

## POLITECNICO DI TORINO

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Requalification of the area ex-Innocenti in Lambrate following a strategy that answers to the urbanization and food production crisis.

Relatore:Prof. Gustavo AmbrosiniCo-relatore:Prof Mario Artuso

Candidate: Lara Morra s275348

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## Abstract

#### Milano2030

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"Una metropoli che fa spazio all'ambiente, una citta di nodi, che produce conoscenza. innovazione e inclusione. una citta a misura d'uomo, una citta di nuova generazione."

Accelerated urbanisation is highly impacting our world in economic, social, and environmental dimensions, and thereby necessitates a re-examination of how cities are provisioned with food, water, and other essential goods and services. According to the United Nations, by 2050, the world will double its urban capacity, creating challenges for food production and security . The urban tissue of the city of Milan is slowly changing and so are the physiological needs of society. Many of the city's industrial areas that served once a purpose, such as the Ex-Innocenti, in Milan became abandoned after the postfordist transition, with no planning, leaving behind brownfields awaiting regeneration. This thesis studies the relationship between regualification, city, and agriculture by investigating the regualification of the dismissed industrial areas to answer to the food production crisis. The leading question of this study is: How can we redefine the role of the dismissed areas in the urban context and regualificate them per societal needs, to create economic and social developments, and tackle new innovative ways for agriculture inside the city? The Ex-Innocenti represents an important potential of regeneration, capable of stimulating the development of this district on many levels and redefining its long forgotten role in the urban context. While the placement of this area in the peri-urban and its connection with the landscape have seemed to many as an obstacle for regualification projects, this research argues that this specific placement is actually an opportunity for the regeneration.

This thesis analyzes the maps of Milan with different layers, studies the projects adopted by the municipality, and investigates the important experience of the famous South Park in Milan in an effort to assess the regualification of the agricultural areas in Milan. The analysis leads to the understanding that the regualification projects should take into account the urban context and the needs of the society as well as the environmental aspect. The purpose is not to see the brownfields as empty areas that need to filled to only serve the surrounding district, but rather as a potential for the development of the whole city.

In few words, this project is about requalificating the dismissed industrial areas in the purpose of answering to the food production crisis, it is an approach which sudies the relation between requalification, city and agriculture.

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## Urban growth and food production crisis.

#### 1.1. Overview

Food security is an important concern in the world today, the population keeps on increasing in numbers, but urbanization is taking over much more space than the ones to cultivate and questions are raised whether we are able to provide food for the population in 2050, and if the supply could fulfill the future demand. According to the UN's Food and Agriculture Organisation, food production across the world will need to increase by 70% by 2050 to feed a global population of 9.1 billion. To increase the food production, more land is required as well as water and energy, adding to this the pressure that climate change is causing along with the uncertainity in the future.

Facing these challenges, the world has given more attention to this topic and started to take action and initiatives to figure out alternative solutions for food production traditional method.

Thanks to the technology and artificial intelligence, as well as the education and awarness about the food production crisis, our vision towards the way our cities were planned has started to shift, the traditional distribution of the areas between city and countryside is not the same.

Since the urbanization is taking over many of the agricutural lands, we came up with rules to regulate this expansion and protect the remaining cultivable areas but also shifted our vision from having agricultural lands only in the countryside into cultivating fruits and vegetables also in the city.

Using technology, we discovered that we can cultivate different kind of fruit and vegetables regardless the weather conditions and uncertainity of the climate. We could also benefit from the small space we have to plant the maximum we could do vertically.

In this chapter, we are going to discuss more about the urban expansion in the city of Milan and its experience of urban farming, then we are going to ask ourselves whether the existing vegetable gardens could self-provision the city of Milan as an attempt to try to understand whether the alternative methods could try to solve the food production crisis in Milan.



Today, 55% of the world's population lives in urban areas, a proportion that is expected to increase to 68% by 2050 according to the statistics of the United Nations. Projections show that urbanization, the gradual shift in residence of the human population from rural to urban areas, combined with the overall growth of the world's population could add another 2.5 billion people to urban areas by 2050, with close to 90% of this increase taking place in Asia and Africa, according to a new United Nations data set launched today.

Fig 1: Urban and rural population projected to 2050, Italy Source :L2018 United Nations, DESA, Population Division Redrawn by the author



Areas characterized by a recognizable urban design (ADR) Areas of urban renewal (ARU) Lambrate

Fig 2:Expansion of Milan over the years and urban tissue classification Redrawn by the author Source: Milano 2030 - PGT vigente. PGT. (n.d.). Retrieved October 13, 2021, from https://www.pgt.comune.milano.it/

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## 1.2. Alternative food production systems and urban farming.

Today, the land is considered in the center of many transformations that are difficult to understand and manage.

The traditional distribution of areas between city and countryside has changed. The city keeps on extending beyond its limits because of the increasing number of population living there, this gives us as a result agglomerations without identity and less agricultural areas to satisfy the needs.

On another hand, the rural areas that are becoming urbanized keep on trying to adapt to the new needs and changing the agricultural activities to more functional and profitable ones.

The agriculture plays an important role in these areas; it can supply the production needs, support the ecosystem and shorten the food chain, it can create new social activities and encourage collective participation.

It prevents urbanization from occupying more 'empty' areas thus creating more sustainable interventions on dismissed areas.

The perspective of agriculture has changed nowadays, it is no longer only an activity that could only be done by professional farmers in the large rural areas, it became more modernized and could be done by people in the city in their comunity gardens or in their backyards, or even on the roof of their building

Using new modern techniques could also allow us to plant different type of agriculture even in bad sunlight or weather conditions and benefit from the maximum of the small area we have.

Urban agriculture creates experiences of social sharing, reduces urbanization and contributes to the recovery of the degraded and dismissed areas.

After world war II, urban agriculture was very famous in Italy in the name of "orticelli di guerra", especially in the degraded areas.

It was encourage by the state in order to increase food production, but later these areas were converted into residential.

Among the most successful gardens were the "Giardino Biosociale" promoted by the provinces of Milan and Monza.

Let's discuss more about the experience of the urban farming in Milan.





Fig 3: Benefits of Urban agriculture Fig 4:Orticelli di guerra, piazza duomo, Milano, 1945 Source :"L'orto in Piazza Duomo." Club Milano, 17 Mar. 2014, www.clubmilano.net/2014/03/orti-piazza-duomo/. Accessed 9 Sep. 2021

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### 1.3. The experience of urban farming in the city of Milan

When we talk about Milan, one might be surprised to know that it is actually considered the second agricultural municipality in Italy.

According the the Milanese Food System, 16% of the total area of the municipality which makes 2910 hectares out of 18,180 is made up of cultivated land and as we can see in fig.5 the biggest part lies within the Park Agricolo Sud Milano, the largest agricultural park in Europe which has many active farms (Municipality of Milan, 2013). From the data obtained from the open data site of the Municipality of Milan, it appears that there are 87 areas used as vegetable gardens; they are mostly found where we have the south agricultural park of Milan. To the north, however, the areas used for vegetable gardens are very few: only 20, while in the city center, there are no vegetable gardens.

The metropolitan population is made up of about 3 million people (ISTAT,2020) with very high density overall (2 thousand inhabitants/km2), most live in municipalities with high urbanization, such as the municipality of Milan where the population is made up of about 1.3 million people. The percentage of urbanized areas is very high and many agricultural areas are converted into residential and productive areas.

Facing this problem, the municipality of Milan has decided to implement projects and initatives that would encourage ecological balance, and try to reduce the damage. They also implemented restrictions and regulations over the conversion of agricultural lands into urbanized areas.

In the next pages we will take a wider look on the urban garden types that we have in Milan and we will try to understand whether or not the existing area can self provision the city.



#### Legend

Agricultural areas	12.San Dionigi
I.Ronchetto delle Rane 2.Basmetto- chiesa Rossa	13.Chiaravalle 14 Vajano valle
3.Bosco in Citta- Trenno	15.Macconago
4.Figinello 5.Figino 6.Monluè	16.Ripamonti 17.Vittorini 18.Quinto Rom
7.Forlanini 3.Parco delle Cave	19.Merezzate
9.Parco Lambro	20.Selvanesco
10.Ticinello	21.Ambito delle
11 Parco della Vettabbia	22 Assiano

Fig 5: Agricutural and green areas. ReDrawn by author Source of data: 3.1.2 Consumo Di Suolo E Rigenerazione Urbana I PGT." Www.pgt.comune.milano.it, www. pgt.comune.milano.it/vasraall2-quadro-di-riferimento-territoriale-e-ambientale/3-analisi-del-sistema-paesistico-ambientale/31-usi-del-suolo/312-consumo-di-suolo-e-rigenerazione-urbana. Accessed 8 Oct.2021

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Parks Agricultural areas

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Important parks

1-Parco Forlanini

2-Parco lambro

3-Parco nord

4-Parco sempione

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The advantage of these farms is mainly to ability to maximize the number of plants that can be grown in a certain volume, and minimizing the water waste in comparaison with the traditional agriculture, not to forget less use of pesticides. But mostly the important part is that we are able to cultivate fruits and vegetables even with the uncertainity of the climate change in the next 10 years to come thanks to the innovative technology that is being implemented.

The hydroponic cultivation is a technic that does not use any soil, it is divided into categories that vary depending on the vegetable type and space. One of them is aeroponics, which is a cultivation where plants are suspended and the nourishment arrives sprayed in the air.

In Cavenago, just outside Milan, a new vertical farm has been created in 2018 and it is considered the largest one in Europe of its kind. It's called Planet Farm and the idea started with Luca Travaglini and Daniele Benatoff. Its surface is 9.400 sqm in which they can produce 70 thousand bags of salad per day They focus on sustainability of the cultivation with zero impact on the environment.



Different typologies of urban agriculture are identified in Milan; from urban farms which are managed by professional farmers and produce for the market, Comunity gardens and residential gardens which are intended for self-consumption and social sharing, istitutional gardens to educate people more about agriculture and illegal ones. As we can notice in the graph (Fig 6), the highest percentage of gardens are farms and residential ones, then after comes the comunity gardens followed by istitutional ones. Recently, many urban farming initiatives are coming to life, people are being more aware and educated about the urbanization and climate change problems, specially after the Milan expo in 2015 where the topic of food production was adressed. The municipality of Milan has set many goals in order to make this city greener.



#### Fig 6.: "Planet Farm", la fattoria verticale di Cavenago

Source: "Inaugurata 'Planet Farm', La Fattoria Verticale Di Cavenago: Presenti II Governatore Fontana E II Ministro Patuanelli." Www.ilcittadinomb.it, www.ilcittadinomb.it/stories/Cronaca/inaugurata-planet-farm-la-fattoria-verticale-di-cavenago-presenti-il-govern\_1410931\_11/. Accessed 5 Oct.2021



(Researchgate, 2019)

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Fig 8:Garden of Brera, Istitutional farm .Fig 9: Cascina Cuccana ,urban farm. Fig10: Comunity garden in the North Park. Fig 11: Urban farms in Milan

Data taken from: M.Glavan, U. Schmutz, S. Williams, S.Corsi, F. Monaco, M.Kneafsey, P.A. Guzman Rodriguez, M.C<sup>\*</sup> enic<sup>\*</sup>-Istenic<sup>\*</sup>, M.Pintar, The economic performance of urban gardening in three European cities - examples from Ljubljana, Milan and London, Urban Forestry and amp; Urban Greening (2018), https://doi. org/10.1016/j.ufug.2018.10.009n 20.

## 1.4. Can the existing area of vegetable gardens self provision the city of Milan?

The definition of self-sufficiency of agriculture means the ability for a certain region to satisfy the domestic demand in the food production sector, for Lombardy this ability reaches 64.5%. This region can only maintain 60.1% of its inhabitants, according to the Milan Food System.

Analyses carried out for the metropolitan area show a reduction of 39% in agricultural areas over the period from 1955 to 2015. The decrease has been much more strong in the municipality of Milan where the amount of farmland has declined over the last 60 years by 64% (Milan food system). A study called Multitemporal Geospatial Evaluation of Urban Agriculture and (Non) Sustainable Food Self-Provisioning in Milan by Giuseppe Pulighe and Flavio Lupia in 2014 shows that the actual extension of vegetable gardens (98 ha) and arable land (2539 ha) in the best scenario could satisfy approximately 63,700 and 321,000 consumers of vegetables and cereal products, respectively. At the time of the study, the urban agriculture production could not meet vegetables and cereal consumption for more than 1.3 million city residents. To try to understand how to figure out the potential of a city, lets take a look at a recent study published in 2012 called 'cities', by Sharanbir Grewal and Parwinder Grewal who try to figure out the potential of Cleavland, for self-reliance in food. They came up with this formula which could be used to define the potential of self-reliance in food in Milan. "% Self reliance=(<u>Area x yield</u>) x 100 "

#### Intake

To calculate this potential for Milan which has an area of 181.8 km2, we need to calculate the amount of food produced by unit area which is difficult. However, by using the minimum to feed a person for a year, according to this study we can deduce that 'following the number of inhabitants in the city of Milan (about 1.39 million people), we need an area fifteen times higher than its actual size.'

Landuse	Crop	Area (ha)	Productivity	Yield	Per capita consumption	Feeding population (1ha)	Feeding population (whole area)
Vegetable Gardens	Vegetables	98.27	2.5kg/m2/year	2456.75	211.2g/day	324	31.869
	Vegetables		5kg/m2/year	4913.5	"77.09 kg/year"	648	63.738
Arable	Wheat, common	2539.2	5.72t/ha/year	14.5244	258.4g/day	61	153.983
land	Maize		11.94t/ha/year	30.318	"94.32 kg/year"	127	321.413

Fig 12 :Source :G.Pulighe and F. Lupia (15 February, 2019) Multitemporal Geospatial Evaluation of Urban Agriculture and (Non) Sustainable Food Self-Provisioning in Milan, DOI: 10.3390/su11071846 (Researchgate, 2019) 21.

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# Food production & Milan urban policies

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#### 2.1. Milan Urban Food Policy Pact



The food production crisis and climate change has took the attention of the municipality of Milan which in return has decided to act.

In 2015, the City of Milan along with Fondazione Cariplo, both launched an agreement called *Milan Urban Food Policy Pact (MUFP)*, in order to commit to the development of more sustainable food systems that minimize waste and adapt to climate change, in other words the creation of a systemic vision of sustainable innovation in the city's food system.\*

This agreement is a set of policies which the cities that sign on it commit to follow them and to work on the shared vision, the aim is mainly to re-examinate the way the city is provisioned with food and how it could be improved. It also supports and promotes actions for the improvement of the food system in different cities in the world. 160 cities in Europe have signed and agreed to commit to the pact. This policy has made it possible to launch several initiatives in Milan organized by the Food Policy Office and became the topic of the Milan 2015 expo where many projects were proposed for the city's agenda on this issue and took the attention of the city council. Among the five priorities of the Milan's Food policy they try to work on I will focus on the priority number two which is promoting the sustainability of the food system and number five: the support of the scientific agri-food research.

In the second priority, the municipality commits to encouraging agricultural activities and supports the technological innovation in the system of production, distribution etc.. (fig.1) in order to arrive to a more sustainable food system. As we can notice, the subject of agriculture has an important place in the Milanese Food system, and it is no surprise due to the large percentage it occupies in the municipality of Milan, which according to the Milan Urban Policy is 16%, adding the history of farming in the South Park of Milan. It is interesting to note that they are working on stimulating a sustainable urban/rural development of the Milanese metropolitan system on many levels and planning for the management of the basins of the Lambro to improve the environmental quality and landscape surrounding it. Many experiences of urban vegetable gardens came to life with the purpose of education and social connection, for example the one at the Durando campus of Milan Polytechnic, and the Cascina Cuccagna.



In the fifth priority, the municipality commits to the promotion of the scientific research in the agri-food sector, in collaboration with Universities and Research centers, as well as the researches in relation with the urban system. It will also encourage the innovative projects in the agrifood sector. One example of a research initiative is the *OpenAgri* project Co-founded by the European Union, which has as an objective to assume the urban areas as a large experimental laboratory for innovative solutions in the local agro-food chain such as the innovation hub inside the Cascina Nosedo project.

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### 2.2. The interesting and important experience of Parco Sud.

The parco Sud in Milan (Agricultural Park of South of Milan) plays an important role in the history of agriculture, it represents almost 30% of the whole area of the metropolitan city of Milan as shown in fig 10. Almost all of this area is agricultural land (90%), and it is considered a rural heritage for agriculture as it is called 'Polmone Verde' or green lung at the disposition of the citizens by the Parco Agricolo Sud Milano Association.

The park has many objectives including the protection of the peri-urban land and the implementation of ecological balance in the metropolitan area, soil conservation and agricultural activity for food production which comes hand in hand together.

The urban tissue of the park has witnessed some changes, and specially at the end of the 19th century, where Milan experienced uncontrolled urban growth and has witnessed the tendency to abandon the rural areas for the advantage of working in the tertiary urban activities. As a consequence, this has caused degradation of the peri-urban and rural landscape and a good part of the area in the province was taken over. Parco Sud was established in order to prevent the urbanization and preserve this part of agriculture that forms a belt in the metropolitan.

According to the Milan Food System, analyses conducted for the metropolitan city show a reduction of 39% in agricultural areas over the period from 1955 to 2015 Moreover, the ability to fulfil local food demand decreased from 15.93 per cent in 2011 to an average of 12.89 per cent in 2020 (Province of Milan 2011).

Even today, the Park is still undergoing an increase in residential and specially in the commercial sector on the behalf of the green areas because of the economical situation. However, the park remains a protected area that needs to be valorized as it brings alot of environmental benefits especially for Milan, and it is the center of many regeneration plans that are awaiting to be conducted, not to forget the introduction of the food system in the urban Agenda of the municipality as we explained in the previous chapter and the implementation of the Milan Urban Food Policy Pact which makes this topic important for the planning.





#### Legend

Municipality of Milan Metropolitan city of Milan Parco agricolo Sud

Fig 14 :Parco agricolo Sud Elaborated by the author Source: http://www.provincia.mi.it/parcosud/index.jsp,Wikimedia, Map of comune of Milan Fig 15:Parco agricolo Sud Source: azienda agricola scotti, parco-agricolo-sud-polmone-verde-milano

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The Parco Agricolo Sud is managed by the PTG of Milan (Piano Territoriale di Coordinamento ) which sets the planifications and rules to protect the landscape heritage as well as defining the landuse. Depending on the location, the cultivation type will vary, for example areas close to the river will cultivate cereals in particular rice and corn which both represent the most widespread cultivation in the Park and a great economic as well as cultural importance, Corn (47%) and rice (29%) according to the table fig 12, we also have the cultivation of cereal crops and grass which come right after. In total we have 36 500 Hectares of crops .

Crops	Hectares	Percentage of Total
Corn	17 337	47
Rice	10699	29
Grassland and permanent pasture	4034	11
Winter cereal crops	2018	6
Soybean	1830	5
Treecrops	465	1
Horticulture and forticulture crops	117	0
Total	36500	100

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Fig 16: Crops cultivated in the Parco Agricolo Sud.



Vineyards

Fig 17: Crops cultivated in the Parco Agricolo Sud.Redrawn by the author Fig 16-17 : Data taken from Migliorini and Scaltriti (2012).p. 281 Quaglia, Stefano, Greater Milan 's foodscape : A neo-rural metropolis Chapter Title : Greater Milan 's foodscape : A neo-rural metropolis, in Yves Cabannes, Cecilia Marocchino, Integrating Food into Urban Planning Book Editor, 2018

Here below is a map of how the crops cultivation is distributed over the metropolitan area of Milan, we can notice the presence of the areas that cultivate rice specially abundant in the south west of the park because of the presence of more water. This study helps us understand the linkage between the self sufficiency level of the city and the urbanization process, how the urbanized area in Milan the municipality is interacting and dialoguing with its surrounding landscape context. The peri-urban area is very important to be studied as it is considered the connection between the two.



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''Una metropoli che fa spazio all'ambiente, una citta di nodi, che produce conoscenza, innovazione e inclusione, una citta a misura d'uomo, una citta di nuova generazione."

The opportunity of the dismissed areas as potential for productivity

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#### 3.1. The question of the dismissed industrial areas in Milan.

Between the years 70' and 80' Milan has made a post-fordist transition, the city that was once the center of many industrial factories, today has left only memories of stories and dismissed areas, some of which were able to be re-integrated by a regeneration process while others are awaiting to have a redefined role in the urban context.

The map on the right side shows the main urban transformations refered to the period between 1990 and 2005 in pink colour, it was redrawn by the author of this thesis based on the map from the book 'Milano oltre Milano'. Some of the projects are done, others in a state of construction and the rest is not known when it will be finished.

It is obvious in the map how much Milan has changed the urban fabric from 1990 and is still in phase of changing, nevertheless, today, the municipality is putting more focus on the dismissed industrial areas and is working on regenerating and re-integrating these areas into the urban context of the city.

In the next pages we will talk more in details about the municipality plans for the city of Milan and for the abandoned areas.





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Fig 18.Ex-falck Source"Milano I Sesto San Giovanni – Milanosesto: Nuovi Rendering per l'Ex Area Falck." Urbanfile Blog, 13 Mar. 2018, blog.urbanfile.org/2018/03/13/milano-sesto-san-giovanni-milanosesto-nuovi-render-ing-per-lex-area-falck/. Accessed 10 Aug.2021. 19

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#### 3.2. The municipality prescriptions PGT of Milan 2030.

PGT means 'piano del governo del territorio' which refers to the set of documents organized in three technical and administrative parts : the document of planning (DdP), the regulation plan (PdR) and the plan of the services (PdS).

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The administration of Milan is rethinking constantly how the city should be and setting up goals to achieve in the near future, with the objective of making it more sustainable and adapted to the modern needs, as well as selecting dismissed areas that need to be regenerated in order to benefit the public.

The PGT has adopted a system of strategies developped following a series of objectives that include the themes of : Attractiveness, liveability and efficacity. As we have seen in the previous chapters, Milan has been built on the model radiocentric, where the areas on the margins of the city are somewhat disconnected from the center of the city and in consequences lack of services and activties. We have also seen that the number of population is rising with in consequence rise of the demands, adding to this the gentrification phenomen which made the fragile part of the society live in the suburbs with exclusion from different services.

Today, the municipality is putting more focus on the margins of the city and setting projects for the requalification of theses areas in order to create a contiuous urban context and a multicentric system.

The projects inserted are focusing on the idea of having multifunctions such as hospitals, educational, cultural etc... and reduce the phenomena of social exclusion, inegualities and clusters. The PGT is also taking into consideration the soil consumption and is implementing an environmental strategy in order to take advantage of every unused area to create greenery and agricultural areas and rebalance the urban density. This is why is it necessary to requalificate the abandoned areas and make use of the existing in a more efficient way,

We will see in the next pages the objectives of the PGT more in details.

#### The objectives of the PGT 2030:







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#### A city with 88 named neighboors

Milan is a city that grew along radial axis concentric circles (the circle of the Navigli, the railway belt, the ring roads etc..) and then was developed in a disconnected way with the margins of the city. Because of the urbanization, most of the areas on the periphery are left unconnected, either by transportation means or public services. The plan for Milan 2030 is to extend the center beyond its current border, starting by the reopening of the Navigli, and the reuse of the railway yards as well as the identification of new centralities by enhancing specific neighborhoods located in Loreto, Maciachini, Lotto, Romolo, Abbiategrasso, Trento and Corvetto that represent the nodes along the trolleybus circle. A system of 'piazzas' squares is redesigned in a way to regualificate the suburban districts.

The interventions aim to enhance urban quality, attractiveness and public use for the 88 neighboors of the NIL (Nuclei di Identita' Locale), focusing on adapting to the socio-economic changes and most importantly to bring the suburbs of Milan closer to the center and reduce the social inclusion and inequalities between different parts of the city.

#### • A green resilient city

Milan plans to become more green with the reduction of land consumption by 4% compared to the current plan, and the enhancement of the green and blue infrastructure to become resilient facing the challenges that impact the ecosystem. The blue infrastructure is restored through the implementation of the local parks of Lambro and Martesana, while the green infrastructure is enhanced through the constraint for agricultural use of over 3 million square meters of areas, the extension of the south park for about 1.5 million square meters, and the construction of the large Metropolitan Park through the ecological connection between the North Park and the South Park, adding to this; the creation of at least 20 new parks including the 7 planned within the railway yards and a forestation plan under study to increase the number of trees in the metropolitan area.

As for buildings, better energy performance will be required, as well as the construction of new permeable areas, including "green roofs", and the certification of CO2 reduction. The goal here is to build ecological relationships and initiate environmental regeneration of degraded areas following a land-saving policy.



Source :"Milano 2030 - PGT VIGENTE | PGT." Www.pgt.comune.milano.it, www.pgt.comune.milano.it/. 39.

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#### A city of opportunity, attractive and inclusive

The regeneration of degraded areas by implementing a system of urban-scale functions can create a huge opportunity not only on the side of revitalising the neighborhoods but also attracting invesments and opening new job opportunities. Milan starts working on the existing by relaunching the university vocation of Citta' Studi and plans to work on the large urban-voids of the selected areas: San Siro-Trotto, Bovisa-Goccia, Piazza D'Armi, Ronchetto, Porto di Mare and Rubattino whose development will be referred to "Great Urban Functions", such as hospitals, urban parks, sports facilities, activities related to the university and functions related to research and innovation that would bring development for the city and job opportunities for the young generation adding to this, making the city more attractive by the organization of major events such as the Milano-Cortina 2026 Winter Olympics. Creating activities and opportunities for the young is a very important way for the development of a city. In Milan, there is a housing issue and a growing demand for the young population, the plan encourages the construction of social housing, in a way to enable the students and the young of low and medium income to live in the city.

#### A more connected city

The municipality is working on creating more connection either on the outside as on the inside of the city, following the logic of allowing the greatest possible number of people to live and work at a short distance from a train or metro stop to reduce dependence on private mobility, as well as promoting a more ecofriendly and soft mobility network. The Plan encourages regeneration interventions and strenghening of the 13 interchange nodes - **Comasina, Bovisa, Stephenson, Cascina Gobba, Centrale, Garibaldi, San Donato, Rogoredo, Famagosta, Bisceglie, Lampugnano, Molino Dorino, Bonola** which we can see in fig.20. Urban planning will be well connected to the development of mobility infrastructures, which in the next few years will witness the construction of the **M4**, the extension of the metro towards **Monza** and **Settimo Milanese**, the adaptation of the railway belt to the Circle Line and the strengthening of the Railway Service Regional and high speed.





#### The regeneration of the city

The Territory Government Plan has made many analysis maps for the city of Milan in order to better understand the urban context and start with a plannification. They have introduced new guidlines that promote the intervention and regualification of abandoned industrial areas as well as railways that became degraded but could offer many opportunities for a major urban development of the city on different scales, the main idea was to reduce the consumption of further public areas and instead to regenerate the existing. The document of the PGT represents the strategies to follow in order to achieve these goals in a rational and planified way and defines "Areas of Urban Regeneration" which we can see in fig .17

Among these identified areas we have Lambrate including the area of the project which means this location is considered of public interest for a major regualification project. On a big scale they identified the epicenters, the green rays and the peri-urban parks while on a small scale corrisponding to the NIL (Nuclei di identita' locale) they identified green and public areas in the districts, reducing energy consumption etc...They also identified the recovery of 3 thousand public housing units, the realization of a few social housing and took mesurements against leaving buildings in state of decay.



Fig 24. "Milano 2030 - PGT VIGENTE I PGT." Www.pgt.comune.milano.it, www.pgt.comune.milano.it/.

Areas of urban regeneration



Legend



Source: "Milano 2030 - PGT VIGENTE I PGT." Www.pgt.comune.milano.it, www.pgt.comune.milano.it/.

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#### Big projects of public interest

#### • The circle line of Milan

The circle line is a railway path surrounding the center that connects together the peripheral areas, and becomes an element of connection passing through the stations which some of which are abandoned such as **San Cristoforo** and **Porta Genova** and others in operation **Lambrate**, **Garibaldi**, **Centrale**.

The Circle Line will trade with other suburban railway lines of Milan and create a interrelated system together. The PGT aims to create a new sustainable mobility system capable of connecting the center with the periphery.

New stations located on the belt are expected such as **Canottieri** and **Tibaldi** and the redevelopment of the dismissed ones like **Forlanini**, **Farini** and **Greco Pirelli** This is an important point for the location of the project under study in this thesis, as the connection with the Lambrate station will be strenghened which therefore will make the area better connected with the center of Milan.

• The Green Belt of Milan and the cycling path.

Considered as a very sustainable project, the Green Belt is a circular path around the center of 72 km, to which it is added 150 Km diffused along the Green Rays and the epicenters.

This system aims at resolving the fragmentation of the green areas problem connecting them together with a long cycling path taking into consideration the ecological and environmental valutation it brings to the city.



#### Legend



Fig 26. Circle line and environmental project of Parco media valle del Lambro Redrawn by the author

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#### Valorisation of the Valle Lambro

It is a large-scale project that affects the whole area adjacent to the Lambro river which flows from the North towards San Donato Milanese until it meets with the Po river. This area is characterized by a fragmented urban fabric, that lacks of identity. A park between Sesto San Giovanni and Monza called Medio Lambro Valley has a very important but neglected natural landscape along the axis.

The Medio Lambro Valley represents a great function in this position as it is considered in a strategic point where it offers project opportunities on different scales taking into consideration the East Ring Road which represents an element of territorial rupture. The PGT proposes the expansion of the surface of the Medio Lambro Park to reach the South agricultural Park, in particular by working on the crossing points: C.na Gobba, Lambrate, Rubattino, Forlanini, San Donato Milanese / Santa Giulia (fig 24); The RE-Lambro project and the redevelopment project of the Forlanini Park already include these areas. This project has many beneficial points : From an ecological point of view, it promotes the recovery of the permeable areas and reduce the hydraulic risk as well as the creation of a green belt along the city of Milan which would improve the environmental quality and regenerate the neglected areas. It also occupies a remaining area between the urban fabric of Milan and the one of the municipalities of Sesto, Segrate and Cologno Monzese with greenery. From another point of view, the east ring road which is parallel to the river would be valorised by new infrastructures and cycling path capable of connecting the new functions with the other side



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## 3.3. The debate on the redevelopment of industrial spaces in Milan

Le città italiane rappresentano un caso studio rilevante per la consistenza spaziale, economica e sociale delle periferie urbane, spesso caratterizzate da un disegno ed un assetto funzionale incompleto (Pinto, 2007)

I started with this sentence written by Pinto to show how much the italian cities and specially Milan were an interest for many researchers to understand the process of urban development and how come it is considered incomplete.

The shift from being an industrial city marks an extreme urban metamorphosis for the city of Milan, at the end of the 20th century many factories had closed and left behind only memories and a void in the urban tissue, we could see the rise of the third sector and post-industrial.

What is the destiny of these areas? and what kind of intervention is considered beneficial for the collective welfare and the development of the city?

Many debates were raised regarding the regeneration of the dismissed areas in the city of Milan. Some critisized the interventions as being fragmented and lack of framework and context, as in the journal 'Milano oltre Milano' that called the changements in Milan as 'dinamismo caotico' in which the author Matteo Goldstein shows that the majority of the projects are not responding to the needs and that Milan reguires a public planning capable of supporting the functional diversity which is typical of an international city.(Urbanistica in cerca di rappresentazione, Matteo Goldstein.) Another book called 'Milano incompiuta' by Matteo Goldstein and Bertrando Bonfantini talks about how Milan is considered incomplete and necessitates selective interventions that would create collective welfare for the city.(Milano incompiuta, Interpretazione urbanistiche del mutamento, by Matteo Bolocan Goldstein and Bertrando Bonfantini.)

When we talk about urban regeneration we need to look first of all at the context in which this area is placed as we cannot treat all the dismissed areas in the same approach, and to keep in mind that it is in continiuous evolution in terms of people and needs, it should be percieved as an area which has opened to us a new opportunity for the development of the city.

#### The guestion here we ask ourselves is: **Are the current interventions in Milan** good for the collective welfare and could urban farming planned in specific dismissed areas be a major answer for the food production crisis?

Let's take different examples of an urban regeneration of a dismissed industrial area and understand the strategies used in order to regualificate these areas.





#### STATO DI FATTO

10.000 mq	Verde pubblico	120.000 mq	12x
38.000 mq	Verde privato	104.000 mq	2.7x
48.000 mq	TOTALE SUPERFICI VERDI	224.000 mq*	4.7x
48.000 mq	di cui Superficie filtrante	131.000 mq	2.7x
	RIC – RIDUZIONE IMPATTO CLIMATIO	0.55 >>	0.3

\* Superficie vero Tetti verdi

Fig 28-29: Progetto Cmr I Le aree verdi del guartiere. https://urbanpromo.it/2020-en/progetti/la-rigenerazione-dei-quartieri-erp-a-milano-nel-contesto-del-piano-di-governo-del-territorio/

PROPOSTA

de a terra	154.000 mg
	70.000 mq

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The first project I'm going to talk about is the regeneration of the San Siro district in Milan, I chose it because it is among the most degraded districts in the city that require urgent regualification. It represents social issues as well as scarsity of services, lack of green areas and aggregation centers in a marginalised contest. At the same time it is a place that has a strong potential of development and its regeneration was an one of the PGT (Piano di Governo del Territorio)'s objectives.

An urban proposal by the municipality has lately been approved and it shows how much welfare it brings to the district, on an environmental point of view as well as social one. They proposed a more high-density nuclei arranged around common green areas. According to this proposal we are able to multiply the area of greenery by 4.7 which therefore reduces the climate impact, at the same time reducing covered area by 16% ,adding more services and life and re-insert this district into the urban context of the city. This project helps creating a more policentric city, one of the main goals of the PGT of Milan (Piano di Governo del Territorio).

The second project introduced has not been implemented yet, it was a winning project for the competition of Reinventing Cities of Milan in 2020, the project relates to the regualification of the disused railway of Lambrate, the strategy followed was the implementation of three squares that connect with the Lambro park. It is a multifunctional project of residential, commercial and a park that connects the squares together along with vegetated surfaces and comunity gardens. Currently, this area represents a huge urban void waiting to be re-implemented in the urban context, with the proposed project it could bring alot of welfare for the inhabitants on different scales and many environmental benefits thanks to the presence of greenery and vegetated areas as well as public parks and renewable energy.

As we can see in the following examples, many projects are being proposed for the city of Milan that are able to requalificate the urban voids and restore the identity of these dismissed areas by re-inserting them in the urban context and bringing welfare for the inhabitants, with special focus on the marginalized areas to make Milan a policenctric city. The major problem is that most of the requalifications require alot of investement, and because of financial and admnistrative issues they did not see the light yet, most of the projects are being done by private sector and would direct towards commercial and residential sector that could be considered profitable instead of requalificating the existing to bring it back for the city.



Fig 30-31:Winning project of the second edition of the Reinventing Cities Competition for Scalo Lambrate in Milan Three Squares in the Park - Reinventing Cities Milan Team:Lambrate Streaming Date: 15.03.2021 Documento 3 - Relazione tecnico descrittiva Presentazione del progetto e sviluppo concettuale del sito

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Since the 80's, many wastelands and urban voids have been redesigned to better fit the needs and become more environmentally friendly. Among these projects is the famous Highline in New York (2009-2015).

It took more time for Milan due to the shift from post-industrial city and economic recession. At the end of the 19th Century, Milan woke up to the opportunity of bringing back dismissed areas by using environmental and landscape architecture. In fact, a few years later, many ideas and projects were thrown at the table, such as the 'Green Rays' by Andreas Kipar which we talked about earlier, the 'MetroBosco' by Stefano Boeri, these projects remained unattended, but the ideas were an inspiration for projects and proposals to come. On another hand, some of the projects such as the Rubattino Park (1995) which we talked about in this thesis, represent a great example of regualification using a landscape intervention.

Let's take a look on the international projects and talk more about the important experience of the highline project in New York.

It was a disused railway that was transformed into a park, they created a paved road which encourages the growth of greenery through a strategy of mixing agriculture with architecture. They have created different experiences along this road where part has vegetated biotopes, another part is a public area, but mainly it is considered undefined to let the people the liberty to experience it as they wish. It works on a great scale to encourage vegetables growth in the middle of the city and improves the environmental aspect as much as the social connection.

Another example is an international project where dismissed areas were converted into vegetation: RegGen village is considered a very important and successful experience for the Netherlands, currently being under construction. The project is about transforming abandoned offices into urban farms, by using the opportunity of having a high percentage of office vacancy as well as artificial intelligence and technology, they created regenerative resilience for an entire neighborhood. This village will feature 203 houses and will produce vegetables with collected rainwater. They also encourage residents to take care of the gardens which could improve social connections and sharing, not to forget to emphasize on using bikes instead of cars.



33 Fig 32: Highline project, New York.Colours edited by the author. Source: Cilento, Karen. "The New York High Line Officially Open." ArchDaily, 9 June 2009, www.archdaily. com/24362/the-new-york-high-line-officially-open. Fig 33:RegGen village, Netherlands. Colours edited by the author Source: Bennett, Mia. "Can Urban Farming Bring a Soul Back into Our Cities?" Medium, 12 Apr. 2019, medium.com/future-of-cities/can-urban-farming-bring-a-soul-back-into-our-cities-14cf8c8b1f0b. 53.

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### 4.1. Urban analysis of Milan city

· Metropolitan mobility and railways

By analysing closely the layers of mobility, soil components, dismissed areas and railways and agricultural areas of the city of Milan, we are able to understand more how the district of Lambrate is connected to the rest of the city. We could notice that we have a high number of dismissed areas among them the ex-industrial, ex-caserns and the disused railways.

By overlapping the different layers of mobility, railway and dismissed areas we could understand better how a requalification of these areas could bring a more connected city and a better quality of living for the inhabitants.

We could also see that Lambrate is considered an area project of a major regualification either for the disused Lambrate railyard or for the dismissed industrial of the ex-Innocenti. From the map of the mobility, we could see that Milan has four metro lines, each represented by a colour in fig. some of these lines is expected to have an extention is the 2030 plans of the PGT in order to reach areas that are considered within a greater distance from the center.

One could notice that the railway line forms a circle around Milan which remind us of how the city was composed of the ancient circular spanish and medieval walls that define a circular growth of the city, and how today the railway forms a circle that could be perceived as the third walls that divide between the dense city and the agricultural area specially on the south part.

In the fig. we could see that the ex-railway racks are located on this circular axis, a new railway line extention is expected to connect P.Garibaldi to P.Vittoria. The metro line M2 is the one that connects with the area under study in Lambrate, it is also connected with the citta' studi which creates an advantage for this area. However, this area is considered disconnected from the city center but the proposed extentention of the M2 could be a good attempt for a better connection.



Legend



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Fig 34: Metropolitan mobility and railway Source of data:"3.5.1 Infrastrutture E Servizi per La Mobilità I PGT." Www.pgt.comune.milano.it, www.pgt.comune. milano.it/adottato/vas-rapporto-ambientale/3-laggiornamento-del-pgt/35-relazione-del-pgt-con-il-pums/351-infrastrutture-e-servizi-la-mobilita. Accessed 12 Sep 2021.

#### • Dismissed industrial areas and railway racks.

The infrastructure of Milan is defined by elevated railways that were developed back in the 20th Century. Nowadays they are abandoned by many cities worldwide as they moved to underground railways, leaving behind urban voids that were later transformed into public areas such as the famous high Lane in New York. In Milan we don't have the same problems because the railways are still functional and well connecting, the only problem is that the large space in the stations was needed back at the time in order to accomodate the arriving goods, but today this system has shifted in favour of another one and left behind big urban voids in Milan, the dismissed railway racks. In the fig. we can see how the railway racks are well connected to the urban transportation systems, the railways were previously considered on the outer ring of Milan but later with the urban expansion of the city they became brownfields inside the urbanized areas.

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Many proposals for the regeneration of these dismissed areas were suggested, an important vision is the one that suggests the connection between the green system and the railway belt, this vision is called 'Green Rays' which we previously dicussed in the thesis.

Same for the industrial buildings and caserns which previously had the role of production and today are left abandoned, they are also located mostly on the outerskirts of the city for the connection with the agricultural areas and away from the urbanized ones.



Legend



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Fig 35: Dismissed industrial areas and railway racks Redrawn by the author

Source: "3.5.1 Infrastrutture E Servizi per La Mobilità I PGT." Www.pgt.comune.milano.it, www.pgt.comune.milano.it/adottato/vas-rapporto-ambientale/3-laggiornamento-del-pgt/35-relazione-del-pgt-con-il-pums/351-infrastrutture-e-servizi-la-mobilita. Accessed 12 Sep 2021.

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· Land components and urbanization

As we talked previously, Milan was made of vast agricultural areas and the city was delimited with the circle walls that divide between the two. Later, it has undergone a process of progressive urbanisation and loss of rural fabric and today the central core of the city is considered high in density with a compact urban settlment, the greater part of urban development is located on the north side of the city as for the south, it kept a bigger area of agriculture within the South Agricultural Park. We can see that the remaining agricultural areas are set as free lands that cannot be urbanized in order to protect these areas from the urban expansion, very small lands are urbanizable and mostly located on the margins of the city or away from the center. The public parks in the city cannot be urbanized, they make a relatively small area in comparaison with the margins of the city.

The Lambrate area benefits from having the Lambro park which represents a large green area that cannot be urbanized and a great environmental benefit for the city.

According to the The ENVIBASE-Project :

The land use in the metropolitan area of Milan is represented by: urban settlements 33.5 % new settlements (according to Local Land Use Plans) 26.2 % wide urban parks 1.5 % regional parks 14.0 % other parks 1.4 % Parco sud Milano (green south belt) 22.0 %





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Fig 36: Land components Redrawn by the author Source: "3.1.2 Consumo Di Suolo E Rigenerazione Urbana I PGT." *Www.pgt.comune.milano.it*, www.pgt.comune.milano.it/vasraall2-quadro-di-riferimento-territoriale-e-ambientale/3-analisi-del-sistema-paesistico-ambientale/31-usi-del-suolo/312-consumo-di-suolo-e-rigenerazione-urbana.



## 4.2. Nuclei di Identità Locale (NIL)



![](_page_31_Figure_4.jpeg)

Fig 37 :Dismissed industrial railway racks Redrawn by the author Source: "3.1.2 Consumo Di Suolo E Rigenerazione Urbana I PGT." *Www.pgt.comune.milano.it*, www.pgt. comune.milano.it/vasraall2-quadro-di-riferimento-territoriale-e-ambientale/3-analisi-del-sistema-paesisti-

co-ambientale/31-usi-del-suolo/312-consumo-di-suolo-e-rigenerazione-urbana.

Fig 38 :Nuclei di identità Locale (NIL) Source: Comune di Milano -Settore Sistemi integrati per i Servizi e Statistica

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![](_page_31_Figure_13.jpeg)

The project site of the ex-Innocenti is located inside the nuclei of local Identity of Lambrate (NIL23), which is located between via Rombon to the north, via Ortica to the south, the railway to the east and the comunal border to the west (fig.1). As we mentioned previously it also falls in a area of urban landscape regeneration 'ambiti di rinnovamento del paesaggio urbano'.

If we go more in details in this NIL we can see that the statistic sector reveals that its total surface makes 1.7% of Milan and the area is mainly used for residential (40%) and a small percentage is used for services, commercial use and touristic, with 7%, 2,7% e 0,8% respectively (fig.2).

We also notice that the trend of the population of this area has recorded a significant increase in recent years, in relation to immigration phenomena.

The N.I.L. from Lambrate has about 11,319 residents as of 2018 (Municipality of Milan, Statistics Sector, 2018), of which 17% is represented by foreigners.

Adding to this, Milan is found by many people on a daily basis as a place for work or consumption, the urban space has different way of use by the inhabitants, it could be sedentary, nomadic or discontinuous.

We could not but notice the existance of many schools from maternal until technical and professional schools, not to forget having the Politecnic university of Milan and the Statale university nearby (fig.3).

This means that this area has a potential in the educational and cultural sector and could offer initiatives. However, it lacks activities and services to attract the young coming from the outside.

![](_page_32_Figure_8.jpeg)

![](_page_32_Figure_9.jpeg)

Source: Graph of land consumption of lambrate (NIL23) in 2018, "Nuclei Di Identità Locale (NIL) I PGT." Www.pgt.comune.milano.it, www.pgt.comune.milano.it/psschede-dei-nil-nuclei-di-identita-locale/nuclei-di-identita-locale-nil. Accessed 16 Jul. 2021.

![](_page_32_Figure_11.jpeg)

#### Legend

![](_page_32_Figure_13.jpeg)

Fig 40: Map of main functions in Lambrate, Milano Drawn by the author

Source: Comune di Milano. "Milano 2030 - PGT VIGENTE - Tavola S01 I Servizi Pubblici E Di Interesse Pubblico O Generale." Milano.it, 2014, geoportale.comune.milano.it/portal/home/webmap/viewer.html?webmap=c0e189602840458785768.A5d623265212. Accessed on :2 Oct.2021

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## 4.3. The PRU (Piano di Riqualificazione Urbana) Rubattino 8.1

The area belonging to the Innocenti factories falls within the area known as the "ambito di rinnovamento del paesaggio urbano". This means that it is considered an area of Implementation

interest for major requalification projects.

After the industrialization, there was a need to give a new identity and function to these vast abandoned areas.

For this reason, in 1997, the Municipality of Milan, the Lombardy Region and the Ministry of Public Works signed a Programme Agreement, which was implemented through the approval of the Urban Redevelopment Programme no. 8.1 (the so-called "PRU Rubattino")

The objective of this program is the redevelopment of the areas through the construction of the public and private with different functions (residential, commercial, office and production) as well as the implementation of a large urban park.

The Program is developed over a period of ten years, divided into two Implementation Phases of four and six years.

The area covered by the Rubattino PRU is located within the decentralization area 3 and is defined by the current PGT as Z.T.5, or Transformation Zone with the Resolution of the C.C. of 04/02/2011.

It is a surface particularly large overall: 616,331 square meters, bordered to the north by Via Caduti delle Marcinelle and to the south from Viale Rubattino, to the east from the limit of the Comune of Milan and to the west from via Pitteri. It also includes small lots outside this perimeter that in the past belonged to the Innocenti.

#### P.R.U. Scenario (1998)

The functions to be allocated - and the respective surface - should have been:

- Total residential construction corresponding to 165,000 square meters
- Construction with commercial destination for 12,000 square meters in the first phase
- Building intended for production activities (62,000 sq m)
- Building with directional destination and with strategic functions for 62,944 sq m (20,000 sq m recovering the Crystal Palace with functions such as recreational, sporting, cultural activities or workshops).
- Large urban park of 300,000 square meters.

In 2008, following the completion of almost all the works of the First Phase Implementation, the Municipality of Milan and the Rubattino '87 Company signed a Recognition Deed that shows what has already been achieved and what still needs to be done, at the end of the complete definition of the West residential district.

In 2011 an amending act was signed, it provides the construction of a residential area in the eastern area of P.R.U along with other functions, the confirmation of the Great Urban Function within the so-called "Crystal Palace" and the completion the Great Urban Park.

Variant scenario of 2011

The scenarios of 2011 follows many objectives and focuses more on the creation of a better environmental quality of buildings and green areas, some of the objectives are:

• To maintain the INSEE activity in its current position, to construct a new and more ecological and energy friendly residential district.

• To renew the Crystal Palace for a large urban function and arrange the green areas to create a large urban park of 300,000 square meters (of which about 100,000 square meters built in the Parco delle Acque).

 Create a tree-lined avenue on viale Rubattino as well as public spaces with pedestrain paths

• To enhance public transport including a transport line between the southern edge of Via caduti delle Marcinelle and the building.

Creation of a second residential area of 87,500 square meters.

• Dedicate the area of 32,000 square meters to tertiary, production and artisan activities and commercial.

In the years 2012 - 2013 the Rubattino '87 Company will present a proposal related to the Second Implementation Phase but it will remain unimplemented.

In 2018, the City Council approved the new draft of the Territory Governance Plan submitted for adoption by the City Council, which plans to include all the areas of Second Phase - except for the areas intended for INNSE industrial activity On 2019 the City Council adopts the new Territory Governance Plan.

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![](_page_34_Picture_2.jpeg)

Sub-lot	Owner	Area (m2)	Destination of		
			use		
Sub-lot 1	Municipality	88,990	Teatro alla scala		
			Laboratories and warehouse		
Sub-lot 2	Private company	16,030	Research center		
			Business incubators&accelerators		
			Economic and technological innovation		
Sub-lot 3	Private company	111,270	Development of production/logistic		
			Tertiary/directional functions		
Sub-lot 4	Municipality	68,340	Equipped urban park		
			Functions of public interest		
			Connected to the teatro activities		
Sub-lot 5	Municipality	4,560	Commercial building		
			Medium-sized sales facility		
Sub-lot 6	Municipality	5,230	Public school building		
			42		

Fig 41-42 : Sub-lots of the area and proposed destination of use. Redrawn by the author Source of data : 110119-Proposta Variante Fase2 PruRubattino "Rubattino - Programma Di Rigualificazione Urbana - Comune Di Milano." Www.comune.milano.it, www.comune.milano.it/aree-tematiche/urbanistica-ed-edilizia/attuazione-pgt/rubattino-pru. Accessed 6 Jul.2021.

In the PRU, a new residential neighbourhood has been created on the western side of the ring road. The main access to the district is from Via Pitteri, specifically from Piazza Vigili del Fuoco, which is characterised by the presence of several commercial activities. From the square, a tree-lined pedestrian avenue, the main axis of the neighbourhood, divides the residential part into two and connects the square to Parco della Lambretta, formerly Parco dell'Acqua. The park, built in 2004 and covering an area of 110,000 m2, is located on both sides of the ring road and under the viaduct. It features childrens' play areas, a five-a-side football pitch, a basketball court and a table tennis area.

The park plays an important role of urban connection, as it makes the space under the ring road viaduct accessible. However, ecological performance can be improved.

As for the public transport network, only Lambrate Station plays a relevant function: located in the north-west corner, it can be considered an important interchange node between the regional railway line, the underground (M2) and surface lines.

However, because of its marginal position with respect to the extension of the local nucleus, the citizens who directly benefit from this infrastructure are limited to immediate surrounding area. The rest of the neighborhood remains pretty isolated and inconvenient to reach as only connections are possible by surface means. The former Innocenti lot in particular, despite the relative proximity to Lambrate, is connected with the metro stop plus nearby via a single bus line: the four useful stops to reach the site are carried out exclusively along Viale Rubattino, leaving instead the north side totally devoid of connections.

In any case, the two most important architectural elements are the railway belt and the raised East Ring Road. These are real barriers architectural structures capable of further isolating the neighborhood from the center of Milan. If the total absence of permeability towards urban centers of Città Studi, to the west, and Forlanini, to the south, is already evident due to the railway belt, the isolation of the eastern most portion has increased from the high-speed driveway of the highway, which cuts through the area of transformation perpendicular to Viale Rubattino.

## 1.1. Urban transformation projects in Lambrate.

Many projects are planned for the regeneration of the disused areas in Lambrate, some have been realised; such as the ex Faema and P.R.U rubattino (3a) completed in 2008 and (3c), both promoted by private sectors, other projects have a proposed and approved plan but didn't start yet, or are blocked for certain issues.

Intervention	Destination of use before	Destination of use post	Promoter	State	g.f.a (m2)	ab.ex post	Housing estimate
Via Ventura ex Faema	Industrial-Arti- sanal	Cormmercial- Tertiary	Private	Realised	15.000	-	-
P.R.U Rubatti- no-Maserati	Industrial	Residential	İ	Implemented	165.000	5.000*	1.665
		Commercial	1	Realised	12.000	-	-
		Directional	Driveto	Partially r.	43.000	-	-
		Productive		Partially r.	62.000	-	-
		Services and sports		Not realised	20.000	-	-
		Public green areas		Partially r.	-	-	-
P.I.I. Rubattino 84		Residential	1	def.proposal	25.881	760*	304
	Industrial	Commercial accomodation	Private	def.proposal	15.487	-	-
A.T.U Caserna Mercanti	Military	Public green areas & services	Public	Blocked	81.881		
A.T.U scalo ferroviario	Public infra- structure	Residential & commercial	Public/ private	blocked	34.000	800**	320
P.I.I Giardini di Lambrate	Tertiary- productive	Residential	Private	Conven- tioned	33.441	980**	392
	Tertiary- productive	Commercial/ tertiary productive	Private	Conven- tioned	20.090	-	-
P.I.I via Pitteri 106	Industrial-Arti- sanal	Residential	Private	Realisation	3.660	85	34
P.I.I via San Faustino	Industrial	Residential	Private	Approved	10.069	280	150
P.I.I De Nora	Industrial	Residential	Private	Blocked*	-	n.d	n.d
P.I.I via Darda- noni 9	Industrial-arti- sanal	Residential	Private	Realised	2.800	72	-28
		Tertiary-direc- tional	Private	Realised	700	-	-
	·			•		7.977	2.893

Fig 42: Urban interventions of regualification in Lambrate.

Source:V.Gingardi, (February 27, 2015), I processi di trasformazione urbana a Milano: il caso di Lambrate (Processes of Urban Transformation in Milan: The Case of Lambrate), ARCHIVIO DI STUDI URBANI E REGIONALI, 22 P. 51-72 ,DOI: 10.3280/ASUR2017-119004, (Milano, FrancoAngeli, 2017). 70.

P.I.I: piano integrato di intervento P.R.U: Programma di riqualificazione urbana A.T.U: Ambito di trasformazione urbana

It is difficult to estimate the expected impact on the neighborhood in terms of collective wellbeing, because the time horizon of the planning is not definitive and most of the interventions have not started yet. However, one could note that this area is considered an interest for the private sector more than the public one. In fact, 53,1% of the Lambrate district is interested in regualification projects as indicated in the PGT. Most of the requalification projects are for residential which means that the number of population in this area is increasing and the area needs to be prepared.

![](_page_35_Figure_8.jpeg)

#### Legend

1-P.I.I via Dardanoni 9 2-via Ventura ex Faema 3a-P.R.U Rubattino-Maserati 3b-Parco pubblico P.R.U 3c-P.R.U Rubattino-Maserati 4-P.I.I. Rubattino 84

Urban transformations in Lambrate(2000-2014). 5-A.T.U Caserna Mercanti Redrawn by the author. Source: V.Gingardi, 6-A.T.U scalo ferroviario (February 27, 2015), I processi di trasformazione urbana a Milano: il caso di Lambrate (Process-7-P.I.I Giardini di Lambrate es of Urban Transformation in Milan: The Case 8-P.I.I via Pitteri 106 of Lambrate), ARCHIVIO DI STUDI URBANI 9-P.I.I via San Faustino E REGIONALI, 22 P. 51-72 , DOI: 10.3280/ 10-P.I.I De Nora ASUR2017-119004, (Milano, FrancoAngeli, 71. 2017).

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### 4.4.A framework of the district

The area of the project is located in the neighborhood Lambrate, in Municipality 3, in the north-east part of the Municipality of Milan.

The district borders to the east with the Municipality of Segrate, to the south with the Ortica district, to the west with the Città Studi and Casoretto districts and to the north with the Rottole and Cimiano.

The exact date of foundation of Lambrate is not known. The first certain attestations date back to the Roman era.

The neighborhood owes its name to Lambro river, navigable at the time, along which stood an agricultural village, in a strategic position for the fertility of the land and abundance of the water.

Currently, the district appears to be bordered to the west by the railway and to the east by the east ring road,

Two realities can be identified:

on the one hand the historic inhabited center, developed around the axes of Viale delle Rimembranze, Via Saccardo and Via Conte Rosso; on the other, in the further east, the industrial area with the old and new factories.



### Keyplan



### Legend:

Bus line === Metro line M2 Elevated train walking path Connection node Bridge Metro line M4 extention Abandoned areas



- (1) Area under study for requalification
- 2 Ex-ferroviaria project
- ③ D.A Ex-Denora
- Caserna 4 Rubattino
- 5 Progetto
- Via Crespi
- (6) Renovated area
- (7) Parco Forlanini
- (8) Lambro river
- (9) Parco della lambretta.
- (10) INSEE
- (11) Parco Lambro
- (12) Remembrance of Lambrate



### 5.1. Story of The Ex-Innocenti

In 1933, the Tuscan entrepreneur Ferdinando Innocenti decided to expand his business, starting a new production site in Milan, in the neighborhood Lambrate.

The chosen area, strategically located close to the river Lambro and not far from the city center, extended over an area of approximately 600,000 sq m in total.

The Innocenti plant, originally intended for the production of steel tubes for scaffolding, is bombed and completely destroyed during the Second World War.

Nonetheless, the company succeeds to recover thanks to the political shrewdness of its founder and immediately after the war, the production of pipes and related products resumes.

In 1947 the production of motorcycles has started, including the famous one 'Lambretta' in its various versions and from the Sixties onwards they invested in the automotive sector (A40, Mini Minor, etc.).



Aerial view of the Ex-Innocenti Source: Fabbrica Innocenti .19

78.



During the same period, the automotive sector was taken over by the English group British Layland who in 1976, following a serious crisis, decides to dispose of the Lambrate plant, to be then taken over by the De Tomaso Group.

In 1990, due to the huge financial losses of the group Maserati, of which De Tomaso is the majority shareholder, the shares of Innocenti e Maserati passed to FIAT, which soon became the owner of the two brands. In 1993 the plant was definitively closed. The industrialization process has transformed the territory from an urban and social point of view. The Innocenti played an important role and the Lambrette over time has become a symbol of the neighborhood. Its closure generated a post-industrial landscape, now awaiting to be regualificated.



Source: Archivio Roberto Zabban/ Centro per la cultura d'impresa

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### 5.2. Current situation of the ex-Innocenti



Palazzo di Cristallo in 1961 Source: FormulaPassion.it, Costruttori perduti: Innocenti, Pubblicato il 11 Aprile 2020 80.



Palazzo di Cristallo today 2021 Source: Stabilimento Innocenti di Lambrate – Lost Italy

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### Urban Farmlab

The buildings of the Lambrate plant have now been largely demolished. Today the only artifacts still visible (some renovated, others in a state of neglect) are:

- The building in Via Pitteri, which previously housed the company offices, converted into nursing home for the elderly; (1)
- the so-called "T9" in Via Rubattino, which housed the canteen, the changing rooms and after work;(2)
- the Study Center in Via Rubattino, used today as a warehouse by the Municipality of Milan;(3)
- The main and secondary entrance to the warehouses along Via Rubattino;(4)
- The Water Tower;(5)
- The "Crystal Palace", subject of this thesis, it is the only building of production still existing, and on which several projects have been made but none yet definitive.
- · The palace dedicated to the recreational activities of employees, it was abandoned but it has become a maternal school.(7)

The whole area to the left of the river, which previously included the foundry area and a part of the engine division was dismantled, redeveloped and rebuilt with residential and commercial main functions.(8)

On the right of the Lambro river, on the other hand, the demolition involved all the buildings with the exception of three and almost no trace of the past buildings.

The state of neglect of the buildings has caused quite a few problems to the neighborhood, not only for the degradation that surrounds these areas but also because they are often considered a threat for the security.



Source: Open Data I Geoportale SIT. geoportale.comune.milano.it/sit/open-data/. Accessed 09 83. Oct. 2021.



### 5.3. Degradation evaluation of the ex-Innocenti

The structure is 310 m long and 75 m wide and is divided into three parts of approximately 25 m width for each and 19.5 meters high. It consists of:

main portals arranged on three parts, approx. 10 m apart from each other;

secondary portals, without central columns, approx. 10 m from each other. The central columns then alternate every 10 m, while the cover portals every 5 m. The steel columns UPN profiles, joined by plate welding in steel.

There are three types of columns: single lateral columns; double lateral columns; triple central columns.

The latter consist of two external columns, 7.5 m high, which support the gantry beams and a higher central column, which is connected with the five-sided polygonal arch truss, with lantern in top.

The beam of the bridge crane is double T, measures 100x51 cm and is composed of four UPN sections connected to plates by nails. The arched truss polygonal consists of three parts, joined by bolts.

The foundations of the columns are made using isolated concrete plinths, with underlying poles in reinforced concrete, 2-3 meters deep.

> Documento preliminare alla progettazione Magnifica Fabbrica, Concorso internazionale

di progettazione.



Fig 50: Transversal section of the Ex-Innocenti.

Source: 2.1 Documento preliminare alla progettazione Magnifica Fabbrica, Concorso internazionale di progettazione di progettazione. 84.

The large shed is adapted to heavy mechanics use It has 25 meters span, and is 300 meters in lenght, with intermediate expansion joints. The two 100 meters long end sections are served by 100 ton cranes, while the central section which is also 100 meters in lengh, is served by a 200 ton cranes. The construction is entirely shop-welded and assembled with bolts on the site. The weight of the building totals at 150 Kg per sq.mt. Until today, the metal structure is in a consequent state of abandonment and is affected by a corrosion process.





Fig 52: Structure of the ex-Innocenti Source: Fabbricati industriali a struttura pesante, Scheda N 14.INNOCENTI. SOC-GEN, MILANO Antonio Badoni 85.

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Documento preliminare alla progettazione

### Urban Farmlab

The investigations to evaluate the degradation of the structural elements are subdivided into two phases:

• phase 1:

Identification of the physical, chemical and mechanical properties of the most damaged and most undamaged structural element in order to identify a range of the mechanical properties

### • phase 2:

Verification of the integrity of all structural elements with replacement of the disused ones.

This plan of investigation was done by the Chemical and Material Department and Chemical Engineering of the Politechnic university of Milan. The first part consisted of a historical investigation, followed by a visual inspection in order to be able to characterize the level of damage and corrosion of this building.

The evaluation of the diffusion of corrosion has been done according to the normative ISO 4628-3 (Bertolini, 2008.).

The degradation has been established according to the following ranking:

- R1: when the rust is distributed on 0.05% of the surface;
- R2: when the rust is distributed on 0,5% of the surface;
- R3: when the rust is distributed on 1% of the surface;
- R4: when the rust is distributed on 8% of the surface;
- R5: when the rust is distributed on 40-50% of the surface;

The extension of the attack has been classified in base to the percentage of area interested by corrosionn of the structural element:

- A: < 5% of the total surface:
- B: 5-10% of the total surface;
- C: 10-40% of the total surface;
- D: > 40% of the total surface:

According to their study, the degree of propagation of corrosion didn't result consistant in all the elements.

Source: Franchi A.\*, Migliacci A.\*, Bertolini L.\*, Crespi P.\*, Zichi A.\*, Damage evaluation of ex Innocenti-Maserati industrial plant structures by Politecnico di Milano.

A table was redrawn by the author based on the data provided from the conducted investigation by the Chemical and Material Department and Chemical Engineering of the Politechnic university of Milan.

By looking at this data we can notice that the range of corrosion is considerable high and falls between R3 and R5, the beams are more rusted than the columns and the columns in the east zone and the rustiest. The personnel of DCMIC Politecnico di Milano also examined the state of the concrete structure and resulted that The concrete of the foundation is in good state of conservation and the reinforced bars have not problem of corrosion. The tensile and the resiliency test, practiced to steel sample have been done in according to UNI 10025 and it shows that the degrade has interested only the reduction of the thicknesses of the plates but not the morphology and the mechanical performances of the steels.

	R1	R2	R3	R4	R5
Columns			45%	33.7% (east zone)	20.4 % (North zone)
Elements of beam bridge crane			83.9% of the beams for the inferior wing	15.1% of the beams (west south zone)	1.1% of the beams
Beams			29.6%	50.5%	19.9%



1,2,3 :Detail of corrosion at the base of the column. Source: Franchi A.\*, Migliacci A.\*, Bertolini L.\*, Crespi P.\*, Zichi A.\*, Damage evaluation of ex Innocenti-Maserati industrial plant structures by Politecnico di Milano. 87.





Area development over time

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# - Urban Farmlab ———





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### 6.1. Masterplan proposal

As we have seen in the previous chapters, the regualification of an area could bring collective welfare depending on the intervention type. This area I chose had been an interest for the municipality for its peri-urban location and its big size, however, the projects planned for this area never came to life. I found interest in this area because of the story it holds behind and the magnificient structure that should be maintained and preserved.

Every time I pass by I see that it arrived to a state of neglect and makes this place insecure for the inhabitants as well as polluted, and I imagine how much could this area change for the district of Lambrate by selecting the good kind of intervention.

By connecting with the idea of food production and knowing that the municipality is focalising on this subject but did not do any intevention yet for this purpose. I decided to regualificate this area into a big urban park with residential, student housing and services including the function of the food production by requalificating the ex-Innocenti into an urban farmlab.

This would open the opportunity for young people to live in this area and bring it back to life, it will also transform the polluted brownfield into a green park which would bring environmental benefit to this area as well as social connection.

The urban farmlab is a place for the production of fresh grown food by using the latest technologies, its also a place for selling this production, studying the process and social connection.

It works on the educational, production, social and environmental aspect.

The connection was created with the other areas on the process of regualification in order to transform the whole district in this peri-urban location into a more connected place, and by connecting it to the educational pole, citta' studi. The highway east and the railway are creating a sort of rupture and that the public lines are not well connected, new solutions could be explored on this matter.





### The urban intervention

The starting point of this intervention is to follow the objectives and strategies set by the PGT (Piano di Governo del Terriorio) of Milan for 2030, and requalificating an abandoned area that is creating an urban void in the city as well as issues on different scales. The intervention's goal is to exploit the potential of this area in the food production and research sector and to give the ex-Innocenti a new identity.

The challenge for this regualification on an urban scale was the vast area and the presence of the INSEE industrial building in the middle between the ex-Innocenti and the other side of the area. Another challenge to consider is the highway and the railway that create sort of rupture for this area.

The strategy followed was to create a connecting axis with the piazza of the recently requalificated residential area, as well as with the piazza of the winning project proposal of 'Reinventing cities' for the regualification of the ex railway rack.

On the other hand this vast and fragmented area was treated with longitudinal axis in the similar way it was divided in the 80's. The urban planning focuses on giving the inhabitants an urban park that has different levels and creates a separation between the residential and the INSEE but at the same time is connected with a long cycling and pedestrian path with the ex-Innocenti. The car entrance to to the INSEE's parking was definied to be on the other side in order to create this path. A long longitudinal public area on the side of the building in study was created to give this area for the people to use it freely for different kind of activities such as sports and socializing. Outdoor urban farms are established in front of the ex-Innocenti with paths for people and farmers to take care of it. This kind of areas improve the social bonding and contribute for the benefit of the environmental aspect of the area.



- Environmental aspect of the intervention
- Trees and biodiversity

The park is made up from a tree system with the typical composition of the Po valley forest: the ancient oak-hornbeam, which exists throughout the Lambro range, woods and parks are rich in oaks, hornbeams, maples, poplars, Lime and Willows. The diversification of the components, with the different kind of the arboreal, herbaceous and shrubby, gives life to a resilient system with a high degree of biodiversity. The green system will produce an annual atmospheric carbon sequestration of 50 kg for each tree x 1,000 = 50,000 kg plus 5 kg / m2 of green surfaces x 10,000 = 100 tons / year. The kind of trees planted in the project: bald cypresses ((Taxodium distichum), beeches (Fagus sylvatica), maidenhair trees (Ginkgo biloba), horse-chestnuts (Aesculus hippocastanum), hornbeams, maples and ash trees.

· Agriculture and gardening

Agriculture is the main key element in the project, the collective gardening and farming improves the quality of life of residents, in particular combined with the forms of living: vegetable gardens, on the roofs and in the interiors, It brings benefits on different scales: in energy improvement, in the use of rainwater, on carbon emissions, and in the production of economic utilities with the on-site production of the needs, which saves more energy than the other kind of production.

Solar panels and renewable energy

To make use of the vast area of the ex-Innocenti building's roof, I implemented solar panels that create a double benefit; they collect sunlight and transform it into energy and at the same time play the role of solar shading inside the building. The newly implemented residential building will also have solar panels on their roof.

• Hydroponics:

Given the proximity to the Lambro river, the project studies the experimentation of the hydroponics, which allow the production of vegetables in protected greenhouses without the use of soil and with the fertilization cycle. These types of crops manage production without generating the slightest waste, with small occupancy of space.

### - Urban Farmlab -



### **Design process**



Urban Farmlab

### 6.2. The regualification of the ex-Innocenti

The main idea of this regualification is to give the ex-Innocenti a new identity, following the strategy of adaptive reuse, which means that the functions are the ones that adapt to the existing instead of the opposite. The PGT of Milan planned to use this building as a "great urban function", allocating a series of useful functions to the neighborhood on the social, cultural scale as well as implementing diverse services, many proposals were made for this building, such as the 'teatro alla scala.', a building for commercial purposes and laboratories for research etc... In my proposal, the functions to be allocated for the ex-Innocenti will be productive, social and scientifical research.

The challenge in this intervention was to find the proper way to implement the functions in a way that valorises the magnificient existing structure at its best without hiding it. For that, the central part of the building was left only for circulation and open functions such as open cafe and open market, as well as the urban farms.

Longitudinal and transversal main axis were created, and four main entraces are defined, two of which are on the long side and the other two on opposite ends of the building. A parking lot was also definied for people arriving with cars as well as a bike sharing point. One of the important entrances is the central one that connects with the park on the left side of the building, this park is a hill that goes up to reach this area. The functions were implemented on the two sides of the ex-Innocenti by using the grid defined by the existing structure composed of 3 spans of 23m each with a distance of 10m between each structure along the whole 300 m length of the building The two sides of functions placed on the 1st level are connected with each other thanks to brigdes that pass from one side to the other without hiding the structure. Then, voids were cut in specific places where we have urban farms that require sunlight, and to create a more lightweight slab. Firescape and vertical circulation were defined every maximum distance of 30m and stairs and ramps were also implemented in specific places. The 1st level creates sort of an atrium over the main function of this building which is the open market, where they sell all the local production and recreate the cultural idea of it in a more innovative way.



Urban Farmlab	Urban
Labs& workshops Urbanfarm Rooftop restaurant	

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### Farmlab –





### Section BB

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### Legend

Existing

Added

### • Elevations



- Urban Farmlab -

North elevation scale: 1/500



East elevation part scale: 1/500





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### Food production

In the Innocenti we can produce different type of vegetables depending on the location and how much sun it needs, After some research, I have decided to implement the kind of vegetables that require the most direct sun on the level up like tomatoes for example, and the rest on the ground floor where we have the opportunity to plant vegetables with thick roots like small trees for examples that we cannot plant on the level one. The plants have a void directly on top of them in order to let the sun penetrate, they also get water from rainwater collection and from the Lambro river thanks to the proximity to it.

For the plants that require more complicated conditions, the greenhouses could be used and studies are constantly made over the way the plants grow and what do they require. New technologies could be implemented as well, the goal of the farmlab is to figure out with the new technologies ways to plant fruits and vegetables with less surface, soil, energy and chemicals needed . We also use the vertical farms in some places for the study. Hydroponics could also be used in the research and benefit from the proximity to the Lambro river, the water from the river could be used for the farming process as well as the rainwater that could be collected.

The type of vegetation planted in the innocenti is : Rice, tomatoes, mushrooms, salad, carrots, onions and potatoes. The total vegetation area amounts to approximately 6,000 m2 in a building of 29,500 m2 .



The building is treated in a way to have alteration between opaque and glazed depending on the function and the need, the intervention is based on leaving the existing structure and the external envelop as they are and treating the demolished parts of the facade in the same continuation of the transition between opaque and transparency. As for the roof, the part facing the south east is covered with solar shading system of zinc that has a double function, to prevent overheating while at the same time collecting energy thanks to the solar panels system.

In the agriculture, the presence of water is of great importance, with particular attention to the cycle of recovery, use and waste.

We could benefit from the proximity to the Lambro river and connect to it with water tubes, we could also collect rainwater with a specific system connected to the steel structure, and then store it in tanks to then reuse it for the irrigation system.

The hydroponic system could also be used in this project as it allows to plant in a small occupancy of space without the use of soil.

The biomass and compost has a positive effect on the growth of the crops, and could be used for energy production with zero carbon emission. The compost could also be reused for the other plants which could reduce waste at the same time.

Local production of fruits and vegetables makes the system of producing and selling more sustainable by reducing the food miles hence the carbon footprint. The open market is known as a cultural event in Italy and today is reflected in a more innovative and sustainable way.

The ventilation process in the building is an important aspect to be considered, some parts of the glazed roof are demolished and we could replace them with a glazed panels that could be open.

Overall, the intervention on this building is considered sustainable as it treats many enviromental aspects and does not imply heavyweight interventions.

### - Urban Farmlab -



The purpose of this thesis is the regualification of the ex-Innocenti in Lambrate to answer for the food production crisis. The urban tissue of Milan has changed in the Post-Fordist era and is still in continuous mutations, it has undergone a process of urbanisation that took over the agricultural areas in the margins of the city, and many industrial areas and railway racks that previously had a purpose became today dismissed and create urban voids in the city. The municipality of Milan had made many proposals for the regualification of these areas through the PGT (Piano di Governo del Territorio) and has initiated many competitions, some projects already started to be regenerated while others are still in the process or did not start yet. The municipality had put goals to reach for Milan in 2030 among which was listed the regualification of the dismissed areas as a main topic, the area of Lambrate was an important part of it and had also many project proposals. The municipality also focused on the food production crisis that is causing a critical problem today, due to the city expansion many agricultural areas are being ravished and the needs of the people is rising. The relationship between urban and rural is not the same traditional one as it was before, the need to find new ways to produce food inside the city became essential. The urban voids in the city could be a perfect opportunity for this purpose, depending on their location in the urban context, we could produce food inside the city by regenerating the dismissed areas and transforming them into functions that serve the needs of production and research. Today, technology became part of our life and we can use it for food production and energy saving, it could also create job opportunities for the young generation.

The ex-Innocenti in Lambrate has drawn interest in me because of its strategical location on the peri-urban area and in this urban context, it is a dismissed industrial building with many opportunities to offer in the food production sector and in bringing welfare for the inhabitants of this district. Regualificating this industrial into an urban farming lab with different functions related to production, research and consumption could be a point of change for this area as well as for the city of Milan.

Le città italiane rappresentano un caso studio rilevante per la consistenza spaziale, economica e sociale delle periferie urbane, spesso caratterizzate da un disegno ed un assetto funzionale incompleto (Pinto, 2007).

### - Urban Farmlab



### • 3D view open market



# - Urban Farmlab —





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• 3D view amphitheater



# - Urban Farmlab –







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### • 3D view open market



# - Urban Farmlab —



• 3D view cafe and market



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