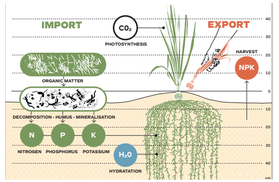
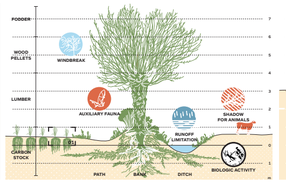
CHAMP-CONTRECHAMP FOCALE 01

RENNES (FR)

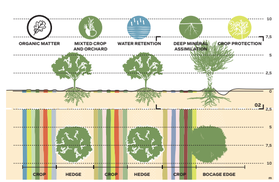
SOIL REGENERATION



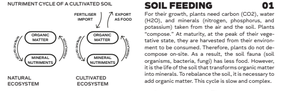
CULTIVATED LANDSCAPE



FOOD RESILIENCE



NUTRIMENT CYCLE OF A CULTIVATED SOIL



SOIL FEEDING 01

For their growth, plants need carbon (CO2), water (H2O), and minerals (nitrogen, phosphorus, and potassium) taken from the air and the soil. Plants "compose," At maturity, at the peak of their vegetative growth, they are rich in minerals that are important to be consumed. Therefore, plants do not decompose on-site. As a result, the soil fauna (soil organisms, bacteria, fungi) has less food. However, it is the life of the soil that transforms organic matter into minerals. To rebalance the soil, it is necessary to add organic matter. This cycle is slow and complex.

BOCAGE HEDGE ECOSYSTEMIC BENEFITS

IN FRANCE :

SINCE 1950,
750,000 KM OF HEDGES REMOVED

BETWEEN 2017 AND 2021,
23,500 KM OF HEDGES REMOVED

HEDGE SYSTEM 02

Lush hedges provide various ecosystem services, water retention, erosion control, shelter for wildlife and flora, carbon storage, ventilation, shade, and cooling islands. With the project, in less than a decade, Plateau d'Orson has transformed into dense and well-filled bocage chambers. The old practice of "trogne" (pollarding) is revived.

ORCHARD-VEGETEBALE CROP SYSTEM

AGRO-FORESTERY 03

The small-sized fields at the farm have a diverse crop rotation. organized as orchard-vegetable crop, farmers uses diverse assoilement. This regenerative crop rotation allows for the control of weeds and improving soil biodiversity. Farmers use various gardening techniques (permanent beds, raised beds, green manure, cold greenhouses), crop rotation contributes to the biological restoration of agricultural soils. It adorns the landscape with a thousand different shades and scents throughout the seasons.

SOIL REGENERATION ON SITE

REMATURED AREA
CULTIVATED SOIL
DE-SEALED SOIL
DE-POLLUTION

SOIL CARE 04

The majority of the hospital site's ground is likely contaminated (hydrocarbons, medical fluids, etc.). Half of the asphalted parking areas are reduced in favor of green spaces. Simultaneously, pollution is immobilized in the soil with bio-char produced on-site. The cultivated plots of the family kitchen gardens are decontaminated or grown on raised beds with healthy soil.

BOCAGE REGENERATION PROJECT

AGRICULTURAL BOCAGE HEDGE
PROJECT HEDGE
WOODS
URBAN HEDGE
ISOLATED TREE

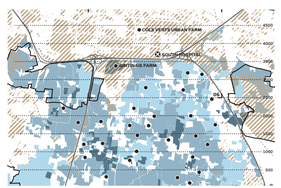
BOCAGE LANDSCAPE 05

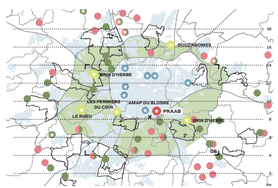
The South Hospital with its tree nursery become a key element of the renewal of tree hedges in fields. The bocage system acts as a real link between Bois de Saouvres and the Bois d'Aspigne. Besides providing firewood, forage, timber, and fruits, this traditional agricultural know-how also becomes an additional source of income thanks to the development of the Bocage sector in Ille-et-Vilaine.

KITCHEN GARDEN NETWORK AMPLIFICATION

FOOD LANDSCAPE 06

Similar to the citizen farm, the 100 new family gardens that have been established on Plateau d'Orson are organized as orchard-vegetable crop. This agricultural typology revives the local cider-making tradition. Once a year, gardeners are invited to the PRAAB (Pôle de Résilience Agricole et alimentaire du Blosne) to use the shared press and fill their bottles of juice. This event marks the beginning of autumn.





WHO OWN THE LAND?

LAND OWNED BY SMALL FARM (< 25 HA) LAND OWNED BY MIDDLE SCALE FARM (25-100 HA)
LAND OWNED BY LARGE FARM (> 100 HA)
"CHAMPS URBAINS"
FARM HEADQUARTER
LAND OWNED BY PUBLIC INSTITUTION

LAND PROPERTY TRANSITION 07

New farms are established. The transition of land ownership occurs gradually through retirements and inheritance. Nonetheless, the farmers approaching retirement join the movement, entitled by this new generation. As a result, the inevitable decline in the number of farmers is slowed. Despite being smaller in size, the new food-producing farms require more labor. Many young people from Blosne neighborhood become farmers.

BIOMASSS METABOLISM UNDER CONSTRUCTION

WOODEN AREA
HEAT PLANT
PUBLIC COMPOST BIN
PRAAB'S BIOCHAR FACTORY
RECYCLING POINT
HEAT NETWORK
SHARED COMPOST BIN

BIOMASSE RESSOURCES 08

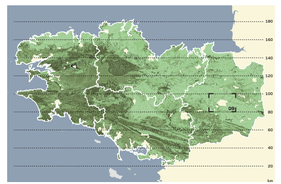
The Rennes Métropole also supports the emerging Biochar sector. Non-exploitable plant residues from the Blosne Park are sent to the PRAAB's factory through pyrolysis to produce biochar. This low-energy process creates carbon-rich material useful for fertilizing fields and long-term carbon sequestration. Microporous biochar also improves aeration and balances acidic soils in Brittany, as well as captures pollutants at the South Hospital site.

DIRECT AND LOCAL SHORT SALE SUPPLY NETWORK

RENNES GREEN BELT "CHAMPS URBAINS" SOLIDARITY AND FRUIT FARM
FARMER COLLECTIVE MARKET
DIRECT SHORT SALE
"CHAMPS URBAINS" FARM AND VEGETABLE FLY FARM
AMAP

A NEW GREEN FOOD BELT 09

Within the green belt, priority is given to local food production. Initially, the 300 hectares owned by the Metropolis will be used for vegetable farming. Gradually, through incentive measures and in connection with the generational renewal of farmers, the 6,500 hectares of agricultural land of the green belt are diversified. With this reorientation, the production within the green belt reaches 1.5% of the food needs of the population within the metropolitan ring and this rate increases to 40% for the entire metropolis.



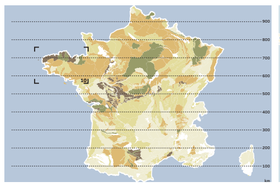
ORGANIC CARBON LEVELS IN SOILS (G/KG)

0
5
10
20
30
40
>60

Source : Drasi et OEB

ORGANIC CARBON STOCK 10

Being rich in organic matter, soil layers can directly sequester CO2 from the air through plant photosynthesis. Increasing hedgerow length and implementing agroforestry practices in agriculture enable these areas to enhance their carbon storage capacity. It is essential to develop forms of farming that respects living organisms and actively stores carbon while also curbing the artificialization of land, which hampers the soil's ability to sequester carbon.



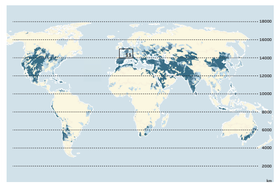
NITRATE AVERAGE PER WATER TABLE (MG/L)

< 10
10-25
25-40
40-50
50-60

Source : Water agency, BRGM

INTENSIVE AGRICULTURE IMPACT 11

With the development of increasingly alienating technologies, farmers are deprived of the autonomy they had acquired over centuries. Industrial monopoly and cabilogs have taken over intrlive knowledge of the land, the environment, and the cycles. Intensive use of pesticides and excessive misuse of animal manure and slurries depleted the soil. The project aims to lead agricultural transition to impulse soil revival.



WATER STRESS BY CATCHMENT

LOW
LOW - MID
MID - HIGH
HIGH
VERY HIGH

Source : Map department of Science Po Paris

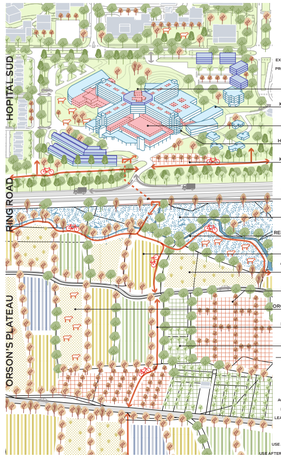
4°C GLOBAL WARMING 12

Agriculture uses 70% of global freshwater consumption. Until now, Brittany region did not need to irrigate crops, but the droughts linked to climate change are disrupting traditional practices. Instead of the "food factory" and industrial monopoly model, these crises present an opportunity for Brittany to reinvent its agro-ecological systems and reconnect with natural cycles to enable a fair sharing of resources.

CHAMP-CONTRECHAMP ASSOLEMENT 02

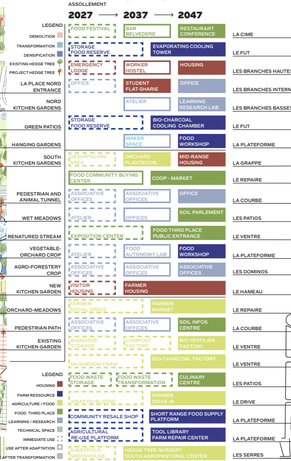
RENNES (FR)

LAND USE

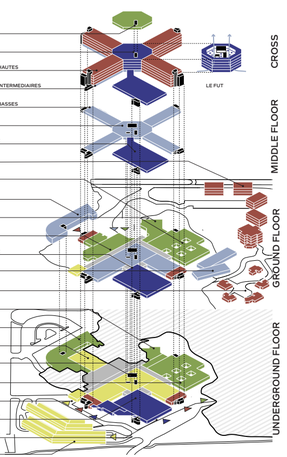


FLOOR ROTATION

ASSOLEMENT



FLOOR USE



USE FOLLOWS STRUCTURE

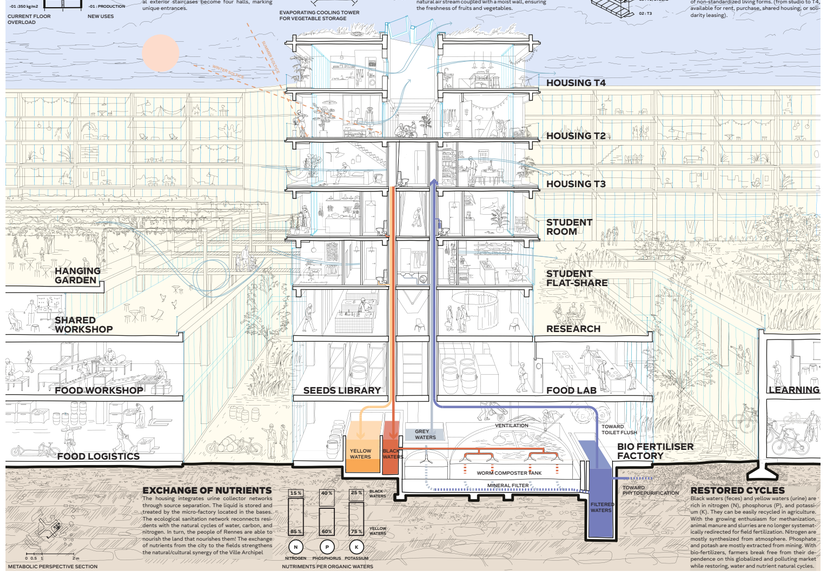
Structure guides the project towards targeted adjustments rather than a heavy refurbishment. To avoid creating new foundations, it is decided not to overload the existing structure. Floors of bedrooms, which are not designed to change their purpose, are reconfigured into housing. The four peripheral exterior staircases become four halls, marking unique entrances.

NATURAL COOLING BUILDING

By transforming the internal layout of the floor plan, each dwelling is naturally ventilated. Moreover, the central core is transformed into a passive cold room on multiple levels to store fresh produce. Using the principle of evaporatranspiration (inspired by plants), the dark thickness of the building is crossed by a natural air stream coupled with a moist wall, ensuring the freshness of fruits and vegetables.

MIXTED HOUSING TYPOLOGIES

Aligned with the structure and without compromising overall stability, it is possible to create a double-height interior street on the last two levels of each branch. Naturally lit by a skylight, this semi-private space encourages interaction. The constructive rationality of the structure lends itself to a plurality of non-standardized living forms. (from studio to T4, available for rent, purchase, shared housing, or solidarity leasing).



METABOLIC PERSPECTIVE SECTION

EXCHANGE OF NUTRIENTS

The housing integrates urine collector networks through source separation. The liquid is stored and created by the micro-factory located in the basses. The ecological sanitation network reconnects residential urine with the fields that produced the nitrogen. In turn, the people of Rennes are able to nourish the land that nourishes them! The exchange of nutrients from the city to the fields strengthens the natural/cultural synergy of the Ville Archipel

	NITROGEN	PHOSPHORUS	POTASSIUM
	15 %	49 %	25 %
BLACK WATERS	85 %	51 %	75 %
YELLOW WATERS	60%	0 %	75 %

NUTRIMENTS PER ORGANIC WATERS

RESTORED CYCLES

Black waters (feces) and yellow waters (urine) are rich in nitrogen (N), phosphorus (P), and potassium (K). They can be easily recycled in agriculture. With the growing enthusiasm for hydroponics, these nutrients are increasingly being systematically redirected for field fertilization. Nitrogen are mostly synthesized from atmosphere. Phosphate and potash are mostly extracted from mining. With bio-fertilizers, farmers break free from their dependence on this globalized and polluting market while restoring, water and nutrient natural cycles.

CHAMP-CONTRECHAMP ALMANACH 03

RENNES (FR)

2027

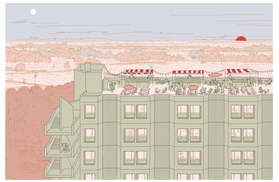
DESURFACING OF PARKING AREAS

5 °C | 13 °C | 52 mm | 128 h

Green manures sowing
First cellar crop sowing
Parking desurfacing
Cocktail dégustation
Spring equinox
Rennes campus Festival
Renaturation spring camp

MARCH 03

The reopening of the site to the people of Rennes is marked by several agri-cultural events. The tone is set with the first inter-campus festival outside the walls. Over the course of a week, with the help of residents and associations, students participate in the removal of pavement in preparation for the renaturation of the eastern edge of the site.



5TH EDITION OF STREET FOOD FESTIVAL

12 °C | 23 °C | 46 mm | 217 h

Apples and pears thinning
Raised beds making
Cherries picking
Summer solstice
Street food festival

JUNE 06

In the summer, the rooftop of the Hospital hosts the Street Food Festival. What a breathtaking view! Later on, the roof of the hospital will become "La Cime" : a large space offering 360° views of the Blosne district and its citizen farms. A belvedere, a restaurant, and conference spaces will also be established in the upper part of this area.

THE TEMPORARY RE-USE PLATFORM

12 °C | 22 °C | 59 mm | 178 h

School reopening
Kitchen garden opening
Winter-lean transplanting
Autumn equinox
Vegetable and fruit caring

SEPTEMBER 09

After the departure of hospital services, hospital rooms are promptly transformed into temporary residences for students and seasonal workers or emergency accommodation centers. In the base, the logistics area is well-suited for the installation of a transitional reuse platform and an agricultural resource center.

SHEPHERD'S LODGE AND GREENHOUSES

3 °C | 9 °C | 62 mm | 69 h

Ewe lambing
Greenhouse tree protection
Winter solstice
Sowing tools cleaning

DECEMBER 12

During the first years, the management of parks and gardens through ecopasture becomes widespread. The Blosne's sheep herd is dedicated to maintaining the agro-natural spaces of the Blosne stream. In the winter, the sheep are fed with hay and graze on a new urban sheepfold in the lower part. In the upper part, greenhouses are heated by the animals during winter, serving as a plant nursery. Here the future trees of Orson's Plateau bocage are grown.

2037 | +1.5 °C

THE TOOL FARM LIBRARY

7 °C | 16 °C | 50 mm | 163 h

Tool sharpening
Mechanical Weeding
Bicycracker training
Root vegetable thinning
First leafy vegetables harvest

APRIL 04

The hub acts as a key element in the metropolitan local food supply chain. It directly addresses farmers in the process of establishing their farms or those looking to organic agriculture transition, offering them all the necessary tools, machinery, seeds, ongoing training, legal and financial advice, and more.

VEGETABLE HARVEST IN THE CITIZEN FARM

15 °C | 26 °C | 49 mm | 211 h

Student farm job fair
First tomato harvest
Red fruits picking
Natural pest management
Summer harvest fest
Fruit tree pruning
Soil fertilization
Soil winter preparation
Tree hedge plantation

JULY 07

Initially, the 300 hectares owned by the Metropolis are utilized for market gardening as a model. Gradually, through incentive measures and in connection with the generational renewal of farmers, the 6,500 hectares of agricultural land within the green belt are diversified. With this reorientation, the production within the green belt reaches 15% of the food needs of the population within the metropolitan ring and this rate increases to 40% for the entire metropolis.

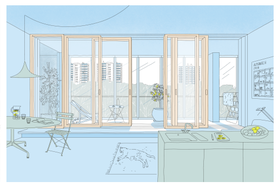
THE BLOSNE SHEEP HERD TRANSHUMANCE

11 °C | 19 °C | 75 mm | 118 h

Vegetable-seed storage
Blosne transhumance
Apples Pressing
Cider making
Cabbages harvest
Fruitwoods soil preparation
Ground winter mulching

OCTOBER 10

The site of the former South Hospital, ideally located at the edge of the city/countryside, is reactivated to serve this major agricultural and food transition. Positioned as a satellite of the urban area, directly connected to the road infrastructure, this site has a strategic metropolitan reach for the transformation of the green belt into a food-producing area. The site becomes a kind of "rear base" for agricultural activity. Several times a year, the transhumance of Blosne's sheep herd concludes with a grand celebration at PRAAB.



NEW CROSS-VENTILATED APARTMENT

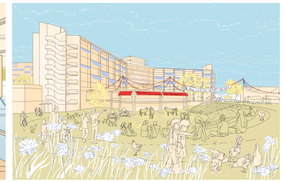
6 °C | 10 °C | 67 mm | 69 h

Crop-rotation-planning
Under greenhouse sowing
Potato/seedlet transplanting
Crop protection
Raised bed cleaning
Winter-rest vegetable harvest

JANUARY 01

The transformation of hospital rooms into housing gradually creates a new way of life in this part of the Blosne district. The large living spaces are well-lit during winter while remaining cool in the summer. The new layout has enabled cross-ventilation throughout, allowing free circulation of air during the hottest months.
The 50-meter width of the floor allows for the integration of private loggias for each dwelling within the existing footprint. Even in January, it is possible to enjoy this outdoor space taking a form of a winter garden.

2047 | +3 °C



THE FARM SHOW OF THE BLOSNE

13 °C | 22 °C | 67 mm | 191 h

Sheep shearing
Ice Saints
Lunar eclipse
First direct seeding
Farm Days and pears harvest
Blosne farm show

MAY 05

New fruits and vegetable farmers and gardeners regularly meet there to continue their training or receive assistance with administrative procedures. Collaboration is the watchword, and the rise in skills and knowledge of these professionals, as well as local and popular events open to everyone at the site of the former Hospital (markets, agricultural fairs, transhumance). Thanks to these events, the visibility of the agroecological transition movement in the green belt attracts followers. The former hospital soon becomes a showcase of this agrarian revolution.

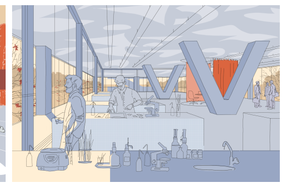
THE EVAPORATING COOLING TOWER

17 °C | 28 °C | 37 mm | 206 h

Seeds harvest
Vegetable-sun drying
Cutting and tapering
Katashi flower harvest
Gigaros harvest

AUGUST 08

Broadly, the PRAAB is open to all actors in sustainable food systems (restaurants, grocers, composters, businesses, associations, residents). The strength of the project lies in bringing all these actors together under one roof in a short supply chain logic. One of the key features of this system is the evaporating cooling tower at the earth of the buildind. It enables the passive preservation of vegetables and serves as a refuge for residents during heatwaves.



AGRICULTURAL RESEARCH LAB

9 °C | 15 °C | 67 mm | 81 h

Apples Pressing
Cider making
Cabbages harvest
Fruitwoods soil preparation
Ground winter mulching

NOVEMBER 11

The technical storey, characterized by its V-shaped columns, transitions from shadow to light. This floor transforms into large workspaces dedicated to research activities related to agriculture. These lower branches welcome antennas from various universities* (ENS Rennes, INSA Rennes, UniLaSalle, Gustave Eiffel University).

RENATURATION OF THE BLOSNE STREAM

7 °C | 12 °C | 49 mm | 87 h

Bocage cut and harvest
Fruit trees cut
Fertilization with compost
Raised bed cleaning
Winter-rest vegetable harvest

FEBRUARY 02

Over the years, the green belt has metamorphosed into a vital food supply for the metropolis. In close collaboration with market gardeners, gardeners, and residents, the restoration of the Blosne stream enhances the quality of the water that previously absorbs floodwaters. The culvert is preserved to become a well-frequented passage connecting to the metropolitan sports and recreational trail.