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REPORT

"Designing agricultural landscapes for harmonious, sustainable territorial development"

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Summary

Article 5 of the European Landscape Convention on "General measures" states:

"Each Party undertakes:
…d. to ***integrate landscape into its*** *regional and town planning policies and in its cultural, environmental,* ***agricultural,*** *social and economic* ***policies****, as well as in any other policies with possible direct or indirect impact on landscape."*

This Report *"Drawing agricultural landscapes for the sustainable and harmonious development of territories"* was prepared by Mr Régis Ambroise, as Expert of the Council of Europe. M. Ambroise is agronomist and urban planner, Operations Manager for Landscape and Agriculture successively with the ministries in charge of the equipment, of the environment and agriculture, Expert committee member charged by the Council of Europe to prepare the text of the European Landscape Convention, President of the Collective "Landscapes after oil".

This report looks first at the role agriculture played in shaping the rural landscapes of Europe from the beginning of the second millennium AD to the 20th century, and then at the causes of the extremely rapid changes that have occurred since the end of the Second World War - for example, when farming gradually developed into an activity on an industrial scale. The second section presents the principles behind the landscape approach and how they can become a tool for land planners and developers, especially farmers. Lastly, and in greater detail, the third section explains how these landscape approaches can help contemporary agriculture contribute to solving the challenges of sustainable development and energy transition that is facing our countries, while at the same time enhancing the landscape and improving the living environment. The report ends with a series of recommendations based on the analysis of innovative experiments, in a variety of situations, set in motion by farmers in liaison with their partners. Rather than an exhaustive analysis of the diversity of farming activities and landscapes in Europe, this report shows how the world of agriculture can use the principles of the European Landscape Convention to improve its own future, as well as the quality and diversity of the landscapes it helps manage.

This report has been produced in the framework of the Council of Europe activities for the implementation of the European Landscape Convention with the support of the Federal Office of the Environment of Switzerland.

The 9th Council of Europe Conference on the European Landscape Convention:

– took note of the Report *"Drawing agricultural landscapes for the sustainable and harmonious development of territories"*, which was prepared by Mr Régis AMBROISE, as Expert of the Council of Europe, and congratulated its author for the great quality and usefulness of the report *[Cf. Document: CEP-CDCPP (2017) 14E rev.]*.

Designing agricultural landscapes
for sustainable and harmonious development of territories

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The great periods of rural landscape building in Europe

Many historians pinpoint the beginning of the Middle Ages as a period when agriculture, in its development, managed to mark vast areas with its stamp, turning forest landscapes around inhabited clearings into open, largely humanised territories. The periods of plenty that accompanied population growth were followed by more difficult times, marked by epidemics and wars, during which the pressure on the land eased off and nature closed in again, as misery spread through the countryside. Then, when conditions changed for the better, men set about clearing the land again and, through careful observation, organising it to cater for their needs.

It was at these turning points, when new modes of social and economic organisation had to be found to escape from hardship, that the question of landscape, formalised or otherwise, entered into the picture to facilitate the implementation of inventive solutions.

The Cistercian landscape project

When the first farmer monks, and in particular the Cistercians, started tilling unused land, they organised space according to the best agronomic techniques of the day in order to produce everything they needed for their own sustenance and that of the villagers who worked for their monasteries. While helping to improve soil use, the principles of spatial organisation that inspired them made reference to celestial Jerusalem, full of the light and the divine clarity to which they aspired, and it was that idea that they wanted to make immediately perceptible in the way they organised space: the cloister in the middle of the buildings became the shaft of light connected to heaven, the orderly layout of the plots of farmland contrasting with the forces of Evil that reigned in the wastelands and against which a relentless battle had to be waged (Duby, 1979). These values, both technical and mystic, spread throughout Europe. Monasteries were built according to the same principles everywhere, from the south of Spain to the Baltic, from the marshlands to the Alps. In many regions the present-day landscape still bears the traces of this period of plenty for agrarian landscapes, even though the monks have stopped farming their lands and the land itself has often been divided up and shared out among the local peasants.

Cistercian monks working in the fields, scene from the life of Saint Bernard,
Jörg Breu The Elder (1475-1537)

The landscape project of the Italian Renaissance

In the1350s, well before the term landscape was coined towards the end of the Middle Ages, and when much of Europe was deep in recession, worn out by plagues and wars, the notables of Siena commissioned two frescoes from the artist Ambroggio Lorenzetti to represent the Allegory of Good and Bad Government and a third showing the princes of that era discussing their future. These frescoes, still visible today in a room of the Palazzo Publico, influenced the European Landscape Convention as, before signing it in Florence in 1998, the Congress went to Siena to admire and take inspiration from them. While the fresco of Bad Government, which is not so well preserved, illustrates what state the landscapes must have been in at the time (floods, pillaging, erosion, fires…), the second, which is in excellent condition, portrays a dream landscape the attentive contemplation of which reveals the keys to a better future. First of all, the fresco is divided into two parts of equal size, one half devoted to the city and the other to the country, with the door in the middle of the ramparts organising the exchanges. Each of these two parts presents the political, technical and cultural messages necessary to overcome the curses represented in the Bad Government fresco.

In the city, for example, we see merchants and bankers who have replaced the feudal princes joining together with craftsmen to develop trade and contribute to the construction of the city with its new buildings erected using the most modern techniques of the era. We also see a school master teaching young people in a classroom. The figures are represented in such a way as to draw attention to their faces and bodies, as if to highlight the creative role everyone has to play. In the part devoted to the countryside the painter depicts the liberation of the peasants from serfdom. They have acquired the status of tenant farmers, living in well maintained houses and cultivating the fields according to the principles of *cultura promiscua*, with cereals, olive trees and vines growing alongside one another. Developing the land involves building terraces on the steeper slopes; in the plains space is made for the animals that serve to plough the land and provide transport. But the general organisation of the landscape is devised by the new landowners from the city, who build their villas on the hilltops and surround them with pleasure gardens. The brand new bridge over the river shows the importance of exchanges with the outside world in this sustainable land development scheme. At a time when perspective had not yet been invented, the fresco uses a highly avant-garde system of representation to give depth to the landscape and mix scales (Sereni, 1965).

This fresco could be included in the World Heritage List in the landscape category. It represents a model of what we call today a territorial landscape project that brings together all at once political and social, technical and economic, aesthetic and cultural factors. The fresco encouraged the notables of the day to turn to the solutions suggested by the artist and those who commissioned the work: even today, more than seven centuries later, it is possible to find rural landscapes in the Siena countryside that recall certain details of the fresco.

Agricultural details of the fresco of Good Government by Ambroggio Lorenzetti, Siena

The reclaiming of the polders in the Netherlands from the 17th century onwards

Other examples from different countries and different periods of history show how landscape approaches combined with projects to transform societies to help, in the best-case scenario, to improve the situation of a large part of the population while leaving us with forms of landscape of the highest quality. For example, the Dutch hydraulic engineers, extremely attentive to the organisation of space, who succeeded in turning the polders into farmland and increasing the area of arable land by building dykes, canals and windmill-driven pumps to evacuate the sea-water. Artists joined them to immortalise the intelligence of the solutions they imagined and the quality of the resulting landscape. The engineers were subsequently invited all over Europe to make marshlands and wetlands arable, or create new polders suited to the particular context.

Anonymous Dutch painter c. 1600

The generalisation of the enclosure system in18th-century England

The enclosure movement began in 16th-century Britain but did not really become widespread until the House of Commons passed the Enclosure Act in the 18th century. It turned vast swathes of land into a productive system of farmland criss-crossed by hedges and trees for the benefit of a landed aristocracy sensitive to the quality of their surroundings. Unfortunately, however, the trend drove many peasant folk from the land, obliging them to seek work in the new factories, or even abroad. The enclosures marked the end of the rights of local people to use the land, in particular the commons, on which many of them depended for their livelihoods. The art of the English garden developed and inspired the organisation of the rural landscape. Even today, thanks to political determination to protect rural spaces, Britain's agricultural landscapes have retained their considerable beauty and are used by city dwellers as places to relax and restore their energy.

Anonymous English artist (18th century): The harvest at Dixton, Gloucestershire. Cheltenham Art Gallery and Museum

The mixed crop and livestock farming and landscape project in 19th-century France

In France, at the end of the 18th century and during the revolutionary period, great debates took place to define the farming policies to be set in place in order better to feed the people. For the physiocrats, inspired by the British model, modern farming meant transforming production systems by introducing a system of mixed crop and livestock farming, doing away with fallow land, clearing wetlands, putting un-tilled land into production and giving peasants a share of the profits thus generated. The revolutionary project was based on the same agronomic principles, but with the aim of giving the land owned by lords and the Church to the peasants. What actually occurred was not so radical, but because of these orientations, the French countryside in the 19th century remained densely populated. The old community-based organisation of the villages that allowed even the poorest to survive gradually disappeared, making way for those who managed to acquire small farms or who found work on the larger farming units that were emerging at the time. This was a time of great transformation of France's countryside, the principles of which were laid down in administrative directives like those issued in 1797 by the then Minister of the Interior, Agriculture and the Arts François de Neufchâteau (Luginbühl, 1989), in collaboration with André Thouin, professor of agriculture at the Natural History Museum (Boons, 2013), and in technical works such as the Complete Course in Agriculture by the Abbot Father Rozier, published in 1781 and supplemented at a later date, or the European Annals of Plant Physics and Public Economics edited from 1821 to 1827 by the civil engineer F.A. Rauch (Cabanel, 2006). In all these documents we can see the link the authors made between their agronomic

proposals, based on the introduction of new farming methods, and concerns about spatial planning. The land had to be organised in order to serve the agricultural project but also the beauty of the landscape. *Mixing business with pleasure, cultivating the beautiful and the good*, these were the values of those who, without petroleum, fashioned the admirable man-made, cultivated landscapes that make up our heritage and are the mark of the harmonious enhancement of nature.

Left, implementation of the project to plant fruit trees on the arid lands and river banks of France, and right, the result hoped for. European Annals of Plant Physics and Public Economics, review published by F-A Rauch from 1821 to 1827

The agronomic project

The agronomic project was intended to challenge the system prevalent under the *Ancien Régime*, where farm land was divided into two categories: the *ager*, or land used for crop farming, and the *saltus*, which was very often common land used extensively by the local people to feed the few animals that families possessed and their beasts of burden. The little manure collected and the fields left fallow in crop rotation did not suffice to keep the *ager* fertile; the amount of organic matter dropped and yields diminished as a result. But an innovation from Flanders and England would soon revolutionise crop farming. The introduction of new plants such as clover, turnip and later on, colza, beans, potatoes and beetroot, and the installation of temporary pastures in the rotation of crops, would improve the productivity of the land thanks, *inter alia*, to the nitrogen these vegetables brought to the soil. Combined with privatisation of the commons and the building of enclosures, this system made fallow fields obsolete because every piece of land could be cultivated each year, thanks to the manure produced by animals raised for their milk or their meat, which helped enrich the soil. So, mixed crop and animal farming gradually spread, adapting to every type of climate, topography and social set-up. Special attention was paid to field trees, which became a fully-fledged part of these new agrarian systems on a par with crops and animal husbandry (Papy, Ambroise, 2012).

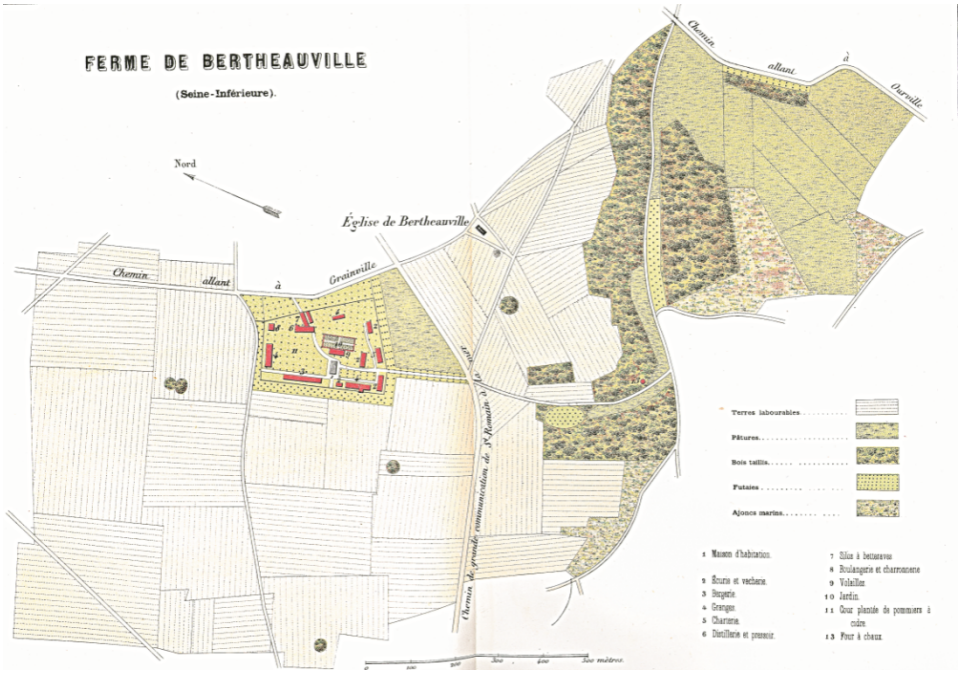
Fig. 5.—Récoltes des pommes.

Prize-winning field of fruit trees in Normandy

Land reorganisation

In addition to all the advice on how to work the land and raise livestock, whole chapters of the treatises on agronomy at the time were devoted to the organisation of agricultural space, according to the constraints and advantages of each small region. Diagrams illustrated how to reorganise the boundaries of the land, design a network of ditches to drain and irrigate it, lay out service paths, build support walls, install fencing, provide watering places and so on.

The landscape of the19th century in France was the result of a veritable *agronomic landscape project* (Ministry of Agriculture 1866-1872). It was fostered both by the elite - as seen from the descriptions of the exploitations that won prizes or the best farms in each *département*, the files about which were illustrated by precision technical plans and coloured drawings expressing the aesthetic values defended for these new layouts–and by the small farmers, who did not leave much written evidence but whose feeling for space was expressed directly in the pride they took in caring for their land like good, sensible people.



Plan of a farm that was awarded the departmental prize in Pays de Caux in 1868

In certain regions the place names reflect the inhabitants attitude to the landscape. Some names of villages or hamlets, for example, express a sensitivity to beauty: Bellecombe, Bellefosse, Pré-Coquet, Beaujolais, Champfleuri, Bellevue, Beaupré…

Commune of Bellecombe, Haut-Jura, France

Other examples in Europe also reveal the close link between the ability to produce under difficult conditions and the pride the peasants felt in having fashioned landscapes of such fine quality. Take the *peasant painters* of the Gruyère valley, in Switzerland, who painted frescoes over the doors of their winter chalets depicting charming agricultural scenes, such as farmers leading their herds up to mountain pastures. Similarly, in the Douro in Portugal, in every station in the villages of the region there are *azulejos*, ceramic paintings, showing the exceptional landscapes of the terraced vineyards in honour of the peasants work. In these regions of mountain slopes collective practices were more necessary than elsewhere and fostered the development of particularly typical productions linked to the singularities of each stretch of land.

Fresco by a peasant painter in the Gruyère region of Switzerland

Fresco in a station in the Douro region of Portugal

Farm building

Also worth mentioning are the magnificent timber-frame farm buildings, works of prodigious ingeniousness and beauty, to be found in numerous regions of eastern Europe, and in particular, Romania. Indeed, farm buildings are a strong feature of Europe's agrarian landscape diversity. In general they were built out of materials available locally, singly or in combination: limestone, granite, shale, wood that was cut, sawn, splintered or sculpted for different uses, dried or baked clay, straw or thatching. Added to this diversity of materials was the diversity of architectural forms linked to the functions served by the buildings: housing, stables, barns for storing fodder or crops, cellars for producing and storing wine or oil, rooms for turning milk into cheese, tool sheds... Water was also needed for the families and the livestock, and this meant building what were sometimes highly sophisticated supply and storage systems: cisterns, fountains, ponds, drainage...Here again, decorative features often enhanced the actual constructions. The traditional rural architecture still visible today is thus a source of identity that deserves to be preserved, and not only for its heritage value, as we shall see later.

Stone and brick barn in Normandy, France

So, in the 19th century, following Britain's lead, the mixed crop and livestock farming developed in France and many other countries, adapting to the natural and human characteristics of each territory. The result was a wide variety of agrarian production and landscapes which, from the Mediterranean to

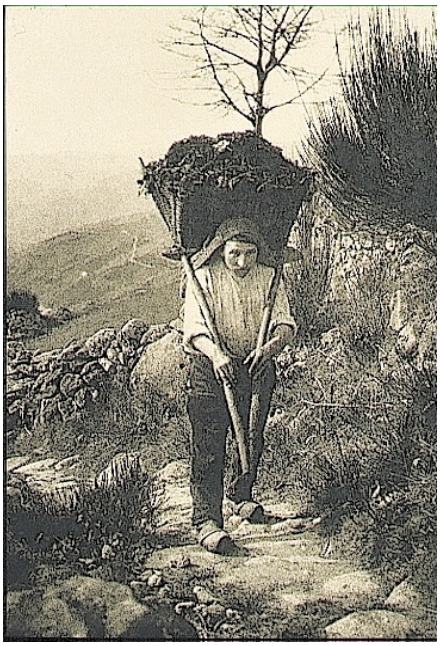
the Baltic, from the wooded fields of the Atlantic shores to the great plains of the east, from the mountain pastures to the vast river deltas, formed a valuable asset for Europe.

The components of the traditional agricultural landscapes

For a long time local natural resources were all peasants had to live on: water, soil, flora and fauna, stone, wind and sun.

The soil

The soil was cleared, organised, cultivated, amended and protected from predators or erosion. The peasants organised their plots of land according to the *agronomic potential* of each type of soil, to make the most of crop rotation and produce all the food they needed.



Peasant carrying a mixture of earth and manure

Crop growing in the plains

Water

Water, which had to be fetched when there wasn't enough, and from which people had to protect themselves when there was too much. The peasants channelled rivers to avoid flooding, built canals to irrigate land which was too dry, created reservoirs, drained wetlands, harnessed and exploited hydraulic power with mills that made flour and oil from the crops they harvested, developed water courses to make them navigable, built bridges to facilitate exchanges and defined water rights to share this valuable resource.

Pond in a sinkhole

Crops

Crops were chosen and seeds selected by the peasants according to the climate and their empirical knowledge of the agronomic potential of their soil. Each small region could boast of particular varieties of potatoes, distinctive species of fruits and vegetables, original grape varieties as the origin of specific recipes. The peasants made fruit juices, oils, wines or alcohol characteristic of each type of "terroir".

Plantation of phacelia as green manure

Livestock

Livestock was also selected according to the use to which it was to be put (meat production, milk production, beasts of burden, army animals) and the environmental conditions (suitability for mountain regions, plains, wetlands, arid zones...). It was in the 19th century that the selection of breeds took place that gave rise to so many varieties of cheese. At important festivals agricultural competitions were held to honour farmers who had done the most to improve local breeds and products, which often bore the names of the region or a nearby town (Gouda, Gruyère, Gorgonzola, Charollais, Highland Cattle, Montbelliarde...), differentiating them from those of other regions.

Vosgian cattle breed

Trees

Trees were used by farmers to mark out the farmlands, to protect the soil and animals from extreme climate conditions, to provide wood for building or heating, and for their fruit. Hedgerows, alignments, marker trees, wooded meadows, orchards and pasturelands, copses... all these are ways in which peasants would use trees, for their functional qualities but also for their decorative qualities.

Hedgerow trees

Stone

In regions where stone abounded and the land was less fertile, farmers turned this constraint into a resource for other uses: drystone walls to mark out the fields, stone pathways, lining for rivers and canals, buildings to which stone gave a special patina and the magnificent terraced hillsides we see

around the Mediterranean and in certain mountain regions or valleys in the North, in Germany's Moselle region, for example. Sometimes, like in Majorca, these features date back to the times of the Arab invasions and are still in perfect condition, which just shows how sturdy they are.



Stone boundary wall, hut and track

Wind

Wind, like water, was used in certain regions to drive the mill stones to make flour and oil. In some places, however, it is necessary to shelter crops, animals and dwellings from the wind, which calls for a special organisation of the farmland to make the most of the shelter afforded by the lie of the land. Otherwise, hedges must be planted to break the wind.

Small windmill used to pump water out of the ground

Sunshine,

Last of all, and to which we owe photosynthesis, sunshine can be put to good use in complex production systems such as agro-forestry, where trees and crops are grown together to make maximum use of the sun's rays. Elsewhere, in mountain regions where there is a marked contrast between the

amount of sunshine received by the *adret* and the *ubac* (the sunny and shady sides of a mountain), crops are positioned according to the amount of warmth they need.

Vine growing on trees, San Marino, Jacob Philipp Hackert (1737-1807)

So in their heyday traditional rural societies managed to put all the natural resources available to them locally to remarkably good use.

Landscape structures

In order to make all these local natural resources usable, the peasants organised the space around a few main models which they adapted to their own contexts. What we call agricultural landscape structures today are these broad types of organisation of space that farmers used to protect themselves from natural risks and make the most of the available resources. Each major landscape structure covers a whole series of local variations, all of which never the less follow a logic based on the same principles. The main structures include:

Bocage

Bocage, which are made up of a series of cultivated fields or pastures surrounded by hedges and bordered by hollow pathways to drain off the water in wet weather. The hedges serve as enclosures for livestock, protecting both animals and crops from strong winds and sunshine, and providing wood for building and heating the often isolated homes in a widely dispersed habitat. The type of trees, the way they are laid out, in hollows, on grassy ridges or alongside stone walls, and the way they are pruned all vary from one region to another, giving each regional landscape its own particular atmosphere: more enclosed where the trees grow high and resemble the edge of a forest, blocking the view; more open when they are trimmed low and you can see beyond them, as if over a fence, dominating the wide landscape shaped by the lines of the hedgerows. A wide variety of bocage landscapes has developed in western Europe, the United Kingdom, France, Belgium and Denmark, but also in certain mountain regions or hilly areas. The presence of the trees, and the animals always visible in the prairies, give

these areas a very natural look. Along the Atlantic coast, from Ireland to Portugal, there are also *bocage* landscapes (i.e. terrain of mixed woodland and pasture), based on the same principles but with more emphasis on stone, where hedgerows are replaced by drystone walls, giving the scenery a more architectural touch.

Bocage with low hedges

Bocage with high hedges

Bocage with stone walls

Marshes and polders

Marshes and polders are another landscape structure, which has helped enhance the agricultural value of wetlands and land reclaimed from the sea. Controlling water levels is of the essence here and the land is structured by dykes and canals which let water into and out of the cultivated fields or meadows.

Water meadow

Salt marsh

Wet grassland

The marshes can be flooded or dried as necessary, and the canals or ditches lined with trees, pruned or otherwise, but farming these lands always requires considerable collective discipline to keep water levels under control. The omnipresence of water gives these landscapes an exceptional wealth of biodiversity and offers a wonderful natural environment for birds and fish galore. This type of landscape is found in the Netherlands, of course, but also in the west of France, the south of Portugal, the Baltic countries, Poland, Lithuania, Latvia, Estonia and Belarus.

Valleys

Valleys are found in most regions where large or small rivers flow in marked major and minor beds. Observation of the limit between the flood plain and the dry zone generally reveals a ditch which drains off excess water after a flood. The sediment deposited on the flood plain enriches the soil and the land is generally used as grassland, or to grow summer crops, while winter crops and temporary pastures occupy the neighbouring slopes, sometimes along with vineyards or orchards. The linear organisation of space dictated by the downward flow of the river is often strengthened by the presence of communication networks along the valley, on the edge of the flood plain. Water mills with their canals or reservoirs punctuate the length of the watercourse.

Farmed and wooded valley

Openfield

Openfield is a system of land use characterised by vast unenclosed spaces. It was the system in use under the old three-year crop rotation and fallow scheme introduced following the clearing of the wastelands around groups of villages. It is found from the great plains of the Paris Basin to the vast cereal farmlands of Germany, Poland, Hungary, Ukraine, Moldova and Russia. The structure of these farms is generally more imposing and the expanse of the fields larger than elsewhere. The departure from the fallow method led to a reorganisation of the distribution of the land and the introduction of larger herds. The immensity of the open sky is an impressive feature of these landscapes.

Large-scale farming

Terraces

Terraces cover many of the hillside areas of the Mediterranean basin, from Spain to Greece, not to mention Italy, Malta, Crete and Albania and the numerous islands that belong to these countries: Majorca, Corsica, Sicily, Pantelleria... They are also found in the cultivated mountains of the Cevennes in France, in the Italian Piedmont, the Valais in Switzerland and further north in the vineyards along the Rhine and the Moselle in Germany, Luxembourg and Alsace and Lorraine. This system is organised so that walls made of stone, hewn out of the bedrock, hold up horizontal strips of earth formed by erosion and the manure brought in by the peasants, while letting excess water run off through the gaps between the uncemented stones. During heavy rain not only does this organisation of the slopes into steps help to slow down the water run-off, giving it time to seep into the terraced soil, but the gaps between the stones throughout the thickness of the retaining walls act as mini weep holes through which the excess water can escape. This technique decreases the pressure of the water and prevents the walls from being washed away. In some cases the width of the cultivated strips of land is

smaller than the height of the retaining walls. Indeed, people who grow vines in such regions call it heroic viticulture. Through their remarkable mastery of hydraulics, the peasants managed over the years to turn these barren mountainsides into productive farm land. Working together, they dug out channels several kilometres long to bring water; built reservoirs out of stone and clay to store it; made outlets to evacuate excess water from storms and traced a network of access paths to each level. Understanding the behaviour of water is essential when working in such conditions, to avoid destroying the functional logic of the site (R. Ambroise, P. Frapa, S. Giorgis, 1989).

Ribeira Sacra, Spain

Douro, Portugal

Aosta Valley, Italy

Mountain pasture lands

In mountain areas which, in addition to growing crops to feed the family, also produce milk to make cheese and sell on the open market, the landscapes are organised in such a way as to provide the livestock with grass in the summer and fodder in winter. That basic requirement has generated a wide variety of solutions, depending on the natural and human conditions in each territory. Complex social organisation systems emerged where people worked together to get the livestock up into the mountain pastures in the spring, while the families stayed down below to cut grass and store the hay in barns. In some cases the livestock come from further afield, via a system of interregional transhumance. Be it in the Spanish, French or Andorran Pyrenees, the Italian, Swiss, French, Austrian or Liechtenstein Alps, the Swiss and French Jura, the Polish, Czech, Slovak, Ukrainian or Romanian Carpathian mountains, the Balkans of Slovenia, Croatia, Montenegro, Serbia, Bosnia and Herzegovina, Macedonia, the Caucasus mountains of Azerbaijan and Georgia or the high plateau of Armenia and Turkey, all these mountain landscapes have been forged by farmers in spite of the particularly difficult conditions in terms of climate and relief.

Mountain landscapes

Orchards

In the Mediterranean regions, orchards were developed in areas that could be regularly irrigated by developing a whole system of canals dug into the land and branching out at the ends to channel water into each small plot. The origin of these systems dates back to the period from the 7th to the 14th century, when the Moors ruled over Spain. This form of market gardening, which requires the very strict organisation of water towers, provided the cities in these regions with the fruits and vegetables they needed to feed their inhabitants, and contributed to their development.

By organising the space in a different way to make the most of the available resources, farmers also developed extensive grazing in the steppes of south-eastern Spain, the limestone plateaus of southern France, Slovenia, Serbia, Bosnia and Herzegovina or in the Romanian and Bulgarian Dobruja and the Hungarian Puszta. Elsewhere, agro-sylvo-pastoral systems like the dehesas in Spain or the montados in Portugal use communal land to combine animal husbandry in the underbrush with the production of timber and fruit growing. In the north of Finland, Norway and Sweden, and in Siberia, farmers breed reindeer, which in the summer months graze on the grasses, mosses and lichens found in the tundra, before moving to the forests of the taiga in winter. In the outer most regions of the European Union, such as the French West Indies and French Guiana, other types of farming better suited to the tropical or equatorial conditions there were invented.

Particularly in periods of population growth, Europe’s peasants managed to organise their lands into broad landscape models adapted to the characteristics of their regions, which helped enhance the image of the regions concerned. To achieve this transformation all they had to rely on was their empirical knowledge, their physical strength, a few tools, their powers of observation and the natural resources found locally: water, soil, the diversity of animal and plant life and trees, whether cultivated or wild, stone, wind and sunshine. They created systems that worked, aesthetic references that inspired artists, and a cultural heritage largely shared by the rest of the population.

Understanding how these landscape structures work helps avoid ecological disasters when developing landscapes. You have to be able to determine what the *load-bearing walls* of the landscape are, what features are essential to the healthy operation of the territory (which might be certain hedgerows, walls or ditches), and to distinguish them from secondary *partition walls* which can be removed without risk as time passes, land changes hands and development projects come into play.

Today a new interest in these landscape designs is emerging in the search for environment-friendly agricultural systems. They are the proof that it is possible to feed large rural populations without resorting to fossil fuels. But landscapes are not only the result of technical choices corresponding to given types of land, they are also the result of cultural choices.

The farming landscape of the 20th century

The progress in agronomic science that started in the 19th century would lead to very far-reaching changes in how we viewed agricultural production processes and also how we organised our landscapes. The *mineral theory* introduced by Liebig around

1840, which was the origin of the use of mineral fertilizers to improve crop production, gradually made headway in agronomic circles and found testing grounds in the pilot farms that were able to acquire these new fertilizers, thanks to the cheaper transport costs linked to the use of coal.

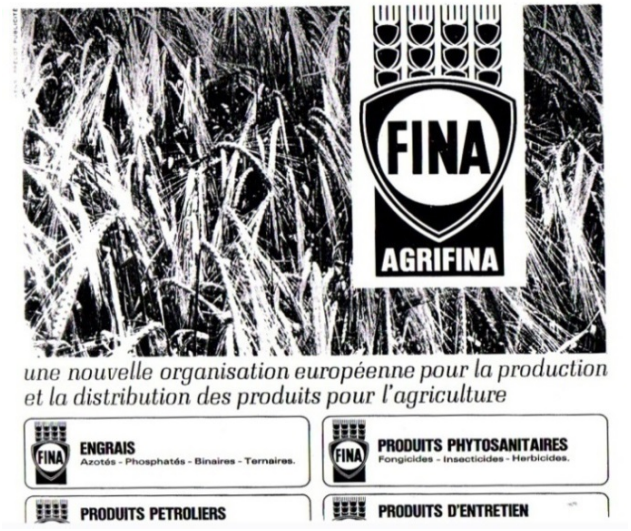
Generalisation of the use of fossil resources and genetics

The successes in terms of productivity were such that the use of chemical fertilizers would develop throughout the following century. Phosphorus, an element essential to plant growth, came first from local mines, then progressively from mines further and further a field, in the Maghreb, for example. Nitrogen-based mineral fertilizers are mainly made from ammonia (NH_3) obtained by synthesising nitrogen (N) from the air and hydrogen (H) from natural gas. Initially it was imported from Chile then, after the First World War, it was made in factories that had produced ammonia on an industrial scale for explosives. A second innovation would further change the face of farming and foster agricultural progress: genetics, which made it possible to engineer high-yield strains. These new developments would progress in different ways in the regions of Europe, faster where vast tracts of land were being farmed and the owners had money to invest, and more slowly where family farms were the norm. In France, for example, agriculture did not really start to be mechanised until after the Second World War, with the aid of the Marshall Plan which enabled farmers to buy American tractors. In the space of twenty years the cart horse disappeared.

Advertisement for phosphate fertilizer from Morocco

Fertilizers and then pesticides were used on an ever-increasing scale, easy access to new means of transport and discoveries facilitating the preservation of produce by refrigeration substantially changed the systems of collection, transformation and commercialisation of farm produce. In the States, concerned by the Common Agricultural Policy (CAP) first outlined in 1957 in the Treaty of Rome, farmers enjoyed guarantees that they would sell their products on the international markets, as well as subsidies to purchase land, erect buildings and buy equipment. These subsidies have privileged the large-scale farmers to the detriment of the smaller ones, whose children have been obliged to leave for

the city in search of work. The number of farmers would be divided by ten in the course of the 20th century.



Advertisement for new fossil-based products necessary in modern farming

Some States, like Switzerland which receives no subsidies from the CAP, also introduced policies to support their farmers and improve the country's self-sufficiency in food production. In the countries of Eastern Europe the collectivisation of land changed and simplified the landscapes. The size of the farms increased as mechanisation gradually replaced manual labour. Farming was modernised, but not as rapidly as in Western Europe.

So the use of fossil substances and fuels in agriculture would radically change rural landscapes and the social organisation of farming communities.

Landscape banalisation

These changes to the landscape followed three patterns which all led to landscapes less pleasing on the eye.

Simplification and consolidation of the lands under cultivation

In zones where farming was easy to mechanise, the size of the fields increased as a result of major land improvement programmes involving consolidation, drainage, irrigation and redirecting water courses. These developments resulted in the disappearance of the semi-natural features that dotted the meadows and farmlands, such as ponds, the odd tree, copses, orchards and screes, or surrounded them, such as hedgerows, stone walls and paths. All these landscape features, the presence and particular forms of which identified each region, lost their usefulness and, on the contrary, became a nuisance for farmers working with tractors. They were therefore gradually eliminated to form larger tracts of land easy to plough with machines. As a result there was a substantial loss of landscape diversity in the flat regions, accentuated by a decrease in the variety of crops in rotation.

Landscape after consolidation

Closing of the landscape

On slopes too steep and in areas too wet for machines to be used, or where their use would be too costly, manual labour was not profitable enough for farmers to be able to continue working in the traditional way. Rural exodus suddenly emptied whole regions of their populations and previously cultivated lands were abandoned, particularly in middle mountain regions and more particularly the dry mountain regions around the Mediterranean. It should not be forgotten that these regions had previously fed large populations; people worked hard, but they made a living. When they headed for the cities, leaving the land behind, the other agricultural areas had to intensify their efforts in order to feed these hither to self-sufficient populations. In terms of space, that meant physically and visually shutting off some magnificent landscapes, making life even harder for those who stubbornly refused to leave.

Foothills covered with pine trees after being abandoned by farmers

Blurring of the landscape

Towards the end of the 20th century a major change got under way in the territorial dynamics of several west European States. After a long period of population growth in the towns, cities and suburbs, to the detriment of remoter villages, the latest census figures revealed that city-dwellers were returning to the countryside. The building of numerous roads and motorways out of the cities made it

possible for people to move as far as fifty kilometres from the city centre without increasing the time it took them to travel to work and back. Some people chose this option in order to savour the joys of a quiet life and a garden in the country, while others saw it as a means of paying less for somewhere to live. Those States which were not well organised to protect their farmlands against urban development saw new buildings popping up wherever developers had the opportunity to build them, without any development master plan. This resulted in a sort of urban anarchy and the blurring of the previously clear boundaries that separated towns, villages and farmlands. In the absence of laws to control advertising, we witnessed a complete jumbling of the traditional landscape and the emergence of a new landscape that had nothing to offer in terms of a better living environment.

Urbanisation of the countryside

These three trends could coexist on the same territory when land was left abandoned for speculative reasons pending its potential urban development, while farmers cultivating the neighbouring lands tried to buck the trend by increasingly intensive farming methods, with the result that vast tracts of cultivated land now stop right outside the new housing estates that have replaced the greens and market gardens that previously surrounded the towns and villages.

Renewal of landscape projects in agriculture

In the face of these trends, farmers, local and regional authorities, associations and simple citizens have tried to react. The first reactions were seen in those areas where the industrialisation of farming proved most difficult.

In mountainous areas

In essentially mountainous countries like Switzerland or Austria, then in Germany, France, Italy, Spain and Andorra, policies in favour of mountain farming were implemented. Governments sought to keep their farmers in the mountains for several reasons: to guarantee a minimum of national independence in food production, to maintain the populations in rural areas at sufficient levels to provide social living conditions acceptable to all, to tend the landscapes, to encourage the development of tourism... The support provided also took multiple forms:

– direct aid to farmers to make up for the difficulties of mountain farming compared with farming on the plains;

– encouragement of more natural production systems, or even organic farming, making maximum use of local natural resources;

– promotion of the products thus produced through protected designations of origin (AOP), or other marks of quality;

– and remunerating the services rendered by farmers to the community, be it in connection with their farming activities, by the upkeep of communal lands, for example, or through other services (clearing snow, maintaining paths, tourist activities and so on).

The role farmers played in landscape upkeep and management became clear when their departure left the land to become overgrown with shrubs or planted with forests that darkened the landscapes and blocked the views. Protecting farmland against urbanisation for tourism rapidly became a major issue following the first examples of landscape destruction by unfettered real-estate speculation witnessed in the first winter sports resorts. The local and regional authorities, and not only the ministries in charge of agriculture, developed landscape policies to protect farmland and support farming activities in the mountains.

Gate to let hikers into the pasture lands in the Swiss Jura

In intensive farming areas

In areas where industrial farming methods prevailed, there were reactions against the disappearance of the trees, hedgerows or walls in and around the fields. But the main drawback of this type of farming became clear when soil and water pollution, and the erosion of the biodiversity it caused, became major economic problems for society at large. Water that contains excessive levels of nitrates is unfit for consumption; when bees disappear, when pesticides sprayed on crops pollute the soil, the air and even our food and generate serious illnesses from which the farmers themselves are the first to suffer, people react and demand a stop to the pollution. Initial research was carried out and regulations were introduced in an attempt to find means of protecting various natural features inside cultivated areas and to limit the pollution by planting grasses along river banks to serve as a filter, by treating excess water pollution in denitrification plants or by optimising the quantities of fertilizers used and the dates when fields could be sprayed. The aim was to solve the problems while maintaining high yields. It was

not enough, however. The pollution continued, as did the dependence of the production systems on fossil resources. The landscape projects developed here and there, often in connection with land development schemes, were generally intended merely to protect traditional landscape features that would otherwise have disappeared. In failing to address the transformation of agricultural production systems, they mostly failed to persuade the farmers themselves, unless there was a strong financial incentive, to take action to define a new landscape corresponding to a new agricultural project.

John Deere advertisement

Subsidies in farming

In 1992, the United Nations environment and development conference in Rio de Janeiro brought the term ‘sustainable development’ to the fore. This concept challenged the development model based on the private ownership and reckless use of fossil resources that was destroying biodiversity. It proposed a mode of development based on a more sparing use and a fairer sharing of natural resources, in time and space. The stakes were such that it was no longer possible just to leave it up to a few specialists to protect the remarkable spaces that deserved to be protected. Sustainable development concerns every territory and every stakeholder. At that time agricultural policies were beginning to change, in the European Union and in other countries of Europe, such as Switzerland. To limit surplus production, farming subsidies that were integrated directly into product prices, in the form of guaranteed prices, were henceforth offered in the form of identified payments, the payments of the first pillar of the CAP, calculated according to the surface areas cultivated and subject to environmental conditions. These conditions gradually became more demanding, but, presented as constraints, they never succeeded in reversing the industrialisation of agriculture: the size of farms generally continued to grow, as did the size of the fields they cultivated, further simplifying the agricultural landscape. At the same time, in the second pillar of the CAP, special payments (agri-environment measures) were offered to farmers who were willing to use environment-friendly methods.

Unfortunately these payments, calculated on the basis of the additional cost or loss of income the farmer would suffer, gave the impression that environment-friendly practices were necessarily economically unfavourable to agriculture. But water, soil, biodiversity and landscape are useful production factors for farmers committed to sustainable agriculture. Presenting things in this manner doubtless delayed the changes that should have been encouraged long ago. However, by enabling motivated farmers to preserve certain landscape structures these measures stood them in good stead to undertake a more in-depth reconversion of their system of production. Their implementation in the field was also an opportunity for farmers, agronomists and environment and landscape specialists to meet and propose some initial landscape projects in agriculture (Ambroise, Bonneaud, Brunet-Vick, 2000). Today more "systemic" agri-environment measures are attempting to remedy these short comings. The specifications developed in Switzerland or in Austria are considered models of good practice.

The landscape challenges of the 21st century

Very early in the 21st century, the question of global warming came along to reshuffle the cards. Fossil fuels, which were one of the main contributors to the emergence of industrial agriculture, were decried because of the CO^2 and other greenhouse gases they emitted in addition to other forms of pollution. In 2015 the 21st Conference of the Parties to the United Nations Framework Convention on climate change, (COP 21) set the objective of limiting the increase in temperature to 2°Cby the end of the 21st century. This naturally challenged the very core of modern agricultural development. The world was going to have to learn, or re-learn, to produce whilst limiting, as much as possible, the use of these fossil substances and fuels which cause pollution and are non-renewable. Ways would even need to be found to make agriculture help to stock greenhouse gases. At the same time, the world population would continue to grow, so the task of agriculture was to find ways to feed people without polluting. In this new context landscape could be a useful tool at the service of a transition project as well as its sounding board. Indeed, the stakes in issue in sustainable development concern not only agriculture but society as a whole, so there will be great pressure to define new rules between the rural and the urban worlds.

Increasing agricultural production and limiting chemical inputs

For about fifteen years now everyone has been talking about sustainable agriculture, conservation through agriculture, organic farming, biodynamic agriculture and agro-ecology. Numerous research and development programmes as well as new regulations have shown an interest in improving farming methods by other means than simply optimising the use of chemical inputs (fertilizers and pesticides). Lengthening crop rotations, not ploughing the land, covering the soil in winter, compost and agro-forestry are among the range of techniques increasingly used today by farmers interested in the transition towards sustainable development. Some of them have shown that it is possible to produce as much as before while substantially reducing the use of fossil inputs.

Paradoxically, while the transition to industrial farming went hand in hand in many countries with major land development policies at the service of modernisation (reorganisation of tracts of land under cultivation, rectification of water courses, drainage, irrigation…), programmes in favour of agro-ecology very rarely addressed the issue of landscape, as if it were possible to change the course of agriculture while maintaining the organisation of space developed for industrial agriculture!

More specifically, for example, farmers were encouraged to use less chemical pesticide by lengthening crop rotations, but without reorganising the size of their fields. In cereal-growing regions, however, a single field may cover more than 40 hectares.

If beneficial organisms are to be able to colonise the whole area under cultivation and destroy crop pests, thereby helping offset the effects of not using pesticides, they must have somewhere to live (grass verges, hedges, copses, ponds, drystone walls…). These habitats must not be presented to farmers as *compensation* for the damage their activity does to the environment but rather as an essential and positive component of their production systems which makes them more profitable while helping to reduce the use of chemical substances. This paves the way for new possibilities for a much wider variety of landscape projects suited to the characteristics of the territory, devised with and for farmers.

Agro-ecological transformation of farmland at Vernand farm, France

In livestock farming areas, where producing one's own fodder for the livestock appears increasingly a target to be achieved in terms of sustainable development and energy transition, the return to grass is one path farmers should consider taking. Instead of using meal imported from other continents and maize, the production of which causes considerable pollution, it is preferable to feed livestock on grass, which requires far fewer chemical inputs to grow (fertilizer, fuel…) and has better food value. The size and shape of the fields where it is grown needs to be determined based not on the requirements of mechanical farming but on the imperatives of grazing. In order for the animals to be able to get the maximum benefit from the open pastures in spring and autumn, or in certain cases even all year round, the space must be reorganised in order to give the grazing animals some shelter from the wind and sun, by planting trees or hedgerows, making watering holes where they can drink, inventing types of fencing that are easy to move, and providing paths for moving herds to pasture. Similarly in dairy farming this approach challenges the larger farms which concentrate high numbers of animals in a small space, confined to their buildings and fed with products from other countries, so that their manure, once treated, cannot be spread again over the soil it came from.

In addition, researchers are telling us that society will have to rethink its new dietary patterns, which are at the origin of serious health problems (obesity, cholesterol…), by decreasing the share of animal products and increasing that of plant products in

human consumption (Afterres 2050, 2013). Rather than shedding doubt on the benefits of mixed crop and livestock farming, this requirement will encourage farmers to better adapt the crops they grow to the agronomic potentials of each of their plots of land, and increase the variety of their crops while making more systematic use of trees in their production systems in order, when it becomes possible, to decrease the proportion of livestock in their production.

So the changes to come regarding the focus on sustainable agriculture offer vast scope for action, of as-yet unexplored kinds, to test the implementation of new agricultural landscapes in connection with the changes in crop growing and animal husbandry systems. While the industrialisation of agriculture forged, and continues to forge, simpler more banal, less natural landscapes, it is becoming possible again, and even necessary, to imagine landscapes that reflect the natural specificities of the land, with a greater diversity of vegetation, the visible presence of grazing animals and a new place made for trees and other landscape features specific to each region.

Taking cows to pasture

These changes promise new challenges for farmers. Firstly, they will need to adapt their crops, their herds and their marketing systems to the new climate conditions, while at the same time becoming much more sparing in their use of fossil inputs, in order to avoid pollution and leave reserves for future generations. Many experimental farmers, although in the minority, are proving that it can be done, and even more easily if they bring reflection on the future of their landscapes into the equation. As well as feeding people, however, farmers have a role to play in the production of renewable energy and in stocking greenhouse gases.

Producing renewable energies and stocking greenhouse gases

Where the production of renewable energy is concerned, farmers are well placed to produce biomass, as long as they realise that this activity must not interfere with their primary purpose, which is to feed the world. In addition, plant used to produce methane from animal manure or from certain crops has the advantage of producing energy while preserving the mineral elements, which can be put back into the earth. The roofs of hangars and other farm buildings cover vast areas and can be used to produce enough photovoltaic energy for the needs of the farms and much more besides. Lastly, in some regions

windmills are being installed on farmland. They are a new landscape feature in the agricultural landscape, to the shape and location of which thought must be given so that they are seen as symbolising the reorganisation of agriculture at the service of the common good and not as mere eyesores spoiling the quality of the scenery. Considering the importance and the size of these windmills, it would be legitimate to systematically involve landscape artists, architects and planners in the discussions between farmers, engineers, owners and local officials and the inhabitants.



Renewable energies in agriculture: wind farm, methane production, solar panels

Concerning the storage of greenhouse gases in the ground, we know now that crop systems that use no chemical inputs and adopt agro-ecological production methods, with no bare earth in the winter, and integrating semi-permanent meadows in crop rotations and leaving a place for trees to grow, stock substantial amounts of these gases (Papy, 2016).

Sustainable agriculture thus becomes one of the solutions to global warming instead of a problem. From this point of view all the research done in recent years on the benefits of agro-forestry systems of crop and livestock farming (Dupraz, Liagre, 2008) are producing some very interesting results, broadening the possibilities of imagining new, more diversified farming systems and new landscapes in phase with the issues of the day. In different states the presence of trees in and around pieces of farmland is allowed by law or, on the contrary, poses problems because of the separation that may have existed between rural and forestry codes. In industrial farming, country trees were considered an obstruction to farming for which there was no longer a place. Not so long ago, in certain States, subsidies paid under the CAP for crop growing were restricted to cultivated fields only, so land covered with hedgerows did not count. Today, on the other hand, the presence of semi-natural features on the land actually under cultivation is a condition of eligibility for subsidies.

Flock of sheep sheltering in a poplarwood

Defining new relations between town and country

Another major development means imagining new approaches to our perception of relations between farming and society. While the rural exodus went hand in hand with the industrialisation of the towns and cities, it was explained earlier that in many countries city dwellers were leaving the towns for the country. Much of the new housing to accommodate them was built on former farmland, and in the absence of planning regulations the result was a disorderly scattering of constructions that disrupted the old urban logic of the villages without any visible benefit. At the same time, on the outskirts of towns and cities, shopping centres or industrial estates well connected by transport networks, sprang up, banalising the landscape characteristics of each site and forcing many city centre shops out of business. High-speed train stations and airports with their huge car parks were built on the farmlands around the cities. Much of this new building was done on very good farmland, which the owners were tempted to sell to the developers. Protecting this land from such property speculation requires the farming profession to participate in the planning process.

States like the United Kingdom, Germany, the Netherlands, Denmark and Switzerland, for example, have managed, through effective regulation, to protect their rural spaces and contain urban sprawl. Their examples should inspire countries under similar pressure whose landscapes are rapidly deteriorating. While it is legitimate that city dwellers should be able to find nature near where they live, there is no need for them to own it, for them all to have private gardens.

Denser constructions inbuilt-up areas, making nature accessible in towns, even growing agricultural products in them, organising easy non-motorised connections between the town and the surrounding countryside, facilitating the direct sale of agricultural produce, creating reception areas in farms, these are all paths that urban planners and landscape designers are working on today. They help farmers make the most of the singular landscape features in their territory while encouraging them to practise agro-ecological farming. This focus on quality products, a quality environment, quality landscapes and a quality welcome is an economic choice much appreciated by urban consumers. More and more local and regional authorities, concerned about questions of transition towards the sustainable development of their territory, are taking an interest in keeping farming activities alive and proposing means of protecting farm land and financial support for agriculture, subject to the farmers also committing themselves to the transition at their own level. Farming is thus becoming not only an activity that produces essential resources, mainly food, but also a piece of the urban composition or, more broadly, the landscape composition of the territories. Major cities like Milan, Munich and Lille have developed projects to enhance the landscape in the surrounding agricultural areas.

Thus, unlike in the 19th century, the landscape was largely absent from agricultural policies during the second half of the 20th century as it served no useful purpose in an industrial world where even farming was industrialised. Today, following the COP 21, in a context of commitment to the transition towards sustainable territorial development, the need to define a new relationship between farmers, nature and society invites us to renew the close ties between agriculture and landscape.

Path around a village, marking the boundary between residential gardens and cultivated fields

From this first part of the report, retracing the history of relations between agriculture and landscape, two main ideas thus emerge:

Landscapes are the expression of projects

The examples given in the first part show how the landscape is the result of development projects and how the spatial translation of those projects was either intended or endured, depending on the era. The art of territorial planning in Europe developed with varying vigour from country to country and from one era to another, leaving us an often remarkable and varied landscape heritage that we still enjoy to this day. What we are trying to protect is the result of the best projects left by previous generations. Working with historians capable of explaining how these landscapes were devised to solve the problems of their day shows how we can take inspiration from these methods. They remind us that to find solutions to modern-day challenges it is in our interest to imagine a spatial project adapted to each context, to guarantee the effective transition desired.

Landscapes are a collective asset

Each region, each exploitation inherits a landscape heritage, rich or otherwise, that it has to recognise and manage, not dilapidating it but, on the contrary, making it fructify, in our own interest and in that of future generations.

It is a *cultural and human heritage*, for the extreme variety of Europe's landscapes is a treasure that offers a vast range of sensory experiences and perceptions of reality. It is also an *ecological heritage*, for in the man-made landscape mosaic, wild and domestic animal and plant species have developed, strengthening the local biodiversity conditioned by the natural specificities of each region. Lastly, it is an *economic and technical heritage* that helps supply a wide range of products essential to the independence of our continent. In connection with that purely productive function, rural landscapes are a factor to be taken into account in local development policies to provide residents with a calmer quality of life than in the city, to foster tourism, to attract image-conscious firms with a quality working environment for their employees.

Recommendation no. 1: Build awareness of the relationship between landscape and agriculture in each country.

2. The contribution of landscape to agriculture

The European Landscape Convention makes reference to the values of sustainable development and that is the spirit in which we shall present the key elements of what we shall call landscape approaches in agriculture to "guide and harmonise changes which are brought about by social, economic and environmental processes" (European Landscape Convention, 2000). The implementation of such approaches is key to setting in motion a process of transformation of agriculture by providing both the will and the means for change. Used in this way, the landscape becomes a *tool* at the service of agriculture that contributes to sustainable territorial development, rather than a constraint imposed on farmers. Landscape is also the object of a *project* at the service of people's well-being.

After presenting the common features of these approaches, we shall begin by explaining how to use them at the level of a sustainable development project carried out by a farmer on his farm, then how to use them to engage the farmers in a region in a process of recognition of their activity in connection with the other players in their territory.

Different approaches to landscape

The definition of landscape, enshrined in the European Landscape Convention in 2000, as "an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors" acknowledges the dialectic that exists between the space-object and the observer-subjects. The recognition of the materiality of the territory and the diversity of perceptions underscored by this definition leads us to take into account the points of view of the farmers, those of the other players involved in spatial development and those of the populations, to imagine territory-specific projects which are more coherent and in phase with the challenges of our time. While for the farmer, as a professional, the "area" concerned covers *the production space* he develops and models in keeping with his agronomical objectives, that same "area" is experienced and "perceived by people" as a *living environment*. This point requires us to be capable of articulating objective and subjective approaches to set a project dynamic in motion based on the know-how and the sensitivities of all concerned.

Sensitive approach

Unlike more technical approaches, sensitive approaches are interested in how the landscape is perceived. Beautiful, ugly, attractive, disgusting… these are the sorts of adjectives used by farmers, inhabitants or visitors to a region to describe some part of a territory or some landscape feature. These perceptions, which are not always voiced or discussed, influence the attachment of residents to their living environment, or the attractiveness of a territory as a site for new activities or for tourists. Knowing how to compose fine landscapes becomes a fully-fledged skill essential to a certain *savoir vivre*, as well as to a sound economy. Sensitive approaches to landscapes mobilise emotions, sensations and feelings to facilitate inventiveness and creativity and imagine new landscapes. Calling on all the senses, but particularly sight, these approaches use the notions valued in the art of garden design, such as harmony, contrast, resonance, open or closed spaces, alternation, depth, transparency, balance, viewpoint… They include the perception of volumes, the organisation of boundaries and the mosaic of the land with its ever-changing textures, colours and smells. The farming world no longer claims these skills, whereas individual farmers, when asked, frequently prove to be extremely sensitive to the (often negative) effects on the landscape that their activity generates, whether they like it or not.

Wine tasting in front of a fresco of a vineyard landscape

Geomorphological and climate-based approaches

Limestone or granite sub-soil, steep hills or rolling plains, mountains or coastlines, these are the plinths on which landscapes are built. Together with the climate, Mediterranean, continental or Atlantic, they are the factors every society has had to take into account to develop its territory, endeavouring to turn these apparent constraints into advantages. Knowledge of the hydrographical system of each catchment basin, with its slopes and its network of rivulets, streams and rivers, is fundamental because that is what organises the whole way a territory functions, with an essential influence on the location of buildings, paths and farmed lands. Certain geological formations with particular, exceptional or picturesque shapes have become landscape and cultural references, like the volcanic island of Santorini in the middle of the Aegean Sea, which houses one of Europe's oldest vineyards, or the fjords of Norway or the hot springs of Iceland which fire the imagination. Landscape approaches attach importance to the geomorphological and climate characteristics of a territory, which are essential in understanding which technical solutions to implement and in grasping the cultural importance of certain singular geological formations.

Map of soil types

Sheep grazing on salt meadows

Ecosystem approaches

Given certain geomorphological and climate conditions, different types of flora and fauna will develop in the north and south, the east and west of Europe, in coastal regions and in highlands, adapting to the specificities of each territory. The societies that have prospered in each region have done their best to limit the presence of dangerous plants and animals and encourage useful species. Since the moment when agriculture began to develop they have transformed space, cleared forests to cultivate useful plants, planted, ploughed, selected, introduced... They have created new environments permitting the spread of certain species to the detriment of others. Flows, links, lines, corridors, networks, fractioning, islands and clearings… are the notions used in the ecology of the landscape as a basis for reflection on projects on the scale of a territory or a farm, to make nature an ally.

The transformations made to satisfy the needs of a petroleum-based society destroyed numerous ecological continuities and landscape structures essential to the proper functioning of a territory; farming methods based on the use of pesticides destroy many species useful to man and to the overall balance of nature. To change our relationship with nature we must re-learn things we have forgotten. Farmers, hunters, fishermen and anglers, naturalists, beekeepers, nature lovers all have points of view and know things about the ecology of their regions. Bringing them together in the field to work out the principles of development in a logic of multifunctionality of a territory is a method that has proved its worth: each individual's knowledge contributes to everybody's knowledge, and helps to define a collective project.

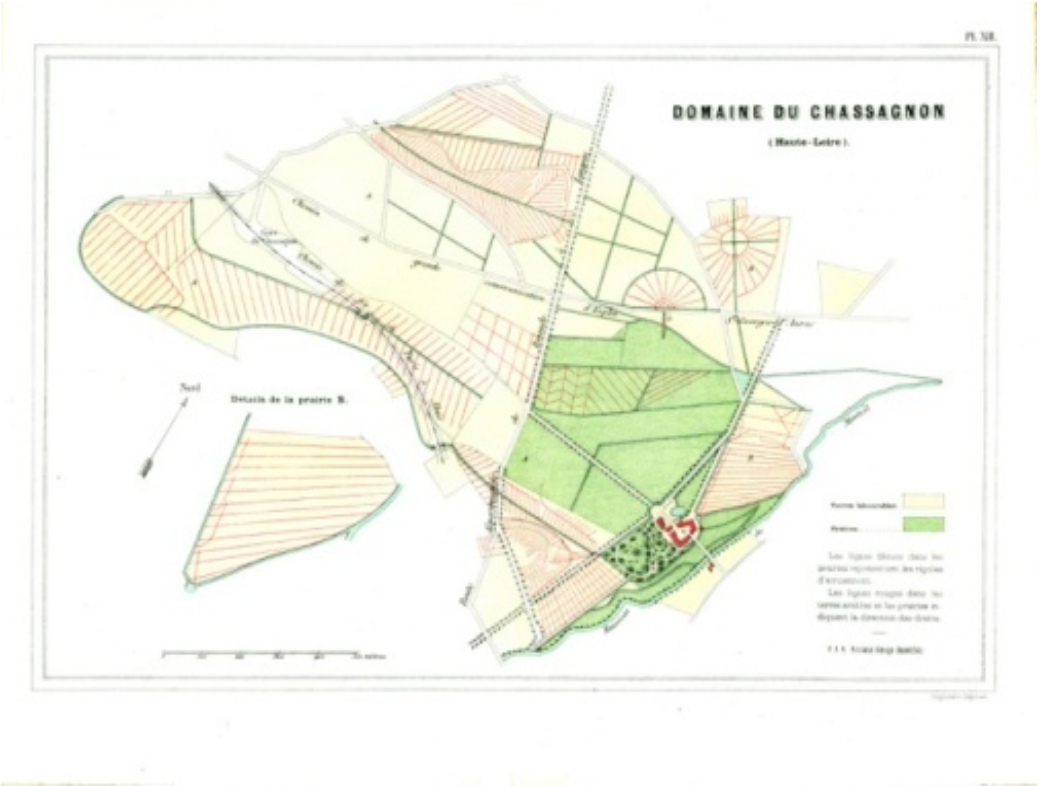
Biological riches of a wooded landscape with its hedgerows, meadows, and sunken paths

Historical approaches

Every territory has a history that one can read in the traces left in the organisation of the land and buildings. They reveal the relations between those who own the land and those who work it, and remind us of conflicts which, if they have not been resolved, can block development projects even today. They also reveal the intelligence our forebears needed in order to develop collective or private spaces and make life possible in these territories, and from that point of view they inspire us to find

new technical solutions. Knowledge of the past can lead planners to adapt certain tried and tested practices and put them to use again at the service of equipment that works without fossil fuels.

The associations and firms that are interested in reintroducing country trees into agricultural production systems because of the many roles they can play, or those that offer a new future to drystone techniques to replace concrete in supporting walls for terraces, provide good examples of how the lessons of history can be used in modern-day projects. Encouraging landscape protection associations to share what they know about the agricultural history of a territory with farmers will enrich everyone's knowledge and avoid stand-offs between "protectors" and "developers", making them all participants in a new project rich with the knowledge of the past.



Plan of the drainage and irrigation system (in red) of a prize-winning farm in Haute-Loire, France

Geographical approaches.

If agriculture makes up an often substantial part of the rural landscape, other activities also contribute, and the way they are implanted in the landscape influences the positive or negative perceptions felt by local people and visitors alike. Road and rail networks, canals and river features, power and telephone lines and nowadays wind farms facilitate exchanges, keep flows moving and allow people to communicate, while at the same time restructuring the landscape. The built heritage is the fruit of an often ancient history, the expression of a close bond with the local environment, as seen in the construction materials used and in the principles of location adopted to avoid natural hazards and adapt to climate constraints. As new housing encroaches on the rural world, resulting from the urbanisation of the countryside, the structure of traditional farm buildings deserves to be protected, to give direction to new forms of urbanisation which are low-energy because they are adapted to the place and the climate. Other activities such as forestry, industry, crafts, commerce, services, tourism, advertising and power stations also influence the quality of the landscape, and landscape projects take

into account their positive or negative influence on rural landscapes in order to learn how to integrate new developments coherent with what already exists and to enhance the autonomy of the region in terms of energy.

Rural landscape composed of farmland, forest, factories and roads

Sociological approaches

Each individual perceives the same landscape in his or her own way. Their childhood, their education, the values they were taught, their social environment, their knowledge and their interests make them sensitive to certain things that others might not even notice. This results in different appreciations, which are often complementary but which can become conflictual if we are not careful. Experts often tend to consider that there is only one way to address a problem and believe that the solutions they recommend should be heeded because they are right. Such working methods are based on exclusion and power relations. However, landscape approaches that allow for the diversity of perceptions are based on the expression of different points of view and on discussion to find the best solutions acceptable to the largest number.

Different viewpoints on landscape

Recommendation no. 2: Collate and share the different points of view expressed on the relation between landscape and agriculture.

Landscape principles at the service of sustainable development

If work on the landscape is to be useful in setting harmonious sustainable development projects in place and fostering energy transition, it must apply a few essential principles (R. Ambroise, O. Marcel, 2015).

Contextualising the analysis and the projects

Because the technical efficiency and power of the means of intervention required standardisation, the petroleum era privileged standard modes of production, and spaces developed in a homogeneous manner to facilitate the mechanisation of work. The massive use of chemical inputs made it unnecessary to take into consideration the differences in the agronomic potential of the soils in each piece of land. As we saw earlier, however, the environmental, resource sustainability and social consequences of these choices made it necessary to find alternative methods. How to maintain sufficient global productivity to cater for the basic needs of mankind while sharply decreasing the consumption of fossil resources, which is largely responsible for global warming and pollution? One possibility was to rethink the future of the world based on its differences rather than trying to do away with them, and impose a single model everywhere. Each territory is the result of a particular natural and human context that must first be understood and then put to good use in the transition towards sustainable development.

Taking history and geography into account

Studying what it is that makes each territory different from another in terms of its agrarian history in bygone days and its geography is a fertile exercise. Understanding how societies managed to move forward using only locally-available resources and energies and how they organised space to be able to use those resources, liberates the mind to imagine solutions for the future other than present-day models. Conditions have changed, of course; the number of farmers has decreased considerably, climate change is already beginning to influence the possible choices of crops or livestock to farm and marketing methods have become extremely concentrated. Even so, by paying attention to the inventiveness of past solutions, we can confidently anticipate the decisive choices to be made to shape the agriculture of tomorrow. One example would be restoring the walls that used to support the former landscape structures, the usefulness and relevance of which was lost to the modernisation of the territory, and put the walls to new uses.

Council of Europe 2016 Landscape Prize-winning "Fabulous" Hetés trans-frontier landscape between Hungary and Slovenia

Reorganising farmlands according to their agro-ecological potential

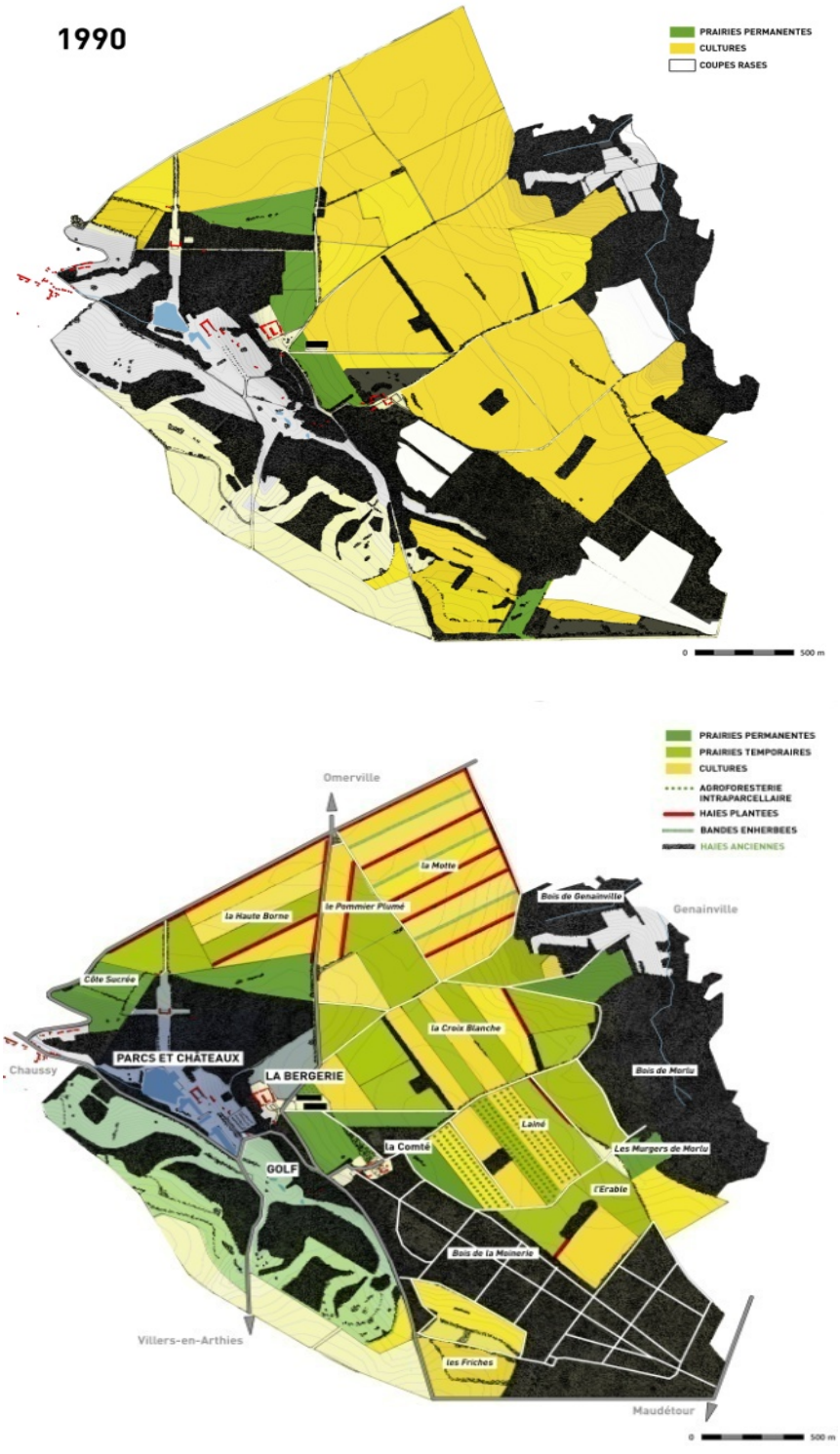
The mechanisation of agriculture considerably altered the shape of the land. Farmers used to adapt the shape of their fields to create pieces of land of uniform agronomic potential. Their size corresponded to the amount of work a man could do in one day with his horses or oxen. The use of fertilisers and tractors freed farmers from these constraints and since then the size of their fields has just grown and grown. This increases the risk of infestation of the crops by parasites, so the farmers have to use more and more pesticides.

The turn towards agro-ecology, taken by an increasing number of farmers, focuses on the best way to organise fields to facilitate the use of natural resources instead of chemical fertilisers and pesticides.

The first step is to relocate crops, meadows, vineyards and trees on the most propitious pieces of land and thereby take a renewed interest in the agronomic potential of the soil (without inputs). Various forms of rotation will then be defined, depending on the characteristics of the land concerned. In many cases this will result in a major transformation of the landscape, in particular by making more room for grass and pasture land, as well as greater crop diversity. Using animal manure as compost and increasing the production of vegetables makes it possible to reduce the use of chemical fertilizers on crops.

The second step is to organise the fields so that beneficial organisms are able to colonise the farmlands and prevent loss of yield when the farmer scales down the use of pesticides. The work of researchers in landscape ecology converges in confirming that beneficial organisms colonise the area up to about 60 metres from their shelter. This shelter is made up of semi-natural zones like grass verges, hedgerows, copses, drystone walls, ponds… most of which unfortunately no longer exist in modernised agriculture.

By taking this principle and factoring in local characteristics, we end up with an interesting basis on which to reorganise the division of the land in the interests of greater agro-ecological efficiency. Farmers are less exposed to loss of yield when they diminish their use of pesticides. Reorganising the subdivisions of farmland to rely more on local resources and as little as possible on chemical inputs is a course of action too often ignored by agronomists. This principle deserves to be rehabilitated, to introduce agro-ecological systems suited to each type of soil.



2000

Villarceaux farm. Layout of fields in 1990 and in 2000, when it was reorganised in a transition to organic farming. The average size of a field went from 20 to 8 hectares.

The Afac-agroforestries Association, which defends country trees, proposes taking the results of this work on landscape ecology into account to define new conditions for the payment of subsidies to farmers (under the CAP, for example, or more generally by States). It would replace the condition requiring farmers to keep a small percentage of land area of ecological interest in their utilised agricultural area (UAA) in order to qualify for subsidies. This requirement, which pays no heed to the location of the natural features concerned, is considered a constraint by farmers and deemed ineffective by environmentalists. Afac-agroforestries proposes calculating the ratio of the area potentially colonisable by or favourable to beneficials (AFB) to the utilised agricultural area or UAA. This ratio of UAA/AFB should not exceed a certain amount, fixed to satisfy the interests of both agriculture and the environment. If adopted, this measure would give an agro-ecological legitimacy to the conditions of entitlement to subsidies and considerably facilitate the acceptance of this constraint by farmers. The calculation, made directly from the aerial photographs which are used to apply for the subsidies, involves no additional administrative costs. Based on an agro-landscape approach, such a measure has the advantage of being adaptable to different contexts, while enhancing the singularities that give the territories their identity. The resulting redistribution of land would help improve profitability, solve various ecological problems linked to biodiversity and water quality, and in certain cases help combat erosion.

Recommendation no. 3: Give farmers the tools and means to reorganise their lands along agro-ecological lines

Improving the system of protected designations of origin

The system of protected designations of origin (PDO, or AOP), which is based on the acknowledgement of the close connection between the natural characteristics of the local land, traditional practices and the unique gustative qualities of a product, is an example of a contextualised agricultural system. Where the specifications governing the products concerned have become too lenient with regard to the use of chemical inputs and the size of the agricultural lands concerned, that connection may have been weakened. Changes for the worse, in terms of both the distinctive taste of the products and the distinctive quality of the landscapes, have caused many farmers themselves to react and develop more demanding specifications in terms of reduced dependence on chemical inputs and a reorganisation of the land they use. For certain PDO mountain cheeses, for example, the specifications now require the animals to be fed mainly on grass and fodder produced within the designated area, which obliges breeders to use all the available territory rather than just using the easiest lands to work and completing their stock with feed bought from other regions. Certain PDO vineyard associations are actively trying to persuade farmers to use fewer inputs and reconsider the size and shape of the lands they cultivate in order to avoid expanses so large that they favour erosion and the disappearance of the semi-natural zones that attract beneficial organisms. All these changes in farming methods and land organisation patterns draw inspiration from knowledge of how things used to be done and are adjusted to suit modern-day agro-ecological conditions and the available manpower. While the decrease in chemical inputs helps underline the distinctive qualities of the products, the new land patterns help bring out the singular nature of the landscape, and all this makes the products more appealing, based on the subconscious connection consumers make between the quality of the products, the quality of the landscape and the quality of the environment.

Chestnut grove in Corsica, used to produce PDO flour and for grazing

Recommendation no. 4: Defend the PDO (or AOP) system in international relations and pay more attention to landscape in the relevant specifications.

Fostering integrated and multifunctional approaches

The monofunctional spatial zoning that was the norm in land development in the 20th century was characterised by extremely high land and energy consumption. If we were to assign a single function to each piece of territory, be it for food, energy, ecology, water management, urban development, industry or leisure, it would take the surface area of several planets to satisfy all the needs of humankind. Conversely, improved knowledge of the local characteristics of each territory permits us to find ways of solving several problems in a single space. The integrated methods that characterise landscape-based approaches propose spatial solutions capable of satisfying various requirements at the same time. The landscape which organises them becomes the source of a new economy in terms of farming and energy but also of transport, urban planning and the environment.

Planting trees in fields

Agro-ecology offers farmers various technical measures to help them reduce their consumption of fertilizers, insecticides and fuel, without too serious a decline in their yields. The basic principle lies in the idea of a diversification of workshops –breeding and cultivation– and within each of these main workshops, a diversification of production. Animal manure, for example, concentrates the nitrogen in the grass and straw that the animals eat in the meadows; once composted, it helps enrich the fields where crops are grown and partially replaces chemical fertilizers. This system is even more effective if different herds graze the land in succession. Also, the diversification of crops makes for longer rotations, which limits the possibilities of development of parasites reliant on a single type of crop: this in turn makes it possible to reduce the use of pesticides. Other actions strengthen the efficacy of these systems: covering the soils in winter, not ploughing them, choosing more resistant seeds and breeds… This agronomy relies on the reciprocal benefits of the association of different crops and livestock species on the same territory.

Yet some farmers are not ready to move on to mixed crop and livestock systems which they consider too demanding on their time. The solutions proposed are therefore less convincing in their eyes and they see using inputs as an economic necessity. Reintroducing trees into agricultural systems could be a solution.

Contemporary agronomists have generally tended not to pay much attention to country trees, which until recently were considered obstacles to farming. It was the findings of landscape designers working with farmers that showed the importance in each small region of country trees associated in various ways with the local farmland. In spite of their gradual disappearance, these trees still produced income for farmers and served a number of useful purposes: hedgerows, meadow orchards, wooded pastures, alignments, forest pastures… This observation changed ideas about what might make an "ideal" agro-ecological system on the scale of a farm. It would combine annual crops, perennial features (with meadows and trees) and livestock. This approach offers a farmer who cannot or does not want to breed animals, for example, or who wants to reduce the size of his herd, to move to a system of crops and trees and go much further in reducing other inputs.

Experiments with sylvo-arable or sylvo-pastoral agriculture are quite encouraging from this point of view. According to researchers and experimental farmers, trees placed in lines at regular intervals in fields where crops are grown or in meadows offer undeniable advantages in economic and agro-ecological terms. Converted to money, the overall production of a well-run agro-forestry exploitation (income from wood and crops) is at least 30% higher than the combined income from agricultural production on one half of an equivalent exploitation and from forestry production on the other half.

Sylvo-arable farming

Linear orchard amidst crops

In livestock farming zones, grazing fields and their hedgerows are now a modern tool for farmers seeking to return to open grazing systems to avoid having to feed their livestock with complements such as soya feed from far-off countries, or maize, a crop that generally requires treatment with pesticides. The presence of trees will protect the animals from the wind and sun and, once again, contribute to biodiversity, enhance the landscape and improve the environment.

Increasingly, farmers are interested in reintroducing trees for the numerous positive effects they have on the territory in terms of agronomy, economics, water management, ecology, energy, climate and landscape, and that are developing spatial management plans for the trees, including a map of plantations, felling schedules and maintenance recommendations (shaping, pruning, clearing…). Analysis of the landscape will suggest a multifunctional re-plantation project capable of fulfilling all the required functions in the best possible way. To achieve this it attaches great importance to:

– the location of the trees, which is determined differently for each plot according to soil quality;
– how to combine them: isolated trees, alignment, hedgerow, sylvo-arable option, meadow orchard, wooded meadow, copse…;
– pruning and maintenance.

With the help of such management plans, country trees become a significant source of income for farmers, while providing other services and helping the farmers save money; in agro-ecology, they provide a home for beneficial organisms, making it possible to reduce pesticide use; in terms of water management, they help water soak into the earth and control its flow; they limit the pollution of water, soil and air by fixing and recycling pollutants, particularly the CO^2 in the air and N^2O; through their roots and dead leaves they enrich the soil with organic matter and help earthworms do their job; they block erosion, provide a constant supply of wood for heating, shelter crops and animals from the wind and sun, and embellish the landscape with their volume, colours and smells. Trees thus become a fully-fledged component of a sustainable agricultural production system.

Sylvo-pastoral farming

The European Agro-forestry Federation (EURAF) brings together associations working in different countries to reintroduce country trees. They propose a number of measures to help trees find their rightful place in agricultural production systems:

– legal measures to acknowledge the status of country trees in rural codes so that their presence in or around fields does not decrease the surfaces eligible for subsidies;

– land ownership measures to precisely define the rights and duties of owners and farmers with regard to trees;

– scientific, pedagogical and technical measures to finance research in agro-forestry, to increase awareness in students of agronomy, forestry and landscape, and to train consultants capable of helping farmers who want to introduce or reintroduce trees into their production systems;

– and economic measures to set in place all the ingredients of a new economic chain, ranging from the local production of quality plants to the different ways of exploiting trees (construction timber, fuel).

Once these conditions are fulfilled, trees will be an asset in helping all farmers become less input-dependent. Their presence will contribute to giving each region a distinctive touch because of the species and shapes of the trees suited to each territory.

Recommendation no. 5: Foster the revival of country trees as a component of an agro-ecological production system, adapting them to each context.

Reviving the drystone technique

In other contexts, drystone walls find their place in production systems. This time-old technique which makes it possible to cultivate difficult spaces still has all its legitimacy today because of the numerous functions it fulfils. Be it in terms of support, drainage, biological reserve, earthquake resistance or even low building costs, drystone walls provide solutions where concrete walls cannot compete. As with country trees, new skills are emerging: trades that had almost completely disappeared are making a comeback. Mastering landscape approaches is essential to them and associations like the French Federation of Drystone Professionals are working all over Europe to restore a high quality professional environment.

In some hillside vineyards farmers were tempted to build concrete walls, with weep holes to let the water through. But disaster struck during heavy storms, when the pressure of the water knocked the walls down. Nowadays more and more vine growers are opting to learn how to build drystone walls, which they consider more effective, less costly and preferable in terms of image and landscape.

PDO onion growing on terraces

Olive growing on terraces

Recommendation no. 6: Develop training in drystone building for farmers and their advisers in the regions concerned.

Green and blue belts

On the scale of a territory much larger than one farm, landscape approaches can address the issues in a more integrated, multifunctional way. Following the slicing up of the territory by roads, motorways, railways and other networks that criss-cross the modern landscape, programmes have been launched in different countries to create *green belts* or ecological corridors to allow protected natural species to move from one refuge to another. The debates that take place when these belts are installed say a lot about the disadvantages and the risks of clinging to a sectorised vision of the territory that translates into monofunctional zoning: agriculture on some land tracts, urbanisation on others, natural networks elsewhere. A simplistic way of deciding where these belts should go would be to place them on the shortest line between two refuge zones. This would be tantamount to considering the belts as spaces devoted specifically and exclusively to the protection of nature. It would result in more zoning, reinforcing the idea that land development is all about applying rules and laws, and power struggles between lobbies. Another method consists in thinking how these green belts, in the broad sense of the term, can be useful to developers engaged in the sustainable development of their territory. It then becomes a question of a project to protect biodiversity that is also in tune with the aims of environmentalists, farmers, water supply companies, city park services, town planners and the people themselves. In this area, as in others, seeking to understand the logic behind the way farmlands used to be divided is a good key to setting a green belt project in motion in a rural area. In the past, fields were not necessarily rectilinear; they adapted to the relief, to pedological variations, and were the result of the successive divisions or consolidations linked to inheritance. Farmers interested in turning to agro-ecology need semi-natural spaces around their fields to house beneficial organisms and birds and feed the bees and other pollinators. Studying old maps and photographs and talking to people who remember how plots of land were organised prior to consolidation can help determine the right locations for the new green belts. If these semi-natural ‘refuge’ zones are present in sufficient number and correctly dispersed around the farmland, beneficials will be able to colonise the whole production area and effectively combat pests; the farmer will be able to sharply reduce his consumption of pesticides without too much impact on crop yield. In addition, inside the cultivated plots, greater animal and plant diversity will be able to develop, without entering into real competition with the

crops. The water left by rain falling on these zones will no longer have to be decontaminated. Awareness of the beneficial role played by farmers with regard to the environment will then help reduce any tensions that may exist between farmers and ecologists. By helping to limit the use of chemical substances, such an integrated green belt policy fosters biodiversity while at the same time helping to reduce the dependence of our economies on fossil resources.

More detailed knowledge of the territory and thinking about the multiple uses to which land can be put are thus means of imagining more effective solutions than those obtained by simply applying zoning rules and models, even for “green” belts.

Green belt made up of farmland under permanent meadow and riparian trees

Recommendation no. 7: Strengthen the role of farmers and landscape designers in the bodies responsible for designing and implementing green and blue belts or ecological corridors.

Involving local populations

When seeking to introduce more complex systems, with multiple uses of the land, the participation of different players becomes indispensable. Landscape approaches, as mentioned earlier, draw on knowledge of different disciplines which a single individual generally does not possess. It is therefore necessary to bring together several skill sets to study the project and diagnose solutions.

In the years of modernisation of agriculture, farmers grouped together to undergo training, equip themselves and develop. They set up study groups, with agronomy and management consultants, in various forms, depending on the history of each country. In general, however, the world of agriculture kept very much to itself. Today the future of agriculture will depend on how farmers manage to develop partnerships with other sectors of society and define projects together.

Conversely, the future of the territories will depend on how much interest elected officials take in the logic of the farmers who occupy and exploit the spaces they manage. Local and regional officials are becoming increasingly involved in action programmes concerning agricultural areas. They are responsible, for example, for questions of access to water and its distribution, the production of renewable energies, urban waste disposal, planning the installation of new housing and industrial estates, improving the living environment, developing tourism, new forms of transport… All these issues are directly connected to the world of agriculture.

Meeting and tour of the land for livestock farmers, elected officials, local inhabitants and consumers to discuss the multiple advantages of meadows in the landscape

The landscape is the material and cultural bedrock that bonds local populations together. Thinking about its future is an excellent way to bring together the inhabitants and users interested in the future of this common asset. The landscape is everybody's business. Everybody is an expert in his own way. Whether they use it on foot, by bicycle, by car or by train, whether they are young or old, athletic or disabled, everyone uses the territory in one way or another, and appreciates or criticises it. Everybody knows something about how it functions, about its history. All this knowledge needs to be shared in order to enrich the overall picture and develop richer, more complex, more welcoming projects capable of winning the support of the greatest number.

So, be it the farmer, the expert, the local official, the inhabitant or the tourist, everyone has a legitimate opinion about the future of the landscape which deserves to be expressed, heard, taken into account in order to imagine together the forms to invent to make our collective and individual lives easier and more agreeable.

Recommendation No. 8: Involve the populations in the elaboration of agricultural projects.

Flowering meadow competitions

The general agricultural competition of flowering meadows came from Germany, and more specifically the Black Forest. A major effort had been made there to define an agri-environmental measure to support farmers who wanted to keep permanent meadows using little or no chemical input. The idea of a competition was taken up in France first of all by the Bauges natural regional park, then by that of the Haut-Jura. Today it concerns natural meadows all over France, is part of the General Agricultural Competition and is spreading across the borders to Switzerland, Italy, Belgium and Spain. The meadows are judged by their forage, flora and fauna, apicultural and landscape value. In each

competing region, the members of the local jury, made up of people qualified in these different areas, visit all the competing meadows following a well-established pattern. The prize-winning farmers prove that it is possible to keep and tend meadows that produce high levels of forage while enhancing biodiversity and contributing to the preservation or creation of open landscapes and their presentation. The on-site observation, the ever informative discussions, the articles in the press and the television programmes generated, enhance the image of livestock breeders committed to agro-ecological practices and bring the diversity of purposes served by natural meadows, and the importance of their existence, to the attention of other farmers, the population and elected officials.

Jury of flowering meadows competition and flora in one of the meadows inspected

Daring to speak of beauty

The landscape as understood in this report is used to help farmers and, more broadly, planners and developers to find more effective solutions in phase with the challenges of transition. This quality of the landscape must be asserted and better understood by farmers and their advisers, so that they can use it to improve their projects.

However, the term landscape also has a sensitive, emotional dimension linked to a sense of fulfilment in the face of a successful achievement of evident high quality. In the face of what we call *beauty* or *harmony*, we all feel a powerful attachment to the world and respect for those who forged that harmony. The search for beauty is one of the essential needs of humankind. It is expressed in every period in history and reveals the values that drive it. It means looking beyond mere functional considerations and paying attention to what it is that determines our human condition and joins us together through all our differences. Where landscape composition is concerned the diversity of individual viewpoints does not prevent us from achieving broad consensus as to their beauty, as the inhabitants of each city and region are also members of a society that shares common values, inherited cultural forms and a symbolic heritage. In order to invent the forms of the future together, farmers will be able to draw on these resources.

In the first part of this work we spoke of the days when artists and farmers influenced each other to build the landscapes we inherited. This understanding was at least partially eclipsed in the 20th century. At the time works depicting landscapes produced by intensive farming techniques tended to denounce such changes - exploitation of nature, development of individualism, maximum profit - and never managed to stir enthusiasm in more than a small part of the population. This does not make it acceptable, however, to attempt to restrict the need for beauty solely to the contemplation of past successes which, once protected, serve to condone a laisser-faire attitude everywhere else. Why would

our era be incapable of producing high quality landscapes everywhere, acknowledged as such and capable of rising to the challenges of our day and age?

Faced with the multitude of rationales that shape the new landscapes through the actions of the different players, the role of the landscape designers or architects, whose job it is to guarantee the quality of a project, is changing. They no longer have only one client to satisfy: the owner who wants a new garden, the mayor concerned by the redevelopment of a square, the industrialist who wants to improve his corporate image, the developer wanting a décor to make it easier to sell what he is building, or sometimes the farmer who wants to reorganise his buildings and open them to the public. Nowadays all these protagonists must be brought together and persuaded to work together towards a common goal, taking into account everyone's ideas and the singularities of the territory. With sketches, drawings and photos the specialists give shape to the various intentions and expectations, they fire the imagination and formulate proposals that open up new possibilities capable of making these projects desirable, of exciting people and making them proud to have contributed. The sensitive rediscovery of the territory, working on perceptions, prospective questioning: these are methods for venturing into projects that tend to combine the good and the beautiful, business and pleasure.

Modern landscape observatory, Bruche valley, Vosges, France

Recommendation no. 9: Encourage exchanges between farmers and artists.

3. Diagnosis and agro-ecological and territorial project

The application to agriculture of the approaches and principles mentioned in the previous chapter requires a minimum of knowledge of the idiosyncrasies of how farms work, and particularly farms in the process of transition to an agro-ecological system (Ambroise, Toublanc, 2015).

Landscape diagnosis in farming

Every landscape approach begins by establishing contact with the landscape concerned.

Observation of the landscape

An on-site visit is the basic tool of any landscape approach. When making a diagnosis of a territory or an exploitation, it is important to involve other actors or users of the territory and experts, in addition to the farmer.

A group visit to the site

A group visit to the site is an opportunity to bring all these people together: the farmer or farmers concerned, their families, agricultural or environmental engineers and, if possible, local officials and neighbours. By combining affective and rational perceptions, the visit is an opportunity to understand a reality in all its complexity. Everyone concerned can play a part in defining the challenges of the territory based on their own experience, and give their point of view. This is not the classic *crop tour* carried out by agronomists, which is mainly about the condition of the land under cultivation and the production area in the farmer's care. Landscape approaches require a broader vision and also factor in the links between farmlands and the surrounding territory. For example, it is important to observe the features that surround the plots of land: hedgerows, banks and ditches, walls, paths and woodlands, for their different agronomic and ecological functions, but also in qualitative terms. It is also an opportunity to study how the exploitation under study is located with regard to other buildings, infrastructures, developments envisaged by the authorities or by companies, and the landscape singularities of the immediate region. The on-site visit uses sight and the other senses as instruments of learning, it helps reduce linguistic misunderstandings, offers common references, facilitates dialogue, puts adamant or peremptory opinions into perspective, helps the participants understand each other's reasoning and spurs them to action. It offers direct contact unfiltered by figures, speeches, pictures or computers. It saves time.

Diagnosing a farm

Comparing views and know-how

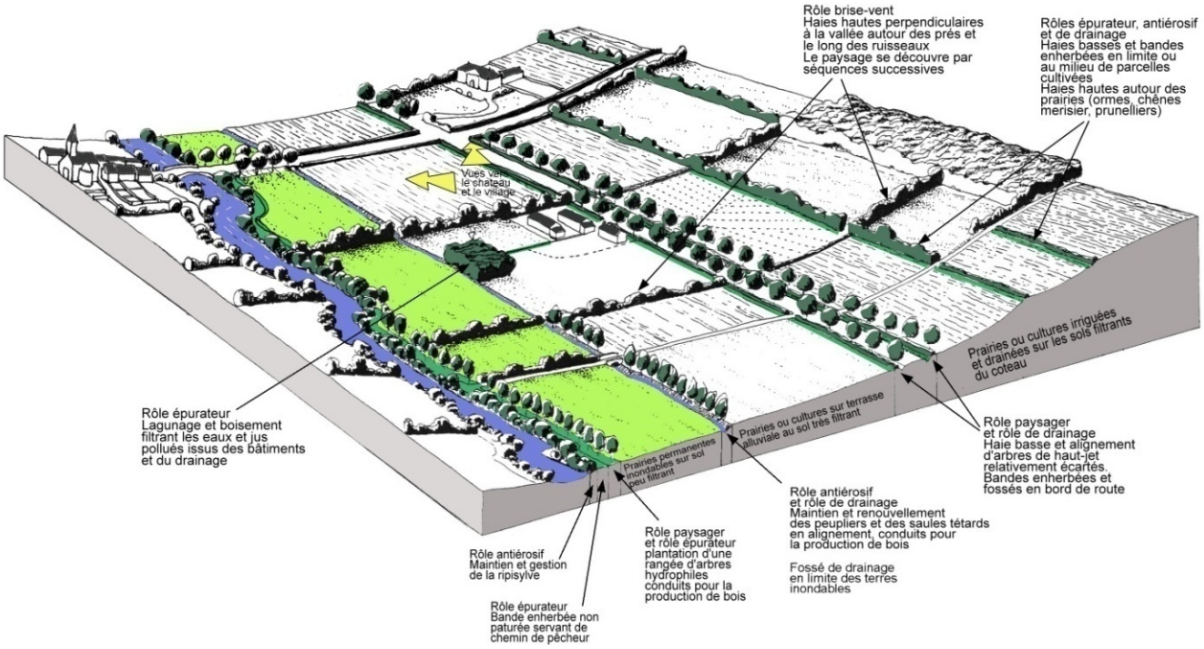
Comparing views and know-how is a method based on the observation that everyone sees things from their own point of view and according to their own experience, culture and knowledge, and the fact that learning what others think is a factor of personal and collective enrichment. The views of a hydrologist, an official, a naturalist or an ordinary citizen can broaden a farmer's vision and make him see opportunities or problems he was previously unaware of. Talking to the different participants on the spot gives those who live and work on the farms an opportunity to express their concerns and their interests. It helps the others understand their choices (productions and workshops, organisation of the land, annual routines…) and their reasons (personal preferences, constraints linked to the market, regulations or the specificities of the territory). With the help of outside opinions it helps detect various agro-ecological or territorial constraints and advantages.

Different points of view on a landscape analysed together

The additional task of documentary analysis

When preparing a diagnosis on the scale of a territory, in many regions it is possible to find landscape charts, plans or maps and planning documents that relate the history and geography of the area, the economic and environmental challenges and the projects concerning agriculture and the development of the territory. Some of these documents offer a good synopsis of most of the environmental, social and economic themes relevant to the area, which may confirm or contradict some of the intuitions generated by the on-site visit. They help one understand and visualise the distinguishing features of the region, to grasp the changes under way and to manage agricultural projects in keeping with the sustainable development of the territory.

When the diagnosis is on the scale of a farm, the usual records of agricultural data are an essential additional asset in quantifying the challenges: plan of the exploitation, aerial photos used to apply for subsidies, grazing or crop rotation plans. Some farmers have old photos or plans which are useful for a historical perspective.



Block diagram

Formulation and presentation of the diagnosis

The presentation of the diagnosis can combine two types of documents: documents on various themes and a spatialised synopsis.

The method of dividing up the landscape helps assemble observations concerning each major agro-ecological theme (soil, water, biodiversity, stone, buildings, energy…) on data sheets including the relevant information and a map or aerial photo indicating the precise location.

The diagnosis proper is a synopsis of all the technical, economic, social, environmental and spatial information collected in the aforesaid theme-specific documents. It is not just a matter of superimposing them but of giving an opinion that integrates and articulates the different data, to identify the main advantages and the problems to be solved and engage the farmers in a sustainable development approach. A map helps to locate the challenges. Understanding the spatial organisation of the territory is essential to improve the technical responses for the production site and the more qualitative responses in terms of the living environment.

The landscape approach at the farming project stage

Once the diagnosis has been established, the landscape approach seeks to improve the farmers' agronomic responses, of course, but also the living environment of the populations concerned by the agricultural projects.

Landscape, a tool at the service of the agro-ecological project

Based on the observations made in the diagnosis and the maps locating the features to be protected or developed and the elements to be implanted, the farmer and his advisers consider the possible changes to the production system by analysing the spatial consequences they would have or what could be

done to make them easier to achieve. For example, what reorganisation of the layout of the fields might help achieve a more chemical-fertilizer- and pesticide-free system of crop production?

How to review the grazing system to let the livestock graze for longer periods in order not to have to buy so much imported feed? Each hypothesis is linked to a place on a map, which helps verify its feasibility, detect any incoherencies and find better solutions.

Seen in this light, the landscape approach helps improve the technical solutions by adapting them to the local agro-ecological context.

Landscape, a component of the living environment shaped by farmers

The technical choices concerning productive land are thus in part the result of analysis of the landscape. They will also impact the new landscape, which is first and foremost part of the living environment of the farmer and his family, the local people and visitors. The move towards sustainable agriculture based on the use of renewable local resources already tends to strengthen ties with the territory and thus to underscore the singularities of the landscape. But special action can be taken to improve the impact of these changes in terms of the quality of the living environment. Sensitive points are detected and given special treatment to make the landscape more interesting, more open, more welcoming and more pleasant to live in: laying paths, borders along roads and waterways, improving farm buildings and the surrounding lands, installing gates in fences, rehabilitating stone walls and other vernacular heritage features, providing panoramic viewpoints and planting local tree varieties. These actions are planned in conjunction with those concerning the agronomic project but without the two necessarily being directly related.

In methodological terms landscape approaches emphasise familiarity with the spatial singularities of the territories and how they are perceived. They deserve to be more widely used by farming consultants and teachers in courses on agro-ecology that they organise for farmers and students. Based as they are on group visits, comparing views, iconographic documents and interviews, these approaches are finally fairly simple, but getting them right takes practice. Interdisciplinary training courses bringing together agronomists, landscape specialists, architects and environmentalists will facilitate the introduction of the landscape as a *tool* at the service of the transformation of production systems and a part of the agricultural *project*.

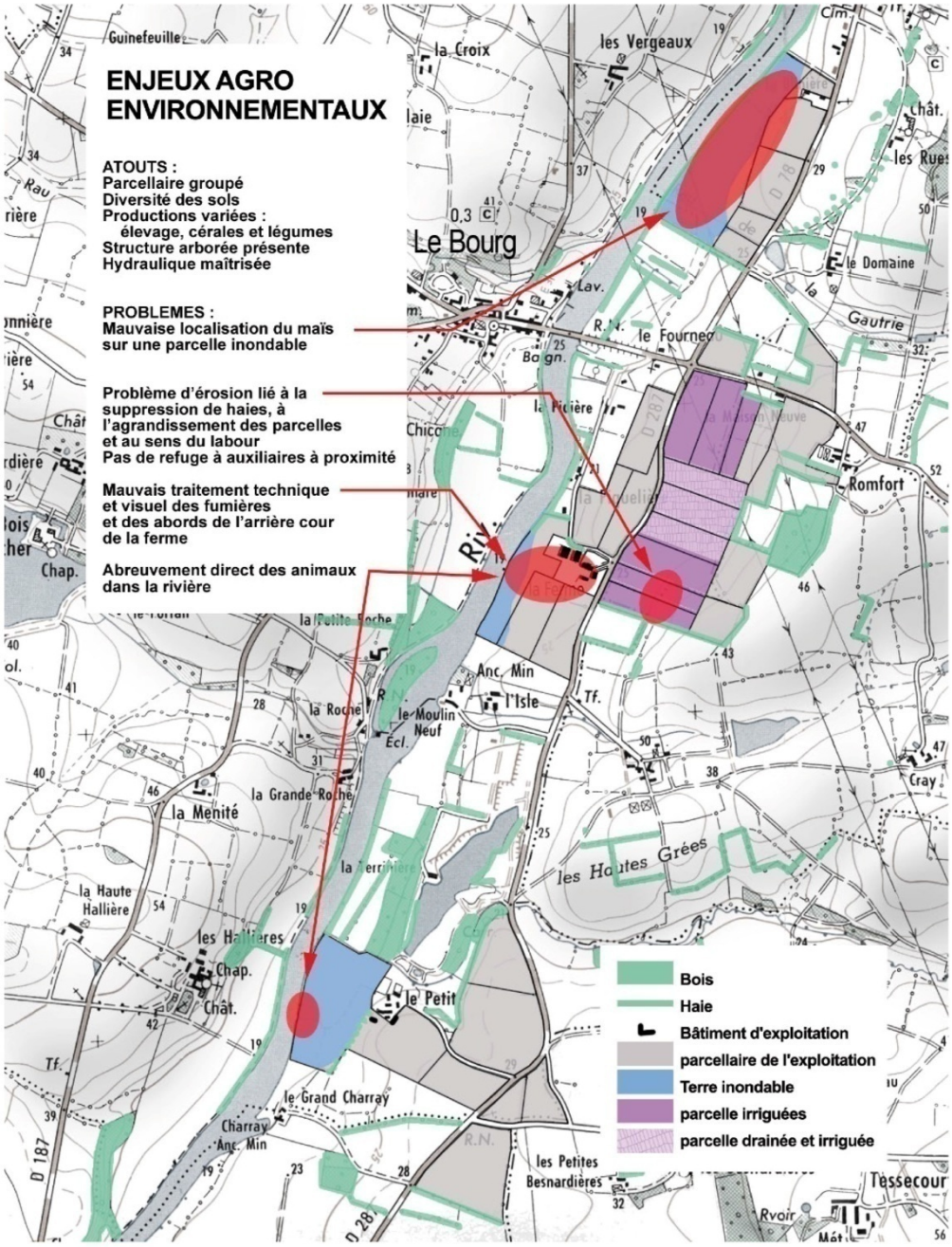
The landscape is thus considered not as a constraint but as a concern that helps enrich the advice given and the agricultural project for the benefit of all concerned.

Recommendation no. 10: Involve landscape specialists in the elaboration of agro-ecological diagnoses and projects. Train landscape specialists in the specificities of the world of agriculture.

DIAGNOSTIC ET PROJET DE DÉVELOPPEMENT AGRICOLE - VOLET PAYSAGER

L'approche paysagère dans le diagnostic d'exploitation

Document de synthèse



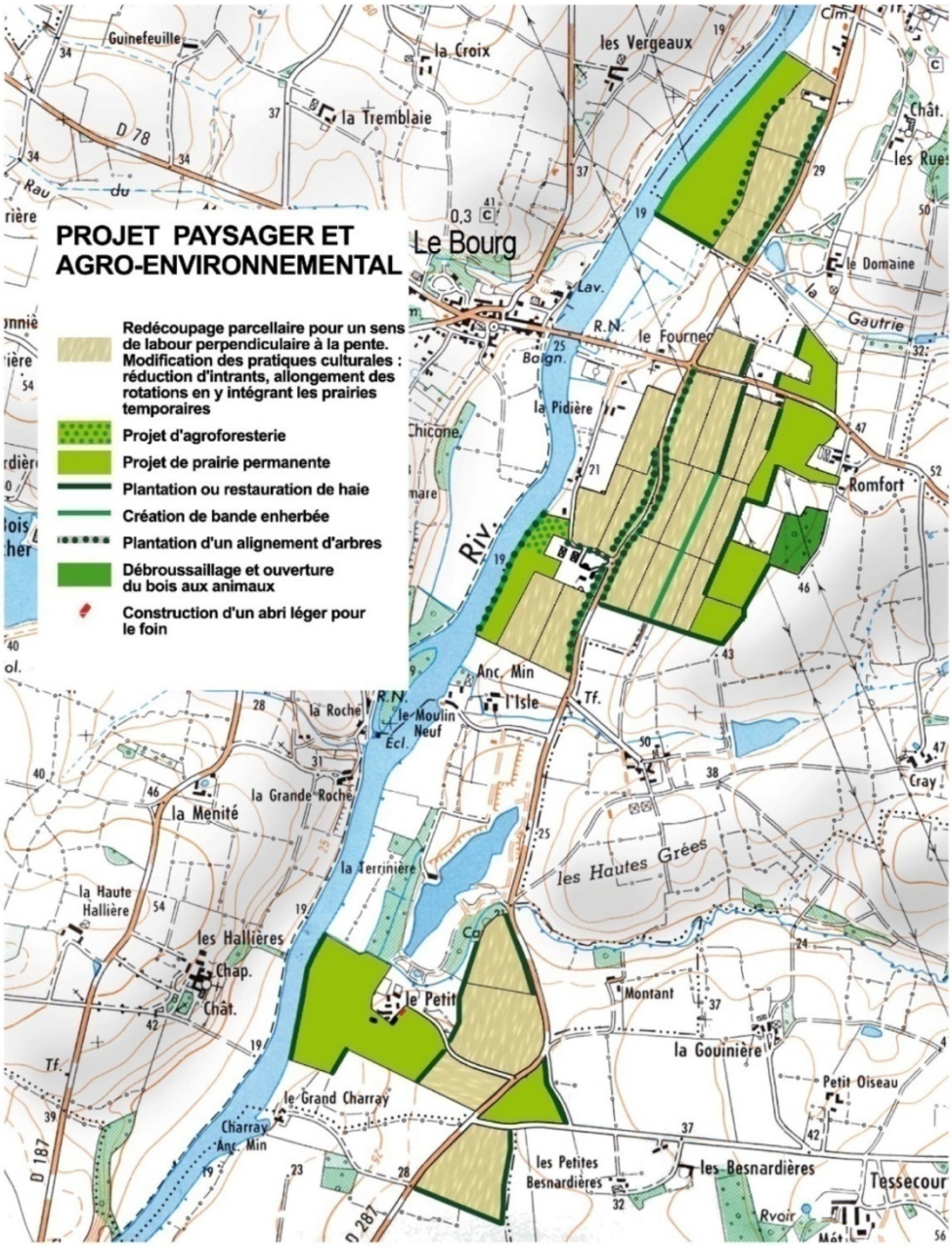
PROJET D'EXPLOITATION AGRICOLE ET PAYSAGE 25

*Example of an agricultural/landscape **diagnosis** (R. Ambroise, M. Toublanc)*

DIAGNOSTIC ET PROJET DE DÉVELOPPEMENT AGRICOLE - VOLET PAYSAGER

L'approche paysagère dans le projet d'exploitation

Le projet paysager et agro-environnemental



*Example of an agro-environmental landscape **project** (R. Ambroise, M. Toublanc)*

Farm buildings

Lying as they do at the crossroads between the technical, heritage and architectural approaches, farm buildings deserve special attention. Old buildings are the result of particular customs, styles, cultures and materials, and they have long contributed to forging local identities. Indeed, the finest and best conserved ones are used in the literature promoting the regions. All too often, on the other hand, modern farm buildings have not received a great deal of architectural attention. The problems differ with the types of building.

Traditional buildings

Traditional buildings that are too small or ill-suited for modernisation often fall into disrepair or are even abandoned, but there are other solutions available to farmers.

Refurbishment

In certain cases the buildings can be re-used for housing or other uses with a little work to bring them up to modern-day standards of comfort. Some countries have set in place incentives to help farmers go to architectural consultants specialised in farm buildings, who help them modernise, consolidate and upgrade this architectural heritage without destroying the most distinctive features.

Change of use

When the buildings are no longer of any use for agricultural purposes, or as housing for the farmer, they can be turned into housing for rent, tourist accommodation or even - provided they are not a source of disturbance for the neighbours (noise, smells, dust, pollution) - into craft trade workshops or industrial warehouses, especially when they have special heritage value, or are an essential part of the overall composition formed with the buildings still in service.

Plane trees framing a traditional farm building transformed into a house

Protecting the small-scale vernacular heritage

The numerous small constructions that dot the rural landscape are places of memory. They remind us of the projects, the work, the way of life of former generations: vineyard cabins, mills, isolated shepherds' huts and "strong" granaries that deserve to be conserved. They are sources of inspiration to imagine the future. All the buildings made of dry stone, wood or clay that associations rehabilitate with the help of craftsmen use techniques based on local resources (know-how, materials and construction systems) and integrate them into their contemporary projects.

Protecting a source

Demolition

Where the buildings are made of materials that pollute, such as asbestos, and no rehabilitation solution seems possible, the best course is to demolish them and recover the materials rather than let them fall into disrepair, with the problems of security and liability that that raises.

Contemporary buildings

Contemporary buildings are unfortunately often architecturally mediocre with insufficient thought having been given to their setting. The model of the metal hangar placed on a concrete slab was adapted to stock crops and equipment and house livestock. This construction system and its volumes clash with the traditional appearance of the rest of the farm. When a hangar is built into a hill, the embankment it generates often accentuates the negative effect on the landscape. For this type of building, the tone and colour of the paintwork or the way the weatherboarding is restored must be given careful consideration. With little investment, however, it is possible to improve the general aspect by planting a few trees or climbing plants or clearing, cleaning and tidying the surrounding grounds.

New projects

New projects, often imposing by their size, leave a strong mark on the landscape. The size of the investments involved and their impact on the landscape oblige farmers to use an architect. The architect's role is to provide for the functional requirements of the farmer while proposing solutions that also take into account the setting, the surroundings, the volumes, the roof lines, the choice of building type and materials, the treatment of the surrounding area, circulation, working hours and the

comfort of the livestock and the workers. He uses his technical and architectural culture to give overall coherence to the project in keeping with the objectives of sustainable development. In fact, today architectural design contributes to the solution of the challenges of energy transition.

New animal breeding facilities in Switzerland, Austria and France

Location

Here, several criteria must be taken into account:

– natural features, such as relief, the masks formed by nearby ridges or woodlands, the seasonal course of the sun, exposure, climate, prevailing winds. These factors are decisive both for the bioclimatic aspects of the design and for the energy production or savings they make possible;
– circulation in and around the buildings to limit pollution and improve working conditions.

New livestock buildings in Germany and Switzerland

The choice of materials

The choice of materials will be made as far as possible with durability in mind. From this point of view *bio-sourced* materials (straw, wood) and *geo-sourced* materials (clay, stone) present advantages in terms of durability, recycling or re-use, insulation, breathability and appearance that more and more architects are learning to master. These alternative solutions require real skills, the learning of which must be proposed in the education system of the building sector. They are the fruit of traditional techniques forgotten due to industrialisation and the general standardisation of building materials and methods after the Second World War.

These choices encourage the development of short supply chains and new economies in the regions. They not only contribute to better integrated, better designed buildings, but use local professionals who are proud to work with farmers to discover new solutions that will leave a positive mark on the landscape. The surroundings also deserve special treatment, which can often use these local materials or plants, drawing inspiration from older forms.

Grass-covered roof in Germany

Architectural quality

Architectural quality is also developed by organising competitions, awarding prizes and introducing teaching modules in schools of architecture to teach students about the specificities of farm buildings and the rural environment. Visits to exemplary constructions give farmers an opportunity to look beyond the ready-made models proposed to them and seek solutions better suited to their contexts.

Weatherboarding and climbing plants on a building in France

Lastly, architects may wish to discuss the project with the farmer. The choice of building type can affect the way in which the space is used in such a way that the farmer becomes even more dependent on inputs from fossil resources. For example, the concentration of dairy animals in ever-larger buildings prevents the direct use of all the land available for grazing. Mobile milking systems can prove more interesting in certain cases in terms of using local forage resources and avoiding outsize buildings.

Mobile milking unit permitting livestock to use all the available grazing, France

Europe has inherited an often sober, high-quality built heritage that adds to the interest of the rural landscapes we inherit. Functional, economical agricultural constructions will find their place in the rural landscapes of tomorrow and express, through their appearance, the quality of the sustainable agriculture project to which they contribute.

New livestock building in Austria

Recommendation no. 11: Involve architects in the design of farm building construction or rehabilitation projects. Train architects in the specificities of the world of agriculture.

Landscape, agriculture and country planning

Relations between city and countryside, farming and town planning, farmers and consumers changed profoundly in the 20th century. In many regions rural exodus was followed by the reconquest of the countryside by the towns, while the number of farmers continued to decline. Agricultural products were transformed by large agri-food groups and sold in supermarkets built on the outskirts of towns.

Protecting farmlands

These trends become extremely costly in terms or energy and land consumption.

From urban expansion to densification

In order to turn these negative trends around, farmers need to change their production methods for more environment-friendly, fuel-efficient methods, but that alone is not enough. We must defend the place of agriculture for all the functions it can be made to perform for the benefit of society in general. In this context the landscape factor can help farmers explain to local and regional authorities how important it is to protect their activity, in particular against urban sprawl. Purely technical arguments in terms of agricultural production are sometimes not enough to persuade a mayor to protect the local farmland when a property developer offers to buy some of it to build an industrial estate or a housing estate. The owners, whether they are farmers or not, may prefer to sell their farmland as building land, at a much higher price. The future of farming and the quality of life of the population will depend on how planning documents are prepared, on whether talking to farmers is part of the process, on the ability of officials to comprehend all the issues facing their municipalities and, of course, on the capital gains tax rules on landed property applicable in each State.

Planning documents

While farmland was reorganised in the 20th century to facilitate the use of fossil fuels and resources, the urban landscape was transformed at the service of the motor car and prefabricated buildings. The new orientation of cities towards the sustainable development rationale requires us to redefine these forms. That is the purpose of the planning documents responsible for organising the future of the territories. The new town planners are seeking to increase the density of the urban fabric to avoid encroaching on the surrounding farmlands. Their work today consists of redesigning the city in the city, increasing the density of the urban space, improving the quality of public spaces, giving nature a place in the city. These measures help reduce energy use and commuting times between home and workplace. Farmers are not used to explaining how and in what conditions their activity fulfils a landscape function as well as producing food. With their sketches, drawings and photos, landscape professionals can help them show why agriculture must no longer be considered a simple overspill space for the city, by explaining the multifunctional roles farmers can play, particularly in favour of the quality of life of city dwellers. With the support of landscape specialists, the presence of farmers on the committees responsible for drawing up planning documents is essential for them to be able to express their views and their proposals in terms of food independence and the living environment.

Volunteers clear a common outside a village, for use as pasture land

Recommendation no. 12: Increase the protection of farmlands in planning documents.

The advantages of farming for sustainable land development

Looking beyond planning documents, officials committed to energy transition and the sustainable development of their municipalities are seeking to promote the use of public transport rather than private cars: they are laying cycle paths for cyclists; launching programmes to improve the insulation of private and public buildings and supporting the construction of positive-energy buildings. To make these policies more effective they increasingly rely on landscape approaches to take into account the natural and human characteristics of their territories and find the solutions best suited to the relief, the climate, the natural environment, the history of the places and the sociology of the inhabitants. Agriculture has a place to find in the spatial reorganisation of the territories. If city dwellers no longer have their own individual gardens in the future, the work of the planners will be to provide them with alternative solutions, be it flats with terraces they can use as leisure spaces or to grow things, or by offering them shared gardens and high-quality public spaces where people can meet, relax, stroll or garden.

Modern lifestyles generate, by reaction, a taste for places where one can see, smell and taste natural things that are scarce in the city: plants, animals, water, earth, trees, stones, open spaces. In this new context two specificities distinguish agriculture from other activities, things which are very important from the point of view of the landscape:

– it occupies and manages vast spaces,
– nature is its main capital.

Potato picking by members of an association for the promotion of small-scale farming

Bearing these characteristics and the new needs of city dwellers in mind, farmers have everything to gain by entering into partnerships with local authorities. It makes it easier for them to obtain permission to use certain common land, funding for land development programmes or the inclusion in town planning documents of increased protection for farmland. In exchange they can undertake to enhance the multi-purpose potential of their activity, implementing agro-ecological production systems that help provide quality water, maintain biodiversity, use fewer fossil inputs and produce healthier products. They can also develop means of enabling city dwellers to come and enjoy the nature that they are so fond of, and the attraction of agricultural landscapes: embellishing rest areas, opening up vantage points for the view, receiving people and selling produce at the farm, looking after footpaths. In giving city dwellers access to it, this “staging” of the farming scene, as Olivier de Serres already called it in his work, “The theatre of agriculture and the message of the fields” in 1600, highlights the quality of the agro-ecological system in place and the attention paid to the quality of the living environment.

Harmonious coexistence of livestock farming and urban development in Austria

Recommendation no. 13: Facilitate partnerships between farmers and local authorities around the landscape.

Landscape plans, protected sites, land development

Different procedures are used in European countries to protect, manage and develop landscapes, often inspired by the Council of Europe's European Landscape Convention. The following are some examples which can be used to work on the relationship between landscape and agriculture.

Landscape plans or charters

In many countries *landscape plans* or *charters* are developed at the request of the authorities concerned by the transition to sustainable development in their territory. A landscape plan comprises:

– *a landscape study* which details the essential characteristics of the region and the changes it is likely to be faced with, as well as the view of the populations concerned. This document is presented to the authorities, the inhabitants and all those with an interest in the territory, for validation;
– *the definition of landscape scheme* supported by as many people as possible;
– *the elaboration of a work programme* for each stakeholder and each part of the territory;
– *the creation of a follow-up structure* composed of people responsible for assisting with the implementation of the programme and for its coherence.

These plans are an opportunity to give concrete form to the objectives of *protection, management* and *development of the landscape* promoted by the European Landscape Convention. They are also an opportunity to formulate together the *landscape quality objectives* the actions implemented must pursue in order to achieve the *sustainable and harmonious development* of the territory. When this stage is reached, the landscape plan details:

– the most remarkable features, which will be given special attention or even *protection* as landscape features that identify the site;
– the *management* principles that will help achieve sustainable development of the different activities, including farming;
– the zones where reassignment or *development* projects are required to permit new activities that can take advantage of the singularities of the site, with emphasis on the quality of the inhabitants' living environment.

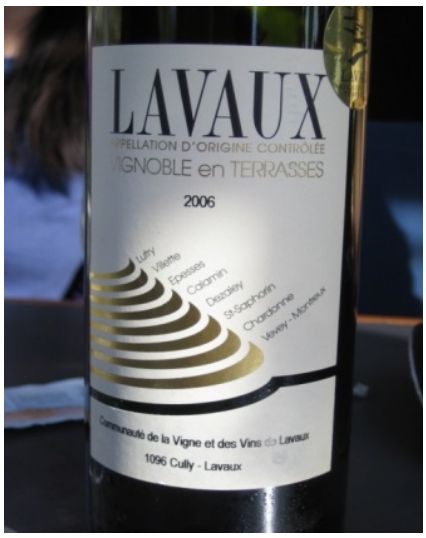
The landscape plans incorporate the principles of the landscape approaches mentioned earlier: diagnoses that take into account the historical and geographical context of the area, the need for integrated, multifunctional solutions, the involvement of the populations and a concern for landscape quality.

In each phase of this work the farmers' role is to participate and be a source of suggestions to imagine forms of protection, management and development acceptable to all. In some cases, farmers may be involved at the outset of landscape plans, especially where agriculture occupies a prominent place in the quality of the landscape and contemporary forces threaten that quality. The International Network of Viticultural Landscapes, also known as the Fontevraud International Charter, is a good example of how vine growers drive a landscape policy in vine-growing regions using the landscape plan method. Through this Charter wine-growing syndicates, local authorities, economic, research and development agencies all work together for the protection, management and development of the landscape heritage formed by the vineyards, in liaison with the rest of the territory.

Based on a shared diagnosis, each player implements an action programme in their own field of competence and helps finance a co-ordination body responsible for ensuring the coherency of the whole (Carine Herbin, 2014). The authorities responsible for town planning documents could decide, for example, to ban any new building from the views of the vineyards, the tourism sector could promote visits to vineyards, the vine growers themselves could adopt agro-ecological methods…
In any event, a landscape plan drawn up prior to a planning document, a classification procedure or a development operation is a fine opportunity to place these actions in a more effective, more widely shared, more harmonious logic of transition for the territory.

Protecting sites

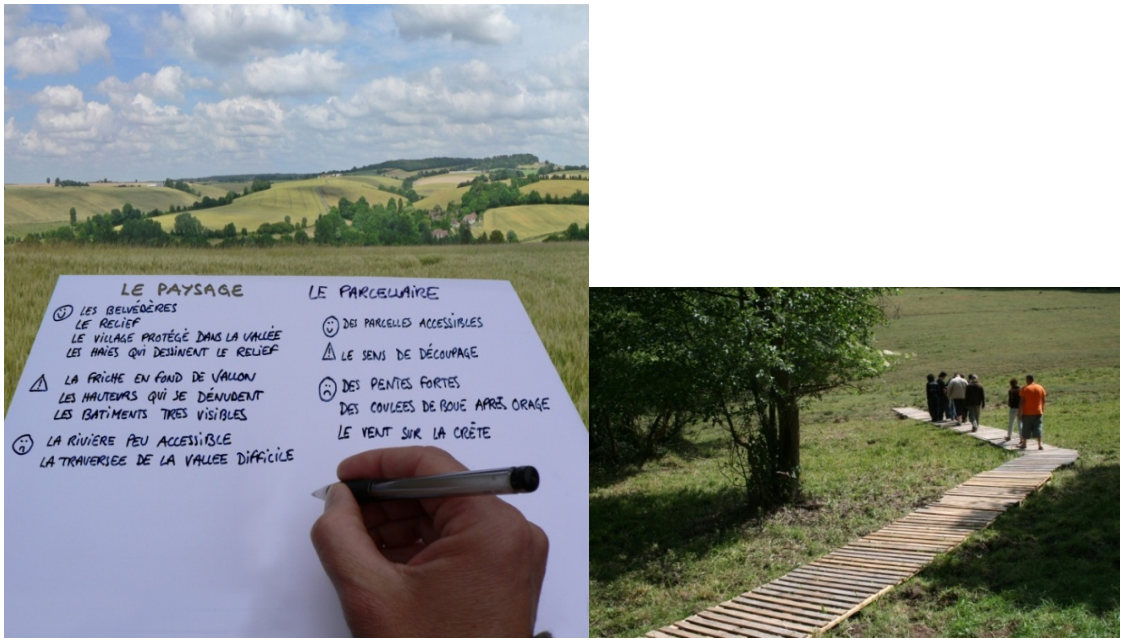
Some sites or heritage features are things that should be protected. As well as places of memory, they are also places of inspiration. Agriculture is concerned when the quality of the site depends on a type of crop or livestock which constitutes the setting, the showcase, or even sometimes the jewel itself (lavender fields, vineyards, fruit orchards, original species…), on agricultural landscape structures which have conserved their perfect coherency (terraces, wooded fields, marshes…) or on exceptional agricultural practices. Farmers have often opposed the *protection* of their territory, fearing that it would block any possibility of change or modernisation. Nowadays, however, they are increasingly in favour of this kind of protection, which makes the most of their agro-ecological know-how and improves the image of their products. The classification of a territory as a UNESCO world heritage site or, more modestly, a national or regional award, is a bonus for the farmers involved. When their products are linked to a protected designation of origin (*AOP)* or a *mountain* or *farm* or *organic* label, which vouches for the origin of the products or their mode of production, the boost to their image places them in quality categories that are often very profitable. On the other hand it obliges farmers, who are particularly under public scrutiny, to develop their focus on quality.



The Lavaux vineyard in Switzerland, a UNESCO World Heritage Site and member of the Fontevraud Charter

Agro-ecological and territorial planning and development (Bonneaud, Schmutz, 2010)

In the days of the industrialisation of agriculture, in numerous countries land development policies helped to adapt the size and shape of agricultural lands to the needs of modernisation. The most common of these policies was land consolidation. Today, with equal stubbornness, we should be setting land reorganisation procedures in place to foster agro-ecological production systems and sustainable development of the territories. Today's challenges require us to devise new land distribution patterns that facilitate the farmers' work while enabling them to reduce their consumption of chemical inputs. At the same time, this reorganisation of space should help resolve environmental problems concerning water, soil and biodiversity and enhance the quality of the landscape. The changing relations between city and countryside also require this reorganisation of the land to take into account the demands of society concerning the quality of people's living environment, the laying of paths, the treatment of boundaries, the sharing of the land and the surrounding areas, the multi-purpose use of the soil. The integration of landscape approaches in the studies carried out prior to the implementation of agro-ecological land development projects greatly increases the chances of success of these approaches. Opening up membership of the committees in charge of new land development projects to interested parties from outside the farming community is a good means of arriving at more sustainable consensual solutions.



Pre-development analysis and installation of a walkway for hikers in a wet meadow, farm in Vernand

Recommendation no. 14: Use landscape factors as a means of simplifying relations between city and countryside, farmers and city dwellers.

Urban or peri-urban agriculture

The farmers most directly concerned by landscape approaches are often those who sell their own products directly or charge their clients for various services (guesthouses, rural lodgings, country inns…). Proximity to their client base in peri-urban or sometimes even urban areas becomes an asset that allows them to invest in

the production, transformation and sale of their products and to keep all the added value. The quality of the landscape is thus an essential factor to be taken into account when developing their exploitations. As a result, new agricultural landscapes are emerging in and around our cities, or in urban parks. In some cases local authorities, water authorities or public foundations purchase farmland that they then give back to farmers under the condition that they manage the land in an agro-ecological, landscape-friendly manner. This collective ownership of the land is a guarantee of long life for the farmlands concerned. As public ownership is not a universal solution, agro-landscape analyses can help define which spaces strategically deserve to be protected in this way.

Allotment gardens

Gardening on a city rooftop

Allotment gardens, shared gardens, community gardens that traditionally surrounded the towns and villages but were often built over are coming into their own again in and around our cities, and even on rooftops and terraces. These spaces are a source of great creativity for imagining new forms of market gardening for use by people of different origins interested in recreating social bonds in a quality environment.

Recommendations

- Build awareness of the relationship between landscape and agriculture in each country.
- Collate and share the different points of view expressed regarding relations between landscape and agriculture.
- Give farmers the tools and means to reorganise their lands along agro-ecological lines.
- Defend the PDO (or AOP) system in international relations and pay more attention to landscape in the relevant specifications.
- Foster the revival of country trees as a component of an agro-ecological production system, adapting them to each context.
- Develop training in drystone building for farmers and their advisers in the regions concerned.
- Strengthen the role of farmers and landscape designers in the bodies responsible for designing and implementing green and blue belts or ecological corridors.
- Involve the populations in the elaboration of agricultural projects.
- Encourage exchanges between farmers and artists.
- Involve landscape specialists in the elaboration of agro-ecological diagnoses and projects. Train landscape specialists in the specificities of the world of agriculture.
- Involve architects in the elaboration of farm building construction or rehabilitation projects. Train architects in the specificities of the world of agriculture.
- Increase the protection of farmlands in planning documents.
- Facilitate partnerships between farmers and local authorities around the landscape.
- Use landscape factors as a means of simplifying relations between city and countryside, farmers and city dwellers.

Conclusion

The strong bond that existed between landscape and agriculture grew considerably weaker in the 20th century. However, if we are to overcome the challenges linked to climate change, water, soil and air pollution, an ever-increasing world population and international tensions, it is essential that we change our approach to agriculture. Intensification based on the use of fossil resources cannot last, as it just exacerbates all these problems. The research and experiments conducted in agro-ecology provide interesting solutions, proving that it is possible to produce while substantially decreasing the use of chemical inputs, simply by more rational use of the natural resources available. The spatial organisation of fields and meadows will have to be redefined to suit these new agricultural models and make them more efficient. Landscape approaches are naturally fully relevant in helping farmers organise their production space in order to adapt these innovative systems to the natural and human specificities of each territory.

In parallel with these technical changes, relations between city and countryside continue to develop and farmers have a role to play in finding new partnerships with city dwellers by presenting the environmental, energy and landscape functions that they can fulfil by turning to agro-ecological farming. Stronger relations need to be forged between farmers, agronomists, environmentalists, energy specialists, architects, urban planners and landscape specialists. Training young specialists in these different disciplines to work together in the field is an objective for teachers that requires the decompartmentalisation of knowledge and working methods. The authorities and the people also have an essential role to play in envisaging the necessary transitions in the agricultural space and together forging the landscapes of tomorrow, the beauty of which will confirm that the measures taken to promote the sustainable, harmonious development of the territories were well worthwhile.

The landscape is something that can bring together all the players in a given territory.

24 mars 2017 Strasbourg

9e Conférence du Conseil de l'Europe sur la Conférence Européenne du Paysage

Dessiner les paysages agricoles

pour un

développement durable et harmonieux des territoires

Régis AMBROISE ingénieur agronome, et urbaniste, expert au conseil de l'Europe
Collectif Paysages de l'après pétrole
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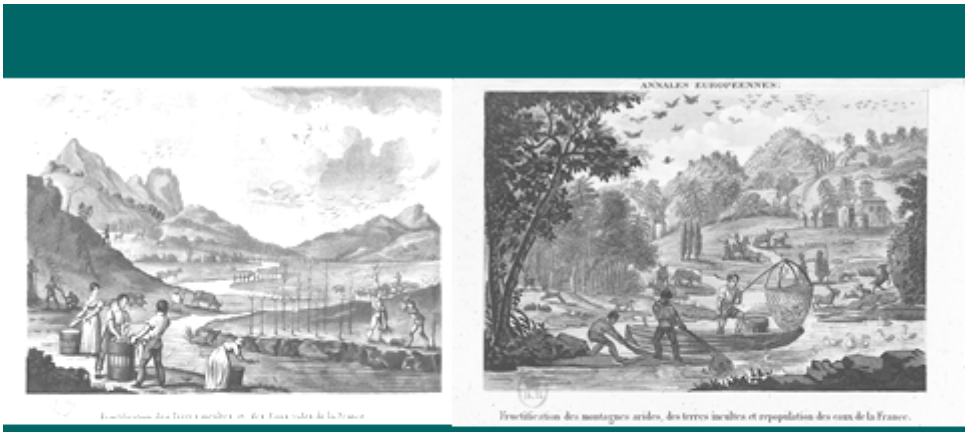
Agriculture et Paysage en Europe

Saint Bernard et les cisterciens

La fresque du Bon Gouvernement Sienne

Polders dans les Pays-Bas

La période des enclosures en Angleterre



Le projet paysager de la révolution française

Politique : la terre aux paysans
Technique : mise en valeur des terres incultes
Culturel : joindre l'utile à l'agréable

La qualité des paysages doit refléter l'harmonie sociale et la richesse créée

Les composantes naturelles du paysage agricole

Sol : herbe et cultures

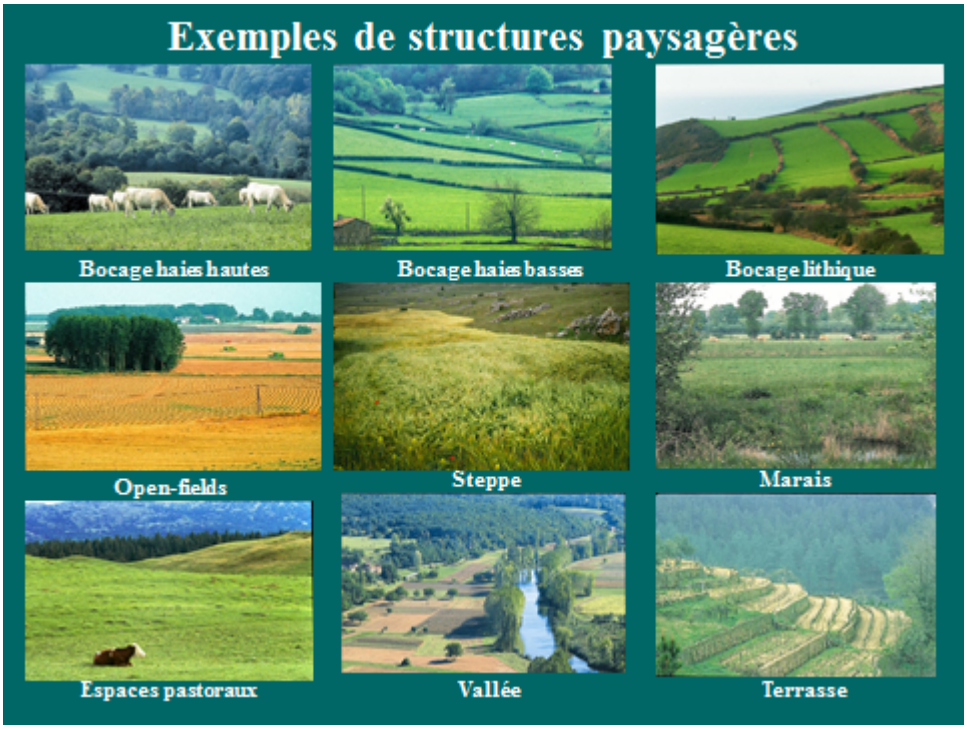
Animaux

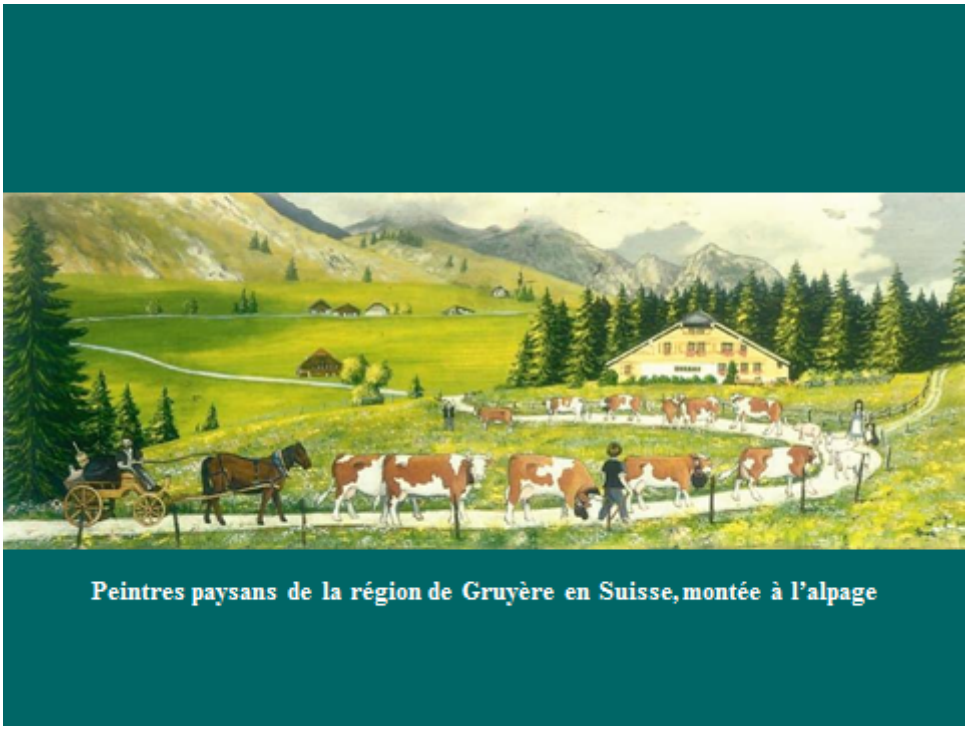
Arbres

Eau

Pierre

Vent

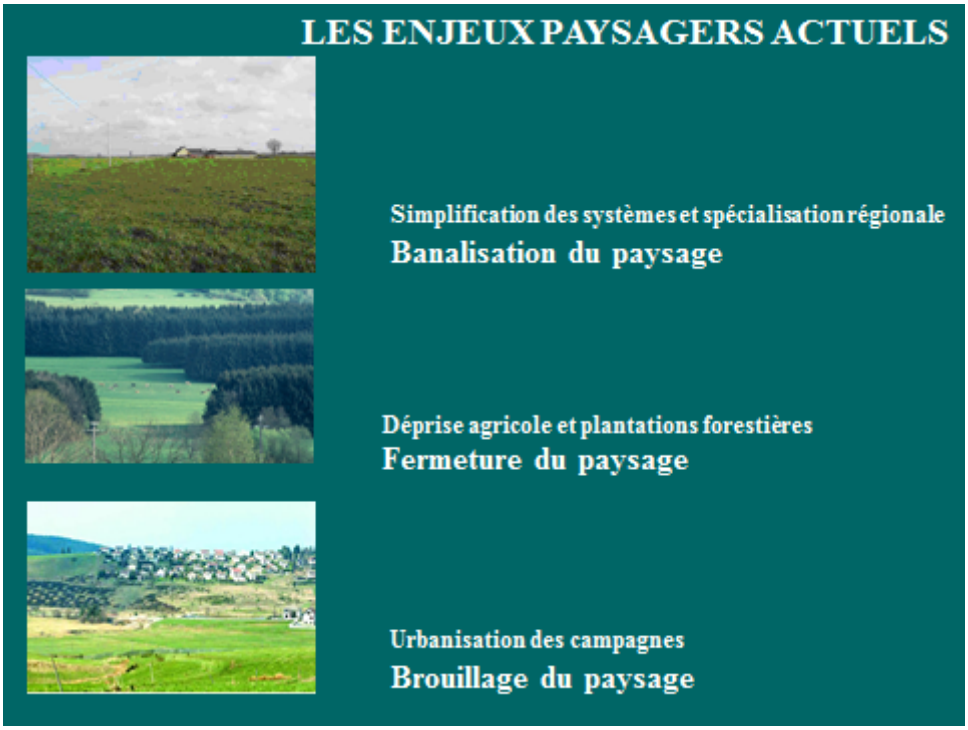

Exemples de structures paysagères
Bocage haies hautes
Bocage haies basses
Bocage lithique
Open-fields
Steppe
Marais
Espaces pastoraux
Vallée
Terrasse


Peintres paysans de la région de Gruyère en Suisse, montée à l'alpage

Azulejos dans une gare du Douro Portugal

Bellecombe Haut-Jura France

Au XX° siècle, une nouvelle organisation du territoire agricole européen

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Favoriser le multi-usage du sol

Impliquer les populations agricoles et non agricoles

Oser parler de beauté

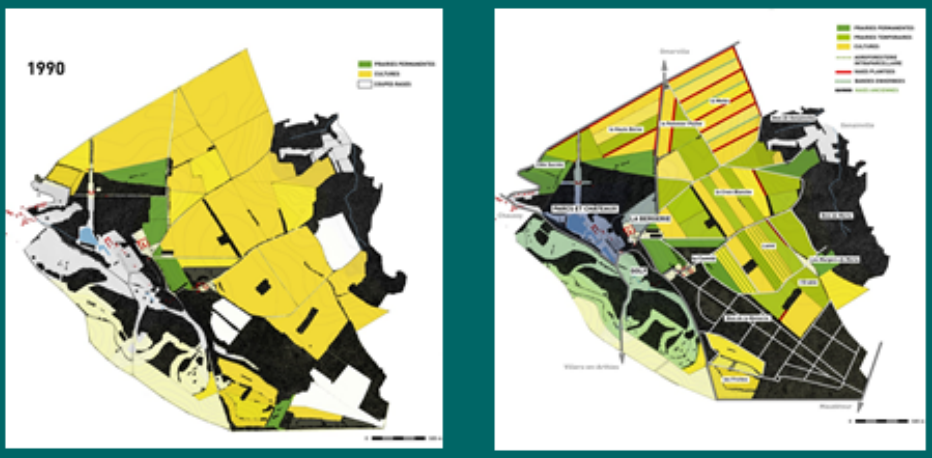
1. Renouer avec les potentiels agronomiques et territoriaux

Paysage et agro-écologie

S'appuyer sur les potentiels agronomiques locaux

1. Renouer avec les potentiels agronomiques et territoriaux

Paysage et agro-écologie



1990 2014

Réaménagement foncier agro-écologique

1. Renouer avec les potentiels agronomiques et territoriaux

Paysage, agriculture et urbanisme

Aménagement foncier agricole et territorial contextualisé

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Paysage et agro-écologie

Agroforesterie

2. Multi-usage des sols

Paysage et agro-écologie

Prairie et Trame verte

2. Multi-usage des sols

Paysage et agro-écologie

Eolien

Photovoltaïque

Bio masse

Hydraulique

Energies renouvelables

2. Multi-usage des sols

Paysage, agriculture et urbanisme

Protéger l'agriculture durable dans les documents d'urbanisme pour son rôle productif, environnemental et paysager

3. Impliquer les populations

Paysage et agro-écologie

Regards croisés sur les choix d'exploitation

3. Impliquer les populations

Paysage, agriculture et urbanisme

Visite de terrain collective

4. Oser parler de la beauté des territoires

Paysage, agriculture et urbanisme

Belvédère contemporain et réalité augmentée

4. Oser parler de la beauté des territoires

Qualité des produits, qualité de l'environnement, qualité de l'accueil, qualité des paysages

Recommandations
pour

- Favoriser la connaissance des singularités paysagères naturelles et humaines des territoires agricoles en vue d'un développement durable

- Promouvoir les démarches paysagères pour faciliter la mise en œuvre de l'agro-écologie (aménagement foncier, potentiels agronomiques, relance de l'arbre champêtre et de la pierre sèche, AOP)

- Intégrer l'agriculture dans les procédures d'aménagement du territoire (protection des terres agricoles dans les documents d'urbanisme, contribution au cadre de vie, architecture des bâtiment agricoles)

- Renforcer les liens entre agriculteurs, agronomes, paysagistes, architectes, artistes, élus, citoyens

Dessiner les paysages agricoles
pour un
développement durable et harmonieux des territoires

Merci de votre attention

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