CONTEXT DOCUMENT

Southern Île-de-France
2014 Workshop

The southern Paris region as a laboratory for localising the energy, ecological, urban and rural transition

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To submit to or to choose the transition

In the life of man, society has passed from 2 to 7 billion people. As a consequence, consumption of fossil fuels has increased, due simply to the fact it is less arduous, and more comfortable: from plowing to machinery and trucks, up to the food processor, passing through heating, escalators, the automobile.... Fossil fuels permit our current standard of living. The problem is that 7 billion humans want so much, to the point where the climate of the planet is changing with the mountains of CO_2 being produced. Consequence: we are heading towards the beginning of a major irreversible climatic episode, a huge leap into the unknown.

There are two ways to accept this truth: in a state of resigned doom, worse a distracted denial (but this is ultimately the same), or as a great human and industrial opportunity. The best chance to strike is through the reduction of CO_2, a social and economic development opportunity based on the joy of living, the opposite of returning to the candle.

With the increased concentration of greenhouse gases in the atmosphere at a little more than 2 ppm per year, we will cross the threshold of 450 parts per million by 2030[1]. The consumption of fossil fuels emits 70% of greenhouse gases. Even if the transition is not limited to greenhouse gas emissions, their massive reduction is a priority. This does not exclude taking care of other priorities: biodiversity, well-being, sustainable economy, natural resources, pollution and risks..

1 To follow the increase of CO_2 concentrations in the atmosphere: http ://co2now.org/Current-CO2/CO2-Now/annual-co2.html

At the speed at which international conferences pass from one failure to another, it is clear that we must not wait for "The Solution." Nationally, the twists and turns of the Brittany environmental tax show the difficulty of finding an acceptable economic and social path for the inevitable transition. Necessary and essential, the actions at this level are not sufficient: just watch, listen, read, and measure the path that lies ahead. This is why the question arises of how this opportunity can be seized by territories, residents, businesses, and elected officials, from the commune to the region and how to guide the other territorial levels: nationally and internationally. The transition has a greater chance of success if it is developed around and within the idea of the joy of living.

Obviously all the reasons in the world, even at the local level, converge to achieve this priority of priorities: staying below the 450 ppm threshold. However, in seizing this opportunity, one must not ask why it is impossible, but how to achieve this objective: through responsibility of course; which can be truly hard to find in an economic or social path, but can be more obvious and easier to navigate if orientated towards well-being, human development, and the joy of living.

It is a challenge: in France, less than 3 municipal mandates remain from now until 2030. Our share in France is a division of greenhouse gas emissions by 4 (if not including underdeveloped countries), by 6 for international fairness. With a look of the eye, we have only one planet; international equity is the only option. A division by 6 from now to 2030 requires a reduction of 5% per year, based on the emissions identified in 2005 by the Île-de-France Institute of Urban Planning.

How? The governing principle is known: less fossil fuels, less ore and metals, more collective intelligence for a rational sharing of spaces and resources, through an acceptable economic and social path founded on the joy of living. Passing the act is another question.

It is the metabolism of territories that must change: the flow of products and local consumption, the flow of people and goods entering and exiting a territory, which vary according to the lifestyles of residents, businesses and visitors of this area. It is a system that must be changed; to be considered and treated in as much, within this occupied land, through the residents, businesses and institutions who are anchored to habits, missions, culture, and behaviors – for the long run.

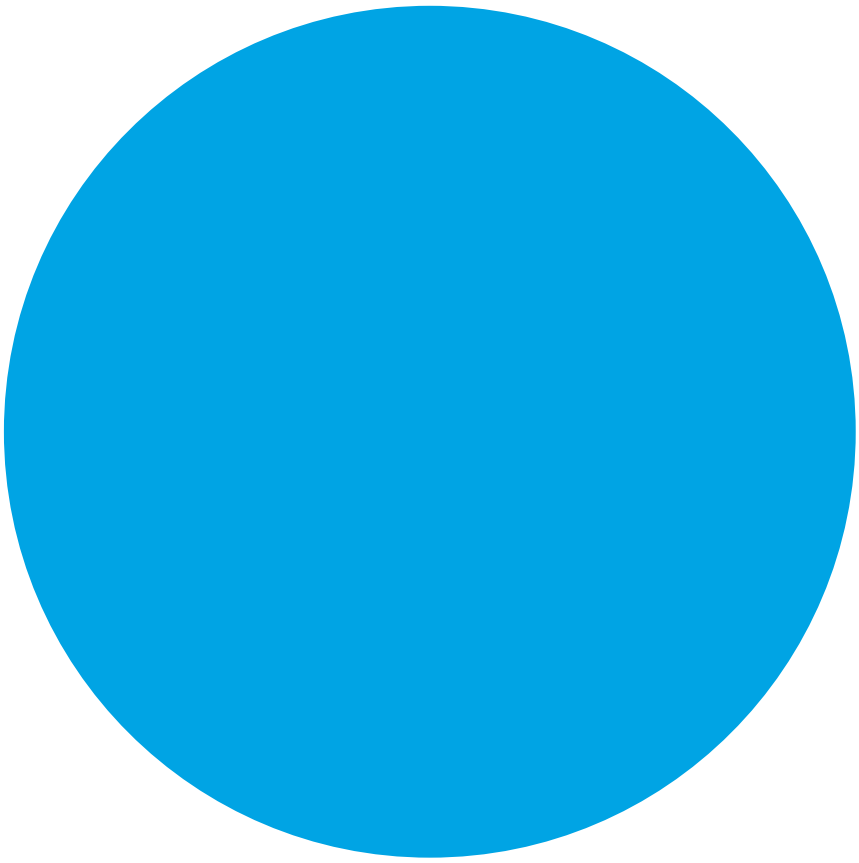
Thus the purpose of this work: to seize, during the workshop, the transition at a territorial level, which on the one hand, is related to decision-makers in the field, residents, businesses, elected officials and their services and big enough to reduce emissions; but also to environmentally produce and live in a sustainable framework within the greatest variety of situations.

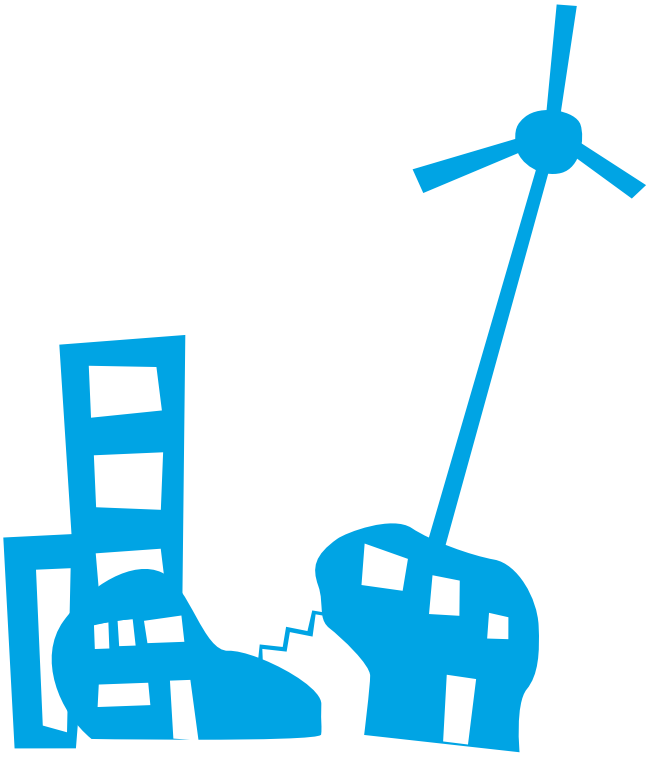
In order to territoralize this transition, the choice falls onto a large area outside of the metropolitan capital – at times both urban and rural – southern Île-de-France: 2 million residents, 800,000 jobs, hundreds of thousands of businesses, tens of thousands of elected officials. With such a large number of decision-makers, a systematic approach and strategic process seem unavoidable. Exceptionally, this preliminary document for the workshop presents such a process: challenges, land inventory and current dynamics – measurable by indicators.

As a rule, the participants are free to use it or not. The question remains:

How do we do our part? How do we contribute here, where we live, work, and play; that is to say, here, where we can change things, carry out our decisions, together?

How to provide concrete responses, locally, to construct our part of the transition: buildings, travel, food, living and working environments, lifestyles, consumption, and recreation – through an economic, social, and environmentally acceptable path based on the joy of living?





TRANSITION CHALLENGES

TRANSITION CHALLENGES

SYSTEM INVENTORY AND KEY ISSUES OF THE TRANSITION

RESOURCES AND CURRENT CONSUMPTION

Fossil fuels, which represent 80% of global consumption, are finite: the extraction level will therefore peak before decreasing. It is for this reason that it is necessary to diversify the sources of energy production.

INVENTORY: RESOURCES AND ENERGY CONSUMPTION

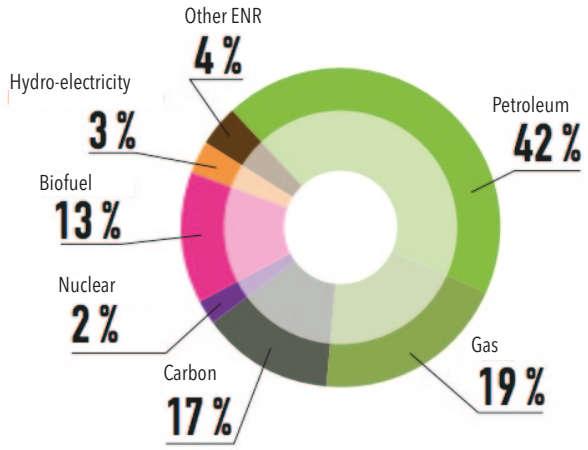
Worldwide, consumption is approximately distributed as 28% for industry, 27% for transportation and 36% for residential, tertiary and agricultural activities. The remaining 9% refers to non-energy uses of energy resources, notably the manufacturing of plastic from petroleum or the use of coal in cast-iron[2].

It is important to note that only 42% of consumption associated with petroleum is dedicated to, at most, 90% of the needs in terms of transportation.

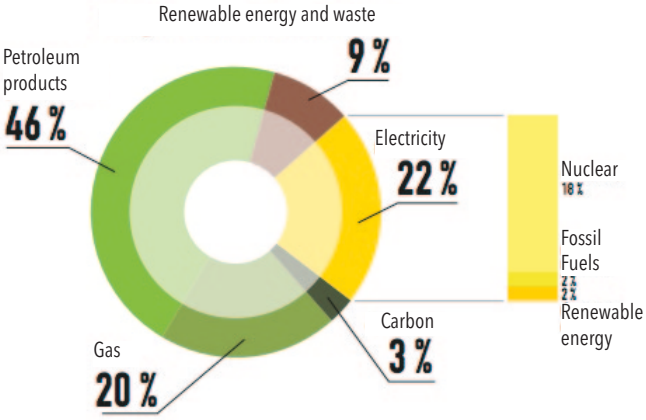
Finally, in more general terms, it is necessary to remember that different sources of energy are not substitutes for one or the other: the great advantage of petroleum and gas comes from them being transportable, able to be stored, and thus adapted to many usages.

France, for its part, distinguishes itself from other European countries by its low use of carbon (3%) and by its significant use of nuclear energy (which provides 75% of energy production as compared to 13% in the rest of the world).

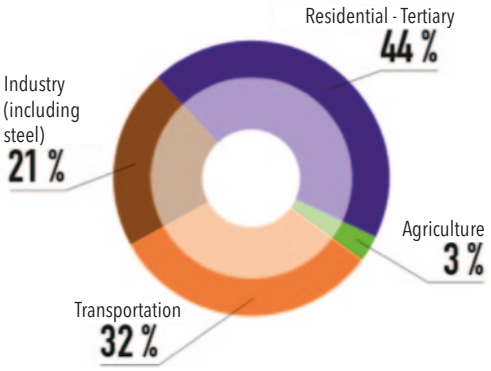
Since 1945, the country has been engaged in a policy of "energy independence" based on nuclear development. This program has led to substantial growth in the national production of primary energy increasing from 44 Mtoe (Million Tonne of Oil Equivalent, "Mtep" in French) in 1973 (of which 9% was nuclear) to 136 Mtoe in 2012 (of which 81% was



Total global energy consumption in 2010, divided by energy source. Source: AIE 2012



Total energy consumption in France in 2011, ranked by energy source. Source: SOeS Energy Report



Energy Report, 2011, SOeS

2 Statistics from the national debate on energy transition report: http ://www.transition-energetique.gouv.fr/sites/default/files/dnte-socle-de-connaissances.pdf

nuclear). It is important to remember that the uranium used to produce nuclear energy is entirely imported.

Between 1973 and 2012, the division of energy consumption in France has evolved significantly:

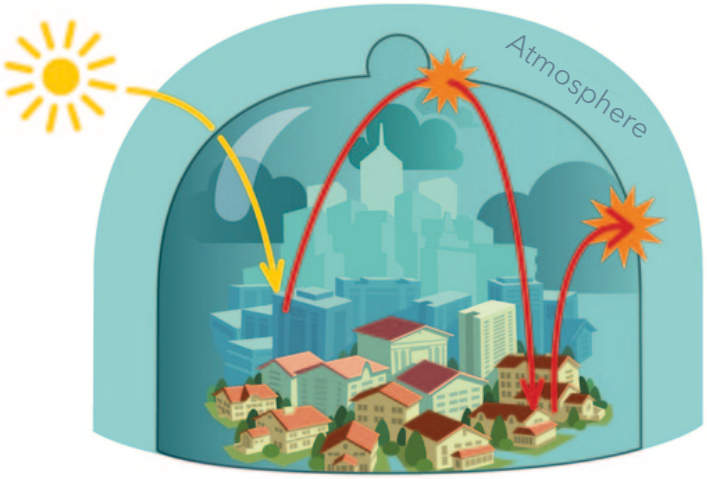
- Carbon from 15% to 4%,
- Petroleum from 68% to 30%,
- Gas from 7% to 15%,
- Primary electricity from 4% to 44%

The issue of energy transition is particularly acute in France where fossil fuels represent close to 70% of the total consumption.

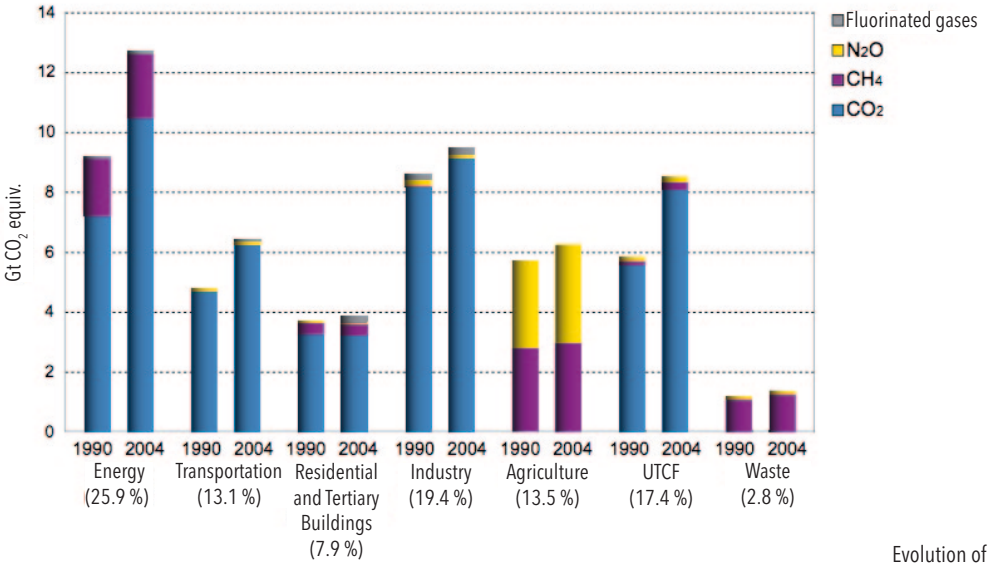
Consumption is divided into three major sectors:

- Heat (heating, cooking and industrial usages) that represents close to 50% of needs.
- Mobility (of people and goods) that represents close to 35% of needs.
- Specific electricity (urban lighting, electrical appliances, ...) that represents 15% of needs

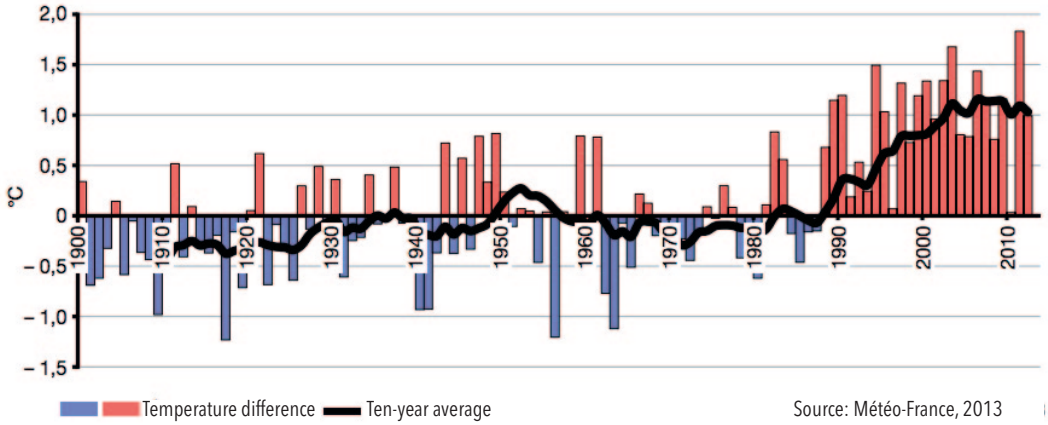
In short, the situation demonstrates a strong dependence on fossil fuels, as much at the global level as at the French national level. This dependence is problematic in regards to the finiteness of resources but equally for the consequences of this consumption and greenhouse gas emissions.



The greenhouse effect stops a large part of solar rays from being sent back into space, Ministry of Sustainable Development.



Evolution of global GES emissions, ranked by sector, between 1990 and 2004; GEIC 2007



Evolution of average temperatures in France from 1900 to 2012 compared to the reference period of 1961 to 1990

CONSEQUENCES OF THIS ENERGY CONSUMPTION

Abundant energy has allowed for the increase in our capacity to transform existence and nature (from extraction to production of machinery); it has modified all aspects of our lives, but in return it has shown equally significant repercussions: increased concentrations of greenhouse gases and decreased biodiversity due to growing human impact.

Climate Change

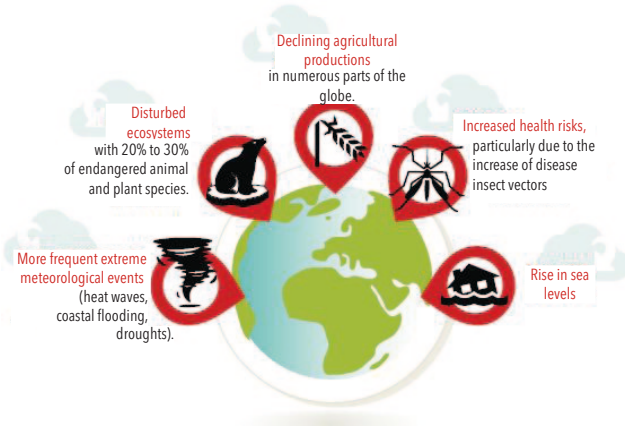
The greenhouse effect is a natural phenomenon. It allows the earth to have an average temperature of 15°C rather than -18°C if it did not work. But according to the Intergovernmental Panel on Climate Change ("GIEC" in French)[3], the concentration in the air of Greenhouse Gases ("GES" in French) has seen a rapid and unprecedented increase.

This artificial increase in GES concentration (of which carbon dioxide is principal) is engendered by human activity, specifically:

- The strong increase in transportation of goods (globally)
- The strong increase in movement of people (particularly daily travel)
- The increase in volume of manufactured products

These activities engender the consumption of combustible fossil fuels[4] (natural gas, petroleum, and carbon). The scientific community agrees that there is a connection between the increase in GES concentration and the global warming of our planet (increasing by around 0.5°C during the second half of the twentieth century).

Impacts of climate change at the global level, Ministry of Sustainable Development



Consequences of global warming

Potential consequences of global warming are numerous. Specifically:

- Rise in water levels
- Decline in global agricultural productivity
- Population movement at the global level
- Increase in extreme meteorological episodes

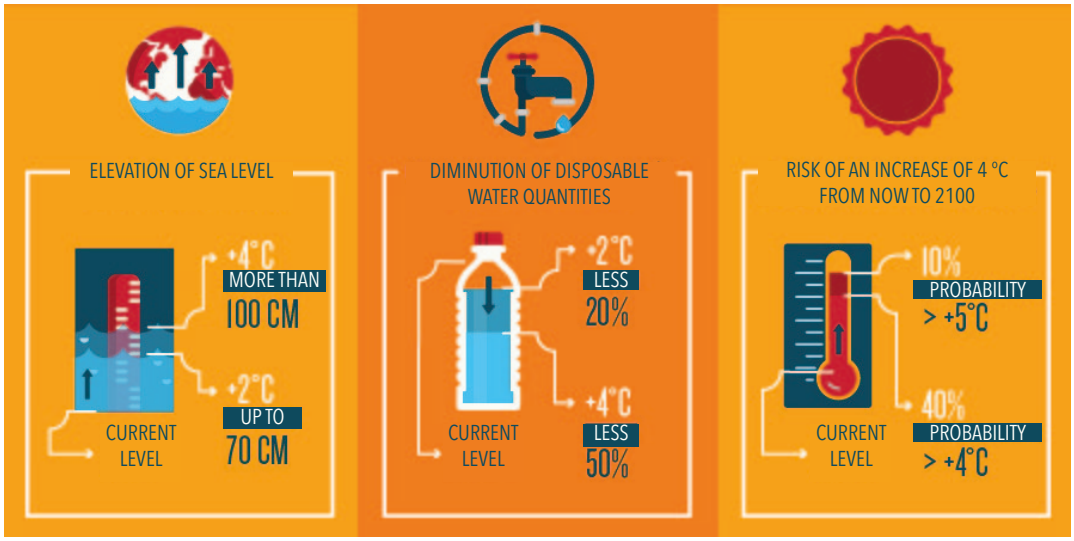
The first report of the National Observatory on the Effect of Global Warming[5] assessed the cost of climate change in France at hundreds of millions of euros per year, if adjustments were not implemented now. Thus, an increase of around 2 °C above preindustrial levels could lead to a loss of between 0.2 and 2% of annual global revenue.

Beyond the cost of climate change, there are many other problems in terms

3 French Portal: http ://www.ipcc.ch/home_languages_main_french.shtml

4 The correlation between increased GES concentration and human activity was established at 95%, according to the GIEC.

5 Report available for consultation through the following link: http ://www.developpement-durable.gouv.fr/IMG/spipwwwmedad/pdf/rapport_onerc_cle098a8d-1.pdf



Different scenarios, outlined by the World Bank

of the environment and society.

In the second part of its latest report, the GIEC spoke of "elevated to highly elevated" risks in the case of average temperatures rising 4 °C above the preindustrial era ("substantial extinction of species" and "significant risks to food security"), but also referred to "considerable" risks from warming of 1 to 2 °C. According to analyzed trajectories by the GIEC, there still remains a chance of staying below the threshold of 2 °C in 2100 in relation to the preindustrial era.

The most pessimistic trajectory assumes a rise greater than 5.5°C, which could lead to heat waves (doubling or tripling in frequency compared to today), along with waves of extreme temperatures (hot and cold) as temperatures increase.

If no region is to be spared, it is the poorest and most vulnerable populations who will be the most harshly affected.

PRESERVATION AND PROMOTION OF BIODIVERSITY

Increased human impact leads to the weakening of numerous ecosystems and the loss of ecological diversity (decline of numerous species) due to modifications introduced by man (directly through the sealing of soil, construction of infrastructures, and draining of wetlands and indirectly through global warming).

Thinking about the transition cannot stop at energy issues (even if they are the most significant): making this territory more open to not only people but for all species alike. Open, natural spaces are not simply ornaments: they have their own logical sequence that needs to be considered.

Natural ecosystems provide services to humans, benefits which we try to economically quantify in order to justify their preservation. But these benefits are not just economic, they are vital.

Biodiversity is not only a "reservoir" of riches for humans. It is a system that exists in itself (without any need to assess its aesthetic or functional qualities). As explained by Catherine Larrere, ecology has seen a scientific change in terms of understanding the role of biodiversity. Therefore, it is no longer enough to make «natural reserves» but to maintain biodiversity (like is the case of the Barnier Law, which attempts to strengthen biodiversity through a standard of protection policies for nature).

This implies that "biodiversity management should be considered standard and that maintaining or strengthening it does not necessarily imply taking humans out of protected natural spaces, but rather to encourage the pursuit of human generated activities focused on biodiversity."[6]

IMPACTS OF OUR ECONOMIC SYSTEM

Ecology and sustainable development get lost in the issue of reconciling two demands: on the one hand, preserving the biosphere; on the other, conditions for economic development.

Economic questions also bring up transition side issues and "green business." One of the main side issues is "green washing," which consists of twisting the original meaning of the concept in order to reclaim abusive,

6 LARRERE Catherine, *Développement durable: quelques points litigieux*, December 18, 2013, Université Blaise Pascal ESPE Clermont – Auvergne.

contradictory behaviors; read dishonest.

Using the Pinocchio Prize as an example, it "intends to illustrate and denounce the negative impacts of some multinational companies, in total contradiction with the concept of sustainable development by using the term abundant."[7].

MAJOR FIELDS OF ACTION AT THE NATIONAL LEVEL: NOTIONS OF EFFICIENCY AND SIMPLICITY, TO TARGET KEY ISSUES

BUILDINGS

EFFICIENCY: HOW TO MAKE BUILDINGS MORE ENERGY EFFICIENT?

In France, buildings are the origin of 18% of french GES emissions. They are also the main consumer of energy, encompassing 43.4% of the total energy consumption of the country in 2007 (65% residential and 35% tertiary).[8] In 2008, France counted more than 32 million buildings, of which more than half were built before 1975.

The average annual consumption of a building is around 240 kWh of primary energy per heated m^2, while energy and climate issues require reducing this consumption to a hundred kWh/m^2/year. Energy saving potentials in the building market are colossal and require strong and prioritized action that must be part of a long-term plan.

Potential levers in reducing energy consumption in housing are at the heart of the subject, such as the ability to connect 20% of the 40 million housing units to urban heating based on renewable energy sources. The exploitation of this potential would allow a shift of 5 billion euros per year from the fossil fuel importation and foreign trade deficit column (69 billion euros in 2012) to the gross domestic product column. The advantages are numerous: ecological competitiveness, development of jobs that cannot be

7 http://www.prix-pinocchio.org/
8 Source: ADEME Resource Center for Territorial Climate-Energy Plans http://www.pcet-ademe.fr/

HEMP EXAMPLE

Hemp provides an agricultural production that requires little insertion (fertilizer, pesticides, insecticides, water), with a three-year soil rotation. By consequence, it diminishes greenhouse gas emissions. Hemp wool is an excellent insulator. Cane bark and hemp fiber, mixed with lime, make excellent hemp concrete – insulating and load-bearing.

Roadway shoulders are a potential site for planting eco-materials such as hemp, demonstrating its utility; more globally Regional Natural Parks could be significant producers.

Such a connection was developed between the Île-de-France and farmers from Seine-et-Marne[1] and Acini. Their factory provides the first transformation of their production into hemp wool. Eco-material houses expose an idea of what these materials are and the artisans who install them. Their use in energy efficient retrofitting helps to promote, due to demand, training and local employment.

1 Planète chanvre : http://www.planetechanvre.com/

THE AREA OF SÉNART SHOW CASES ECO-CONSTRUCTIONS

As part of its development, Sénart, between Essonne and Seine-et-Marne, places on eco-construction: the idea of eventually relying on the presence of local businesses active in this sector – particularly within the eco-business incubator – to promote the use of eco-materials in construction projects for new housing, and from this point on to put into place a network of competent public and private actors on the subject.

Urbanization along RN20

Concentration of economic activities, example of the Courtaboeuf Zone

outsourced and the deindexing of fuel heating costs.[9]

The approach for communal buildings goes in the same direction. Communal buildings take up less than 10% of the constructable surface area of the commune, but can have a significant ripple effect if they are organized. Two dominant selection criteria:

- First, the overall cost of buildings, including investment and operation, and their energy consumption play a major role here. Excluding technical errors, more insulation gives greater comfort to the users of these buildings.
- Second, the reduction of greenhouse gas emissions. For a start, it is the easiest and less expensive to do. It allows for the steering of local policies in economic and social development through the use of eco-materials and eco-energy.

Co-working space in Lyon

SIMPLICITY: HOW TO DEVELOP THE USE OF BIO-BASED MATERIALS?

Bio-based materials are materials made from biofuels of plant or animal origin. They come mainly from the countryside and are primarily used in the city. They can be used for energy production, construction, or even insulation.

MOVEMENT OF PEOPLE AND GOODS

EFFICIENCY: WHICH URBAN MODELS FOR WHICH TYPES OF MOBILITY?

The movement of individuals represents one of the main factors in greenhouse gas emissions. For now, the majority of the vehicles in circulation (automobiles and buses) run mainly on fossil fuels and it will be more difficult than in other sectors to substitute other energy sources. The abundance of fossil fuels has allowed an unprecedented spatial diffusion of habitat. While at the same time, economic activities that have developed remain, in general, much more concentrated (due to stronger constraints).

Challenges of the transition are related to the reflection on an urban model that provides a reduction in travel needs as well as a reorganization of the transportation system (linking collective transportation and current modes).

The main challenge is thus limiting the need for travel or even better, substituting the modes of travel.

SIMPLICITY: HOW TO ADAPT OUR LIFESTYLES AND MOVEMENTS WITH THE TRANSITION?

For example, bringing employment closer to home (Third Place) would allow a rethinking of mobility

9 See: http ://www.driea.ile-de-france.developpement-durable.gouv.fr/eco-quartiers-quels-effets- de-a3648.html

in general. The best form of travel is that which avoids overcrowded public transportation. Localized Third Places at certain stations allow workers in the territory, one or two times per week, to work close to home, instead of in Paris for example.

These are dedicated office spaces that are neither the home nor appropriated offices. Workers save on average 70 minutes, two times per day with the use of Third Places, saving about 2 hours and as much stress, one or two times per week. This is the equivalent of 1 or 2 days of work per month, with the effect of improved quality of life, health of workers and entrepreneurs, and work productivity.

In parallel with a reduction in daily travel, is the shift to travel using low-carbon vehicles – a source of savings in euros and reduction of CO_2. That is to say, vehicles that release less than 100g of CO_2 per km, such as electric cars and electric or non-electric bicycles. In terms of budget, abandoning a second car for a bicycle corresponds to an extra month's bonus and a halving of refueling needs. Of course there are other benefits: the quality of life in town, health, time for oneself instead of time spent in traffic or on crowded trains.

Carpooling, for its part, is an important lever. But it remains, today in France, poorly supported by local and national policies. It is a shortcoming since a passenger in a car (very commonly occupied by only the driver) divides CO_2 emissions by half.

Beyond the drastic reduction in emissions and the easing of pressure on public transportation, carpooling has two advantages: the reduction of hours lost in daily traffic jams on major roadways and the increase in purchasing power by households.

Carpooling is a source of savings for the driver as well as the passenger. In terms of an average commute for residents of the Outer Ring, it is serves as "extra month's bonus." A combination of bicycle and carpooling stations could be interesting, particularly at the train station.

ACTIVITIES

EFFICIENCY: HOW TO BOOST JOB CREATION?

According to Philippe Quirion, "the transition, if it is carried out well, will generate more employment than it will lose."[10] He identified three principal areas of job creation:

- Energy efficient renovation of existing buildings (residential and industrial) would provide 408,000 residential jobs in 2030 and 178,000 industrial jobs, compared to the predicted loss of 404,000 jobs connected to the downturn of new housing construction.
- The development of public transportation or innovative individual vehicles, that will in any case lead to a significant loss of employment in the automobile industry, is estimated at 189,000 jobs in 2030.
- The gamble on renewable energy sources, in the areas of wind-power, biofuels, and in particular photovoltaics, corresponds to the creation of 535,000 jobs in 2030.

Another avenue is through the creation of carbon accounting within large companies. Effective triggers need to be identified to reduce their

10 Watch the interview video with Philippe Quirion, researcher at CIRED

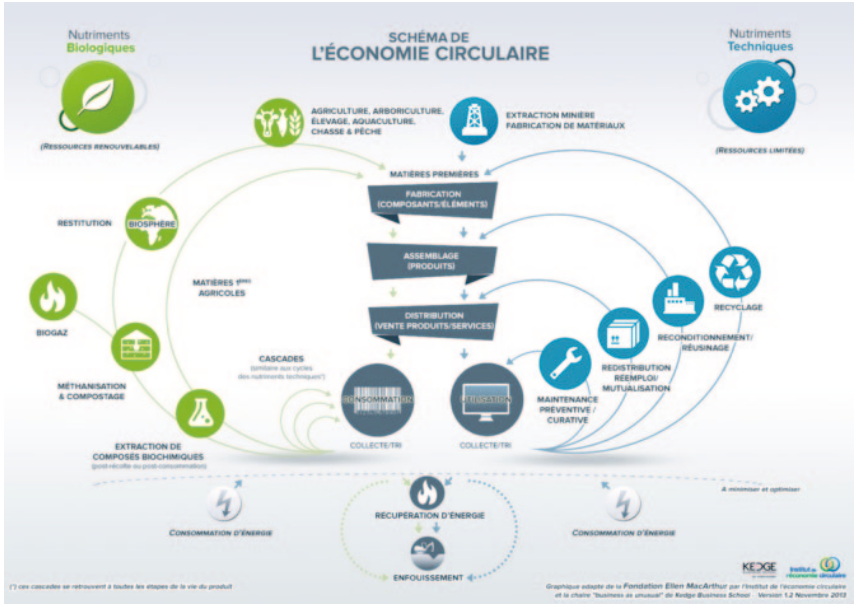


Diagram of the circular economy, Institute of Circular Economy

emissions. However, the creation of a simple calculating tool for these companies could be a catalyst. The principle behind its production consists of calculating emissions by 6 well known parameters: purchases, employee and visitor commutes, corporate properties, consumed energy, and shipments of manufactured products.

A low-carbon economy gives a competitive advantage to certain companies who have decided to work in the areas of construction or business travel. Knowledge-based economy and competitive clusters of business, education and research are stakeholders.

By how much can greenhouse house gases be reduced? The assessment has only symbolic value, in the absence of carbon accounting by companies, there is nothing to affirm or contradict the number, whatever it may be. If anything, it opens the gate to ambitious development stakeholders.

SIMPLICITY: HOW TO PUSH COMPANIES TO BE MORE "VIRTUOUS"?

Circular economy is inspired by how natural ecosystems function. It attempts to put into place loops of positive value during the production, use, and reuse of a product. Thus, for example, that which "can be considered waste in the linear economy, whose only end is to be either buried or burned, can – in the circular economy – still have several lives."[11]

Another initiative aimed at offsetting the effects of a capital-based economy, social economy proposes a system based on consultation and participatory management. "The wealth produced is shared equitably (...) and employees of a cooperative also have the possibility to actively participate in the decision-making process."[12]

ENERGY

EFFICIENCY: HOW TO INCREASE THE SHARE OF RENEWABLE ENERGY?

Resources are numerous: be it air, water, or even better the decomposition of material. Different alternative solutions exist, being more or less viable and accessible.

France uses 4 major sources of renewable energy which represent 9% of the "energy mix":

- Aerothermal and geothermal heat pumps in buildings for heating and cooling in the industrial sector
- Biofuels used in individual homes (collective heating only represents a small part of the assessment)
- Heat recovery from incineration plants
- Heat production through geothermal systems

This estimated 9% share is relative, since it greatly decreases if incineration units whose operation poses questions are taken out of this assessment.[13]

For comparison, Denmark exports more energy than it imports due to renewable energy (the country has seen a hike of 60% since 2004). Renewable energy represents 40% of its "energy mix"[14], due particularly

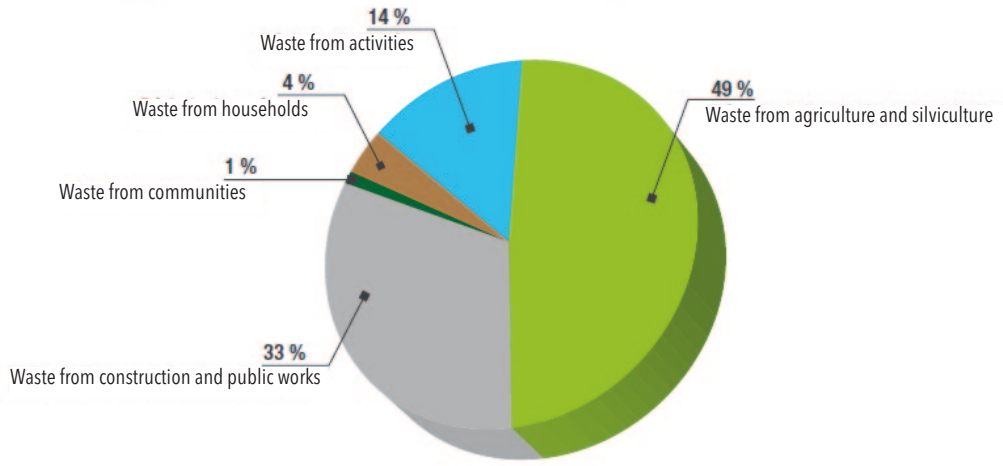
11 Definition from the Institute of Circular Economy site http ://www.institut-economie-circulaire.fr/

12 Information provided by the Conseil Général of Essonne

13 In effect, its viability depends on garbage volume size and is thus dependent on household and industrial waste.

14 Source: Eurostat, Renewable Energy in Europe: http ://epp.eurostat.ec.europa.eu/tgm/table.do ?tab= table&plugin=1&language=fr&pcode=tsdcc330

Figure 2 – Shares by different sectors for waste production in France



Separated by the different sectors in waste production in France. ADEME Waste 2012

to wind power. In short, renewable energy represents, today in France, a weak share of the energy mix; but it is possible and desirable that it represent much more:

- It is more highly localized than fossil fuels (consumed close to its production site).
- It mainly concerns the habitat (example: heating system).

SIMPLICITY: HOW TO PROMOTE THE EXISTENCE OF AND ENCOURAGE SUSTAINABLE PRACTICES?

The creation of an eco-neighborhood for example, is the occasion to test the interest for urban heating using renewable and recovered energy. It allows for the drastic reduction of greenhouse gas emissions, the development of an economy providing employment that cannot be outsourced, and stabilizes heating prices by deindexing fossil fuels.

But this issue is not limited to new construction; on the contrary, it concerns firstly the energy efficient renovation of existing property.

METABOLISM

EFFICIENCY: HOW TO REUSE THE INDUSTRIAL ECONOMY'S REJECTS?

Extraction of natural resources cannot last forever. This implies a better use of all the materials at our disposal. There is waste but also manufactured products that are no longer used (computers, telephones, furniture, clothes) that could serve as inputs for other manufacturing productions.

Therefore, waste that is the symbol of a society informed by modern capitalism[15], can become a lever for the transition. It comes from different sectors: waste produced by households, artisans, merchants, companies, farmers or communities. Half comes from agriculture and a third from construction, which could for the most part be reused.

Numerous prospects exists, whether through recovery (for example, wood recovered from landfills for eco-furniture) or through the use of waste as energy. The materials representing the strongest potential for waste converted into energy are wood and dry waste.[16]

Four to five million tonnes of waste are transported to landfills when they could be used to produce energy.

At the European level, recommendations are ranked in this manner[17]:

- Prevention (avoid wasting, produce less pollutants and longer lasting products)
  - » At the level of producers, implement the Polluter Pays Principle and Scale
  - » Communities engage in Local Programs for Prevention
- Preparation for reuse (give a second life to a product)
- Recycling (inorganic and organic materials)
- Waste converted to energy (incinerators, landfills)
- Disposal (landfills, storage facilities (non-hazardous, hazardous, and inert waste)

AGRICULTURE AND FOOD

EFFICIENCY: HOW TO MITIGATE THE HIGH DEPENDENCE ON IMPORTS?

The agro-food supply chain is characterized by an extreme centralization of inter-regional markets that are fed by long supply chains of production (example: the Rungis platform in Île-de-France).

Even if it is difficult to imagine a complete territorial food autonomy at the local level, numerous improvements (from large logistical infrastructure to citizen prevention) can be set up to rethink the current situation of high dependence. This leads to:

- Issues of production type: Deciding which methods of production are economically viable and respectful to the environment when taking into account, for example, the production of meat (particularly beef) which produces more CO_2 than crops.
- Issues of production methods: Numerous questions arise concerning chemical inputs (for immediate improvements in productivity) that lead in the end to greenhouse gases and soil depletion. As explained by Emmanuel Bourguignon[18], "In the course of the 20th century, a billion agricultural areas have been destroyed (due to poor agricultural practices or urbanization)."
- Issues of land use: Is agriculture just another economic activity like any other (meaning relocatable)?
- Issues of commercialization: Short or

15 See this subject discussed in the Brazilian satirical short film, Island of Flowers: http ://www.dailymotion.com/video/x29939_l-ile-aux-fleurs_news

16 Interview with Eric Chevallier, Director of Communications, SEMARDEL

17 Information provided by the Île-de-France Regional Waste Observatory

18 Emmanuel Bourguignon, agronomist and researcher at LAMS, during the brainstorming seminar organized by Les Ateliers de Maîtrise d'Œuvre Urbaine de Cergy-Pontoise

semi-long supply chains, what types of rural and urban organizations?

SIMPLICITY: HOW TO RETHINK OUR MODES OF CONSUMPTION?

A third of greenhouse gas emissions are made by food – from agricultural production to household waste, through processing, transportation, distribution, cooking and eating. In this context, the development of short supply chains appears to be a "good solution."

There is a certain enthusiasm by the population for this type of practice, which seems to have entered into a kind of lifestyle choice (4 out of 10 French people say that they buy local[19]). But a more profound look at the question is needed: is it always, no matter what the situation, a good solution for everyone?

The experiment led by the Rennes Metropolitan area shows, according to Pascal Verdier[20], that short supply chains reassert the value of the agricultural profession, renewing its connection to the land, diversifying employment within the farm (for example, sales at the farm), and guaranteeing a certain autonomy vis-à-vis the dominant agricultural model. On the side of the consumer, there is an advantage in terms of taste, freshness, and price.

19 Ipsos Public Affairs Survey - February 2014
20 Agriculture Project and Sustainable Development Coordinator for the Rennes Metropolitan area

According to Laure de Biasi[21], this type of structure still poses several questions:

- Short food supply chains, for whom? Is it for farmers or consumers? Under what conditions is it profitable for the farmer? What are the costs to the consumers?
- Short food supply chains, how? What types of structure for agreements, in terms of logistics? Which products will be delivered or sold at the farm? Which types of methods and durations for storage?
- What kind of assessment? Is it always the most "ecological" solution? What is the carbon footprint for car travel (it is important not forget shopping trips or even those made for shipments)? Is it trackable?

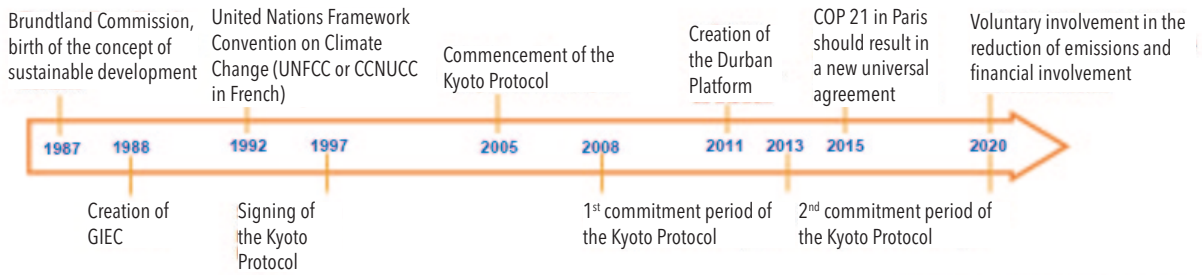
Finally, findings from research conducted by Corrine Blanquart[22] indicate that a certain "naive optimism" exists vis-à-vis short supply chains that in fact hides the very diverse realities of performance. It depends on several factors of which include "farm sizes, strategies for promoting products, precedence of structure and process, quantity and organization of the work, type of management, [and] involvement or not in a community or regional context."

Thus, in terms of economic profitability, "the farms that come out the best are the oldest ones and those that diversify (short and long supply chains)."

21 Agricultural Engineer, Research Assistant at IAU
22 Researcher, French Institute of Science and Technology of Transportation, Spatial Planning, Development and Networks (IFSTTAR)

In Île-de-France, 800 farms sell their produce through short food supply chains[1] (entirely or in addition to a long food supply chain activity), which equals 16% of farmers and 9% of the total agricultural surface area. Only 11% produce organic certified agriculture. The distribution of short supply chain productions is broken down in the following manner: 30% vegetables and 12% fruit, half sold at the farm and a quarter sold at markets.

1 A round table discussion organized by the Institute of Land Management and Urban Planning (IAU Île-de-France) in June 2014, helped explore the "real and fake good ideas" conveyed on short food supply chains.



Source: CDC Climate Research

Return to international negotiations regarding climate change.

POLICIES AT THE NATIONAL AND TERRITORIAL LEVELS

MAJOR NATIONAL REFORMS

Today, the term "transition" is something of a novelty. Taken up by the Rio+20 Summit in June 2012[23], it has anchored itself into the center of governmental reform agendas.

International targets have been set, and Europe has set for itself the goal of reducing Greenhouse Gas emissions (GES) by 20%, of improving energy efficiency by 20%, and of having a 20% share of renewable energy in its total energy consumption.

THE TRANSITION, AT THE HEART OF LOCAL POLITICS

As the closet authorities, local communities are at the center of any possible developments as far as the transition is concerned. They are essential actors from a legal point of view (organization and planning documents), operational (buildings, facilities, services) and educational (actions promoting environment-friendly acts, local initiatives and conduct development).

Thus, in many areas local communities have the capacity to significantly change things.

- Land use and modes of organizing urban areas through planning documents (SCOT, PLU)
- Collective organization regarding mobility; here also, local communities are the 1st investors and the 1st decision-makers (PLD, Bike Plan)
- Renewable energy production, local communities have the tools to organize it, with cooperation from economic actors
- Buildings, local communities have an instigating role particularly in relation to public structures

The framework can take the form of a local "Agenda 21" that is specifically targeted at engaging citizens and associations. Depending on the territories involved, some of the goals of Agenda 21 (which were adopted by the countries assembled for the 1992 Rio Summit) will be rejected.

23 The first global summit on sustainable development was held in Stockholm in 1972, followed by the 1982 summit in Nairobi, a third in Rio in 1992, and a fourth in 2002 in Johannesburg. Rio+20 in 2012 was thus the 20th anniversary of the one in 1992.

Other documents can be used, such as the:

- Energy Climate Plan: Greenhouse gas emissions assessment and inventory of energy climate policies for the local community
- Master plan for biodiversity: environmental diagnosis of the territory and creation of an action plan.

BEHAVIORS: EATING, TRAVELING, WORKING, PLAYING

The challenges of transition cannot simply be dealt with through public policy but also require initiatives and mobilization on the part of the whole society.

If we consider that society is not a purely duel system with one side that produces goods and the other reckless consumers, there is an important lever to be found here, in respect to individuals and their lifestyles. There are of course many citizen initiatives, at the local and sometimes national level, that are real drivers of change.

But in addition to the already convinced citizen, there are all the others who could be mobilized at varying degrees. This lever, which touches at the heart of the daily habits of everyone, must be seen in terms of the specific rationalities of each individual and group of individuals. These rationalities do not always coincide with the most obvious course towards transition.

Eating: at its origin, was an element closely related to the local territory, rural areas. Now the element has changed; it is thus necessary to "make do with" the flow of food products that cross the globe.

Traveling: the majority of facilities give preference to motorized or individual transportation. It is an issue of always going further, always going faster. Zhahavi's concept of time travel budget reminds us that even with the increase in speeds and improvements in transportation, time passed in transit has not diminished; on the contrary, distances have been elongated.

Working: businesses, employees, the entire sphere connected to professional activities is an important reserve of daily and commendable initiatives.

Playing: one of the keys to transition resides in a good understanding of well-being and the quality of life in the city as much as in the countryside.

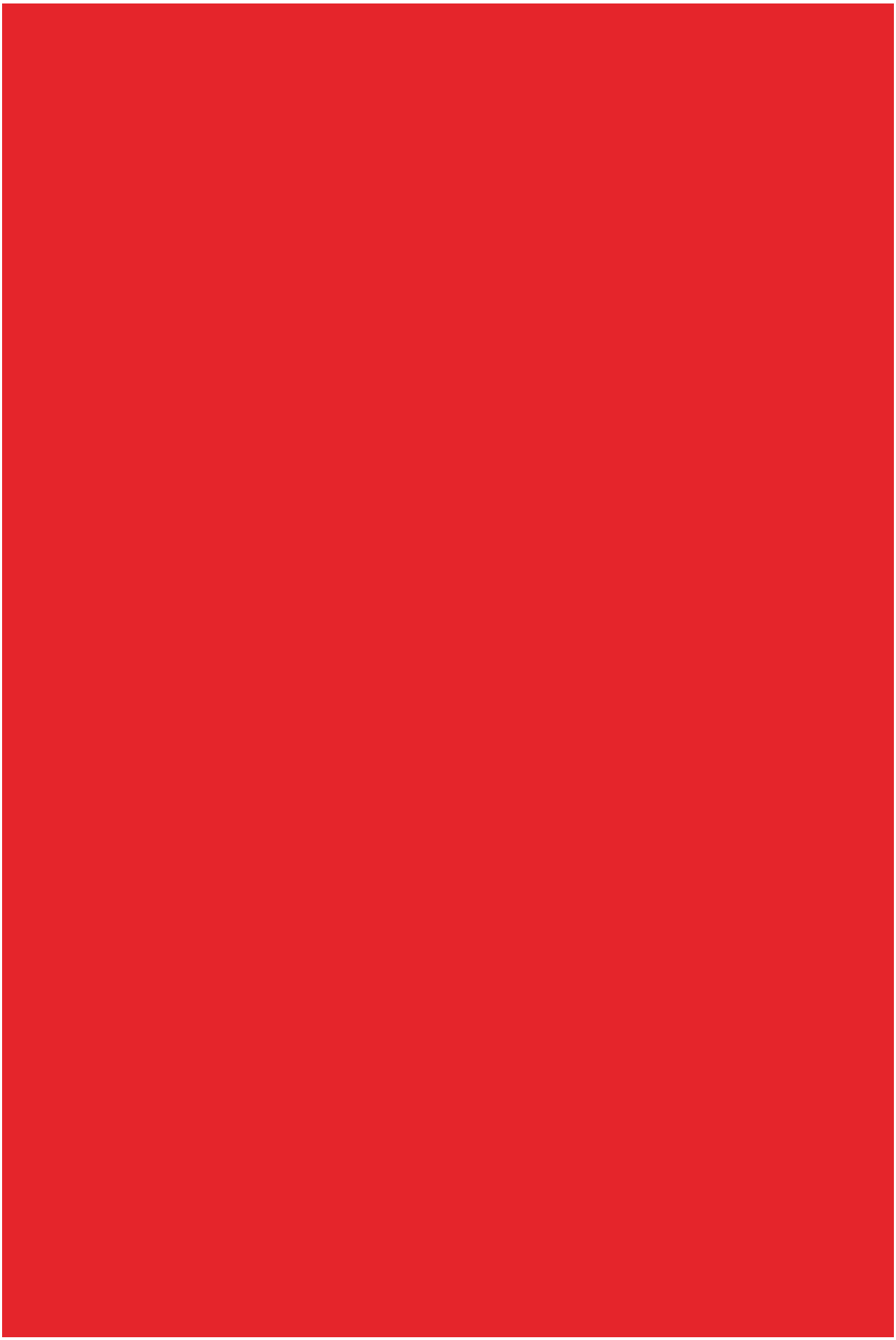
Finally, regarding methodology, Dominique Bourg[24] asks us to distinguish between:

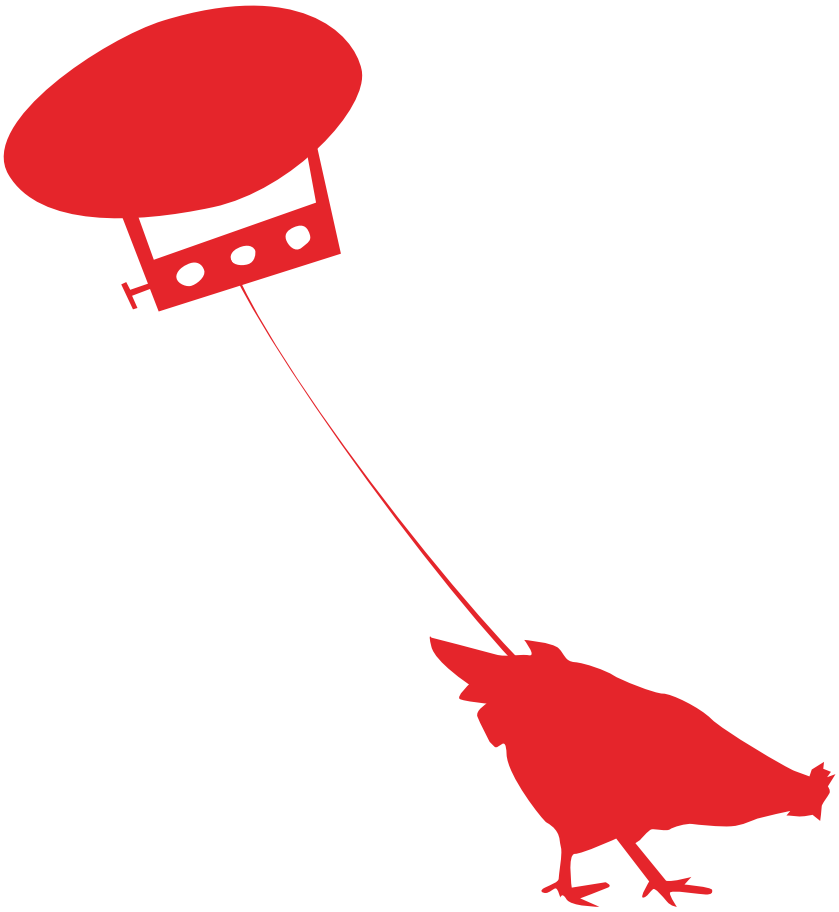
- Lifestyles, which are individual
- Types of living, which inversely correspond

24 Watch the interview video with Dominique Bourg, philosopher and professor at UNIL

with the broad conception of society on which individuals have little control.

- Modes of living that, at the intersection between the two previously mentioned concepts, allow for the creation of small communities and therefore local initiatives; which are very important levers of transition.





KEYS TO THE TERRITORIAL DISCUSSION

KEYS TO THE TERRITORIAL DISCUSSION

DEVELOPMENT OF THE URBAN AGGLOMERATION AND SOUTHERN ÎLE-DE-FRANCE

AN IMPORTANT DEVELOPMENT IN THE 20TH CENTURY: AN AGRICULTURAL AREA BECOMING URBANIZED

Up until the 19th century, southern Île-de-France was an agricultural territory structured around the historic cities of Arpajon and Corbeil-Essonnes, the main highways (RN 20 and RN7) and the river Seine.

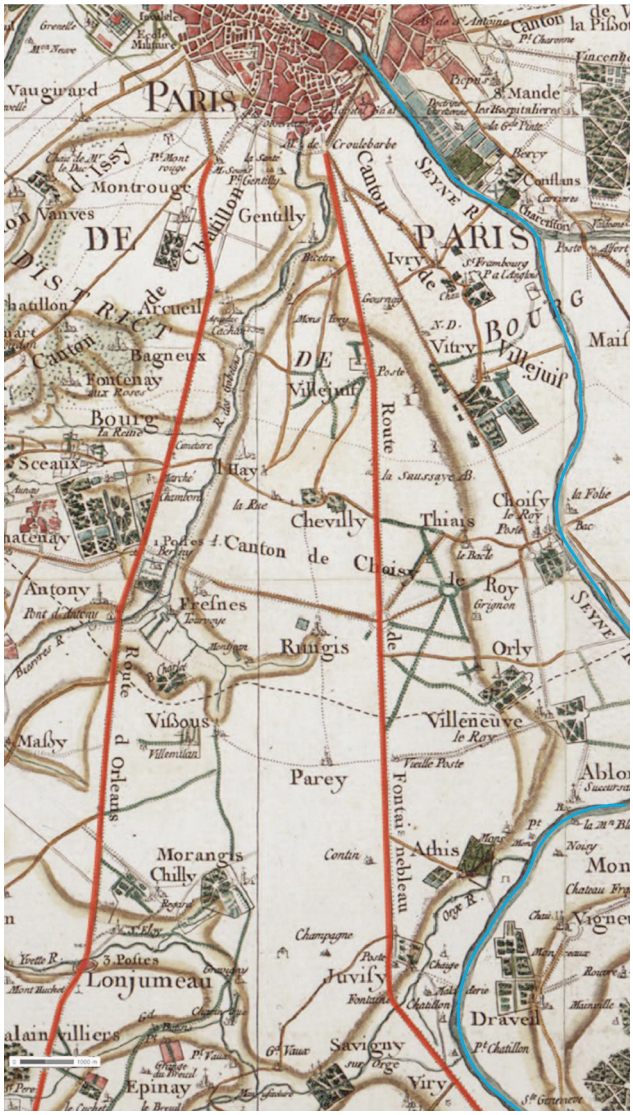
It is part of the "hinterland" but has at its disposal its own way of functioning, even if it "already carries the mark of influence of Paris"[25] (originally large estates of prestige and pleasure for the aristocratic and bourgeois).

The southern Île-de-France is also marked by the development of several large villages: Gentilly, Ivry, Choisy-le-Roi and Longjumeau.

It gradually urbanized under the impetus of industry and the development of the railroad network, a phenomenon which saw a significant growth in the early 20th century and which triggered a large migration of labor force from other french regions.

Beginning in the 1930s, with the city of Paris continuing to grow (having reached 2,891,000 residents), the advancement of the suburbs quickly took on greater scale. The contrast between Paris and the suburbs continues still; with a decrease in the population at the center and the development of adjoining areas.[26]

The railroad line, particularly between Paris and Orléans, has lead to the strengthening of the



17th century Cassini map: Gentilly to Longjumeau, the RN20 and RN7

relationship between southern Île-de-France and the Parisian urban conglomeration: beginning as a vacation area, then as a place to live with the tide of suburban housing in the 20s, and as a place of agricultural or industrial production (market farming around Arpajon for example).

It should be remembered however, that the department of Essonne has not seen a complete industrial overhaul (even if several episodic developments can be noted, as for example the airfield in Viry-Chatillon). Generally speaking, the dynamics here are less strong than areas in immediate proximity to Paris. Essonne remains a predominately rural area.[27]

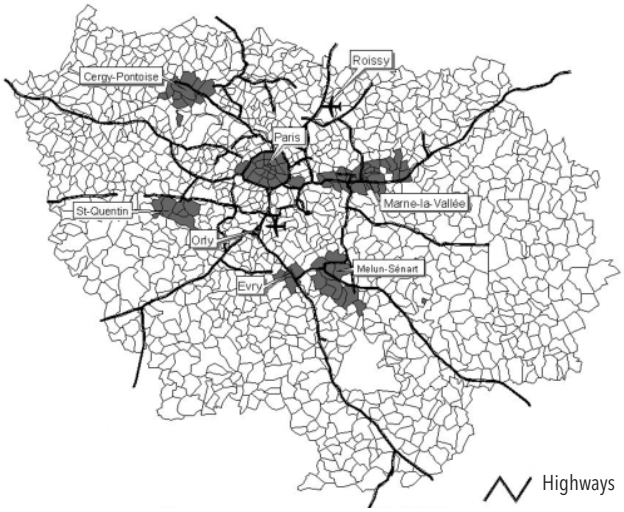
The principal consequences of this urban growth are characterized by:

- A housing crisis: with the poorest

25 BASTIÉ Jean, *La croissance de la banlieue parisienne,* French Sociology Review, 1966.
26 FREMONT Armand, France, *Géographie d'une société,* Flammarion, Paris, 1988.

27 CELINE Louis-Ferdinand, *Mort à crédit*, pg. 610-617, Pléiade Edition.

Almont ZUP (Melun, Seine-et-Marne), view of the community gardens with the Mézereaux towers in the background. Source: Île-de-France Region, General Inventory of Cultural Patrimony.



The 5 French planned communities: Cergy-Pontoise, Marne-la-Vallée, Melun-Sénart, Saint-Quentin and Évry

populations being pushed towards the periphery or into less expensive housing.
- An undoing of industries: companies in full expansion are looking for new areas to establish themselves.

Urbanization has had a ripple effect regarding the construction of residential zones around the train stations. The strong population surges and the waves of construction without any real coherence, have created an urban landscape of immense incongruity and significant malfunctions (construction in areas either poorly serviced or not at all, houses that degrade quickly, long distances to access commerce, services, facilities).

This has given rise to, among other things, the anger of the "worst off"; a movement composed of individuals from the middle and working classes who are very attached to the suburban area and resembling the claims made by the left and far left..

In the 1950s and facing growing anarchy, the national government began to intervene in the area of housing and construction through the establishment of legislative texts and the creation of political bodies responsible for their implementation.

Only two major projects driven by the government remain from these decades: the ZUP (1959-1967) along with the planned communities.

Taking the form of high-rise developments, the Priority Urbanization Zones (ZUP) provided the rapid servicing and development of areas of construction for new urban operations (via a public institution or semi-public companies ("Société d'Economie Mixte" in French)).

Principal ZUPs in the area are:

- ZUP Almont
- ZUP Ulis
- ZUP Viry-Châtillon

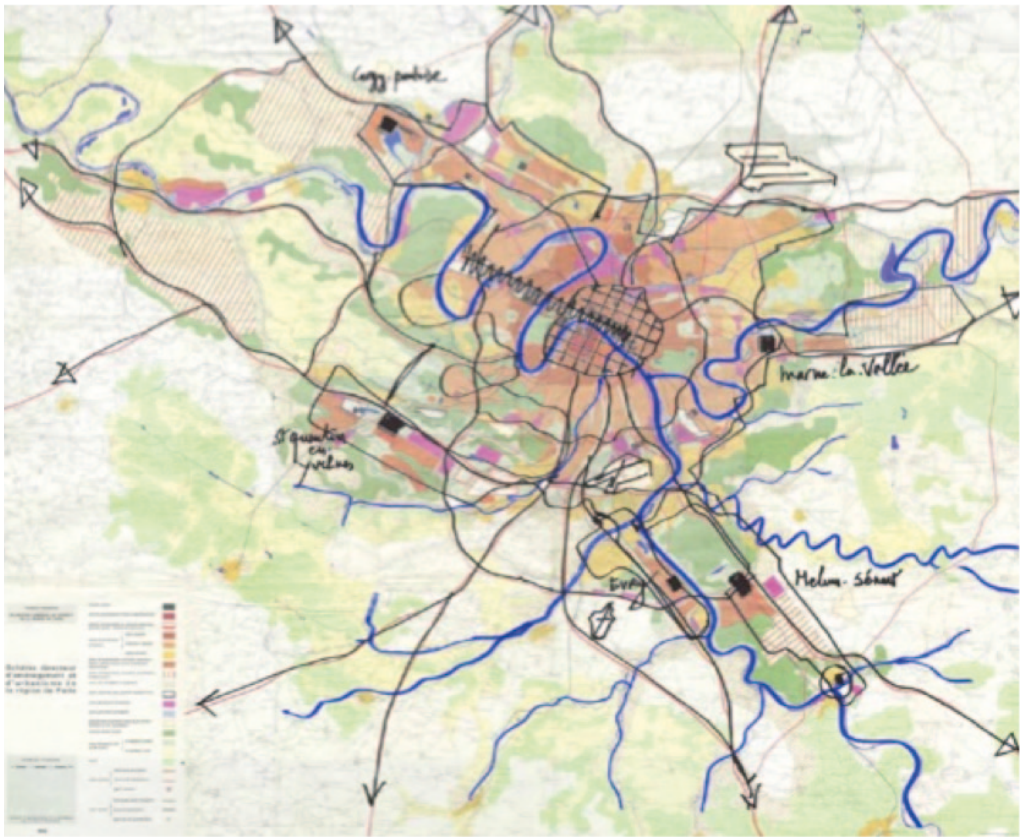
In 1967, Special Planning Districts (ZAC) began to replace them due to growing problems, in particularly the concentration of social housing and monotony of architecture for high-rise developments. The ZACs facilitated consultation between local communities and private developers who were reluctant in regard to the ZUPs.

Conceived in the course of the 1960s, planned communities began to emerge during the following decade, about 30km from Paris. They came from the public administration's desire to balance the growing demographic of Île-de-France. In the outline from 1965, they were:

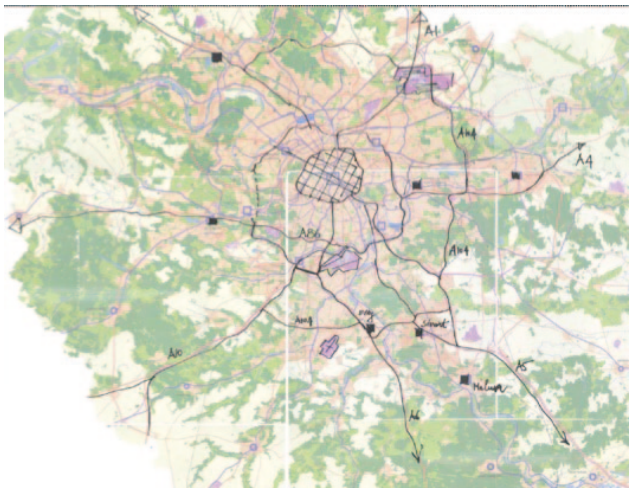
- To be comprised of centers for living and employment so as to limit work commutes
- To assimilate and balance the high demographic growth of Île-de-France

Évry Planned Community in 1978, layout of the RN7, Essonne intersection

Évry Planned Community, construction of the pyramid neighborhood



Excerpt from the 1964 SDAU



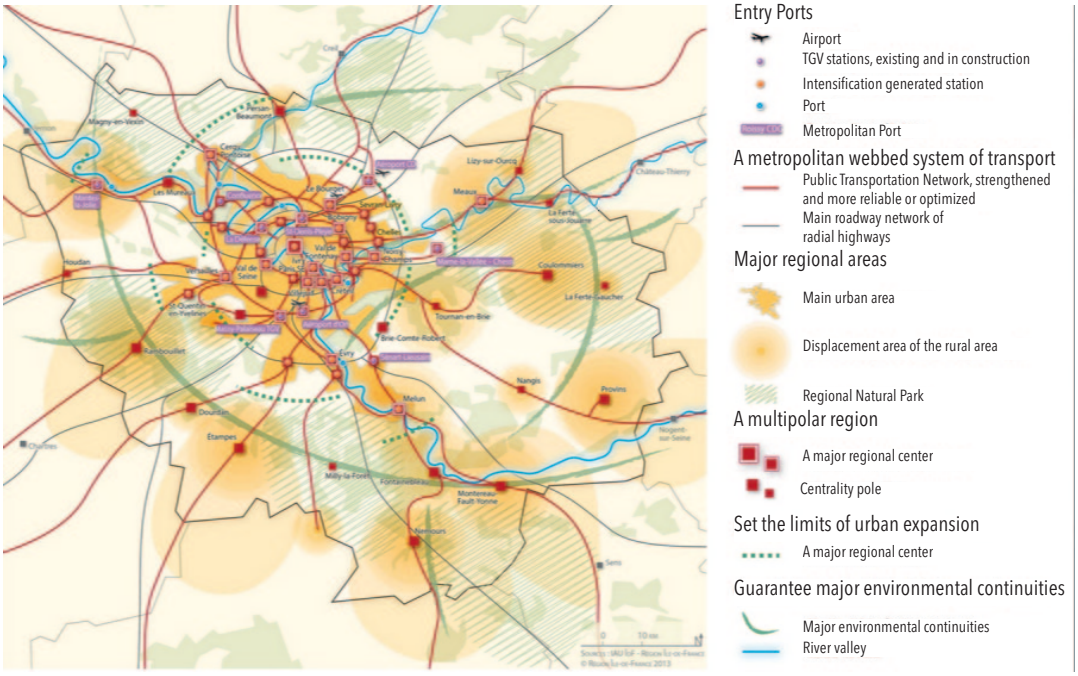
Excerpt from the 1994 SDAU

- To be real urban centers (with facilities, one or two downtowns, services, and commerce)
- To be architectural testing grounds
- To balance the construction of social housing, property ownership and private sales, along with between collective and individual living

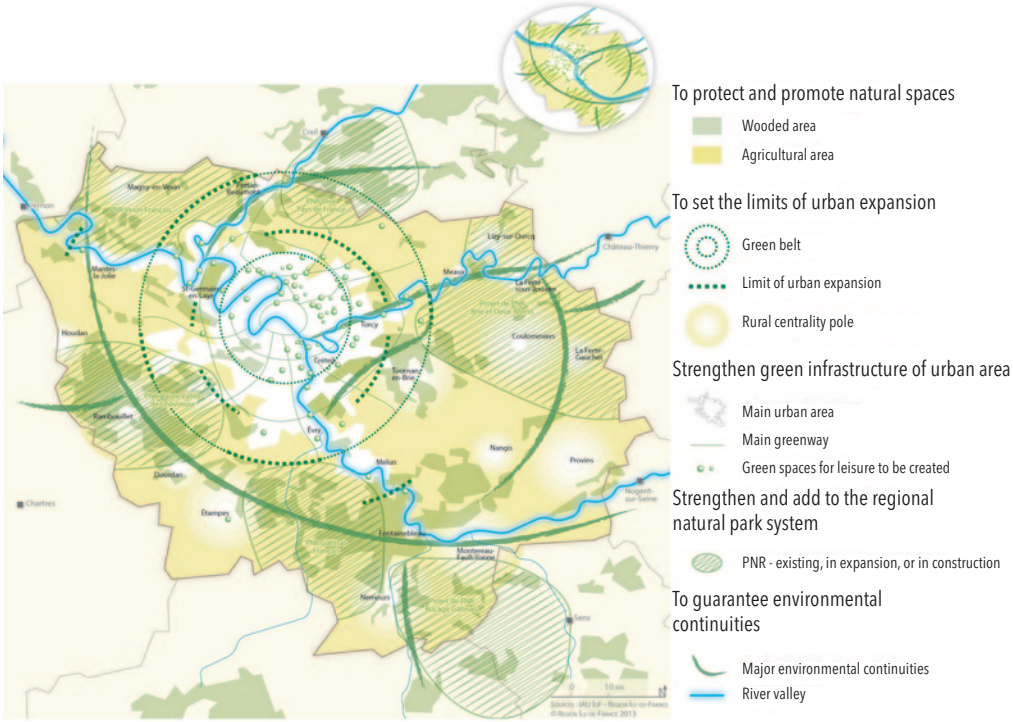
Planned communities as well as the RER were established by the SDAURP to counteract the concentric growth of the Parisian urban conglomeration. The objective of the planned communities was to create urban areas, of between 400,000 to 1,000,000 residents, endowed with a certain autonomy.

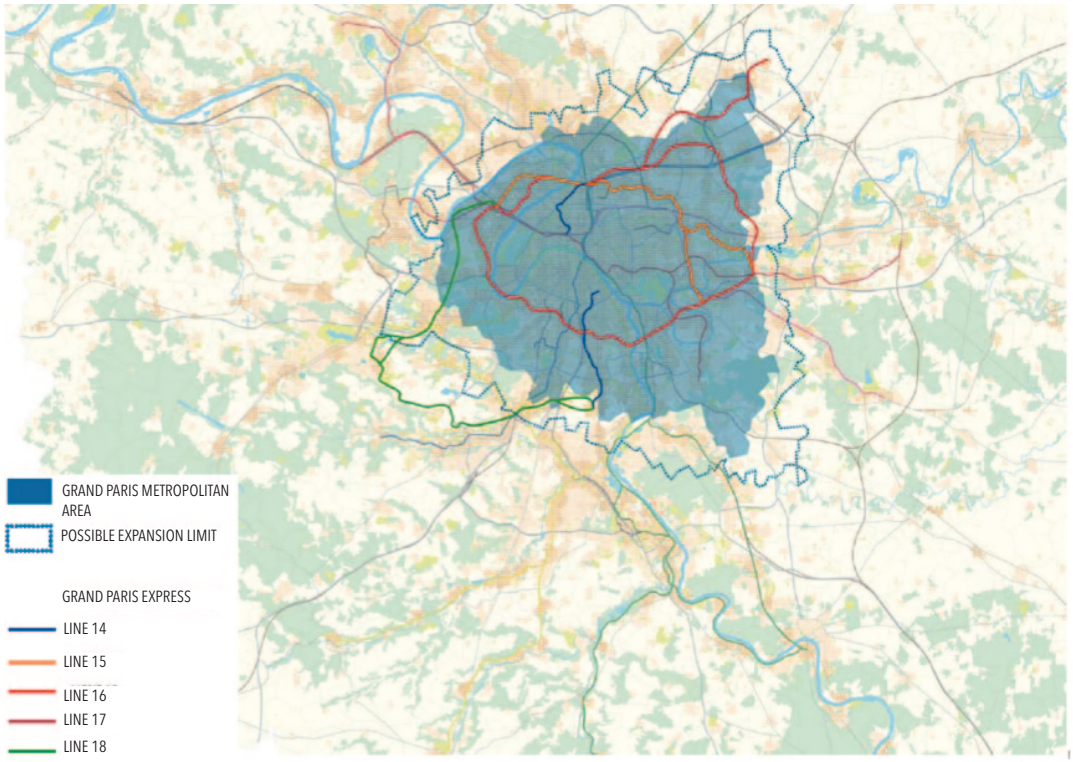
"To pay urban planners to preside over the indefinite expansion of the spiderweb (branches spreading even further and beltways becoming even wider) is to finance the act of doing nothing and the easy way. Why not pay the river Seine to flood?" Pierre Dalloz in 1959.

The creation of planned communities, with a significant production of housing and a policy (national) of decentralized employment, particularly benefited Évry with the installation of the National Centre for Space Studies but also of SNECMA (engine manufacturing for the aeronautical industry) and the Carrefour headquarters.

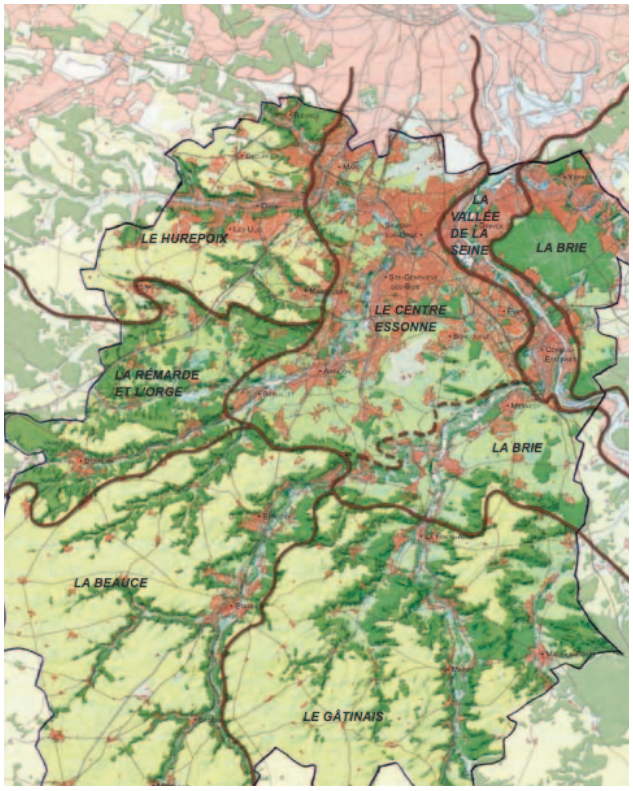


The 2014 SDRIF: Linking and Structuring / Polarizing and Balancing / Preserving and Promoting





Paris Metropolitan Area and the Grand Paris Express



Excerpt form the Urban and Natural Landscapes Guide of Essonne

THE GRAND PARIS AND THE POSITIONING OF SOUTHERN ÎLE-DE-FRANCE

Inline with this policy of decentralization, the principal challenge became the reorganization of the dense center of the urban conglomeration through the improvement of the public transportation system and ambitious urban renewal policies.

In this context, the territories of the Outer Ring came to be, from this point forward, more or less a blind spot in regional planning policies.

The 1964 SDAU called into question urbanization as uncontrollable "rings" and founded on the use of individual vehicles. Two principal axes of urbanization were defined: the development of the RER and the creation of five planned communities:

- Cergy-Pontoise
- Marne-la-Vallée
- Melun-Sénart
- Évry
- Saint-Quentin-en-Yvelines

The 1994 SDRIF continued the decentralized approach around economic centers of the greater metropolitan area. It was applied to

- The renewal of large areas of suburbs affected by deindustrialization
- The push for territorial facilities through transportation infrastructure

- A desire to limit the consumption of natural spaces and the polarization of planned urban construction

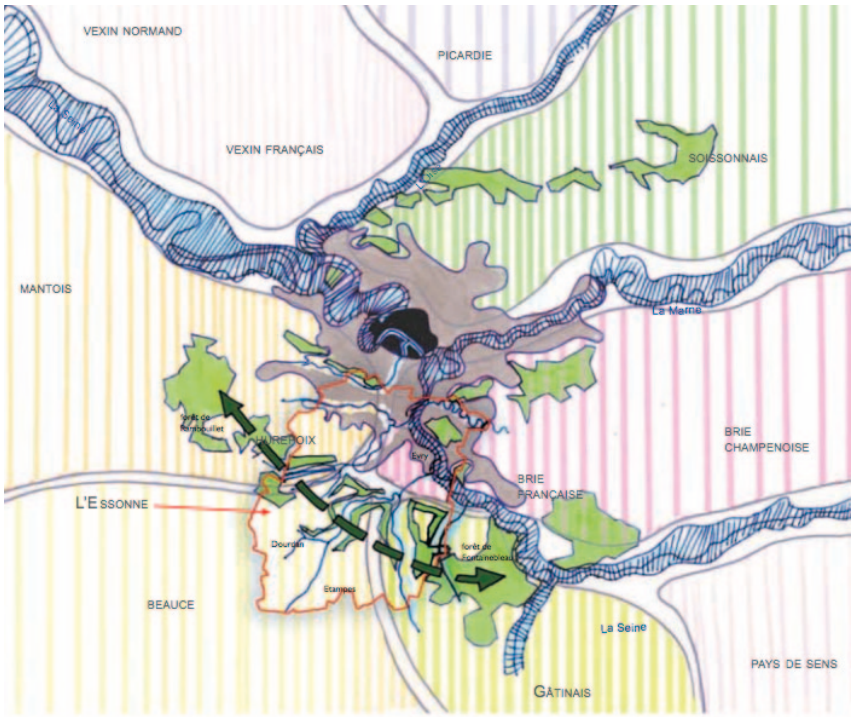
In this general context, Essonne is structured around 3 centers (Orly, Massy-Saclay and Évry) and by the cities in its rural area (Dourdan). The SDRIF planned a significant development in areas underserved in terms of infrastructure, as an addition to the development policies carried out on Massy-Saclay in particular.

Thus, it envisioned for the West, development activities (research, laboratory), and for the East, production activities. Southern Île-de-France finds itself at the intersection of these two sides and sees itself equipped with a very important road network.

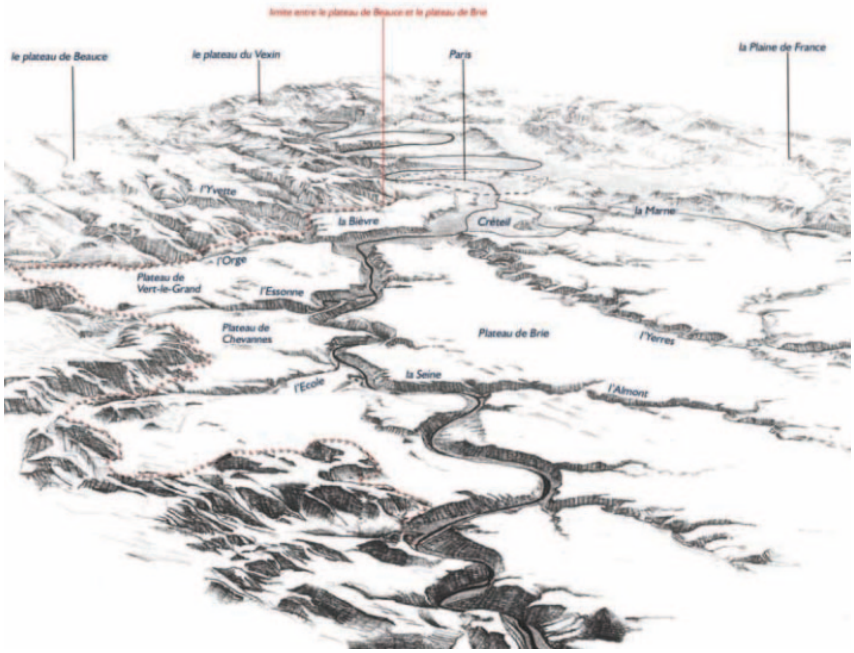
The Grand Paris project reflects the ambition to promote the capital and to give it a chance to compete with the other major global metropolitan areas.

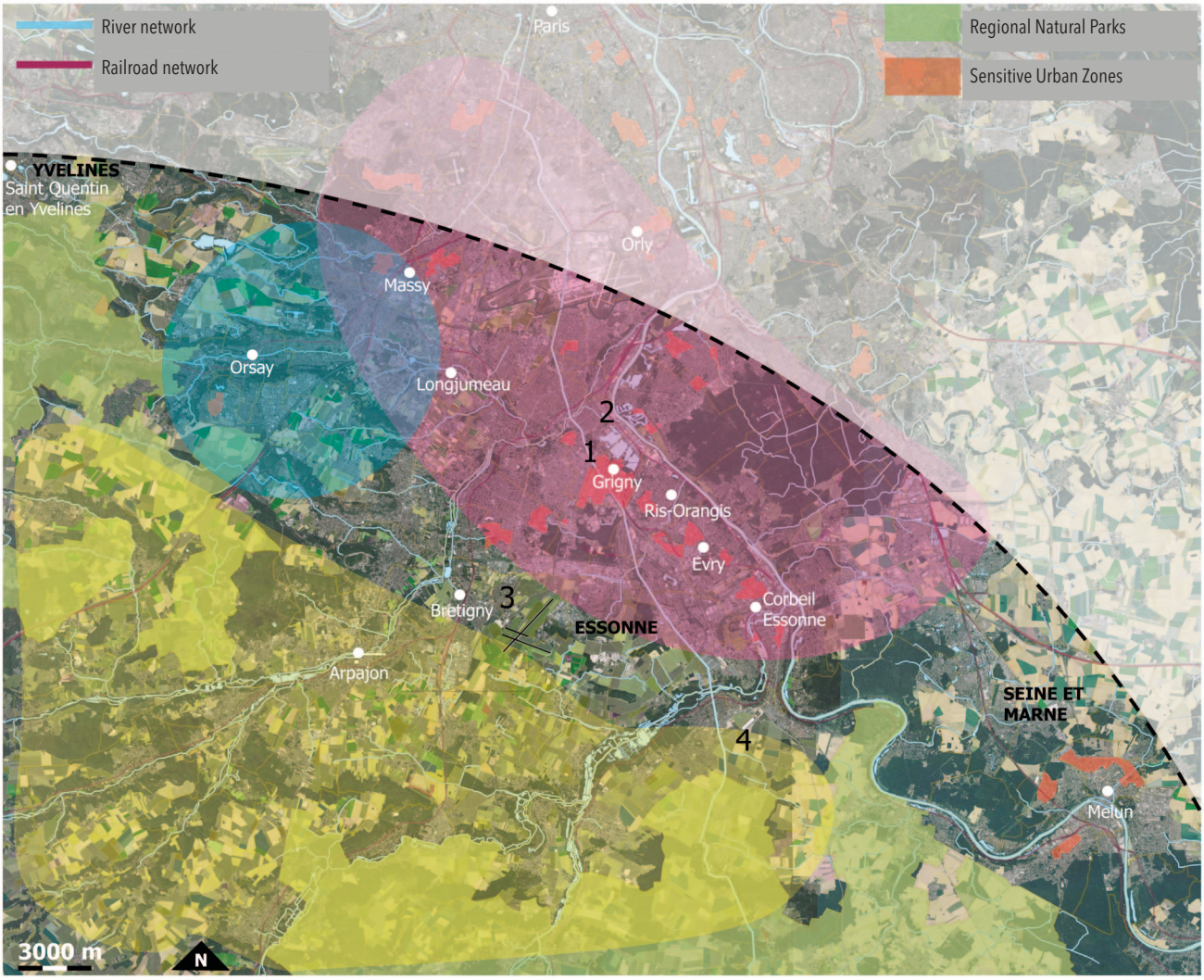
It is an enormous project that seems to have poorly taken into account the challenges of the Parisian Outer Ring. This can be seen through the reorganization of the transportation network for the Grand Paris which is concentrated only on the densest area of the region.

Thus two solutions exist: attempt to integrate into the Grand Paris or try to organize an autonomy (relative) and a relationship with the Grand Paris.



Excerpt form the Urban and Natural Landscapes Guide of Essonne



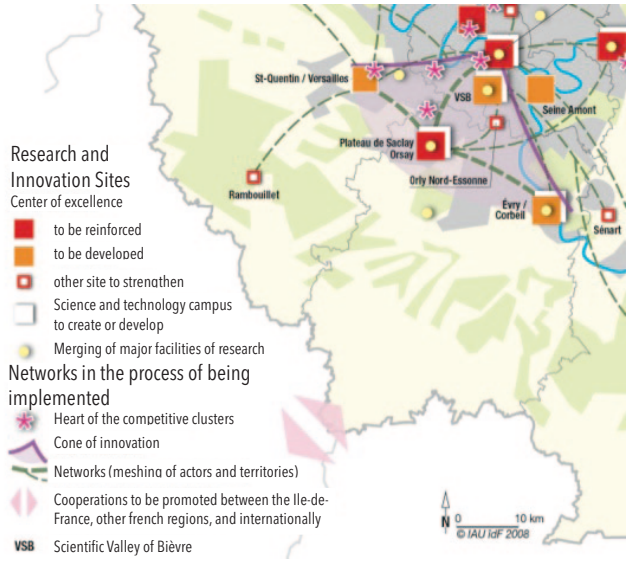


1 Urbanized areas and dense zones to the south of the territory

3 Remarkable natural spaces

2 A heterogenous landscape along the major highwayss

4 Residential areas and agricultural spaces



Research and Innovation Sites - IAU

A PORTRAIT OF THE TERRITORY

A TERRITORY CHARACTERISTIC OF THE OUTER RING OF PARIS

The landscape of southern Île-de-France is not very "marked" in terms of hills, but it does include natural structures such as the river network, environmental corridors and forests.

The eastern side of the area being studied is marked by the landscape of the Seine Valley; its remarkable long tributaries flow throughout southern Île-de-France and are a large part of the value of the landscape.

The territory is shaped by an urban development in the valleys, along these river systems.

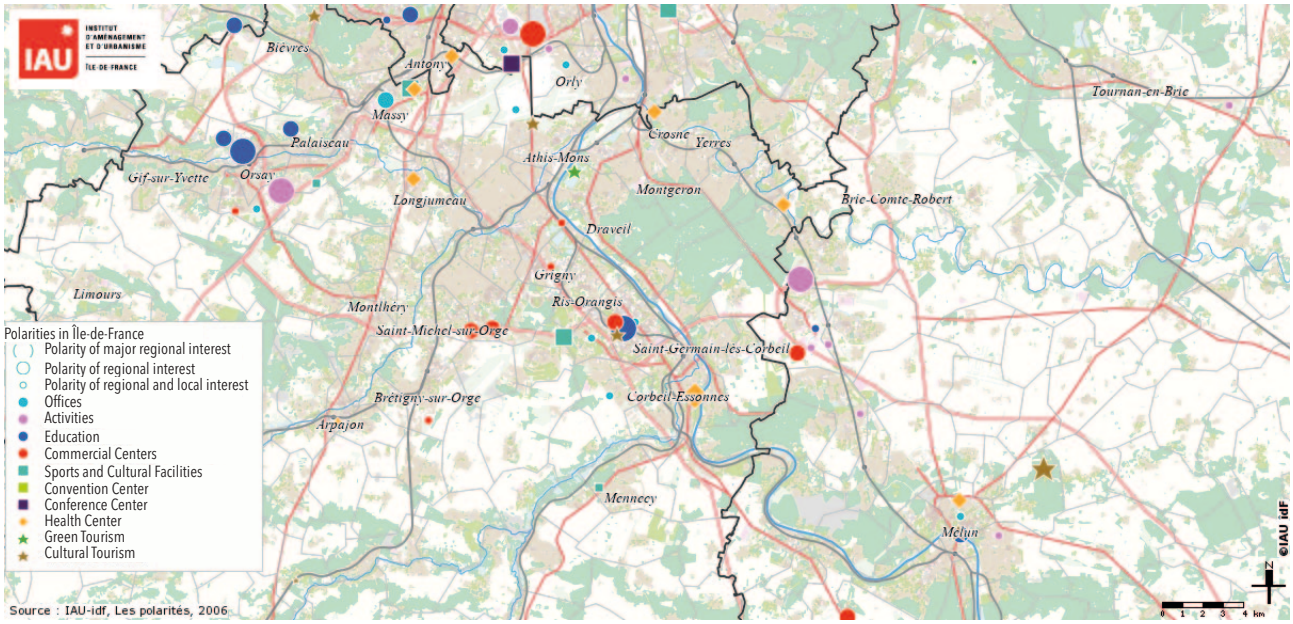
Southern Île-de-France is schematically marked by denser areas (sometimes "sensitive") to the north and agricultural or natural areas to the south.

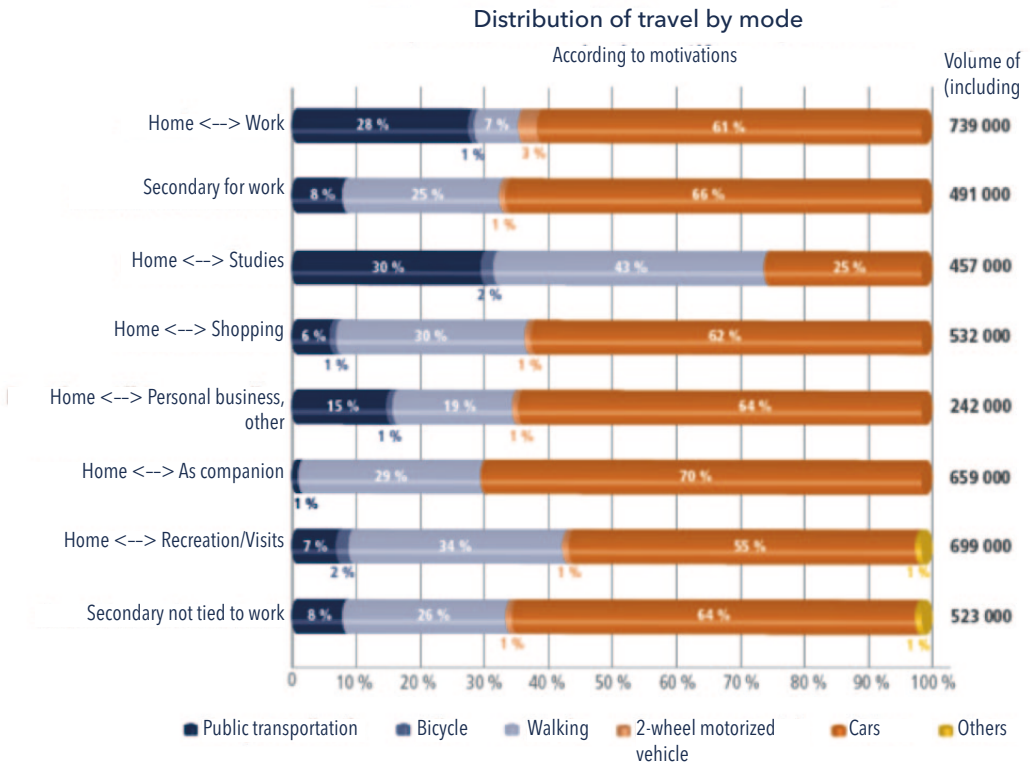
A TERRITORY MARKED BY STRONG, RELATIVELY SPECIALIZED POLARITIES

The territory is highly polarized through specialized hubs and due to multiple potentials, at the national and international levels. These include polarities that are:

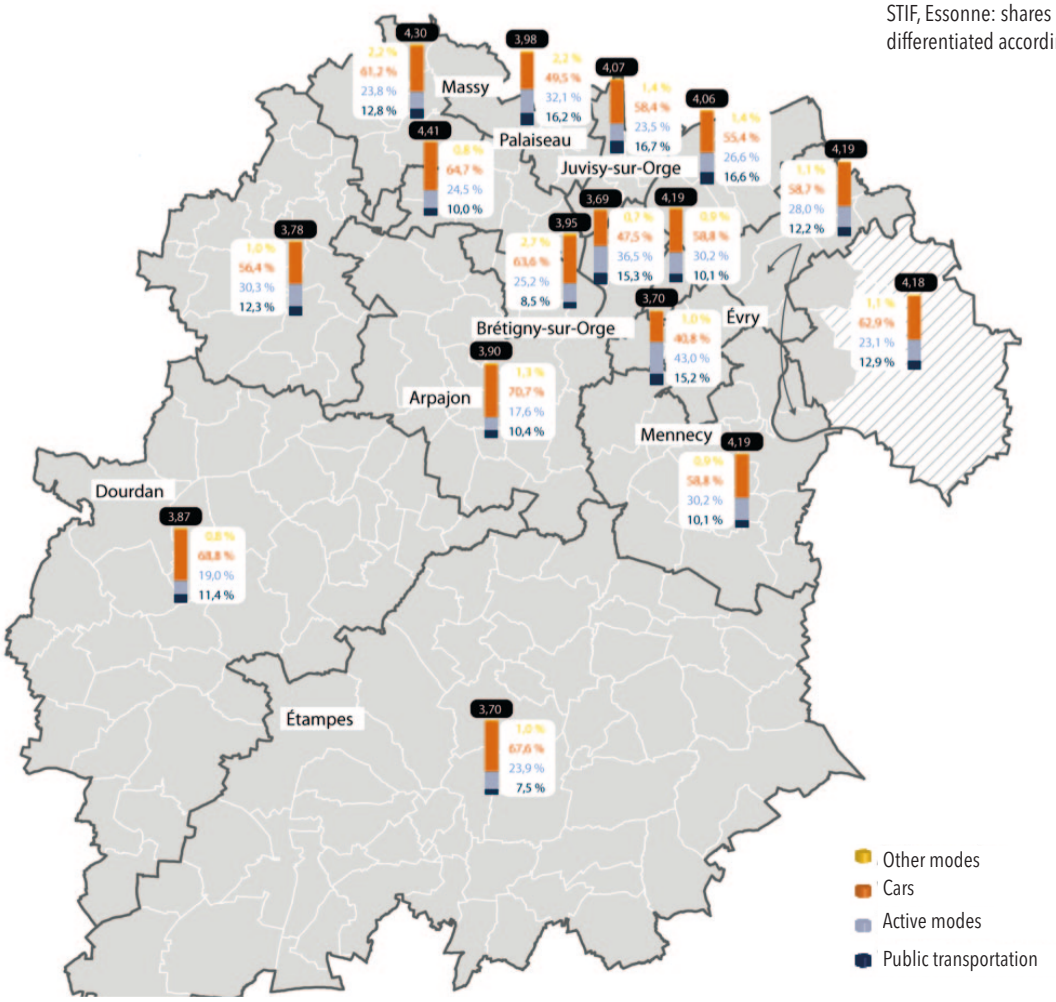
- Historic
- Urban
- Economic, commercial or scientific like the center of innovation and research at the Saclay Plateau Campus

Centers of regional interest in the Île-de-France – IAU





STIF, Modes of travel: a domination by the car for the majority of motivations



STIF, Essonne: shares of modes differentiated according to territories

HISTORIC POLARITIES

They are tied to the importance of the cities of Arpajon, Melun, Corbeil, and Essonne during the 19th century.

URBAN POLARITIES

The major urban centers are represented by the planned communities (Évry, Saint-Quentin en Yvelines) as well as the cities of Massy, Corbeil-Essonnes, and Melun.

THE "SOUTHERN CONE OF INNOVATION"

The territory has an exceptional concentration of actors in public and private research, higher education, and major enterprises.

The center of research and innovation in Saclay is the most well known; but there is also the scientific center in Évry which is a link of great importance. Merging, current and future projects in the field of life sciences, starting with Génopôle, are major playing cards for the urban area. The "on-site laboratory" with the new hospital will provide an increase in influence that could be likened to that of the Institute of Vision in Paris.

ECONOMIC AND LOGISTICAL POLARITIES

The territory is also strongly polarized (in terms of employment, traffic flow and transportation infrastructure) by:

- The airport zone in Orly
- The logistics center in Rungis
- The major European centers in Massy, Palaiseau and Ulis
- The Évry-Corbeil sector
- The activity zone in Val d'Orge
- The areas of Sénart and Melun

Large-scale projects in the area supplement this panorama, in particular the BASE 217 project (see appendices) and the Rugby stadium (82,000 seats), which hopes to be one of the most modern and multi-functional sports facilities in Europe.

AN URBAN LANDSCAPE MARKED BY TRANSPORTATION INFRASTRUCTURES

In Essonne, for almost all reasons for traveling, the car dominates and in particular for travel tied to work (61% commuter travel, 66% secondary travel for work).

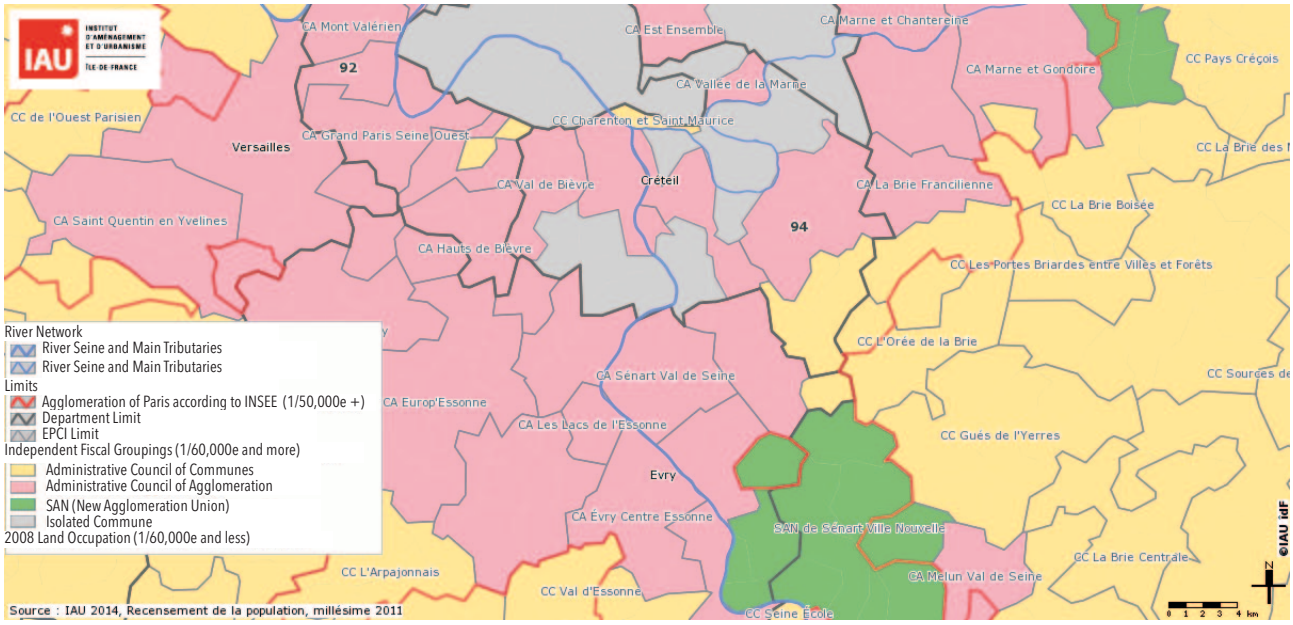
Even if the car is predominant compared to other modes of transportation, a variation can be seen from one geographic area to another: for Évry it is 41%; while it reaches 71% in Bretigny-sur-Orge.

More than 80% of all travel (all modes) are made inside the department and half are intra-communal. The majority of travel is over minor distances (3.3 mil. trips within the department); but on average, a person from Essonne will travel 17 kilometers in roughly 2 hours. This highlights the fact that the car is neither very efficient nor adapted to the needs of daily transit.

The individual vehicle and the reduction in its use, or even better the sharing of it, represents the main

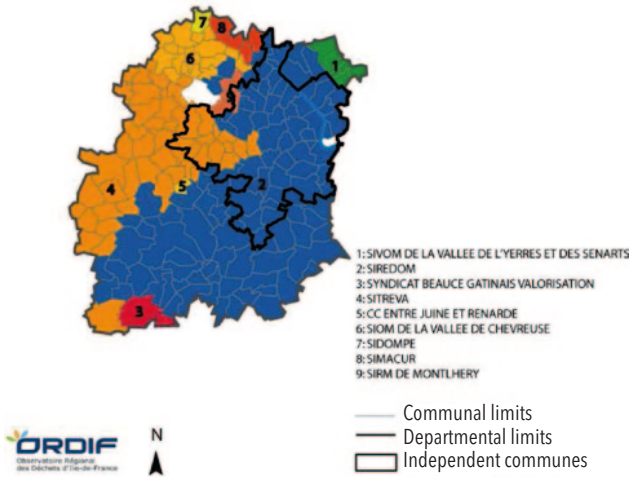
STIF, Inter and Intra Departmental Travel

Excerpt from the Urban and Natural Landscapes Guide of Essonne



The consolidated communes - IAU

Management of waste
in Essonne,ORDIF



challenge in terms of greenhouse gases, but also simply in terms of efficiency (the bottlenecking of infrastructures leads to average travel speeds that have lowered in the last few years).

AN AGRICULTURAL AREA UNDER PRESSURE

Southern Île-de-France is strongly marked by grain farming but it is also characterized by "pockets" of market farming or by specialized crops such as watercress (emblematic of the territory). In general, all of these agricultural spaces experience immense pressure from urbanization.

In terms of layout, they are divided into three major sections:

- The vast agricultural plateaus of Beauce and Gâtinais
- The agricultural "clearings" on the plateaus of Hurepoix (Saclay, Limours, Nozay) and the agricultural stretches along the plateaus of Arpajon, Vert-le-Grand and Chevannes. de Vert-le-Grand et de Chevannes
- The enclosed agricultural spaces in the urban area, often at the back of the valley (Orge, Salmouille, Yvette), are divided up and have little surface area.

In 2010, productions were mainly orientated towards cereal crops (72,000 ha; 76% of the SAU), for the most part in the south of the department.

Industrial crops (5,000 ha) are present, along with the continuation of market farms (600 ha of vegetables in open fields) mainly in the northeast, and 1,180 ha of permanent grasslands. The increase in organic agriculture in the SAU can also be noted: 951 ha in 2008, and 2,287 ha in 2013.

A COMPOSITE INSTITUTIONAL SYSTEM

The study area is composed of a large number of consolidated communes. These consolidated communes represent larges disparities in terms of surface area and in regards to integration and financial flexibility.

It should be noted also that there is a disparity between the consolidated communes in the south (more rural) and those in the north (more urban). The question of the appropriate scale of governance and coherence is particularly relevant in this territory.

At the core of the "Centre Essonne-Seine-Orge" (CESO), the Essonne-Seine-Orge Urban Planning and Development Agency (Audesco), participates

in the creation of a territorial coherence amongst seven inter-municipalities (Val d'Orge, Évry Centre Essonne, Seine-Essonne, Portes de l'Essonne, Lacs de l'Essonne, Arpajonnais, Val d'Essonne), who have a total of 542,000 residents and 200,000 jobs.

Other consolidate communities not part of the CESO, such as Europ'Essonne, who are structured around the centers of Massy, or the SAN of Sénart in Essonne and the Sénart Planned Community, outline a strong polarity within southern Île-de-France in relation to the CA of Melun Val de Seine.

A few statistics concerning the main consolidated communes of the study area:

- CA Val d'Orge, 10 communes; 135,000 residents in 2011
- CA Évry Centre Essonne, 6 communes; 115,000 residents
- CA Seine-Essonne, 5 communes; 66,200 residents
- CA Lacs de l'Essonne, 2 communes; 60,000 residents
- CA Europ'Essonne, 14 communes;150,500 residents
- CC Portes de l'Essonne, 5 communes; 101,600 residents
- SAN Sénart en Essonne, 4 communes; 17,200 residents
- SAN Sénart Planned Community, 8 communes; 100,450 residents
- CA Melun Val-de-Seine, 14 communes; 107,800 residents

A sub-regional area of another type emerges for that matter through the presence of SIREDOM[28], which has an aim of processing and development of the waste produced by the 730,000 residents of the 127 communes in the territory.

Finally, beyond the current administrative and industrial limits, the question of an appropriate level of governance arises in the context of the institutional reorganization triggered by projects related to Grand Paris and the land reform of 2014. New centers, constructed around the existing living areas[29], could take shape in Île-de-France.

TRANSITION DYNAMICS: POTENTIALS AND DIFFICULTIES IN THE SOUTHERN ÎLE-DE-FRANCE

Where is the wealth and how to reveal it?

ENERGY CONSUMPTION AND HOUSING: AN ISSUE OF REHABILITATION

Essonne counted 505,145 housing units in 2010, of which 93.3% were primary residences. Close to two thirds of the housing was constructed after 1967, therefore the housing market is relatively recent. The rate of production and the choice of techniques used during this period (all electric) has made it so that the market is not energy efficient and that the challenges of rehabilitation are high

More than just the new construction of more energy efficient housing, it is the rehabilitation of existing housing to more energy efficient standards that

28 Inter-communal Union for the Revaluation and Elimination of Household Waste and Refuse

29 Study on Devillers and associated living areas in Grand Paris, produced for AGIP in 2012-2013

Grigny II and the deteriorating condominiums

The residential area is also a lever of reduction in energy consumption, particularly in terms of thermal insulation.

remains the challenge of the energy transition.

In this context, the territory has a specific problem related to deteriorating condominiums and high-rise developments (such as Grigny II, Les Ulis, and Les Tarterêt in Corbeil-Essonnes).

Concerning the energy supply in 2010: 31.2% of housing units in Essonne were equipped with collective central heating (in decline since 1999), 40.2% with individual central heating, and 24.5% with individual heating "completely electric" (on the rise since 1999).

Tertiary buildings are also significant sites of GES generation. Individual actions are guided by the local communities in order to bring about awareness of this issue.

EXISTING INDUSTRIES AND BUSINESSES INVESTED IN THE TRANSITION

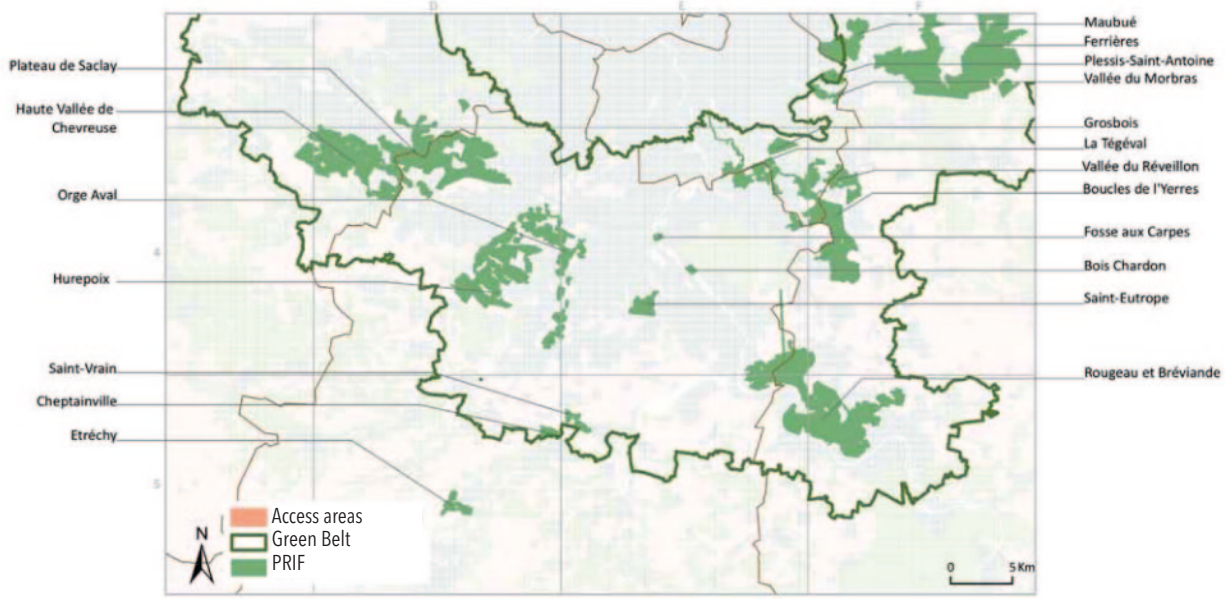
In Essonne, the CCI identified in May 2011, 325 eco-businesses[30] who employed around 10,200 people. They represent close to a quarter of the eco-businesses in the Île-de-France Region.

Around 60% of them are found in the sectors of waste, energy management, and renewable energy, this last sector is growing rapidly. The water sector also brings together a large number of actors, numbering around 12%.

30 Businesses whose activities produce goods and services capable of measuring, preventing, limiting or correcting harmful impacts on the environment.

The RN20 and the project to create a dedicated on-site public transportation network.

The agricultural plain of Saulx-les-Chartreux at the edge of the Triangle Vert



PRIFs in southwest Essonne

As seen before, the problem of building renovation represents a strong lever in the economic development of the territory.

The hemp industry is an example of a strong development potential. It is present in the region, in Essonne (Gâtichanvre) along with in Seine-et-Marne (Planète Chanvre).

Moreover, the recycling of waste is also a path of development: southern Île-de-France possesses a significant potential concerning treatment facilities and the recycling of household waste led by the semi-public company SEMARDEL in the Ecosite de Vert-le-Grand for SIREDOM. The main activities of SEMARDEL today are:

- Recycling of material
- Promotion of energy efficiency
- Landfills (in theory, it concerns last-resort waste, but in practice a lot of the waste that could be reused is buried)

METHODS OF TRAVEL ARE STILL HIGHLY DEPENDENT ON THE AUTOMOBILE

According to the 2010 Global Transport Survey ("EGT" in French), contrary to what had been seen in Paris and the Inner Ring, individual mobility, particularly by automobile, continued to increase in the Outer Ring between 2001 and 2010; less so in denser areas where it stayed relatively stable, but significantly in the rural area and secondary urban areas. Moreover, the rate of household motorization equally grew (from 84,8% in 2001 to 87% in 2010) .

In this context, it is necessary to take into account the lifestyles of users[31], as a way to propose solutions adapted to the constraints and necessities of daily life.

Besides these individual trips, it is necessary to consider the weight of freight and logistics, both in terms of flow through the territory and implementation of logistical activity. The movement of goods is marked by an exclusive reliance on roads (80% at the national level).

In effect, the territory of Essonne has seen a significant development in the logistical zone around its highway network (due to good access, land prices, and the will of local communities to "develop employment").

Therefore, the question concerning the most sustainable forms of logistics is particularly acute in southern Île-de-France.

31 80% of travel in Essonne is infra-departmental, of which 47% is in the same sector. The weight of local travel is therefore important to consider.

AGRICULTURE: BETWEEN INTENSE PRODUCTION AND SUSTAINABLE LOCAL INITIATIVES

Agricultural spaces are highly present and marked by a great diversity in their many uses, configuration, production, and even in their relation to urban areas.

Facing pressure from urban expansion, strong initiatives (such as Triangle Vert, AMAP, Potagers de Marcoussis) along with regulatory frameworks such as the Regional Land Boundary Intervention (PRIF)[32] (numerous PRIFs have been established in the southern Île-de-France) have come to support agriculture production.

For example, the PRIFs have a goal, in terms of agricultural space, to avoid the latter from "being considered as empty space"[33]. In Essonne, one of the challenges of these areas is promoting the "diversification" of crops and their methods of production (short supply chains, composting, direct sales).

The question is to understand how to develop a closer and lasting relationship between urban and agricultural spaces, in order to strengthen the role of agriculture within the territory.

SEVEN QUESTIONS IDENTIFIED DURING THE BRAINSTORMING SEMINAR

Ahead of the September workshop, a brainstorming seminar on May 15-16, 2014 brought together around forty local actors and experts to ask the pressing questions regarding the transition of this territory. Aimed at the young professionals from around the world who will participate in the summer workshop, they provide benchmarks for each team of participants to develop a project that clearly outlines the challenges in terms of scale, while offering ideas and possible solutions to present to an international jury in late September.

1- HOW CAN THE RICHES OF THE TERRITORY BE REVEALED AND MADE KNOWN, AS SEEDS OF THE TRANSITION?

Often considered as an outlier, southern Île-de-France is full of riches, which can not be seen

32 The PRIF, created by the Green Space Agency and in partnership with territorial communities, defines natural or agricultural areas to preserve, convert or promote.
33 Nathalie Petitjean, Green Space Agency

while traveling along the main highways, hidden behind a forest of billboards and business on the side of the road. It also represents what could be considered a large urban conglomeration, filled with urban centers, services and landscapes...

The Triangle Vert, the Lacs de l'Essonne, valleys and water in general, universities, the Génopôle of Évry, residents, the already created.... The territory is full of geographic, natural, and human resources; along with activities just waiting to be modified and acted upon for the transition

2- HOW CAN THE EMPOWERMENT DYNAMIC OF LIVING AREAS BE STRENGTHENED AT THE DIFFERENT LEVELS?

If 300,000 to 400,000 workers leave each day from southern Île-de-France to work in Paris and the Inner Ring, three fourths of travel by individuals is produced within the same area. What kind of quality of life is that for the residents of this territory?

The areas of living and employment, where the territory's residents and workers move, are identified by their uses. But how can residents be actors in this territory? Are they not the primary targets of the workshop? Those who, by their numbers and qualities, can carry and decide the transition, here where they live, work, play, as residents, entrepreneurs, elected officials?

3- HOW CAN THE TRANSITION HELP SIMPLIFY LIFE IN THIS TERRITORY?

Living and moving around in southern Île-de-France is not an easy thing. For example, much time is spent evaluating the constraints which are put upon travel. It is often difficult to reach a destination that is close by foot or bike because it is necessary to cross a road or railroad track - and then, with two kilometers to go, the price to go to the pool or to enroll at the multimedia library is not the same as that for other "locals"!

How can this territory be made simple, "walkable" and "bike-friendly", from east to west and north to south – where, with which priorities? What are the amenities of the landscape, close and far, that go unseen, that vary by place and seasons? How can we go or live there, to benefit from these amenities, simply?

4- HOW CAN THE AGRICULTURAL PRODUCTION AND INDUSTRY BECOME AN ESSENTIAL LEVER IN THIS TERRITORY?

Food – in line with agricultural development – is the lever of transition the easiest to communicate, because citizens feel close to the subject. In addition, agricultural and natural spaces play the greatest role in the organization and planning of this territory. There still needs to be a change of perspective here, no longer looking at the territory from the road, ...but from the fields.

Renewing this territory can reinforce the assets of Île-de-France, its competitiveness in relation to other international metropolitan areas. How can riches be produced, from gardens or micro public urban spaces, to large agricultural areas at the national scale – while including the first step which is job creation? How can local, territorial and human dynamics be made to evolve towards an identifiable and lasting agricultural economy?

5- HOW CAN THIS TERRITORY BECOME A LABORATORY OF RENEWABLE ENERGY AND ECO-MATERIAL, THROUGH ANOTHER TYPE OF ECONOMY THAT ACTS AS AN INTERFACE BETWEEN THE DENSE CITY AND LARGE AGRICULTURAL AREA?

The presence of two regional natural parks in Chevreuse and Gâtinais, the structuring of the hemp industry, the landfill and raw materials around SEMARDEL, and the research centers make southern Île-de-France a laboratory and a prominent regional area of production. What other types of economy can be established, which can be drivers of the transition and creators of employment, while integrating businesses? In the cycle of transition, how can enterprises that function on fossil fuels, be introduced to and guided towards creating new products and services, revealing latent demands, and establishing and developing innovative markets?

How can local communities, economic actors, and residents be involved in these activities? Is it necessary to strive for autonomy in 30 years? What are the economic and social roles for the energy efficient and environmental transition?

6- HOW CAN THE PLANNING PROJECTS AND PARTICULARLY THE STRUCTURING PROJECTS HELP PROMOTE THE TRANSITION: SIMPLICITY, NEW PARTICIPATORY PRACTICES, EFFICIENCY, TERRITORIAL STRUCTURES, RENEWABLE TECHNOLOGIES, METABOLISM?

How can existing infrastructures be optimized and new modes of transportation introduced? How can areas of passage be transformed into practical, low impact spaces, connected physically and humanely?

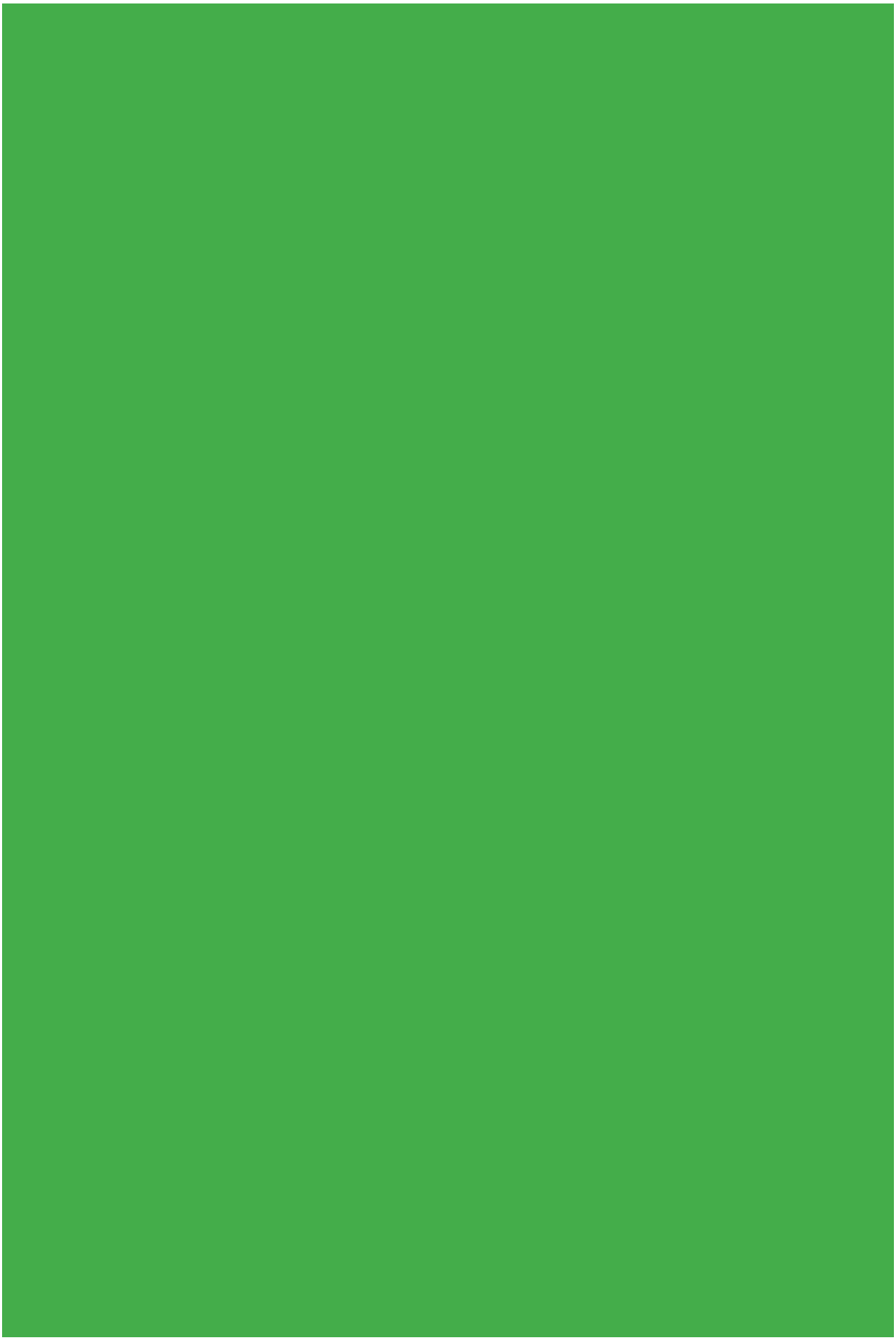
How can collective and local actions be enrolled into urban planning projects (like the rugby stadium project, the 217 airbase, the expansion of the SEMARDEL site in Vert-le-Grand, or even the displacement of the cereal port of Corbeil) to help develop planning tools and development actions in general, and to bring back the building of humane, economic, and agricultural practices to the territory? How can local communities, economic actors and residents be involved in urban recycling?

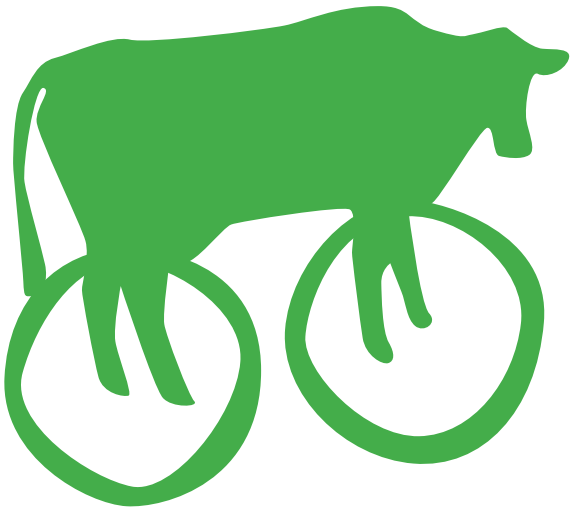
7- WHAT IN THE SESSION PROPOSALS ALLOWS FOR THE REDUCTION OF GREENHOUSE GAS EMISSIONS?

Due to the increase of 2 ppm per year in concentration, greenhouse gases will break

through the threshold of 2°C by the beginning of 2030. How can we invest ourselves into this count and pass from micro-actions to sizable results? How can basics be measured and shared, initially concentrating on what is easiest and cheapest?

How can the metabolism of the territories be measured and changed: the flow of products and local consumption, the flow of people and goods entering and exiting the territory, which varies depending on the lifestyles of residents, businesses and visitors in this territory?





ACTION PLANS

ACTION PLANS

INITIATIVES AT THE NATIONAL AND INTERNATIONAL LEVELS

A PROVEN TOOL, @D SUSTAINABLE PLANNING

How can action be taken here, in the territory, on what counts? This is where the difficulty starts.

The priority of priorities is known: the reduction of greenhouse gas emissions. This does not exclude the rest: less fossil fuels, less minerals, more collective intelligence for a rational sharing of spaces and resources, through an acceptable economic and social path based on the joy of living.

And since we must act locally, it is therefore the flow of people and goods that must change – the flow of products and consumption here, that which enters and exits the territory, which varies depending on the lifestyles of residents, businesses, and visitors in this territory.

These flows add up step by step up to the planet. In changing things here, we can develop another type of economy and employment; we can develop other lifestyles, pacifist, agreeable; we can put ourselves in a mode of creativity, invention, cooperation, development of oneself and even go as far as being attentive to others, we can rediscover the smile, open perspectives, get down to making things happen

In order to act on what counts, that which adds up, still needs to be measured. In Île-de-France, a tool is provided for just that: it is called the @d sustainable planning. http ://www.driea.ile-de-france.developpement-durable.gouv.fr/d-amenagement-durable-r-r515.html

The tool allows for the choosing of what counts, what to act upon in the commune, the urban conglomeration, the greater urban and rural territory of southern Île-de-France, PNR included.

The association of mayors in Île-de-France has tested and validated the @d sustainable planning tool. On the occasion of a European call for projects, experts from the European commission judged it as ready to use. All that remains is to use it.

THE FACTS

In France, quantifiable representations of the reality of the endangered climate at the communal level do not exist and more largely the translation of global challenges of sustainable development in the actions carried out by local decisions.

The @d sustainable planning tool was created in Île-de-France to remedy this. It came directly out of a collective approach, part of a decentralized service of the national government, which gradually brought together a thousand local actors: developers, elected officials, technical services from the commune to the national level, businesses, unions, associations, and citizens.

ANALYSIS

This tool is known by half of the *francilien* actors, used by a fourth; without one euro of government subsidy. The communes that have used it, find it

Does not contribute to resilience ("weak" sustainable development trend)	Contributes to resilience (transition trend)
• Centralized recycling	• Local compositing
• Planting of decorative trees	• Planting of productive trees
• International supply of organic food	• Buying local with the requirement of local production, which encourages emerging and new industries
• Importation of green construction materials	• Specifying local construction materials
• Buildings with weak energy consumption	• Local PassivHaus Conception
• Carbon credit transactions	• Methods of local community investment
• Moral investments	• Local money
• Buying choir music on CD	• Sing in a local choir
• Aerial sports	• Play football
• Consumption	• Reciprocity

Zoom in...some examples that contribute or not to local resilience (Hopkins, 2010)

Approche environnementaliste classique	Approche de transition
Comportement individuel	Comportement collectif
Une seule cause à la fois	Holistique
Moyens : lobbying, militantisme et manifestations	Moyens : participation de la population, écopsychologie, arts, culture et formation créative
Durabilité	Résilience et relocalisation
Motivation : peur, culpabilité et réaction	Motivation : espoir, optimisme et action préventive
Les gens sont la source du problème	Les gens sont la solution
Campagnes médiatiques grand public	Interventions ciblées
Un seul mode d'implication	Niveaux d'implication diversifiés
Prescriptive : recommande les solutions et les façons de faire	Catalyseur : pas de solution toute faite

Zoom in... The main differences of approach between militant environmentalism and the transition, such as viewed by Rob Hopkins.

functional. The Deposits and Consignments fund has incorporated it into its carbon barometer tool. The Chamber of Commerce and Industry in Paris included it in its report for the Paris Metropolitan area.

The tool is applied to the challenges of sustainable development; that is to say, that which can be lost or gained at the global level. They were identified in 2007 during the Grenelle Round Table concerning the environment: climate change, well-being, sustainable economy, biodiversity, natural resources, pollution and risks.

The tool proposes a dozen courses of action in response to the challenges; that is to say, a strategy, a robust framework, locally appropriate, giving complete freedom in terms of responsibilities, initiatives, creativity, and rapport with local actors. The carbon footprint of each region, of each commune is one of the key elements.

It provides indicators associated with each course of action: simple, quantifiable, incontestable. Concrete local actions remain thus the responsibility of each local actor, autonomous and globally converging towards sustainable development.

Challenges and course of actions are regrouped into two management charts, equipped with a limited number of strategic indicators. One concerns the territory and the other anticipates planning projects to be studied and produced. http ://www.driea.ile-de-france.developpement-durable.gouv.fr/le-tableau-de-bord-6-enjeux-14-r1633.html. Applied to the southern Île-de-France territory, the indicators show that even in terms of well-being, carbon emissions vary from single to double digits.

Residents and entrepreneurs can refer to it in order to motivate their representatives, associations, and political leaders to organize the enabling, inspiring, and binding framework. The whole point of this double management chart is to weigh the effectiveness of actions and projects, in terms of how much they cost.

"CITIES IN TRANSITION" NETWORK

CONTEXT

The "cities in transition"[34] network, is a movement created by Rob Hopkins[35] in 2006 in the Totnes, Great Britain. The Transition in question, is "the passage from a dependence on petroleum to a local resilience. Local populations are invited to create a better and less vulnerable future in face of environmental, energy related, and economic crises that actively threaten from this point on."

CHALLENGES

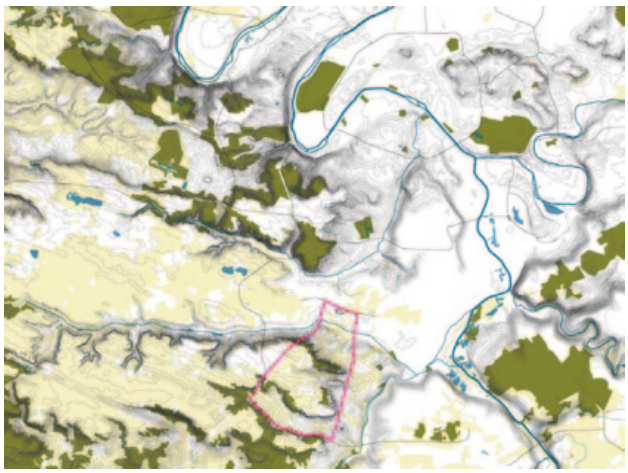
- To reduce the consumption of fossil fuels
- To reconstruct a vigorous and supportable local economy and to find a good degree of resilience by the relocation of what it can be
- To acquire the necessary qualifications

INITIATIVES AT THE LEVEL OF OUR PERIMETER

Francilien or neighboring initiatives can become models of what could be the norm in the south of the Île-de-France region. The value of the workshop will depend on the consideration of those that exist already.

34 Transition Towns internet site: http://www.transitionnetwork.org/. The initiative for the Cities in Transition network currently brings together 1,100 initiatives in 44 different countries.
35 HOPKINS Rob, *Manuel de Transition, de la dépendance au pétrole à la résilience locale*, Écosociété Edition, 2010.

Location of the Triangle Vert



TRIANGLE VERT[36]

CONTEXT

This association has worked for the last 15 years in developing market agriculture and activities (commercial) connected to an area of 4,500 hectares. It brings together elected officials and farmers from five communes in the south of Essonne.

The perimeter is crossed by two networks: the aviation corridor of Orly and the network of power lines. These constraints are a bargain because they stop the urban expansion to the west of the triangle, which allows for continuous agricultural fields. The Triangle Vert is a political project encouraged by the communes who has the objective of putting agriculture back into the heart of the urban project.

CHALLENGES AND OBJECTIVES

- Demonstrate that a dynamic agriculture located close to urban areas is essential
- Promote sustainable agriculture
- Boost exchanges, promote the knowledge of farmers

LES POTAGERS DE MARCOUSSIS

CONTEXT

The "Potagers de Marcoussis" are part of the Cocagne network[37]. They are an agricultural center. They have worked for more than 10 years for the social reinsertion of more than twenty people through market gardening activities. They have recently begun a new project: the creation of a cannery (facility to process fruits and vegetables).

CHALLENGES AND OBJECTIVES

- Promote social reinsertion through economic activity and in particular through market gardening
- Promote a united front for agriculture
- Diversify, thanks to the cannery, job openings proposed to people facing social reinsertion
- Create a connection with local farmers
- Allow for the creation of an initiatives network at the heart of the Triangle Vert

THE TERRE DE LIENS ASSOCIATION OF ÎLE-DE-FRANCE AND THE MILLY-LA-FORÊT FARM

Terre de Liens is a national association with the goal of facilitating the installation of leaders in agricultural and rural projects, which are socially, environmentally, and economically lasting, resulting in collective access to land parcels.

In Île-de-France, the Terre de Liens association aims to limit urban sprawl and to counter the rise in agricultural land prices. It hopes to encourage the connections between residents of the Parisian urban conglomeration and farmers, particularly through participation in the development of local and organic agricultural channels, in short supply chains. It has the ambition to mobilize citizens in the management of their territory through legislative and regulatory tools, resulting in citizen participation in the communes along side elected officials; and to raise awareness among youth of agricultural careers, sustainable food production, the efficient management of land and the jobs related to it.

THE PROJECT OF INSTALLING A FARM IN MILLY-LA-FORÊT

Currently, Terre de Liens has a project aimed at installing a young farmer to recover the 2.87 ha market farm located in Milly-la-Forêt, one of the first areas of horticultural production and market gardening in Île-de-France. This project is part of the association's program aimed at installing landless farmers, to prevent the dismantling of small farms put up for sale, and/or to promote the recovery of farms of those retiring, with the installation of diversified crops and a change towards ecological agricultural with farms of human-scale.

The project was thus conceived and guided in coordination with different local partners and institutions, assembling all the criteria for an immediate conversion to organic farming.[38]

LIST OF LOCAL INITIATIVES IDENTIFIED BY THE CAUE OF ESSONNE AND THE CG 91

CAUE 91

CITIZEN DYNAMICS

- Les Molières: Next day "conversion of a farm into a center of health." Invent an ecological living space with a therapeutic purpose.
- Grigny: Consultation, project vector. The "central plain" at the boundary marker: a public space designed through the expertise of residents.
- Palaiseau: Creation of 16 self-managed housing developments. A self-managed development operation between rehabilitation and new constructions.
- Marcoussis: "Potagers de Marcoussis" Creation of an agricultural center.

URBAN SHARING

- CALE (Lacs de l'Essonne Consolidated

36 Internet site: http ://www.trianglevert.org/
37 Network of social reinsertion through agriculture: http ://www.reseaucocagne.asso.fr/
38 Conseil Général of Essonne

Commune Council): environmental continuities to restore the land through participation.
• Grigny: Students from the School of Landscape Design invested in a space between two social housing neighborhoods.
• Viry-Châtillon: Transformation of an industrial wasteland into a cultural space.
• Saintry-sur-Seine: Installation of the Sensitive Natural Space as a public natural space.
• SIVOA (*Syndicat mixte de la vallée de l'Orge aval*): Elimination of hydraulic works in Orge. Reestablish the environmental continuity of the river through dismantling construction. A (r)evolution of the landscape and uses.

SOCIAL RECONVERSION

• Boigneville: A renovation of social housing into energy efficient units.
• Breuillet: Energy efficient rehabilitation of a historic building, a low energy consuming mansion to house public offices.
• Plessis-Pâté: Rehabilitation of the Ferme du Château. Creation of a cultural center inside an old building.
• Saulx-les-chartreux: 5 Projects for a territory in movement

HOUSING AND URBAN FORMS

• Montgeron: Morphological variations for an integration into the existing construction material of 37 social housing units.
• Athis-Mons: 42 Bioclimatic social housing units along the edge of Orge.
• Bouray-sur-Juine: Construction of 10 social housing units. A grouped habitat in a town of less than 2,000 residents.
• Viry-Châtillon: 51 Social housing units; architectural and urban proposition in a complex property context.

ARCHITECTURE AND INGENUITY

• Forges-les-Bains: Creation of a sports facility in wood. Integration of natural shower for the "Scarabée."
• Briis-sous-Forges: Day-care center. A poetic approach to architecture and childhood.
• Bouray-sur-Juine: Construction of 10 social housing units. A grouped habitat in a town of less than 2,000 residents.
• Forges-les-Bains: Technical center. A setting of vegetation as inspiration for a technical building.
• Milly-la-Forêt: Welcome Center for the Gâtinais Regional Natural Park. Environmental approach for a building strongly anchored to its site.

CONSTRUCTION FOR THE "ALREADY HERE": A HISTORY OF RECYCLING IN THE AREA

• Prunay-sur-Essonne: Reconversion of an industrial wasteland for an economic and social project, S.I.G.A.L Artisan Workshop.
• Athis-Mons: Emblematic reconversion of an industrial building: new headquarters of the "Portes de L'Essonne" consolidated commune council.
• Villiers-le-Bâcle: Expansion, rehabilitation and creation of a community center with a wooden framework.

LAND PLANNING: ALTERNATIVE PROJECTS AND URBAN PLANNING

• Bretigny-sur-Orge: Clause-bois Badeau, a new urban neighborhood close to a center of mobility between the train station and wide landscape.
• Ollainville: Public planning to provide clarity for institutional facilities in the commune.
• Villiers-le-Bâcle: Inhabited garden, grouped habitat: urban densification, densification of uses for an operation in the rural commune.

INITIATE A SUSTAINABLE APPROACH TO ENCOURAGE A PROJECT PROCESS

• Longjumeau: Construct a social approach through the differentiated management of the Villa Saint-Martin's exterior and residential spaces.
• La Norville: Culture as a lever in the land planning project, the restructuring of a theatre at the heart of the communal project
• Villiers-le-Bâcle: Inhabited garden, grouped habitat: urban densification, densification of uses for an operation in the rural commune.

SOCIAL ECONOMY

• Etampes(91): The return of employment close to home: social economy hub in Etampes
• Boissy-sous-Saint-Yon(91): Maintain local agriculture
• Lieusaint (77): Promote access to property through self-construction: *Manufacture INNOVE*

CONSEIL GÉNÉRAL OF DEPARTMENT 91 AND PARTNERS

• Promotion of organic agriculture: introduction of organic food within middle schools (colleges)
• Conjunction of urban planning, transportation and economic development procedures (intensification around lines of transportation): RN7 and RN 20
• Promotion of alternative travel methods: Mobil' Essonne (center of mobility), development of a network of carpooling stations in the south of Acini in supermarket parking lots
• Promotion of awareness and training for citizens and economic actors regarding the energy and climate transition: missions by the Department Office of Habitat, "Rénover malin (clever renovation)" platform for the energy efficient renovation of the department, sustainable development clubs in middle schools, climate network of Essonne (partners with the national government, Ademe and the Conseil Général)
• Local community procedures in order to master energy efficiency: nocturnal turning off of public lighting in Forge-les-Bains and Boigneville, repository of "sustainable construction and support."

CONCLUSION

Territorializing the transition allows the guiding actions to be placed here, where they can be decided upon, individually or collectively:

That which is needed to consume less energy, less ore and metals, to organize a collective intelligence to share spaces and resources, is not necessary to wait for the results of international conferences or constraining laws

Locally, alone or/and together, the decision belongs to those who live here – residing, working, holding elected office.

Locally, they can decide the economic and socially acceptable path, motivated by the joy of living, better.

The question is to find the thread, the threads, to follow or invent, the processes, model projects, that show another possibility, a future that gives the desire to act and prosper, here and now.

APPENDICES

LOGISTICS

The actors responsible for the management of the areas in Île-de-France[39], have recently become aware of the importance of a multiscalar and concrete management of the logistics. Hence the gradual implementation of a regional logistical system of which the dynamic was encouraged by the Conseil Régional.

It is thus together with the SDRIF 2030 and the assemblies of freight and logistics (organized in June 2011) that the creation of the Center of Freight and Logistics Resources and Exchanges (CERLOG) came about. Co-piloted by the national and regional governments, this organization is based on the work of the IAU and has a mission to bring together "in particular, representatives from communities, the business world and infrastructure managers."[40]

Another recent initiative worth mentioning: in 2014, the EPA Sénart launched a Logistics Innovation Club as part of the development of a Logistics and Distribution research center for the Grand Paris. This club has an objective of bringing together businesses specifically interested by the optimization of their supply chains, in order to rethink together the pooling of services related to logistics or even the recycling of waste for example.

Levers of logistics and involvement of government officials[41]:

39 Notably, the regional and departmental governments and the services of the national government.
40 Action plan "To implement an act of consultation regarding goods and a regional observatory for the transport of goods and logistics" from the DRIEA, Document of Strategic Orientations for Freight in Île-de-France by 2025, May 2012, 60 pages.
41 Adeline Heitz, IFSTTAR/SPLOTT

ACTORS IN THE LOGISTICS SECTOR (ENTERPRISE)	ACTORS IN THE TERRITORIES (PUBLIC AUTHORITIES)
Mutualization: organization of logistics chains It can be related to vehicles, delivery stations, grouping-unbundling platforms, technical methods, and statistics. To use the same vehicle for different clients increases filling coefficients and the sharing of costs. Beforehand, the loaders (industrial deliverers) who mutualize their shipments promote the expansion of roads, railways, and river transportation. Afterwards, it is necessary to distribute the products of different deliverers through the same operator. Mutualizing the logistics organization leads to the integration of a returns logistic, for example, the recuperation of empty packaging and the return of defective products. The mutualization of transportation capacities is realized through an information platform like a reservation center.	**Planning and management of property logistics** The restoration of the downtown property logistic therefore is a strategic variable. It necessitates the identification of property reservations assuring the availability of sufficient spaces at accessible prices, the support of innovative concepts such as logistics centers mixed with supplementary functions in order to integrate into a sustainable development process or multi-functional "city hubs" integrating the charging stations (vans) and discharging stations (trucks and trains), offices, storage and preparation spaces conceived in respect to high environmental standards.
Technological innovation: electric vehicles A transition has begun towards electric and gas "clean activities." The diesel motor still benefits from progress margins beyond the Euro 6 standard. The second and third generations of biofuels, not using alimentation resources, could reduce the consumption of fossil fuels in order for the exploitation of a diesel motor commercial vehicle market. This trend should remain as important in comparison to the development of the electric market. In parallel, GNV (natural gas vehicles) commercial vehicles that are affected by the urban logistic could be fed, by a non-negligible portion, by biofuels originating from the processing of composted waste, allowing for the reduction of methane emissions. The reduction of sound pollution by commercial vehicles also represents a significant challenge.	**Planning of urban spaces for transportation** To understand the commercial structure and to adapt to its needs in terms of delivering goods The issues of commerce and logistics are generally treated separately even though they are strongly interdependent. This concerns not only the supplying of businesses, but also home deliveries. Ex : The reception of delivery vehicles Delivery stations make up the first urban logistics facility. They are often occupied by parked individual vehicles. As a result, many deliverers are double parked, burdening the functioning of the city and the productivity of transportation companies. More than 80% of deliveries are made through illegal parking. Solutions have been
	examined such as inspections, via dedicated teams or technological systems, for example in delivery stations, energy recharging limits have been deployed to dissuade the abusive use by individual cars. These paths are oriented towards a mutualized management of delivery stations, based on a dynamic reservation system. Ex: Transportation infrastructures To arbitrate between commercial and productive activities and the problem of the quality of life of its citizens.

2013 NEGAWATT SCENARIO FOR THE TRANSITION: ENERGY AS A SOURCE OF EMPLOYMENT[42]

ZAC DOCKS DE RIS

CONTEXT

The urban planning project for the eco-neighborhood of Val de Ris, currently in construction, plans to construct close to 835 housing units in place of a former industrial wasteland in the Ris-Orangis (91) territory. The innovative character of this operation rests on the strong principles of sustainable development that have guided the project to become the winner of a project competition.

The project is notably based on an energy efficiency strategy allowing for a significant reduction of greenhouse gases by home heating systems and the obtainment of the BBC label for the whole of the construction. The heating and cooling needs are assured by a heating network created by Ex-Nihilo, geothermal heat on top of "very low temperature" groundwater, coupled with heat pumps placed in each construction of the ZAC.

The urban project claims to be a response to urban sprawl. It was conceived within the objective of conserving emblematic buildings in the neighborhood. A particular care was given to the treatment of the fringes. Urban forms are compact and permit the freeing up of many developed spaces (100 housing units/ha). The repositioning of the CAES is an equally important challenge of the project. The present artists have been associated with the evolution of the structure in connection with the urban project. The park of 8 ha, including the Docks des Alcools lake was developed entirely with the goal of preserving the site's biodiversity and promoting the quality of its landscape. In effect, nature is at the heart of the project. 13,400 m^2 of public green spaces have been planned, 48% of the total area. Their management will be done with respect to nature.

CHALLENGES AND OBJECTIVES

- Create an eco-neighborhood
- Promote the Bas de Ris, through the urban renewal of industrial wastelands
- Respond to the housing needs of the commune and urban conglomeration
- Increase and diversify housing offerings and promote the residential experience
- Restructure the CAES
- Promote the quality of the landscape of the site and the industrial patrimony

ZAC PORTES DE BONDOUFLE

CONTEXT

In July 2008, following the repeal of the noise exposure plan for the 217 airbase, a ban prohibiting urban expansion to the west of the Bondoufle commune was lifted, and the land planning project "Portes de Bondoufle" was launched conjointly by the Integrated Area Council and the city of Bondoufle. Preliminary studies for the creation of the ZAC were started in 2008. The environmental, urban, and landscape study, developed by the associations of "Alphaville", "TNPlus" and "Biotope" was completed in March 2009. It is based on this study that the creation of the ZAC Portes de Bondoufle came to be in February 2010.

The ZAC Portes de Bondoufle is an urban expansion project of 48 hectares. It aims to create a new neighborhood dominated by housing, which should enable the commune to overcome the demographic downturn and lack of social housing. The project has involved itself in a sustainable development approach with the objective of creating a neighborhood with a reduced environmental footprint.

In this respect, the project is engaged in a process of HQE *Aménagement* certification. In December 2010, the Integrated Area Council designated AFTRAP to be the planning manager of the ZAC. The Treaty of Land Management Concession was signed between the two parties on March 21, 2011, and lasts 15 years.

CHALLENGES AND OBJECTIVES

- Extend towards the 20% of local social housing at the commune level
- Stop the demographic downturn in the commune
- Adapt the local housing market to the demand
- Reinvigorate the fabric of the local economy
- Respond to the concept of sustainable development and environmental qualitye
- Promote social diversity
- Encourage functional diversity
- Respond to the needs of future residents by creating public facilities
- Diversify "ways of living"
- Vary accessibility

42 Read about it on the association's internet site: http ://www.negawatt.org/etude-emplois-economie-p120.html

ZAC VAL VERT

CONTEXT

A genuine place to live and work, with information centers, the Val Vert Croix Blanche center defines itself as a global planning project with urban and recreational areas and local services. It is also an information platform, boosting awareness of the regional dimension to promote a public culture around the questions of sustainable housing and eco-construction, and to encourage thermal renovation for housing. And finally, it is a space benefiting from sustainable mobility, the addition of low-impact transportation and connections.

CHALLENGES AND OBJECTIVES

- A landscape plan that its respectful of its environment and modeled to the constraints of the site,
- An innovative management and sharing of public and private spaces
- A place to demonstrate sustainable planning
- A sustainable management of sewage or rain water to create an ecological circuit
- The construction of energy efficient buildings
- The establishment of new transportation offerings (multi-functional stations, Essonne Connection Center)

LES RÉSULTATS EN 10 POINTS-CLÉS

Cette étude confirme que la transition énergétique proposée par le scénario négaWatt modifie profondément le paysage économique et social tout en étant très positive pour l'activité et pour l'emploi. On retiendra les points clés suivants :

1 - La rénovation de l'existant est fortement créatrice d'emplois durables

La rénovation énergétique dans les logements existants (montée progressive à 750 000 logements rénovés par an) représente en 2030 un chiffre d'affaires de 30 milliards d'euros à comparer aux 38 milliards dépensés actuellement pour les travaux de rénovation de toutes natures, y compris de simple embellissement (enquête OPEN-ADEME 2010). Ce volume d'activité additionnel génère à lui seul 408 000 emplois permanents et majoritairement qualifiés.

Dans le tertiaire existant, le rythme moyen de la rénovation des surfaces est de 3,5 % du parc chaque année, soit en 2030 un chiffre d'affaires de 13 milliards d'euros correspondant à 178 000 emplois.

Au total, un plan massif de rénovation énergétique du parc de bâtiments génèrerait en 2030 un volume d'activité de 43 milliards d'euros avec la création de 586 000 emplois, et pour l'Etat une recette fiscale de plusieurs milliard d'euros de TVA et d'impôt sur les bénéfices (IS) ainsi que des retombées indirectes liées aux emplois créés.

2 - Une baisse structurelle de la construction neuve

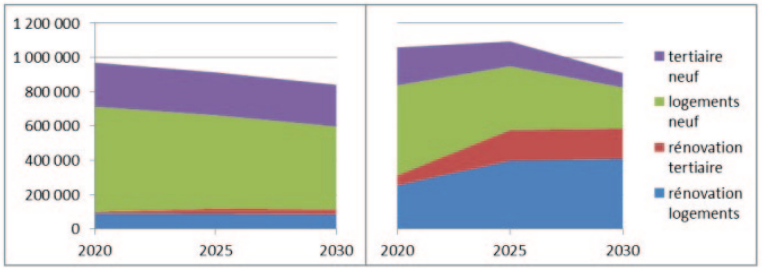
Concernant la construction neuve, l'augmentation de la population accroît le besoin de nouveaux logements et de nouveaux locaux d'entreprises, notamment pour abriter les services. À l'inverse, les mesures limitant le mitage et l'artificialisation des sols par une densification urbaine raisonnée (étage supplémentaire, réaffectation de locaux vacants) ainsi que celles favorisant les espaces fonctionnels communs dans le collectif ou la cohabitation intergénérationnelle comme l'accueil d'étudiants par des personnes âgées, limiteront les constructions neuves en optimisant le parc existant et les surfaces construites disponibles.

Dans le tertiaire, des tendances lourdes comme l'augmentation du télétravail, la création d'hôtels d'entreprises avec mutualisation des bureaux et des services, la réaffectation de locaux industriels en friche vers des usages tertiaires ou encore l'abandon du zonage pour des quartiers à véritable mixité des usages et à plus forte densité d'occupation vont également réduire le volume de nouvelles constructions.

Tous ces paramètres, issus du scénario négaWatt, sont intégrés avec comme résultat un ralentissement sensible du rythme de la construction neuve dans le résidentiel et le tertiaire, entraînant une contraction de l'activité synonyme de 404 000 emplois bruts de moins en 2030 par rapport au scénario tendanciel. Cette tendance structurelle qui ne découle pas d'une crise cyclique ou ponctuelle se prolonge sur la période 2030-2050.

3 - L'emploi dans le bâtiment s'accroît grâce à la rénovation énergétique

Au total, les emplois sur les deux secteurs « rénovation énergétique + construction neuve » évoluent sur 2020-2030 de la façon suivante :



Emplois directs et indirects dus à l'activité dans le secteur du bâtiment
A gauche, scénario tendanciel ; à droite, scénario négaWatt

La rénovation énergétique fait bien plus que compenser les pertes dans la construction neuve : le solde net dans le secteur du bâtiment est positif de 89 000 emplois en 2020, de 69 000 emplois en 2030.

La mise en œuvre d'un plan massif de rénovation énergétique « en profondeur » des bâtiments existants s'avère donc une solution particulièrement efficace et pertinente pour hisser et maintenir le secteur du bâtiment à un niveau d'activité et d'emploi supérieur à celui d'aujourd'hui, lui évitant ainsi une profonde crise structurelle.

Un tel plan devra être d'un niveau beaucoup plus volontariste et ambitieux que celui adopté récemment, tant sur le plan quantitatif que qualitatif. Il implique un effort considérable de recherche-développement, de formation professionnelle, d'organisation des acteurs et de promotion des produits et des métiers de la rénovation en intégrant l'exigence incontournable de la qualité. Il en résultera une forte augmentation du nombre d'emplois dans des activités aujourd'hui embryonnaires, comme les conseillers-énergie, les économes de flux, la production et la pose de produits bio-sourcés, la préfabrication des composants ou les services liés à l'optimisation de l'énergie.

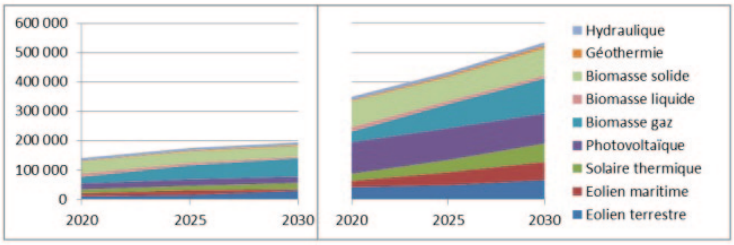
Enfin, il est à noter que cette analyse ne porte que sur la seule rénovation « énergétique ». Dans la plupart des cas, les travaux de rénovation en appellent d'autres (mise aux normes, réaménagement, embellissement, etc.), et la massification des opérations aura un effet d'accélérateur pour ce type de travaux.

4 - Une profonde mutation des emplois dans les transports

Comme pour le bâtiment, on observe dans ce secteur des effets contradictoires, mais, à l'inverse de ce dernier, le solde en emplois bruts reste négatif tout au long de la période.
Cette perte s'explique principalement par le recul de la possession et de l'usage systématique de la voiture individuelle pour les déplacements des personnes au profit des modes doux et des transports en commun, en privilégiant une approche mutualisée en termes de service rendu plutôt que de propriété individuelle. Une telle approche permet l'optimisation globale du parc de véhicules par des pratiques aujourd'hui émergentes (auto-partage, co-voiturage, libre-service, taxis collectifs).
Prolongeant une tendance que révèlent déjà certaines annonces de fermetures d'usines, le secteur traditionnel de la construction automobile et des services associés continue à perdre des emplois.
À l'inverse, le développement des transports en commun et du fret ferroviaire génère de nouveaux emplois, mais sans atteindre un niveau suffisant pour compenser intégralement les pertes du secteur automobile.
Au total, le nombre d'emplois bruts dans le secteur des transports de personnes et de marchandises diminue de 99 000 en 2020 et de 189 000 en 2030.

5 - Les énergies renouvelables deviennent un secteur majeur de l'économie et de l'emploi

Les énergies conventionnelles actuellement dominantes, fossiles et nucléaire, laissent progressivement la place à la palette très diversifiée des énergies renouvelables, plus intensives en emplois.
Chacune de ces filières a été examinée, tant sur l'évolution des coûts que sur le contenu en emploi, en s'appuyant notamment sur les retours d'expérience en France et en Europe.
Au total, toutes filières confondues, le secteur des énergies renouvelables grimpe en 2030 à 535 000 emplois bruts, essentiellement dans la biomasse, l'éolien et le photovoltaïque ainsi que, dans une moindre mesure, le solaire thermique.
Par rapport au tendanciel, 335 000 emplois supplémentaires sont créés à l'horizon 2030. L'analyse exploratoire à 2050 montre que ce niveau d'emploi continue à croître et se maintient grâce au marché de renouvellement de l'éolien et du photovoltaïque, pour lesquels la durée de vie estimée des principaux équipements est respectivement de 20 et 30 ans.



Emplois directs et indirects dus à l'activité dans les énergies renouvelables
A gauche, scénario tendanciel ; à droite, scénario négaWatt

6 – L'impact limité de l'abandon du nucléaire

Le scénario négaWatt intègre un abandon progressif mais complet du nucléaire, qui s'achève en 2033. L'EPR de Flamanville n'est pas mis en service, évitant ainsi une partie des coûts de démantèlement si le cœur venait à être irradié.
Le scénario tendanciel suppose le maintien au niveau actuel de la puissance du parc nucléaire (63 GW), parallèlement au déclassement progressif de certaines centrales à partir de 2022, ce qui implique la mise en route d'un premier EPR en 2017 (Flamanville) puis d'un EPR par an à partir de 2023. Le parc d'EPR installés atteint ainsi 46,5 GW en 2050.
Afin de tenir compte de « l'effet de série », le coût de la construction et de la mise en service d'un EPR a été retenu dans cette étude à un niveau inférieur de 25 % à celui annoncé actuellement pour l'EPR « tête de série » de Flamanville, soit 6,4 milliards d'euros par unité (4000 €/kW). Cette hypothèse est volontairement prudente, puisque le coût de l'EPR a fait l'objet d'une dérive considérable, passant de 3 milliards d'euros (coût annoncé par EDF pour le Débat Public de 2005-2006) à 8,5 milliards d'euros (dernière évaluation de janvier 2013) soit + 180 % !
Le coût du démantèlement des centrales nucléaires est un poste que l'on retrouve dans les deux scénarios, négaWatt et tendanciel mais de façon décalée dans le temps. En l'absence de retour d'expérience précis, l'étude a retenu la valeur de 0,75 €/W, soit de l'ordre de 25 % du coût d'investissement, une valeur très basse par rapport aux évaluations de certaines études allant de 50 à 100 % du coût d'investissement.
Par ailleurs, le coût du stockage des déchets radioactifs (35 milliards d'euros selon la dernière évaluation de l'ANDRA - Agence Nationale pour la gestion des Déchets RAdioactifs) n'a pas été pris en compte, considérant en première analyse qu'il serait du même ordre dans les deux scénarios, sauf en cas d'abandon du stockage souterrain pour un stockage en surface. Enfin le coût de l'extension de la durée de vie des centrales nucléaires a été réparti, comme les coûts de construction, sur une période de 15 ans pour un montant de 50 milliards d'euros tel qu'évalué dans le rapport réalisé par la Cour des Comptes en 2012.
Le surcoût du scénario tendanciel par rapport au scénario négaWatt s'élève à 5,3 milliards d'euros pour la seule année 2020 et 5,0 milliards en 2030, en passant par un maximum à 7,8 milliards d'euros en 2025.
Il est à noter que ces évaluations sont particulièrement prudentes face à la totale imprécision des coûts réels de cette filière : aucun EPR n'a encore été mis en service, aucune des centrales françaises du premier palier 900 MW n'a encore été démantelée, les coûts d'assurance face à un accident majeur (430 milliards d'euros selon une récente évaluation de l'IRSN - Institut de Radioprotection et de Sûreté Nucléaire) n'ont pas été pris en compte…
En comparaison du scénario tendanciel, la perte d'emplois directs et indirects due à la fermeture des réacteurs dans le scénario négaWatt évolue de 65 000 (en 2020) à 56 000 (en 2030) en passant en 2025 par un maximum de 92 000.

7 - Le secteur de l'énergie est profondément modifié

Le secteur de la production et de la transformation d'énergies fossiles (gaz, pétrole, charbon) voit son nombre d'emplois diminuer. A l'inverse, la gestion et la distribution par réseaux (gaz, électricité et chaleur) se développent, conséquence de la multiplication des points de production et d'une réelle synergie entre réseaux au niveau des territoires.

En totalisant l'ensemble des emplois liés à la production et à la distribution d'énergie créés et détruits dans les différents secteurs (énergies renouvelables, fossiles et nucléaire, réseaux), le scénario négaWatt entraîne un bénéfice net de 142 000 emplois en 2020, 141 000 en 2025 et 219 000 en 2030.

8 – Les gains en emplois directs et indirects compensent largement les pertes

Le total des emplois bruts directs et indirects créés et détruits sur l'ensemble du périmètre étudié (bâtiment, transports et production/acheminement/distribution d'énergie) présente, sur un nombre actuel d'environ 3 millions d'emplois bruts, un solde positif de 138 000 en 2020, 178 000 en 2025 et 105 000 en 2030.

Ces évolutions se feront au prix de reconversions professionnelles qui peuvent susciter des craintes mais qui permettront d'améliorer *in fine* la qualification et les compétences de tous ceux qui en bénéficieront.

9 – Un « effet induit sur l'emploi » fortement positif

L'une des conséquences les plus importantes de la transition énergétique au plan macro-économique est la baisse progressive des importations d'énergies fossiles jusqu'à atteindre un niveau résiduel en 2050, alors qu'elles se sont élevées en 2012 à plus de 60 milliards d'euros, un montant très proche de celui du déficit de la balance commerciale de la France. Autant d'argent que la réduction des consommations de pétrole et de gaz naturel fossile va permettre de libérer et de réinjecter progressivement dans l'économie générale du pays sous la forme de « pouvoir d'achat » restitué aux consommateurs finaux, une fois déduit le financement des investissements nécessaires à la transition énergétique.
Ces milliards d'euros vont générer de l'activité et des emplois dans la plupart des secteurs de l'économie ; cet « effet induit sur l'emploi » s'ajoute au solde des emplois directs et indirects créés et détruits.

Au total, la mise en œuvre du scénario négaWatt génère 235 000 emplois de plus que le scénario tendanciel en 2020, 439 000 en 2025 et 632 000 en 2030.

Secteurs d'activité	2020	2025	2030
Rénovation des bâtiments	213	460	473
Bâtiments neufs	- 124	- 279	- 404
Transport routier sauf transports en commun	- 141	- 243	- 366
Transports en commun, fret ferroviaire & fluvial	69	141	248
Transport aérien	- 27	- 47	- 72
Énergies renouvelables	187	249	335
Énergies non renouvelables, réseaux gaz et électricité	- 45	- 108	- 116
Sensibilisation et information des citoyens, entreprises et collectivités	6	6	5
Effet induit	97	261	527
Effet net sur l'emploi	**235**	**439**	**632**

Effet sur l'emploi du scénario négaWatt par rapport au tendanciel
(en milliers d'emplois équivalent temps plein (ETP))

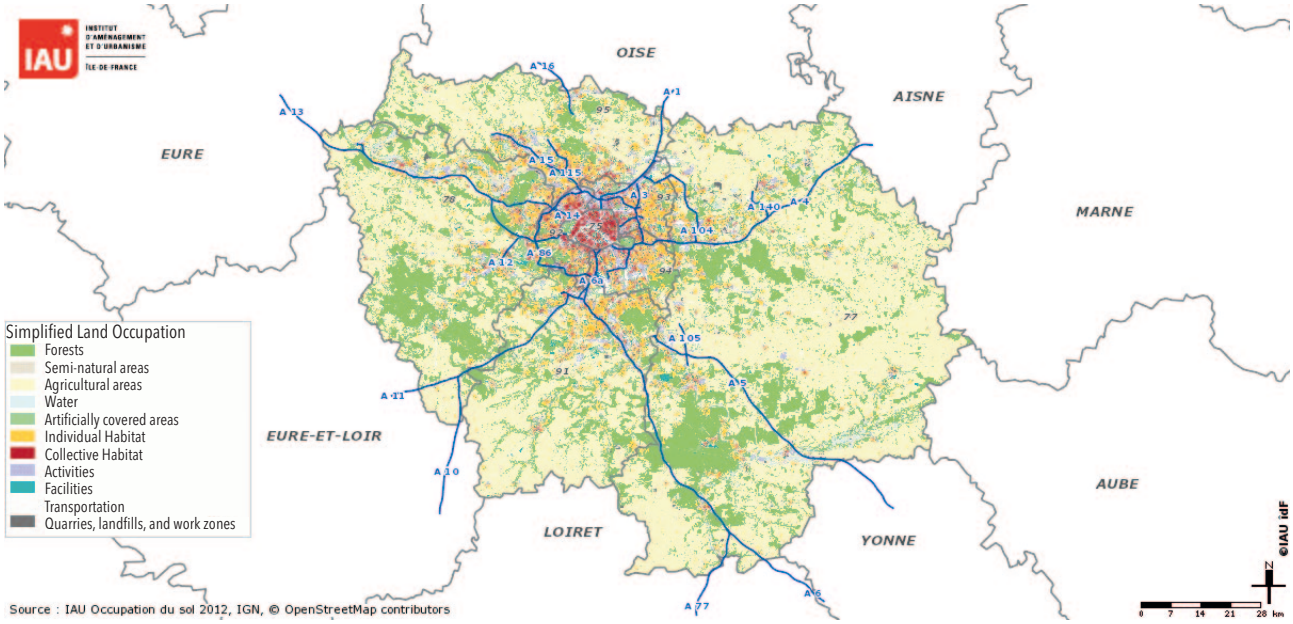
10 - La transition énergétique, un investissement qui rapporte !

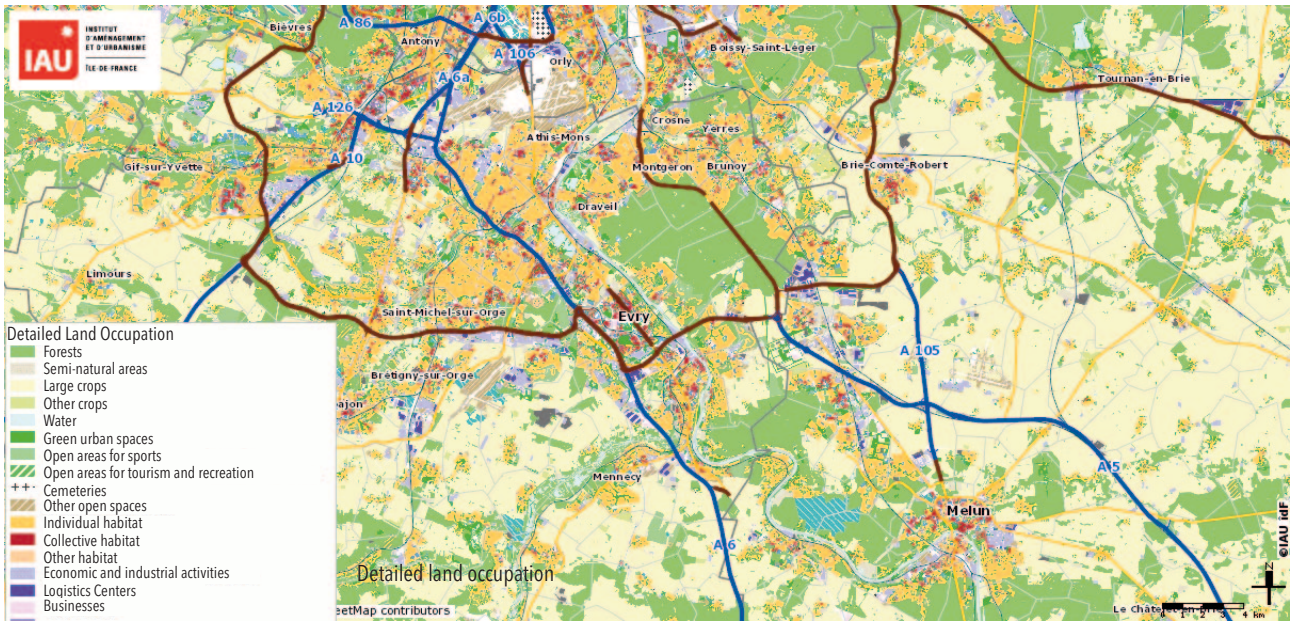
La transition va bien entendu nécessiter de mobiliser des investissements conséquents dans les secteurs du bâtiment, des énergies renouvelables ou encore des transports.
Mais contrairement à la facture énergétique de la France, il ne s'agit pas d'un puits sans fond : les investissements, une fois réalisés, ne sont pas à renouveler chaque année pour obtenir le même service, les fonds dégagés peuvent au contraire s'investir dans de nouveaux gisements d'économie d'énergie ou d'énergies renouvelables qui vont à leur tour permettre de dégager des moyens d'investir dans la transition. Ce cercle vertueux augmente régulièrement notre autonomie, notre sécurité et notre capacité à résister aux chocs économiques, géopolitiques, naturels ou industriels.
Ainsi l'un des résultats les plus remarquables est le constat que, dès 2020, le cumul des dépenses annuelles d'investissement et d'exploitation de tous les secteurs pris en compte par cette étude est moins élevé dans le scénario négaWatt que dans le scénario tendanciel. Cet écart évolue ensuite de manière croissante jusqu'en 2030 pour atteindre la somme de 250 milliards d'euros de « dépenses à fonds perdus » évitées entre 2020 et 2030.
Ce résultat ne fait que corroborer des faits déjà observés. Par exemple l'étude publiée en octobre 2011 par la KfW, l'équivalent allemand de la Caisse des Dépôts, a démontré que chaque euro investi Outre-Rhin par la collectivité dans les aides incitatives à la rénovation performante des logements rapportait à cette même collectivité entre 3 et 4 euros* !

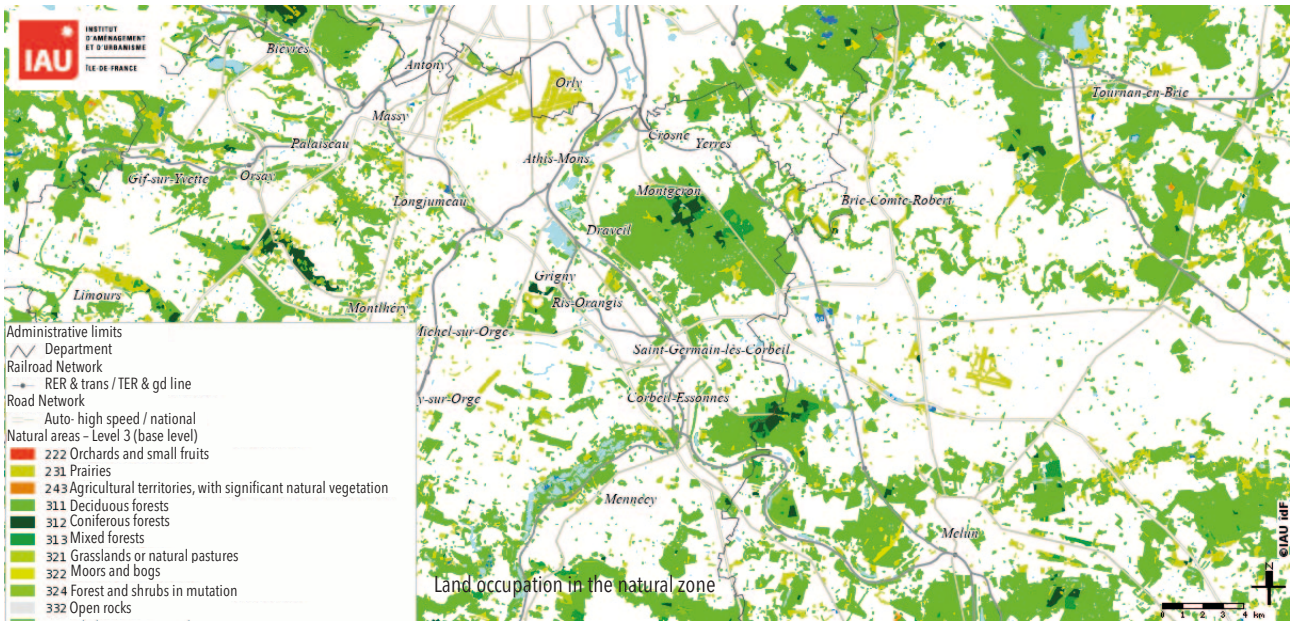
** Impact on public budgets of KfW promotional programmes in the field of "energy-efficient building and rehabilitation", octobre 2011, www.kfw.de/kfw/en/I/Search/Search.jsp?id=1364656628727*

CARTOGRAPHY SESSION

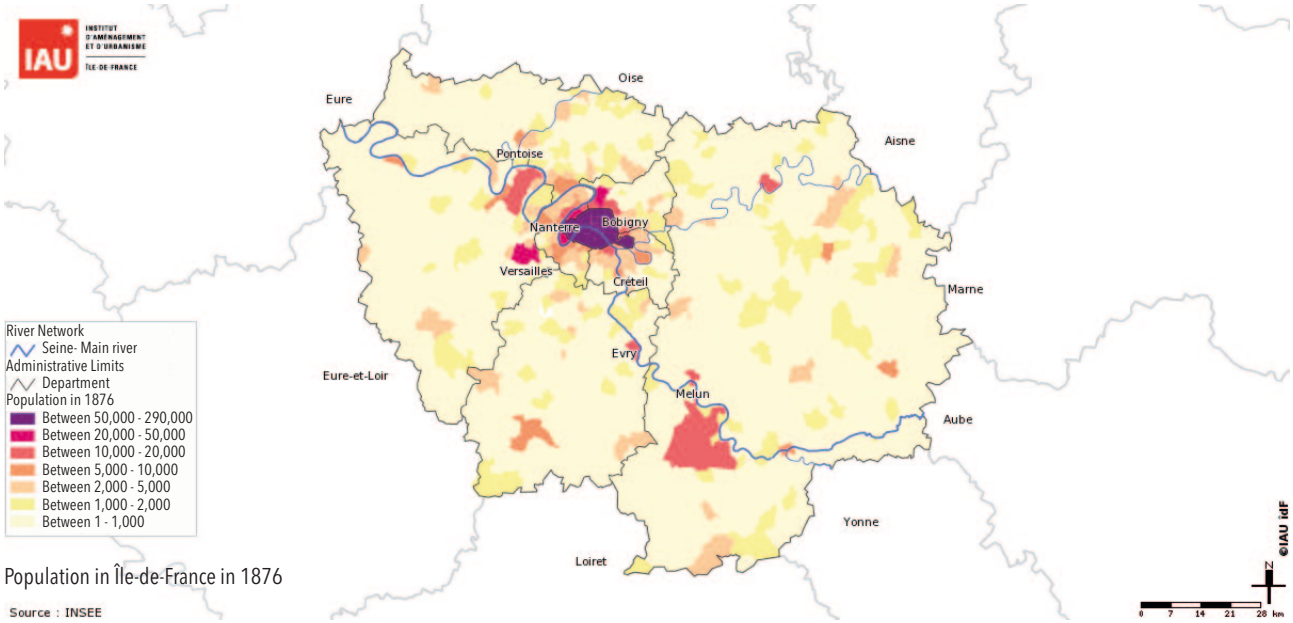
LAND OCCUPATION





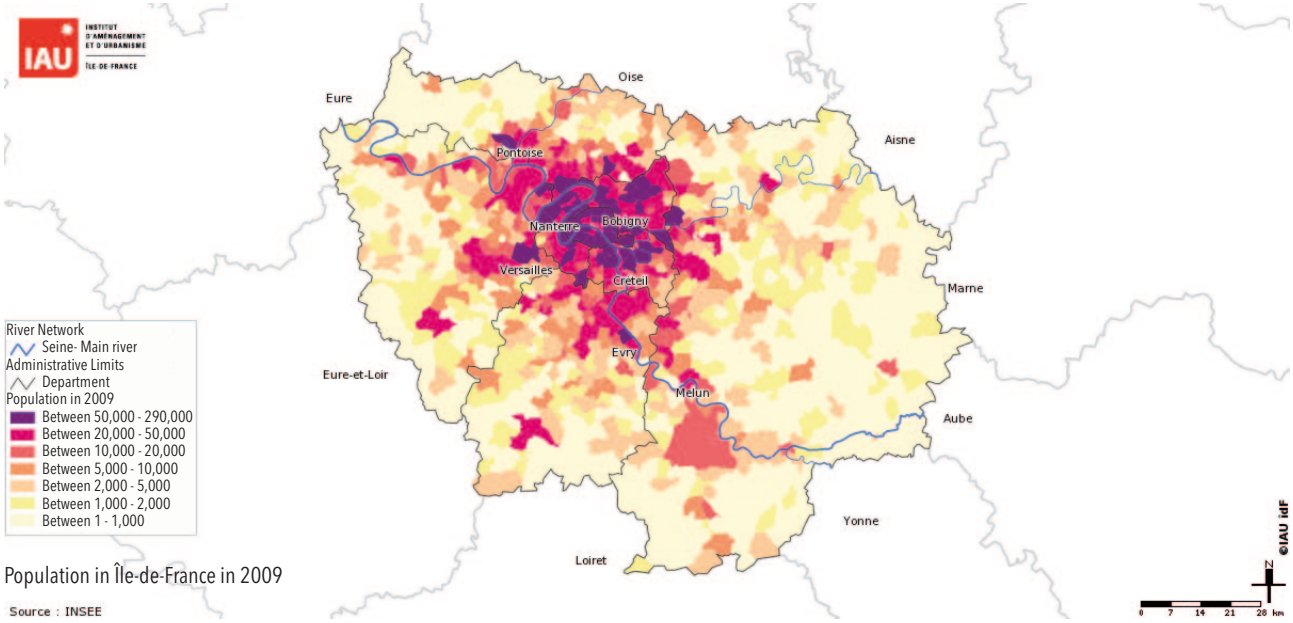


DEMOGRAPHIC EVOLUTION: 1876 / 2009



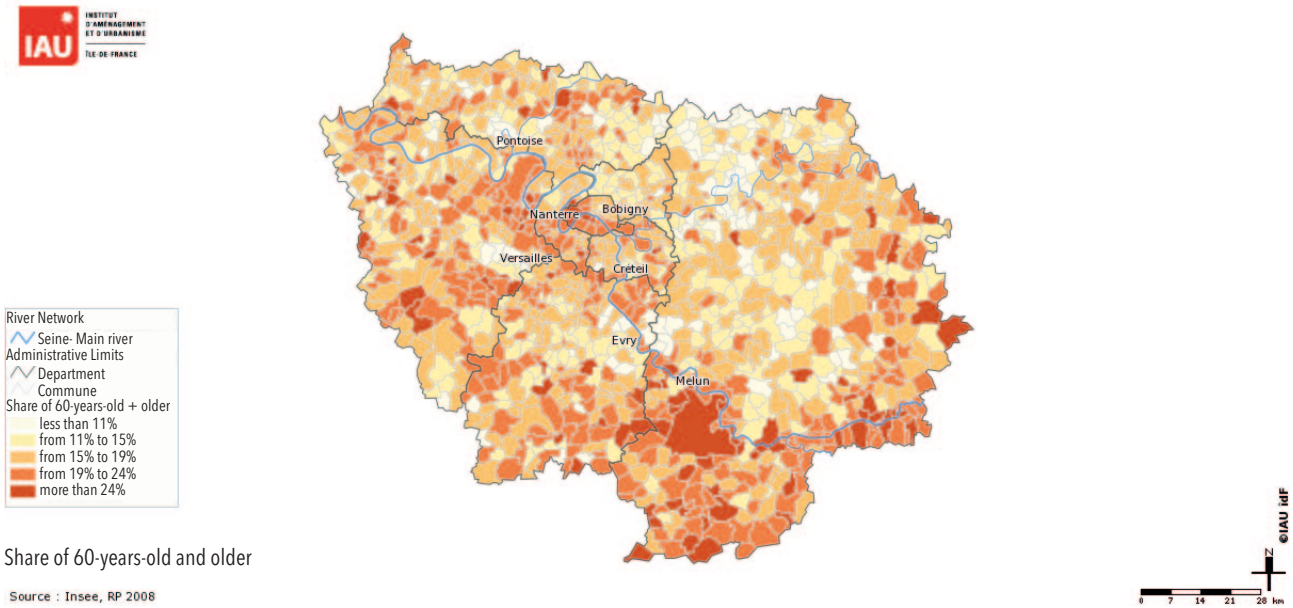
Population in Île-de-France in 1876

Source : INSEE



Population in Île-de-France in 2009

Source : INSEE



Share of 60-years-old and older

Source : Insee, RP 2008

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ACRONYMS

(ACRONYMS IN FRENCH; PROPER NAMES/DESCRIPTIONS IN ENGLISH)

- AUDESCO: Essonne-Seine-Orge Urban Planning and Development Agency
- CESO: Centre Essonne-Seine-Orge
- GES: Greenhouse Gas
- GIEC: Intergovernmental Panel on Climate Change
- Mtep: Million Tonne of Oil Equivalent
- PNR: Regional Natural Park
- PPM: Parts per Million
- SAU: Agriculture Surface Unit
- ZUP: Priority Urbanization Zone
- ZUS: Sensitive Urban Zone
- ZAC: Special Planning District