construction sector, due to the increased demand for housing [...].'* (Chloé Duviol, 2021). Notwithstanding, this impact on residential attractiveness has negative effects, particularly social ones, as mentioned earlier in this guide. More precisely, the search for a more pleasant living environment attracts more people, and creates **tension in the property market that only benefits households with higher incomes.** Prices rise, gradually excluding households on lower incomes, or residents present before the establishment of a protected area, but who do not own property.

In conclusion, the economic impacts of protected area designation are not systematic, neither are they confined to the tourism sector. Overall, the proximity of a protected area seems to have a positive impact at local level, but the effects vary according to the economic sectors and indicators observed. These effects are often positive as far as tourism is concerned, but there are a **number of points to bear in mind regarding the jobs created**, as they can be poorly paid, often seasonal or part-time, and therefore often precarious. Furthermore, as we have seen, the more traditional sectors can also be impacted negatively on the one hand, but also positively, particularly by the strengthening of the tourism sector.

However, these results are not the same from one protected area to another, or from one territory to another. **The initial objective for creating or managing the protected area lays the basis for these differences in impact.** The local policies and strategies implemented will differ depending on whether the establishment of the protected area is driven primarily by the goal of ecosystem preservation or by the aim of fostering local economic development, both at the level of the protected area itself and, more broadly, across the surrounding territory. From recreational facilities, to support for developing economic activities around the protected area, communication, promotion, marketing, infrastructure development, the launch of parallel programmes at the scale of the territory - all these policies will vary depending on the territorial strategy chosen - and will be interconnected with the protected area.

◆ The specific characteristics of a natural site

Promotional efforts are a first element to consider. Whether the protected area is newly established or not, communicating widely about it will have a particular impact on results linked directly to tourist numbers. As mentioned, these promotional efforts depend on whether there is a desire to promote the natural area - or not - to increase its visitor numbers, but also on the organisation in charge of this promotion, along with its resources and skills (i.e. communication about the site, on local and national media, by other partners, visits by local authorities, etc.). **The presence of recreational facilities** - in line with the concept of attractions, mentioned previously - is also a criterion which applies both to the recreational and residential appeal of the area. In this case, the aim is to diversify the range of outdoor activities on offer and promote access to the site for all or some categories of visitor (families, the elderly, etc.). The potential of economic impact on the wider area surrounding the natural site will mainly depend on the available range of consumption options – from activities, products and restaurants etc.

Indeed, several works have shown that **the absence of facilities limits the impact of a site on its territory** (Latu et al, 2018; Mayer, 2014). Most importantly, **site governance** appears to be a determining factor. **Involving the different stakeholders** - managers, local decision-makers, economic actors, associations and residents - is consequently **a success factor**. This makes it easier to take account of stakeholders' diverse interests, to get them to discuss the issues, and thus develop **a project for the area** - the methods of which will be discussed in the third part of this guide.



◆ The characteristics of the territory

In well-established tourist destinations, the designation of a new protected area will have less impact on the development of tourism in the region, although it may increase the length of stays. This level of impact also depends on the local capacity and willingness to develop a comprehensive and complex strategy to attract tourists to the area. With this in mind, and in conjunction with the natural areas, **strengthening the links between the sites and local businesses** is a particularly interesting approach. This involves, for example, ensuring that restaurant owners buy from local producers, shops offer local craft products, local cultural offer is rich, existing labels are linked by the creation of itineraries, and so forth. All of this obviously needs to be supported by the **provision of local infrastructure and services to accommodate this tourist traffic, to ensure a quality and therefore attractive residential offer, therefore ensuring the accessibility of the natural area and its links with the territory.** Finally, the environment and facilities available around the area also play an important role, all the more so if this offer is **complementary**, thus encouraging visitors to extend their stay, by leaving the natural area. It is therefore important that, around an attractive and accessible natural area, there are other easily accessible attractions to encourage visitors to stay longer, as well as supporting infrastructure to allow them to come and remain in the area. **But please note:** it has been observed that sites that are too close to urban agglomerations attract day visitors, whose spending is limited (Mayer et al, 2010).

COMPLEMENTARITY AND SPATIAL SUBSTITUTION²⁰

'Spatial complementarity refers to the situation where the presence of protected areas in a given zone has a positive impact on site visitor use (or, more broadly, on tourism development) in neighbouring regions. Tours organised by travel agencies which involve successive visits to several protected sites located in adjacent regions, can be one of the contributing factors.

Conversely, spatial substitution occurs when the presence of protected areas in neighbouring territories reduces the number of tourist visits in a given area. This effect occurs, for example, if tourists decide to visit a newly established park instead of going to nearby parks, as they would have done if the first had not been created. In this case, the establishment of the park will generate a local tourism gain, but probably also a loss in the neighbouring regions, and therefore not necessarily a global net gain'.

In conclusion, studies suggest that **the establishment of a protected area can have a major impact on the traditional and tourism sectors in the short term**. In the long term, the first should have adjusted and therefore no longer be directly impacted, while the effects on tourism may persist or even intensify. All this **depends on the characteristics of the site itself, the area** in which it is located, and **the territorial strategy** that is implemented.



²⁰ Duvivier, Chloé. 'La création d'espaces naturels protégés stimule-t-elle le développement économique local ? Une revue de la littérature', Revue d'économie politique, vol. 131, no. 6, 2021, pp. 849-886. vol. 131.

C/ WHAT ARE THE CURRENT CONCEPTS AND TRENDS IN SUSTAINABLE ECONOMY?

In the current context of biodiversity loss, environmental issues are ever-present in our societies. For several years now, this subject has also been incorporated in economic models, whether through **the ‘monetisation’ of environmental values**, environmental economics approaches, or the concept of **Corporate Social Responsibility (CSR)** etc. The numerous reflections on these topics have led to the emergence of **many approaches and concepts related to economic activities**, especially those that concern us here.

So what lies behind the notions of **green and blue economies**? And behind those related to **‘sustainable tourism’, ‘green tourism’, ‘ecotourism’** and other environmentally-friendly tourism approaches? What can these major concepts offer us in terms of sustainable practices and principles to be applied to economic activities in natural areas?

a. The emergence of international frameworks and approaches promoting sustainability

First of all, we believe it is relevant to address three notions or key concepts which are: **the Sustainable Development Goals (SDGs), the green economy, and the blue economy**.

◆ The Sustainable Development Goals

Indeed, the SDGs are an international framework for sustainable development, which addresses economic, social and environmental issues. Many of today’s concepts, including the ones of green and blue economy, draw on this framework. As you will see, these concepts are ‘macro’ approaches, as they address the issues in a very broad way, providing very general principles and objectives that are sometimes difficult to apply in practice. Nevertheless, **it is important to understand and master them to be able to refer to them in speeches, reports or discussions.**

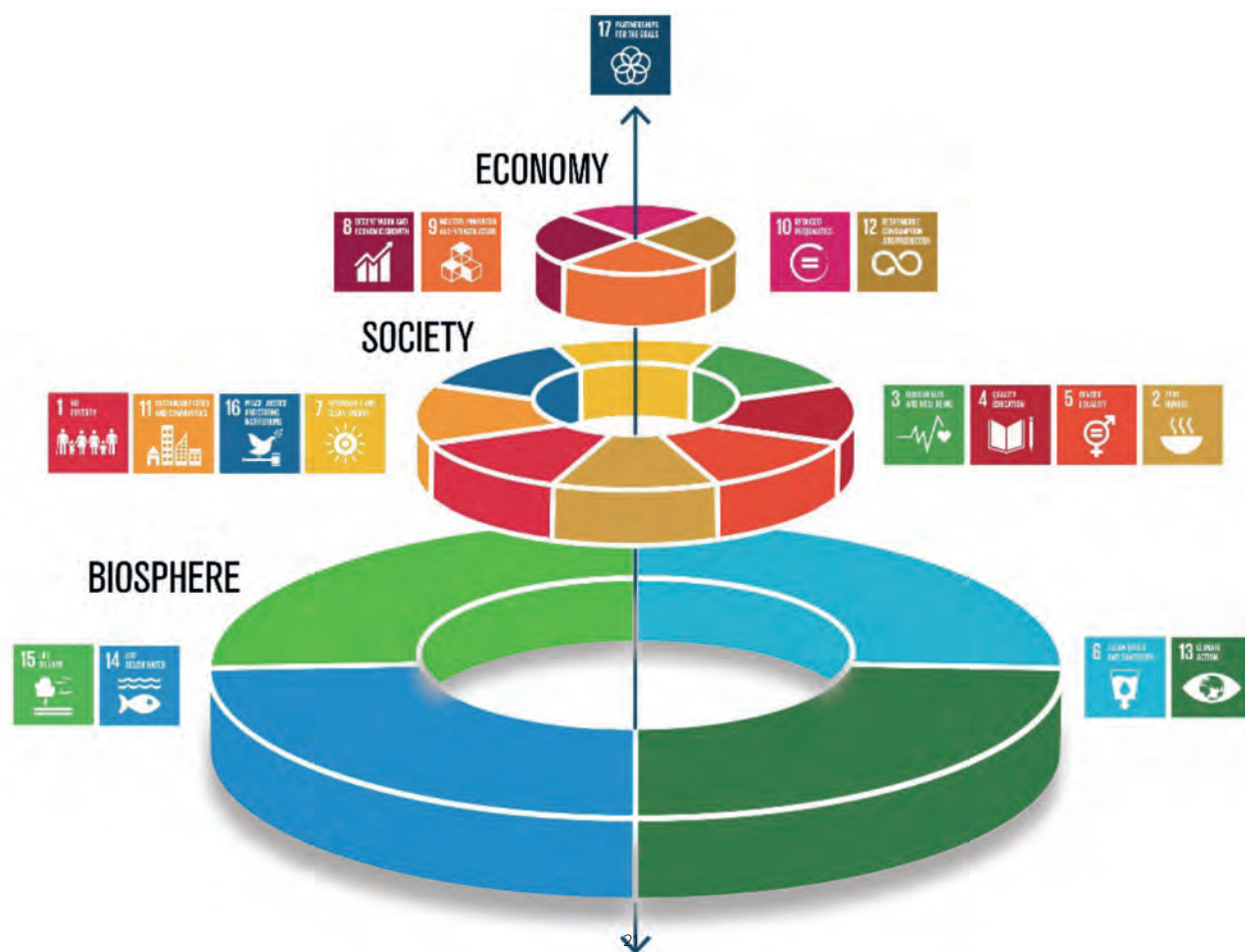
The SDGs were adopted by the United Nations in 2015, with **the objectives of eradicating poverty, protecting the Planet and achieving peace and prosperity by 2030**. Seventeen SDGs are proposed, in an integrated manner, meaning that any intervention in one area will affect others:



1. No poverty
2. Zero hunger
3. Good health and well-being
4. Quality education
5. Gender equality
6. Clean water and sanitation
7. Clean and affordable energy
8. Decent work and economic growth
9. Industry, innovation and infrastructure
10. Reduced inequalities
11. Sustainable cities and communities
12. Responsible consumption and production
13. Measures to combat climate change
14. Life below water
15. Life on land
16. Peace, justice and strong institutions
17. Partnerships for the goals.

Since this approach is fairly well known today, we won't be diving into it with detail. In contrast, **another approach put forward by the Stockholm Resilience Centre proposes a new representation of the sustainable development goals, which positions goals 6 (water resources), 13 (climate change), 14 (life below water) and 15 (terrestrial ecosystems) as a support for the other SDGs.** The good state of natural ecosystems, both terrestrial and marine, becomes one of the prerequisites for meeting the other goals, and therefore societal challenges (poverty reduction, sustainability of cities and communities, health and well-being, education, clean energy) and economic challenges (decent work and economic growth, reduction of inequalities, responsible consumption and production). This representation clearly shows the importance of natural ecosystems, and therefore of preserved natural areas in good condition, as essential to human well-being and the economic development of an area. In this way, the preservation of terrestrial, marine and aquatic ecosystems and climate become a basis for sustainable development.





The green economy

Green economy is defined by the United Nations Environment Programme (UNEP) as an economy that ‘results in improved human well-being and social equity, while significantly reducing environmental risks and ecological shortages. A green economy can be seen as one that is low-carbon, efficient in its use of resources and socially inclusive’²². According to the International Labour Organisation, eight sectors of activity are exposed to major transformations in this context, including certain activities involving the exploitation of natural resources, which we consider directly linked to natural areas: agriculture, the forestry industry, fishing, energy, the resource-consuming manufacturing industry, recycling, construction and transport²³. Thus, this concept encompasses ‘classic’ activities but carried out with less polluting or less energy-consuming processes, as well as ‘eco-activities’ which pursue the protection of the environment or the management of natural resources²⁴. **Hence, as a manager of a natural area, not only are you an actor of green economy, but you also have to deal with other actors who should also be part of it (farmers, foresters, fishers, etc.).**

21 Image source: Azote Images for Stockholm Resilience Centre, <https://www.stockholmresilience.org/research/research-news/2017-02-28-contributions-to-agenda-2030.html>

22 <https://unece.org/green-economy-3>

23 <https://www.francetravail.fr/actualites/le-dossier/environnement/les-emplois-de-leconomie-verte-1/leconomie-verte--definition.html>

24 <https://www.economie.gouv.fr/cedef/economie-verte>

Linked to the green economy are other concepts, such as the notion of **bio-economy**, which is of particular interest to us in this case. The **bio-economy** addresses concerns about the increasing scarcity of resources, by **focusing on biological resources**. More specifically, it covers agriculture, forestry, aquaculture, fisheries, food processing, the production of bio-based products (wood, hemp, the manufacture of materials, etc.), the recovery of organic waste, bioenergy (wood, methanisation, biofuels), with special emphasis on **innovation and technological development** to achieve sustainability objectives^{25, 26}. This concept of bioeconomy therefore clearly applies to the economic activities we have identified as either taking place in or having an impact on natural sites.

◆ The blue economy

Alongside the **green economy**, there is also increasing talk of the concept of the **blue economy**. In one of its definitions, the blue economy encompasses the **economic sectors turned towards the marine environment, the seas and oceans**. It includes marine renewable energies, bio-technologies, aquaculture and fisheries. It also includes **coastal and maritime tourism, as well as environmental protection**²⁷. According to the World Bank, this framework encompasses initiatives to promote sustainable fisheries and aquaculture, alongside with the establishment of coastal and marine protected areas. It is also a question of combating pollution and developing the knowledge and capacities to improve the health of the oceans²⁸.

It is in response to this observation that **another definition of the blue economy has emerged**, one that stands in contrast not only to the blue economy as previously defined, but also to the green economy and to the so-called red economy (based on the unlimited exploitation of natural resources)^{29, 30}.



²⁵ <https://unece.org/green-economy-3>

²⁶ <https://agriculture.gouv.fr/la-bioeconomie-nouvelle-vision-du-vivant>

²⁷ <https://www.novethic.fr/lexique/detail/blue-economy.html>

²⁸ <https://www.banquemonde.org/fr/topic/oceans-fisheries-and-coastal-economies#2>

²⁹ <https://www.theblueeconomy.org/the-blue-economy/>

³⁰ *Source of image* <https://www.theblueeconomy.org/the-blue-economy/>

COLLABORATIVE, SOCIAL AND CIRCULAR ECONOMY: COMPLEMENTARY MODELS TO THE GREEN AND BLUE ECONOMY

The circular economy aims to reduce waste production, by applying the principles of repair, reuse and recycling to the economy as a whole. The aim is to support the refurbishment, repair, regeneration and reuse of materials, while increasing efficiency in the use of resources. The aim is to reduce the new demand for resources, and therefore extraction, air pollution, carbon emissions and waste production. This form of economy can - potentially - have a negative social impact by reducing the production and consumption of new goods, and therefore job creation.

Social and solidarity economy is an approach that places people at the heart of its concerns and actions, unlike traditional economic models that place the quest for profit and accumulation of capital at the heart of its approach. This type of economy seeks a horizontal organisation, based on networks, exchanges and shared resources, rather than a vertical structure. This type of economy is often based on a local and regional approach, on social and/or societal utility, with a participatory and collective approach, alongside democratic and participatory governance. The cooperative model is a good example.

Collaborative economy is a form of economy that aims to reinvent ways of consuming and owning. It involves making individually owned goods available to a large number of people. This type of operation is part of the green economy, as it has social and environmental benefits (lower consumption, savings for consumers, recovery of purchase costs, etc.).



This **new approach to the blue economy**, developed by former entrepreneur Gunter Pauli, **aims to eliminate pollution entirely, which contrasts with the green economy, which seeks only to pollute less.** The goal is to imagine a model that would produce no waste or emissions, and that would have a positive impact on job creation, all without raising the costs above current models. His proposal is **inspired by nature** – as nature produces no waste, and everything it produces is reused. For example, coffee grounds can be used to feed mushrooms, and paper can be made from minerals rather than plants, making it more recyclable than it is today. CO₂ can also be reused rather than released into the atmosphere, by feeding algae such as spirulina, which is itself edible³¹.

As part of his reflections, Gunter Pauli has also launched a foundation that supports projects that embrace this blue economy concept, available on the website of the ZERI foundation - Zero Emissions Research and Initiatives: <http://www.zeri.org/projects.html>.

In conclusion, **Gunter Pauli's notion of blue economy represents an economy inspired by nature, seeking to build a circular model that uses what is currently considered waste to optimise resource use and create employment..**

Whether we focus on green economy, blue economy - one or the other - or the various complementary models of solidarity, collaborative or circular economy, these models are grounded in the principles of sustainable development and thus of respect for environmental, social and economic issues. These models follow the rationale of the SDG framework, which, as we have seen, depend on the state of natural ecosystems. The aim of these approaches is therefore to propose economic development partly based on the exploitation of land and marine resources, while ensuring respect for environmental and social issues. Obviously, putting these economic models into practice requires the mainstreaming of local, national and even international policies. Furthermore, it should be noted that these notions remain conceptual, and they do not represent solutions in themselves, but simply 'overarching principles' that are easy to understand, but hard to put into practice. Nevertheless, they allow us to start identifying key elements for the 'sustainability' of an economic practice, and principles of action that are found in the different approaches.

b. Towards environmentally responsible tourism

As already mentioned, tourism is a growing economic sector, particularly in coastal areas, and even more so for SIDS (Small Island Developing States). This sector of activity also plays a key role for local territories, on a social, economic and environmental level, with both positive and negative impacts. For this reason, it is important that the notion of sustainable tourism is addressed in several international framework documents. For instance, the Rio+20 outcome document states that sustainable tourism is a 'significant contributor to sustainable development, in its three 'dimensions'. 'Similarly, sustainable tourism is addressed in goal number 8 of the SDGs, namely 'promote sustained, shared and sustainable economic growth, full and productive employment and decent work for all'. This is why the notion of sustainable tourism has become widespread. But what does it really mean? Can tourism really be sustainable, and how?

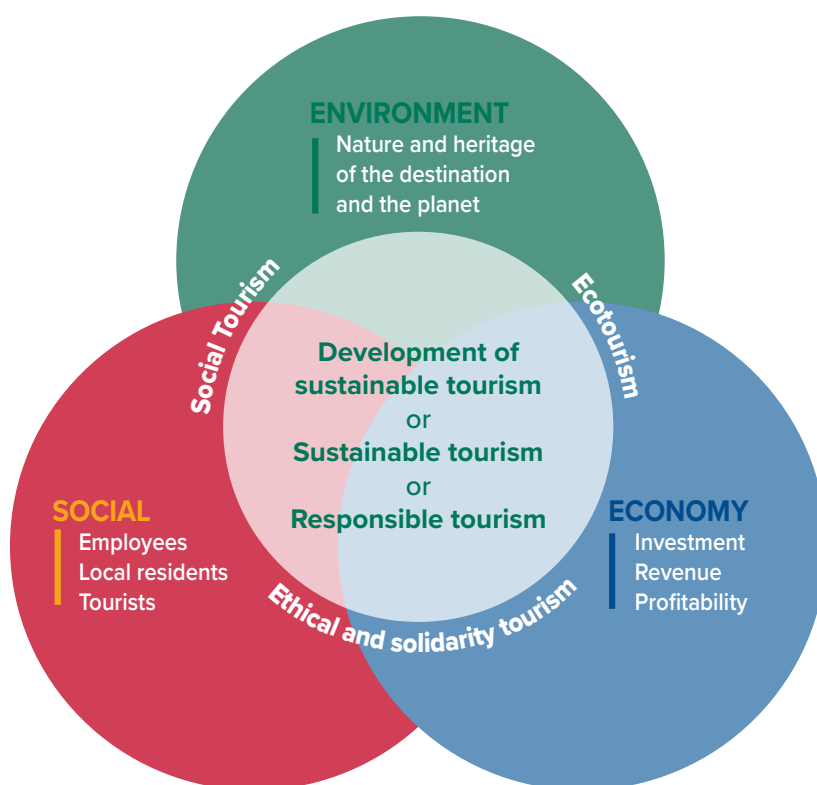
Sustainable tourism, also known as green tourism or responsible tourism, is defined by the World Tourism Organisation as '**tourism that takes full account of its current and future economic, social and environmental impacts, meeting the needs of visitors, tourism professionals, the environment and host communities**'³². This sector is obviously part of the Sustainable Development approach. To achieve sustainable tourism, there are several recommendations, including:

- ❖ Understanding the limiting factors of tourism development and its impacts;
- ❖ Planning and managing tourism sustainably;
- ❖ Fostering behaviour change;
- ❖ Raising awareness of the issues and building capacities;
- ❖ Developing appropriate policies aimed at job creation;
- ❖ Enhancing the value of local culture and products;
- ❖ Balancing the distribution of tourism flow in time and space.³³

In fact, there are **several different 'sub-approaches' to 'sustainable tourism'**, as well as activity niches with a social, cultural or natural focus: ecotourism, nature-based tourism, alternative tourism, slow tourism, participatory tourism, fair tourism, solidarity tourism, community tourism. One can easily get overwhelmed by all these notions and concepts.

³² <https://sdgs.un.org/fr/topics/sustainable-tourism>

³³ https://planbleu.org/wp-content/uploads/2019/06/alternative_tourism_models_web.pdf



Sustainable tourism development diagram ³⁴

Within this sustainable tourism approach, **nature-based tourism** is a specific economic sector of particular interest to us, since it is based on natural areas. Within this same sector, we can identify **ecotourism**, a niche that represents part of the nature-based tourism market. In addition, various new approaches are emerging, with connections with natural areas that are less direct and specific, yet still present. These forms of **‘alternative tourism’** also respond to the challenges of sustainable tourism, and constitute emerging niches.

◆ **Nature-based tourism**

Nature-based tourism refers to tourism activities that **take place in natural areas, protects the environment** and **improves the well-being of local communities**. This form of tourism is based on natural attractions, and includes activities such as birdwatching, photography, camping, hiking, hunting, fishing, stargazing in areas free from light pollution, etc. Practitioners of this type of tourism pursue the **diversity of natural spaces and cultures**, seeking authentic and genuine experiences³⁵.

³⁴ Image source: Atout France - reprinted by Acteurs du Tourisme Durable
³⁵ https://tpwd.texas.gov/landwater/land/programs/tourism/what_is/

◆ Ecotourism

Within this sector itself, **ecotourism can be seen as a specialised form of nature-based tourism.**

Ecotourism, which emerged in the 1980s, is defined as a tourism **‘niche’ linked to natural areas.** Several definitions have been proposed by researchers (*Fennell, 1999*), international agreements (*Mohonk Agreement, 2000* - proposal for an international certification of sustainable tourism and ecotourism), networks (*Global Ecotourism Network*) and certification bodies (*Global Sustainable Tourism Council - GSTC*), which bring together several elements³⁶.

- ❖ A focus on natural areas;
- ❖ A **local** dimension;
- ❖ Objectives of **experience, learning, understanding and awareness** of the environment and culture;
- ❖ A **low impact**;
- ❖ **Ethical management**;
- ❖ **Benefits for the environment and the communities** visited (conservation, protection, well-being).

◆ Alternative tourism³⁷

It is difficult to find a clear, internationally recognised definition of ‘alternative ‘tourism’ which is internationally recognised. One of the first definitions dates from 1984 and presents it as *‘a process that promotes a just form of travel between members of different communities. It aims to achieve mutual understanding, solidarity and equality between participants’.* (Holden, 1984). Later, it would be more specifically defined as *‘forms of tourism which are **consistent with natural, social and community values and which enable both hosts and guests to enjoy positive and meaningful interaction and shared experiences**’* (Smith & Eadington, 1992).



The fact is, the term ‘alternative’ itself is complex to grasp. When it first appeared, it opposed classic, mass, consumer tourism, while resonating with the notion of sustainable development. What is particularly complex about this notion is that what is **alternative at one stage will become mainstream after a few years.** For example, ecotourism was considered to be a form of alternative tourism when the concept was born. But today, ecotourism is no longer so ‘alternative’, since this form of tourism has become mainstream. Similarly, what is considered alternative today (slow tourism, silent tourism etc.), will not necessarily be so in the future.

³⁶ <https://www.gstcouncil.org/what-is-sustainable-tourism/?lang=fr>

³⁷ *Alternative tourism development a theoretical background*, E. Triarchi and K. Karamanis, 2017



Among the forms of tourism considered alternative in 2024, we can find:

- ❖ **'slow tourism'**: form of sustainable tourism that encourages visitors to 'take their time', valuing quality over quantity in what is visited and experienced, based on the richness and authenticity of experiences. This approach is based on 6 dimensions³⁸:
 - **Time**: the traveller takes their time, which implies that the person stays longer in the same place;
 - **Slowness**: the traveller uses slower means of transport (walking, cycling, train, water transport);
 - **Connection**: the traveller meets different people and builds relationships with them;
 - **Authenticity**: the traveller moves away from artificial experiences in favour of 'true' experiences;
 - **Sustainability**: the trip is in line with the principles of sustainable development;
 - **Emotion**: the trip generates genuine emotion, an experience for the traveller.

The objectives targeted by this form of tourism are therefore **disconnection, rediscovering local surroundings, meeting and sharing with local communities**. This set of practices has a lower impact on the environment, in terms of CO2 emissions, but also in terms of respect for heritage and biodiversity^{39, 40, 41}.

- ❖ **'silent tourism'** - tourism of silence: encompassing tourism activities based on quiet places and activities, soothing moments, aimed at detaching oneself from everyday life. These include silent retreats, meditation holidays, silent walks, or nature excursions encouraging digital disconnection.⁴²

³⁸ <https://medsustainabletourism.net/slow-tourism/>

³⁹ <https://www.ecologie.gouv.fr/actualites/slow-tourisme-quoi-parle-t>

⁴⁰ <https://www.enicbcmed.eu/med-pearls-article-slow-tourism-sustainable-and-meaningful-way-travel>

⁴¹ <https://www.slow-tourisme-lab.fr/fr/19423-2/>

⁴² <https://smartguideapp.medium.com/silent-tourism-slow-tourism-and-7-other-emerging-sustainable-tourism-trends-b8132b103ebd>

❖ **Community tourism:** it refers to tourism experiences that are **managed, hosted and owned by local communities**. It is also referred to as ‘indigenous tourism’ when implemented by ancestral communities. This form of tourism presents a number of characteristics^{43, 44};

- **Authenticity and practicality:** real, authentic experiences as part of the daily life of the community. They must offer a practical experience, allowing the traveller’s immersion;
- **Sustainability:** a clearly sustainable management model;
- **Community leadership:** the community directly owns and manages the activities, allowing the benefits to be widely shared instead of concentrated among a few;
- **Tourism-trained staff and members:** the communities offering the activities must be trained to provide appropriate services.

This form of tourism is similar to **participatory tourism**, which implies that the host population participates in the proposed tourism actions, and/or that visitors also participate in the local life of the area. The latter designation is therefore a more flexible form of community tourism.

Finally, community tourism is also associated with **fair and solidarity-based tourism**, which is defined as forms of tourism that put **people and encounters at the heart of the journey**, as part of an approach to sustainable territorial development. It involves applying the principles of fair trade to tourism, i.e. **establishing a balanced partnership between tourism professionals and local partners** so that the latter receive fair remuneration⁴⁵.

Several videos illustrating concrete examples of community tourism initiatives can be found on this site: <https://www.voyageons-autrement.com/tourisme-communautaire-solidaire-equitable-durable>



43 <https://www.cbi.eu/market-information/tourism/community-based-tourism/market-potential>

44 <https://www.voyageons-autrement.com/tourisme-communautaire-solidaire-equitable-durable>

45 <https://www.tourisme-equitable.org/le-tourisme-equitable-et-solidaire/>

In this section, we highlight a few more approaches to sustainable and alternative tourism, though some may be overlooked and others may emerge in the future. What is important about these approaches is that they shape the offer and attractions to be proposed by economic actors. **These offers and visions of tourism can also be aligned with those of local actors and local decision-makers, including the tourism strategy for the territory.** In this labyrinth of terms, concepts, approaches and other niches, it will be essential for anyone seeking to promote or develop ‘sustainable tourism’ in their area to clearly **specify their objectives, the terms used and their significance, as well as the tourism activities targeted.** Thus, the idea is to turn the goal of making local economic activities more sustainable into operational strategies for developing ‘ecotourism’ or ‘community tourism’ activities, among others. **By clearly defining the objectives, we can pave the way for dialogue, but also for identifying concrete actions to be put in place.** This does not mean that the site manager’s role is to define what type of tourism and activities take place in which location. But understanding these approaches can, once again, promote exchanges with economic actors active in tourism in the area, and within the natural area.

Overall, the rise, origin and definition of these various notions have made it possible to define **guidelines and management methods** which are ultimately **applicable to all forms and types of tourism**, as well as **to all destinations**, with a view to sustainability. These guiding principles, recalled by UN Tourism⁴⁶, clearly require the involvement of all the concerned stakeholders in the processes engaged:

- *‘Make **optimal use of the environmental resources** that are a key element of tourism development, **preserving essential ecological processes and contributing to the conservation of natural resources and biodiversity**;*
- ***Respect the socio-cultural authenticity of host communities, conserve their built and living cultural heritage, as well as their traditional values, and contribute to intercultural tolerance and understanding**;*
- ***Ensure long-term viable economic activities** by providing **equitably distributed socio-economic benefits for all stakeholders**, including stable employment and income opportunities, social services for host communities, and contributing to the fight against poverty’.*

Likewise, the Global Sustainable Tourism Council (GSTC) has developed **sustainability criteria** that provide a basis by which hotels/accommodation, tour operators/transport providers and destinations can be certified as having sustainable policies and practices in place. These criteria are divided into two areas: **industry criteria** relating to all types of **tourism-related businesses** and **destination criteria** relating more to destination **policies and management methods**.

These criteria are a reference to be studied by those involved in the economic activities of an area and wishing to commit to a sustainability approach. Similarly, if you are a manager of a natural area and you wish to initiate and lead a territorial approach to improve the sustainability of the activities that take place on and in connection with your site, **these criteria can provide useful guidance and practical examples to propose and discuss with stakeholders.** It would be too long and complex to explain and discuss these criteria in sufficient detail here. However, they can be downloaded from the GSTC website: <https://www.gstcouncil.org/about/>.

⁴⁶ <https://www.unwto.org/fr/tourisme-developpement-durable>

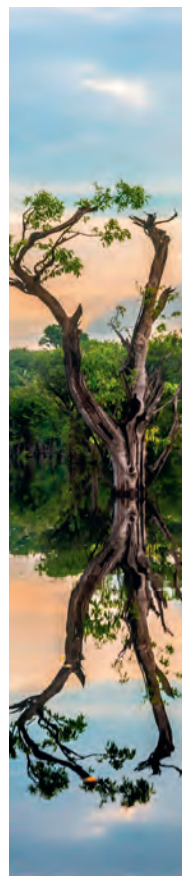
c. Some notions of sustainable exploitation of natural resources

Concepts aligned with the principles of sustainable development have emerged not only in tourism. In the field of resource exploitation, certain approaches have also sought to define principles that ensure social, environmental, and economic considerations are respected.

In agriculture, for example, various approaches have appeared, such as agroecology, conservation agriculture and regenerative agriculture. But what do they really mean? They are all part of **sustainable agriculture - the counterpart of sustainable development in agriculture**.

For the Food and Agriculture Organisation of the United Nations (FAO), agriculture is sustainable **‘when it meets the needs of present and future generations while being profitable, preserving the health of the environment and ensuring social and economic equity’**⁴⁷. It additionally defines five principles guiding the sustainability of agriculture and food systems: Increasing productivity, employment and value added in food systems; Protecting and enhancing natural resources; Improving livelihoods and promoting inclusive economic growth; Building resilience of people, communities of ecosystems; Adapting governance to new challenges. It must be said that these principles are fairly cross-cutting across all topics when viewed through the lens of sustainable development. So, a little more concretely, how do we follow these principles in practice?

In the document *‘Transforming food and agriculture to achieve the SDGs’* (FAO, 2018), twenty actions are proposed for decision-makers:



1. Promote access to productive resources, finance and services;
2. Improve smallholder access to markets;
3. Encourage diversification of production and income;
4. Strengthen producers’ knowledge and develop their capacities;
5. Improve and restore soil health;
6. Protect water and manage water scarcity;
7. Conserve biodiversity;
8. Reduce waste, encourage reuse and recycling, and promote sustainable consumption;
9. Empower people and combat inequalities;
10. Promote secure land tenure;
11. Use social protection tools to improve productivity and incomes;
12. Improve nutrition and promote balanced diets;
13. Prevent shocks and protect against their effects, increasing resilience;
14. Prepare for and respond to shocks;
15. Combat and adapt to climate change;
16. Enhance the resilience of ecosystems;
17. Improve policy dialogue and coordination;
18. Strengthen innovation systems;
19. Adapt and improve investment and funding;
20. Create a more favourable environment and reform the institutional framework.

To implement these principles, numerous actions and organisational methods are proposed in the following document (available here: <https://openknowledge.fao.org/server/api/core/bitstreams/dab7a99d-b33a-48de-8cd1-66bf971cb9f2/content>). Going back to the topic of practices applied in natural areas – note that we are excluding any actions that fall under the responsibility of local, national, or international decision-makers – we can find several good examples, such as **supporting the emergence of producer organisations (cooperatives); strengthening skills and capacities; aiming for production diversity** (variety of crops, livestock, fish, and seasonal variations), training and informing through **Farmer Field Schools, involving landowners, land users and local communities, and improving water management**, for example. It is in this context, and in response to the many challenges and principles of good practice, that several related concepts have emerged, which we define in this section. It is worth mentioning that our aim here is not to provide comprehensive practical guidance for implementing these methods. The purpose of this guide is not to teach you how agriculture works, but to introduce you to the principles, concepts and methods that you can then propose and discuss with the actors in your area who are more or less directly involved in your natural site:

- **Agroecology:** a set of concepts and practices in which agricultural production uses the knowledge available in ecology. The aim is to draw **inspiration from nature in order to achieve more sustainable agriculture, reducing the use of inputs and preserving both soil and water resources**. It encompasses practices such as plant cover, cover cropping or crop diversification. This approach is compatible with all forms of agriculture.
- **Organic farming:** this type of farming aims to preserve the soil, natural resources and the environment, by respecting ecological cycles. Today, organic farming often refers to **labels and certifications, complying with precise and strict specifications, although varying** according to the label concerned.
- **Conservation agriculture⁴⁸:** this system favours **no-till farming, the maintenance of permanent soil cover and the diversification of plant species**. In this way, it strengthens biological processes on and under the soil. This agricultural method has the advantage of reducing working time and therefore labour requirements, as well as overall costs (fuel, operational costs etc), while improving agricultural productivity. At the same time, soil structure and water conservation are improved. These include reduced-tillage practices, permanent soil cover (leaving crop residues on the surface of the soil), and species diversification.
- **Regenerative agriculture:** this approach aims to **regenerate ecosystems and soils** through various principles close to those of agroecology, including crop rotation, agroforestry, permanent cover, no-till practices, and mixed crop-livestock systems.
- **Biodynamic agriculture:** although not widespread, this farming method aims to enrich the environment - to strengthen the resilience and resistance of plants and animals to parasites and diseases, amongst others - and improve food quality, while preserving biodiversity. This approach is part of the organic farming movement, and complements other forms of agriculture. It is based on three principles: 1) the agricultural organism - conceiving the farm as a living organism composed of interacting elements, 2) biodynamic preparations - using compost and **biodynamic preparations** based on medicinal plants (such as cow manure or medicinal plants) to balance and stimulate soil and plants, and 3) the **influence of cosmic rhythms** - taking account of the rhythms of the sun, moon etc.⁴⁹

⁴⁸ <https://www.fao.org/conservation-agriculture/fr/>

⁴⁹ Learn more at : <https://www.bio-dynamie.org/comprendre-la-biodynamie/PRINCIPLES/la-biodynamie-cest-quoi/>

In the field of **forestry - both timber and non-timber** - a number of principles have also been developed with a view to sustainable development. For example, **sustainable forestry** is defined as the use of wood in forests to achieve a certain balance and in accordance with certain principles⁵⁰:

1. Establish protected areas and conserve biodiversity: forestry companies must therefore set aside part of their properties as protected areas;
2. Prevent forest conversion and protect High Conservation Value Forests (HCVFs)⁵¹ : Forest managers protect natural forests from deforestation, reduce fire risk and ensure that HCVFs are protected;
3. Have a management plan and act on it: map and clearly define how many trees can be harvested per hectare, and how often, all defined according to species growth and regeneration;
4. Use low-impact harvesting techniques: this means using methods that limit the impact on other trees;
5. Train employees and protect their health;
6. Respect local communities and promote economic development;
7. Boost revenues and profitability.

The concept of **low impact harvesting** incorporates some of the principles mentioned above, but also other practices more directly related to the operational implementation, such as road planning, skidding tracks and unloading areas to reduce soil disturbance and protect both rivers and streams, use of sustainable felling and bucking practices (determination of the direction of fall, controlled felling, safety measures by competent staff, equipment in good condition, safety equipment and clearly defined rules); or even carrying out post-harvest assessments to provide managers with feedback. It can also be noted that certain trees are identified as ‘to be protected’ namely **future crop trees** (harvestable once they reach the desired size), **heritage trees** (trees of social importance), and **seed-bearing trees**.



As we have seen, exploitation in forest areas is not limited to timber, but also includes **non-timber forest products** (NTFPs) such as fruit, herbs and mushrooms - and sometimes game meat, depending on the definitions adopted. Little information exists about the sustainability of these operations, although their (massive, uncontrolled) harvesting can be destructive. The best practices include **shifting cultivation cycles, which involve periodically abandoning one or more plots of land so that they have time to regenerate**. Furthermore, the exploitation of NTFPs can in itself represent a sustainable practice, as it reduces **pressure on timber resources**. In addition, the development of these operations can also enable operators, farmers and local communities to **diversify their sources of income**.

⁵⁰ <https://www.rainforest-alliance.org/fr/connaissances/quest-ce-que-la-foresterie-durable/>

⁵¹ ‘Forests that contain significant concentrations of biodiversity, are located in or include rare or threatened ecosystems, are essential providers of ecosystem services, or are fundamental to meeting the basic needs or cultural identity of forest communities’, Rainforest Alliance

‘The integration of timber and non-timber production can benefit local populations while making wood harvesting less harmful to the environment and more profitable. For example, Caldecott (1988) proposed revising the forestry policy in Sarawak by increasing non-timber production, lengthening rotations and reducing the intensity of timber harvesting. The resulting loss of income is offset by the value of non-timber products’.

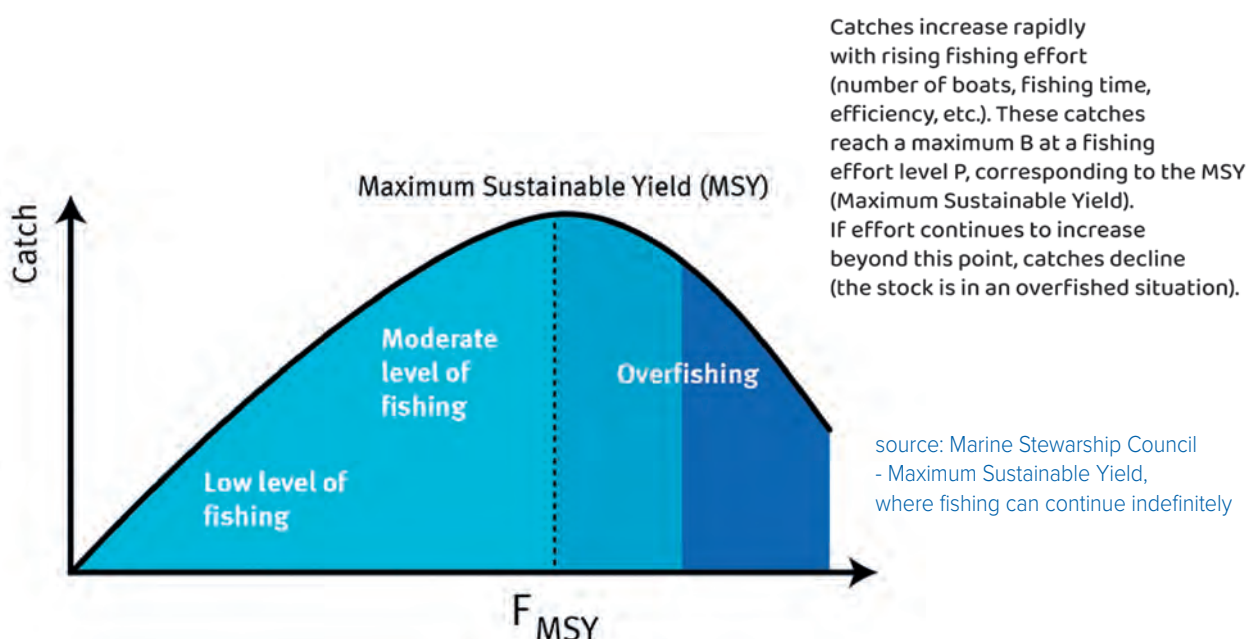
Excerpt from ‘Aménagement durable des forêts tropicales et subtropicales pour la production de produits autres que le bois,’ G.G. Wickens, 1997⁵²

Most importantly, among the concepts most frequently discussed, particularly in the management of coastal and marine areas, **sustainable fishing** seems to be of paramount importance. But what exactly is sustainable fishing? Today, this notion refers to **productive fishing that favours coastal communities while respecting marine ecosystems**.

The concept of **MSY - Maximum Sustainable Yield** - is the basis of international treaties on sustainable fishing. This management approach aims to ensure maximum catches over the long term, including a sufficient number of boats to avoid underexploitation, but at the same time limited to avoid any overexploitation. It should also be noted that no ecological or environmental dimension is considered in this MSY approach.

MAXIMUM SUSTAINABLE YIELD

MSY corresponds to **the greatest quantity of fishery resources that can be extracted from a stock in the medium and long term, under existing environmental conditions, without affecting the reproduction process**. This management method aims to optimise resources, and therefore depends on biomass (fish stocks) and fishing effort (or fishing pressure). In the case of mixed fisheries, the level of catches should be decided on the basis of the stock of the most vulnerable species.



⁵² <https://www.fao.org/4/t0843f/t0843f00.htm>

For many, the notion of sustainable fishing is inadequate if we consider the challenges of managing fishery resources. Fisheries sustainability is often reduced to ensuring the renewal of the fish resources exploited. However, as most marine animals are extremely fertile, with females capable of laying hundreds of thousands or even millions of eggs, the problem is not so much a lack of sufficient individuals to reproduce, **but rather ensuring that the environment has the capacity to accommodate and develop these juveniles**. This means, first and foremost, maintaining ecosystems that are necessary and sufficiently balanced to support the development of these individuals (nursery areas such as seagrass beds or coral reefs, for example, as well as the overall balance of the food chain).

Another approach to sustainable fishing is now making headway - fishing that mobilises knowledge, innovation processes and expertise of stakeholders in order to reduce the ecological impact of each kilogram of fish caught while maximising economic, social and societal values. There are a number of recommendations for 'genuine' sustainable fishing⁵³:



- Aim for a **catch slightly below MSY**;
- **Adapt fishing gear and practices** to reduce impacts on the seabed, incidental catches and CO² emissions, particularly through appropriate selection of net mesh sizes;
- Favour locally beneficial small-scale coastal fisheries;
- Develop management by flotillas, i.e. following a localised approach;
- Set up a **preferential allocation of fishing quotas**, giving priority to flotillas using responsible and sustainable practices, methods and tools;
- Promote the involvement of stakeholders in **decentralised governance systems**.

It is also essential to consider the future of fishing and marine resources **in the context of global change, particularly climate change**. Indeed, it is difficult to anticipate the cascading effects of climate change and overfishing, although they already exist.

⁵³ <https://www.fondationbiodiversite.fr/penser-lecosysteme-pour-rendre-la-peche-durable/>

‘In South Benguela, the situation is significantly different. While fisheries management is more precautionary and adopts an ecosystem-based approach, the impacts of climate change and fishing differ greatly depending on the area and can create situations of local overexploitation. Indeed, climate change has been causing a gradual shift in stocks of small pelagic fish [1] (sardines, anchovies) towards the south-east of the South African coast for over a decade.

And there are already signs of depletion of these fish in the Cape region in the west of the country where, historically, small pelagic fisheries were concentrated. These shifts in species have consequences for the rest of the marine ecosystem, particularly for their predators. For example, bird populations, particularly Cape gannets and penguins, are dwindling at an alarming rate.’

Fondation pour la recherche sur la Biodiversité⁵⁴

Fisheries managers therefore have a major challenge ahead of them: trying to **anticipate the impacts of climate change combined with overfishing on fish stocks, and adopting appropriate management measures**, which is proving to be particularly complex. In any case, it is recognised that these relationships are more important for species at the base of the food chain, i.e. small pelagics, and that the recovery of stocks is slower than predicted by the models when it comes to species at the top of the food chain, i.e. large demersal species.

‘An example is the Humboldt ecosystem off the coast of Peru, where the hake population has failed to recover despite a two-year moratorium between 2002 and 2004. This stop in fishing proved too short to lead to convincing results on the restoration of the stock, with the combination of unfavourable environmental conditions.’

Fondation pour la recherche sur la Biodiversité⁵⁵

Most significantly, the concept of sustainable fishing does not seem to be clearly defined, or perhaps not fully acceptable with regard to conservation issues. Furthermore, it does not seem to be sufficiently in tune with the reality of climate change. We can conclude from this that **truly sustainable fishing practices** must respect some of the major principles set out above, but above all must **be defined on a local scale**, depending on the species exploited, the methods used, and the importance of the related economic and social issues. Certain concepts therefore make it possible to include natural resource exploitation activities in sustainable development.

As far as agricultural activities are concerned, several concepts and practical approaches exist, pursuing different objectives, and a variety of principles are also applied to the management of forest areas for timber exploitation. However, we have seen that few approaches exist for non-timber exploitation, and that the notion of ‘sustainable fishing’ seems outdated in the current context of climate change.

⁵⁴ Source: <https://www.fondationbiodiversite.fr/oceans-en-mutation-peche-durable/>

⁵⁵ Source: <https://www.fondationbiodiversite.fr/oceans-en-mutation-peche-durable/> With reference to Guevara-Carrasco & Lleonart, 2008; Marzloff et al., 2009.

KEY TAKEAWAYS FROM THIS SECTION

What can we learn from all these definitions, concepts and practices? On this conceptual foundation, we can **identify a number of criteria, subjects and concerns that are common to any ‘sustainable’ economic activity**. However, the way in which these principles are put into practice will vary depending on the economic activity concerned. It is therefore crucial to **approach each activity in a specific way, seeking to understand it and to analyse its connection with the territory, the natural environment, the levels of impact, but also to better understand the stakeholders who carry it out**, including their constraints, objectives, needs etc. Thus, the goal is not to impose uniform requirements on all economic activities, but to adopt **guiding principles and engage economic actors in constructive dialogue** to advance toward the most sustainable model possible.

‘An economic activity can be sustainable if it allows for the social and economic development of the area, but also if it enables and does not hinder the achievement of conservation objectives. The definition of this sustainability, however, depends on the sector of activity, the organisation and the territory concerned.’

*Carla DANELUTTI, Regional coordinator of the MEET programme,
IUCN (Spain)*



First of all, several general principles can be mentioned, as they apply to all dimensions (social, economic, cultural and environmental):

- **Respecting and enhancing authenticity, local identity and its richness** (landscapes, cultures, heritage, natural resources) without turning it into a spectacle, polluting, or denaturing it;
- **Enhancing the value of products and economic activities across the production chain** to improve the benefits for stakeholders, thus bringing greater economic stability, improved social well-being and reducing the pressure exerted on natural spaces;
- **Maintaining the integrity of natural landscapes, as well as the amenities and attractions of natural sites;**
- **Seeking a balance between all the ecosystem services of a given area;**
- **Drawing inspiration from nature**, to remain as close as possible to its functioning and develop new, more responsible practices;
- **Encouraging innovation** in organisational structures, practices and operations to establish new ways of doing things;
- **Promoting shared use of equipment**, to reduce consumption and improve accessibility, for example;
- **Involving all stakeholders in the area** in the definition of the project and its guidelines, including the management of these activities in connection with the natural site;
- **Preparing the site** for the impact of the development or changes in economic activities (i.e. increase in the number of inhabitants during tourist season, for example, increase in road or sea traffic linked to the development of new exploitation activities, etc.).

‘In natural coastal areas, it is essential to defend the role of artisanal production - as with salt production in Senegal - while maintaining trades and income-generating activities for the benefit of local communities, which sustain rural populations.

Local producers contribute to shaping the landscape and pass on both knowledge and traditions within their communities, as well as environmental knowledge that should be preserved and defended at all relevant scales, from local to global. [...]

Agricultural practices in Senegalese natural coastal areas which tend to degrade natural resources (such as wood burning, which is also necessary for salt production) - the primary source of wealth for local farmers and rural populations.’

Emmanuel DENIAUD, Director of the NGO Univers-Sel (France)



Moreover, regarding environmental aspects — particularly the challenge of balancing biodiversity conservation with economic activities — the following principles can be highlighted from a conservation perspective:

- **Maintaining ecological connectivity** by reducing habitat fragmentation as far as possible;
- **Reducing disturbance to flora and fauna as far as possible;**
- **Respecting natural processes** to maintain the quality and good condition of ecosystems, even when they are being exploited (biological rest periods, fallow periods for agricultural areas etc.);
- **Consume fewer resources and optimise their use:** this reduces the pressure on natural resources, giving them time to regenerate, while reducing waste production;
- **Reuse and recycle waste:** once again, the aim is to reduce waste production, and therefore pollution;
- **Comply with local, national and international regulations** (framework documents, management documents, regulations, regional schemes, charters, SDGs etc.);
- **Prevent pollution,** by stopping/limiting the use of pesticides, inputs, and other products that are harmful to the environment;
- **Respect the carrying capacity thresholds of the environments** if the preliminary study to identify these limits has been carried out. Otherwise, the precautionary principle (i.e. protective measures to prevent risks in the event of scientific uncertainty) is to be applied, but, without a robust and comprehensive method, the process may become arbitrary and inconsistent, making it difficult to apply.



From a social perspective, other criteria can be highlighted:

- **Involving local communities;**
- **Ensuring equitable access to and use of natural resources** (water, energy) **and spaces according to their degree of fragility;**
- **Limiting the disruptions that can result from large-scale activities and sectors (agriculture, tourism),** particularly those contributing to higher prices of goods and services;
- **Distributing productivity gains more equitably, while supporting local and fair employment.**

Finally, from an economic perspective, the main sustainability goal is to ensure the **viability of economic activities that are compatible with nature conservation objectives**, so that they can achieve both profitability and long-term continuity. To achieve this, it is in the interests of economic actors to **diversify their activities** as much as possible. As we have seen, agricultural activities can support tourism, tourism activities can be multiple, natural areas offer a diversity of exploitation possibilities, and the same resource can be developed in different ways. Diversifying activities, and therefore sources of income, **makes economic actors less vulnerable to shocks** - such as extreme weather events destroying an area - and therefore more resilient. There's an expression that illustrates this principle well: **'don't put all your eggs in one basket'**, meaning that if the basket falls and all your eggs are in it, you will lose everything - which you could have avoided if some of your eggs were elsewhere. What's more, this diversification can also help **reduce the pressure exerted on natural spaces and resources**, to respond to environmental challenges.

In conclusion, it is particularly important to understand and recognise the role of natural areas - especially when protected - and their importance for the well-being and sustainable development of territories and their inhabitants, and to share this message with all stakeholders involved in territorial development - particularly local decision-makers, but also of residents, tourists, economic and public actors.







PART II

**EXAMPLES
OF SUSTAINABLE
ACTIVITIES
AND GOOD PRACTICES**

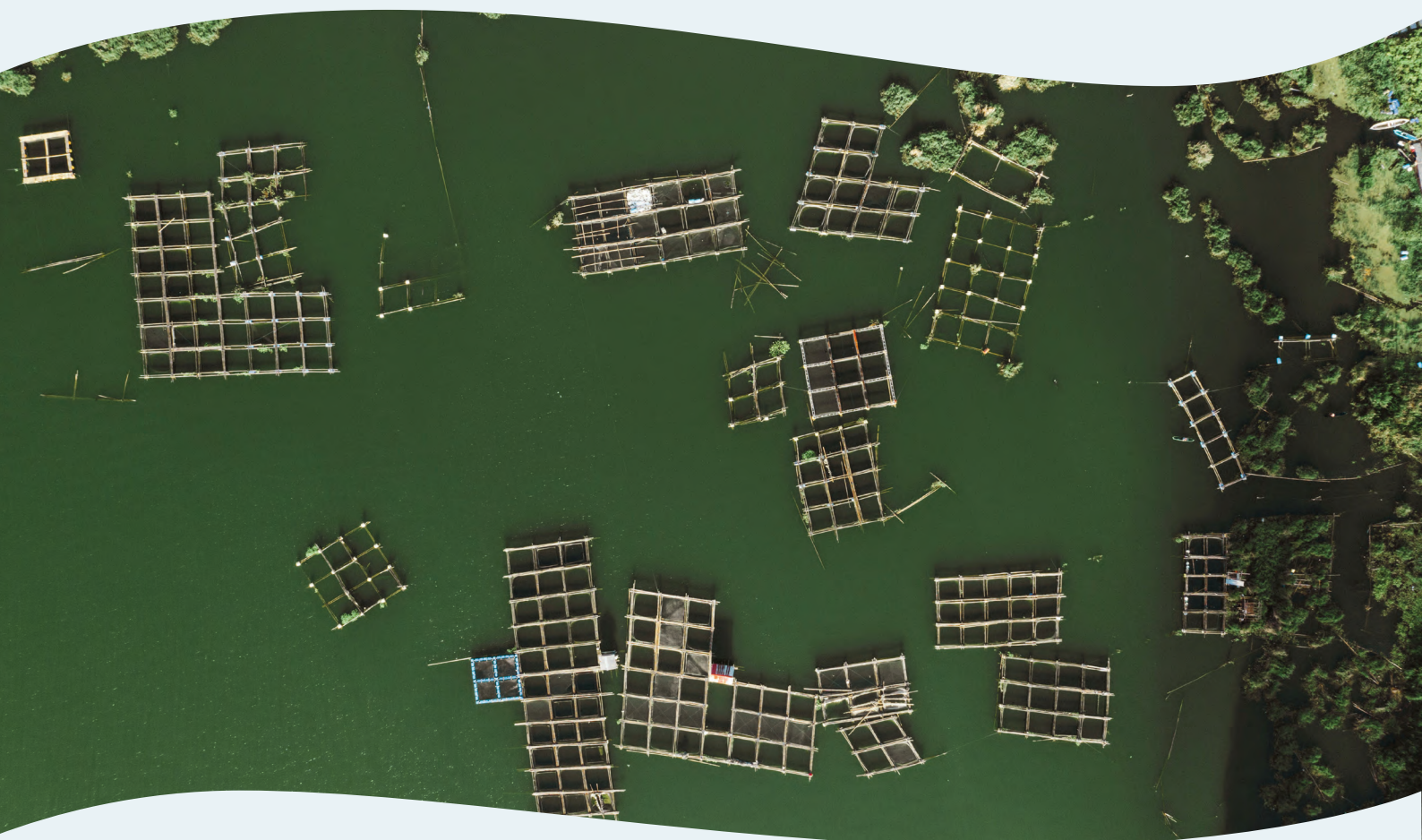


In addition to the general principles set out in Part 1, each activity is based on specific practices and generates its own impacts. For each economic activity, it is therefore possible to identify practices that should be avoided and practices to be encouraged to make them more sustainable. For those reasons, this second part includes a selection of technical factsheets focusing on certain activities, providing guidance on how to make these practices more sustainable, or highlighting practices that are inherently more sustainable.

Please keep in mind that each activity comes with its own constraints, needs and impacts, and these parameters can also change from one context to another (environmental, social, legal and regulatory contexts). Therefore, the guidance presented in these factsheets should be adapted to your specific context. Finally, it is not possible to address all economic practices and activities in this guide and the factsheets that it includes. These factsheets are only a selection of examples, to be completed with your own research and exchanges with other actors on practices that haven't been covered here.

The technical factsheets are divided into three categories:

- **Resource exploitation activities carried out on land;**
- **Resource exploitation activities carried out at sea;**
- **Tourism activities.**



A/ LAND-BASED RESOURCE EXPLOITATION ACTIVITIES

◆ Description

As we have seen, exploitation activities are carried out on land in connection with agriculture, livestock farming, timber and non-timber forest exploitation, or salt production. **These practices represent strategic sectors from an environmental, social, economic, financial and even political point of view.** Indeed, many of these activities not only determine part of the local food supply, or part of the supply of basic resources such as wood, but also shape the landscape. They can also play a cultural, historical and heritage-related role in many regions. These activities are also at the root of land ownership issues, as they are in direct competition with tourism or urbanisation. Furthermore, when local production drops, more products are imported to meet the needs of the territory. This can raise prices - with the cost of transport being reflected in the price - and/or lower quality (from industrial production).

◆ Pressures

We have already touched on this in part 1 of this guide, but exploitation activities on land can generate numerous pressures and negative impacts on the environment and on the territory, when they are not carried out in a sustainable manner. These impacts and pressures vary according to the type of crop (some crops require more space, water, heat, etc).

▶ **Destruction and pollution of natural areas and their functions:**

- ▶ Deforestation;
- ▶ Pollution of soil, air, water through the use of agricultural inputs and pesticides leading to the loss of biodiversity - particularly pollinators - while also having an impact on human health;
- ▶ Increased risk of pathogens and zoonoses (diseases or infections that are transmitted from vertebrate animals to humans);
- ▶ Drying up of wetlands or alteration of the hydrology of environments;
- ▶ Erosion of soils and their richness, caused by overexploitation or deep ploughing techniques;
- ▶ Soil salinisation that may be caused by inappropriate pumping of groundwater, or by rising sea and ocean levels.

▶ **Greenhouse gas (GHG) emissions** caused by mechanisation, the manufacture of fertilisers or intensive livestock farming (through the release of methane by animals), contributing to global warming. According to the IPCC, agriculture currently accounts for almost a quarter of global GHG emissions, and even 30% when including the food industry;

▶ **Transformation or even loss, of landscapes**, caused by monocultures, the enlargement of plots (reparcelling), or cultivation in greenhouses;

▶ **Emerging conflicts of use and overexploitation of resources** such as land, but also resources needed for agriculture such as water or electricity;

▶ **Emerging issues around animal welfare** linked to intensive livestock farming, a practice that involves maximising the number of animals on a plot of land, even if it means not taking their welfare into account.

These operations both contribute massively to climate change and are also its victims. Extreme weather events impacting crops (such as heat waves, drought, rainfall and hail, cyclones); disappearance of pollinators; arrival of new 'harmful' species and parasites; salinisation of certain deltas or water tables caused by rising sea levels; change in cropping periods... It is therefore necessary to adopt more sustainable practices, by evolving conventional farming methods and developing new, inherently sustainable ones.



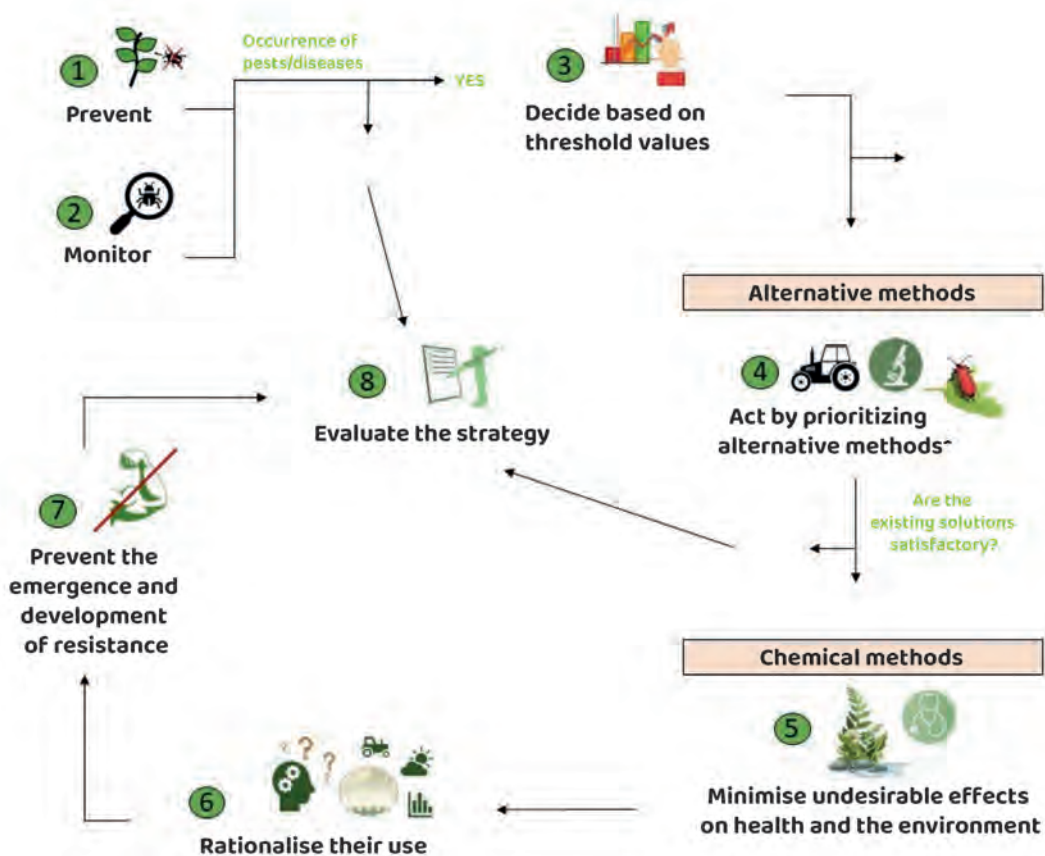
FACTSHEET N°. 2

INTEGRATED PEST MANAGEMENT¹

OBJECTIVE: REDUCE USE OF PESTICIDES

It consists of ‘**carefully considering all available plant protection methods** and, consequently, the integration of appropriate measures that discourage the development of pest populations and keep the use of plant protection products and other types of interventions at levels that are economically and environmentally justified, while reducing or minimising the risks to human health and the environment’. (paragraph 6 of Article 3 of Directive 2009/128/EC).

The approach is based on eight general principles for controlling pests and diseases.²



¹ <https://ecophytopic.fr/pic/pour-aller-plus-loin/quest-ce-que-la-pic#accordeon-21046>

² Image source: <https://ecophytopic.fr/pic/pour-aller-plus-loin/quest-ce-que-la-pic#accordeon-21039>

[FACTSHEET N°. 2]

◆ Principle 1 – Prevent the appearance of pests and diseases

The aim is to create an environment that enables plants to be in the best condition to resist pests and diseases, and to limit their occurrence, spread, and development. This is known as **indirect pest control**, as it seeks to disrupt the pest's cycle.

These methods include **crop rotation, the use of resistant/tolerant varieties, balanced use of fertilisers or irrigation/drainage, maintenance of crop hygiene, besides reinforcing, enhancing and protecting beneficial organisms in the cultivation system.**

◆ Principle 2 – Monitor the appearance of harmful organisms

The goal is to be able to recognise and monitor the appearance or development of harmful organisms. This requires training, available equipment and the definition of thresholds and decision-making tools.

◆ Principle 3 – Use threshold values as decision rules

The aim is to guide decision-making, with view to acting when it is really useful and necessary. (when to act? = principle no. 3)

◆ Principle 4 – Give priority to non-chemical control methods

These include biological control and biocontrol approaches, methods that are based on natural mechanisms. It seeks to encourage the presence of pests' natural enemies or substances that scare them away, for example:

- ▶ **Auxiliary macro-organisms** (invertebrates, insects, chiropterans, etc.)
- ▶ **Micro-organisms** (fungi, bacteria, etc.)
- ▶ **Natural chemical mediators** (insect pheromones, for example)
- ▶ **Natural substances** present in the environment

We also find **physical control**, either **active** - the direct action of destroying or putting pests under stress to remove them from the environment - or **passive** - modification of the environment through mechanical or thermal control, for example. In this way, one can plant species that encourage the presence of beneficial organisms, or limit the use of products that have an impact on them.

◆ Principle 5 – Choose selective pesticides and minimise the undesirable effects on health and the environment

This involves knowing the risks and monitoring them, as well as implementing protective measures.

◆ Principle 6 – Rationalise the use of pesticides to reduce their use

This involves reducing the frequency of treatment, the quantities applied (positioning the treatment or adapting the dose), optimising efficiency by choosing the right periods and conditions for application or adjusting the equipment and spraying techniques.

[FACTSHEET N° 2]

◆ Principle 7 – Implement a strategy to avoid the emergence of resistance

Bioaggressors can develop a capacity for resistance to pesticides. In order to limit this risk - which may lead to an increase in doses, frequency of use, etc. and therefore pollution - it is possible to **use pesticides with different modes of action**. However, sometimes this may not suffice and will require additional expertise to adapt to the situation.

◆ Principle 8 – Monitor and assess

This involves assessing the relevance of the protection measures by carrying out evaluations of the methods used. It is also necessary to monitor the development of innovations - both technological and practical. The aim is to continually adapt to improve efficiency.

‘To reduce the use of treatments and herbicides on lettuce, we increasingly use mechanical methods, particularly hoeing tools. We choose lettuce varieties that are resistant to certain families of aphids and fungi. We use insect traps to detect their presence in the plots, and intervene only if necessary. Under the greenhouses, we cover the soil with plastic film to raise the temperature. This solarisation technique destroys weeds and also fungi in the soil.’

Pascal Beaujean, Market gardener (France)³



The French ministries responsible for agriculture, ecology, health and research, with the support of Office Français de la Biodiversité, have developed the EcoPhytoPIC platform, where a variety of factsheets (<https://ecophytopic.fr/search/base-leviers>) and other resources for applying the PIC method can be found.

³ Video source: <https://www.dailymotion.com/video/x3p965o>

FACTSHEET N°. 3

INSTALLATION OF NESTING BOXES



PRINCIPLES:

Install nesting boxes to encourage the presence of birds or bats that are predators of pests and bio-aggressors.

EXPECTED RESULTS:

- ◆ Promoting the nesting of birds and bats, thereby contributing to the enhancement of biodiversity;
- ◆ Natural control of pests and bio-aggressors;
- ◆ Improved productivity;
- ◆ Reduced pollution through decreased pesticide use.

PRACTICE TIPS:

- ◆ **Consider their design and installation according to the target species:** choose a nesting box appropriate to the size of the species, install it vertically or slightly tilted forward to prevent rain from entering and to enable access to juveniles. Avoid treated wood which can harm birds, and instead use untreated wood. Position the box so that it is sheltered from the wind, receives sunlight, and is placed at a suitable height, etc - all of which should be in line with the needs of the target species;
- ◆ Do not install nesting boxes on trees that may be shaken and disturbed during harvesting;
- ◆ **Protect nesting boxes from predators:** place them out of reach (high up, for example), protect them with a metal plate or wire mesh, or make them deep enough to protect juveniles;
- ◆ **Complement nesting boxes with other actions that support wildlife presence:** reducing the use of pesticides, planting trees and shrubs to provide a complete and complex habitat, ensuring the availability of shallow water areas (ponds or baths for example), paying attention to natural nests during mowing and harvesting periods, etc.
- ◆ **Bear in mind that the species can also cause damage to crops:** they feed on seeds, fruit and leaves, and can also contaminate crops or transmit diseases etc.

[FACTSHEET N° 3]

‘I run an organic farm in Romonya [Hungary], where I practice chemical-free farming. Part of the farm is a vast bird nest box station, where I contribute to the life of the species that make their home there thanks to dozens of animal protection devices. Here are just a few examples: bird boxes, swallow nests, feeders, drinking troughs, bird baths, etc. Thanks to this interconnected and supportive system, I have been able to develop a farming practice which, with the help of birds and other animals, has not only improved the state of the ecosystem, but also made farming sustainable and environmentally friendly, so that the quantity and quality of the harvest have also increased.’

Excerpt from the platform ‘Panorama Solutions’ by Boglárka Amrein Tamásné Miskolczi , Ecological Farm and Bird-Nest Box Station (Hungary) ⁴



⁴ <https://panorama.solutions/en/solution/possibilities-cooperation-between-birds-and-people-during-farming>

FACTSHEET N°. 4

GRASSING OF ROWS OR INTER-ROWS



PRINCIPLE:

Cover the inter-rows and spaces between the trees with a non-competing vegetation cover. This cover can be natural or sown (in which case it is referred to as seeded grass cover).

EXPECTED RESULTS:

- ◆ Promote pollination thanks to the flowers from the plant cover;
- ◆ Reduce water runoff and soil particles runoff thanks to plant anchoring;
- ◆ Soil aeration by plant roots improves infiltration of water into the soil and reduces evaporation, thereby increasing water availability for trees;
- ◆ Limiting pathogens by improving soil drainage and sanitation...

PRACTICE TIPS:

- ◆ Choose the right plant cover (sown approach): the goal is to **select species that provide sufficient ground cover, are low-growing, and non-competitive with cultivated species**. It is also important to choose species that will not promote the development of pests, and even better, that will encourage the presence of their natural enemies;
- ◆ **Manage the growth and mowing of grass cover:** depending on the crop, it may be preferable for this cover to be permanent or temporary, but also for its development to be left free - to attract more organic matter and fertilise the soil when mowing - or rather limited - to reduce frost exposure, for example;
- ◆ **Choose the right timing:** For example, it is advisable not to grass the vines until after 3 years of planting, to limit competition for water and nitrogen with the cover vegetation. You can then opt for temporary grassing, or limit it to every second or third row;
- ◆ **Pay attention to water consumption:** the water consumed by the cover crop must not compete with the water requirements of the cultivated species;
- ◆ Orient grassed strips: **planting strips perpendicular to the slope can contain run-off** during stormy weather.

FACTSHEET N°. 5

COMPANION CROPS OR INTERCROPPING



PRINCIPLE:

Simultaneous cultivation of 2 or more species on the same area during a significant period of their growth, to combine the advantages of the different species. The species are not necessarily sown or harvested at the same time, but cohabit during their growth. Varieties can be mixed, annual species (cereals or protein crops), annual and perennial species (agroforestry), or perennial species (multi-fruit orchards).

EXPECTED RESULTS:

- ◆ Improved productivity and staggered harvests, thereby increasing income;
- ◆ Improved soil structure: thanks to complementary root systems and the mechanical action of roots, which allow water and nutrients to be drawn from different layers of the soil;
- ◆ Enrichment of soil fertility;
- ◆ Increase in soil macrofauna;
- ◆ Reduced use of phytosanitary products, as these practices act on the biological cycles of pests and diseases;
- ◆ Diversification of agricultural production and reduction of the financial risks associated with monoculture.

PRACTICE TIPS:

- ◆ **Choose the configuration:** mixed (different seeds are sown together and the crops develop at the same time) or in alternating rows of crops;
- ◆ **Avoid growing a plant from the same family twice in a row on the same plot.** This helps prevent the spread of pests and diseases, which are often specific to a crop family. It is advisable to wait 3 to 4 years before growing the same family on a plot;
- ◆ **Avoid growing plants with the same production purpose twice in a row** (i.e. plants whose fruit, leaves, or roots are harvested twice): this prevents the same mineral elements from being depleted from the soil, avoiding exhaustion;

[FACTSHEET N°. 5]

- ◆ **Find out more and train in plant associations:** aromatic plants, for example, have a strong repellent effect on many pests; flowers have a beneficial impact on vegetable crops, and certain 'companion' plants can positively influence the associated crops - but also negatively. It is necessary to have a good knowledge of how each plant functions and interacts, in order to ensure a successful association;
- ◆ **Associate production plants with pollinator-attracting plants** that have similar production and flowering cycles.



5 Source : Excerpt from Factsheet no. 2 ' Association de plantes ', <https://ecophytopic.fr/sites/default/files/upload-documents-entity-import-csv/GUYANE-asso.pdf>

[FACTSHEET N° 5]

‘Vegetables or fodder crops can be planted between the rows of fruit trees, enabling income to be earned from the orchard right from the start, when the fruit trees have not yet come into production. Combining fruit trees with vegetables or fodder crops is particularly important in Tajikistan, where farming families have very little irrigated land and must therefore use it intensively. Vegetables can be used for subsistence or sold on the market, while fodder crops such as alfalfa and sainfoin can be planted to produce hay. Growing forage plants also has the advantage of creating habitats and providing food for pollinators and beneficial insects. Fodder plants also protect the soil from erosion.

Although combining vegetables or fodder crops between orchard rows is not new to most farmers, the technique can only be successfully implemented depending on a number of factors, including the composition and design of the orchard, such as the distances between trees and rows, the correct size of trees, the selection of species for the combined crops and the availability of irrigation water and infrastructure. In general, fruit trees are grown too densely, which reduces fruit production per tree and makes it impossible to plant combined crops due to the lack of sunlight through penetration through the canopy. If advanced irrigation systems are available, it should be borne in mind that trees should preferably be watered by drip and forage plants by sprinkler, which requires the installation of two different systems.’

Excerpt from the ‘Panorama Solutions’ platform of WHM (Tajikistan) ⁶



⁶ <https://panorama.solutions/en/building-block/crop-association>

FACTSHEET N°. 6

AGROFORESTRY



PRINCIPLE:

Planting trees (hedgerows or windbreaks, orchards, groves or rows of trees) on plots of land used for crop or livestock production.

EXPECTED RESULTS:

- ◆ CO2 capture by trees;
- ◆ Regulation of the water cycle and improved infiltration;
- ◆ Enrichment of the soil organic matter, leading to improved soil fertility;
- ◆ Biodiversity improvement;
- ◆ Restoration of a forest landscape;
- ◆ Improved productivity - *“it has been proven that a carefully designed agroforestry system combining crops and trees can increase productivity by up to 40%”* and stagger harvests, etc.



[FACTSHEET N° 6]

PRACTICE TIPS :

- ◆ **Choose trees suited to local conditions:** soil diagnosis, climate (temperature, rainfall, drought, frost...);
- ◆ Take into account the variable characteristics of the plot (humidity, light, wind exposure etc);
- ◆ **Encourage diversity and complementarity:** non-competing tree species (different heights to create a tiered ecosystem), and associated crops;
- ◆ **Consider the spacing of the trees:** this will depend on the overall combination of species, but for example, trees planted too close could cast too much shade for the planting to grow. Also, consider the space needed if you use machines;
- ◆ Make the planting lines deep enough to encourage deep root growth;
- ◆ Maintain tree plantations: mulch the seedlings and protect them so they can grow, then carry out formative pruning;
- ◆ Install perches so that birds don't land on young branches and break them.

The previous diagram shows the benefits of combining fruit trees with other elements along the row to increase visits by birds or bats within the plot.

It is therefore possible to include edible plants (herbs, small fruits) as well as host plants useful to beneficial species, such as elderberry or dogwood.⁷



⁷ Source image : <https://wiki.tripleperformance.fr/index.php?curid=15586>

[FACTSHEET N° 6]

‘The Amazon Chakra combines the cultivation of staple foods (such as cassava, plantain palm and chonta palm), timber, fruit trees and ornamental and medicinal plants. Over time, other agricultural species with commercial value have been incorporated into this traditional agroforestry system, such as aromatic cocoa, robusta coffee and, in recent years, guayusa (*Ilex guayusa* Loes). The Amazon chakra is characterised by its diversified production system, which conserves and enhances the surrounding biodiversity. In fact, more than 100 plant species have been identified in regular use by farmers. The system generally has at least three levels of strata for the generation of cover and shade and is always aligned with the structure of the surrounding forest. At the top level, the canopies and leaves of timber and fruit trees (palm, banana, papaya, etc.) form an initial barrier, while at the second level, cassava, small oranges and some shrubs provide a dense and relatively uniform vegetative cover that helps protect the soil from leaching. At the lowest level, the vegetation mat of taro, pumpkin, yam and sweet potato provides permanent soil cover. The system mimics the natural processes of forest succession or restoration, locally known as Chakra-ushun-purun-realce. The cycle begins with the opening of the forest canopy, perennial crops are then established, followed by interdependent short-cycle crops, which help maintain soil fertility and prevent pests and diseases. The cycle is completed by periods of rest and natural regeneration.’

Food and Agriculture Organization of the United Nations

Other international case studies on agroforestry are available on the website of the French Agroforestry Association, under the section Agroforestry in the World. [L'agroforesterie dans le monde - Agroforesterie Association Française](#)



FACTSHEET N°. 7

EXTENSIVE LIVESTOCK REARING OR CONSERVATION GRAZING



PRINCIPLE:

A low-input livestock farming system that does not aim for high individual productivity per animal or per unit area. It applies to grazing systems with low stocking rates and gives priority to grass grazed from natural resources.

EXPECTED RESULTS:

- ◆ Opening up of environments (depending on biodiversity-related issues);
- ◆ Fostering biological diversity: indeed, grazed habitats may be sought by certain species as breeding or feeding grounds;
- ◆ Preservation of traditional landscapes;
- ◆ Prevention of forest fires, flooding or soil erosion risks;
- ◆ Sustaining populations in rural areas by ensuring the viability of farming operations;
- ◆ Preservation of ancestral, traditional and heritage practices, support for rural tourism.

PRACTICE TIPS:

- ◆ **Determine the appropriate stocking rate:** too many animals would exert proportional pressure on the vegetation, where too few could lead to the development of unwanted vegetation. To do this, it is important to take into account the objective, the land area, the species being grazed and its feeding requirements, along with the vegetation on the land. The appropriate stocking rate for extensive grazing is between 0.1 and 0.5 Livestock Units (LU⁸), a value that varies according to the richness of the land, per hectare per year.

⁸ Mature cow = 1 LU; cow between 6 months and 2 years old = 0.6 LU; horse over 6 months old and 450 kg = 1 LU; sheep or goat over 6 months old = 0.15 LU; goose or duck = 0.014 LU etc.

[FACTSHEET N° 7]

- ◆ **Divide plots into sub-plots:** this is advisable when animals graze all year round, to organise grazing rotations within the plots. In addition, this makes it possible to maintain public access to sub-plots when they are not grazed;
- ◆ Set up **mixed grazing with several species** to avoid ungrazed areas;
- ◆ Collect the dung: dung can excessively enrich the soil, introduce certain harmful insect species and encourage the growth of unwanted plant species.

‘Extensive livestock farming is a common practice in the natural and cultivated areas of the Rhône delta. In the least productive natural areas of coastal areas, this type of farming is often the only one possible, given the climatic and environmental conditions (heat, wind, biting insects, limited grassland resources, etc.). These wild herds, known as ‘manades’, are used for cultural or sporting purposes, which form a large part of the local economy (bullfighting games for cattle, equestrian tourism, working or leisure riding for horses). This ancestral pastoral activity requires very specific skills. The presence of horses, for example, is essential for herd management, particularly in view of the combative and dangerous nature of the cattle, which we are trying to preserve through selection.’

*Anne VADON, Agriculture officer at
the Camargue Regional Nature Park (France)*



FACTSHEET N°. 8

SUBSURFACE DRIP IRRIGATION



PRINCIPLE:

Distribute the water directly into the soil, close to the roots, so that the amount of water released can be controlled. In this way, each plant has the exact amount of water it needs, saving water in the process.



[FACTSHEET N° 8]

EXPECTED RESULTS:

- ◆ Optimised development of cultivated plants;
- ◆ Reduced use of inputs: by maintaining optimal soil moisture, the spread of disease is limited;
- ◆ Possible reuse of treated wastewater.

PRACTICE TIPS:

- ◆ Plan the lengths and diameters of the pipes that will make up the circuit;
- ◆ **Maintain the system:** regularly check the flow rate and pressure at each irrigation point, and ensure that the lines are well irrigated from one end to the other;
- ◆ **Maintain surface irrigation:** during dry periods, it may be necessary to keep a surface irrigation system active to ensure that the roots reach the area supplied by the drippers.



FACTSHEET N°. 9

COMBATING WATER SCARCITY - KEYLINE DESIGN



PRINCIPLE :

In Keyline Design, furrows are dug perpendicular to the slope, taking into account the contour lines as well as the landscape and climate characteristics of each plot. These furrows are connected to swales, forming closed ditches that allow much greater water accumulation and retention.

EXPECTED RESULTS:

- ◆ Saving water by directing it, facilitating its infiltration, storing it, distributing runoff and evacuating excess water;
- ◆ Encouraging the development of living, biologically fertile soil;
- ◆ Optimising the use of all resources, including sunshine, orientation, wind, fauna and flora.

PRACTICE TIPS:

- ◆ Use methods that **work the soil deeply and dig furrows 60 to 80 cm deep**, every 0.75 to 1.50 m wide depending on the slope;
- ◆ Identify the contour lines and draw the 'keylines' perpendicular to the slope;
- ◆ **Dig around a hundred small furrows per hectare;**
- ◆ Define the routes of these furrows to organise the distribution of water;
- ◆ **Dig swales at the bottom of the slope with a small mound** to increase storage capacity;
- ◆ **Rely on experts** to identify the Key Points and Key Lines, i.e. transitional areas between water collection and distribution.

[FACTSHEET N° 9]

‘We’re looking for the key lines on a plot of land, so we use contour lines. Once we’ve identified the most relevant contours, we focus our work on that line. We’ll create a sort of ditch and the earth we remove will be placed on the downstream part to make a mound on which we’ll plant trees. In areas where there aren’t significant changes in elevation, there’s no need to spend thousands of euros each time to create ditches. A plow furrow may be enough to slow down the water and help it soak into the soil, rather than letting it run off onto paths, roads, or parking lots, and flow directly into streams or the sea. This can be very useful for reducing erosion and perhaps slightly reducing irrigation at certain times. It’s by no means a solution that will replace something that already exists, but it will help to improve the soil moisture and replenish reservoirs.’

Eric Ydais, specialist in ‘Keyline Design’ speaking to France Info



9 Image source <https://wiki.tripleperformance.fr/images/fr/4/47/KeylineDesign.jpg>

FACTSHEET N° 10

REDUCING WATER LOSSES



PRINCIPLE:

Prevent water runoff and therefore soil erosion. Collect and store runoff and rainwater so that it can be reused in agriculture or livestock farming.

EXPECTED RESULTS:

- ◆ Prevent soil erosion and soil impoverishment;
- ◆ Mitigate drought episodes;
- ◆ Generate savings by reducing the quantities of water purchased.

PRACTICE TIPS:

- ◆ When buildings are present on the farm, **install gutters to collect water from the roofs** and connect them to water storage systems (concrete tanks, preferably underground, or flexible above-ground tanks for greater simplicity and lower costs);
- ◆ **Create water retention basins:** these can also become a support for biodiversity;
- ◆ Create hillside reservoir systems along contour lines to harvest runoff water from slopes and maintain them over time and after heavy rain.

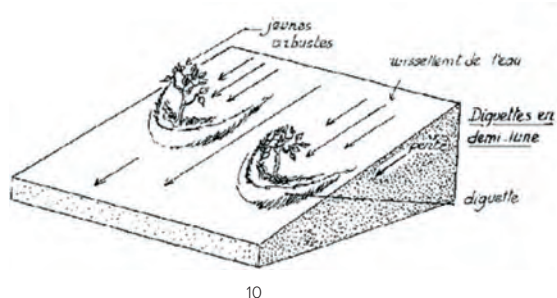
IN FOCUS - SWALES OR INFILTRATION DITCHES

This involves reducing erosion by **digging 'ditches' followed by small mounds**. These mounds, known as 'swales', are planted with trees to stabilize the soil and promote biodiversity.

[FACTSHEET N° 10]

IN FOCUS - PASTORAL HALF-MOONS:

Creation of half-moon-shaped basins by removing soil to a depth of 0.15 to 0.30 m, and piling this excavated soil into a semi-circular ridge with a flattened top on the downstream edge of the basin (about 30 cm from the basin). Protect the downstream side of the ridge and its ends with stones to prevent erosion in case of overflow.

**IN FOCUS - ZAI TECHNIQUE:**

A traditional system that involves digging holes to concentrate runoff water and organic matter. Every 70 to 100 cm, small pits measuring 20 to 40 cm in diameter and 10 to 20 cm deep are dug perpendicular to the general slope. The soil removed is placed downstream of the hole, to retain the water. In Sahelian regions, this system also relies on colonies of termites establishing beneath the dug holes - a process encouraged by adding organic matter such as manure, in the holes - thereby improving soil porosity and fertility¹³.



10 Image source : <https://niger-gdte.net/books/1-techniques-mecaniques-de-conservation-des-eaux-et-des-solsdefense-et-restauration-des-sols/page/17-demi-lune-sylvopastorale> (Illustration Dr Sani M AG)

11 Source : <https://projet.oss-online.org/LCD/index.php/groupe-de-pratiques/bonnes-pratiques-d-amenagement-des-sols-et-gestion-de-l-eau/112-demi-lunes-2>

12 Photo : Souleyman C.A , source <https://niger-gdte.net/books/1-techniques-mecaniques-de-conservation-des-eaux-et-des-solsdefense-et-restauration-des-sols/page/17-demi-lune-sylvopastorale>

13 <https://wiki.tripleperformance.fr/index.php?curid=20059>

FACTSHEET N° 11

SOLAR SALT HARVESTING



PRINCIPLE:

Harvesting salt using solar evaporation by pouring the brine onto tarps (long waterproof sheets) and letting it dry in the wind and sun.

EXPECTED RESULTS:

- ◆ Reduce the consumption of wood used in other methods for extracting salt;
- ◆ Implement a process to obtain better yields;
- ◆ Reduce production costs.

PRACTICE TIPS:

- 1 - Set up a space to install the black tarps/sheets;
- 2 - Lay out the sheets temporarily to mark their perimeter;
- 3 - Build raised edges;
- 4 - Lay down the tarps and check the water level;
- 5 - Collect the salty soil from the scraping areas and place it on the filters made of empty sacks, allowing the brine to drain through;
- 6 - Fill the tarp with brine;
- 7 - Wait for crystallisation to occur, then collect and store.

It is advisable to place the tarps in levelled, well-ventilated areas that are not at risk of flooding and soiling (by sand, for example).

[FACTSHEET N° 11]

In addition to solar heating, other practices can improve the quality of the final salt product:

- ◆ **Protecting the quality of the salt** - especially during the wintering period - in granaries and salt shelters;
- ◆ **Cleaning salt wells and the surrounding area** before and during harvesting to avoid altering the quality of the production;
- ◆ **Adopting good management of water in the basins** - knowing when to supply water to the basin or well;
- ◆ **Cleaning the canals** to ensure a good water supply to the wells and basins, and thus anticipate any potential drying out;
- ◆ **Do not harvest when the well is dry**, but rather when there is still water to clean the salt before taking it out;
- ◆ During intermediate storage, remember to **distinguish between salt qualities** according to specific criteria: odour, colour, impurities...;
- ◆ **Prefer manual weeding or thermal and mechanical clearing of embankments** and paths rather than burning or chemical weeding. In general, do not use weedkillers or other noxious substances;
- ◆ If motorised equipment is used to maintain the saltworks, **check and adjust fuel levels outside the water circuits**, and **ensure that this equipment does not cause any pollution**;
- ◆ In the vicinity of the salt works, if it is not possible to avoid it, **prioritise selective cutting** to preserve fauna and flora.

‘It’s better to leave some patches of vegetation, or even all of it where possible, to respect the nesting period of species breeding in the herbaceous or bushy layer as far as possible. Producers should find out which species breed in their area and be aware of the periods during which disturbance caused by scrub clearance could compromise bird breeding.’

Emmanuel DENIAUD, Director of the NGO Univers-Sel (France).



B/ MARINE RESOURCE EXPLOITATION ACTIVITIES

◆ Description

Aquaculture involves the farming of algae, crustaceans, molluscs and fish in an enclosed environment (in tanks or ponds, for example), while fishing focuses on catching these resources in their natural habitats. These activities are essential to food security in many countries and to global nutrition. They are a major source of employment, particularly for people living in coastal areas and on riverbanks, and can also sometimes constitute a form of intangible and cultural heritage in the case of certain artisanal or ancestral practices. Within aquaculture and fisheries, there are a number of different activities:

- ❖ **Seaweed farming** involves cultivating seaweed for a wide range of uses: food, agriculture, pharmaceuticals, cosmetics, industry, etc. In addition to these numerous economic opportunities, seaweed farming is an ecological asset: seaweed is an effective carbon sink that can sequester as much or even more CO₂ per m² than tropical trees. Through the oxygen they release, algae can correct eutrophicated environments, i.e. where there is an excess of nutrients and a deficit of oxygen. Finally, algae provide protection and nutrients to aquatic species that live in contact with them; they are also a healthy, nutrient-rich food source. Generally speaking, their small-scale exploitation has virtually no impact on the natural environment;
- ❖ **Shellfish farming** involves the harvesting, production and breeding of different types of shellfish. This activity is known for its fairly positive impact on the environment: bivalve molluscs filter particles from the water and feed on organic matter. In this way, they feed on what's in their environment, allowing cultivation without added food. However, because of their filtering mode of feeding, they are particularly prone to disease. Molluscs are also excellent bio-indicators of the level of pollution on the coast, as they have the capacity to accumulate heavy metals and are particularly sensitive to certain pollutants;
- ❖ **Fish farming**, a specialised form of aquaculture, refers specifically to the rearing of fish in a natural or artificial environment;
- ❖ **Fishing on foot** mainly targets shellfish and crustaceans;
- ❖ **Finally, different fishing techniques** exist depending on the size of the structure (active trawling gear: trawls and seines, rotating gear: purse seines and dredges; passive fishing gear such as gillnets or trammel nets; lines and longlines using hooks and lures; or traps such as pots and traps).¹⁴

¹⁴ <https://guidedesespecies.org/fr/techniques-de-peche-et-leurs-impacts-sur-lenvironnement>

◆ Pressures

Fishing is currently identified as the main driver of impact on ocean biodiversity. Like livestock farming and agriculture, not all fishing methods have the same environmental and socio-economic consequences. Among the pressures we can highlight:

- ◆ **Destruction of marine habitats** as part of certain fishing or harvesting practices (use of dredges, for example). Other areas, such as mangroves, are destroyed to **create ponds for shrimp farming**. Certain practices, such as shellfish harvesting for example, can lead to the destruction of other species or their habitats (for example, the removal of mangrove roots in mangrove ecosystems, where shellfish thrive);
- ◆ **Introduction of invasive alien species and spread of pathogens**, in the case of certain aquaculture practices;
- ◆ **Impacts on other species** such as anti-parasite nets used in shellfish farming that can prevent seabirds from coming to feed, or facilities that are too extensive and can block the passage of fish at sea;
- ◆ **Over-exploitation of resources (fish, algae, shellfish, etc.), which leads to the erosion of biodiversity**, the breakdown of food chains, or the non-recovery of stocks (catching of juveniles caused by the use of mesh sizes that are too small, or to non-compliance with or lack of awareness of regulations) - in addition to the decline of protected species caused by accidental catches through non-selective techniques;
- ◆ **Various sources of pollution**: greenhouse gas emissions caused by industrial fishing vessels, plastic pollution (fishing gear lost at sea for example), use of chemicals, fertilisers or antibiotics in aquaculture, oil in the water, etc.;
- ◆ **Imbalance of ecosystems through enrichment with nutrients and organic matter**: leading to environmental eutrophication or anoxic conditions (oxygen depletion), and potentially resulting in the release of carbon dioxide, methane, and other gases into the environment;
- ◆ **Impact on coastal dynamics and ecosystems**: aquaculture facilities can affect the natural movements of sediments caused by waves, marine currents and wind. Some seaweed farming facilities can disturb other ecosystems when they are too dense and poorly positioned (shading of coral reefs, for example);
- ◆ **Poor farming conditions** (overcrowding, facilities that are too small) can also have an impact on ecosystems, on the productivity of certain facilities, and raise ethical and animal welfare concerns. The overloading of shellfish ponds in relation to their capacity can lead to an overexploitation of the primary resources of the ecosystems (microalgae in particular);
- ◆ **Various social impacts** can also be observed when part of the sea is no longer accessible to local residents or visitors, or simply when small-scale fisheries no longer have access to enough resources to make a living, for example due to overfishing;

◆ **Consumption of resources:** certain facilities can consume water or electricity when installed on land.

In this context, it is important to move towards more sustainable and responsible approaches across all areas of fishing and aquaculture. To do this, it is worth looking for innovative practices from other actors, or online resources, like the [Solupêche](#) platform developed by the Office Français de la Biodiversité. Alternatively, here are a few examples of good practices in fisheries and aquaculture.



FACTSHEET N° 12

FISHING ZONES AND REGULATIONS



Regulations are crucial in providing a framework for fishers and enabling ecosystems to regenerate. This involves defining fishing zones and periods, which species are authorised or not, and which fishing criteria apply (for example, size limits). All these regulations obviously require fishers to be clearly informed and, where possible, zones to be marked out with buoys. Authorities must also be able to monitor and enforce these **regulations by setting up control systems in markets, ports, and at sea**. These regulations must be based on existing fishing pressure and related socio-economic issues, while taking into account the biological cycles of the target species and the conservation status of species present in the area.

With regard to zoning, regulations and management methods, different models exist, including the following examples: specific protection areas such as marine protected areas, where different zones can be defined with different regulations - ranging from zones where all harvesting is prohibited ('no-take zone', strict protection zones, core areas, etc.) **to zones where protection measures are less restrictive but benefit from the 'reserve effect'** (spillover) of **the no-take zones** (buffer zones located around fully protected areas).

‘While fishing remains an authorised activity in around 90% of the Calanques National Park’s core marine area, 10% of the marine area is classified as no-take zones (NTZ). The NTZ perimeter covers 4,634 hectares out of the 43,500 hectares of the National Park’s marine core area... These NTZ make it possible to recover a healthy and monitored marine ecosystem, where the natural balance is restored in terms of species size and diversity. The surface of these zones, in which fish and invertebrates benefit from increased protection, allows them to grow better, reproduce within these refuge zones and replenish adjacent fishable areas. This positive NTZ effect also expands to adjacent areas, indirectly contributing to the preservation of fishery resources.’

Website of the Parc National des Calanques (France)

[FACTSHEET N° 12]

- ❖ **Temporary bans on the exploitation of an area:** this makes it possible to respect the reproduction cycles of species and therefore the renewal of populations, by banning the exploitation of an area for several months or several years. In Rodrigues, for example, octopus fishing caused a decline mainly due to catches of juvenile octopus, leading to the closure of the fishery to prevent the collapse of stocks. After two months of closure, the catch per fisher was multiplied by 7, allowing stocks to return to their levels of 10 years ago.
- ❖ **Fishing guilds:** created in November 1859 in France, this corporate institution - les prud'homies de pêche - is a model for regulating fishing effort within a maritime territory. In this model, fishers regulate fishing by adopting local regulations. In this system, the guild is led by the head Fisher, identified as the wisest within the community and elected by their peers. This person, in consultation with the fishers belonging to the guild, sets the regulations, assists the authorities in investigating and recording fishing offences, and may draw up official reports of infringements. The regulations issued are based on fishers' assets, and organise the management of resources by specifying authorised fishing methods and gear, with the aim that 'everyone can make a living from their trade'. The authorised gear, its number, length, fishing time, net mesh size, distribution of fishing stations, minimum size for certain species, seasonal closures, etc. are then decided.
- ❖ **Artisanal fishing zones are areas where only so-called 'artisanal' fishing practices are allowed,** the aim being to preserve artisanal fishing, which is believed to have less impact and be more beneficial for local populations. The difficulty in this case is that 'artisanal fishing' has various definitions that differ from one country to another, or one legal framework to another, and may or may not refer to 'traditional' practices'. Therefore, it seems necessary to have a regulatory and legislative framework clarifying what constitutes an 'artisanal' practice in order to define this type of zoning. ([see table on page 101](#))
- ❖ **The signing of a charter** by all fishers can be a tool for committing the community, although not legally binding, to sustainable practices and the use of more respectful fishing gear.



[FACTSHEET N° 12]

Overall, it is advisable to **develop a local management system**, specifying the **fishing effort allowed**, the **duration of fishing** (sets...), the **species and sizes allowed**, the **authorised fishing periods**, and the **recommended, mandatory or prohibited fishing gear**, etc. This localised approach to fisheries management allows for **adaptation to observed changes and local conditions**. However, it is essential to bear in mind that banning one or more fishing areas, periods or species temporarily or permanently can have a significant socio-economic impact. It is therefore essential to combine this type of action with information and training, and also possibly to support the development of other economic practices in order to compensate for the loss of income for local actors.

‘To address the degraded state of the lagoon, Shoals Rodrigues has worked with local communities to identify four fishing-free marine reserves. These four areas, which collectively cover a total surface of 24.3 km², were enshrined in law in 2007. To also address the socio-economic challenges faced by fishers and to inform about the importance of preserving the lagoon’s biodiversity on a large scale, a ‘glass-bottom boat’ was also used as an awareness-raising tool promoting marine conservation and sustainable fishing. Fishers are also trained to become marine tour guides, encouraging good tourism practices and raising awareness of the vulnerability of the marine environment among the local community and visitors. The main objective of the glass-bottom boat tour is to develop new sustainable marine ecotourism activities in the marine reserves in the north of the island and to enhance existing marine ecotourism activities within the SEMPA (South East Marine Protected Area).

The glass-bottom boat provides an alternative source of income for local fishing communities. This contributes to the protection of marine biodiversity by reducing illegal fishing in marine protected areas, while allowing fish stocks and degraded habitats to recover. The NGO plans to purchase electric motors in the coming years, to develop eco-tours that are even more sustainable and respectful of the environment.’

*Anielle ESPIEGLE, manager and scientific leader
at the NGO Shoals Rodrigues (Mauritius)*



Finally, fishing effort can also help to counter certain pressures, in particular the presence of invasive alien species. These species can represent a kind of fishing opportunity, which must then be exploited.

[FACTSHEET N° 12]

‘The first challenge was to convince fishers to specifically target these invasive species, which in some cases made up the majority of their daily catch. Changing professional practices is not easy, but before launching its initiative, AKD carried out surveys to assess the perceptions of artisanal fishers, consumers and restaurant-owners, to determine whether there was an economic niche.... The organisation estimated that the consumption of invasive exotic species could increase the livelihoods of small-scale fishers and their families - around 600 people in the area - while helping to restore the marine ecosystem. To make this small-scale fishing activity sustainable, many obstacles had to be overcome:

- ❖ structuring and organising the market,
- ❖ high cost involved in the activity: investment, labour, etc.,
- ❖ seasonal nature of fish resources,
- ❖ transport and packaging of products according to volumes,
- ❖ use of fishing gear adapted to rocky habitats: fishing in rocky environments poses a high risk of net damage (potential additional cost),
- ❖ compliance with quality standards,
- ❖ satisfaction and loyalty of restaurant owners and consumers.

Several measures were taken to tackle these challenges:

- ❖ selection of robust fishing equipment,
- ❖ support for cooperatives,
- ❖ broader communication efforts aimed at high-end restaurants, renowned chefs, gastronomy schools...,
- ❖ development of an adapted participatory market system to improve the functioning of the socio-economic ecosystem, optimise ecological benefits and ensure long-term support for local actors including awareness-raising and outreach.

Today, we are involved with more than 8,000 people, and have 24 regular customers, 23 fishing cooperatives and 224 fishers.’

*Funda KÔK, Head of Conservation
at the NGO Mediterranean Conservation Society (Turkey)*



[FACTSHEET N° 12]

Legislation and studies on artisanal fishing zones¹⁵

	MAURITANIA	SENEGAL	GAMBIA	GUINEA	SIERRA LEONE	GHANA	MADAGASCAR*
Name	'Maritime artisanal fishing zone'	No regulation	Unclear regulation	'Traditional artisanal fishing zone'	'Coastal exclusion zone'	'Coastal exclusion zone'	No regulation
Definition of artisanal fishing or an artisanal fishing vessel	"Any fishing carried out on foot or with decked or undecked vessels of LHT ≤14 m, non-motorized or with an engine ≤150 hp, and operating with passive fishing gear, with the exception of the purse seine." (Decree 2015-159, Art. 13)	"Any undecked vessel using capture methods not mechanically operated and whose only means of preservation is ice or salt." (Art. 2, Decree 2016-1804)	"Fishing in coastal or inland waters with motorized or non-motorized boats, including commercial fishing." (Law 6-2007, Part 1.2)	Traditional: any fishing carried out on foot or with canoe-type vessels, non-motorized, propelled by paddle or sail. Motorized: any fishing carried out where the owner is directly involved in the daily management of the enterprise." (Law 48-2018, Part IV, Section 18) Advanced: any fishing carried out with a vessel of LHT ≤25 m, of capacity ≤45 GRT, and propelled by an engine >60 hp and ≤250 hp. (Order A/2017/6805/MPAEM/SGG)	"Artisanal or commercial fishing with a vessel and artisanal fishing equipment, where the owner is directly involved in the daily management of the enterprise." (Law 48-2018, Part IV, Section 18) Small local and semi-industrial vessels: "a local fishing vessel of less than ten meters in length." (Law 625-2002, Section 140)	Artisanal fishing: "traditional canoe fishing practiced by a citizen." Small local and semi-industrial vessels: "a local fishing vessel of less than ten meters in length." (Law 625-2002, Section 140)	NB: In Madagascar, artisanal fishing is known as "small-scale fishing" (traditional fishing). Small-scale fishing: "fishing activity reserved for natural persons, practiced in waters under Malagasy jurisdiction with motorized boats with an engine power <15 HP, non-motorized boats, or on foot." (Law 2015-053, Art. 1)
Zone reserved for artisanal fishing	Up to 6 nm	Zone between the baseline and 6 nm where bottom trawling is prohibited.	Between 1 and 7 nm or 2-7 nm (seasonal)	Traditional: up to 6 nm (national flag) Advanced: up to 10 nm for pelagics or 12 nm for demersals (national flag) Motorized: up to 20 nm (national flag & ECOWAS)	Up to about 6 nm (map available in the 2019 regulations)	From the coastline to the 30 m isobath, or to 6 nm, whichever is farther.	Up to 2 nm (ban on shrimp trawling)
Legal reference	Decree 2015-159, Annex I	Decree 2016-1804, Chapter V, Section 3; Law 70-02 (1970)	2019 Amendments to the 2008 Fisheries Regulations.	Order No. A/2020/3538/MPAEM/CAB/SGG (Fisheries Management and Development Plan 2021)	Law No. 48-2018, Part IV, Section 18 § I; 2019 Fisheries and Aquaculture Regulations, Sections 4.2 & 7.3	Law 625-2002, Section 81 (f)	Decree 2021-361
Comment	Access to the zones depends on fishing licenses. Artisanal fishing is authorized between 6 and 9 nm. Beyond 9 nm, fishing is open.	"[The State] supports (...) the reservation of certain zones for exploitation by artisanal fishers" (Art. 24, Law 2015-18). Fishing zones start at 3 nm, and licenses depend on the vessel.	The first nm is permanently closed to fishing, and up to 2 nm seasonally closed.	Before 2022, foreign vessels accessed the AFZ through joint ventures listed in the advanced category. Following the feedback session of this study, the 2022 plan replaced the notion of "advanced" fishing with "semi-industrial," authorizing it only beyond 14 nm.	Reserved for artisanal and recreational fishing.	Exceptions: The fisheries commission may authorize trawlers to catch cephalopods and pole-and-line vessels to fish for bait.	Fishing communities have a clear understanding of their "traditional fishing zone," including natural landmarks; industrial fishing allowed beyond the 2 nm coastal band on the west coast and 8 nm on the east coast.

15 Data compiled by CAPE from the website: <https://www.capecfa.org/blog-publications/zones-de-peche-artisanale-exclusives>

FACTSHEET N° 13

FISHING GEAR AND FISHING PRACTICES



As we have seen, one of the impacts of fishing is the accidental catch of non-targeted species - some of which are protected - or the catch of juveniles, which prevents stocks from recovering naturally. Certain practices have also an impact on habitats, as they destroy coral, seagrass beds and the seabed. The gear used is in fact a key aspect of more sustainable fishing:

- ❖ **Using fishing gear that excludes juveniles** by adjusting the mesh net size, **or fishing gear that allows non-targeted species to escape** (Turtle exclusion device - TED, double-panel opening, Nordmore grate, fisheye, square-mesh window, special hooks to prevent accidental capture of turtles, birds, etc). These and other methods are explained in the 'Guide to reducing by-catch in tropical shrimp trawl fisheries' (Food and Agriculture Organization of the United Nations, 2009). Other tools can be used to prevent the incidental catch of marine mammals (acoustic reflectors on nets, fishing gear on demand, with low breaking strength, sinking bottom lines) so that cetaceans can better avoid them in the water;



- ❖ **Knowing how to react in the event of incidental capture:** in this sense, as part of the [Bycatch](#) project various best practice guides have been published to know how to react in the event of cetaceans, seabirds, sharks, or rays being caught. These factsheets are available on the project's website;
- ❖ **Favour practices that use traps, trolling lines and handlines** - whose impacts are less significant. In fact, in the traps (pots), the species remain alive and can therefore be released when the traps are retrieved. In the case of trolling lines and handlines, where baits can be employed, it is recommended to use larger baits that require turtles, for example, to 'nibble' the bait rather than 'swallowing' it completely, which could cause them to bite the hook;
- ❖ **Limit the time and depth of immersion of fishing gear to minimise accidental catches;**

[FACTSHEET N° 13]

- ❖ **Use ‘streamer lines’ in bottom longline fishing to reduce seabird bycatch. Also known as ‘tori lines’ or ‘bird-scaring lines’,** these consist of long lines with colorful streamers that are towed behind longliners when setting the hooks, preventing seabirds from attacking the baited hooks. Currently, the form of streamer most often recommended for bottom longline fishing is that prescribed by the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR, 2006). Streamer lines are inexpensive, simple to use and do not require any modification of fishing gear;
- ❖ **Preventing the loss of gear at sea and employing gear made of non-polluting materials** helps combat marine pollution, and reduces the amount of ‘ghost nets’, among others. Current methods include the use of ‘connected’ gear which allows tracking and geolocation of fishing equipment, and makes it possible to recover it if lost;
- ❖ **Adapt fishing schedules** to account for marine mammals and net visibility. To reduce impacts, particularly on seabirds and during night fishing, it is recommended to **set lines at least one hour after nautical dusk and complete setting at least one hour before nautical dawn**. Deck lights should be kept at the minimum level required for crew safety and directed only towards the deck, ensuring the line remains unlit while being set;
- ❖ **Recover, reuse and recycle used fishing gear.**



FACTSHEET N° 14

SEAWEED FARMING (ALGACULTURE)



Seaweed farming is increasingly becoming a promising economic activity for many communities. The multiple uses of seaweed and its low production costs are encouraging the development of these practices. Nevertheless, it must be carried out in accordance with certain principles to ensure sustainability.

‘For the past ten years or so, production has been emerging in the fishing reserves of Rodrigues Island (Mauritius), in particular seaweed cultivation, the economic potential of which is very promising. [...] To ensure that this new form of production develops in a sensible and relevant way, training courses have been organised for fishers, women grouped together in cooperatives to introduce them to techniques for growing the *Gracilaria salicornia* seaweed . Around 250 people have been trained and a multi-actor system (community, NGOs, private actors) has been set up by the NGO Ter-Mer Rodriguez. [...] Thanks to this scheme and the subsidies received, the red seaweed *Gracilaria salicornia* is now grown on local farms, and will be turned into food products, nutraceuticals - a substance extracted from food with positive effects on health - or biofertilisers. The final products will be first marketed locally and then, in a second phase, across the Indian Ocean. An ecotourism offering will complete the market opportunities for the cultivation of this red algae.’

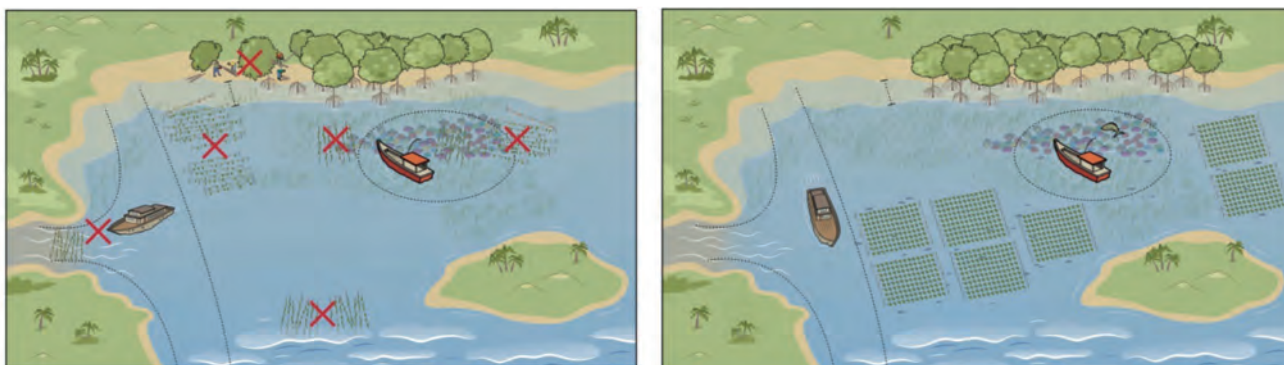
*Joseph Jean Maurice RAVINA,
founder of the NGO Ter-Mer Rodriguez (Mauritius)*



[FACTSHEET N° 14]

PRACTICE TIPS:❖ **Choose suitable cultivation areas:**

- ◆ Set up operations **outside areas of high conservation value** (mangroves, coral reefs, seagrass beds, turtle nesting areas...);
- ◆ **Locate cultivation areas away from other marine uses** (passing boats, fishing, recreation...). It is possible to cultivate on floating farms, several meters away from the beaches, to limit the footprint on the natural area;
- ◆ **Favour sandy areas** where it is easier to install anchors;
- ◆ Search for **areas with currents** that will provide the necessary nutrients, but **not too strong** to avoid any loss of algae and equipment;
- ◆ Ensure the seaweed will remain submerged at low tides;
- ◆ **Rotate cultivation areas;**
- ◆ Plan cultivation over time and space, in coordination with local stakeholders and users.



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‘Ocean Farmers has implemented the **SAGA process (Schéma d’Aménagement et de Gestion de l’Aquaculture)** to plan and organise the marine space, following a four-stage methodology as follows:

- ❖ **Multi-sectoral consultation with the community and all users of the marine area;**
- ❖ **Submission of a concerted and inclusive marine spatial planning proposal to the local authorities for approval;**
- ❖ **Implementation of the spatial plan through marine marking (e.g., marking canoe passage lanes...);**
- ❖ **Drawing up a DINA¹⁷ as a collective convention to ensure respect for each user’s right and to manage conflicts’.**

Extrait du site web de l’ONG Ocean Farmers (Madagascar)

¹⁶ Source image : <https://www.nature.org/content/dam/tnc/nature/en/documents/BMPTrainingSlidedeckEnglish.pdf>

¹⁷ The Dina is a typically Malagasy form of collective agreement, which is defined as a set of customary rules for organising society based on the genuine will of the people, and therefore instituted by those who felt the need for it. Violation of the rules leads to the application of the ‘VONODINA’, which consists of monetary or other forms of reparation as provided for in the ‘DINA’ (Equator Initiative/UNDP)

[FACTSHEET N° 14]

❖ **Choosing the species to grow:**

- ◆ Grow local, non-imported species (over 12 000 species are listed worldwide);
- ◆ Identify and understand the main characteristics: biology, suitable cultivation context, temperature, salinity, cultivation depth, cultivation period, use and sale...

❖ **Choosing the right cultivation methods:**

- ◆ **Prefer the 'off-bottom' method** by spacing each cultivation row 20 to 50cm apart: faster collection, uses less space for the same quantity, less maintenance etc. But be careful, this method requires thicker and stronger ropes;
- ◆ Orient the **culture lines parallel to the directions of the prevailing winds**, depending on the growing season;
- ◆ **Install anchoring systems** to secure the lines, so as to reduce the impact on the marine ecosystem, particularly the seabed;
- ◆ **Burn the ends of the ropes** to prevent fraying;
- ◆ Choose quality materials;
- ◆ Avoid using plastic floats which can degrade too easily or pollute the environment if they become detached from the structure (plastic bottles, foam...).

❖ **Monitor** crops and the appearance of epiphytes, maintain the installations (clean and repair the ropes after each harvest), and prevent any loss or drifting of rope and nets in the ocean.

❖ **Adapt and optimise storage** according to intended use:

- ◆ Fresh consumption: assumes short-term storage in the fridge, in ice, in running seawater, or in sea salt (brine);
- ◆ Longer-term consumption: solar drying, freeze-drying, oven, drying cabinets... With storage by freezing or vacuum packaging.

❖ **Monitoring the impact on ecosystems** – cultivation can obviously have an impact on ecosystem dynamics, so care must be taken not to destabilise the environment. Some examples of these impacts are:

- ◆ Impact on marine currents that can reduce or accelerate coastal erosion;
- ◆ Impact on sedimentation;
- ◆ Attraction or installation of exotic marine species;
- ◆ Competition for nutrients, light availability or other factors that can negatively impact biodiversity directly beneath or near the cultivation areas.

❖ **Contributing to a circular economy:** reusing waste from algae etc.

[FACTSHEET N° 14]

‘All the dehydration waste will be used to feed the turtles at the La Rochelle Aquarium Clinic, while fresh seaweed waste is macerated to provide free seaweed liquid fertilizer to potato growers on the Île de Ré.’

Société Algorithme, Île de Ré (France) for RadioFrance



FACTSHEET N°. 15

SHELLFISH FARMING AND HARVESTING



Shellfish growing and harvesting are also part of the aquaculture and fishing practices that can be found all over the world. As we saw above, certain practices can have a negative impact on the ecosystem or on the species themselves. Certain good practices can therefore be followed for both small-scale harvesting and cultivation.

PRACTICE TIPS FOR SUSTAINABLE SHELLFISH FARMING AS PART OF ARTISANAL FISHING PRACTICES:

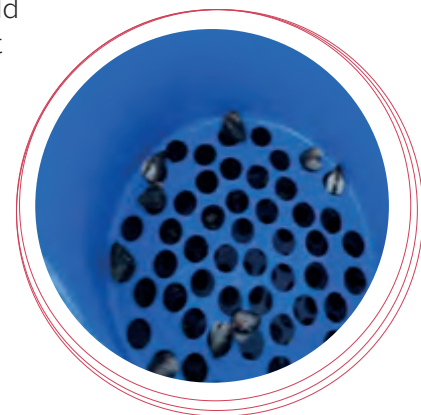
- ❖ **Using garlands of submerged shells** to prevent mangrove roots from being pulled up;

‘Women from three villages have joined forces to adapt to the increasing scarcity of wild oysters. At a bend in the bolong, around thirty of them are working, their ankles sunk in the mud at low tide. In this small lagoon in the middle of the mangrove swamp, they rear local oysters, whose spat have attached themselves to strings of submerged shells where they grow in clusters. The oysters are then grown in floating bags. Once the oysters have been reared for a year in the oyster farm, they are transferred to the brand new purification tank, where they purge the impurities they have absorbed. They are then sold grilled, mainly to French and Belgian tourists. [...] Traditionally, my parents and grandparents cut the roots of the mangrove trees to harvest the wild oysters, but this was part of the disappearance of the mangrove.’

Article by Théa Ollivier, taken from the Resilient Food Systems (Senegal) website.

[FACTSHEET N°. 15]

- ❖ **Sorting out shellfish to avoid harvesting those that are too small or too young:** for this, a simple method could be the use of perforated buckets: the holes would allow shellfish that are too small to be released and therefore not harvested; alternatively, training fishers to recognize the minimum sizes.



‘To optimise the management of resources, participatory shellfish management initiatives have been developed in several marine protected areas (MPAs) under the scientific supervision of the University Institute of Fisheries and Aquaculture (IUPA) at Cheikh Anta Diop University in Dakar. The aim was to train women in sustainable harvesting practices. A simple shell-sorting protocol is used for sizing, using stacked buckets. These buckets are perforated with holes of different diameters to enable the regulatory sizes to be harvested while preserving the juveniles.’

Mamadou SIDIBE, Director, Directorate of Marine Protected Areas of Senegal (Senegal)



- ❖ **Preventing the spread of invasive exotic species, which occurs in particular during shellfish transfers:**
 - ◆ Entrust the management of transfers to a specific organisation that will ensure controls;
 - ◆ Implement permits to regulate shellfish transfers and ensure training for farmers;
 - ◆ It is possible to treat shellfish to eliminate exotic species before a transfer (soaking/watering, drying, application of heat, depuration, quarantine). These treatments may require the installation of treatment stations close to the farming areas.
- ❖ **Reduce the density of farms:** this reduces stress for the shellfish and the accumulation of silt and algae, so the growing environment is cleaner;
- ❖ **Leave free space between cultivation panels** to enable passage areas for marine fauna, or else to leave space for birds to feed when protective nets are used;
- ❖ **Use non-polluting, untreated materials that are sustainable in the marine environment** (do not use treated wood, avoid the use of plastic...);

[FACTSHEET N° 15]

- ❖ **Clean culture bags:** Plants and shellfish that accumulate on the bags reduce the water flow and the food intake of farmed species, while increasing their stress. However, during hot weather, keeping the seaweed accumulated on the bags helps to reduce the temperature inside the bags;
- ❖ **Reduce the risk of contamination by:**
 - ◆ Training staff to recognise signs of disease;
 - ◆ Limiting access to the cultivation area to staff only;
 - ◆ Monitoring the quality of coastal waters.
- ❖ **Monitoring and measuring the impacts of cultivation on the environment** by observing changes in the ecosystem, including impacts on the coast;
- ❖ **Enhancing the value of the products**, particularly through handicrafts: shells, and sometimes even pearls, can be used in jewellery or decoration and therefore limit waste while providing other income for producers and farmers. Shells placed in mesh pockets can also be used as gabions to build small retaining walls or to combat erosion, and can also be used at sea to ‘recreate’ spawning grounds for certain marine species.



FACTSHEET N° 16

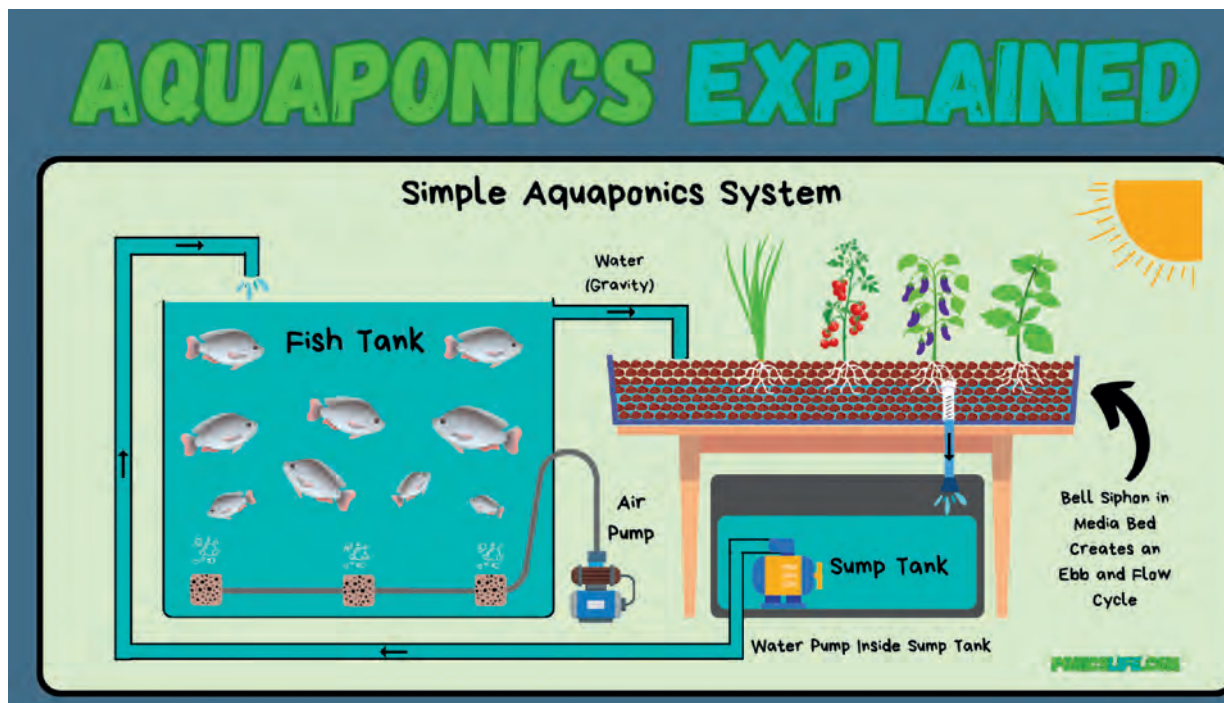
AQUAPONICS



Aquaponics has existed for many years in Asia, where fish farming was associated with rice cultivation, or in Latin America in connection with chinampas.

PRINCIPLE:

Raising fish **while cultivating plants, using fish waste as fertilizer** in separate but interconnected water tanks that recycle in a closed-loop system.



Microorganisms convert the waste into organic fertilizer

source: Ponics Life Hobby Center – Aquaponics explained

[FACTSHEET N° 16]

EXPECTED RESULTS:

- ❖ **Water savings**, as the same water circuit is used both to rear fish and to grow plants;
- ❖ **Reduction in pollution** linked to the use of inputs, fertilisers or other products for agriculture and fish farming;
- ❖ **Increased productivity** in terms of plant production; diversification of resources as production; diversification of resources as production combines both fish and plant outputs;
- ❖ **Energy savings**, both electrical and human effort.

PRACTICE TIPS:

- ❖ **Carefully select your site:** install your system in a stable area that is suitable for plants (away from strong winds, rain, snow, too much sun or too much shade);
- ❖ **Select the reservoir:** choose a shape that is easy to clean, preferably made of food-grade, non-toxic material. Round tanks with flat bottoms are generally recommended (the round shape allows the water to circulate evenly). In terms of materials, we recommend using inert plastic or fiber glass. If you use a plastic tub, you need to make sure it is UV-resistant. Finally, it is advisable to use a white material (it makes it easier to see the fish, allows sunlight reflection, keeps the water cool etc.);
- ❖ **Cover fish tanks** to prevent algae growth;
- ❖ **Do not overcrowd tanks** by staying below 1kg of fish per 100 litres of water (this up to 500 litres), or 20kg of fish per 1000 litres of water (over 500 litres);
- ❖ **Do not place the fish directly in the same tank as the plants**, as the fish release ammonia (toxic for plants) and can sometimes eat the roots of the plants;
- ❖ **Keep the water circulating and oxygenated**, using pump systems for example;
- ❖ **Monitor water quality**, i.e. the oxygen level (above 5mg/litre), pH (between 6 and 7), temperature (between 18 and 30°C), nitrogen content and alkalinity. This can be done using test kits;
- ❖ **Keep the ponds clean** by cleaning them and not leaving any waste in them, or using filtration systems;
- ❖ **Choose your planting**, starting with low-demand plants. This is because an aquaponics system grows richer every year. It will therefore be possible to grow more demanding crops over time. It is also advisable to intercrop short-cycle crops (lettuce) with longer-cycle crops. Additionally, it is recommended to apply the principles of permaculture to these crops;
- ❖ **Choosing your cultivation method:** indeed, there are different cultivation methods in aquaculture (techniques such as nutrient film, deep water, and media bed...). It would be too long and complex to set them out clearly here, and they depend on the operator's level of skill, farm's ambitions, and many other criteria.

[FACTSHEET N° 16]

Overall, to practise aquaponics, it is necessary to understand the processes and characteristics of fish, plants, water (oxygen, pH, temperature, nitrogen, water quality parameters, bacteria etc.), and to know and understand the different methods. There are online resources for this, including the guide "Small-scale aquaponic food production - Integrated fish and plant farming" produced by the Food and Agriculture Organization of the United Nations in 2023: <https://doi.org/10.4060/i4021fr>



C/ TOURIST ACTIVITIES

◆ Description

In the first part of this guide, we looked at the various activities that can take place in a natural area. Many of these activities can be practised individually by visitors or local residents, and can therefore be regarded as part of the visitor management of a natural area. So, generally speaking, accepting tourist activities in a natural area, whether they are organised by economic actors or carried out independently, depends on the history of the site and the manager's choice in terms of visitor management.

In this section, we will look at some of these activities focusing on those organised and run by economic actors (guides and instructors, restaurant owners, hoteliers, rental operators, etc.). It should be noted that all of these activities together form an overall tourism offer, enhancing the attractiveness of the area. Therefore, they should, as far as possible, be considered collectively to ensure greater sustainability of the overall offer and to help preserve the natural environment.

◆ Pressures

Often, and as in all activities, it is the multiplication of activities and their over-intensive practice that generate pressures and negative impacts on a natural area, as we have also already mentioned in the first part of this guide:

- ❖ **Direct disturbance of fauna by users**, or noise by the use of electric or motorised equipment;
- ❖ **Destruction of habitats** by boat anchors, and by launching or taking boats out the water, as well as practices not controlled by users such as diving with fins, soil erosion caused by off-path movement, and land modification for the construction of new facilities, etc.;
- ❖ **Direct destruction of biodiversity** in the case of collision with marine mammals, for example, or the destruction of coral during diving;
- ❖ **Impacts on the functioning of ecosystems** that may threaten key natural processes (reproduction, migration) or threaten survival behaviours (resting, socialisation, feeding) caused, for example, by the feeding of species, or their disturbance and stress;
- ❖ **Introduction of invasive exotic species** transported by the equipment used by visitors;
- ❖ **Pollution from greenhouse gas emissions**, polluted water discharges, plastic pollution, the use of phytosanitary products or simply pollutants, as well as noise or light pollution causing disturbance;
- ❖ **Increased pressure on certain natural resources, and even on biodiversity itself;**
- ❖ **Increased use of certain resources, including water and energy;**
- ❖ **Conflicts of use** may also arise between different users.



‘With its bright pink, orange and cream spiral shell that can grow up to 30 cm long, the lambi is one of the most recognisable protected molluscs. In 2016, Defenders of Wildlife published an informative factsheet in which it was revealed that of all shellfish from Latin America seized by the Fish and Wildlife Service over the period 2005 - 2014, 90% were lambis for which importers had no import authorisation or the authorisations were incorrect. [...] Before they were harvested for their shells, which are used to make jewellery or decorative objects such as lamps or picture frames, these marine molluscs fulfilled various ecological roles. In particular, they support epibionts such as algae, which marine animals feed on, as well as barnacles, which help clean the water by filter-feeding. The lambi also plays an important role in its ecosystem as it helps to clean the waters of the Caribbean. Marine animals such as loggerhead turtles and nurse sharks feed on it. In fact, scientists believe that the presence of molluscs in an ecosystem demonstrates that it is in good health.’

Tina DEINES for National Geographic

To respond to these different issues, we have developed a series of factsheets presenting the good practices to be implemented for certain tourist activities as examples. It is not possible in this guide to cover all the economic activities that can take place in natural areas. What’s more, each activity needs to be considered in its own socio-economic and environmental context. The advice given in this guide must therefore be adapted to the local context.

FACTSHEET N°. 17

SNORKELING AND SCUBA DIVING



Snorkeling, also known as aquatic-hiking, is an aquatic activity involving surface swimming while breathing through a snorkel, unlike scuba diving. These activities have often been regarded as environmentally friendly. **Their popularity and the development of numerous diving clubs** have led to this assertion being questioned. In fact, the practice of these activities can put a strain on the environment. **At the same time, these activities depend heavily on the health of marine ecosystems, without which the whole activity loses its appeal.** For this reason, a number of best practices need to be shared to limit or avoid as far as possible any negative effects on ecosystems.

All of these practices must, of course, be **discussed as much as possible with stakeholders** to help them understand the reasons behind certain decisions, and to encourage them to adopt these practices. **These actors also serve as intermediaries with the visitors** they accompany and can be important sources of information for managers, as they use the natural area on a regular basis.



[FACTSHEET N° 17]**TIPS FOR RESPECTFUL AND SUSTAINABLE UNDERWATER DIVING PRACTICES, TO BE IMPLEMENTED BY MANAGERS:**

- ❖ **Determine the carrying capacity of sites** in terms of the number of divers a site can tolerate per year. For example, the Marietas Islands in Mexico have calculated a carrying capacity for each area based on various parameters: number of divers/day; distance between groups; group size; duration of a dive; proportion of fragile species at a site; frequency of interactions between divers and the reef; actual carrying capacity in terms of equipment and boats etc.;
- ❖ **Define and mark out authorised zones** to exclude areas that are particularly sensitive or of high value to the ecosystem. If diving practices are accepted in the natural area, it is still necessary to authorise areas that represent an interest for economic activity, so it is best to define these areas in discussion with the professionals;
- ❖ **Regulate the practices** by defining a number of authorised professionals and the conditions of that authorisation, the number of dives and/or divers per day, per location, per professional, the diving times and conditions etc. These criteria must be defined based on the capacity of the site, the socio-economic issues, but also the environmental conditions and the characteristics of the species present (level of protection, sensitivity, danger etc.);



- ❖ **Regulate mooring areas and systems** to reduce the impact of anchors. It is possible to install buoys that are shared and reserved for professionals, to replace anchor chains with lighter textile materials, or to use buoys to raise the mooring line and prevent it from touching the seabed;
- ❖ **Create a code of conduct, charter or guide of good practice at local level** to get as many professionals as possible to adhere to these practices;
- ❖ **Make visible** (through labels, stickers for charter signatories, visibility on managers' networks and websites...) those professionals who follow good practice, to direct visitors towards them.

[FACTSHEET N° 17]



TIPS FOR RESPECTFUL AND SUSTAINABLE UNDERWATER DIVING PRACTICES, TO BE IMPLEMENTED BY PROFESSIONALS:

- ❖ **Signal ongoing diving activities** with flags and/or buoys indicating the presence of one or more divers to ensure their safety;
- ❖ **Carry out a briefing before diving** to raise awareness of the impacts that divers may have and what behaviours should be adopted, including in particular staying away from ecosystems (avoid touching natural habitats with fins, not leaning or walking over fragile ecosystems) to prevent damage, and avoid obstructing marine species in their movement or blocking access to specific areas (caves for example);
- ❖ **Limit access to the most sensitive areas** to experienced divers only;
- ❖ **Check and set up equipment before getting into the water**, so that once in the water, divers can concentrate on their environment;
- ❖ **Prohibit the use of products that are toxic to marine life, like sunscreens** (or at the very least make it compulsory to use eco-friendly products);
- ❖ **Accompany participants during the first 10 minutes** of the dive - stabilisation time - so they do not try to hold on to marine structures that are part of the ecosystem;
- ❖ **Prohibit participants from touching, taking, pursuing or feeding marine wildlife;**
- ❖ **Do not use motorised equipment** that could disturb fauna.

FACTSHEET N° 18

CANOEING AND KAYAKING



Canoeing and kayaking can be practised all year round, depending on weather and sea conditions. The boats used are fairly long and have watertight compartments, and the various models available allow for a wide range of uses, from beginner courses to multi-day trips, interspersed with bivouacs, as well as day trips, either on their own or under the supervision of instructors. However, these activities can have an impact on the environment, and there are a number of points to bear in mind if you want to limit this impact.

TIPS FOR SUSTAINABLE CANOEING AND KAYAKING:

- ❖ **Define and mark areas where the activity is allowed and/or prohibited** (both at sea and on land), as well as dedicated routes to avoid sensitive zones or conflicts with other activities;
- ❖ **Define regulations specifying what is allowed** regarding the number of boats, times, periods and areas etc.;
- ❖ **Reduce the impact on the banks and seabed when launching by using jetties**, launching ramps, rocks, gravel or sand to load and unload your boat. Also avoid trampling the banks. For this, the manager may have a role to play by installing jetties or launching ramps for example;
- ❖ **Carry the kayak once on land**, do not drag it on the ground, especially on dunes and fragile natural surfaces;
- ❖ **Raise awareness** among users and ensure they are aware of local regulations (landing zones, bivouac areas, and fire bans...);
- ❖ **Do not approach wild animals**, chase them or obstruct their path;
- ❖ **Inspect your boat before and after each outing** and wash it (hot or high-pressure water) thoroughly to remove all traces of plants, animals and other residues, then dry it to reduce the spread of invasive alien species.



[FACTSHEET N° 18]

‘Discussion processes between representatives of kayakers and managers have helped to promote the acceptability of new local management measures, reach a consensus on sharing the area, and clearly identify passage routes, with no changes in paths or landings, in order to minimise disturbances to the species present at the kayaking sites. As a result of this dialogue, a number of good practices have been adopted and shared, both to members and to the general public, such as voluntary limits on the number of people per half-day, a ban on landing in the lagoons unless authorised, a ban on entering strictly protected zones, and the strict requirement to follow the routes marked on maps...’

Arnaud PITMAN, Director, Palavas Kayak de mer (France)



FACTSHEET N° 19

WHALE WATCHING



This activity involves watching whales and other marine mammals, from a boat. However, some operators also offer underwater immersion experiences to get closer to these animals. This has been one of the fastest-growing tourist activities over the last thirty years, being offered in over 100 countries around the world, providing a livelihood for many operators. In order to limit the negative effects of these practices, numerous regulatory initiatives or charters have been developed throughout the world, with certain recommendations.

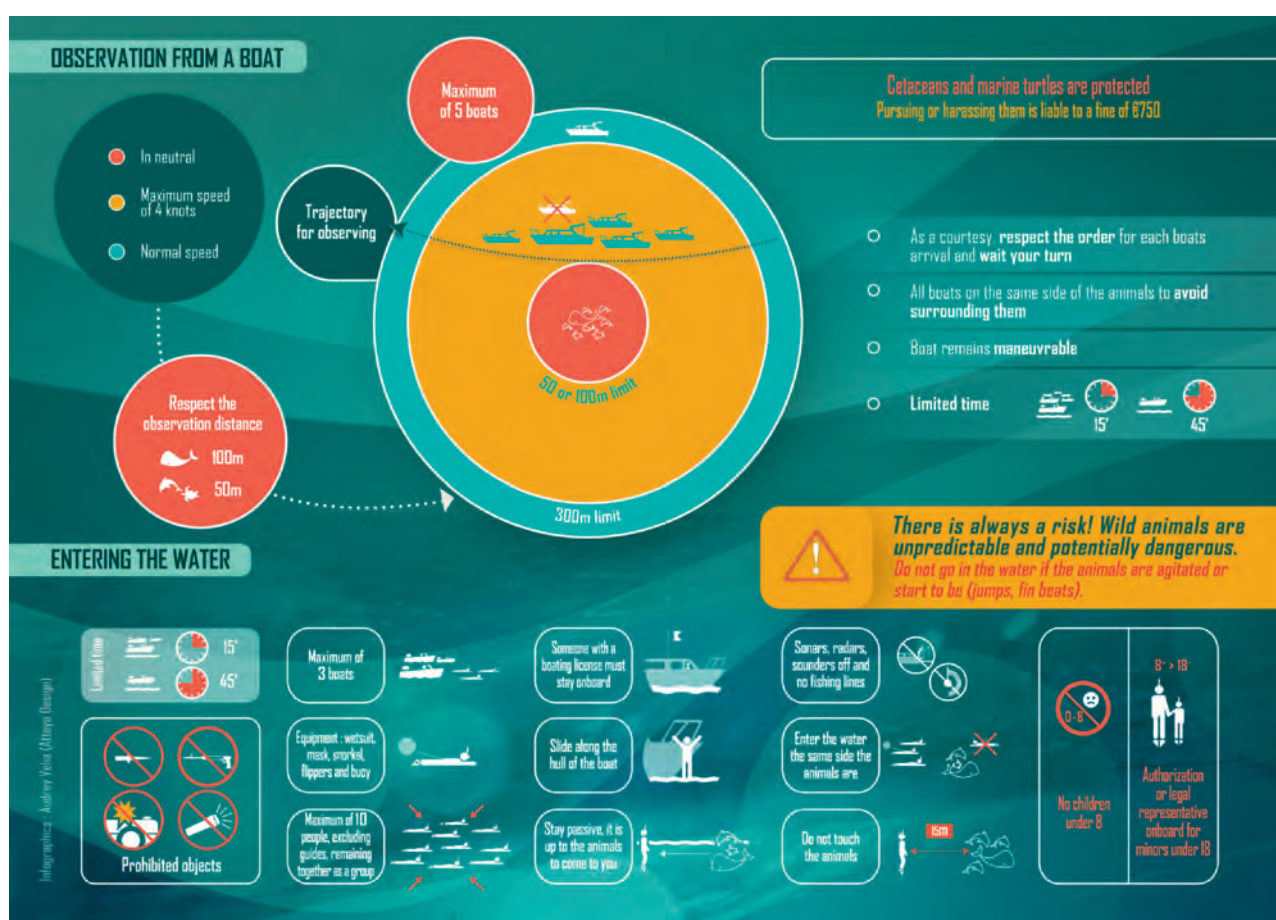
TIPS FOR SUSTAINABLE AND RESPONSIBLE WHALE WATCHING:

- ❖ **Take time to assess the situation** before approaching, staying more than 500 m from a whale or group;
- ❖ If a VHF radio is on board, **contact the nature guards** to inform them;
- ❖ **Do not approach whales** closer than 100 meters;
- ❖ **Avoid approaching whales** or groups from directly behind or in front, and prefer **approaching from the side** so you can position yourself parallel to the animal;
- ❖ **Do not chase**, encircle or block cetaceans;
- ❖ **Do not position** yourself in the middle of a group;
- ❖ **Limit the number of operators** (boats) that can position themselves around the same individual or group, and have them gather on the same side of the individual or group;
- ❖ **Limit the time spent** near an individual or group in order to reduce stress;
- ❖ **Take extra precautions** around mothers and juveniles;
- ❖ **Prohibit the feeding of animals;**
- ❖ **Adopt gentle navigation**, avoiding abrupt manoeuvres or sudden changes of direction or speeds;
- ❖ **Maintain a speed of approach** which should not exceed the animal's speed by more than 3 knots.

[FACTSHEET N° 19]

These regulations and their parameters (approach distance, number of boats authorised at the same time, duration of observation etc.) must be **defined locally** according to the species concerned, the number of operators present, the priorities of the managers but also their ability to monitor compliance with these regulations. They obviously presuppose a **dialogue** between managers and professionals, **information and training sessions**, and if possible a regulatory and legal framework providing for sanctions in case of non-compliance.

Finally, although it is generally advisable not to allow tourists to enter the water to limit any risk for both animals and participants, this is still authorised depending on the location. In this case, it is once again advisable to regulate this practice, taking inspiration, for example, from what has been done on Reunion Island.



In addition to these good practices, it is possible to:

- ❖ **Offer observation sites on land** to reduce disturbance at sea and avoid stressing cetaceans. It is thus possible to set up observation routes along the coast, equipped with watchtowers, binoculars, and observation panels like the [Whale Trail](#) that links the west coast of Canada and the United States, from British Columbia to South Carolina, with more than 100 observation points spread over 1,000 km of coastline, or Route 138, nicknamed the ‘[route des baleines](#)’ in Quebec, an 850 km popular route with whale watching enthusiasts for observing the 13 species of whales that venture into the St Lawrence estuary.

19 Image source Préfecture de La Réunion – Information panel with rules for sustainable whale watching

[FACTSHEET N° 19]

- ❖ **Using labels or certifications** to encourage the same operators to adopt responsible practices, but also to inform and guide tourists towards responsible operators. Numerous labels and certifications are being developed, such as [Whale Sense](#) in the United States, [Hight Quality Whale-Watching](#) created in 2012, [Mata Tohora](#) in Polynesia and the [WCA Responsible Whale-Watching](#) certification at international level. These aim to promote the good practices mentioned above to ensure the sustainability of this activity and limit its impact on the environment and marine ecosystems. They are accompanied by training courses, commitment charters and the adoption of more or less detailed common rules.



Some tools are developed within an international framework, such as the High Quality Whale Watching® label, which applies in Italy, Monaco and France. In order to facilitate the requirements of the regulations in force, the Pelagos and ACCOBAMS (Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area) agreements have established a Code of Conduct for cetacean-watching to ensure the protection of marine mammals in their natural habitat, in the form of the label High Quality Whale-Watching®. Registered in 2009, this concerted and voluntary management tool aims to ensure the sustainability of whale-watching activities while ensuring minimal disturbance to marine mammals. In France, the MIRACETI association is responsible for managing and issuing the label to French and Monegasque operators. In Italy, the CIMA Research Foundation has been appointed to manage and issue the label.



FACTSHEET N°.20

BIRDWATCHING



Birdwatching involves discovering birds in their natural habitats, whether by observing them, taking photographs or listening to their songs. These activities have been popularised by bird protection associations (such as BirdLife International, Ligue pour la Protection des Oiseaux in France, SPEA in Portugal, etc.) but they have also developed spontaneously in many renowned birdwatching sites, where unregulated use can disturb ecosystems.

TIPS FOR SUSTAINABLE AND RESPONSIBLE BIRDWATCHING:

- ❖ **Manage and control the activity** by channelling visitors (paths, observation posts), by establishing periods and times for access to observation sites, and defining an authorised number of visitors - to be controlled if possible by a single entrance, and/or counting devices;
- ❖ **Provide equipment for observing birds from remotely**, in order to limit the risks of disturbance and approaches by visitors;
- ❖ **Do not shout or reproduce the calls of the birds**, or broadcast recordings of their calls to avoid any stress or endangerment of the animals;
- ❖ **Be as discreet as possible in your movements;**
- ❖ **Prohibit the use of drones, lamps or electronic devices** produce artificial light or noise likely to disturb birds;
- ❖ **Do not feed, touch or catch the birds;**
- ❖ **Do not approach the nests.**

‘In the Parc du Marquenterre, seeing without being seen is the objective of the specific measures implemented across the ornithological park.’

*Yvan JACQUEMIN, Territorial Project Manager,
Conservatoire du littoral, Manche mer du Nord delegation (France)*



[FACTSHEET N°.20]



Operators in the field also need to know about species, their behaviour, breeding periods, etc. if they are to adapt their practices and limit impacts, while also being able to share this knowledge with their customers. Similarly, they can relay information and provide surveillance within a site, being able to report the presence of an invasive species, a threat to birdlife, or unusual behaviour, etc. To do this, managers can offer **training courses, site visits and information sessions** to these professionals. In this way, they become ambassadors for the preservation of the site and contribute to the conservation of both the site and its species.



FACTSHEET N°. 21

HIKING



Hiking is both a sporting activity, although non-competitive, and a tourist activity, practised on paths and tracks that are generally developed and signposted in a natural environment. The setting in which hiking is practised is heavily dependent on the management of the natural area and the visitor reception strategy. This activity directly involves a tourism professional when supervised by a guide, who must then follow certain good practices to minimise the impact of their activity, and above all, inform and raise awareness among their clients about these practices.

TIPS FOR RESPONSIBLE HIKING:

- ❖ **Limit noise and light pollution:** don't listen to music and don't shout so as not to frighten the animals away from their water or food supply;
- ❖ **Don't touch or take any flower species;**
- ❖ **Don't try to feed the animals;**
- ❖ **Don't light fires** in areas at risk of fire: 90% of forest fire starts are caused by human activity;
- ❖ **Take your rubbish with you** and limit its production as much as possible, encouraging walkers to carry a reusable water bottle rather than a single-use plastic one, for example;
- ❖ **Stay on marked trails** to limit impacts on vegetation, wildlife and heritage features. Do not create new paths;
- ❖ **Respect specific prohibitions:** depending on the trail, hiking poles are sometimes prohibited, as they can damage the environment and contribute to trail erosion; depending on the site, dogs may also be prohibited or tolerated only on a lead etc.



[FACTSHEET N° 21]



Also, for this practice to take place, an appropriate context is required within the natural area, as provided by the manager:

- ❖ **Define the range of hiking routes** based on the level of difficulty, desired visitor numbers, as well as the sensitivity and carrying capacity of the ecosystems. It may also be decided to ban certain areas from use, either permanently or temporarily. The aim is therefore to establish a limited number of routes - to limit the risks of overcrowding, impacting the site as a whole, and to facilitate management - as well as to define routes adapted to different levels of experience and types of users;
- ❖ **Set up information panels** on good practices at trailheads and/or parking areas, and **ensure clear and consistent signage** along the entire trail network;
- ❖ **Define different access conditions:** it may be appropriate for the site manager to allow access to certain areas only under certain conditions, for example with a 'certified' guide only. It may also be possible to prohibit the presence of dogs, which can disturb wildlife, or allow them only if kept on a lead.

FACTSHEET N° 22

CLIMBING



Climbing has grown significantly in recent years, largely due to the sport's increased popularity, including its inclusion in the Olympic Games. This sport, sometimes considered as an 'extreme sport', involves climbing on cliffs, but also walking and hiking to the cliffs. Among the good practices, we therefore find the advice given in the hiking factsheet for everything concerning what is called the 'approach walk', but once on the cliff, other practices must be followed.

TIPS FOR MANAGERS ON SUSTAINABLE CLIMBING PRACTICES:

- ❖ **Defining the possible climbing areas** requires identifying which sectors are authorised or restricted for the activity. Whether for the ecosystem on the cliff or that along the access path to the cliff, it is important to define authorized and prohibited zones to ensure the **sharing of spaces**. Since climbing can, in principle, be carried out anywhere equipment is installed, the manager must be prepared to regulate this activity;
- ❖ **Define the regulations** applying to these cliffs, and **communicate them clearly**. It is sometimes necessary to temporarily ban a cliff because of the nesting of a species. It may also be necessary to ban a cliff definitively, for the same reason, or because of the risks to practitioners if the cliff loses stability, for example. It may also be possible to authorise access to cliffs only with the accompaniment of a qualified instructor, certified by the manager of the natural area as having received the necessary **training** to operate in the area;
- ❖ **Prevent erosion at the base of climbing areas**. Indeed, the traffic generated by climbing can significantly impact soil erosion, as climbers remain and trample a small patch of ground for several hours. It may therefore be necessary to manage the area to reduce soil loss;
- ❖ **Contribute to the publication of climbing guidebooks** to ensure the accuracy of the information presented, and to include conservation issues, regulations, and so on;
- ❖ **Maintain equipment** to ensure people's safety.

[FACTSHEET N° 22]

ADVICE FOR SUSTAINABLE CLIMBING, FOR PROFESSIONALS:

- ❖ **Respect the principles of safety:** helmets, knots at the end of the rope, maximum number of clients per instructor, mastery of rescue techniques, knowledge of rescue numbers, etc.;
- ❖ **Limit the use of chalk and brush the holds** after climbing with soft brushes, not metal brushes. Chalk not only damages rocks, but can also be bad for ecosystems living on and in the cliff (lichens, birds, bats, insects and reptiles), which is why it is already banned in certain natural areas;
- ❖ When bouldering (climbing not secured by a rope, on low rocks) it is important to **place crashpads** (protections installed on the ground) to avoid damaging the soil;
- ❖ **Wipe your shoes before each ascent;**
- ❖ **Reduce trampling of vegetation** around the cliff;
- ❖ **Limit noise levels.** Although communication is essential in climbing, it should be limited to what is strictly necessary at the time of the ascent. Indeed, as climbers move further away from their belayer, they have to speak louder and louder so that the belayer can hear them, and therefore shout, thus impacting the wider environment. So if it is necessary to shout to be heard, it is essential to do so as little as possible. Similarly, when an instructor accompanies a group, the group makes more noise than two climbers on their own. It is the role of the professional to keep noise levels low and respect the surrounding environment.

20



FACTSHEET N°. 23

ACCOMMODATION AND FOOD SERVICES



There are many different types of tourist accommodation and food services, depending on the type of visitor and their expectations - from campsites to hotels, club-hotels (or holiday villages), bed and breakfasts, holiday cottages, Airbnbs, etc., with meals taken in restaurants or cooked by locals or together with them. All tourists have to sleep somewhere and eat. Nonetheless, a distinction must be made between accommodation and catering on the periphery of the site - where the manager has no specific 'power' other than to raise awareness and promote good practice - and the same activities carried out inside the natural site - where the manager may have greater power to limit or supervise them

TIPS FOR SUSTAINABLE ACCOMMODATION AND FOOD SERVICES:

Whether for catering or accommodation, certain practices should be implemented with regard to the resources required and the production of waste:

- ❖ **REduce water and electricity consumption** as much as possible: Installing sustainable energy systems (solar panels in particular), **collecting rainwater** (for domestic use but not for drinking), reusing water where possible (for example, the water used to rinse fruit or vegetables can be reused for washing up or watering);
- ❖ **Using biodegradable products** for packaging and related items (napkins, containers, etc.). In the case of takeaway catering, refrain from using disposable plastic cutlery and containers. Instead favour sustainable, recyclable or reusable alternatives, and ask customers if they actually need this cutlery - perhaps they already have some and don't need new ones;
- ❖ **Limit, sort and recycle waste:** whether for **food waste** (feeding certain animals, producing compost for plants, donating or selling unsold or near-expiry products, etc.) or simply for materials like glass and cardboard, ensuring they are recycled;

[FACTSHEET N° 23]

- ❖ **Maintaining equipment over the long term** to reduce losses and overconsumption, looking for water leaks, carrying out maintenance on regular dates, cleaning machines etc. and **favouring energy-efficient equipment** (and avoiding energy-intensive fridges and air conditioning);
- ❖ **Buying locally** and sustainably by carefully selecting suppliers;
- ❖ **Using non-polluting products** for cleaning.

‘We embrace a sustainable lifestyle, minimising the consumption of all resources, using renewable energy, and monitoring all systems. We compost kitchen and garden waste, avoid packaging, buy local, recycle and use biodegradable products while producing as little waste as possible.’

Website of the ‘Three Rivers’ Eco Lodge, Dominica



[FACTSHEET N° 23]

TIPS FOR SUSTAINABLE RESTAURANTS:

- ❖ **Favour short supply chains**, sourcing from local producers, if possible with equally sustainable practices;
- ❖ **Promote local agriculture, culture and cuisine**, respecting the authenticity of the region, of the place;
- ❖ **Reduce the range of dishes helps limit food waste** and promotes the consumption of local and seasonal products;
- ❖ **Offer variable portion sizes** to avoid leftovers and thus reduce waste;
- ❖ **Providing customers** with ‘doggy bags’ so they can take their leftovers homes;
- ❖ **Encouraging and promoting the consumption of exotic invasive species** (if any).

ADVICE FOR ACCOMMODATION PRACTICES

- ❖ **Consider the design when planning a new facility.** The aim should be to maximise the reuse of existing buildings (underused, abandoned, derelict, etc.) or to significantly limit land take and soil sealing, and reduce the impact on natural areas (minimising tree felling, habitat fragmentation, etc.); It is also key to improve insulation and optimise lighting to reduce energy consumption for heating, cooling and illumination;
- ❖ **Opt for simplicity and moderation:** it is possible to offer accommodation that is not connected to water or electricity. In this case, you can use candles, an open fire (with anti-spark grates), or solar electric lamps, for example. Another option is to use filtered rainwater for drinking – to offer a special experience to visitors;
- ❖ **Reduce water consumption** by acting on the facilities, for example by installing dry toilets or showers rather than baths, or by not installing a swimming pool for example;
- ❖ **Adapt the frequency of changing and cleaning linen** while informing customers. Customers can also be given instructions on how to distinguish between linen that needs washing and that which does not. Give preference to durable, unbleached textiles in order to increase their eco-responsibility and sustainability;
- ❖ **Eliminate the distribution of single-use products**, which are a source of plastic waste;
- ❖ **Provide customers with sustainable mobility options.**

FACTSHEET N°. 24

HANDICRAFTS



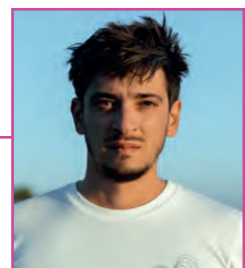
Handicraft encompasses a wide range of activities, often manual, across various fields of expertise: food, construction, and the manufacture and repair of all kinds of objects - essential or decorative. These activities require specific skills, often traditional, and differ from industry due to their local roots and production processes, in which the artisan shapes and creates all or part of their product by hand.

TIPS FOR RESPONSIBLE AND SUSTAINABLE CRAFTSMANSHIP:

- ❖ **Ensure a positive social impact** of craft manufacturing. This represents an opportunity, particularly for women, persons with disabilities and older adults;

‘After prospecting and identifying the women involved and interested in developing their skills in ancestral craft techniques in the region, we organised a training session. The prospecting phase made it possible to identify former skilled artisans who were available and capable of demonstrating and supervising the women enrolled in the programme. Each artisan is an expert in a specific raw material used for making objects. For example, for the ‘Saaf’ material, it is the separated leaves of the date palm and for ‘Arjoun’, palm spadices. [...] Participatory workshops provided an opportunity to discuss innovative ideas and traditional techniques and materials that could be used. [...] Alongside the ‘Jeunes Science Kerkennah’ association and the women who took part in the training course, SMILO, the Kerkennah municipality and the Anna Lindh Foundation had the opportunity to discuss the results of the project. All participants stressed the importance of investing in craftsmanship and, above all, fostering the involvement of women to promote sustainable tourism. The winning women received a prize and support to help them continue their craft activities. The municipality plans to create a craft center on the island where they will have their own space.’

Sylvain Petit, Director of the NGO SMILO (France)



[FACTSHEET N° 24]

- ❖ **Respect the artisanal dimension of production**, while preserving as far as possible the authenticity of both the product and its production method;
- ❖ **Do not hesitate to explore modernised designs based on traditional craft skills** to meet the more contemporary tastes and needs of tourists;
- ❖ **Reduce the pressure on natural resources** by ensuring that this exploitation remains local, and is not to the detriment of natural ecosystems. Studies on the renewal of forests and plants can be carried out prior to launching a craft activity to define the natural limits to the activity;
- ❖ **Encourage low-energy, low-resource processes;**
- ❖ Base craft production on the principles of the **circular economy** by reusing waste;
- ❖ **Value not only to the final products, but also to their production process itself:** tourists can also learn from local craftspeople how to make their own products. This is a highly enriching form of experiential tourism that brings cultures closer together.

‘It was in 2012 that Patrick Saint-Surin reopened the family distillery, despite the advice of his father - a *guildivier* by profession - who urged him to earn a living in a different way. Soon, sugar cane was once again transformed into sugar, and then into clairin, which used to be called ‘guildive’. Visiting this clairin distillery – Haiti’s traditional sugarcane spirit – offers a closer look at an ancient tradition that is much appreciated in the country.’

Excerpt from Petit futé, 2024



SOME CROSS-CUTTING GOOD PRACTICES

Regardless of the economic activity concerned, certain practices apply across sectors. Firstly, certain principles concern the activities themselves, and are therefore mainly the responsibility of economic actors - but may also apply to you and your practices as a natural site manager. It is important that you bear these principles in mind to share them, help economic actors understand them, and work with them to identify suitable solutions to meet these major principles:

- **Valuing and encouraging proximity and short supply chains:** by creating links between the various actors, a real local network can be created, reducing transport costs - both economic and environmental - at the same time, supporting local producers and improving their income, while promoting the local area. **You can also act in this direction, as a manager, for example when organising events on your site;**

- **Reduce resource consumption** by optimising electricity and water use as much as possible, encouraging the production of sustainable energy, using efficient equipment and reducing losses;

- **Monitor consumption** in order to detect leaks and inefficient equipment, and to set up a system for monitoring and adapting resource use;

- **Strengthen sustainable mobility:** to reach a natural area or a meeting point for a tourist activity, but also to transport wood from a forestry operation, fish after a fishing trip, or take fruit from a farm to the market - economic actors and tourists use means of transport that often consume fossil fuels and pollute. **Thus, on a regional scale, a network of public and sustainable transport can help reduce these impacts, although you will only be able to do this within your own natural area.** You can ban the use of polluting and noisy vehicles, and provide environmentally friendly means of transport such as bicycles or electric vehicles. The same applies to the sea, where encouraging the use of low-noise, low-fossil fuel boats for fishing or scuba-diving trips, for example, could be an interesting way of reducing the impact on the natural environment and marine fauna;

- **Diversify your activities:** for economic actors, diversification represents the best way of **making their activity more resilient**, thereby reducing their dependence on a single economic sector. For natural areas, this diversification can also represent a means of **reducing the pressure exerted on a resource**. Moreover, it is interesting to invite economic actors to diversify their sources of income, particularly when their activity exploits natural resources;

‘For example, the Shoals Rodrigues organisation uses a <glass-bottom boat>. Glass-bottom boat tours help to develop new sustainable marine ecotourism activities in the northern marine reserves of the island and enhance existing marine ecotourism activities within the SEMPA (South East Marine Protected Area). The glass-bottom boat provides an alternative source of income for local fishing communities and thereby reduces illegal fishing in marine protected areas, allowing degraded fish stocks and habitats to recover. Fishers are also trained to become marine tourist guides, encouraging good tourist practices and raising the awareness among the local community and visitors to the vulnerability of the marine environment.’

*Anielle ESPIEGLE, manager and science officer
at the NGO Shoals Rodrigues (Mauritius)*



❖ **Raising awareness and informing clients**, is also part of the role of service providers, especially those operating in and using natural spaces. To become a genuine actor in conservation, it is now unthinkable for an economic operator not to discuss conservation issues with their clients, particularly in the context of tourism activities. However, in order for these service providers to be able to raise awareness and inform their customers, **it is essential that these economic actors are themselves aware of and informed about conservation issues. It is your role, as the site manager and expert, to provide economic actors with the keys to insights.** Why is this natural area protected? What are the roles of the ecosystems of the natural site? What could be the negative impacts of human activities and how can they be reduced? What are the issues facing the area?

‘There is real added value in encouraging passenger transporters, nature guides and other tourism professionals to make their customers aware of the issues at stake in the reserve (environment, regulations, good practice) and to become relays for raising awareness among a wider public. In fact, we are currently working on setting up a network of ambassadors of the Reserve. Secondly, the aim of the approach is to inspire other economic actors in the region. The plan is to provide them with documentation and information materials, and to promote their environmental commitment, with a logo for example, based on the criteria of a charter of good practice. Beyond the ‘promotion’ of their activity, they are all eager to have their knowledge recognised and to demonstrate their ability to help people discover the reserve under the best possible conditions.’

*Lorraine MASINI-CONDON, in charge of regional affairs
at the Saint-Nicolas des Glénan National Nature Reserve (France).*



➤ **Leaving no trace** is a general principle to which all actors in natural areas should aspire. So, whatever the activity, they should strive never to leave waste, minimise damage to their environment, disturb wildlife as little as possible, and limit their interaction with the ecosystem to avoid any imbalance;

➤ **Get organised.** Whether in the form of clubs, federations, associations or cooperatives, **bringing actors together makes it easier to communicate with other actors, including natural area managers.** It can also make it easier to implement some of the practices and advice set out in this guide, and others yet to be developed.

Other aspects fall more directly under your responsibility as site manager - either because they directly apply to the site, or because they are relevant to the approach that is needed to initiate or engage in this type of work within the territory where your site is located:

➤ **Get to know the economic actors** who work in your natural area and if possible, also in the surroundings. In fact, this phase of identifying practices and stakeholders is essential to defining your overall strategy, and successfully working with them;

➤ **Train stakeholders** so they can expand their knowledge of the environment and the natural area together with its various services, but also of the good practices you want them to adopt. Indeed, if you want to enable a particular change, taking the lead and giving the actors the means to implement it - especially through training - is a highly effective strategy. To do this, you can organise training courses yourself, get in touch with the relevant services, but also **mobilise other economic actors** so they can train their colleagues in the specific practices linked to each activity, and share their experiences. Another **possibility would be to authorise only those economic actors who have undergone specific training to operate within your site**, as long as it remains within the legal context. In this case, the idea is to build a network of 'certified and authorised service providers' who can operate in your **natural area**.



‘The sharing of knowledge has enabled the management teams to learn about fishing practices, as well as about the function and behaviour of species in the areas (e.g. nursery and reproduction areas or migratory passage areas). The combination of empirical and scientific knowledge, and the identification of common objectives, such as the fight against illegal fishing and all forms of poaching, have made it possible to increase the relevance of the regulations drawn up together as part of the fishing charters specific to the islands of Port-Cros (1999) and Porquerolles (2019) located in the heart of the Park. Since then, annual meetings have been held with fishers to assess the implementation of these charters and, where necessary, to make changes. The challenges of adapting to climate change are such that developing management methods based on consultations and the best possible understanding of species’ life-history traits, as practised in the Park, appears essential to better address biodiversity loss. The demand for protection of new areas along the coast and the introduction of more targeted management measures for species of fishing interest, which are bound to arise, will require even more dialogue, knowledge acquisition and new collective choices to guide management. Introducing temporal fishing bans could add flexibility to existing spatial management measures. As they are less arbitrary and consistent with the life traits of species, they are generally better understood by most fishers.’

*Laurence Le DIRÉACH, research and administration officer
at GIS Posidonia (France)*



- **Provide stakeholders with the necessary materials,** equipment and facilities. Once again, this is not your direct responsibility as a natural site manager, but it can be a very effective way of supporting stakeholders in their transition to new practices. For example, financial assistance can be provided for the purchase of new equipment, or the equipment can be supplied directly to the stakeholders so that they can test it and provide feedback. In addition, within your natural area, you can offer infrastructure that support these good practices (cycle paths, visitor/reception centre, launching ramps, light mooring areas and mooring buoys...);
- **Promote responsible actors by highlighting their work.** Whether they have a recognised label, have signed an internationally, nationally or locally recognised charter, or are simply making a practical commitment to sustainability - if you want to involve them in preserving your natural site, it is also important to acknowledge these actors compared to others who might not make the same efforts. In this way, you can direct your visitors towards these sustainable activities, and create a network of responsible actors around your natural area;
- **Monitor compliance with the rules** imposed by the manager of the natural area, but also compliance with the commitments made by the economic actors, especially if you are committed to promoting ‘sustainable’ actors, you must ensure that they continue to operate sustainably over time. One way to test this could be sending someone anonymously to assess the activity;

► **Monitor the impacts of economic activities** and the impacts of changes in practices. This is how you will be able, with the stakeholders, to define, validate, and review solutions. This is also the only way you can argue in favour of a change in practice, warn about negative impacts, and ultimately highlight the results of the efforts made.

Last but not least, the key principle is **working together**, that is: in partnership with economic actors. Some of them probably love the site and nature as much as you do, while others will have complementary knowledge to share with you, or even questions to ask. Moreover, it's only by defining your solutions, guidelines and good practices together that you'll be able to engage these actors and turn them into partners. In the third and final part of this guide, we will look at the various steps you need to take to begin this joint work and reflection, with some new tools that may help you to lead your future work sessions.







PART III

WORKING WITH ECONOMIC ACTORS: A TERRITORIAL, MULTI-STAGE APPROACH



The manager is the guarantor of the conservation of the territory, of compliance with the regulations in force which delimit the field of possibilities and acts as a mediator between natural ecosystems and human systems. This mediation is achieved in particular through consultation and local dialogue, which are levers for mobilising stakeholders. More than ever, the management of natural areas relies on listening, inclusion, social innovation and a long-term vision, but also on regulation to avoid environmental, social and economic crises in natural areas, which also gives a political dimension to the manager's role. To succeed in their missions and meet the challenges of sustainability, managers must use the tools and methods at their disposal, but also sometimes adopt new approaches to engage in dialogue and lead local stakeholders towards greater sustainability.

This third part proposes **tools for territorial actors/managers to help economic sectors move towards greater sustainability**, enabling economic development while preserving natural areas. By combining a toolbox and examples of implementation, this part proposes **to explore how to make economic sectors more sustainable through a territorial approach**, in which you commit to identifying stakeholders, understand key issues, define together a vision and common objectives, while supporting their implementation thereafter.



A/ STEPS FOR BETTER UNDERSTANDING AND GETTING TO KNOW YOUR TERRITORY

In order to manage their coastal and island natural areas, and take part in the practices of economic actors operating in and around the site, managers need to **get to know the economic actors** who operate in and around their natural area, as well as **understanding how these actors interact** within the territory. In this way, they can then **position themselves as one of the facilitators of territorial dialogue and consultation**.

a. A territorial approach to bring together managers and economic actors

The territorial approach, which puts local stakeholders at the heart of developing actions tailored to local realities, helps ensuring that every participant feels engaged and invested in the territory. The aim of setting up a **territorial dialogue** is to **bring together stakeholders with divergent interests** in order to improve the management of natural areas, define common directions, launch a project, dispel misunderstandings, conflicts etc. The pursuit of dialogue, as far as possible, is the primary objective of any reflection on territorial management, and should be initiated as early as possible. It must remain **open and adaptable** to adjust directions and strategies over time and space, and adapt to potential rapid changes.

Economic actors **have valuable knowledge and expertise that depends on how long they have been in the area, their practices and their relationships with the local socio-economic fabric**. Each stakeholder established or participating in the area's activities represents a part of the solution whose expertise and **voice deserve to be valued**. Managers must see economic actors as potential allies in carrying out their mission to conserve natural areas. Stakeholders need to take a step back and conduct a wider re-examination of neighbouring areas with or without protected status (non-protected natural areas, agricultural areas, peri-urban areas, etc.) with a view to ensuring a human-nature balance that is beneficial to species and natural areas. This shared vision **fosters awareness, the development of scientific and technical knowledge**, the adoption of sustainable practices, behavioural change, the implementation of actions supporting the ecological transition... In addition, **certain economic actors involved can become genuine conservation actors** and contribute to the protection of natural ecosystems, in particular by disseminating good practices internally (from managers to employees, shareholders, trade unions, etc.) and externally (customers, suppliers, local communities, NGOs, etc.).

‘Considering economic actors as ‘experts’ thanks to their practices within the territory enriches the dialogue and promotes the acceptability of the necessary decisions and trade-offs.’

*Marika ARABI-ONNELA, sustainable tourism officer,
Grands Sites de France (France)*



The manager of the natural area and their team must obviously take part in this territorial facilitation as scientific and/or technical partners to highlight the need for action to protect, preserve and restore the ecological environments under threat, and to formulate recommendations for maintaining the balance between healthy ecosystems and local economic development. Managers provide an overview of the links between the natural environment and the actors involved. They also provide **knowledge of regulations, which is essential** for informing users and ensuring compliance with natural heritage conservation provisions. In the majority of cases, economic activities are subject to provisions set out in the regulations applicable to the protected natural area - prohibitions, quantitative and spatial/temporal limitations, conditional authorisations, etc. By mastering these regulations, the manager can establish a foundation for dialogue and consultation within a regulatory and legal framework for the natural area.

‘Regulations are a major tool, not necessarily the main one, but it is absolutely essential to be familiar with them and to refer to them first whenever they exist.’

*Raphaël BILLÉ, Programme Director,
Tour du Valat (France).*



The manager must therefore act as a territorial facilitator by creating and leading **working groups involving economic actors**. This will enable them to discuss the challenges associated with their activities, find solutions and best practices, and initiate joint projects in order to develop a collective momentum within the territory.

‘Getting everyone around the table is an essential part of managing a natural area. As far as possible, we need to engage in dialogue with local stakeholders. This helps to establish the manager’s legitimacy and, in most cases, promotes the emergence of a climate of trust.’

*Axel WOLFF, Head of the Bouches-du-Rhône Unit
and Curator of the Coussouls de la Crau National Nature Reserve (France)*

b. Identifying and inventorying the economic actors within a territory.

As we have seen, economic actors can take different forms: companies, associations, public structures, or independent operators. Depending on the partnerships and exchange habits between natural area managers and economic operators, the manager will find it more or less easy to mobilise the actors in the area.

It is important to **take into account the actors carrying out an economic activity within the natural area and those in the immediate vicinity**. Besides, not only the operators who have a direct impact on the natural area should be considered, but also those who do not have premises or infrastructure on the site but who visit it occasionally or regularly (guides, transport operators, for example). Identifying all the economic actors (large and small) is an important step. **Involving all sectors** should help **limit user conflicts, reduce pressure on natural areas**, and engage stakeholders in the transition towards more sustainable practices.

To identify these actors, it may be possible to draw on the structures and organisations where they can be registered (such as chambers of commerce, trades and craft, or agriculture, etc.). However, many economic operators are not listed in national or regional databases, but should nevertheless be taken into account as long as they have an impact on the area. In addition to registration with public bodies, operators can be **grouped into sectors, organised within networks, and affiliated with business clubs, local actor federations (such as guides' associations), or economic interest groups**. These umbrella organisations are important gateways for reaching operators, particularly those who are less formalised or less structured.

One example is the **Réseau Association Khnifiss- Parc National de Khenifiss (Morocco)**, a network of associations and cooperatives working for the economic development of the National Park with the aim of creating synergies between stakeholders. It includes cooperatives producing couscous, artisanal fishing and salt, as well as environmental protection associations and tourist transport companies.

Another example is the **5 Ports - Etang de Thau (France) cooperative**, which was founded in 1969 and has 302 members from the fishing and shellfish sectors. It manages the allocation of shellfish farming plots in the Etang de Thau. Its mission includes allocating shellfish tables and the funding needed for young people to start out in the trade.

Another example can be found in the **GIE Suxaali AAlam Gui - Bango (Senegal)**, an economic interest group specialising in the manufacture of Typha-based eco-materials. In Saint-Louis, Senegal, invasive Typha plants have proliferated in the Senegal River, disrupting its flow and navigation. These women, who harvest and weave Typha, are organised in a collective to transform these invasive plants into eco-fence panels for protected areas and even 'Typhavelles' that **capture sand to stabilise and restore beach dunes**.

Finally, it may also be **advisable to search for key people with a good knowledge of the stakeholders involved and the economic activities taking place in the area**, whether official or not. **The use of cartographic tools** can make this stage easier. Aerial photography provides an overview of the area, and more particularly to the traces left by economic activities on the land. It can therefore be used to tell the story of an area through its geography in order to identify uses and actors that make it up.



But the main absentees from these discussions are non-human entities. Some territories are now choosing to grant their natural sites legal personality. This is a symbolic gesture rather than a real legal status that would confer rights and duties on the site, but it does help to rebalance the forces involved and to give a voice to natural areas as stakeholders. For example, among the natural sites with legal personality, we can mention

- **The Magpie River** (Canada): in 2021, the Ekuanitshit Innu Council and the Minganie Regional County Municipality (RCM) declared that the Magpie River was granted legal personality;
- **Mar Menor lagoon** (Spain): in 2022, a popular initiative led to the adoption of a law recognising the legal personality of the Mar Menor lagoon and its basin. As a result, the site became the first European ecosystem to obtain a status based on the concept of legal personality;
- **The Whanganui River in New Zealand:** in March 2017, Parliament granted legal personality to the Whanganui River, which flows for 290 kilometres in the North Island. The rights and interests of the Whanganui can now be defended in court. The river is represented by two people - one from the tribe and one from the government - in the same way that an adult speaks on behalf of a child before a judge.

There are **less restrictive and less legalistic methods of giving a voice to natural areas or species.** Some organisations aim to bring the rights and needs of natural areas and species into discussions to better ensure their conservation.¹



¹ Identification and mapping of economic activities (fishing, salt farming, livestock farming, tourism) in the Khenifiss National Park (Morocco) with a view to promoting tourism and know-how (© Cyrielle GROUARD)

Likewise, the **Mangrove Parliament** (LYANNAJ MANGWOV PROJECT - Martinique), as part of a citizen entity, represents the interests of the mangrove as a natural resource with the right and need to be protected and valued, particularly by the user communities that are closely linked to it. The mangrove would be recognised as a 'Common of Nature' to be preserved, while still benefiting from its resources and ecosystem services. This project complements the initiatives already in place in the area and would strengthen actions to preserve the mangrove, through the resolution of existing conflicts of use and the organisation of field actions mobilising the Martinican population. The associated communities are made up of mangrove users who are: fishers, local residents, environmental protection associations, conservationists, ecologists and other researchers, visitors, walkers, consumers (of food resources), hunters.

These communities will engage with public bodies that own and manage the mangrove, economic actors (e.g., tourism, agriculture...), and, more broadly, citizens of Martinique concerned with mangrove conservation.

To preserve and enhance the mangrove, the missions of the Mangrove Parliament, which are essential to the resilience of the territory, are:

- To care for and represent the non-humans of the mangrove;
- To make the voice of local residents and users heard;
- To help settle conflicts of use and raise common interests;
- To raise awareness and share knowledge about mangroves.

c. Knowing when to initiate such an approach

The manager truly knows their territory when they understand the role and responsibilities of each stakeholder. Taking the time to discover and get to know their missions, interests, resources, needs and operating methods is a prerequisite for initiating dialogue and establishing a relationship of trust over the long term. Knowledge of the area and its actors is not always enough, and it seems necessary to succeed in finding a **common language** to promote understanding of each of the parties. To achieve this, it is important to **multiply the opportunities and venues for meetings, and to undertake in-depth collaborative work in order to encourage exchanges and debates that will foster mutual understanding and acculturation to new issues.**

The manager's **listening attitude** is also vital so all users of the territory can express themselves freely and take part in discussions on territorial management.²



However, it is necessary to bear in mind, when initiating a local participatory approach, that exchanges will take place if the stakeholders know you, as the manager. To achieve this, you need to develop a **close relationship** with local stakeholders, i.e. through daily field presence (thanks to nature wardens, for example), awareness-raising and training initiatives aimed at different audiences (workshops, information panels, etc.). In any event, exchanges with stakeholders must be at least regular, and permanent forums for dialogue need to be enabled. **Building trust takes time** for the reasons given, but trust, like inclusion, are key levers for the acceptability of management measures and actions, besides limiting breaches of regulations. It is also by adopting a long-term vision that management methods would be embedded over time in the practices of local stakeholders.

² See Governance and operational co-management module.



‘Regular presence in the field is essential to address the concrete challenges of the territory and to be able to find solutions. Furthermore, to promote shared management and determine how conflicts will be resolved, it is useful to establish a management committee.’

*Mamadou SIDIBÉ, Director,
Directorate of Marine Protected Areas of Senegal (Senegal)*



‘The reserve’s long history is an asset, as users no longer oppose the regulations, which are now respected by the vast majority. As a result, environmental police now issue very few reports of violations.’

*Luc Belenguier,
Curator of the Camargue National Nature Reserve (France)*



‘Although negotiations are not always easy, the regulations are better accepted and fishing remains limited in the heart of the Port-Cros National Park (France). After more than 20 years, professional fishing has been maintained in the Park thanks to concerted action and environmental monitoring, which help to preserve ecosystems and resources. In addition, a better understanding of fishing practices helps reduce the conflicts that can arise between conservation and management objectives and the maintenance of an economic activity based on the harvesting of local marine resources. The involvement of fishers, Park staff and scientists plays a crucial role, particularly for scientific monitoring, catch reporting (fishing logbooks filled in for over 20 years at Port-Cros), sample collection and the development of relevant protocols. The ground we’ve covered together over more than two decades makes it easier for us to take ownership of the decisions we make. The time required to implement such working methods and understand each other’s language is long, and the time needed for exchanges and collaborative work cannot be shortened.’

*Laurence Le DIRÉACH,
research and administration officer at GIS Posidonie (France)*





B/ HOW CAN YOU BUILD A SPACE FOR DIALOGUE AND CONDUCT A JOINT ASSESSMENT?

So you have decided to embark on a territorial initiative, identified the stakeholders and actors to involve, while being aware of certain difficulties you may encounter in the process, such as differing languages, issues, and constraints, or sometimes a lack of trust. And still, you have managed to bring together a number of actors, and are preparing to embark on a collective effort. The first steps will consist of ‘breaking the ice’, so that **the actors can participate and interact with one another, and also each person gets accustomed to the other’s perspective**. Subsequently, you will be able to **undertake a joint diagnosis, to co-construct a shared vision of the issues, problems and objectives**.

a. Building a space for dialogue

The relevance and effectiveness of measures for the sustainable management of economic activities - beyond the diversity of local actors involved (natural area managers, local authorities, elected representatives, businesses, associations, etc.) - **depend on discussions and concerted efforts**. These are essential **to explain the measures supported and approved** by a majority of stakeholders. To achieve this, it is vital to **develop a shared culture between managers of natural areas and economic operators**. In this context, it is important to organise opportunities for informal and friendly exchanges (shared meals, coffee breaks, site visits...) and playful activities (ice-breakers) that allow as many people as possible to feel comfortable interacting with other economic operators.



To kick off a discussion session while fostering mutual understanding among stakeholders, a **5 to 15-minute icebreaker** can help build a sense of group cohesion. These games should be chosen according to the objective to be achieved and the context of the workshop. When choosing an icebreaker, it is advisable to take into account: the size of the group, the desired energy level, the time of day, as well as the objectives of the workshop, e.g. getting to know each other, developing creativity, group cohesion or doing things together. Here are a few examples:

- ❖ **Five islands - group cohesion:** Draw or represent on the ground five islands large enough to hold all the participants. Ask each participant to choose which island they would like to live on. Each group chooses a name for its island. With climate change, islands gradually disappear. So the inhabitants of the submerged islands must move as quickly as possible. The host announces the name of the island that is disappearing. The participants run towards the other islands, until everyone is squeezed onto the last remaining island.
- ❖ **The spider's web - linking the actors:** the facilitator throws a ball of wool to a participant, saying their name and keeping the end of the wool. Each participant does the same with another participant, holding one end of the wool, and so on. The final result is a large spider's web, held by all the participants. Then you go the other way, winding up the ball of wool and calling out the name of the person you are throwing it to. It helps to develop the spirit of networking and interdependence.
- ❖ **Sensitive geography - getting to know each other:** Participants are invited to position themselves on a map of the area, using characters, flags, tokens, etc. They position themselves according to the leader's request, for example, at their place of activity. They introduce themselves (surname, first name, profession) before positioning themselves and justify this positioning in relation to their economic activity. The cartographic tool used as an icebreaker can then be used to delimit areas at stake, areas of user conflict, emblematic heritage or strong elements of the landscape. This helps create a connection with the territory.



3

Often at opposite ends of the spectrum, **these stakeholders also need to get to know and understand** each other in order to exchange ideas. In this way, **educational tools** enable stakeholders to discuss the links between nature and society. In this way, economic operators learn about the challenges of conservation and the impact of their practices on biodiversity, while managers learn about the challenges of economic development, local employment and the profitability of their activities.

3 Example of an icebreaker 'Sensitive geography' (© Olivier COURBON)

The 'Palaver Tree' is an example of an educational game for the general public, focusing on the relationships between nature and society through the various representations of a tree. The game aims to reconstruct the interactions between human activities, animals and the different parts of a symbolic tree. The idea is to spark a discussion between the actors - who can be up to 12 - to afterwards analyse the exchanges that took place during the session and to look at the board once completed from different perspectives (protected area manager, tourist, farmer, rights holder, local elected official, forester, conservationist). Developed by the MAB France association, it is a genuine tool for dialogue and consultation, available on their [website](#).

‘As part of the Caribbean Island Biosphere Reserves Youth Forum, participants from Martinique (France), Guadeloupe (France), Bocanao (Cuba), North-East Tobago (Trinidad and Tobago) and the island of Cozumel (Mexico) were invited to discuss the different usages of the White Gommier (*Dacryodes excelsa*), a tree found on several Caribbean islands. They were able to discuss conflicts of use and the formalisation of the socio-ecological system with resources (wood, fruit, sap, birds) and users (forester, fisher, religious representative, basket maker, hunter, conservationist...). The discussions then made it possible to identify the characteristics specific to each island, but also those shared throughout the Caribbean arc. As the young people were in a variety of professional situations (tourism, protected area managers, audiovisual, communication, cultural mediation), this approach led them to share their perspectives and develop a common culture on the subject.’

*Alice ROTH - Project manager
at Association MAB France*



4 Game session Palaver Tree during the Caribbean Youth Forum (© Alice ROTH)

Now that the stakeholders feel comfortable enough to actively participate in the discussions, and have become familiar with ‘the other’ and ‘their world’, you can begin a joint diagnosis.

b. Co-designing a diagnosis and a shared vision of the territory

The diagnosis stage will be a first step in building a common and shared understanding of the situation. A **diagnosis** is a situational analysis of a specific area or territory. It involves **identifying the stakeholders, their expectations, the issues, strengths, weaknesses, threats, key issues, etc.**, focusing on the desired aspects (environmental, social, or economic). A complete diagnosis enables us to **understand the present**, but also to **make connections with the past**, while **envisioning what is possible and what the future holds**. The Centre de coopération internationale en recherche agronomique pour le développement (CIRAD) completes this definition by adding that it is **‘one of the steps** in the process of a territorial participatory approach - which goes beyond a simple socio-economic assessment - **to mobilise collective efforts in support of the project, to coordinate actions, identify points of disagreement, build consensus**, and ultimately enable the collective management of shared resources. This diagnosis must therefore be carried out with the economic actors, but it should be noted that **a participatory diagnosis will be biased by the skills of the participants, their views and experiences**. It will therefore be necessary to take a step back and gain some distance to identify what stems from misperception or misunderstanding, and what is factual.



As natural coastal areas and islands are part of a complex socio-ecosystem that depends on the representations and perceptions of the various stakeholders in the area, the diagnosis must be carried out independently and pragmatically, giving priority as far as possible to a rigorous scientific and technical approach. **The use of a neutral third party (expert, mediator, etc.) will help ensure an unbiased diagnosis** and overcome any disagreements or divisions between certain stakeholders in the area. **Using a sensitive map or a Chinese portrait**, allows open discussion about the area to highlight important atmospheres, values and sensations to take into account if we are working on the spirit of the place.



‘Having an external actor accompany you in carrying out the territorial diagnosis promotes dialogue and sharing between stakeholders. The third-party approach helps overcome the tensions that sometimes exist and provides a neutral viewpoint.’

*Marika ARABI-ONNELA, Sustainable Tourism Officer,
Grands Sites de France (France)*



‘As part of the Caribbean Island Biosphere Reserves Youth Forum, young people were able to take part in a workshop - Imaginary Islands, using a sensitive map approach. Each group was invited to draw an imaginary island and represent its issues, based on their life experience, the initiatives they had heard about, and the issues they had faced in both professional and personal contexts. Employment, education, access to resources, water and soil pollution, mobility, and cultural identity emerged on all the imaginary islands as cross-cutting issues across the Caribbean arc.’

Alice ROTH - Project Manager
Association MAB France



Other tools can help develop an inventory of the economic practices of an area and their compatibility with the protection of natural heritage. These can replace the use of a **SWOT matrix** (Strengths, Weaknesses, Opportunities, Threats) which summarises:

- strengths, as the internal resources held by the territory and which can be assets,
- strengths, as the internal resources that are lacking or insufficient,
- opportunities, which are external trends likely to benefit the territory,
- threats - the external trends likely to negatively affect the territory.

Among the other tools that can be used to develop a participatory diagnosis, we can mention:

- **participatory mapping:** to define uses and understand their spatial distribution;
- **the power-interest matrix:** to place stakeholders on a matrix according to their power (influence) and interest (level of concern) regarding a project;
- **the activity compatibility barometer:** to assess the compatibility of activities in relation to the ecological value of the territory;
- **the speed-boat:** to develop a continuous improvement approach based on the levers, barriers, strengths and weaknesses of a project or activity.

Your goal in this diagnostic process is to **jointly build and validate a shared understanding of the territory**. Based on this shared foundation, you can then - **always together** - **define the common challenges to be addressed**, and begin outlining the actions to be implemented.

5 Imaginary Islands Workshop - Caribbean Youth Forum (© Marion Rous).

FACTSHEET N°. 25

CHALLENGES TO BE ADDRESSED

- ▶ **Approximate duration:** 60 min
- ▶ **Number of facilitators:** 1 per table
- ▶ **Number of participants:** 6 per table
- ▶ **Materials:** paper, pens.

GOALS:

- ❖ Identify the participants' motivating factors.
- ❖ Define the participants' needs to help their activities evolve.
- ❖ identify the challenges to be addressed in terms of sustainable economic development.

PREPARATION:

Print individual sheets with the 3 questions above.

PROCEDURE:

Participants are placed in groups of six with a facilitator who moderates the discussion. They are then invited to answer the questions in step 1, which will enable a round of introductions in step 2.

A challenge is defined as: an intention - whether individual or collective - to respond to a complex situation for which no solution has been identified, by proposing an unusual and inclusive approach involving stakeholders. These identified challenges should help drive the evolution of economic practices. They are what we must focus on, anticipate, and act upon.

◆ Step 1: Individual reflection (10')

Participants are invited to reflect individually on the following questions:

1. Who am I? (Identity, origin, profession)
2. What motivated me to come today?
3. Today in my business, I need to succeed in
4. Beyond my business, what challenges do I think need to be addressed to develop a sustainable economy in the territory?
5. What is my superpower that could help take up these challenges?

◆ Step 2: Sharing and compiling answers (20')

After reflecting individually, participants share their answers. Each person talks about their motivations, their needs/achievements, as well as the challenges that come to mind. All this information is written down on post-its (one idea per post-it), and the challenges are then laid out on the table.

◆ Step 3: Grouping the challenges by topic (10')

Once all the challenges have been expressed, a grouping by topic is proposed in each group. Some challenges may be merged if they are similar.

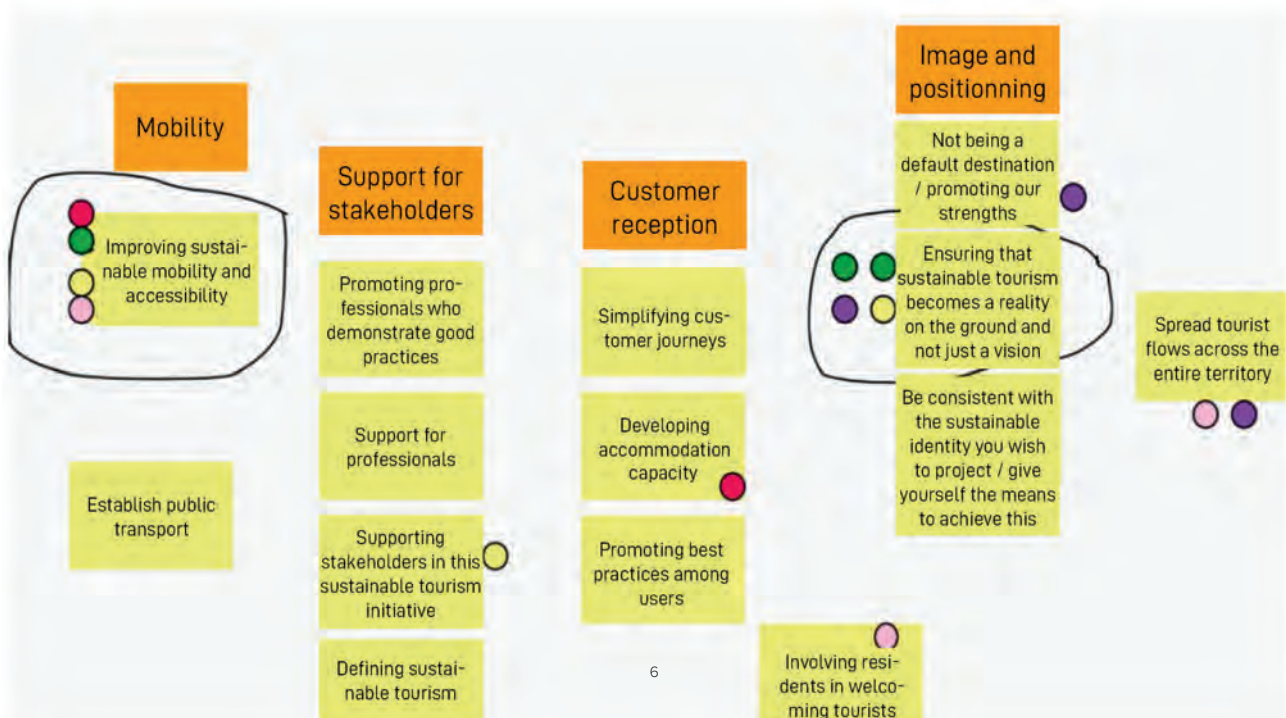
[FACTSHEET N° 25]

◆ **Step 4: Prioritising the challenges by group (10')**

Once the challenges have been grouped, participants are invited to identify the two top priorities from their group. To do this, they use stickers (three per person). If there is a tie between two challenges, a discussion is held to decide between them, so that only two priorities are agreed upon.

◆ **Step 5: Feedback (10')**

To conclude, each group gives an oral summary of the 2 priority challenges it has selected to all the participants. These challenges are areas of work on which managers can build on to support the transition of the territory's economic sectors⁶.



⁶ Example of identification, grouping into themes and prioritisation of the challenges within the framework of the sustainable tourism strategy of the Regional Park of Pilat in France - online workshop

FACTSHEET N° 26

THE SPEED BOAT

- ▶ **Approximate duration:** 1.5 to 2 h
- ▶ **No. of facilitator:** 1 per group
- ▶ **No. of participants:** 10 per group
- ▶ **Materials:** flipchart paper, 4-colour post-it notes, markers

OBJECTIVES:

- ❖ Identify the drivers, barriers, strengths and weaknesses of a project or an activity;
- ❖ Adopt a continuous improvement approach on a given topic;
- ❖ Shape common objectives for the team, as well as individual objectives.

PREPARATION:

Prepare the flipchart support beforehand.

WORKSHOP FLOW:

A facilitator guides participants through the stages of the workshop and moderates the discussion.

◆ Step 1: Presentation of the speed-boat (10')

The workshop is an opportunity to launch a project, using the metaphor of a sailing boat to visualise the course you wish to set for a territorial approach. The facilitator first explains the elements drawn on a sheet of paper including:

- ▶ The **boat**, symbolising the teams embarked on the project;
- ▶ The **island**, representing the goal to be reached - the destination of the boat;
- ▶ The **anchor**, representing the obstacles that prevent it from reaching the island – these are the elements we know we will have to deal with;
- ▶ The **wind**, which symbolises the forces that play in favour of the project;
- ▶ The **rocks**, i.e. the dangers to be avoided. These are the risks likely to disrupt the smooth progress of the project.



[FACTSHEET N° 26]**◆ Step 2: Individual reflection (15')**

Participants prepare one or more post-it notes with key words for each element. If the group is large, it will be necessary to set a maximum number of post-it notes per person to avoid information overload.

◆ Step 3: Presentation of ideas by the participants (45')

One by one, participants share and explain their ideas, then place their post-its on the sheet near the different elements of the drawing. The facilitator ensures that everyone has a chance to speak and that no one is interrupted. Everyone should have the chance to share their ideas.

◆ Step 4: Prioritisation and joint decision on next steps (30')

Once all participants have expressed their opinions, the facilitator groups the post-its by topic. Each participant votes on an issue which they believe is important to discuss. Participants choose one or more strengths and weaknesses that stand out (a vote can be held to reach an agreement), with the aim of collectively identifying ways to improve the project, overcome difficulties, or enhance its strengths. This will help define actions to successfully reach your destination!



FACTSHEET N° 27

COMPATIBILITY BAROMETER

- ▶ **Approximate duration:** 1h30
- ▶ **Number of facilitators:** 1 per group
- ▶ **Number of participants:** 8 max per group
- ▶ **Materials:** markers, pen, grid and fictional map

OBJECTIVES:

- ❖ Identification of the economic activities present in an area;
- ❖ Identification of the impact of activities on the environment;
- ❖ Determine compatibility with the preservation of natural resources.

PREPARATION:

Preparation of maps.

WORKSHOP FLOW:

Participants are divided into groups. Each table is provided with a fictional map (drawing of a landscape) or a real map (map of the area), enabling them to work on the spatial distribution of economic uses.

◆ Step 1: Inventory of economic activities (20')

The participants are invited to make an inventory of all the socio-economic activities, all economic sectors and recreational uses present in the area. They must map them by type of environment, or in detail.

◆ Step 2: Identification of impacts (30')

For each use, participants identify the possible impacts of the various activities, whether on species or environments. If the impacts can be located, participants are invited to represent them on the map by creating an appropriate legend and recording them in the analysis grid. This analysis is carried out independently of the protection status of the areas.












[FACTSHEET N° 27]

◆ Step 3: Compatibility between uses and protection status (40')

Participants are invited to reflect on the compatibility of uses, assuming that the area is or could become a protected area. Thus, for each use or sector, participants are invited to reflect on whether the use is:

- COMPATIBLE (specify the conditions under which the activity may be compatible)
- INCOMPATIBLE
- CANNOT BE ASSESSED (insufficient data or knowledge)⁷

Uses / Activities / Sectors	Possible Pressures and Impacts 	Compatibility with a Protected Area? 	
SWIMMING ZONE	Noise impact, tranquillity Disturbance to fauna and flora Aesthetic/landscape impact Health and hygiene impact		COMPATIBLE ➤ Limited use ➤ Compliance with regulations
OFFSHORE FISHING	Loss of biodiversity Habitat fragmentation Impact Noise, disturbance to fauna and flora Pollution/waste (plastic, CO ₂ , chemical discharge)		COMPATIBLE ➤ Certified vessels and limited motorisation ➤ Permits (control of use) ➤ Tonnage limits, vessel checks ➤ Vessel control
TRANSFORMATION	Aesthetic/landscape impact Pollution/waste (plastic, CO ₂ , chemical diffusion) Health and hygiene impacts		INCOMPATIBLE
AQUACULTURE	Noise, disturbance to fauna and flora Biodiversity erosion Habitat fragmentation Aesthetic/landscape impact Pollution/waste (plastic, CO ₂ , chemical diffusion), introduction/ increase of invasive alien species (IAS) Health and hygiene impacts		INCOMPATIBLE
FRESHWATER FISHING	Introduction/increase of invasive alien species (IAS), depletion of resources		COMPATIBLE ➤ Compliance with regulations, ➤ Quotas



⁷ Example from the implementation of the national protected area strategy in Mayotte © R. Cyrielle Grouard

C/ HOW CAN WE ENCOURAGE CHANGES IN PRACTICES?

To develop sustainable economic activities that are compatible with the conservation of the natural heritage you have collectively identified or wish to promote, it is essential to communicate the value of good practices through awareness-raising and training for economic operators. It is important to imagine the future of these activities through the lens of global changes (climatic, social and environmental), to support them in the transition and encourage commitment to various engagement schemes (brands, labels, charters ...) by creating a working community.

a. Envisioning changes in sectors to support their adaptation

The aim of **territorial foresight work** is to imagine the future of the economic activities in the area. Actors can, for example, look ten years ahead in a context of rising sea levels, coastal retreat, the effects of climate change, and evolving social expectations to classify activities into different categories. In this way, activities can be classified into the following categories (non-exhaustive list):

- ❖ **Those that will disappear:** activities that cannot adapt. They are not flexible enough to enter into a transition and are not compatible with heritage preservation and current regulations;
- ❖ **Those that can evolve:** activities that need to modify their practices. This requires support to reduce impacts;
- ❖ **Those that will have to be relocated:** locations that are no longer compatible with the preservation of environments and climate change constraints. It is necessary to envision a retreat of the coastline and a different use of the space;
- ❖ **Those that will emerge:** in contexts of societal and environmental change, new practices may develop: new forms of tourism and recreational uses, new forms of resource exploitation (algae, agroforestry, aquaculture...). This requires special consideration of the role of new activities and economic innovations in the territory. What role should they play? How much room is there to experiment?

Land use on the territory can have positive or negative impact on natural heritage. Economic activities have shaped the most emblematic landscapes of island and coastal areas over time, such as ports, salt marshes, terraced farming, fish locks, oyster beds, etc. Some of these modifications have led to the development of rich and precious natural areas resulting from the joint work of humans and nature. But other uses have destroyed natural areas and still generate pressure on natural areas today.

To envision the future of an area and its sectors, **one useful tool is an educational simulation game (serious game)**, which allows participants to test and expand their knowledge of sustainable development while providing a dynamic framework for discussion among stakeholders.

It is an ideal tool for leading meetings, training courses and workshops. Developed as part of the SMILO programme, by the Conservatoire du littoral, the serious game 'SUSTAINABLE ISLANDS' makes it possible to simulate a process of planning and concerted governance of island territories with the aim of constructing a coherent project with a common objective, while simultaneously achieving the individual objectives linked to the characters they embody (representatives of the commune, managers of natural areas, representatives of the tourism sector, representatives of fishing and agriculture, associations of the island's inhabitants,...). These members build the island committee, which is responsible for planning the future of the area with the aim of obtaining the international 'SUSTAINABLE ISLANDS' label.

To obtain the label, the island committee must collectively propose a project based on the planning of operations relating to 5 themes:

- ❖ **WATER:** properly manage supply / optimise consumption / manage the storage and routing of freshwater / improve wastewater collection and treatment networks;
- ❖ **ENERGY:** increase energy efficiency / promote renewable energies / reduce dependence on fossil fuels;
- ❖ **WASTE:** Reduce waste generation at source / collect, store, sort, treat and recycle waste;
- ❖ **BIODIVERSITY:** guarantee the preservation of the quality of ecosystems, for example by controlling uses that have an impact or by restoring degraded ecosystems;
- ❖ **HERITAGE:** preserve and enhance the tangible (natural, historical, ...) and/or intangible heritage (traditions and know-how, ...).

Another possible approach is the **time-based (diachronic) workshop**. Focusing on the evolution of uses in a territory over time, including long time spans (several periods), it allows participants to trace the history of these activities, assess their current role, and then imagine how these uses may evolve in the future. The desired changes to activities envisioned by the group will lead to the development of an action plan to help sectors adapt through the transition.

As part of the ADAPTO (Life) project led and implemented by the Conservatoire du littoral (France) between 2017 and 2022, various tools were used for this type of time-based (diachronic) representation, such as the use of 2D or 3D landscape drawings by artists or landscape designers, or using ropes on the ground, or 'poles' to illustrate the future coastline or the necessary height of dykes to combat flooding. The purpose is to encourage participants to reflect on probable or possible futures and to assess the adaptive capacity of stakeholders and the resilience of environments : How should these areas be used? How can alternative modes of occupation be invented? Where should space be left for nature? Where should investment go? How should practices change? Between resisting, enduring, or adapting, participants are invited to imagine the future of uses, developments, and practices in the context of rising sea levels and coastal erosion⁸.



⁸ Consultation workshop as part of the Life ADAPTO programme: looking ahead to 2050 based on possible futures for the Bay of Lancieux (© Conservatoire du littoral)

FACTSHEET N° 28

CHANGES IN USES

- ▶ **Approximate duration:** 1h30
- ▶ **Number of facilitators:** 1 per table
- ▶ **Number of participants:** 6 to 8 per table
- ▶ **Materials:** map of the area, table with 4 columns (activities, past, present, future), pen and marker.

OBJECTIVES:

- ❖ Define the evolution of activities in a diachronic analysis (past, present, future);
- ❖ Define the evolution of the spatial footprint of uses and areas of conflict or overlap with ecological issues;
- ❖ Imagine actions to support stakeholders in their transitions.

PREPARATION:

Print out aerial photographs of the area, draw up a list of economic activities to be addressed

EXECUTION:

The participants are divided into different groups and must reflect on the evolution of economic activities in the area. Each group must then deal with one economic activity. The proposed map of the area is an aerial photograph to help participants project themselves and visualise their ideas. If the areas with high ecological value are known, they can also be shown on the maps. Participants are then invited to answer the questions in 4 stages:

◆ Step 1: The past (15')

- ▶ When was the activity established?
- ▶ How did these activities modify the landscapes (salt farming, terraces, infrastructure)?
- ▶ Was it then compatible with the conservation of environments and species?

◆ Step 2: The present (40')

- ▶ What is the current situation of this activity?
- ▶ What positive or negative impact does it have on heritage?
- ▶ Where does the activity take place today? How does it impact natural and cultural heritage? Is it compatible with the preservation and conservation of natural areas?

◆ Step 3: The future (30')

- ▶ How might this activity evolve over the next 10 years?
- ▶ How will its use of space evolve?
- ▶ What positive or negative impact will it have on heritage in 10 years' time?
- ▶ What objectives should be set to reconcile conservation and development?
- ▶ What do professionals need to engage in the transition?

[FACTSHEET N° 28]



9

In this way, professionals will enable managers to support economic operators. Sectoral transition will in particular involve the following types of action:

- ❖ Raising awareness among actors about natural heritage and the impacts of their activities on the natural areas that support them;
- ❖ Training and skills development to improve practices;
- ❖ Developing eco-responsible initiatives;
- ❖ Developing a community of practice to share sustainable approaches.

Subsequently, **participatory prioritisation of actions is always an important stage. For this, the Eisenhower method or priority matrix** can be used. First note down on paper the various actions that have been raised during the discussions, then position them along the axes of urgency and importance:

- ❖ Actions in the 'Urgent / Important' quadrant are the first priority;
- ❖ Actions in the 'Urgent / Less important' quadrant are the second priority;
- ❖ Actions in the 'Less urgent / Important' quadrant are the third priority to plan to work on them later;
- ❖ Actions in the 'Less urgent / Less important' quadrant must be eliminated.



9 Workshop on the evolution of economic uses in the coastal communities of CapAtlantique La Baule-Guérande Agglo (France), in the context of a UNESCO application - the areas in red on the map are biodiversity hotspots (© Olivier COURBON)

[FACTSHEET NO. 28]

‘Although the Grand site des gorges du Gardon is not a coastal or island natural area, the SMGG’s experience can indeed be replicated. The SMGG aimed to create favourable conditions for the balanced development of river-based leisure activities compatible with the protection of the site. The preparation of a concerted development plan for sites dedicated to canoeing-kayaking in the area was finalised in December 2019. Since then, the ‘river governance’ has provided collective solutions in terms of safety, information and communication. This approach assumes the involvement of each local actor according to their respective fields of competence (rental companies and sports federations, tourism professionals, local authorities, institutions, etc.). The committee meets once a year, outside the active season, and is led by the syndicate. Its work is informed by the discussions and findings of thematic working groups focused on waterway navigability and communication. This work has highlighted the need to coordinate strategies for development, communication, organisation of practices and actors (socio-professional stakeholders and tourism promoters). Shared governance is essential for creating connections, fostering dialogue and trust, and defining a common narrative’

*Stéphanie FERRIER - Grand site project officer,
Syndicat mixte des gorges du Gardon (France)*



10



11

10 Governance 2022 in Collias (Gard), (©,S,Houdemon).

11 Educ'tour 2021 bringing together rental companies, accommodation providers, tourism offices, the Occitanie Region, (©,S,Houdemon).

b. Train and develop the skills of economic actors

Alongside communication, training operators is an effective way to change practices. Indeed, supporting operators in developing their skills is a key factor in improving practices by modifying processes and ways of working.

‘The manager trains the economic actors present in the area, raising awareness of nature conservation among businesses and local communities. Partnerships are established with schools, universities and research bodies to encourage environmental education. Training local guides is one of the main levers for achieving this objective’

*Nathanaël HERRMANN, Project Manager,
Parc du Marquenterre (France)*



Positive initiatives demonstrate the **effectiveness of training**. The Beninese association Nature Tropicale ONG, for example, whose mission is to promote the conservation and rational use of biological diversity, develops initiatives with local communities to empower them for the sustainable management of natural resources in their areas, in compliance with national, international and even customary regulations.

In Benin, the NGO is successfully piloting the Savings for Change (SFC) concept with women’s groups, aiming to boost resilience and facilitate asset accumulation at the community level.



‘The women, trained in 2022, have benefited from support for income-generating activities and capacity-building in women’s leadership, creativity, entrepreneurship, and in the restoration and preservation of ecosystems and endangered species. Today, they carry out activities to protect marine turtles and the African manatee in the Lower Ouémé Valley and Mono Delta Biosphere reserves and in Benin’s marine protected areas. They are actively involved in cleaning up beaches (collecting plastic pollutants that affect the marine environment and sea turtles). From a social, economic and environmental point of view, these different practices present co-benefits: thanks to training and women’s groups, the participants work together for their well-being, but also to safeguard endangered species and endangered ecosystems. They are also involved in a range of income-generating economic activities. As a result of their commitment, they have become the guardians of the marine and coastal resources in their community, while developing their economic activities.’

*Marie DOSSOU-B DJENGUE, wetlands programme manager,
Nature Tropicale ONG (Benin)*



The implementation of a co-designed training plan can and should enable stakeholders to express both their own needs and those of other local stakeholders. In this way, the skills of operators must be developed to reduce the impact of activities on natural areas and reduce pressures and strengthen the benefits of conserving natural areas.



FACTSHEET N° 29

PARTICIPATORY TRAINING PLAN

▶ **Approximate duration:** 1h30

▶ **Number of facilitators:** 1

▶ **Number of participants:** 6 max per table

▶ **Materials:** training sheet, pen, sticker

GOALS:

Define and prioritise a training plan for economic actors, and identify local skills that can be used to train them.

PREPARATION:

Aerial photo print of the territory to be addressed.

EXECUTION:

Participants are divided into groups to reflect on the development of a training plan. It is preferable to set up homogeneous groups in terms of sectors of activity, so each sector can reflect on these needs. However, to enable participatory prioritisation, all participants should vote on all the proposals. This will make it possible to pool training courses that can attract different sectors.

◆ **Step 1: Brainstorming and sharing of common needs**

An initial brainstorming session will allow participants to individually assess their training needs to improve their business practices. Participants then present these to the group and organise them by training topic.

◆ **Stage 2: Implementing the training courses**

Participants are then invited to operationalise the training courses identified during the brainstorming phase. To do this, they work in groups to fill in blank training forms, which include the following elements: training title, target audience, coordinating organisation, potential trainer (particularly drawing on local expertise), learning objectives, implementation schedule, format (online, in-person, field-based), duration, required level, and so on.

◆ **Step 3: Participatory prioritisation of training courses**

Finally, the training course sheets are displayed and the participants are invited to prioritise the training courses using stickers. Each participant can vote for 3 courses.

13



c. Organising educational tours (Educ'tours) & practical workshops to draw inspiration from successful initiatives

In order to exchange good practices and draw mutual inspiration, it is essential to develop opportunities for dialogue and field meetings. **Organising educational tours** by sector is a good way to support operators' transition through professional-to-professional dialogue. These events, which can be organised within establishments committed to transition, provide tangible opportunities to demonstrate the eco-responsible practices that can be implemented to improve their activity. Professionals are more receptive to approaches presented by their peers.



14

Converting economic operators also involves raising their awareness. Thus, setting up **exchange days** between ecologist/conservation professionals and economic operators should make it possible to mainstream nature protection in practices, while disseminating and better communicating about natural heritage. The following types of exchange can be envisaged:

- ❖ Bird ringing sessions or wildlife inventories;
- ❖ Ecological restoration work (mangrove planting, removal of invasive exotic species, etc.);
- ❖ Restoration of cultural heritage (low walls, coastal paths, etc.).

On the island of Sifnos (Greece), training courses and exchange workshops were organised on the heritage associated with dry stone construction. These courses made it possible to restore a pilot area on the island with the following actors: craftspeople, farmers and young people from Sifnos, architecture students and interested actors from other islands and similar initiatives (Amorgos, Tinos, Kythnos, Serifos, Koufonisia, Mykonos, etc.). The aims of these workshops were to transfer knowledge, know-how and various practices relating to dry stone and to exchange experiences for the preservation of dry stone heritage on the Cyclades islands.

14 Meeting with professionals (farmers, craftspeople) involved in the transition of their practices on the Guérande peninsula - France (© Alice ROTH)



15

These meetings, which take place in a **less formal setting** than classroom training courses or workshops, help to build a community of practice around heritage protection. These practical exchanges provide tangible demonstrations of issues related to environmental degradation and sectoral transition, enabling collective skill-building to support the preservation of natural and cultural sites.



15 Practical training on techniques for restoring terraces, low walls, and other dry stone constructions in Sifnos - Greece (© SMILO - Small Islands Organisation)

d. Engaging in an eco-responsible approach

Encouraging the adoption of more environmentally-friendly practices helps to anchor them more durably, as well as to strengthen economic actors' commitment and ambition. Interviewed actors working in coastal and island natural areas frequently mentioned the use of tools such as **commitment charters, labels, and brands**. These tools are valuable for several reasons:

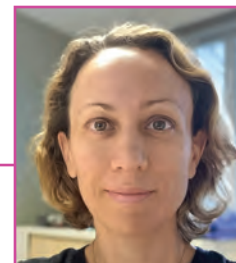
- ❖ Users are increasingly aware of environmental issues and attentive to the commitments of economic actors; and adopting a label or charter provides a guarantee of quality and greater visibility compared to competitors. For example, in the case of the 'Lagoon ambassador' label awarded by the South Province local authority in New Caledonia, economic actors wishing to obtain the label must formally comply with several criteria, including - adapting their practices to the principles of responsible tourism, committing to an outreach approach to raise awareness and promote the protection and enhancement of marine ecosystems among customers, registering for and then attending all the training courses provided by the South Province, taking and passing the corresponding exam, and signing and committing to comply with the clauses of the dedicated charter governing their economic and tourism activities.





‘The ‘Lagoon ambassador’ Charter recognises economic actors who are trained in and committed to protecting, enhancing and promoting the biodiversity of the lagoon, offering water-based and tourism activities and who uphold the values associated with this heritage. It calls on signatories to respect its principles and promote them to their customers.’

*Claire GUEUNIER, Deputy Head of Protected Area Management,
Collectivité de la Province Sud (New Caledonia, France)*



Often the result of participatory dialogue between local stakeholders, charters set out principles for action and rules that the signatories undertake to follow. However, it is important to offer the possibility of reassessing the commitments made, for example when the charter is up for renewal.

‘A charter for the responsible practice of seal observation and discovery activities was introduced in 2023 after two years of consultation. This charter concerns providers of nature discovery activities, sports sector representatives, environmental associations... Members undertake not only to respect the good practices gathered, but also to train regularly to provide their customers with reliable information. However, like the reserve, even though a charter defines a set of basic rules, it must remain flexible to allow specific local adaptations.’

*Nathanaël HERRMANN,
project manager at Parc du Marquenterre (France)*



Faced with the abundance of labels, brands, charters, certifications, etc. - in France, in the tourism sector, there are more than 50 types of labels or certifications - managers need to **be vigilant** and refer to their own requirements. To preserve natural coastal and island areas, they are the only ones authorised to approve or refuse the implementation of an economic activity, based on the regulations in place and the dedicated charter.

To encourage all stakeholders to adopt sustainable practices, managers can also draw, to some extent, **on marketing techniques** to ‘sell’ their vision of territorial management. To promote nature-friendly practices and influence behaviour (among users, consumers...), managers and their economic partners (e.g. economic interest groupings - EIGs, cooperatives, companies of all sizes, chambers of commerce and industry, local authority economic departments) can **conceive and propose a marketing strategy** (product policy, communication, pricing, public relations...), to design products and services consistent with the principles of preserving coastal and island natural areas. Unlike traditional marketing, **demand should not drive supply**. Supply should determine demand, while trying to respond continuously to needs and expectations (market research, qualitative and quantitative studies, trend analyses - to be conducted) expressed by economic actors, users, consumers...





EXAMPLE OF FORMALISING A CHARTER OF COMMITMENT: SCUBA DIVING CHARTER



In line with the objectives and regulations of the Calanques National Park, the Park aims to:

- ❖ ensure the preservation of the exceptional natural landscape and cultural heritage of the seabed of the Calanques National Park,
- ❖ involve scuba diving structures and practitioners in eco-responsible practices, respectful of their environment and other users,
- ❖ act jointly to ensure the sustainable management of these activities and the sites visited, with a view to addressing the issue of ecosystem carrying capacity,
- ❖ to involve users in the acquisition and development of knowledge about changes in habitats, species and uses in the park,
- ❖ to inform and raise public awareness of the richness and fragility of the marine environment.

The Calanques National Park developed this charter proposal in collaboration with the towns of Marseille, Cassis, La Ciotat and Saint Cyr-sur-Mer, the Bouches-du-Rhône Departmental Council, the Provence Alpes Côte d'Azur Region and the Rhône Méditerranée Corse Water Agency, with the support of the Fédération Française d'Etudes et de Sports Sous-Marins (FFESSM) and the collaboration of the Fédération sportive et gymnique du travail (FSGT) and the Association Nationale des Moniteurs de Plongée (ANMP).

By signing the Charter¹⁷, the representatives of diving associations and professionals undertake to reduce their environmental impact and adopt practices that promote the protection of marine ecosystems throughout their activities:

- ❖ mooring techniques for boats that do not damage the seabed,
- ❖ control of their movement underwater,
- ❖ minimisation of lighting, noise and any other potential disturbance of species,
- ❖ appropriate treatment of their waste,
- ❖ raising awareness among divers.

They also undertake to respect other users, share their quantitative data on dive site use with the Park and to take part in collecting environmental observations. In return, as responsible actors committed to implementing sustainable practices, they will benefit from the visibility of the Calanques National Park's partners, benefit from visibility on the Park's website and from communication tools (websites and Facebook pages) designed and provided by the Park.

¹⁷ Scuba diving charter: <https://www.calanques-parcnational.fr/sites/calanques-parcnational.fr/files/atoms/files/charte-plongee-parc-national-calanques-marseille-cassis-la-ciotat.pdf>



‘To date, three types of leisure-related economic activities are Espace Public Numérique [Digital public space] (EPN)-certified: guided nature walks, boat tours and a youth hostel - the only one located in the heart of the Park. The brand aims to promote products and services from activities (tourism, agriculture, crafts) carried out in national parks that are part of an ecological process benefiting in particular the preservation or restoration of fauna and flora. These products and services must align with the character and values of national parks, promoting the appreciation and discovery of natural, cultural, and landscape heritage, while respecting the fundamental principles of sustainable development. The EPN label is awarded following an audit which assesses compliance with a number of criteria relating to the service provider’s eco-responsible approach (waste management, energy consumption, water use, noise pollution, etc.), its involvement in raising public awareness of the environment and the region, its participation in economic and social policy (accessibility in particular), its inclusion in the ‘spirit of the place’ and its contribution to heritage protection. [...] If the economic activity project owner is very committed to and shares the Park’s values, they may be offered the opportunity to apply for membership of the Esprit parc national (EPN) label. The specific context of the Calanques National Park, with very few productive activities of an agricultural or craft nature in the heart of the park, limits the economic activities that can be labelled. More than a brand, this labelling helps guide consumers (tourists) towards service providers who guarantee a certain level of quality and involvement with the Park.’



Frédérique FIGUEROA - Head of the Public Welcome and Citizen Mobilisation Unit, Calanques National Park (France)



D/ MONITORING AND EVALUATING THE PROGRESS OF ACTIVITIES TOWARDS SUSTAINABILITY

People and their activities exert pressure on ecosystems and modify their quality and integrity. Society responds to these changes with various protective measures or modification of practice. To assess the relevance of the implemented measures, **setting up a monitoring and evaluation system makes it possible to measure the progress and real impact of the actions undertaken** to protect and/or manage ecosystems and biodiversity, and of the transition approaches developed by economic actors. Implementing monitoring **strengthens stakeholders' commitment to their transition efforts, or alerts them if commitments or targets are not being met.**

The participatory definition of indicators based on the identification of the issues at stake helps anchor actors in action to drive the transition of their sectors. What is key - regardless of the chosen path - is having a direction to follow. An economic actor who makes a commitment and succeeds in meeting these objectives is one more link in ensuring sustainability of coastal and island activities.

◆ Example: Definition of a participatory indicator for the protection of fishery resources (Togo)

The Mono delta transboundary biosphere reserve, shared between Togo and Benin, aims to combine nature conservation and the development of sustainable economic activities for eight priority sites, equally distributed in the south of the two countries.

To achieve this, management objectives were defined by participatory assemblies comprising the various legal right holders and stakeholders. These assemblies actively participated in the development of ecological monitoring indicators, by identifying management objectives for each territory and proposing resource monitoring indicators, following these steps:

- ❖ Participatory mapping of resources (identification and spatialisation) and practices (materials, seasonality of harvesting);
- ❖ Identification for each sector of functions (conservation, spiritual, development, education) and rules for resource use;
- ❖ Identification of resources that should be positively impacted by the modification of practices.

This work on identifying resources, mapping uses, and defining rules has made it possible to determine the biological indicators to be monitored and to understand how changes in the rules governing resource use help preserve them. **The indicators were developed with and for local people, with simplified protocols and reporting.**

As part of the Afito Hippopotamus Ponds Complex (Togo), within the transboundary biosphere reserve of the Mono Delta, resource and practice mapping helped identify overfished areas. Stakeholders believe the decline in fish stocks is due to the reduction of mesh size of nets. New rules of use have therefore been established: small-mesh nets are banned, allowing fish to reproduce before being caught.

A fisheries monitoring indicator is set up to track changes in the state of fish populations to preserve biodiversity and fisheries.



18

◆ **Example of implementation: Methods for evaluating and monitoring the commitments of eco-stakeholders (OUESSANT – France)**

The Charter of Commitment of Eco-stakeholders in Biosphere Reserves was developed by the MAB France association. It offers socio-economic stakeholders in the area (entrepreneurs, schools, associations, private companies, etc.) the opportunity to initiate a process to improve their practices in terms of sustainability and to have these recognised through a partnership with the Biosphere Reserve, in the form of a Charter. Initially developed within the French Biosphere Reserve Network, the approach has also inspired several sites abroad, such as the "Isle of Man" Biosphere Reserve and the "Dublin Bay" Biosphere Reserve.

Stakeholders freely commit to a general Biosphere Reserve charter, each choosing their commitments within the framework of criteria defined during the initial design phase. When the commitments are signed, the eco-actor and the Biosphere Reserve meet 3 years later to carry out an assessment and identify new objectives. The aim of this evaluation exercise is not to cast doubt on or minimise the efforts made by the eco-actor, but to support them in their approach to guarantee a real benefit for the territory's ecological transition.

Three evaluation formats are proposed:

- ◆ **Self-evaluation:** Each signatory carries out an annual assessment following their commitments and informs the facilitator of their progress. This method can be a preliminary step to the other evaluations that take place every 3 years.
- ◆ **Collective evaluation:** Every year, the coordinator organises a workshop to enable eco-actors to collectively assess their commitments.
- ◆ **Facilitated evaluation:** Every 3 years, the coordinator can visit or meet with the eco-actor to assess their commitments. Together, they fill in a questionnaire to assess the progress made and the difficulties encountered.

18 Photos. Co-construction of indicators for monitoring fish stocks (© Olivier COURBON)



J'AGIS DES ENGAGEMENTS RÉCIPROQUES

L'ÉCO-ACTEUR S'ENGAGE
Les valeurs communes qui réunissent l'ensemble des éco-acteurs :
Ces valeurs associent l'éco-acteur à progresser vers des pratiques plus durables et à favoriser les engagements.

L'éco-acteur a une responsabilité vis-à-vis du territoire et de ses patrimoines.
Il s'engage à réduire ses impacts sur l'environnement. Exemple : j'installe un récupérateur d'eau.

L'éco-acteur s'investit dans la vie locale.
Il participe à la qualité de vie insulaire et tisse des liens avec les habitants. Exemple : je crée un partenariat avec un autre éco-acteur ou une structure insulaire.

L'éco-acteur participe au dynamisme de la vie économique insulaire.
Par son ancrage local, il favorise le développement économique. Exemple : j'achète prioritairement des produits issus de l'agriculture insulaire.

JE M'ENGAGE :

- participer à la vie du réseau.
- en prenant part aux diverses rencontres
- en mentionnant ma participation au réseau dans mes outils de communication
- en faisant connaître les membres du réseau et leurs activités
- en diffusant la plaquette des éco-acteurs de la réserve de biosphère
- en ayant un contact régulier avec les animateurs du réseau
- et à proposer au moins 5 actions concrètes en faveur du développement durable à mettre en œuvre dans les 2 prochaines années, parmi la liste des 46 engagements à retrouver pages 15-18. Les années suivantes, je prendrai de nouveaux engagements.

POUR ALLER PLUS LOIN
Si je le souhaite, je peux proposer des engagements personnalisés qui me semblent adaptés pour favoriser le développement durable de mon activité. Les Parc peuvent m'aider à réfléchir et à les concrétiser!

LETTRE D'ENGAGEMENT DE L'ÉCO-ACTEUR DE LA RÉSERVE DE BIOSPHÈRE DES ÎLES ET DE LA MER D'IROISE

La Réserve de biosphère des Îles et de la mer d'Iroise encourage, accompagne et valorise les initiatives locales. Elle soutient les acteurs humains et le milieu naturel.

Les éco-acteurs de la Réserve de biosphère partagent les valeurs d'ouverture, de partage et de bienveillance.

Les éco-acteurs sont de véritables ambassadeurs de la Réserve de biosphère des Îles et de la mer d'Iroise. Ils partagent leur savoir et savoir-faire au sein du réseau éco-acteurs.

Je reconnais les valeurs de la Réserve de biosphère des Îles et de la mer d'Iroise et j'adhère. Je m'engage pour la préservation du milieu naturel et pour le développement durable du territoire en rejoignant le réseau des éco-acteurs.

Je m'engage à contribuer activement au réseau des éco-acteurs de la réserve de biosphère et à mettre en œuvre les engagements que je prends dans une démarche d'amélioration continue.

M. Didier Robin, Mme Emmanuelle Rasseleur, M. Fabien Boileau

MES ENGAGEMENTS INDIVIDUELS

Choisissez au moins 3 engagements dans les listes ci-dessous, dont au moins un engagement dans chaque thème.

THÈME 1 TERRITOIRE ET PATRIMOINES

OBJECTIFS	JE M'ENGAGE À...	✓
Limiter ma production de déchets	ramasser les déchets à terre et/ou en mer	
	trier mes déchets	
	composter	
Optimiser mes produits peu impactants	acheter des produits d'occasion/recycler	
	privilégier l'utilisation de produits réutilisables (bacs, colliers...)	
	utiliser prioritairement des produits achetés en local	
Économiser les ressources et les énergies	utiliser des produits éco-labelisés (produits d'hygiène, cosmétique, entretien, alimentaires)	
	créer mes produits d'hygiène et d'entretien à base de produits naturels	
	privilégier de l'électroménager économique en énergie (A++)	
	installer une toilette sèche ou utiliser l'eau grise et/ou pour les toilettes	

THÈME 2 HABITANTS ET LIEN SOCIAL

OBJECTIFS	JE M'ENGAGE À...	✓
Diminuer ma consommation de produits insulaires	venir sur l'île sur le long terme avec l'intention d'y habiter	
	utiliser des services aux habitants de la réserve de biosphère	
	participer à l'auto-partage (partage de son véhicule avec d'autres)	
	organiser des animations intergénérationnelles (ateliers de cuisine, rencontres d'anciens...)	
Favoriser l'égalité de genre	faire un don ou adhérer à une association (dans la réserve de biosphère)	
	créer un partenariat avec un éco-acteur de la réserve de biosphère, une structure existante ou un habitant	
Transmettre mes connaissances et partager mes connaissances	participer à des chartes citoyennes (nettoyage du port, lutte contre les déchets marins, montage d'un mur en pierre, etc.)	
	proposer des tarifs adaptés à tous les publics (familles, familles...)	

THÈME 3 VIE ÉCONOMIQUE INSULAIRE

OBJECTIFS	JE M'ENGAGE À...	✓
Participer au développement économique	avoir une activité dans la réserve de biosphère au moins deux fois l'année	
	acheter prioritairement des produits issus de l'agriculture insulaire	
	faire mes courses prioritairement auprès des commerçants insulaires	
	fournir la liste des producteurs et/ou éco-acteurs insulaires à mes visiteurs	
Dynamiser l'offre touristique	proposer ou vendre des produits des éco-acteurs et/ou insulaires à ma clientèle	
	proposer une nouvelle activité de découverte des patrimoines de la réserve de biosphère	
	faire découvrir le savoir-faire insulaire (construction de mur en pierres sèches, tige de la lame, utilisation des algues...)	



CONCLUSION

We hope this guide will help you understand the links between natural areas and economic activities, and more broadly the place of natural areas within a territory, and their relationships with environmental and socio-economic issues.

The aim of this guide is to address the broad subject of economic activities in natural areas, and to provide managers with the keys to understanding and facilitating dialogue needed to ensure the preservation of their areas faced with multiple uses.

So now, you have the necessary arguments to launch a consultation process with economic actors, and to justify the importance of considering a healthy natural environment as an essential partner in maintaining the socio-economic balance of an area. You also have at your disposal a series of practical factsheets providing tools to assess the diversity of good practices - both traditional and emerging - that economic actors can implement to reduce their impact. With this knowledge, you can make proposals to these new partners and support them in their evolution. Finally, you have gained a global vision of the regional approach to be implemented around you, the different stages that make up this consultation process, and tools to promote their implementation.

This guide is not intended to meet all the specific needs of each region, each context and each issue. All the recommendations listed here should be compared with your local social, economic, environmental, legal and regulatory situation. However, we hope to have highlighted the need for natural site managers to position themselves as actors in the area, rather than as the sole guardians of the area. We also hope that you will no longer see economic actors as enemies, but as potential partners, supporters or ambassadors. Finally, we hope that the economic activities taking place in natural areas will increasingly respect the principles of sustainability, and aim to adapt to the needs of our society, but also and above all to the needs of the sites that sustain them.



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