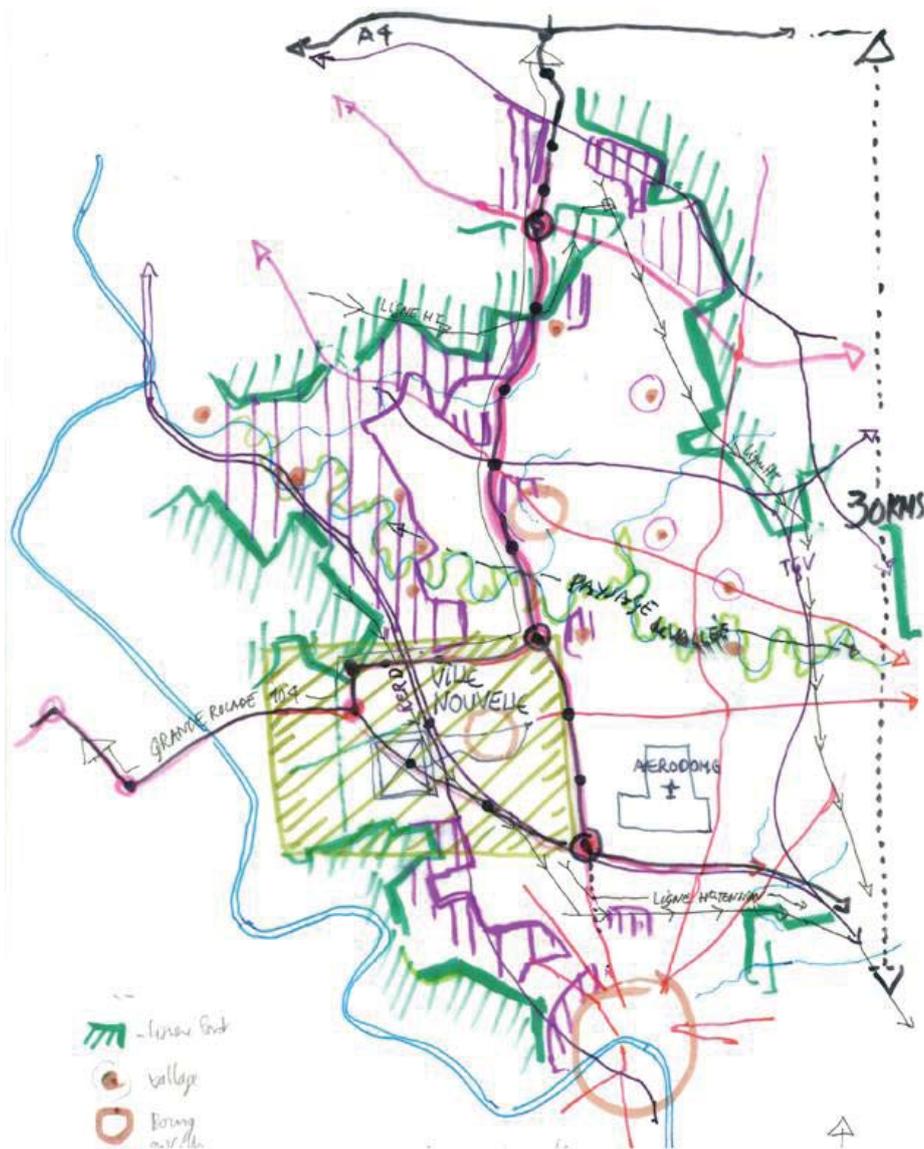




# ANALYSIS REPORT



**The urban/rural interface of large metropolitan areas:  
Case study : the area of the East of the Great Paris**

Pilots : Christophe Bayle et Ann Carol Werquin, urbanistes.

Assistant : Véronique Valenzuela

Writting : Véronique Valenzuela, géographe, doctorante Paris VII

Page setting: Angela Maria Jimenez A.

Traslation: Camille Favre

Corrections: Antoine Plane

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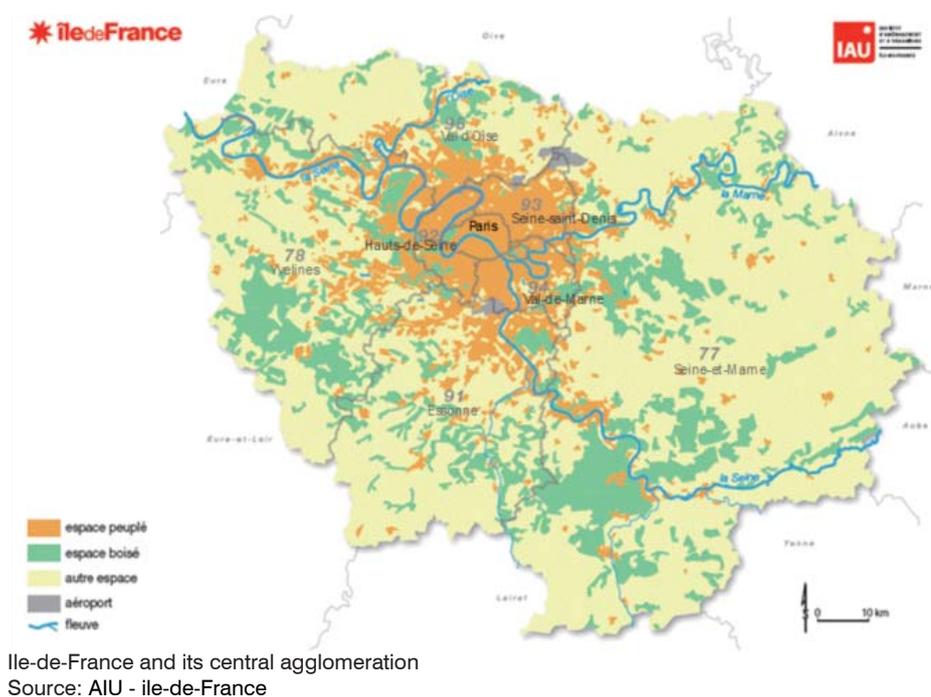
#### **BIBLIOGRAPHY AND WEBSITES**

# Introduction : THE REGION'S CHALLENGES

One of the large urban areas's main challenge, like in Ile-de-France, is to combine an economic growth while preserving their agricultural areas, their natural areas and their forests. Indeed, while the region hosts one of the biggest european agglomeration, it is a major agricultural region with  $\frac{3}{4}$  of its territory covered in natural or wooden areas. These areas have many functions (green lung, welfare, food, biodiversity protection, risk management) and play a main part in the metropole's life. Thus, they have to be integrated in any territorial planning project

## Land consumption and its fragmentation in Ile-de-France

The urbanization's land consumption in Ile-de-France is important. Between 1982 and 2003, urbanization's growth have been of 0,8% each year, and the population has only been increasing of 0,53%. If such a growth were to continue, the whole rural space will have completely disappeared two centuries from now, and yet, urbanization has begun more than two thousand years ago. It is fair to say that there is a land overconsumption.



## Seine-et-Marne's challenges

Demographic growth is particularly important in Seine-et-Marne (department number 77) and the settlement of an urban population seeking a better life environment has transformed the territory in economic, sociological, and cultural ways. Indeed, the departement censes 1, 3 million inhabitants, and its population has doubled during the last thirty years (with dramatic increases such as in Savigny-le-Temple which censed 828 inhabitants in 1970 and now censes more than 25.000). It is a young and energetic department (30% of the population is less than 30) and its employment rate is above national average. 75% of the jobs are service-oriented and **three economic centers are the department's main driving forces : Roissy airport, Marne-la-Vallée and Sénart (both are new cities)**. This urbanization growth is fairly new and the department still has a profound rural heritage in its core.

Seine-et-Marne has reinforced its housing hosting part, especially for individual housing. And this part has to keep on developing itself. In most planning reports, the department is said to be having a huge potential for hosting housing, activities areas, service industry and logistical platforms.

The rivers axis, with the Seine south and the Marne up north, stimulates economic activities and job creations. Public transport networks linking the department's main cities will be strengthened. The piling of these urban elements shatters the agricultural farms, creates breaches in the landscape and endangers natural species. Challenges are varied and the solutions provided are not global enough.

Connections between rural and urban areas occur nonetheless. Rural areas provide many functions. Housing and production are strengthening, especially through a growing service economy. Tourism and recreational activities also develop themselves while inhabitants are less likely to settle permanently. The region also develops its heritage publicity. Rural areas have an important environmental part, providing a shelter against natural risks and a haven for biodiversity. Agriculture still helps shaping the territories, all the while developing new missions, which are as important as the former ones.

In order to understand the current dynamics and the future missions of the rural and suburban areas, three parts will be developed in this report :

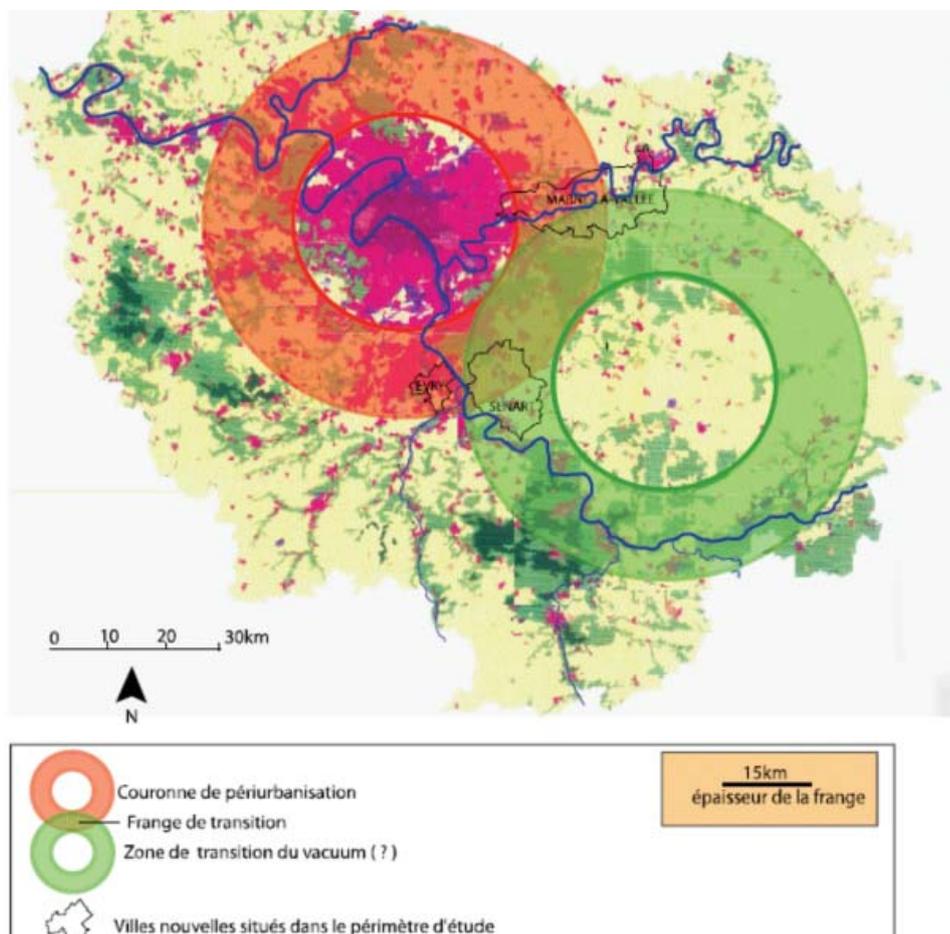
**Firstly**, the agriculture and its mutations, the urbanization growth, the shattering of landscapes and agricultural functions as well as the new environmental and landscaping expectations (Chapter 1 and 2).

**Then**, the relationships between town and country will be analyzed, through their functions, their potential and their problems, brought by the suburban's future territory projects. (Chapter 3).

**Finally**, the different projects that Seine-et-Marne develops to extend the metropole and preserve its agricultural land as well as its soil quality (chapter 4)

Indeed, the evolution of lifestyles and production structures in urban societies are tools to understand the new housing experiences, the more complex social mobilities, the new soil's uses as well as a gradual conquest of the agricultural area.

Formerly, rural and urban lifestyles were very different. Nowadays, the barriers are thinner and new ways of associating town and country must be imagined. Moreover, the rural area has various territory's utilization (soil, landscape, air, water). There is a conflict between all these territory's utilizations.



Seine-et-Marne's interfaces : urban front and strong agriculture  
Source: Véronique Valenzuela, Ateliers 2010

# A TERRITORY'S PORTRAIT:

## THE SEDIMENTARY BASIN'S TOPOGRAPHY

In the heart of the parisian basin, Ile-de-France spreads itself on a 12 000 km<sup>2</sup> area. This sedimentary basin has many geological layers and was eroded by a very powerful water network. Four large plateaus are piling up around the Oise/Seine/Marne confluence, a wide area where lies the central agglomeration. This structure reveals numerous geological layers thus providing a wide pedological diversity. Natural environments and building materials are also varied. The relief is quite flat, but it has enough discrepancies to influence the urban development whether one area is better or not for building communication ways or for developing farming areas.

Four piling plateaus shape the parisian basin :

- **le Plateau du Vexin**, north-west, between Seine and Oise, is made of lutetian limestone. It is the higher plateau, barely reaching 200m.

- **la Plaine de France** north, between Oise and Marne, made of limestone.

- **le Plateau de Brie**, east, between Marne and Seine, is made of limestone, sandy loams, clay and gypsum.

- **le Plateau de Beauce**, south, is made of limestone and of clay up north.

The wide plateaus of main cultivations and urbanized valleys with wooded hillsides are framing elements for Ile-de-France's landscapes. Large wooden areas cover soil of lesser quality and are often inherited from former royal hunting grounds :

Fontainebleau (28 000 ha) et Rambouillet (25 000 ha).

Le plateau de la Brie is different from la Beauce because its damper and has a quite a different shape. Plains and damp forests, farms and large granaries. Silty soils are very rich ever since the Merovingian era.

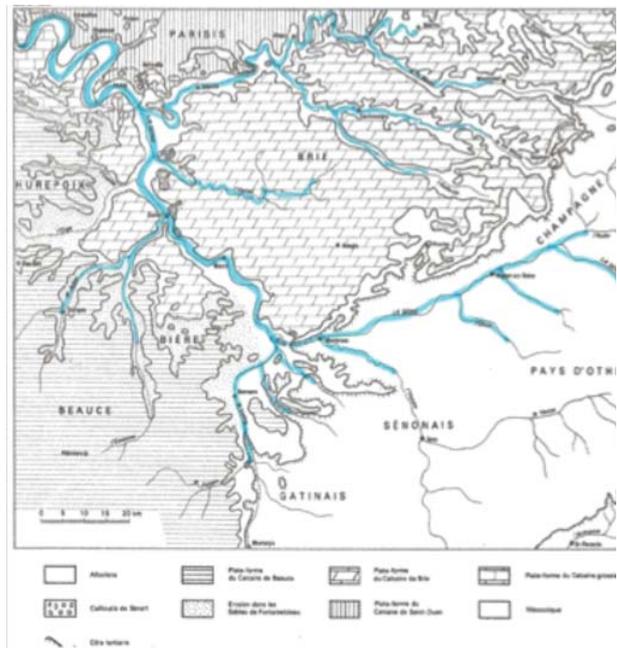
Surfaces are very wide (60 kms x 50kms).

## PARIS AND THE METROPOLITAN GROWTH

Île-de-France and the parisian basin are shaped in three density decreasing areas : Paris and the inner suburbs with rare individual housing ; The four outer-suburbs departments where 7 out of 10 individual houses are located. The migration from city to country have become more frequent.

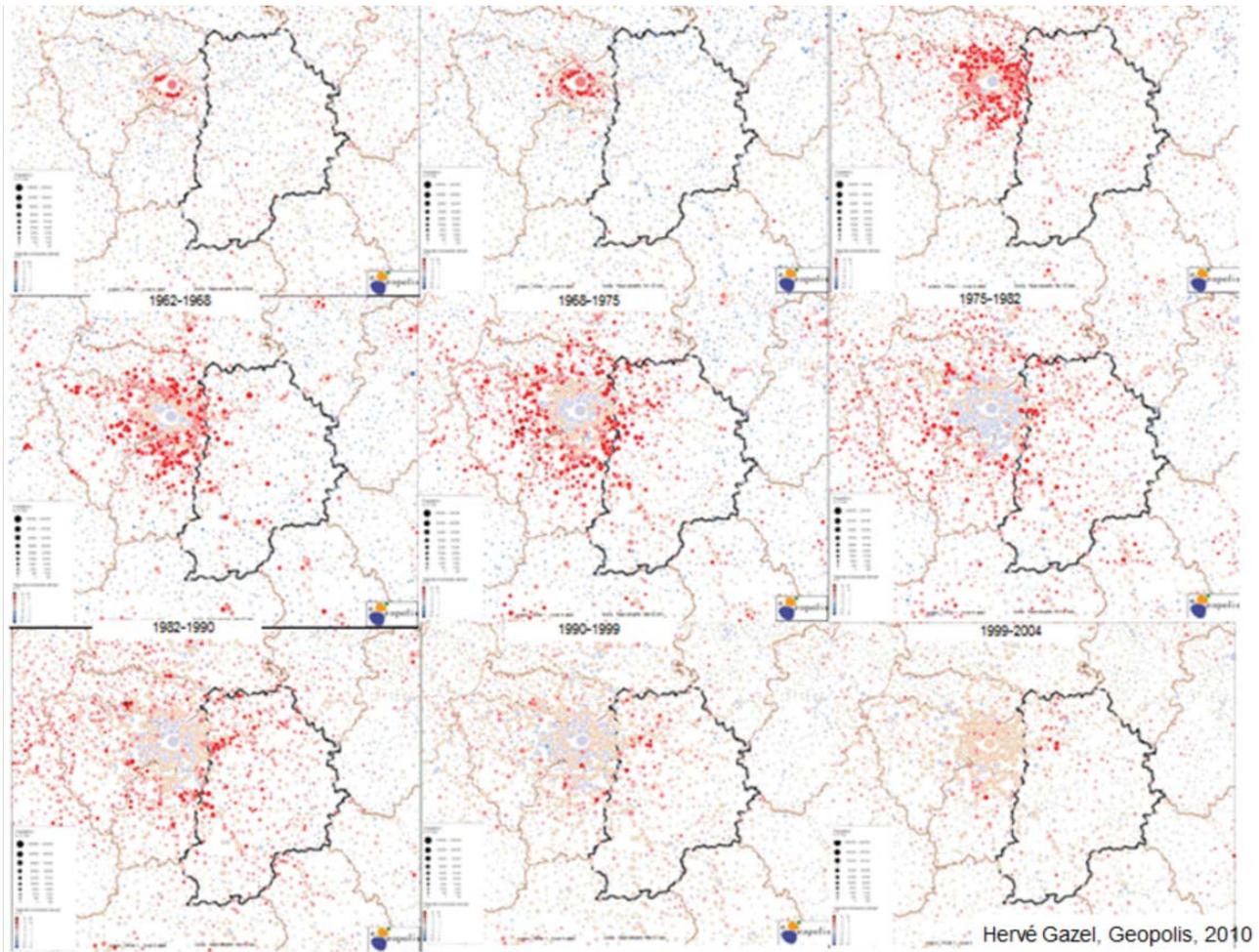
The star shaped structure of Paris symbolizes a powerful central power. The town has grown adding new circle areas to its former ones, all the while ignoring its suburbs (in 1898, Paris refuses the idea of a suburban metro). Suburbs therefore develop themselves randomly and in 1965, Paris finally acknowledges the suburbs as part of its development.

Ile-de France plays a major international part. That said, the demographic dynamism left its core a while ago. The demographic growth peaked in 1920 and the city started losing inhabitants as soon as 1954, when people started moving out to the inner, then outer suburbs. After a long era of the city's strong influence and attractiveness, the urban population began to spread in the parisian basin. People came back to the country.



structuring plateaus and regions

Source: Bertrand Warnier, colloque « Agriculture et métropole »  
Sénart, 29.04.2010



Historical growth of the parisian agglomeration since 1831  
 Source: Hervé Gazel, Geopolis, 2010

People settle less, commuting gets longer, urban people move away from urban centers for a better living environment. The metropole therefore launched many actions for a balanced development : The Main Planning Design for Ile-de-France (le Schéma Directeur d'Île-de-France), the creation of a State office for the capital region, an architectural contest for the « Grand Paris », the Paris-Métropole Union, and many more. ([www.parismetropole.fr](http://www.parismetropole.fr) , [www.legrandparis.culture.gouv.fr](http://www.legrandparis.culture.gouv.fr), <http://www.sdrif.com/>)

« Landscape protection must not only promote exceptional sites but must become a global civilisation project for Ile-de-France. It must cease the fragmentation of the urban spreading and its ugliness. This protection must be led trough a consideration of the landscaping impact, the protection of agricultural areas and Agriculture<sup>1</sup> ».

New social expectations are rising in agricultural and rural areas for the protection and promotion of rural values, the environment, the heritage and identity values. New functions are also expected from agricultural areas: ressources, protection of the biodiversity...

1 MERLIN (P), l'écorégion d'Île-de-France : une utopie constructive, Institut d'urbanisme et d'aménagement de la Sorbonne, LA documentation française, 2007, in CDU CERGY

# 1 ÎLE-DE-FRANCE'S AGRICULTURE

## 1.1 State of regional and departmental sites

Ile-de-France is an urban area as well as an agricultural one and agricultural areas have many functions : economy, welfare, flood risk management, biodiversity. Many situations occur and the challenges differ from one small farm to a big intensive one.

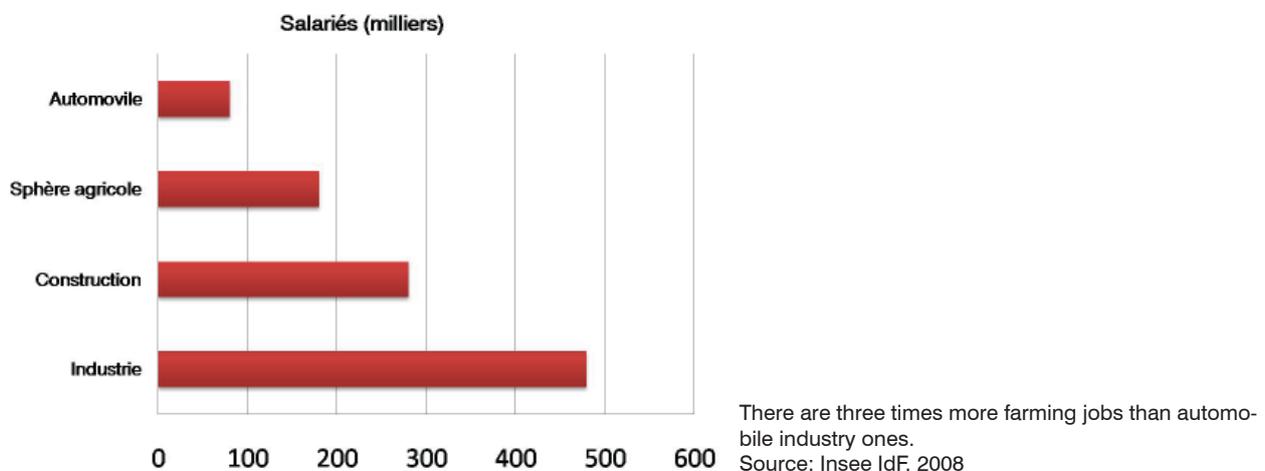
The main challenge is to protect the farms which manage half of Ile-de-France's area. In order to achieve that, local authorities must help the agricultural sectors to develop themselves in a competitive and sustainable way. Specialized agriculture and livestocking are particularly impacted with the farms death-rate. Specialized farms must enhance their economic efficiency with creative production and business processes. Some suburban farms might want to compensate their disadvantages. Environment-friendly methods must be promoted and supported.

Main cultivation farms and mixed crop-livestock farms must use soil's rotation and use environment-friendly processes, vary their activities after production (processing, farm products selling) and develop adjacent activities (agro-tourism, agricultural engineering business...)

### A. The agricultural sphere

Service economy provides 83% of the region's GDP, industry represents 13% of it and agriculture and the food-industry 3% <sup>2</sup>. We are currently interested in Agriculture.

In 2000, Agriculture provided jobs for 15 000 people of working age, reaching a total of 12 700 full time jobs. Amongst these people, 4560 were permanent employees. Agriculture is a major par of Ile-de-France's employment rate, representing 177.100 jobs, which is a higher number than the automobile industry<sup>3</sup>



Half of these employees work in the food-industry like bread and pastry industry, tea and coffee processing, biscuit-industry, chocolate industry and candy industry. The two other job providers are the meat industry (18%) (especially meat processing) and the drinks and liquor industry (15%).

The region hosts many big companies headquarters and R&D sites. 7 550 food-industry factories are implemented in the area. It is one of Ile-de-France's main industrial activity. The factories are often small and are mainly located in Paris (28%) and inner-suburbs (33%). The sector has an important economic impact and its wide range of jobs and industries are a pillar for the agriculture's future.

<sup>2</sup> Fond européen agricole pour le développement rural 2007-2013, Document régional de développement rural (DRDR).

<sup>3</sup> En 2004, avec 3,3 milliards €, l'Ile-de-France a contribué pour 12 % à la valeur ajoutée nationale des industries agroalimentaires. Elle se classe en tête des régions françaises, suivie de la Bretagne (2,5 milliards €) et des Pays de la Loire (2,2 milliards €)

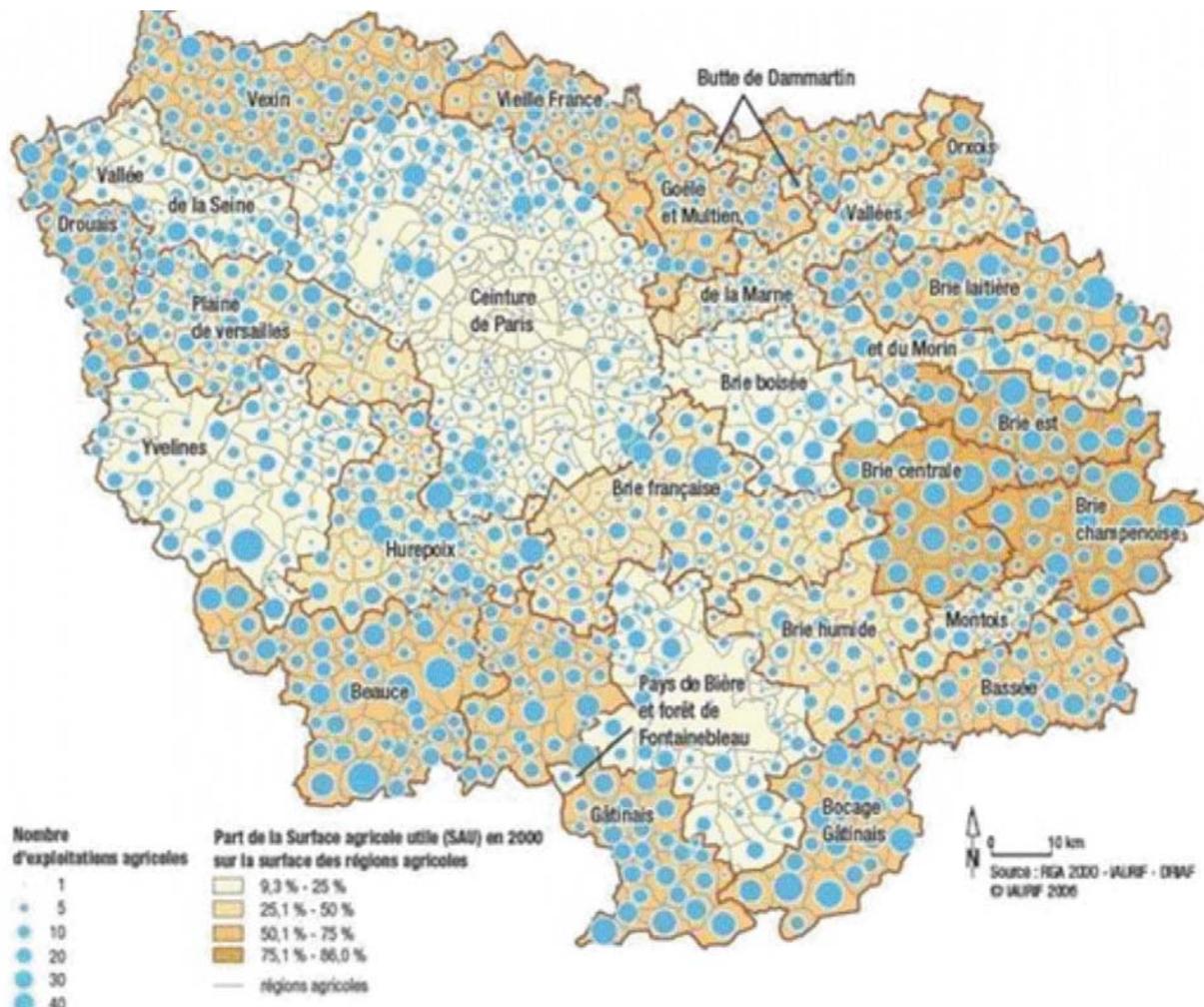
Agriculture	12.000
Agribusiness	108.600
agriculture's services	3.200
Area horses	1.100
Wood industry	800
Landscaping	15.200
Water	18.600
Rural services	17.600
Total rural and agricultural sphere	177.100

Employment inside the agricultural sphere in 2009  
Source: INSEE Île-de-France - DRIAAF, 2009

## B. A Varied agriculture : main cultivations, specialized cultivations and livestocking

Ile-de-France regroups 7 departments, except Paris. In 2007, Ile-de-France censused 5 310 farms, barely 1% of the national total. Almost all this farmland is located in the outer-suburbs departments Seine-et-Marne (59 % of the region's Utilized Area), Yvelines (15,6 %), Essonne (15,1 %) and Val-d'Oise (10,2 %). The three inner-suburbs departments (Hauts-de-Seine, Val-de-Marne et Seine-Saint-Denis) only host 2 000 ha of farmland.

The average size of an Ile-de-France farm is 100ha. This size is mainly because small specialized farms regroup themselves: market-gardening, flower-industry, tree-industry, plant nurseries... They sell their products to local customers, food-industry or the local authorities. Large main cultivation farms also exist : cereal (wheat, barley, corn), beet, oil-producing plant (rape, sunflower), peas and beans. Their production is sold for human and animal food and/or are exported. A small amount of farm are mixed crop-livestock farms.



Number of farms in each town  
Source: RGA 2000 - VAURF - DRAF IAURF 2006

Large main cultivation farms dominate the area : They cover 80% of the Utilized area and represent 4 farms out of 5 : cereals (67 %), like wheat (43%), barley (12 %), and corn (6,5 %),oil-producing plants (10 %), peas and beans (8%) and beets (7 %). The importance of these farms have grown over the last 15 years, thanks to the CAP's allowances .

Meanwhile, the number of specialized farms like fresh vegetables farms, flower farms and orchards decreased. This decline is mostly the cause of a fiercely competitive context, the lack of working force, and the disadvantages of their urban location.

Seine et Marne is the most agricultural department of the region, representing 59% of the utilized area. It mainly hosts large, intensive main cultivation farms, thanks to its rich soil, that occupy 81% of the department's utilized area.

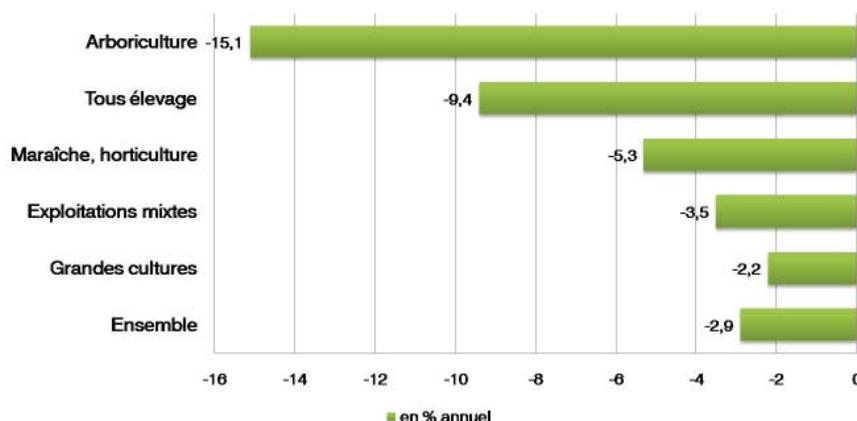
Île-de-France	Data	Seine-et-Marne
576 300 ha	Utilized area (SAU)	334 300 ha
348 200 ha	Cereals	205 200 ha
83 318 ha	Oil-producing plants	45 700 ha
40 700 ha	Beet	30 270 ha
4 550 ha	Market-gardening, horticulture, orchards	2 485 ha
32 500	Cattle	20 420
5 310	Farms	2 780
12 030	Employees ( except seasonal)	6 420

Ile-de-France and Seine-et-Marne's agriculture  
Source: Agreste, 2007

Market-gardening, horticulture and tree farming occupy less than 5ha, represent 20% of the total surface, but cultivate barely 1% of the region's utilized area. On the other hand, 11% of the main cultivation farms occupy 200ha representing 30% of the region's utilized area.

**This dichotomy is the main characteristic of Ile-de-France's agriculture.**

Farms suffer from a high « death rate » : 940 farms have ceased their activities since 2000 (14 %). The trend seems to favor main cultivation farms (beet, wheat, rape, corn) that are exporting their products, over small garden-marketing farms or horticulture farms.



Farms number's evolution in Ile-de-France between 2000 and 2007  
Source: DRIAAF, AGRESTE, structures 2007

Tree-farming seems to suffer from the highest death rate, before livestocking and market-gardening farms. Mixed corn-livestock farms and main cultivation farms have resisted this death trend. In Ile-de-France, the outer-suburban areas have been the most severely hit ones. The map below depicts that the decrease of the farmland areas occur in the metropole's extension zone, in what is traditionnaly called, the « market-gardening belt ». Most of the closed farms were located on new town's premises. Today, urbanization profits from these « deaths » and keep on spreading further away from its center





Ile-de-France's agriculture  
Source: J.M.Stephan

## ILE-DE-FRANCE'S AGRICULTURE

Challenges	Opportunities
Urbanization, shattered lands.	A 12 million consumer's basin
High housing prices	Technical knowledge
High working force cost, and high housing prices.	Fresh products
CAP's reform	Great expectations from the people
Food-supplying Farmlands now only represent 12% of the cultivated land in Ile-de-France. Francis CADOT	Agrocarburants

5

## SPECIALIZED CULTIVATIONS

Challenges	Opportunities
Important farm death-rate during	Great expectations from consumers : organic agriculture, local agriculture
Highly-competitive, high-working force cost, worker's housing	Local products
Lack of a clear supporting policy from the local authorities and lack of education for future farmers.	Quality life environment
Garden-marketing is more challenging : environment, administration, security. Forty garden-marketing farmers retire when only one settle.	
Individual and poor organization.	

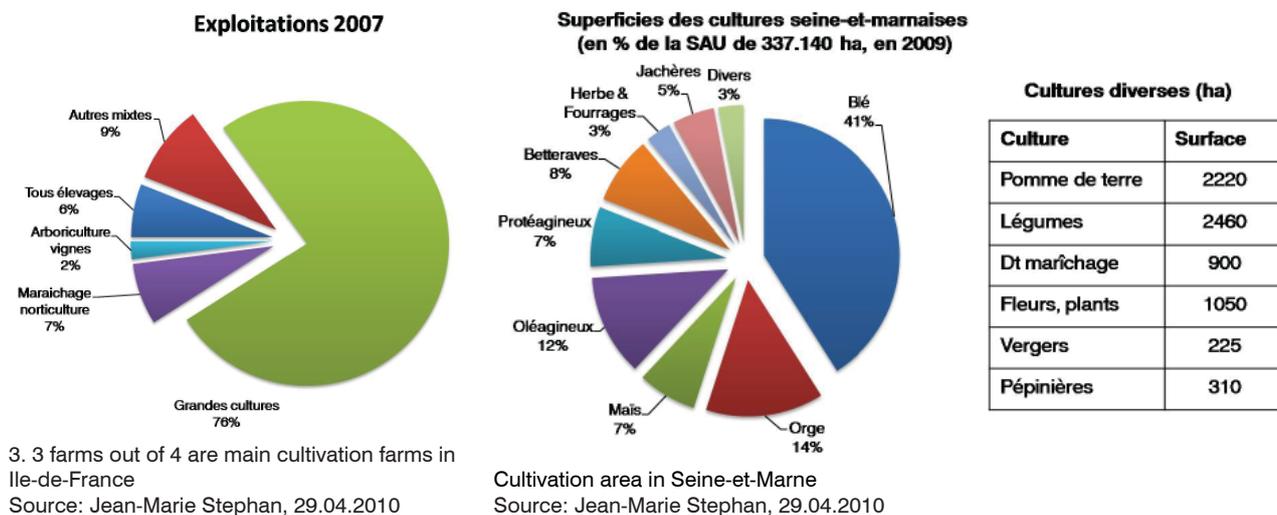
## LIVESTOCKING

Challenges	Opportunities
Supply doesn't fulfill the metropol's demand.	Good organization and quality seals (label).
Accessible land for every sector's farmers (slaughterhouse, milk co-op, veterinarian) There are only a few veterinarians in Ile-de-France.	Horseshoeing activities is a growth market
Milk production is not important enough to fulfill the AOC cheese demand. (Brie de Meaux, Melun, Nangis...)	Landscape, biodiversity, grass land's extension

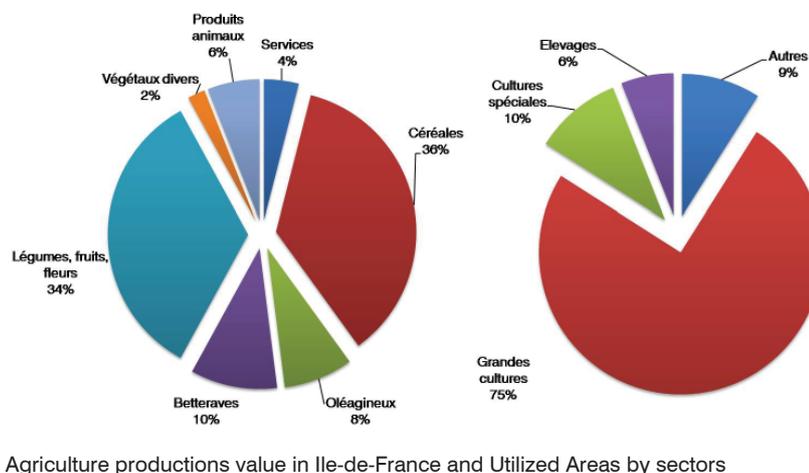
5 CESR , Synthèse du colloque L'agriculture de proximité : un remarquable enjeu pour les territoires et les terroirs d'Ile-de-France, 3 février 2009

## Seine-et-Marne's main cultivations

A cereal farm is profitable as long as it reaches 1000 ha, thus, farmers seek to acquire vast areas and they are often forced to move in Champagne where land is cheaper and where there is a great amount of farming structures. Otherwise, they must vary their profit sources with compost making, renting out their facilities, or a having a family member working outside of the farm.



The chart above clearly depict that, inspite of the cereal growing supremacy over the land (63% in Seine-et-Marne), the production value is very low and is almost the same as the specialized cultivation production value. Specialized farmer therefore need less land for their products are more expensive. Specialized cultivations create more jobs, representing 22% of the region jobs while covering only 10% of the territory. The main cultivation farms represent 60% of the region jobs while occupying 75% of Ile-de-France's territory<sup>6</sup>.

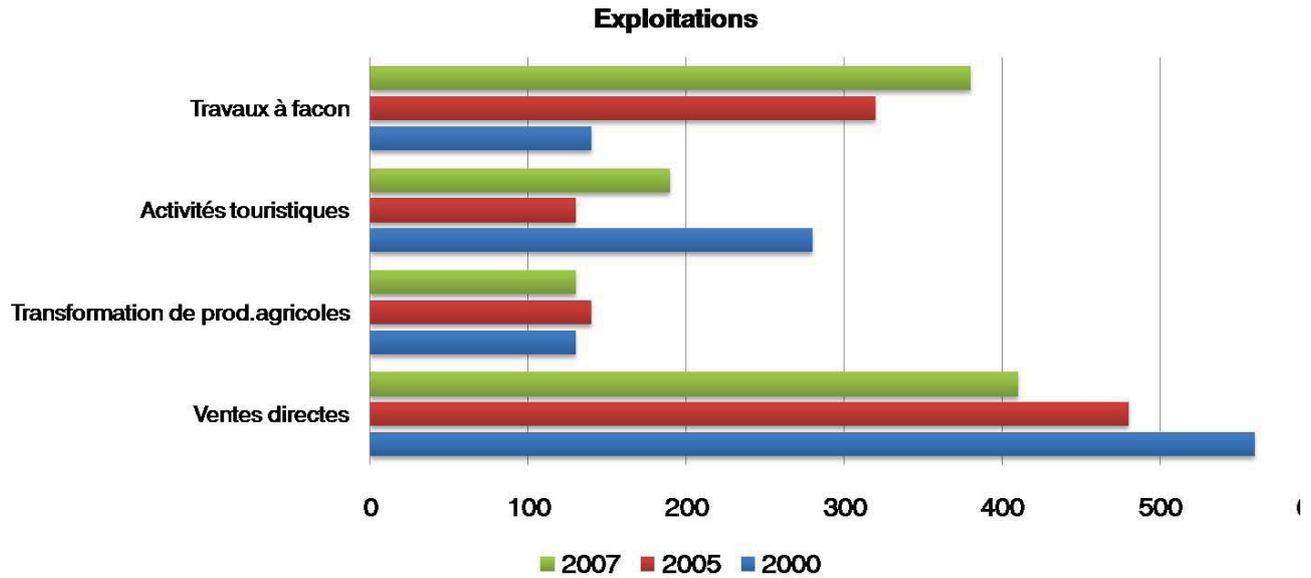


Specialized cultivations have a great potential in regards of the massive impact of intensive cultivation : fertilizers, biological species deaths, decreasing quality of the soil and water pollution. Moreover, the oil price's increase and that of its derivative products lead to a major rise in the expenses, therefore threatening the future of these farms<sup>7</sup>

6 Chiffres AGRESTE cités par Jean Marie Stephan.

7 MERLIN (p), L'éco-région d'Ile-de-France, une utopie constructive, Institut d'urbanisme et d'aménagement de la Sorbonne, La documentation française, 2007, CDU CERGY p. 53

In order to make a living, farmers must vary their productions and seek new income sources.



Seine-et-Marne's farms various activities  
 Source: J.M.Stephan

Farmers must vary their activities. The chart shows that 21% of the farmers sell their product on their farms or on markets, but this trend tends to decrease since 2000. Subcontracting, with material and workforce exchanges between farmers is a way to help each other and is becoming a common practice. Farm products processing is the more value-added creating activity, yet, farmers do not really look into that. Working near a town is a major asset for varying one's activities, because it helps selling the products, and it allows renting out farm facilities for service activities or tourism activities.

## 1.2 Urban Agriculture Notions

Urban agriculture is a polysemous expression, which main meanings are :

1. It is a food-producing agriculture where tropical agronomists use brownfields inside the cities walls in order to provide for themselves. They sometimes sell their products in case of excessive production. .
2. On a same level, but with a very different psychosocial meaning, this expression is starting to describe the growing phenomenon of family gardens in developed countries.
3. This expression is also used to describe cultivation systems in urban natural spaces. (L.M. Rivière, INRA Agronomie) ;
4. Finally, P. Donadieu and A. Fleury use it to describe suburban agricultural systems which production supplies a new urban demand.

In its essence, urban agriculture is varied. Yet, both the activities which it can relate to the most, architecture and agronomy, have developed themselves separately, all the while ignoring each other. A gro-urbanism should be regarded as a new specialty at least, and thus requires to rethink the shape of education outside its historical barriers. The teaching of agronomy is clearly divided in two parts, with, on the one hand, how to enhance the production's process, and on the other hand, how to conduct business with the food-industry. The space organization of the farm is mostly thought through adapting to its environment and through soil and cultivation's rotation.

**Agro-urbanism or geo-agronomy »<sup>8</sup> is a field that allows to think Agriculture as a whole and to understand its impact on the territory.**

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8 Interface entre agronomie et géographie, concept proposé par BENOÎT M., DEFFONTAINES J.-P., LARDON S. (2006)

## 1.3 Local industry and new business opportunities

Agriculture's outcomes are varied and keep on varying. As well as human food and animal food, agriculture can also produce biofuel and organic fibers. Moreover, farms can host tourism activities and waste recycling infrastructure.

Farm products are now sold in different ways and farmers have adapted to the urban consumer's way of life. E-business, road-business or the delivery of vegetables baskets in train stations are examples of this adaptation to the urban life's pace. For other consumers seeking a better knowledge of the farm industry, farmers created fruit and vegetables picking sessions in their farms, AMAP<sup>9</sup> (a network of farmers who sell a basket of fresh seasonal fruits and vegetables to their customers every week), and farm products sale on location. Evidently, the traditional business channels like supermarket distribution or market sale also exist.

These new business forms did not exist ten years ago, but are today swiftly and steadily rising. E-business and deliveries in train stations are the most recent forms (2007) and are still poorly organized and sometimes illegal. There still is a huge potential for farmers and retailers.

The local industry channel creates a direct relationship between the producer and his consumer, thus cutting through the retail sector.

*Despite the prejudice, local industry channels are not only used by small family -owned farms. One market-gardening farm may sell its products on more than thirty different markets every week, and another one might supply three pro-active consumers co-ops inside an organized network .*

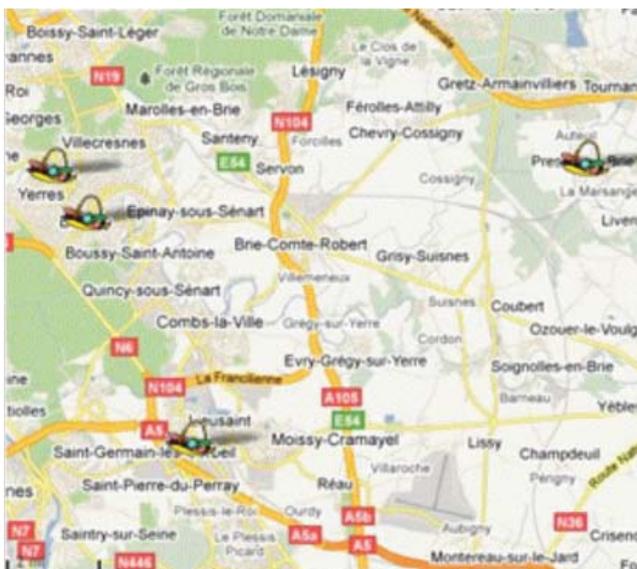
### PRESENTATION OF THE VARIOUS INDUSTRY CHANNELS AND SELLING PROCESSES :

#### A. Local sale on the farm's location and road sale

18 % of Ile-de-France farms in 2007

#### B. From the producer to the consumer : the basket delivery

The AMAP's phenomenon has been incessantly increasing and new co-ops are launched every day. Yet, it is challenging to find farmers willing to collaborate with them.



AMAP baskets delivered in Sénart  
Source: [www.maps.google.fr](http://www.maps.google.fr)

*How does it work? Every member of the co-op signs a contract with a producer who delivers one basket a week on a specific location which must not be further from 100kms from the farm. The basket varies through the seasons and the pro-active consumer takes a pledge to help the farmer in case a natural disaster might occur.*

By the end of 2007 : 60 AMAP – about 4500 consumers – 20 organic farms AMAP

By the end of 2009 : 100 to 120 AMAP -5000 baskets/week-

9 Association pour le maintien de l'agriculture de proximité

## Picking sessions

The network « Chapeau de pailles » : About thirty farms, with ten in Ile-de-France, and six in Seine-et-Marne. It is a group of flowers, fruits and vegetables producers who invite consumers into their orchards. Thus, consumers may pick up to 60 different products depending on the season. <http://www.chapeaudepaille.fr/>

Other picking sessions exist in the region but the farms do not belong to a network.

## Market sale (more than 600 in the region):

Ile-de-France's agriculture suffers from its consumer's unfaithfulness. Few consumers buy their products in a market sale on a regular basis. For example, the market sale business loses 40% of its consumers in winter when products like tomatoes, cucumbers or eggplants are not on their stands<sup>10</sup>. Moreover, there are more fresh foreign products retailers than local producer retailers on market sale, with cheaper, more varied products.

## Historical markets of Seine-et-Marne:

- Crécy La chapelle : An XIIIth century's important market sale. The market nowadays takes place around the walls of this market.
- Nangis/ Rozay en brie : Champagne fair
- Rebais : Brie, livestocking, apple orchards
- Beton-Bazoches : apples
- Brie-Comte-Robert : Town of Roses<sup>11</sup>.
- Storage :
- A few containers still exist near the town to store cereals : Limochecourt, Nord Sénart, Brie-Comte-Robert, Crécy-la-Chapelle.

## Organic agriculture

115 farms in 2009, 5670 ha (1% of Île-de-France's UAS), 39 in Seine-et-Marne  
Surfaces allocation : Cereals (84%), Market-Gardening (4%), Tree-Farming (1%), Prairies (6%), Fallow Land (5%).

## Organic bread sector

The organic bread sector is the only organized organic network in Ile-de-France. « In 2004, with the help of the organic agriculture grouping of Ile-de-France, we have decided to organize an organic bread sector in Ile-de-France. The first year, the producers sold 4 tons of bread. In 2008, they sold about 100 tons. » says one of the founders of the network.

## Seals of approval (Labels)

AOC sealed and official quality seals are very restrictive, therefore, local authorities have to help farmers acquire and develop all the technical abilities required.

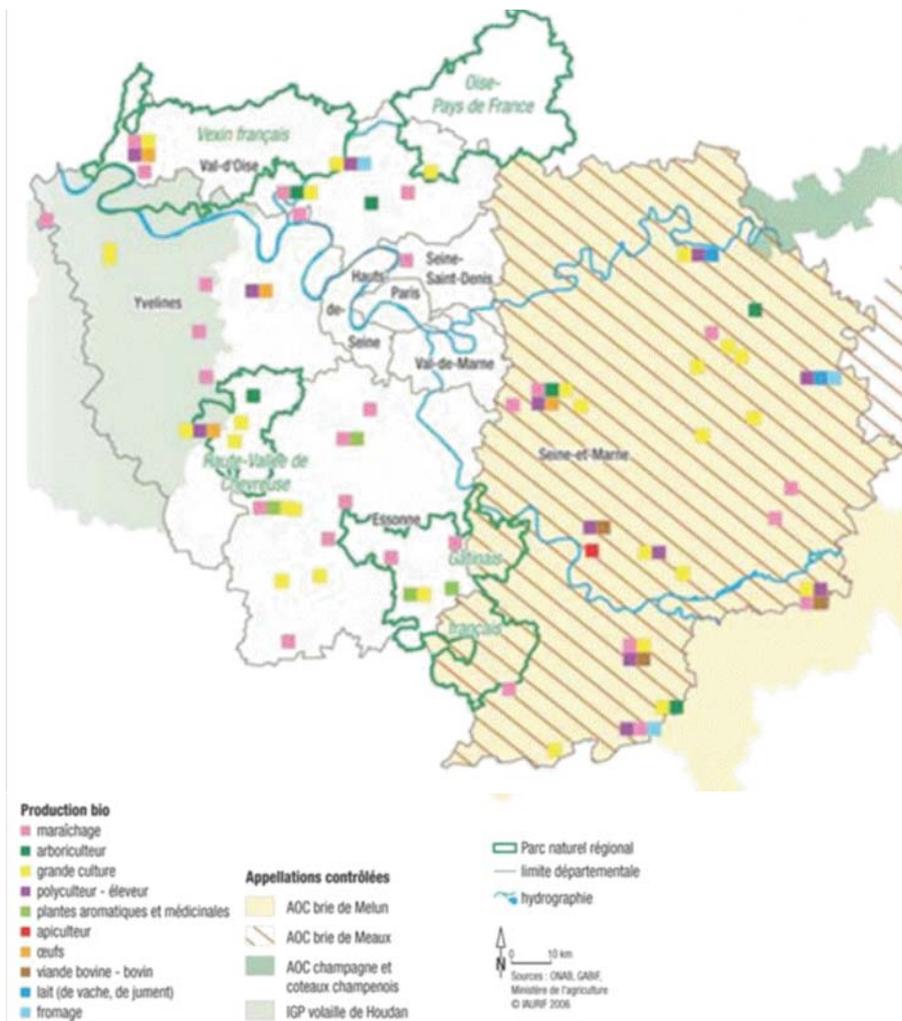
The nature of these products is not to perpetuate traditional farming methods. In order to develop the AOC seal, farmers must gather and develop their skills to fulfill challenging requirements. One cannot improvise, or create a sealed product out of nothing, one has to earn it. One has to prove that their products are renowned and economically sustainable<sup>12</sup>.

Other seals require less challenging criteria than the AOC and are more marketing-oriented. One example : « City-Gate » (Ville-Porte), in order to develop the town-country relationship in the Vald'Oise and make some publicity out of it : Shared planning objectives, « think tanks » on sustainable development issues. Two main actors are : the Vexin PNR and the Agglomeration Community of Cergy-Pontoise.

10 Pour enquête sur le comportement des consommateurs voir CESR P.42

11 DRE et Préfecture Île-de-France, Les pays des franges franciliennes, DRE, nov. 1994 in CDU CERGY

12 DANIEL NAIRAUD Directeur adjoint de l'Institut national de l'origine et de la qualité (INAO)



Quality and Origin seals : organic producers and registered designations  
 Source: Atla rural et agricole de l'île-de-France, IAU

In order to support these actions, co-ops as well as national and european authorities offer their help to promote and develop an environment-friendly agriculture :  
 EAFRD (European Agricultural Fund for Rural Development) : european and regional assistance to enhance environmental quality.

Dispositif D – organic agriculture conversion program:

- Dispositif F – Endangered species protection program
- Dispositif H – Bees' pollination potential enhancement program
- Dispositif I – Local agro-environment measures
- I.1 : Natura 2000 challenge
- I.2 : Water Framework Directive
- I.3 : Other environment challenges ( erosion, biodiversity outside the frame of Natura 2000, landscapes...)

New business forms have been launched, given the need for some urban inhabitants to gain access to fresh, environment-friendly and high-quality products. The Grenelle de l'environnement (A french government initiative to help developing and promoting sustainable development ) and the evolution of the CAP policy are supporting this trend.

## 1.4 The European CAP

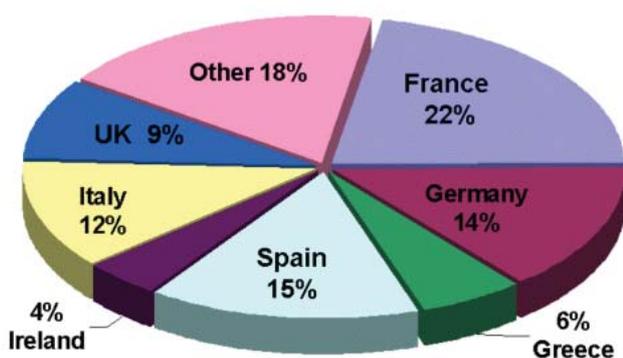
Many political frameworks shape the evolution of agricultural methods. On the European level, on the national level and on a local scale, these laws, formerly in favour of a production growth, are now questioning the intensive agriculture methods and tend to promote a more sustainable approach.

### A. THE CAP : Productivism and Protectionism

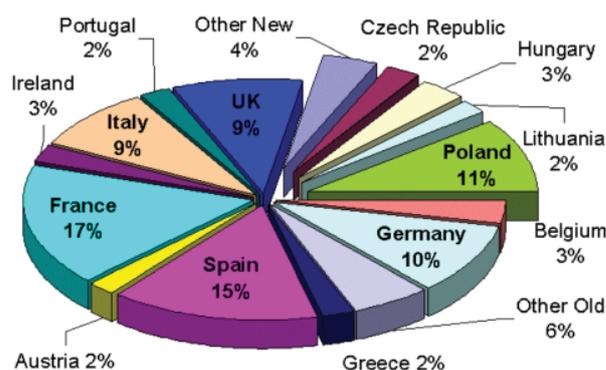
**The CAP (PAC)** is a European Union policy which controls the prices and give a frame to the assistance requirements. It tends to develop and modernize agriculture. It was created in 1957 and implemented in 1962. The CAP has two pillars : Firstly, to help the production growth ; secondly, to develop rural areas.

The CAP is one of the oldest, and one of the most important EU policy, representing almost 35% of the EU budget, 43% if one counts the rural development program, even though the budget tends to decrease. What are its objectives?

- Increasing agriculture's productivity
- Ensuring that all farmers have a decent income
- Stabilizing the markets
- Ensuring the supply's security
- Ensuring moderate prices for consumers



CAP Beneficiaries 2004  
Source: Union Européenne



Percentage of EU Farm land by country  
Source: Union Européenne

Preference towards community members allowed the isolation of European agriculture from global price variations, therefore rewarding it with products cheaper than imported ones. These actions have a worldwide impact on the markets. France is the main beneficiary of this policy with 22% of the budget's allocation, before Spain and Germany. Allocations were granted on the basis of the farms yield and size.

The CAP now takes agriculture's structural evolution in consideration. The 1992 CAP reform abandoned price-oriented support and set the grounds for a more environment-friendly policy. The 1999 Berlin's agreements and the Luxembourg's ones in 2003 reinforced that change of policy. Introducing concepts such as decoupling and cross-compliance, the 2003 CAP reform confirmed the trend initiated in 1992 : European aid is based on environmental and planning efforts. This evolution should only be strengthened in the years to come.

### B. Cross-compliance:

Cross compliance is a mechanism that links direct payments to compliance by farmers with basic standards concerning the environment, food safety, animal and plant health and animal welfare, as well as the requirement of maintaining land in good agricultural and environmental conditions.

Since 2005, all farmers receiving direct payments are subject to compulsory cross-compliance : Cross-compliance includes two elements:

- Statutory Management Requirements: These requirements refer to 18 legislative standards in the field of the environment, food safety, animal and plant health and animal welfare.

- Good Agricultural and Environmental Conditions: The obligation of keeping land in Good Agricultural and Environmental Conditions refers to a range of standards related to soil protection, maintenance of soil organic matter and structure, avoiding the deterioration of habitats, and water management.

The « Grenelle de l'environnement » debates and the debates regarding forests and agriculture led to the project « Objectif Terres 2020 » which is composed of 60 measures that will help agriculture to face the environment challenge.

The plan ECOPHYTO 2018, one of these measures, aims to a 50% decrease of the use of fertilizers by 2018. Le plan “performances énergétiques des exploitations agricoles” wishes that 30% of the total of the farms will be less energy dependant by 2013. Following the steps of the Nitrates Directive (1991) and the Water Framework Directive (2000), the Soil Framework Directive will fight against the decrease in size and quality of the soil in Europe <sup>13</sup> .

A wide consultation is currently held regarding the 2013 CAP reform. Some of its objectives are already becoming clear, such as the abolition of mandatory fallow lands, the increase of milk-industry quotas until their effective withdrawal, the allocations' decoupling, the reinforcement of the assistance for challenged sectors, the augmentation of the rural development's budget.

These new orientations goal is to promote a sustainable and globally competitive agriculture, which fulfils strict environmental and production criteria, and to help rural areas to develop and adapt to these new challenging policies. Being the main beneficiary of its allowances, France is worried for the future of the CAP, and by the arrival of 12 new countries inside the EU. It will eventually lead to a decrease of the CAP's part in the EU budget (currently 43%), and countries which possess few farmlands, such as England, are already frowning upon that.

EU's parliament shaped the frame of the reforms, insisting on food security and production's efficiency while putting the environmental issues aside. In such a context, wouldn't it be more appropriate to help environment friendly farming processes which preserve biodiversity instead of promoting an intensive agriculture? The debates occur and the 2013 reform will eventually change the rule while having major repercussions on the global agricultural's sphere.

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13 [www.cemagref.fr](http://www.cemagref.fr)

## 1.5. Workforce and education in the agriculture field

### A. AGRICULTURE'S EMPLOYMENT

**While the unemployment rate is rising, agriculture and the food-industry's demands for working force are not fulfilled. This increase of job offerings must not make up for the fact that there is a vocational crisis inside the agriculture's sphere. Young farmers' will to have more free time, the evolution of the profession with mixed activities, society's great expectations and the prejudiced image of the farmer's job are amongst plausible explanations for the current employment issue. The agriculture field tries to face this challenge and therefore takes actions on different scales, well aware that this workforce issue could turn into a great opportunity.**

Numerous elements related to agriculture's evolution can explain this situation. Indeed, professional contracts, illness, accidents, maternity leaves or holiday breaks lead farmers to call on substitute employees. For a long time, family members used to fill in for their relatives but it is no longer the case, since they often work outside the farm. That said, the raise in the number of farm jobs is not only caused by an increase of the demand, but also by a chronic lack of working force and a vocational crisis. This crisis can be explained by the image conveyed by Agricultural education : The agricultural courses have been deserted by students, especially high-standard ones, mainly because these courses are unknown of the public (80% of the French declare that they do not know about them). Moreover, many people consider that these courses are taken by underachieving students, and that they eventually lead to difficult, underpaid jobs. Most young people are prejudiced about Agriculture and its related jobs.

In addition to that, the lack of working force does not impact small and big farms in the same way. The first ones mostly need substitute employees, while the second ones hire many workers. There is eventually a location issue : the employment problems are emphasized in suburban areas because of housing problems<sup>14</sup>.

### B. AGRICULTURAL WORKING FORCE : A RARE AND EXPENSIVE FORCE

The working force suffers from both skill and quantity issues. The working force remains very expensive for the farms, even though the pay is not that high. Housing is a major issue for workers and remains very expensive around Paris. In Ile-de-France, workers are poorly skilled (even seasonal workers) and there are many legal barriers to hire immigrants<sup>15</sup>.

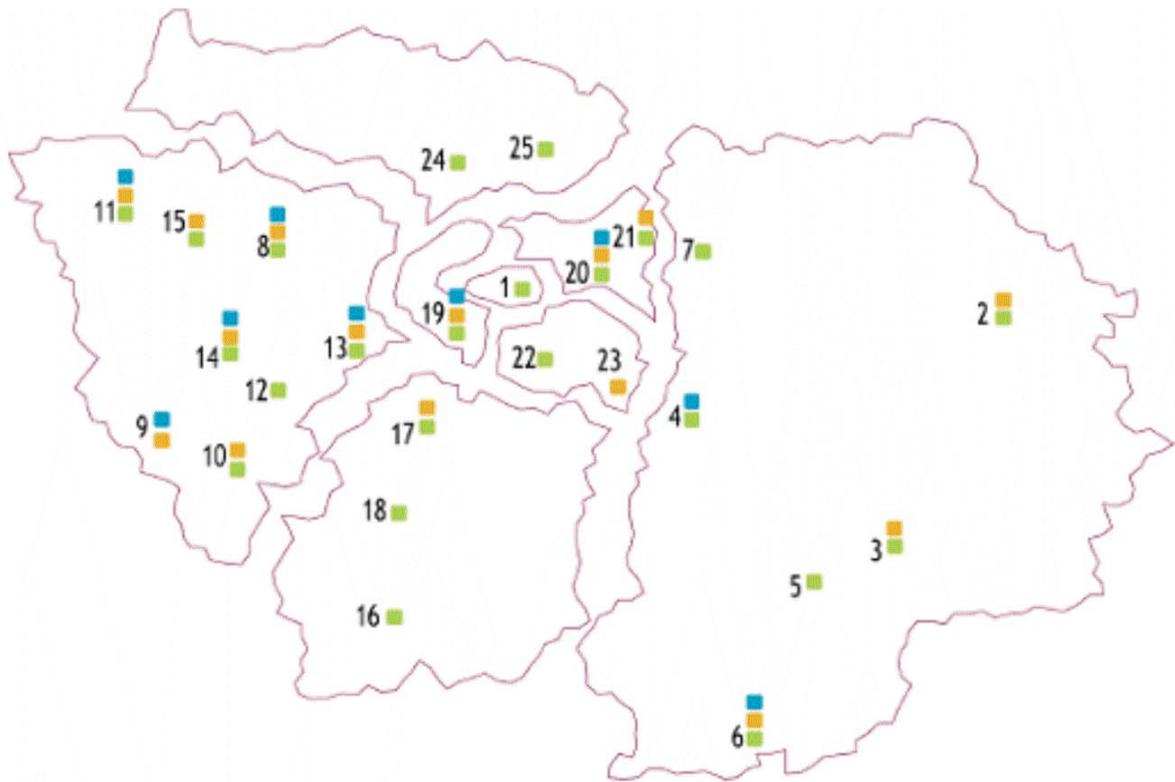
Farms need a skilled working force, especially in the market-gardening, where the production is varied, and workers must possess business and communication abilities.

### C. EDUCATION AS A WAY TO MAKE UP FOR THE LACK OF WORKING FORCE.

In Ile-de-France, there are a lot of agricultural students, even though not as much as in other courses. 4000 people study in secondary education and 2000 vocational students are following courses in learning centers called CFA, Centre de formation des apprentis. (Apprentices Training Centers). Courses are held in schools delivering degrees like CAP, Brevet or Bac Pro and higher-education degree (Bachelor). There are also highly renowned schools such as the Veterinarian school of Maisons-Alfort, and the INRA for research in agronomics.

<sup>14</sup> Mélanie Gambino

<sup>15</sup> Christine Aubry, Leïla Kebir, Catherine Pasquier, 2008, Le raccourcissement de la chaîne alimentaire : une nouvelle ruralité en périphérie des villes ? INRA SADAPT Equipe Proximités, Colloque Habitants des nouveaux territoires, Académie d'Agriculture, 18/11/2008



Agriculture education in Île-de-France

Source: L'enseignement agricole en île-de-France 2009-2010, DRIAAF

Seine-et-Marne has only two vocational education schools while Yvelines has five. Yet, the Bréttonnière high-school is the largest facility of Ile-de-France, with 300 students, from 3eme (9th grade) to Baccalauréat Professionnel et Baccalauréat technologique (vocational A-Levels). The high-school gives courses in livestock management, and caring professions in rural areas. High-school facilities host a 50ha farm, with 300 ewes, an 80 apple trees orchard as well as an educational greenhouse. The evolution of young people's hobbies and concerns may also explain this lack of enthusiasm for agricultural education.

New themes and specific courses should be developed in order to invigorate the sector while adapting it to the young people's expectations and the society's evolutions :

- Water management issues
- Biodiversity (fauna and flora)
- Elements (nitrogen, phosphorus, carbon )
- Agricultural planning (water network and draining process) and its impact on water
- Production, use and future of pesticide in air, water and soil.
- Landscapes
- Local industry marketing courses
- Suburban and rural areas planning designs<sup>16</sup> .

It is essential to gather as many people as we can to think about environmental education and the evolutions of the farming industry, in order to prepare the suburban agriculture to face the new challenges awaiting. Agricultural education might also provide creative courses for disadvantaged people.

Ile-de-France's agriculture faces many challenges, that keep on strengthening with the spreading of Paris metropole. But, this closeness of the metropole could generate business opportunities and a different planning of the agricultural and natural land.

16 SAF, Des agriculteurs producteurs de biens et de services environnementaux pour la société ?, LIVRE VERT, Novembre 2006

# 2

## ENVIRONMENTAL CHALLENGES

## 2.1. The SDRIF gives a frame to the region's planning

The reform of the Main Planning Design for Ile-de-France (Schéma directeur de la région Île-de-France - SDRIF) is a cornerstone : It clearly defines, with the State's collaboration, the long-term planning design for the metropole<sup>17</sup> .

Ile-de-France's future must be thought outside its administration borders, because it is part of a whole, in the parisian basin, in Europe and in the world. The SDRIF tends to develop territorial solidarity and economic efficiency.

Equality between the territories is one of the main mission of the SDRIF. Attractiveness and influence are its main concerns. Such policies' foundations are : the varied economic potential of the area, the R&D, the development of public transportation, the improvement of the public infrastructures quality, and the cultural and social identity of Ile-de-France.

### Three main challenges :

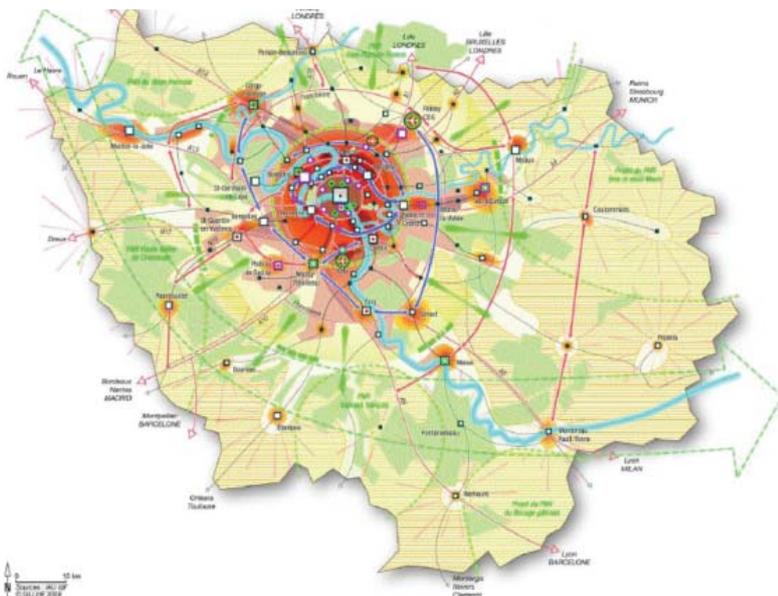
- Favoring social equality between the territories and improving social consistency
- Preparing for major crises to come, such as global warming and the depleting fossil fuels.
- Developing a dynamic and worldwide influent Ile-de-France.

### Goals :

The five objectives are :

- Offering housing for all Ile-de-France's inhabitants with a main goal : building 60 000 housings per year during 25 years and reach a 30% rate of social housing.
- Developing employment and enhancing the economic growth while maintaining the international influence.
- Promoting a new public transport strategy helping the area's development.
- Preserving and promoting natural resources, allowing people to access a high-quality life environment.
- Building quality infrastructures and services in the metropole.

The SDRIF's strategy is divided in two geography-based parts : Firstly, the strategic territories which are, or must be a driving force considering the challenges Ile-de-France has to face. Secondly, the priority sites which are struggling with social issues and must try to balance their inner discrepancies.



Spatial regional project  
Source: SDRIF

<sup>17</sup> The Conseil Régional voted the SDRIF project on the 25th september 2008, after a long public debate. The project was transferred to the Conseil d'Etat on the 9th june 2010, after a year and half of stalling procedures by the government.

## The projects

The central agglomeration, and its core, has spread out. The exchanges between the territories of the area, as well as with the Parisian basin territories have been strengthened. The multi-center strategy, grounded in the former planning designs, needs to be thought in a tighter way, inside living environments organized around urban centers, which preserve and promote forests, natural and agricultural areas.

Car traffic must be reduced as well as urban extensions, and the city has to become more compact. The emphasis is put on **urban densification and the brownfields transformation**.

The size of Ile-de-France's metropole and its organization is complex. Thus, five large areas of more than 4 million people each is considered. Paris is a part of each area

- West area
- North area
- East area
- South-west area
- South area

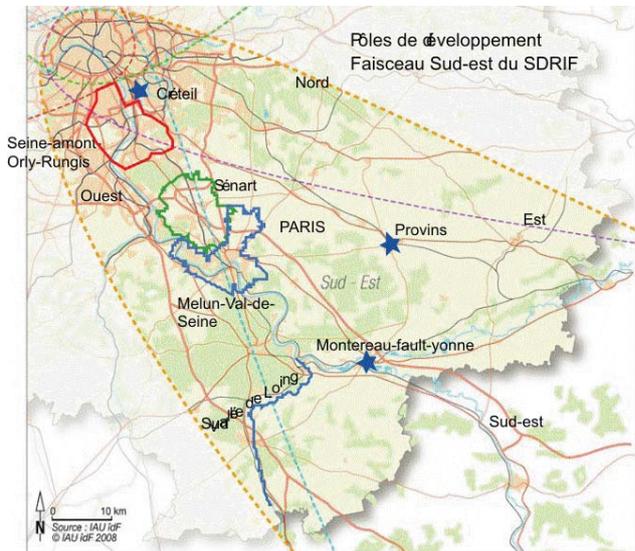
The south area's main characteristics is its social diversity. It needs to be strengthened, in the north part mostly, which hosts poor areas located next to competitive economic areas. The area is also characterized by its middle-class individual housing in east Vale-de-Marne neighborhoods, which played a part in the urban spreading phenomenon.

There are many development centers that benefit from various local initiatives, but some of them will have to be invigorated : The Seine Amont-Orly-Rungis territory, The administration center, Creteil University, Sénart's new agglomeration, Melun-Val de Seine, Montereau-Fault-Yonne and Provins, The Val de Loing. Developing these areas will help balancing the development towards the east of the territory.

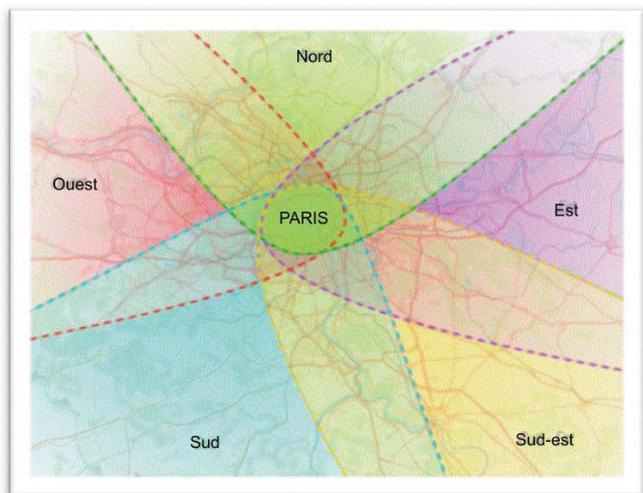
The urbanised space, which is shattered by the access roads to the ringroads needs to be unified. The relief (Marne, Seine, Loing, Yerres, Orge's valleys) and the infrastructures and services buildings will also be unified. The suburban spread out, recently appearing along the Francilienne road, and which consumes a lot of land needs to be tamed.

Sénart, which is a new town located between the development centers of the South-west area, is a major driving force for the development of economic activities area and logistical platforms. An environment-friendly economic site of 300ha has already been settled (spreading over the three towns of Combs-la-Ville, Lieusaint and Moissy-Cramayel ). Moreover, Sénart has a great housing development's potential which will help fulfilling the regional goals in terms of building and will tend to an urban densification. This town's contribution will allow it to gain a more central position in the area, will keep a balance between housing and jobs, will develop employment and will tighten its collaboration with Melun's local authorities.

« In this area, the green way and the green belt are suffering from the urbanization's strong pressure. In the center of the green belt, many farmlands keep a landscaping balance with wooden areas and with some valleys. This fragile balance must be preserved to allow suburban agriculture to develop itself in a sustainable way<sup>18</sup> ».



SDRIF's poles southeast  
Source: SDRIF



Agglomeration poles  
Source: SDRIF

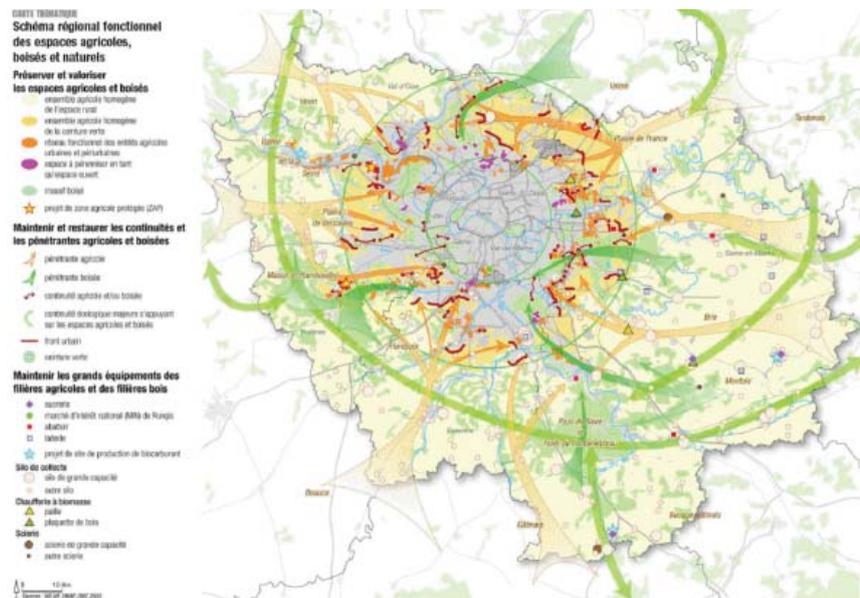
L'enjeu est de contenir les fronts urbains afin de garantir une pérennité aux exploitations agricoles de la Brie ainsi que d'assurer des continuités écologiques aux espèces.

### A. Blue and Green Infrastructures

One of the Grenelle de l'environnement's main initiative is a radical concept that goes beyond past decisions concerning biodiversity : Blue and Green infrastructures (Trame verte et bleue).

Its a global conception of nature, that tends to create an environmental continuity, but, in urban areas, this continuity is necessarily broken. Therefore, authorities need to create or preserve natural species-friendly areas.

The Blue and green infrastructures must be thought as a planning tool that will allow territorial continuity, with large natural spaces and channels linking them to one another. Its goal is to create or renovate an ecological infrastructure that allows the essential continuity the species need in order to survive, with protected areas and biodiversity hotspots.



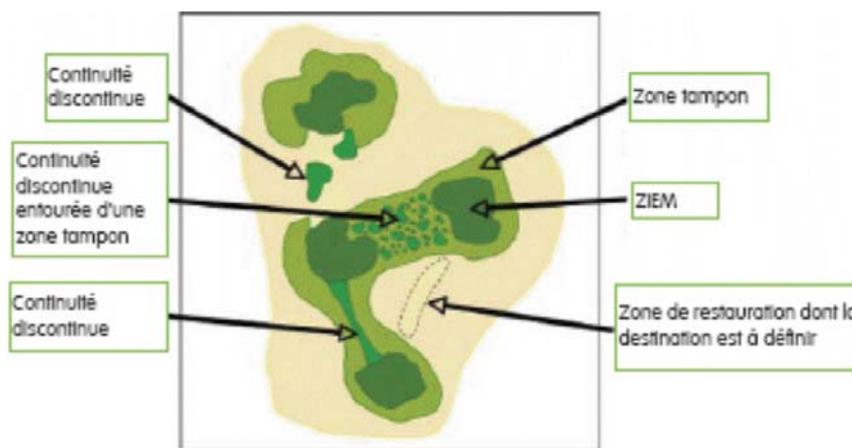
Bowls, natural and regional agricultural areas, Source: SDRIF, 2008 p.94

**The green infrastructure** is based on important natural spaces like biodiversity hotspots, the ecological channels made of natural or semi-natural areas, as well as continuous or sparse plant-forming, like permanently plant-covered surfaces or grassland strips

**The blue infrastructure** is based on rivers, canals and damp areas helping the preservation of biodiversity

The polarized urbanization in Ile-de-France created a concentrated infrastructure network, that gets thicker and thicker as one gets closer the its center. The shattering of open spaces leads to a decrease of their ecological value (two forests separated by a transport infrastructure has a lower ecological interest than a large unified forest of equal size). In addition to being a biodiversity threat, these cuttings are obstacles to agriculture and the tree-farming industry, and to recreational areas.

The linking corridors can be of agricultural, natural or recreational kind, as long as they are not built upon. The fragmentation of the agricultural areas must be avoided or compensated<sup>19</sup>



Ecological continuity Source: M. Charmet

Key words : Decrease fragmentation, **Identify and connect**, preserve, migrations, easier exchanges, environment quality.

19 SDRIF's project, 2008

## 2.2. Seine-et-Marne's AGENDA 21

Based upon SDRIF decisions, Agendas 21 tend to improve the quality of the environment and to unify the areas. Yet, their actions are different given their different nature. The Conseil Général of Seine-et-Marne (local government) has launched an Agenda 21 in 2005. The department's agenda 21 has several challenges like climate and energy-oriented actions. Here is an extract of the agenda 21.

**Agenda 21 is defined around 4 strategic goals:**

- **The growth challenge (Challenge 1 – actions 1 to 8):** Located in the outer-suburbs of Ile-de-France, Seine-et-Marne knows an important economic and demographic growth. This growth must be balanced and sustainable : environment-friendly neighbourhoods and sustainable activities zones, controlled development of suburban agriculture, alternative transportation (other than personal car).

- **The youth and solidarity challenge (Challenge 2 – actions 9 to 23):** Seine-et-Marne's inhabitants are young : 35% of its population is under 25. The Conseil Général has launched a mandatory solidarity program towards the most fragile population. This chapter of Agenda 21 gathers symbolic, important and creative actions for citizens..

- **The Nature and global warming challenge (Challenge 3 –actions 24 to 28):** Seine et Marne is an environmentally rich department. 60% of its territory is covered with farmland, forests, natural areas, wooden areas. This department represents half of Ile-de-France's total size and hosts as many biodiversity than the United-Kingdom. With the help of this strong characteristic, the third Challenge is global warming-oriented. The creation of a biodiversity's atlas, and the launching of a local climate-energy program are part of the program to develop a « nature network » that will preserve the biodiversity, promote sustainable construction methods and the social experiences of the environment-friendly neighborhoods.

-**The sustainable development challenge for the Conseil Général (Challenge 4 –actions 29 to 46) :** « Only actions matter », is the motto of the Agenda 21's concept. Showing its commitment rather than its excellence, the Conseil général of Seine-et-Marne wants to change its working methods (citizen involvement, education-action...) and some of its procedures (e.g public markets). « Sustainable development and its integration to the working procedures of the Conseil Général is an important part of the program », said the local authorities when the MEEDDAT approved the program. (Sustainable agriculture, social-oriented policies, a recycling centers network, cross-compliance)

The creation of local Agenda 21 aims to develop more local agenda 21 programs and to support these social and environmental initiatives. Combs-le-Ville has launched an Agenda 21 north-east of its territory in 2003. The project's goals are to renovate old housing, to implement biogas energy in the city hall building and to conduct a high environmental quality planning project. Social issues have not been thoroughly thought about and the only goal is to plan a sport area for disabled people.

Sénart and Vert Saint-Denis also prepare their own agenda 21. The projects tend to multiply but they must not only focus on urban centers. Social and environment projects must also be launched in rural areas.

## 2.3. Water and air pollution, major issues with different origins.

Ile-de-France's air and water are highly polluted. These pollutions have both urban and agricultural points of origin. Food, rivers and soils pollution are mostly the result of an intensive use of fertilizers by farmers. Air pollution is mostly caused by freight transport and commuting traffic in the metropole.

The water pollution is already alarming in Ile-de-France. The residual presence of toxic chemical products in food, even if it has not a unique origin, can lead to cancer, allergies, respiratory problems, low fertility, child's endocrinopathy but can also lead to less aggressive pathologies such as sleeping or attention disorder<sup>20</sup>.

Ile-de-France's agriculture represents 2/3 of the region's water consumption (between 3 and 4 million m<sup>3</sup>). Thus, there is a quality as well as a quantity issue. The farms intensive water consumption (tapped from groundwater) drains the water out of the soil. Draining processes still occur too often and keep the water from infiltrating the soil.

Traditional agriculture methods destroy the soil's porosity and do not allow humus forming, which leads to an aggravation of the river and groundwater pollution and create flooding and erosions phenomena. The destruction of hedges and the natural evolution of the relief make the situation worse.

The Grenelle de l'environnement aims to a 50% decrease of the use of pesticides in agriculture by 2018. It is essential to encourage farmers to convert from traditional agriculture to organic agriculture. Hedges and natural barriers must be renovated.

### A. Water quality : Evaluation of the chemical presence in Seine-et-Marne's groundwater

During the 1995-2005 period, only the Valois groundwater was qualified as « chemically acceptable » in Seine-et-Marne. The six other groundwaters were not. They often suffer from pesticide and nitrate presence that come from agriculture. There is an increasing nitrate presence in some groundwaters such as the Brie-Champigny and the Soissonais ones.

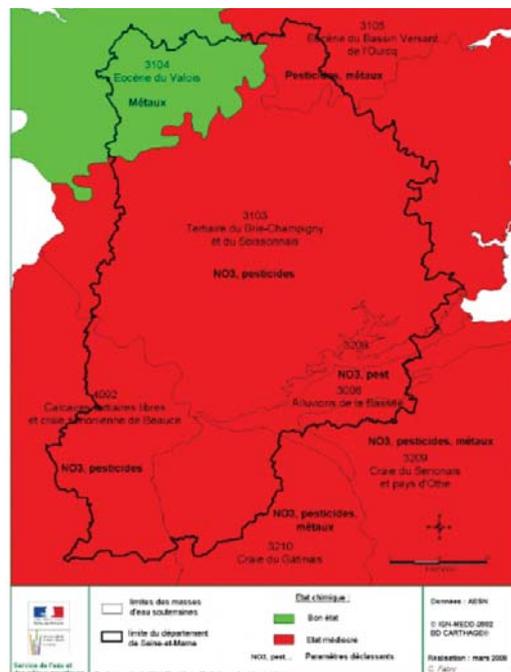
#### Ecological status : biological features

In **biology**, the evaluation concerns water species in the analyzed waterground : algae, invertebrate species (insects, mollusks, shellfishes ...) and fishes .

**Chemical and physics** : water acidity, oxygen quantity, saltiness and nutrients presence (nitrogen, phosphorus)

During the 2001-2005 period, 30 to 50% of the measuring checkpoints of Seine-et-Marne's water network marked the water as ecologically acceptable. The water areas that were not suffered from a massive presence of nitrate and phosphorus.

**In Seine-et-Marne, the most-polluted rivers are la Beuvronne, le Théroutanne, le Grand Morin, l'Aubetin, l'Yerres, l'Almont, l'aval de l'Ecole et l'amont de l'Auxence.**



Water quality in Seine-et-Marne

Source: <http://eau.seine-et-marne.fr/les-actions-preventives-en-milieu-agricole>

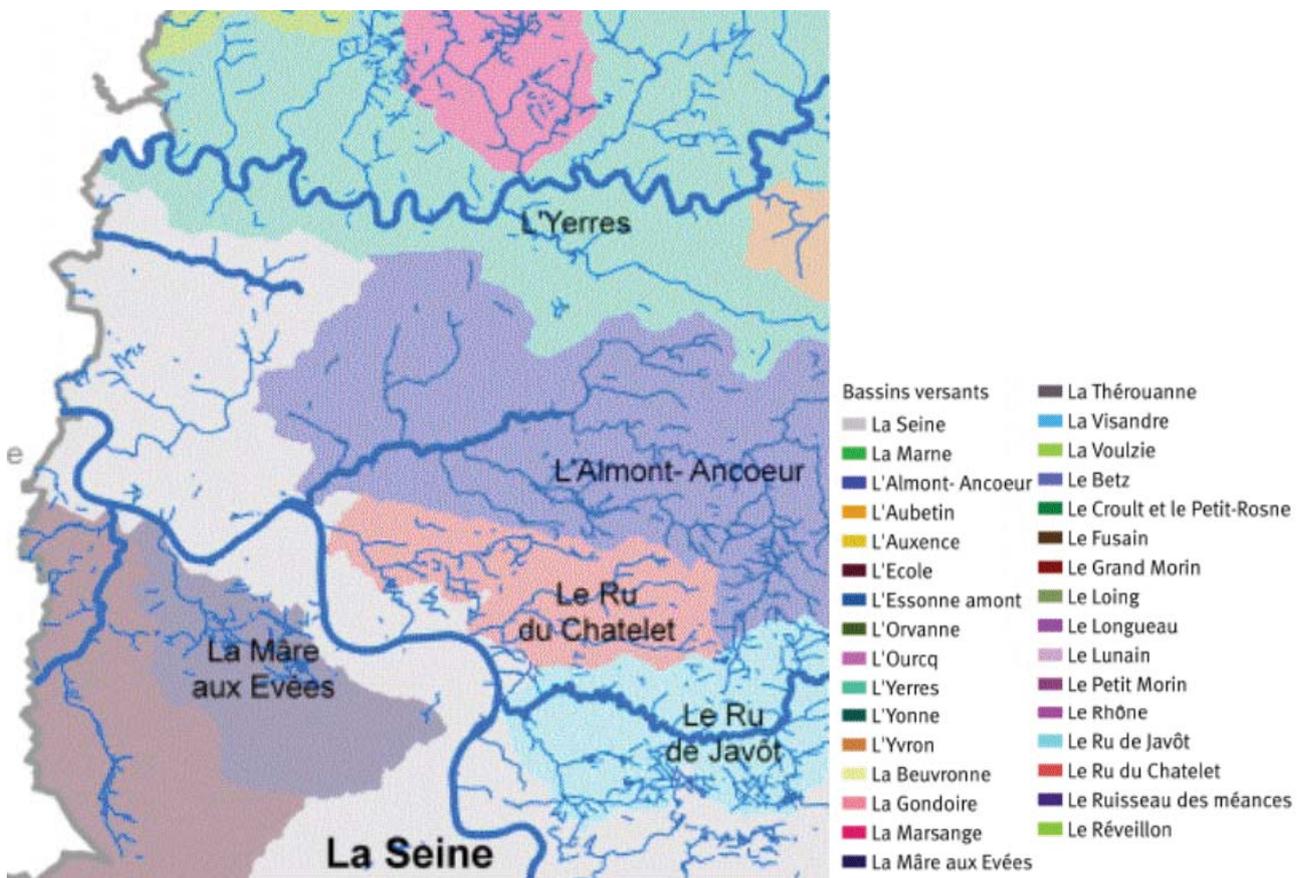
<sup>20</sup> According to professors Charles Sultan and Niels Skakkebaek in MERLIN (p), L'éco-région d'Île-de-France, une utopie constructive, Institut d'urbanisme et d'aménagement de la Sorbonne, La documentation française, 2007, CDU CERGY

## Chemical status

In order to be chemically acceptable, chemical residual presences in water must stay within the levels decided by the Water Framework Directive. The directive gives acceptable levels for 41 substances like heavy-metals, pesticides, solvents, fuel. These levels are the same for all types of water courses. During the 2002-2006 period, 45% of the Seine-et-Marne water courses were chemically acceptable for 10 substances analyzed. The water courses who were not acceptable suffered from the pesticide's residual presence. Weed killer (65%) used by large farms (oil-producing plant farms, corn farm) and in road and garden maintenance products in urban areas. Other chemical products are fungicide (21%), insecticide (6%) and metabolites (7%).

**The pesticide pollution is mainly witnessed in the following watersheds : l'Yerres, l'Almont-Ancoeur, Morbras, la Beuvronne, la Th rouanne and l'Aubetin.**

**L'Yerres and l'Almont watersheds are ecologically and chemically damaged. These damages not only impact the water's quality, but also the basins biodiversity while they are already damaged by the loss of natural areas.**



watersheds

Source: <http://eau.seine-et-marne.fr/caracteristiques-generales>

## 2.4 Air Pollution

### A. Île-de-France's carbon audit <sup>21</sup>

**Île-de-France's inhabitants carbon emissions almost reached 25 millions of tons, which represent 64% of the total French emissions.** The most carbon-emitting activities are also the most fossil fuels-consuming ones (oil, gas), such as transport activities or the heating systems (personal houses and offices). They represent  $\frac{3}{4}$  of the total emissions.

The 13th July 2003 bill aims to divide by two the CO<sub>2</sub> emissions by 2050 in France. (TeqC<sup>22</sup>)

#### Carbon audit in Ile-de-France

Emissions in TEQC for each sector in Ile-de-France

- **Air transportation** : 12 541 673 (32,6 %) (people transportation)
- **Personal cars** : 4 996 436 (13 %) (inhabitants and visitors transportation by car)
- **Housing**: 4 034 708 (10,5 %) (heat, hot water and toilets water)
- **Invasive products, partial** : 3 970 407 (10,3 %) (domestic waste-based products and waste produced by the fabrication of fertilizers and farming machines)
- **Service industry** : 3 003 129 (7,8 %) (electricity, heating system, hot water, toilets water)
- **Road Freight** : 2 999 844 (7,8 %) (Truck transportation and VUL)
- **Air Freight** : 1 789 276 (4,6 %) (plane transportation )
- **Energy Production** : 1 741 854 (4,5 %) (electricity, heat and oil production)
- **Industrial Processes** : 1 362 777 (3,5 %) (industries, food-industries, production processes.)
- **Building** : 723 952 (1,9 %) (annual housings building )
- **Roads and related infrastructures** : 424 866 (1,1 %) ( roads and car-parks construction)
- **Public Transportation**: 383 665 (1 %) (road and railway public transportation )
- **Waste** : 300 537 (0,8 %) (individual wastes, wastewater)
- **Agriculture** : 195 580 (0,5 %) (farming and livestocking activities)
- **Water Freight** : 45 608 (0,1 %)

Agriculture only represents 0.5% of the region's emissions, but fertilizers and agricultural machines represent 10.3% of the total emissions. Therefore, Agriculture plays a major part in the emissions decrease in Ile-de-France.

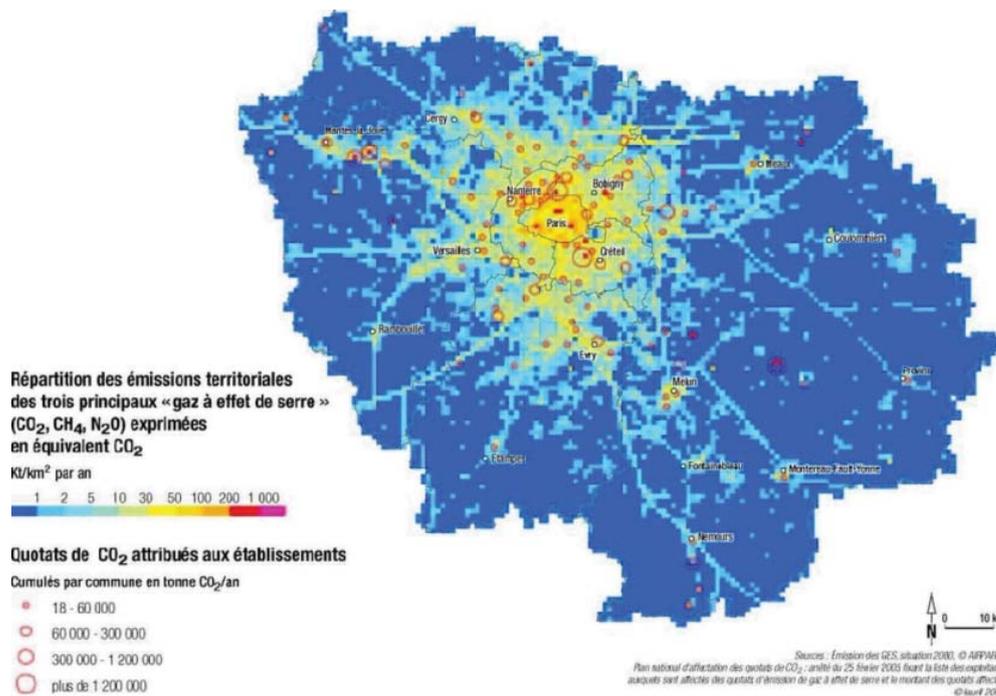
### B. Pollution challenges in Seine-et-Marne

**1-Almost 60% of Seine-et-Marne's emissions** are caused by goods and services, transportation, housing. People relying the most on their car for transportation are therefore highly exposed to the oil's price variations.

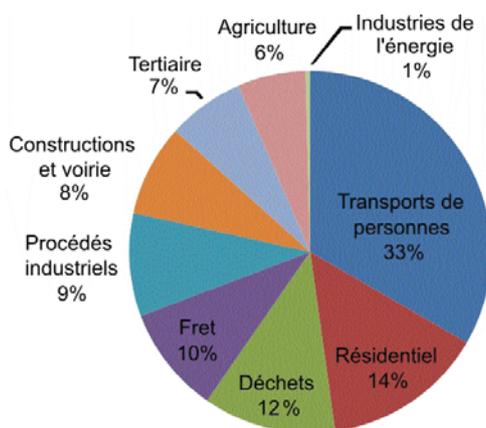
**2- Economic activities and public services represent 40% of the territory's emissions:** Goods and services production, transportation, public and private estate management (buildings, roads, infrastructures...). 6% of the Seine-et-Marne's emissions are agriculture-based (725 000 teq CO<sub>2</sub>) while Ile-de-France's represents 0,5%. The intensive agriculture and the important use of machines and fertilizers explain this rate, in addition to the livestocking emissions (methane).

<sup>21</sup> La méthode Bilan Carbone® counts the emitted greenhouse gaz by a product or a service. Every greenhouse gaz has a « global warming power » that represent its impact over climate.

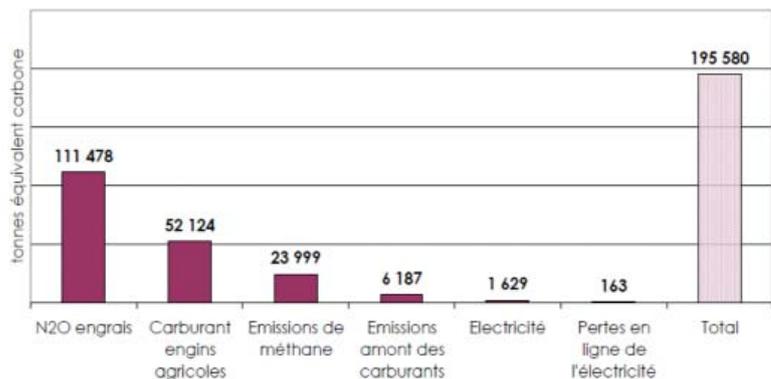
<sup>22</sup> tonne équivalente en CO<sub>2</sub>



Repartition des émissions territoriales des trois principaux "gaz à effet de serre"  
 Source: Emission de GES, situation 2000, AIRPARIF



Pie chart of Seine-et-Marne's pollution  
 Source: J.M.Stephan



Agriculture-based emissions  
 Source: IAU, Conseil régional

The national challenge aims at a 25% decrease of CO<sub>2</sub> emissions by 2050, which is equivalent to a decrease of 4,1 million TEQ CO<sub>2</sub> in Seine-et-Marne ten years from now. To fully grasp the magnitude of the challenge, one has to realize that this objective is equivalent to Seine-et-Marne's inhabitants transport emissions. It is a major challenge, and policies now have to be created in an environment-friendly and sustainable way.

### Solid waste and agricultural wastes :

Construction engineering is the first waste producer of Ile-de-France, with 20 to 30 million tons (2/3 of the total). They are abounding, take much space, they are heavy and theoretically inert. 3 million tons are managed, shredded and come back on the market (10%). The rest is buried or stored in « merlons » (little hills by the side of the road). Seine-et-Marne manages several tons of waste coming from Paris and inner-suburbs. The replacement of reinforced concrete by wood would be a good way to reduce the waste production.

The agricultural waste represent 3% of the total, reaching 1,2 million tons. Cultivations and methods choices can reduce the number of straw and leafstalks. This waste is usually burnt ou shredded on location, except for the plastic or the iron.

## 2.5. Can agriculture play a part in compost-making?

**Composting in the farm**, is a local waste management process organized by a group of livestocking farmers. Composting waste materials are mainly livestocking effluents : animal hair, dead leaves and branches... Composting in farms may have many benefits for the farmer :

- **An agronomic benefit** : It is a transformation of the cattle's excrements. After the transformation of the initial excrements ( manure, liquid manure, excrements), nitrogen is less available in the compost, and the carbon is more stable. Organic amendment is greater with compost. It is an asset for improving soil's properties.

- **Social benefit** : It is a collaboration opportunity with local authorities. The farmer makes a positive gesture because he acts in favor of the waste reuse of the community or of landscape architects.

- **A financial benefit**: The farmer is paid for his composting and recycling efforts, as he is rewarded by the community for his services.

- **A legal benefit** : Less strict spreading procedures. The « green » compost is a stable product and has a lower presence of pathogen agents.

- **A technical benefit** : The process limits the risks of bad odour and makes the spreading easier.

In these processes, what type of territorial collectivity's organic waste is mixed with livestocking effluents ?		
Territorial collectivity's green waste	34	64,2%
Tree-industry green waste	12	22.6%
Industrial green waste	3	5.7%
Green waste that has been sorted on site	2	3.8%
others	2	3.8%
<b>Total</b>	<b>53</b>	<b>100%</b>

Composted raw materials

Source: chambre d'agriculture région PACA

Collaborative composting survey results, 2006<sup>23</sup>

Local composting means mixing livestocking effluents with non-farming organic waste, carbon base.

Two local programs compost green waste that has been sorted on location.

Local composting programs in this report only represent 170 000 tons, which is 4,5% of the total amount of composted green waste in France, 3,7 million tons. (MEDD, 2005)

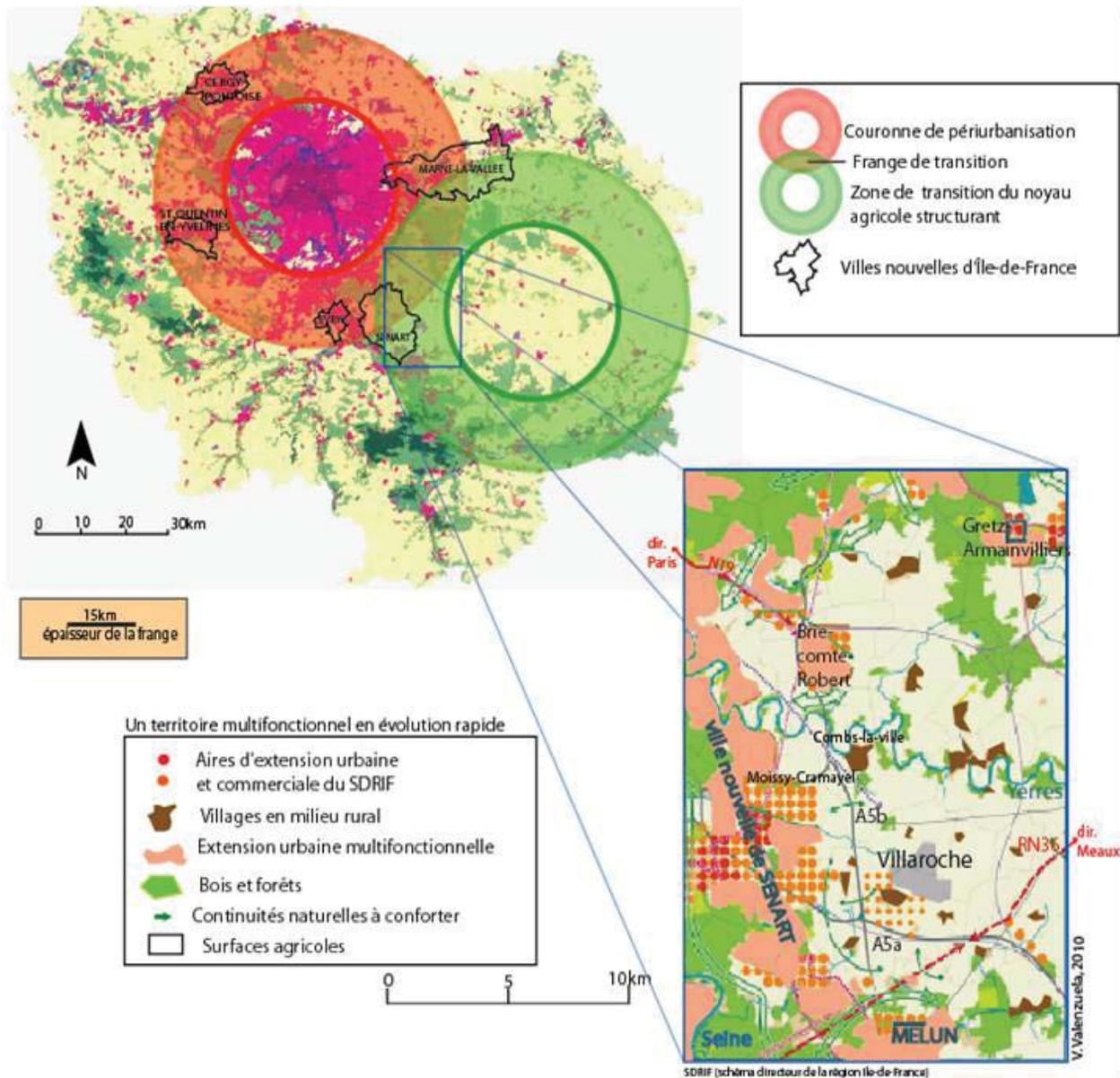
<sup>23</sup> <http://paris.apca.chambagri.fr/co-compostage/>

# 3

## THE RURAL-URBAN BORDER'S STRUCTURE.

This territory had a lot of inhabitants and was coveted by many, ever since the Champagne lords ruled over it. Its crossroad position towards Milan, the Benelux or Lyon helped to develop the towns and markets. Then, railways and roads expanded the capital south-east during the 70's, and new cities were created (two in Seine-et-Marne). The urban landscape became an eclectic agglomeration, in the middle of fields, without clearly drawn rural or urban areas which foundations were roads and motorways.

Urban spreading projects go on, the SDRIF asks the Melun-Sénart Plateau to absorb part of the residential, commercial and logistical growth of Ile-de-France.



Seine-et-Marne's interfaces  
Source: v. Valenzuela

The SDRIF map plans an unified urbanization linking Sénart and Melun, Sénart and the Villaroche airfield. Up north, Brie-Comte-Robert is already connected to Paris with a path coming from Mandre-les-Roses, and spreads itself south along the « Francilienne » road. A TGV station next to Villaroche would eventually push forward the border of the east urban spreading. The agricultural area next to the urban fringe is therefore severely weakened.

## 3.1. Melun and Sénart, two major cities in Seine-et-Marne



Plateaus of Melun-Sénart  
Source: Atlas des paysages de Seine et Marne



The new town of Sénart  
Source: EPA sénart

### A. The new town of Sénart

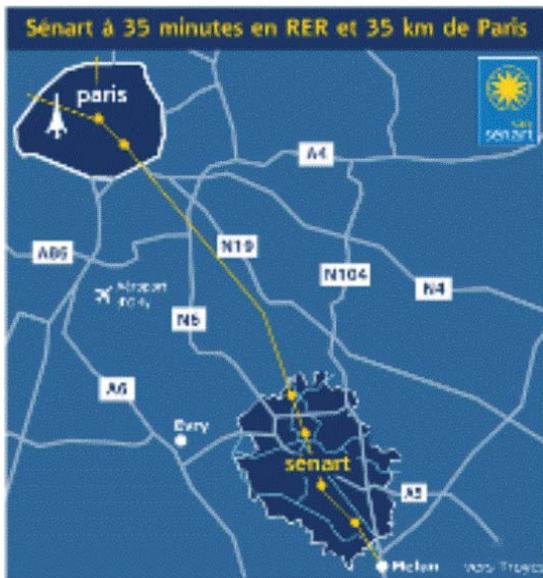
The state is the main actor in the creation of Sénart. The goal is to tame the development of Paris with a long-term and regional planning program. In 1960, the PA-DOG (urban planning program for Ile-de-France) is launched and Paris is asked to lead a growth management strategy, which goal is to reduce its physical and demographic growth and that of its inner-suburbs. In 1965, the SDAU (Framework Planning Design) is launched by Paul Delouvrier and its mission is to create five new towns around Paris : **Cergy-Pontoise northwest, Marne-la-Vallée east, Tigery-Lieusaint (former Sénart), Evry south east and Saint-Quentin-en-Yvelines west.**

To implement these policies, the state bought a great part of the future towns land and created Public offices for the new

towns planning, the EPAVN, former EPA. (See the Land issues note). Created in 1973, the Public office for Sénart's planning is a project sponsor working under the state's authority and the local authorities supervising. Its mission is to implement the new 1975 SDAU's propositions.

«The Melun-Sénart SDAU, as opposed to the other town's ones, will not create a main center before 1985. Melun, part of the SDAU, must be a leader for future planning projects, because it is an administrative center. Melun-Sénart is organized with neighborhoods which will not have an existence of their own. Melun is a fine example of urbanization with a great industrial area ». (says the préfet of Seine-et- Marne according to Bédarida, 1999)

As a town designed for the future, Sénart does not have the right to carry a real modern project like the other towns, which are built upon a concrete platform (Cergy-Pontoise, Noisy-le-Grand). It has to create new planning and architecture theories. Michel Lefebvre and Witold Zandfos, two architects working for the EPA launch the « urban transplant » theory.



Sénart in the region  
Source: EPA Sénart

Sénart develops itself using ZAC, integrated development zones with the help of private real-estate investors. They shape the city, step by step. A large individual housing area is created. The « green city », built in the middle of fields is an affordable utopia, within the realms of possibility.

This urban transplant creates an entre-ville, a city which structure is apparently chaotic with very specific urban areas where rise geometrically shaped living islets. This structure doesn't have a center but a various number of areas and networks with their own speciality<sup>24</sup>

#### A few facts about Sénart

Sénart is located on 12 560 ha (2000 ha of forest), and is therefore as large as Paris and the Bois de Boulogne together.

## POPULATION

- 116 000 inhabitants (estimated by EPA Sénart 2009). 56 000 people of working age, one of Ile-de-France's youngest population. 130 000 expected inhabitants by 2015.

- 1/3 of its inhabitants is less than 20 and 2/3 is less than 40 <sup>25</sup>

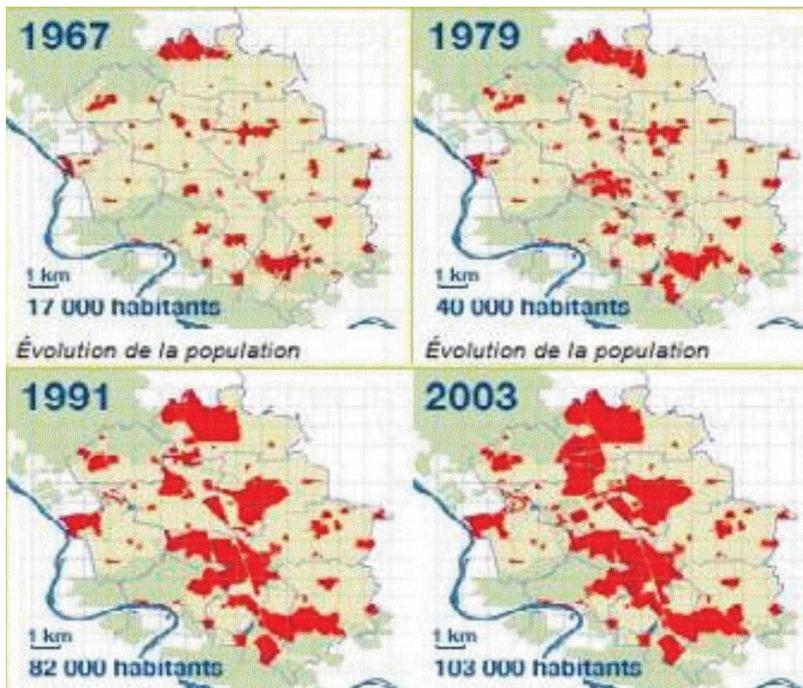
Sénart has a total superficies of 12 560 ha, and censed 112 373 inhabitants in 2007. The density is therefore about 895 inhabitants per square kilometer. It is weaker than other new cities in Ile-de-France, even though its population has been multiplied by five since the beginning of the planning programs..

#### Number of inhabitants in Sénart (Seine-et-Marne et Sénart –en-Essonne) divided by towns

Communes	1968	1975	1982	1990	1999	2007
Cesson	2 283	4 948	7 522	7 878	7 699	7 728
Combs-la-Ville	6 192	11 093	13 759	19 973	20 953	21 450
Lieusaint	800	657	510	5 200	6 365	9 783
Moissy-Cramayel	2 364	3 172	5 195	12 263	14 298	16 932
Nandy	349	327	1 548	5 429	6 159	5 903
Réau	497	525	509	663	705	1 009
Savigny-le-Temple	828	2 881	11 835	18 520	22 339	26 905
Vert-Saint-Denis	2 799	3 896	4 458	7 368	7 493	7 081
<b>Sénart-Ville Nouvelle</b>	<b>16 112</b>	<b>27 499</b>	<b>45 336</b>	<b>77 294</b>	<b>86 011</b>	<b>96 791</b>
Morsang-sur-Seine	159	162	287	350	380	512
Saint-Pierre-du-Perray	611	1 360	1 849	3 342	5 801	7 818
Saintry-sur-Seine	1 909	3 046	3 642	4 929	4 998	5 190
Tigery	472	430	439	1 140	1 257	2 062
<b>Sénart en Essonne</b>	<b>3 151</b>	<b>4 998</b>	<b>6 217</b>	<b>9 761</b>	<b>12 436</b>	<b>15 582</b>
<b>TOTAL</b>	<b>19 263</b>	<b>32 497</b>	<b>51 553</b>	<b>87 055</b>	<b>98 447</b>	<b>112 373</b>

<sup>24</sup> Thomas Sieverts, 2004

<sup>25</sup> [http://www.epa-senart.fr/docs/30\\_ans.pdf](http://www.epa-senart.fr/docs/30_ans.pdf)



Population's evolution between 1967 and 2003 (Sénart 77)  
Source: EPA Sénart

## ACTIVITIES

Sénart censuses 2900 companies, 40 000 jobs, 56 people of working age, and a job/inhabitant employment rate of 0,71.

## HABITAT

38 000 housings, 2/3 individual ones, 65% of owners, 30% of social housings.

## EDUCATION INFRASTRUCTURES

49 schools,  
14 junior high-schools (collèges),  
6 high-schools (lycées),  
1 university (centre universitaire) linked with Paris 12 University, offering many general and vocational courses.  
3 Education and research units (UFR) with undergraduate and postgraduate courses, and one undergraduate foreign language course. (27 000 pupils and 2 100 students.)

## Planning's evolutions

In 1983, Melun along with seven other towns left the new towns planning project. In 1985, the SDAU comes to an end and Sénart's planning project can be launched. An international planning contest is organized and will shape the new town's planning future. The contestants projects will never be created but the planning orientations will remain driving forces for the urbanization<sup>26</sup>.

<sup>26</sup> In Emeric Lambert, « Faire la ville suburbaine », Article - revue de sciences humaines [Enligne], 5 | 2009, mis en ligne le 25 avril 2010. URL : <http://articulo.revues.org/1393>

## THE NEW TOWNS ACTORS

### EPA in Sénart

### L'Établissement Public d'Aménagement de la ville nouvelle de Sénart.

(The Government-owned Company for Sénart's planning.)

This industrial and commercial GOC works under a state department's authority, le Ministère de l'Équipement (Ministère du Développement durable). Its mission is to plan and develop the new town of Sénart. It creates and plan the new neighbourhoods and business parks which hosts new housing and companies. <http://www.epa-senart.fr/>

### SAN : Syndicat d'Agglomération Nouvelle - New agglomeration's union

These structures (one in Seine-et-Marne, one in Essone) are qualified for programming (surveys, strategies with the State for a balanced development between urbanization/ housing/transport), town planning (creating and updating the territorial planning, management of the the integrated development zones), creation and management of public facilities (contracting authority for building superstructures). Cultural, social, sport and educational facilities.

### SAN de Sénart Ville Nouvelle (77)

- Sénart's union

Cesson, Combs-la-Ville, Lieusaint, Moissy-Cramayel, Nandy, Réau, Savigny-le-Temple, Vert-Saint-Denis.

## Main projects:

Alain Sarfati et Witold Zandfos propose to build :

- An educational zone, along the north-south axis of the royal alley.
- A business park, along the RN6 axis.
- A park, along the east-west axis

Coop Himmelblau, the other winning contestants propose a project inspired by the urban univers's erratic development. Infrastructure-based, the project brings roads, buildings and houses to collide. The contestants believe the town to be an explosive event.

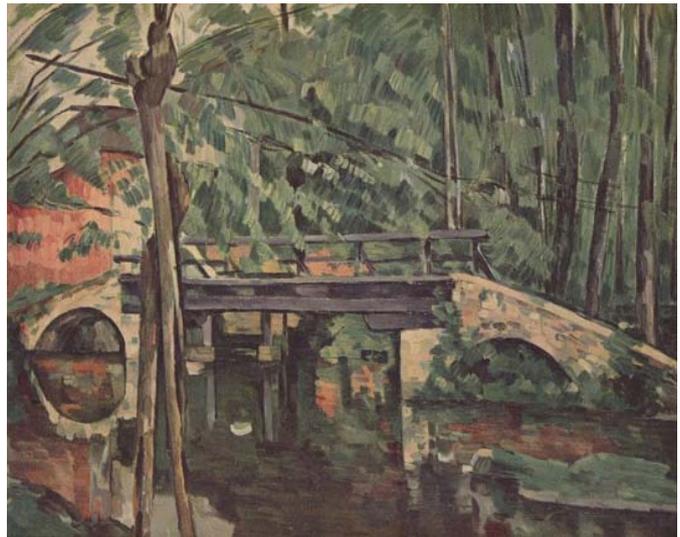
**Thus, both projects overstep the boundaries of the new town's ambiguous scheme : becoming a metropolitan city with a lot of parks and gardens. The Sénart project is the suburban metropole utopia.**

## B. MELUN

Melun, an historical town and administrative center of the department, is the third most populated town of Seine-et-Marne with 37 663 inhabitants in 2006. The city spreads itself along the Seine with an architectural and historical heritage located on the Saint-Etienne island.

Several planning projects are currently being analyzed and/or launched.

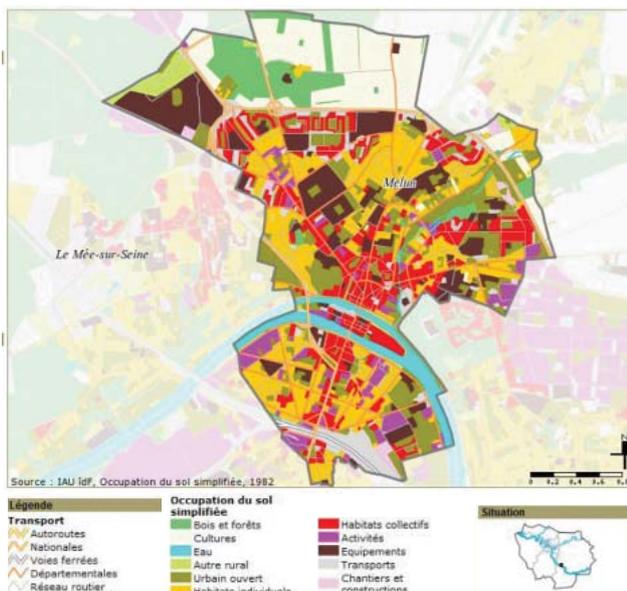
The train station area (RER and regional trains) should be renovated. A new hospital, grouping the Melun hospital and the Clinic Les Fontaines, should be opened in 2014 in the north of the town. An environment-friendly neighborhood is also planned in the north area, upon farming land.



Near Melun by Cézanne

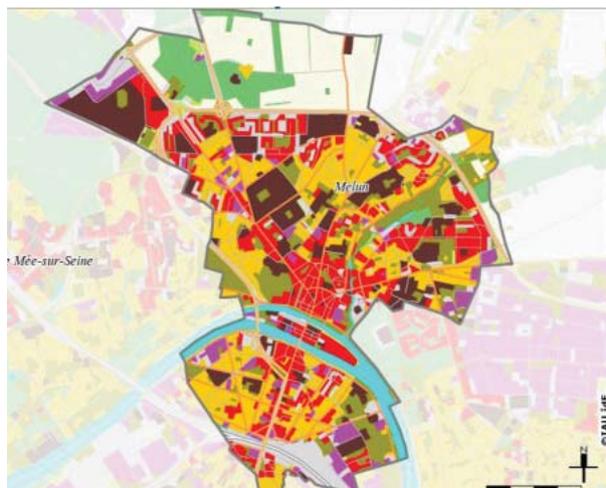
Source: <http://fr.topic-topos.com/image-bd/pont-de-maincy-melun.jpg>

## Soil's occupation modes in 1982 and 2003



Soil's occupation modes in 1982

Source: AIU, Îdf occupation du sol simplifiée 1982



Soil's occupation modes in 2003

Source: AIU, Îdf occupation du sol simplifiée 2003

**North extension projects for Melun with an environment-friendly neighborhood and the building of a new hospital.**



The north planning project of Melun is composed of an hospital, an urban park, 1800 social housings and an environment-friendly neighborhood. There is also an urban renovation project (PRU) for the Montaigu area's social housings (1140 housings) and in the Almont area as well (3190 housings), which were both created in the 60's and the 70's. (see at the bottom of the picture)

Melun is a part of « Melun-Val de Seine », a grouping of 14 cities and a total of 105 410 inhabitants.

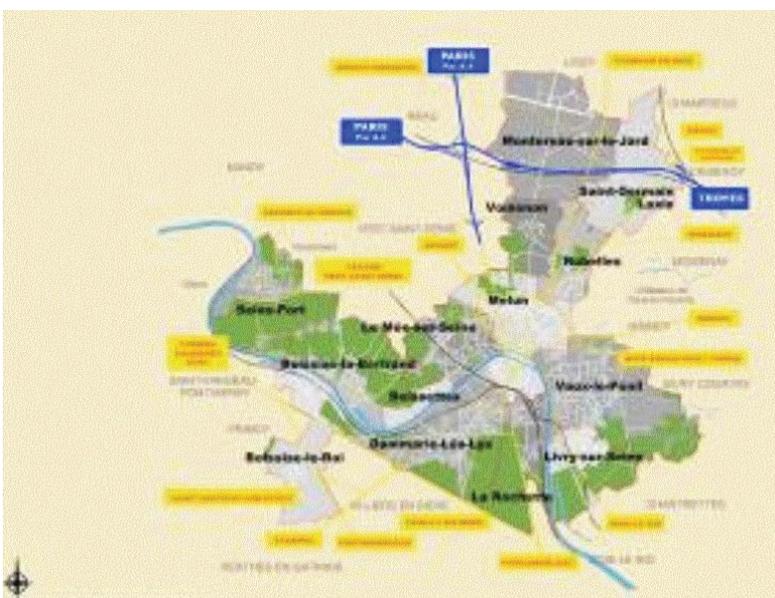
North extension projects for Melun with an environment-friendly neighborhood and the building of a new hospital.  
Source : F.Tirot, 2009

**Figures for Melun-Val de Seine**

- 105 410 inhabitants
- 9 663 ha, 1/3 of wooden areas and forests
- 40 km of Seine banks
- 5 200 companies
- 47 000 jobs
- 45 000 housings
- 14 towns : Boissettes, Boissise-la-Bertrand, Boissise-le-Roi, Dammarie-lès-Lys, Livry-sur-Seine, Le Mée-sur-Seine, Melun, Montereau-sur-le-Jard, La Rochette, Rubelles, Saint-Germain-Laxis, Seine-Port, Vaux-le-Pénil et Voisenon

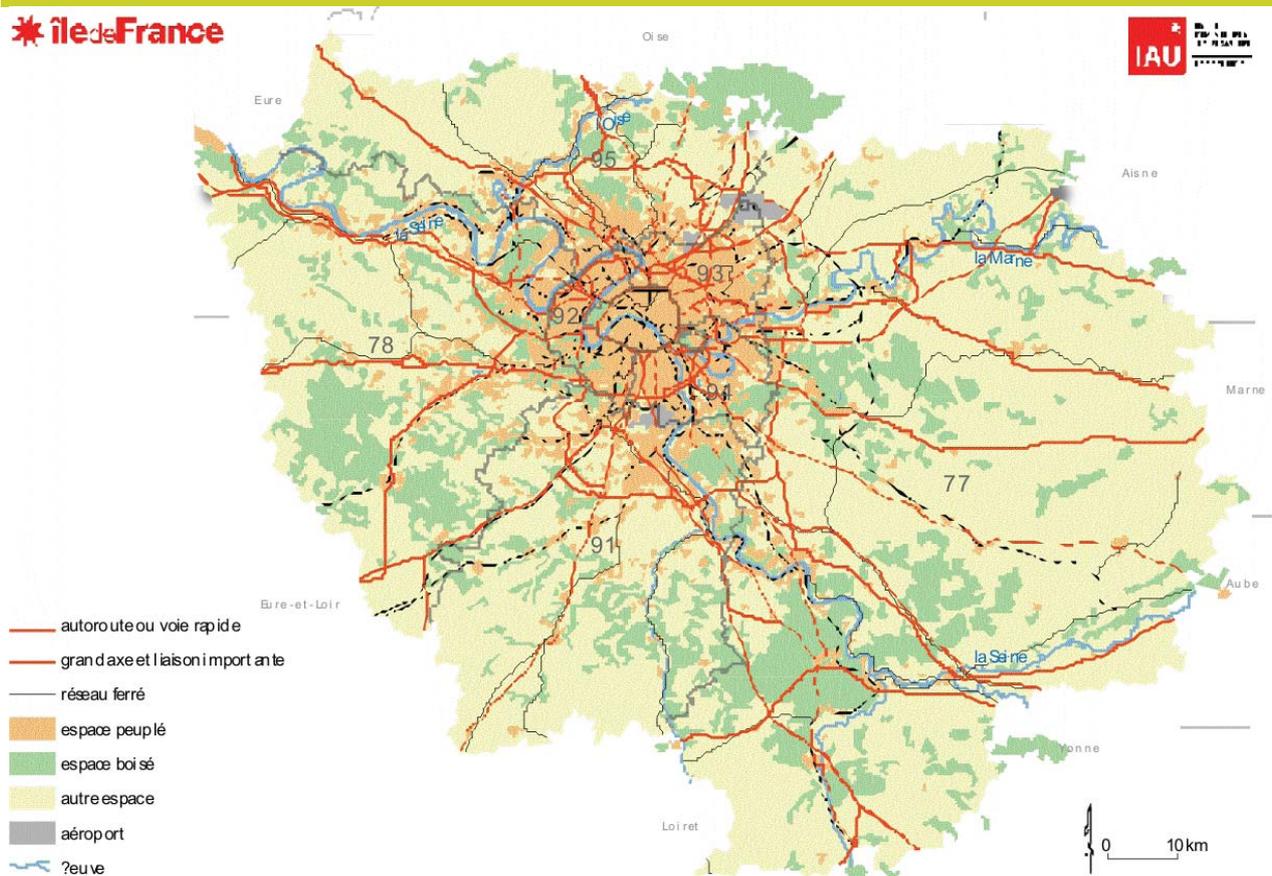
**Melun- Val de Seine 's territory**

The two town groupings reach a total of 220 000 inhabitants and more than 10 000 people of working age. They are very different : an historical town and a new town ; rural areas, tourism sites, cereal farms ; it is a complex territory. Communication's axes link these territories that often ignore each other.



Melun- Val de Seine 's territory  
Source: ville de Melun

## 3.2. Transportation infrastructures in favor of the metropole's development and extension



Ile-de-France's transport  
Source: IAU

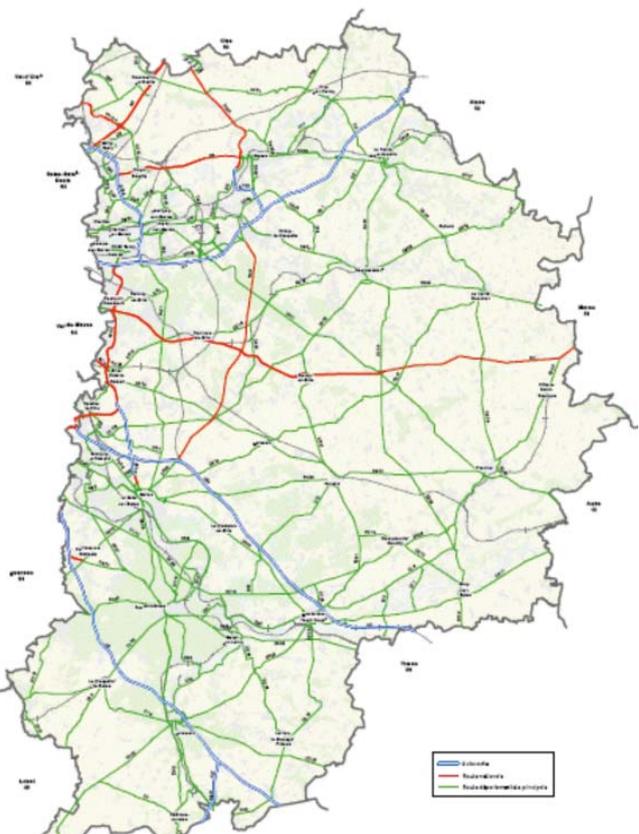
The Seine-et-Marne territory has many roads and railways. The road axes shape the territory and the rural and urban areas.

Regional trains departing from Gare de Lyon and Gare d'Austerlitz, along the Seine, allowed industries to settle in the valley. The growth of logistical processes helped as well.

A6 and A5 motorways, the A86 road, the Francilienne road, the RN6 and RN7 roads have guided the agglomeration's extension south-east, around Créteil and Sénart, to Melun. This urban spreading was helped by the RER, which used the existing railway.

### A. Star-shaped roads leading towards Paris

The national network's structure is traditionally leading to the capital. It was reinforced with motorways and expressways.



Local road network  
Source: eau.seine-et-marne.fr

## B. A dense local road network

Seine-et-Marne has a wide local roads network.

## C. North-south gateways are poorly organized

North-south gateways are poorly organized. With the exception of the west area of the department, which has several, jammed ways, Seine-et-Marne does not have a well-structured North-South road. Its network is therefore unsatisfying the growing exchanges between Meaux and Melun, but also between the South of the Seine-et-Marne and the Brie

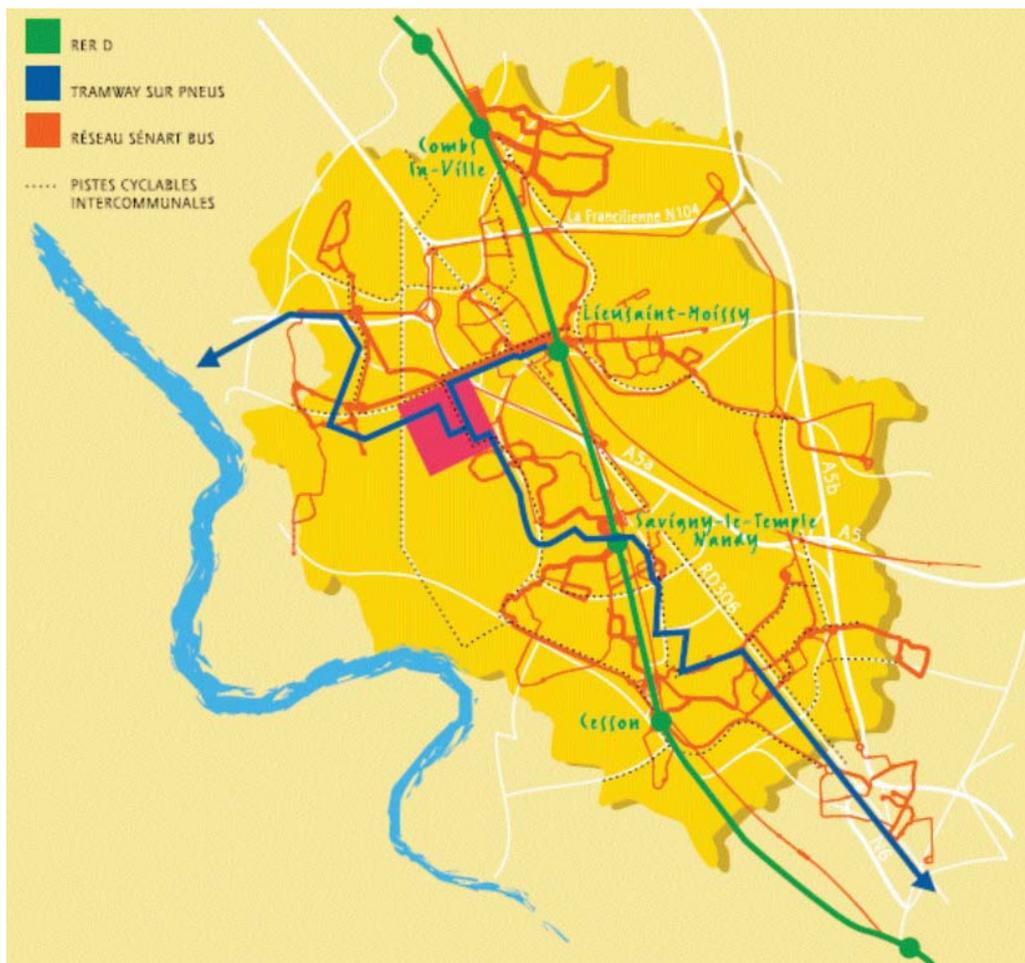
Since ancient times, roman roads criss-crossed the territory. The main road linked Senlis to Meaux, through Chailly-en-Brie. During middle-ages, despite an important road network, no main road existed along the Champagne and Brie fairs axis. It was only during the XVIIth and XVIIIth century that important axes were built, which are still known today, especially the road linking Melun to Fontainebleau and the one linking Melun to Meaux.

## D. Poorly organized public transport

The public transport is complex and slow.

A Tram-Bus has recently been launched to connect Sénart and Corbeil, who both are south-east of Paris.

The bikeways network is shattered between the east and the west, and the north and the south, except the « Royal Alley ». Traffic is independantly structured inside every town, without any linking paths. The network does not penetrate the rural area.



Public transport projects for Sénart in 2015  
Source: EPA sénart



bikeways network of Sénart  
Source: iledefrance.fr



Grand Paris' public transport network  
Source: [http://www.epa-senart.fr/docs/30\\_ans.pdf](http://www.epa-senart.fr/docs/30_ans.pdf)

### E. Grand Paris' public transport network

In this new project, train stations are going to become « living areas », with transport (car sharing, bikes...), shopping centers, farm products shopping centers (basket deliveries, grocery shopping deliveries). A TGV station is expected between Brie-Comte-Robert and Villaroche.

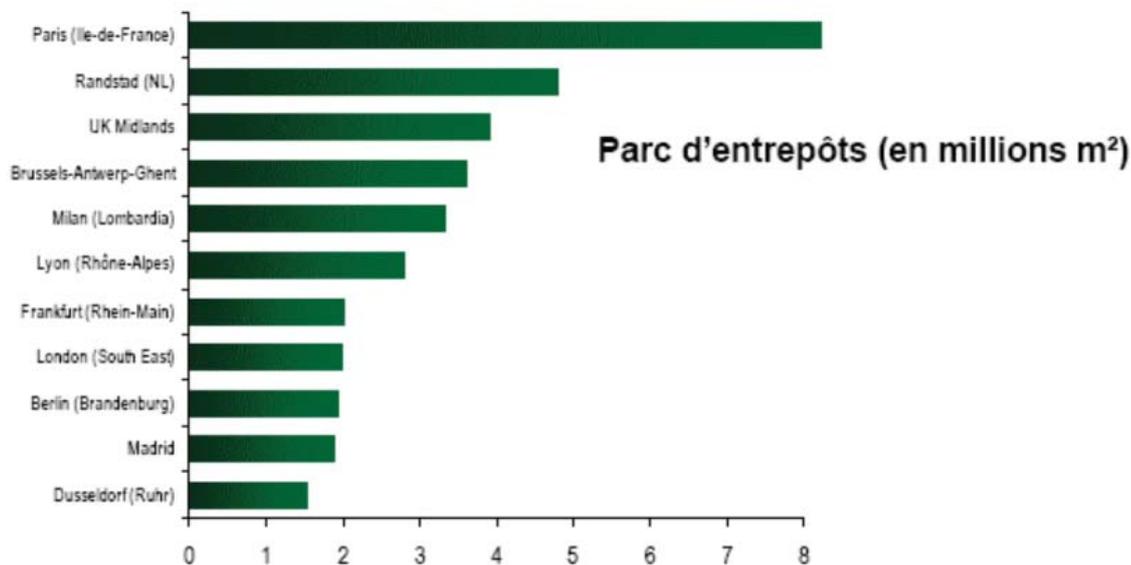
### F. Transport, logistic, territory

The parisian basin lies in a privileged location inside north-western Europe, where sea harbours are important actors of the flows' structure. Ile-de-France is the first consumption area of the country and therefore attracts an important part of the goods flow, with roads and railways.

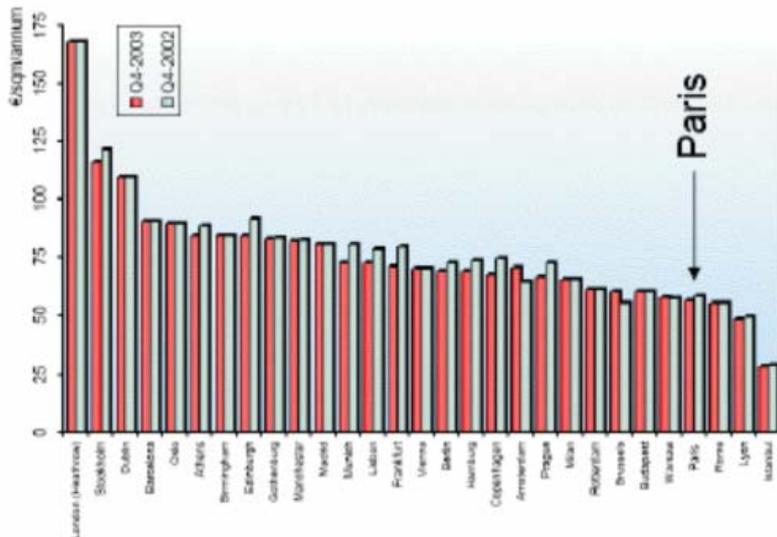
Ile-de-France is an exchange platform on three levels : international, national and local.

Transportation is a core activity in logistical operations, and logistical centers are implemented along the traffic network, which is a dense, quality network.

Seine-et-Marne hosts many logistical activities. It is located next to Paris (1st logistical platform in Europe) ; Lyon (5th) has a dense and varied transport network. Sénart hosts these activities upon newly urbanized areas. The Brie landscape is therefore shaped with warehouses and logistical sites shattered across its territory.



warehouse in Europe  
Source: [www.seine-et-marne-invest.com](http://www.seine-et-marne-invest.com)



Low housing prices, compared to Île-de-France's average prices  
 Source: club de la logistique seine –et -Marne  
<http://www.seine-et-marne-invest.com/files/docs/logistiqueterritoire3.pdf>

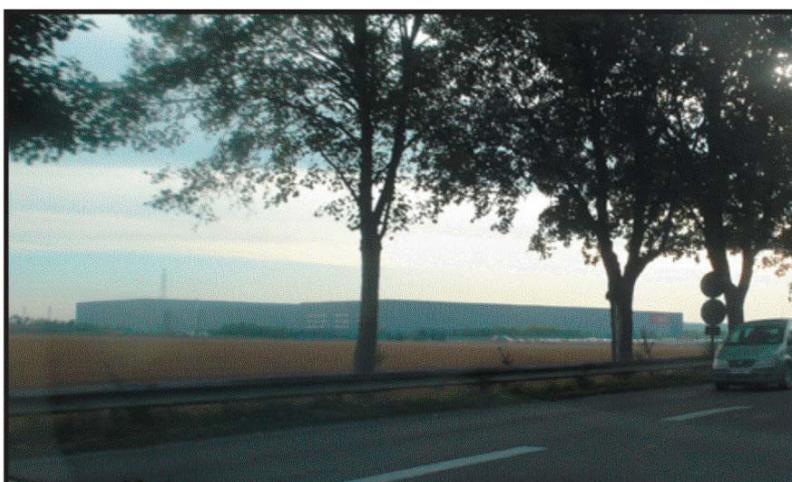
Goods transportation and urban logistics are not competitive enough. Few areas are innovating, but many are set in their ways.

### A logistical project example

Logistical projects are located next to communication ways, near the cities gates or commercial areas. Warehouses are built upon Sénart's farmland which is a development tool for the city. The city thus purchases short-term leases on farmland while waiting for urbanization projects.



Logistic area in Sénart  
 Source: EPA Sénart



warehouse in Sénart  
 Source: A.C.Werquin

## 3.3. Sénart's commercial and logistical development projects

Sénart's territory has various and shattered commercial and logistical projects. The goal is now to create a development center for environment-friendly technologies and sustainable building .

Here are some of the territory's projects ; Le Carré Sénart is one of the most symbolic one because it will eventually become a city center for Sénart.

### A. Carré Sénart

In order to fit into the landscape , the project follows the steps of a town creation :

- 1). Choosing a strategic area between two forests and the royal alley.
- 2). Clearly drawing the territory's limits which can be observed in the landscape.
- 3). Bulding a sustainable infrastructure : a thread (la trame)

The Carré Sénart project's side measures 1,4 km and is divided into areas which sides are 120m long. Its is structured with two large water ponds and various small parks.

In 1997, the préfet launches the ZAC creation and authorizes the planning process's development.

The « next-gen » mall is born : kindergaten, poney club, watched car park, doctor, toilets, resting areas... Nature is the main theme of the mall. A wind power plant feeds part of the mall, bird singing sound atmosphere, animal footprints can be seen on the floor, real trees are planted in the atrium... Visitors not only come to the mall to shop, but also to hang out and enjoy a nice quality time in an air-conditioned area (though it is supposed to be an environment-friendly mall) . Nonetheless, it is a very nice mall with quality services provided.

It is a new suburban area, different from existing malls, and it will host many regional activities. Instead of trying to unify ten towns, which is impossible, Sénart creates a new area, a new suburban park<sup>27</sup>



### Carré Sénart

Source: DR-EPA Sénart

27Emeric Lambert, « Faire la ville suburbaine », Article - revue de sciences humaines [Enligne], 5 | 2009, mis en ligne le 25 avril 2010.  
URL : <http://articulo.revues.org/1393>



Aerial shot of Carré Sénart : Tax center, Place des générations (plazza), restaurants and mall  
Source: Carré Sénart



**Sénart has embarked upon the environment-friendly activities journey**, in order to create jobs. Thus the « **Ecopole** », **the main site**, follows a sustainable development policy for its creation and its management.



Sénart's « E copole »  
Source: Epa Sénart



Environment-friendly and sustainable development business processes, with an energy-oriented R&D center. The ecopole gathers several activities on a 300 ha area, upon three towns : Combs-la-Ville, Lieusaint and Moissy-Cramayel

- **Chanteloup park**, already hosts a logistical platform created by Prologis in 2005 and has sunpower plants
- **Charme, Portes de Sénart areas** will host their first business companies in 2010.

### Environment-based activities of the pole :

- Energy : CARDONNEL INGENIERIE, CEMM'THOME, EP2E, SOFATH, SOLAR WALL, SOLEOS, SYS E.N.R, S2T,VIESSMANN.
- Technical management of buildings and infrastructures: AREAL.
- Wastewater processing : EAUX DE SENART, HYDRATEC.
- High environmental quality Engineering and architecture: EMERAUDE, UNICITE.
- Climate engineering vocational training : PRO-FORMTECH, VIESSMANN.
- Environment-friendly packaging solutions: SOLUTIONS CARTON.
- Waste management : AB CARTOUCHES, CETRI ENVIRONNEMENT, SVP PALETTES- BOIS DE CHAUFFAGE, VEOLIA, ENVIRONNEMENT.
  
- D3E management : ATF, SCH.
- Eco-activities and building equipments : PUTZMEISTER FRANCE.
- Metrology, sound engineering :EURUSA.



**Ewarehouse in the south of Paris**  
Source: San Sénart , commune Combs-la-Ville

### The BâtirEco project

BATIRECO® program leans on two existing and similar works. The first one is the experimental renovation project of Brie-Comte-Robert's former train station.

The second one is an experimental commercial area implemented in Sénart (Cesson). This first BATIRECO® program aims to test the energetic renovation sector's supply in situ. The area gathers ten breaking ground companies which mission is to create a global supply that fulfills the customer's needs.



Renovation of Brie-Comte-Robert's train station  
Source:batireco.fr



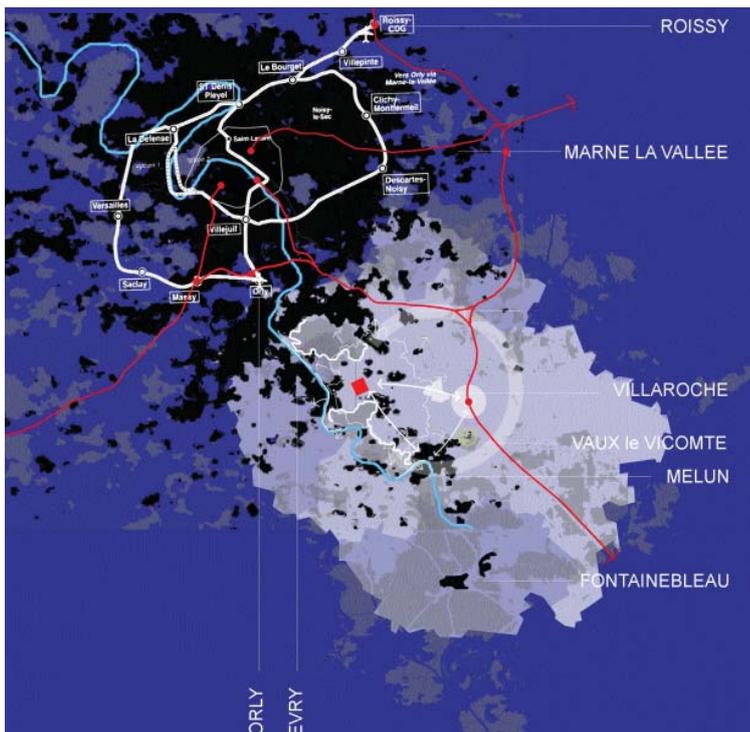
First BATIRECO site in Cesson  
Source: site bâtiréco

## 3.4. Villaroche : the territory's future?

The **Villaroche aerospace center** is located in Sénart and Melun-Val de Seine and will transform during the years to come. Being a part of Ile-de-France's aerospace technology competitive pole, it will eventually become a very high-technology center.

Currently, it hosts : Snecma (Groupe Safran, 4000 employees), the Villaroche airfield with its two tracks, control tower, weather station and sheds. LH Aviation, implemented since march 2008, produces light aircrafts.

**Villaroche spreads on 450 ha and more than 77ha of offices. 191 ha are in construction and a TGV station is expected next to the airfield.**



Villaroche in a regional and local scale  
Source: F.Tirot

### Extracts from the SDRIF

This 400 ha area, located southwest from the Melun-Villaroche airfield is closed by the interchange linking the A5A and A5b motorways. Yet, its urbanization project is consistent and involves an ambitious business park. The project aims to strengthen the area's economic assets and reduce unemployment. This area might consider an urbanization project in order to host high-tech activities or aviation industries.

The urbanization will take place should a public transport network see the light, in addition to the planned road network. The urbanization process will be planned with the creation of self-sufficient levels. In order to preserve the nature or to compensate the effects of urbanization on it, environment-friendly policies must be carried out.

The planning and the architecture of the business parks should allow them to melt in the agricultural landscape of the Brie and promote the global image of the territory.

Source: Les orientations d'aménagement pour la mise en œuvre du SDRIF, p.177



Villaroche's territory  
Source: F.Tirot

The airfield environment is mostly composed of farmlands but it is a highly coveted territory, with many development projects.



Aerial shot of Villaroche  
Source: www.maps.google.fr

## 3.5. Brie-Comte-Robert, an independant area

18 kilometers north of Melun et à 27 east of Paris, Brie-Comte-Robert is a 1 993 ha town, which 1 753 are cultivated. The Yerres and Barbançonne rivers flow across the town.

This historical town, with a crossroad position and major markets, was once the Brie capital.



Brie-Comte-Robert's position  
Source: la-seine-et-marne.com

The city now censuses 17 630 inhabitants (according to the INSEE in 2008). It only censed 6 000 in 1970. The demographic growth was steady unlike Sénart's swift increase during the 1970. Since a few years, Brie-Comte-Robert's urbanization goes at a high-pace, thanks to the fast regional train access to Paris and its easy access to the airports by the Francilienne road . Indeed, the N104 road's creation in 1997 put the town inside a well-organized north-south network and it slowly invigorated the city's development.

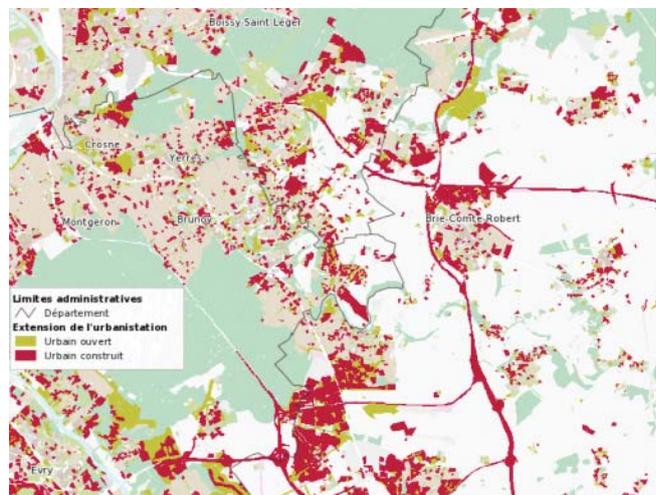
The town's growth goes steady. Until 2005, there still were cultivated farmlands next to the city-center, but from this year on, the residential urbanization is booming and pushes away the farmland from the city-center. Residential areas develop themselves along the Francilienne road towards Grégy-sur-Yerre. Moreover, commercial areas spread north. The Soil's use maps (MOS) clearly depicts the evolution between 1982 and 2003. These maps and their notes are available on the following website ( l'Institut d'Aménagement et Urbanisme de la région parisienne – IAU ) : <http://sigr.iau-idf.fr/webapps/vi-siau/>

### A. Urban growth between 1982 and 2003

This map depicts the development of Brie-Comte-Robert between 1982 and 2003. Various activities have been implemented north of the city. The TGV railway isolated a farmland area of 40ha that has been transformed into a commercial area. The map also shows that individual housings are developing around the city's walls.

### B. Employment and households structure.

After analyzing the different figures, one can assess that agriculture has become marginal (except in Lissy), and, even though farmland occupies the majority of the territory, it creates few jobs : in 2006, 0, 3% of the area's inhabitants are farmers. Transport and storage activities are weak and, according to the INSEE, many jobs have been terminated between 1999 and 2006.



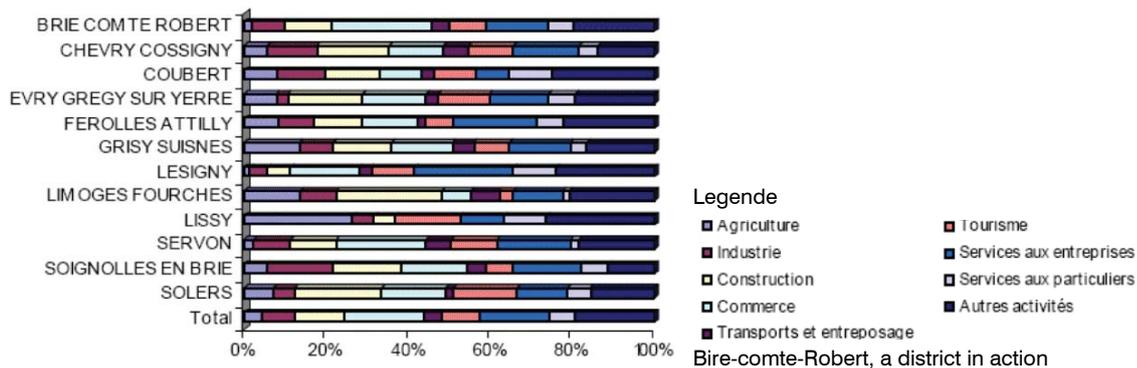
Urban growth between 1982 and 2003  
Source: AIU, Idf occupation du sol 1982-2003

Brie-Compte	1999			2006		
	Canton	Seine-et-Marne	Île-de-France	Canton	Seine-et-Marne	Île-de-France
Farmers	0.4	0.4	0.1	0.3	0.4	0.1
Artisans, shopkeepers, entrepreneurs	4.7	3.4	3.2	3.3	2.9	2.8
Professional occupations	10.2	7.7	13.2	12.4	9.6	16
Associate professionals	18.3	16.1	15.4	20	17.9	16.5
Employees	19.4	20.1	18.6	18.1	20.1	17.9
Workers	11.9	15.1	11.2	10.7	13.5	9.8
Retired people	15.2	16.7	17.6	19.2	18.8	18.6
People without profession	19.9	20.5	20.6	16	16.8	18.3
TOTAL	100	100	100	100	100	100

Evolution of the households employment in Brie-Comte-Robert

Source: Recensement de la population 2006 exploitations principales - Traitement Seine-et-Marne Developpement

Upper-middle class (executives, intellectual jobs) and middle-class socio-economic categories have increased in the area of Brie-Comte-Robert (12 towns) in a quicker way than in all the department. It is an area hosting upper-class people, and there is a decreasing presence of craftsmen, non-managerial employees, workmen and unemployed people.



Occupation type	%	Area (en ha)
Urbain built space	22.11%	441.71
Urbain non built space	3.82%	76.29
Rural Space	74.07%	1.479.43

Sectors part describing chart in the area of Brie-Comte-Robert in 2003  
Source: laurif

Though rural area represent 74% of the town's territory, it only provides 4% of the economic activities.

Market-gardening farms, rose farms, tree-industry, cheese-industry, agricultural co-op and an organic market-garden managed by Bougainville's agricultural high-school.

Bougainville ( brown in the MOS 2003 map) high-school is located south-east of the town and is the biggest agricultural high-school of the region. It teaches 300 students, and runs a 50ha farm with a livestocking of 300 ewes. (see notes on agricultural education.)

## 3.6. A green tourism potential yet to develop

Tourism nowadays is a key part in Seine-et-Marne's development.

Heritage, natural and recreational sites such as Disneyland Resort Paris and many tourism accommodations (2nd rank in Ile-de-France) make this sector the second job provider of the department. As a direct consequence, the part of tourism in the local economy is very important : 27 000 employees, 1 900 firms, 15,5 million visitors. :

Yet, one has to underline the difference between the visitors of worldwide renowned sites such as Disneyland, Provins, Fontainebleau, and the ones of more locally-oriented Seine-et-Marne destinations.

Tourism generates a small outcome for there is not enough tourism-oriented services like restaurants, renting business ... (Fontainebleau = 17 million visitors / year).

The departmental design for tourism aims at developing three areas :

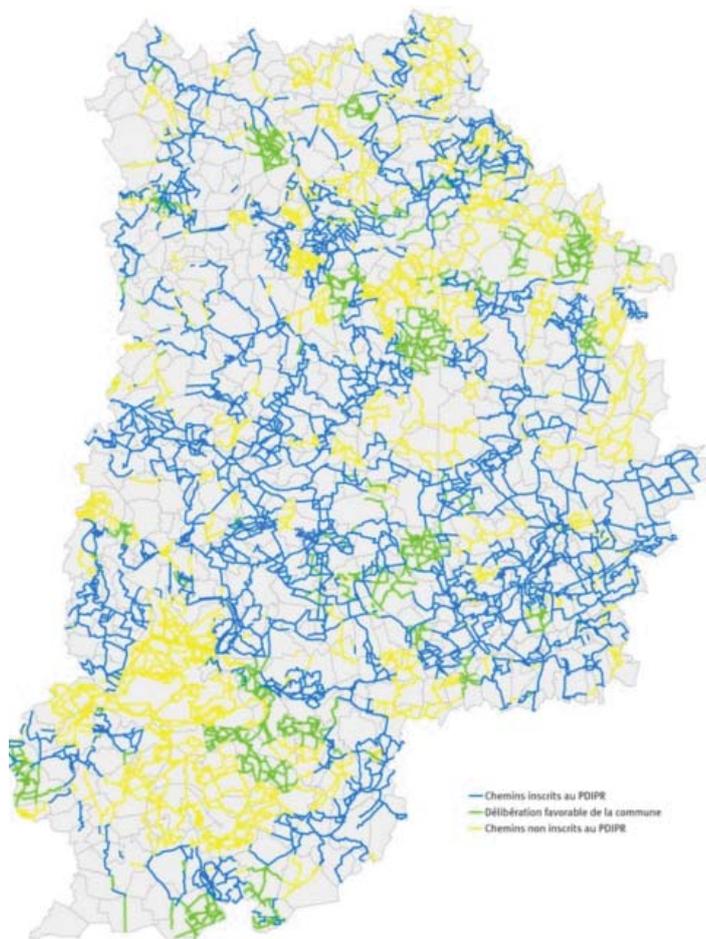
- Sud-Seine and Loing,
- Marne-Ourcq and Morins,
- Provinois – Bassée Montois

The goals are :

- developing tourism accommodations supply.
- Favoring the environment-friendly initiatives in building or transport, and creating exemplary eco-tourism infrastructures strengthening the department's influence.
- Reinforcing the social and professional policy with tourism, with the help of Seine-et-Marne's firms ; creation of a tutoring network while developing students exchange. Disadvantaged people should be more involved in tourism initiatives, like heritage renovation programs.
- Strengthening the collaboration between contemporary creation and heritage management: contemporary art exhibitions, artists residencies...
- A sharper identification and a better promotion of areas and paths (espaces, sites et itinéraires –ESI
- Developing nature-based activities : with environment-friendly infrastructures in chosen areas.
- Developing hiking tourism (by foot, horse, bike or boat), thus invigorating the department's hiking potential in order to make visitors stay longer. (see map below )
- Creating a social and local tourism in the territory.
- Promoting the Seine-et-Marne's craft industry with the creation of a supporting marketing and communication network. The collaboration between producers and restaurand-owners must also be strengthened, with initiatives such as « Bistrots de Pays ».

The next selected tourism map shows that activities are mostly gathered around Melun, which is the department's administration center and an old Gaul era town. The landscape between Melun and Brie-Comte-Robert is an agricultural one, composed of openfields and do not have a great interest to it at first sight, but there are many small towns and old farms, forests and the Yerres Valley. The agricultural heritage is important but poorly promoted. Farms have been transformed into housings and Savigny-le-Temple's eco-museum is located in the former Coulevrain farm.





Hiking and walking trails departmental map  
Source: M. Charmet

## A. Description of Ile-de-France's land management agency forests

### Rougeau regional forest

Informations :

- Size : 1066 hectares
- Location : Morsang-sur-Seine, Saint-Pierre-du-Perray, Saintry-sur-Seine, Nandy,
- Savigny-le-Temple
- Infrastructures : car parks
- sport trail, horseriding trail, picnic areas
- bike trails

1066 ha wide and located 30km south from Paris on the Seine's right bank, there is the Rougeau forest. On the extreme west part of the Brie plateau, the forest is located in Seine-et-Marne and in Essonne. It is a major area which allows the linking of the Sébart forest with the Bréviande forest, thus unifying the landscape.

The forest was planned by Bouret in the XVIIIth century as king Louis XV's royal hunting grounds. He created various straight alleys inside the forest. The Bourette alley is linked with the Royal alley, which links Sénart's forest with Rougeau's and goes on to the Pavillon Royal, in the south of the forest.

The Pavillon Royal, which the gardens are the only things remaining, is an approved heritage site. It is a rich and creatively landscaped site from the XVIIIth and the XIXth century. Louis-Sulpice Varé participated in planning this area located above the Seine. The landscape management agency plans to renovate the site and it will be opening in fall 2009.

Rougeau has a very flat relief. There is only one exception to this, which is the Ravin du Gouffre that forms a breach towards the Seine. South, the hillside is opened towards the river and this location allows the nurturing of a very specific biodiversity. This hillside is an ecologically-interesting approved site for its fauna and flora. Visitors can admire the blue and purple Gremil, which is a protected plant in Ile-de-France. There are also limestone hillsides with their characteristic flowers such as orchids or violets.

Wet forests, ponds, Alders, Poplar trees are the forests inhabitants. A tall trees and coppice mixed-management is organized. Few chestnut, ash and conifer trees are also found in the forest. Many roe-deers inhabit the forest as well.

The north part of the forest is the most crowded and planned part. South is calmer, more natural. Horseriding trails cross the whole territory, in parallel to the many alleys, straight roads and tortuous paths, such as Le Sentier des Mares. South, a nice hiking trail (GR2) follows the hillside towards the Seine.

Discover this area and look for centennial trees inside the forests. Then, proceed to the visit of the Domaine du Pavillon. Enjoy its atmosphere, its open spaces, its wooded areas. Finally, take a rest at the cabin's panoramic viewpoint in front of the Seine's loop : Welcome in the Rougeau forest.

## Bréviande regional forest

Informations:

- Size : 2216 hectares
- Location : Vert-Saint-Denis, Seine-Port, le Mée-sur-Seine, Boissise-la-Bertrand, Cesson, Boissettes, Savigny-le-Temple
- Access : by car , from the RD346 towards Melun, car park's entrance on the right ; RER D get off at Cesson ou Le Mée-sur-Seine
- Infrastructures : trafic loop and car parks, picnic areas, children recreational sites, arboretum for the blind visitors.
- Horse housing

45km south east of Paris, between Melun and Sénart. It is located inside a great Seine's loop, near the Brie's agricultural plateau, and is a part of various forested areas along the water course ; Fontainebleau south, Rougeau and Sénart north.

During the Middle-Ages, the forest was owned by the Saint-Denis abbey. In 1650, it was acquired by the Duke of Orléans whom builded a hunting house, where is now standing the forest management's house. Visitors can still see the walls and the alley paths.

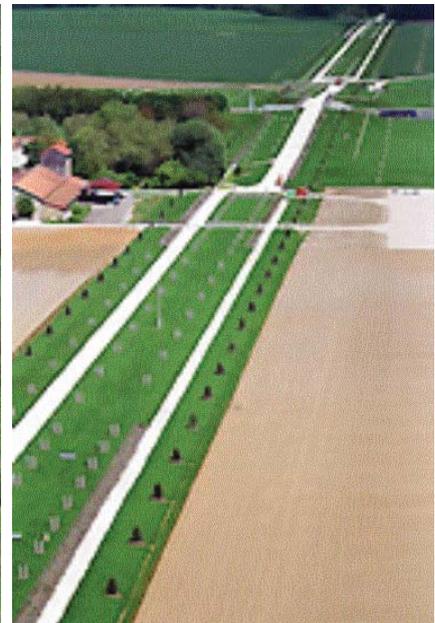
The forests is a green lung for the nearby towns and spreads across the railway. The forest is made of a succession of many woods : Bréviande, Marché Marais, la Tour, Bel Air, Joies, Courtilleraies, Brûlés, Bruyères de Sainte-Assise, Uselles, Seine-Port and l'Ormeteau. Oaks, chestnut trees, birches, limetrees, hornbeams and fifteen other species are found in the forest. Three areas of ecological interest for the flora and fauna are inside the forest and are a testimony of the preservation of many species natural habitat. Soon, visitors will be able to enjoy the sights of the heatland in the Saint-Assise domain and that of two gorgeous water ponds in the Ormeteau domain. Both public openings will make the forest even nicer. The forests has many alleys and offer visitors a lot of bikeways and hiking possibilities.

In the future, a 1000ha extension should allow the Rougeau and Bréviande forests to be linked via the Pavillon Royal, thus creating a wide public space between Sénart and Melun.

## Royal Alley

Informations :

- Lenght : 5,8 km
- Location : Lieusaint, Tigery, Saint-Pierre-du-Perray
- Access : by car, by foot or bike from the Rougeau forest
- Infrastructures : picnic tables
- horse housing



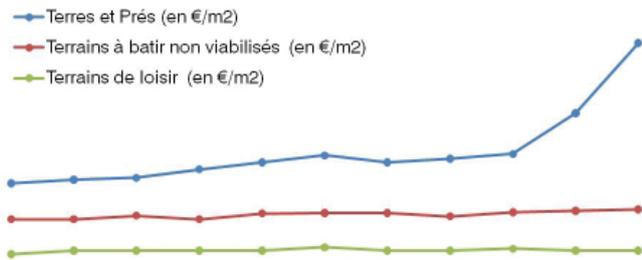
Royal Alley  
Source: <http://www.cpa77.com/>

The Royal Alley is a 5,8 km long path and links Rougeau and Sénart's forests. It was built in 1751 for Louis XIV's hunting activities. It was then abandoned and there was not much left until it was renovated in 2002. All along the alley, one can enjoy the sight of the agricultural heritage with traditional farms and large cereal cultivations.

## 3.7. Land problems and lack of protection for agricultural borders.

The price of land located on natural, agricultural and forest areas incessantly increased in Ile-de-France. The real estate prices have doubled and the building lots prices have almost tripled!

Building plots prices, nowadays, are about 60 times higher than agricultural land. Ten years ago<sup>28</sup>, it was 30 times higher.



Land price evolution in Ile-de-France between 1995 and 2005.  
Source: Safer Île-de-France Terres d'Europe-SCARF

Urban land's pressure against natural spaces is also expressing through small plots acquisition where housing or recreational infrastructure will be built upon.

If this evolution were to continue, one sixth of Ile-de-France's agricultural land will have disappeared in less than two generations ; a third in one century. As a potential farming land, the land loss proportion is much more important.

The farmland situation has been reversed, and is now lacking. Thus, it does not fulfill the growing population's feeding needs. With the increase of 50% of its population by 2050 and the need to produce bio-fuel, the different use of farmlands will compete against one another.

To avoid the discontinuity of the natural spaces, one must rethink the urban extension's policies and the farmland status.

### A. Sénart's land capital

#### Sénart in 2002 (Epa-Sénart's annual report)

- The Land capital of EPA : 997 ha with 205 ha of potential ZAC. The state's land capital is 2.300 ha, with almost 1.240 negotiable ha. EPA acquired 130,3 ha.

- Sale of 31.2 ha. In construction activities park in Combs-la-Ville : Parisud 6 (access road); Vert-Saint-Denis (access road) ; Tigery : parc des Vergers (access road) ; Lieusaint : parc du Levant (access road), access to SARI, access to FACOM ; Carré Sénart : access to the mall

- Sale of 536 housing building : Sale of 493 individual housing. In construction sites : Savigny-le-Temple : la Grange du Bois et les Cités Unies ; Lieusaint : la Pyramide ; Saint-Pierre-du-Perray : Le Trou Grillon ; Moissy-Cramayel : quartier Jatteau ; Tigery : Le Bourg

- Construction sites in Lieusaint : Carré Sénart's terrace ; Moissy-Cramayel : Arvigny's basin ; Combs-la-Ville/Tigery : Parisud 6 basin ; Combs-la-Ville : Parisud 6, burying high-voltage powerlines - Parisud 3/ 5/ 6 railway connection ; Savigny-le-Temple : Plessis Nord's basin

- Implementation of major companies and land surface. Bois-de-Saints-Pères's economic activities park in Savigny-le-Temple ; Cesson : BDF/Nivéa (extension) 77.798 m<sup>2</sup>, Tigery's activity park : BMW France (accessories and spare parts distribution center) - 5.000 m<sup>2</sup>

- Levant park in Lieusaint : offices building program by the SARI and FACOM (assembling and distribution site) ; opening fall 2002.

29

#### Sénart in 2003 (Epa-Sénart's figures)

- Sale of 650 housing. 790 housing sale (502 individual and 288 blocks) Construction sites in Savigny-le-Temple : la Grange du Bois et les Cités Unies ; Lieusaint : la Pyramide ; Saint-Pierre-du-Perray : Le Trou Grillon ; Moissy-Cramayel : quartier Jatteau ; Tigery : Les Fossés Neufs

28 Robert Levesque, directeur de Terres d'Europe-SCARF in les marchés fonciers ruraux en Île-de-France

29 [http://www.epa-senart.fr/docs/30\\_ans.pdf](http://www.epa-senart.fr/docs/30_ans.pdf)

- Sale of 13ha for economic activities . In Savigny-le-Temple : la ZAI ; Vert-Saint-Denis ; Saint-Pierre-du-Perray : Le Fresne ; Lieusaint/Tigery : Parisud 1 et 2 ; Nandy ; Saint-Pierre-du-Perray : Greenparc ; Tigery : les Fossés Neufs ; Lieusaint : le Carré et le Parc du Levant

- New real estate programs with offices, warehouses : the Levant service center, the Carré Lieusaint offices, the Lac offices in Savigny...

- Home furnishing in Cesson Mall : The Ségécé has been hired for the construction management of the site after the consultation organized by the EPA with Beiersdorf-Nivea. The firm is already implemented in Savigny-le-temple and builds a second logistical center (20.000 m<sup>2</sup>)

The EPA reports declare owning 995 hectares + 130 ha that it acquired from the Stat in 2002 for a total of 1125 ha. The State owned 2170 ha in 2002 and 1240 of them will soon be negotiable. The State and the EPA are the main owners of the town. L'Etat et l'EPA sont donc les principaux propriétaires de la ville nouvelle. Analysis of EPA's land sales in 2002 and 2003 :

- 44 ha for commercial activities (malls, firms implementation)
- 10 ha of warehouses for Nivea/BDF et BMW
- 1000 individual housings
- 330 blocks

The State and EPA owned land are rented to farmers with short-term leases and are renewed as long as there is no project. Farmers are therefore trapped into a quick growing farming without any real investing possibilities or sustainable outcome.

To ensure that the farmland does not disappear, the local authorities can create agricultural activities areas but the PLU's program makes it difficult and only a few have emerged. The Local Land Intervention Borders – Périmètres Régionaux d'Intervention foncière (PRIF) – is a more useful tool. There are 73 PRIF on a 35 000 ha area. The regional land management agency can acquire land in order to protect them and can open some land to the public (forests or natural parks)

In addition to protecting agricultural and natural land, planning measures must be taken in order to tame the urban development :

- Stopping the horizontal construction of the commercial areas (buildings and car parks)
- Applying new rules to housing estates
- Renovating the networks policies (gas, electricity, transport) which are sometimes isolating some areas.
- Developing a reasonable urban densification
- Re-using brownfield land

Eventually, two laws co-exist : the rural law and the urban law. And between them, a gray area exists concerning the legal status of the suburban areas. Yet, this is where most of the demographic and economic evolutions occur, without any specific laws. All the structures must work together towards a specific suburban law.

e<sup>30</sup>.

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30 François LERIQUE, Propositions du Groupe Monde Rural : Pour une gestion durable du foncier agricole, in [http://www.groupeponderural.fr/sites/gmr/les\\_actions/doc\\_travail\\_propositions\\_gmr\\_ca\\_090917\\_vdef.pdf](http://www.groupeponderural.fr/sites/gmr/les_actions/doc_travail_propositions_gmr_ca_090917_vdef.pdf)



# 4

## EXAMPLES OF AGRICULTURAL PROJECTS

## 4.1. From traditional to organic farm : The Bergerie experience in Villarceaux

800 ha located in the parc naturel régional du Vexin français (regional park). The bergerie is made of 250 ha of forests, 370ha of livestocking, a golf course and three castles with gardens.

### A. Presentation

The bergerie is owned by the Charles Leopold Mayer Foundation, a swiss fundation. It was acquired from a major land owner (M.de Villefranche) in 1992 and has been renovated many times since 1995.

The renovation of the shed that will welcome visitors is in process. Implementation of a 50 beds accomodation facility, 5 rural B&B (20 beds), an organic restaurant and a 3.000 m<sup>2</sup> conference room. This environment-friendly project will be fueled with sunpower plant ; there will be a firewood heating system (the wood will eventually come from the on site forest), organic water management with cesspools and reed .

« A long term vision allows a sustainable management of the ressources » Ch. Mouchet

The management of two castles and 70ha was sold to the Conseil régional in exchange of the management of the renovation works.

### B. Farm and cultivation reorganization

**Before 1995, there were 400 ha of rape and wheat cultivations** : creation of a scientific comity for the sustainable management of the land, creative partnership with the « Semence paysanne » co-op for instance. Nowadays, the farm is managed by one owner and three employees.

- No land problems because there is only one owner (the fundation) and a lease that allows the free cultivation of some land plots if the farmer uses environment-friendly processes (bail commodat)
- Livestocking implementation in 1995 to allow a natural fertilization of the soil.
- Transforming land plots, cutting and implementing grass strips long of 4 or 6 meters between the plots. In 2001, 8x8ha plots (see illustration)
- The production of wheat/ha has fallen from 80 to 40 quintals due to the organic processes implementation ; today it is about 56 quintals/ha. The temporary production loss has been compensated by a decrease in the fertilizing costs (animal fertilization), the pesticide use (implementation of natural predators), and the organic products business which are more expensive.

### C. Business patterns

- Local Meat selling (butchers)
- The on-site cereal storage allows to control the price variations. Transportation to a co-op in Normandy.
- Biocoop : 100 members.
- An AMAP

### D. Biodiversity

The organic agriculture rules forbid to use chemical products but does not specifically talk about soil rotation or fallowland.

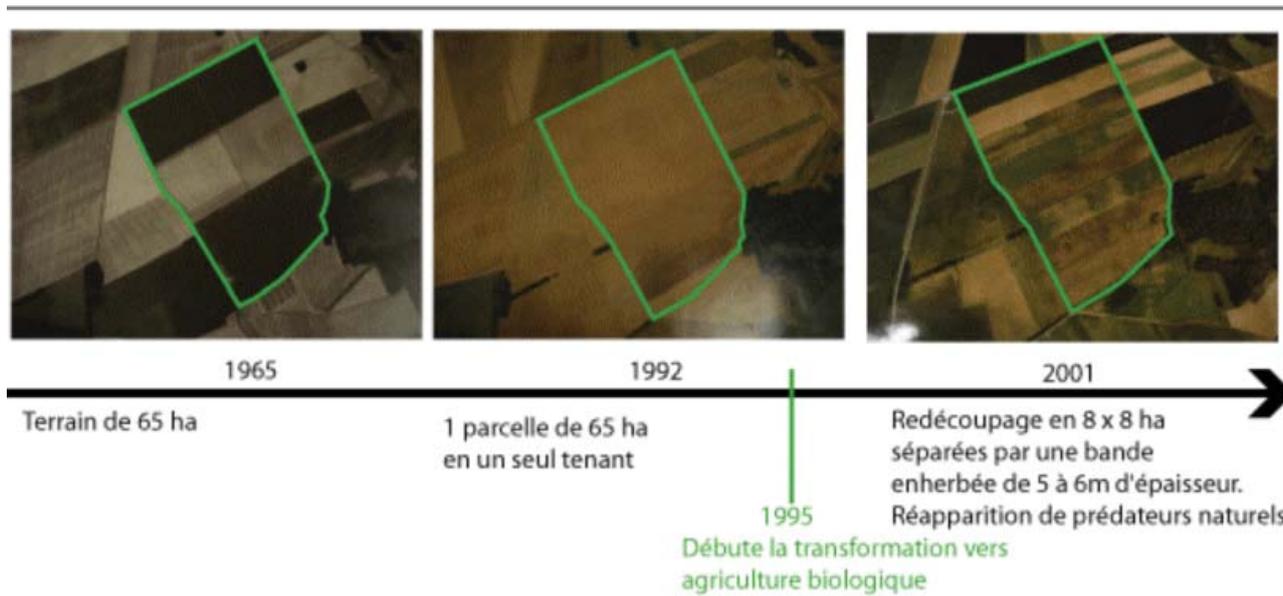
Bring balance with varied soil use :

Soil rotation systems between cereal cultivations and beans and peas cultivations + livestocking, allowing natural fertilization of the soil.

Beans and peas cultivation before the cereal cultivation allows the soil to store nitrogen and therefore renders useless another nitrogen provision.

Re-implementation of hedges : a 10km line have been created. « *The trees part have been restored in farms : species habitat, shelter for livestocking and energy source for the firewood heating system.* »Ch. Mouche

Implementation of various controlling measures for the environmental quality of the farm : Christian Mouchet's IDEA method. (downloadable reports)



Land consolidation over the years  
Source: Bergerie de Villarceau

### Extratcts from the internet site of the Bergerie de Villarceaux :

#### Cultivation :

- Cereals : *wheat, spelt wheat, emmer wheat, barley, rye, triticale*
- oil and protein-producing plants : *rape, sunflower, lentil, peas, flax, false flax*

Today, the farm has 140ha of temporary pastures:

- 60 Salers cattle and forty veals, 25 steers and 25 heifers.
- 120 ewes.

## 4.2. An experience in reinforcing the urban / agricultural border:

**THE GREEN TRIANGLE** Market-gardening towns of the Hurepoix area : Marcoussis, Saulx les Chartreux, Nozay, Villebon, Champlan



The green triangle  
Source: T. Laverne

### A. Agro-urban territory project

The urban agriculture's promotion must not prevent the city from developing itself. A new sustainable planning of the territory must be invented.

The urban agriculture project proposing a long-term collaboration between city and country is a reasonable and sustainable project that gives a new perspective on the value that one gives to the territory, its people and their projects.

In order to face the urban spreading and the expanding city, the territory and the agricultural activities are major partners in creating an alternative, sustainable and fair development project for the territory:

- creating a natural area offering an alternative to the agglomeration.
- Local reinvention, other centers, new fair development project between city and country.

It is a major challenge for the city and for Ile-de-France ; it is the challenge of the Triangle Vert program.



The green triangle  
Source: trianglevert.org

### 3 DECIDING COLLEGES

- **TOWNS COLLEGE:**  
Executive voice  
2 representatives per city
- **FARMERS COLLEGE:**  
Executive voice  
1 farmer per town
- **USERS COLLEGE:**  
advisory voice

## 4.3. Energy and biomass : the new agriculture's missions

Agriculture has widely embraced biomass, biofuel and green chemistry development through many individual and collaborative ongoing actions. Nevertheless, the industry and the consumers must benefit from their economic outcomes right now.

### Biofuel production:

Two major biofuel categories coexist : biodiesel, which is a vegetable oil- or animal fat-based diesel fuel consisting of long-chain alkyl (methyl, propyl or ethyl) esters ; and bioalcohol, which are biologically produced alcohols, most commonly ethanol, and less commonly propanol and butanol, are produced by the action of microorganisms and enzymes through the fermentation of sugars or starches.

The development of this biofuel production has provoked an augmentation of the ethanol processing sites. There are only few sites in Ile-de-France but the region benefits from sites implemented in adjacent regions.

Two processing factories in Ile-de-France, one in Seine-et-Marne and one in the Yvelines : In Provins (Seine-et-Marne), alcohol and sugar farmers are allowed to produce 5000 tons of ethanol in 2010.

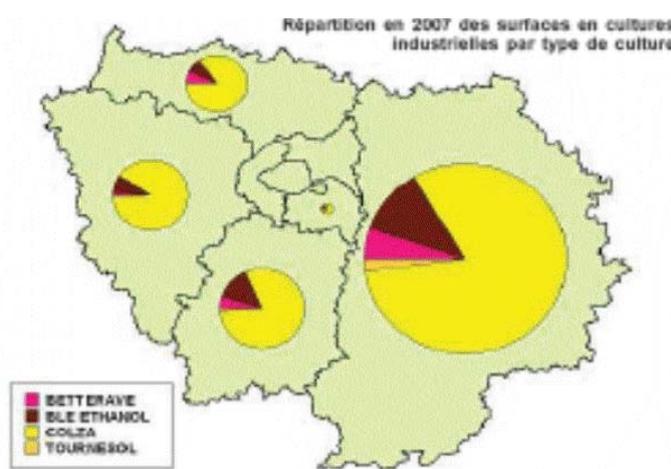
Year	Rape	wheat	Beet
2004	22.2	0.6	0
2005	32.6	0.9	1.3
2006	45.5	0.9	4.9
2007	47.7	2.1	2.7
2008	33.8	1.7	4.5

Non-food cultivation surfaces

Source: DRIAAF, AUP, culture énergétique et jachère industrielle

### A. Rape

Almost all the non-food rape is cultivated on three departments (Seine-et-Marne, Yvelines et Essonne) and almost 60% of the production is in Seine-et-Marne. One can observe the same phenomenon for cultivations which are granted with the energy-based cultivation allowance. Nonetheless, one can observe a rising concentration in Seine-et-Marne (70% of the surfaces in the Val d'Oise these last two years (10%). The rape is mainly cultivated in areas near adjacent regions (South and south west Seine-et-Marne and Yvelines).



Seine-et-Marne, main non-food rape producer

Source: Office interprofessionnel des grandes cultures

Year	Type(*)	Seine-et-Marne	Île-de-France
2004	Jl	3.364	6.127
2005	Jl	8.417	15.091
2006	Jl	8.997	15.764
2007	Jl	9.317	16.124
2004	CE	3.476	5.692
2005	CE	2.173	3.861
2006	CE	9.495	14.534
2007	CE	15.580	22.158

Steady growth of the energy-based Rape cultivation<sup>31</sup>  
Source:Office interprofessionnel des grandes cultures



Steady growth of the energy-based Rape cultivation  
Source:Office interprofessionnel des grandes cultures

## B. Beet

Beet is mainly cultivated in Seine-et-Marne. Beet's yield is better than wheat or colza's : one beet ha produces 6 tons of alcohol when one ha of wheat produces 2 tons and one ha of rape produces 1,4 tons. The beet's yield grows steadily since 1989 in Île-de-France, while the wheat's yield is stalling.



Beet  
Source:A.C.Werquin

## C. High-potential non-food cultivation

### Miscanthus



Miscanthus  
Source:bes-site.fr



April 2007



July 2008



March 2009



March 2009

### 1. ORIGINS

Miscanthus, is also known as « Elephant grass » or « China reed » and has been cultivated for 3000 years in China. It has many functions and few farmers cultivate it in France. (about 50 ha in 2006).

**It is a grass (graminoid) plant, sterile and perennial, with rhizomes. Lignocellulosic, 15 year cultivation, non-invasive. It naturally grows back every year<sup>32</sup>.**

31 Agreste 2008, Cultures énergétiques en Île-de-France en 2007, AGRESTE n°91, 2008. <http://www.agreste.agriculture.gouv.fr/IMG/pdf/R1108A05.pdf>

32 <http://www.bes-site.fr/miscanthus.php3>

Biomasse Environnement Systèmes SAS - Ferme de Mazagran - 77250 EPISY - Tel : 01 64 24 93 50 - Courriel : bes.contact@gmail.com

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## 2. FROM SEEDLING TO HARVEST

- rhizomes between March et May ...
- Optimal density : 20000 plants/hectare.
- 10-15 cm deep on a very thin seedling bed.
- The plant needs 2 to 3 years to reach its full harvesting potential

### Fertilization

• **No extra fertilizer needed in organically-balanced soil** : An important part of the plant goes back to the soil (stems, leaves) during the first cutting. The harvest only occurs after two years.

### Phytosanitary measures

• **Few or no chemical products, thus limiting the water pollution**: Self-propagating management can be useful during the first two years. Then, the dead leaves bed create a mulch preventing bad seeds and soil erosion.

- No destructive insects, no diseases

### Cycle

- 1 to 2 meters high on the first year ; 3 meters then.
- The first harvest occurs two years after the seedling
- Harvest occurs between February and April for a 20% stem humidity rate, allowing the storage of the producer dry matter.
- Several harvesting methods depending on the commercial use of the product (forage harvester...)

BES is currently focusing on R&D. The firm collaborates with several labs to construct environment-friendly miscanthus-based materials. Many companies are highly-interested in the product's potential for it has many functions : building materials (eco-concrete), fossil-based material alternative (biodegradable pots). We invest in the production of environment-friendly, innovative organic products.

## Hemp

### What is the Association Planète Chanvre<sup>33</sup>

Launched by two creators, Planète Chanvre gathers 11 farmers inside a co-op.

What are their goals ?:

- Firstly, to produce in a varied and environment-friendly way.
- Then to participate in a local dynamic with building companies, local authorities...
- Finally, to match the society's expectations towards environment-friendly products.
- The hemp's uses are varied, and, today, France is the leader in hemp production in Europe.



Hemp

33 <http://www.planetechanvre.com/rubrique-produits>

## D. The wood industry

### Important deciduous forests

Forest cover 278 000 ha of Ile-de-France, 23% of the territory, which is almost the national average (26%). It has been growing for a few decades. The Ile-de-France forests are mainly deciduous (90% of the surface and volume) and the Sessile Oak (*Quercus petraea*) is their main tree (32%).

There are two forest status :

- Public, 81 000 ha, representing 30 % of the wooden areas and mostly for a recreational use.
- Private, 197 000 ha, representing 70 % of the wooden areas, for the wood industry's production.

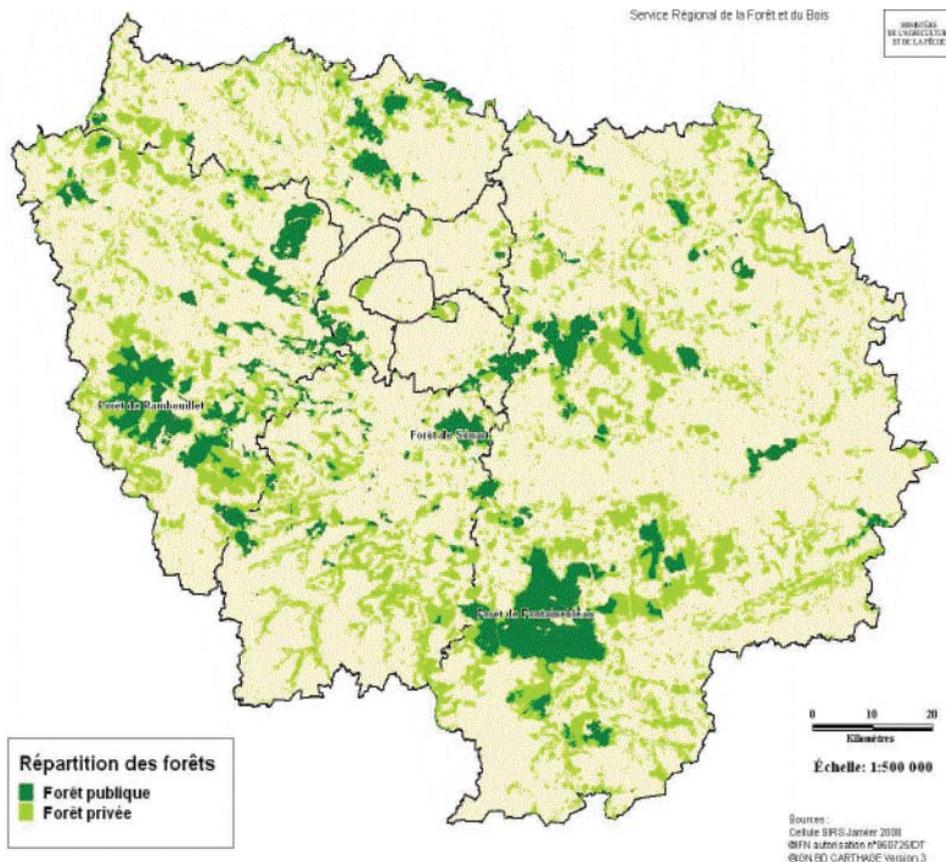
The management of this resource is more expensive in Ile-de-France, which is a very populated area, than in other areas. The wood industry's profit do not compensate the expenses generated by the management of the public sites (security, cleaning, planning).

The private forest situation is the same as in adjacent regions of Bourgogne and Centre, with shattered forests : 40% of the forests are owned by 800 owners with more the 25 ha each. They have a planning programm to respect (PSG).

60 % of the forests are owned by 10 000 different owners (122 000 ha)<sup>34</sup>

The annual wood production is 970 000 m<sup>3</sup> : stools (600 000m<sup>2</sup>), construction (190 000m<sup>3</sup>), industry (180 000 m<sup>3</sup>).

The organized forest management is organized by public and private important owners and have to respect the PSG, which is mainly executed by foreign contractors.



Public and private forest in l'île-de-France  
Source: Celule SIRS Janvier 2009

34 Version 4 du DRDR Île-de-France validée le 4 mai 2010 15/304

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