

A vision for the Parco Agricolo

*Community-based vision
for the Parco Agricolo di
Casal del Marmo.*

by
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Snapshot of the site

What does it mean for an urban economy to be “green”? And what is the role of public authorities in “greening” their economies? This report takes a new look at these questions by exploring what local economies would look like if they were built around specific places and their communities.

Genesis of the project

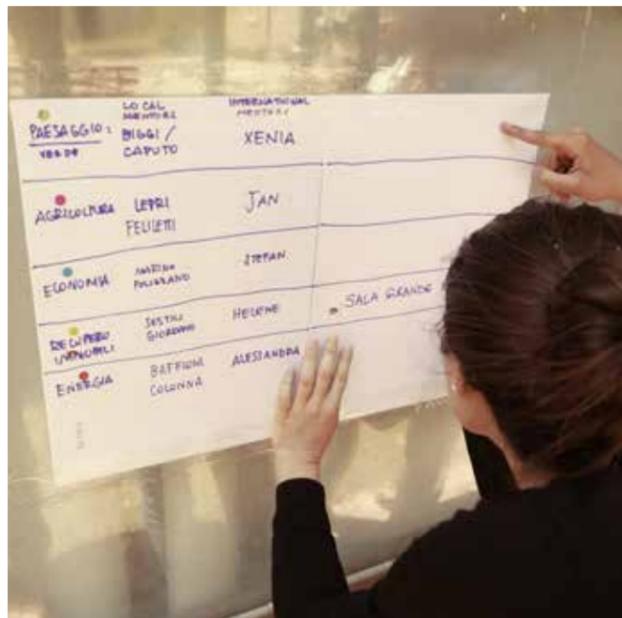
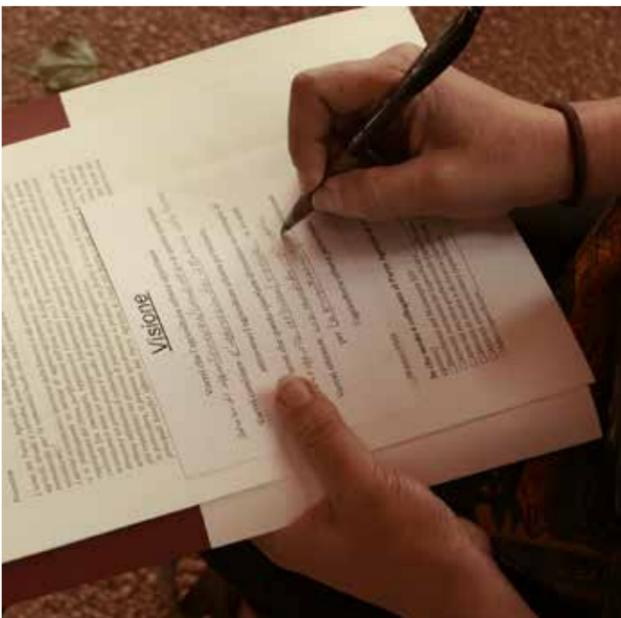
The material in this report draws on extensive research that brought together scholars from different academic disciplines with territorial authorities from Rome, Brussels and London around innovative projects aiming at local economic transitions. The research team worked hand in hand with a local action group led by the council of the Municipio Roma XIV and BIC Lazio. The work was part of the TURAS programme, a research consortium exploring the transition towards urban resilience and sustainability through action research in 12 cities and regions across Europe. This report is based on the TURAS work package on governance and economic resilience. Here we present the outcomes of a 3 day workshop that occurred on the 18th - 20th of June, 2015. The material in this report shows both the process and the results of this workshop. The intention is that the work and conclusions offer the first steps for transitioning the site into a community-based system.

The Site & Context

The “Parco Agricolo Casal del Marmo” is a 400 ha site situated in the Northwest of Rome. It bears deep layers of topsoil that have been cultivated over millenia - the soil is referred to as “agro romano” and lies in the heartland of Roman civilisation. Some of this historical legacy is exploited since the 1980s by a cooperative and a small area serves as pasture for local

sheep. However, most of the Parco was left fallow after real estate speculation progressively crowded out agricultural uses since the 1970s (Suchiarelli 2002). The Parco is surrounded by a partially abandoned complex of buildings that was a mental hospital until around twenty years ago and of which the main one is currently used by public administrations as offices. The vicinity is further marked by a hospital and several peripheral neighbourhoods of the city of Rome. Around one fourth of the area is owned by public authorities, the rest is split between various private and ecclesiastical “latifundistas” and a commercial bank. The entire area has been earmarked as “collective interest area” (Bollettino Ufficiale della Regione Lazio 2014) and in land use planning as “agricultural park” (Art 70 Piano Regolatore Generale di Roma 2008); a political decision that translated into a considerable financial loss for landowners willing to develop the land.

In October 2014, the TURAS research group was approached by the regional public business innovation agency (BIC Lazio) and the local municipality (Municipio Roma XIV) to consider the Parco Agricolo in the context of the TURAS project, a European research project on sustainable and resilient cities. The situation faced with can be considered to be wicked problem. Firstly the problem statement was ill-formulated since it was unclear what the actual task or question was that we were supposed to examine. Then information was confusing because the local actors possessed so many layers of often incommen-



Workshop, day 1

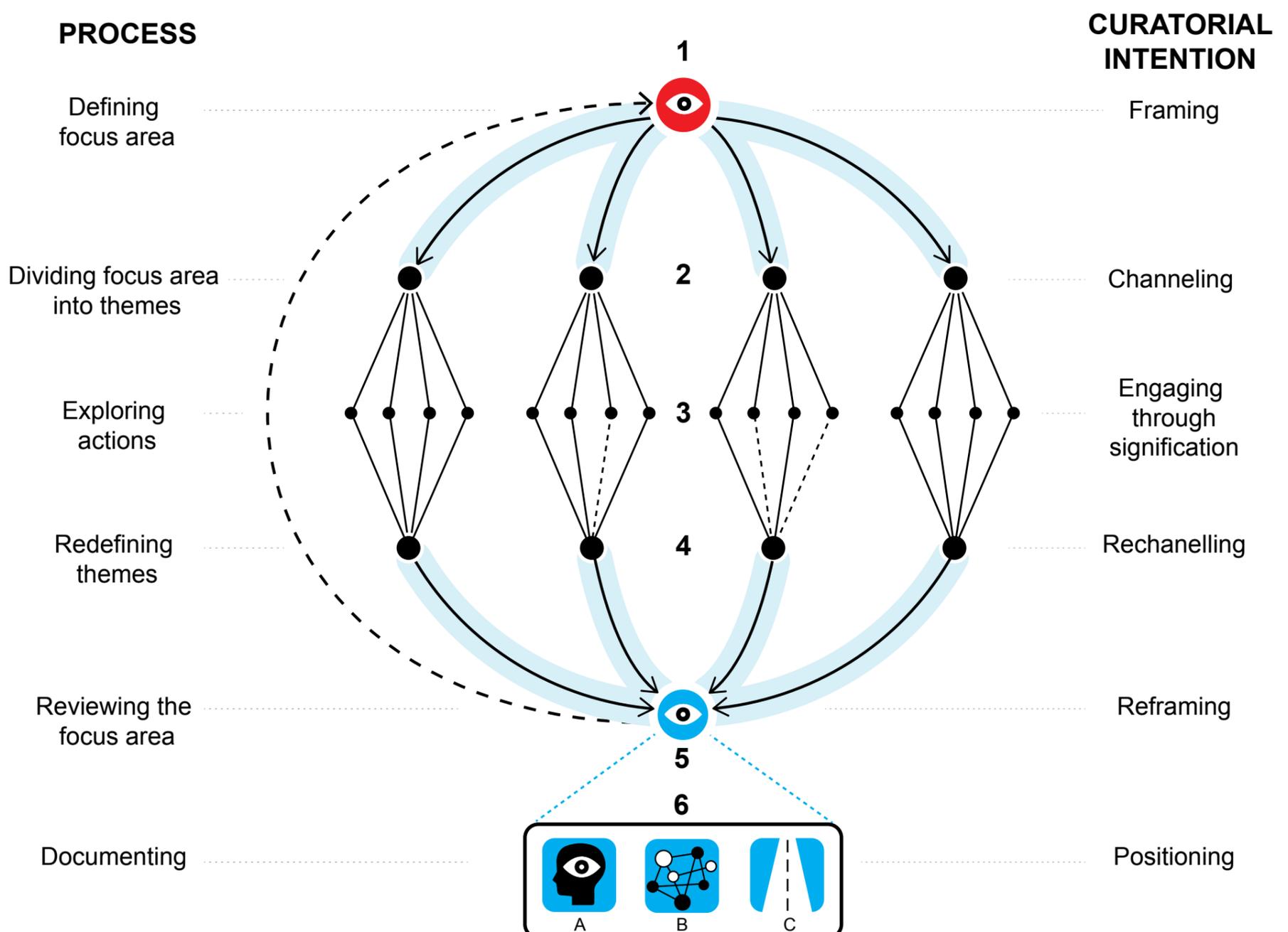
surate knowledge about the site, including outputs of previous participatory planning actions for the site (Associazione Parco Agricolo di Casal del Marmo 2012). There were likewise many clients and decision makers with conflicting values. TURAS was asked to work with local and regional agencies with different agendas and interests in the site and also had to consider a wide range of other private stakeholders such as the landowners. Part of the local business community and civil society has also (potential) interest in the development of the Parco. Finally the ramifications of a project at such a large scale within the political and economic hub of the city of Rome, with implications for social and natural systems at different scales, struck us as truly perplexing - or wicked. A decision was made to frame the situation as a wicked problem and apply the above mentioned principles of the curatorial approach to system transitions

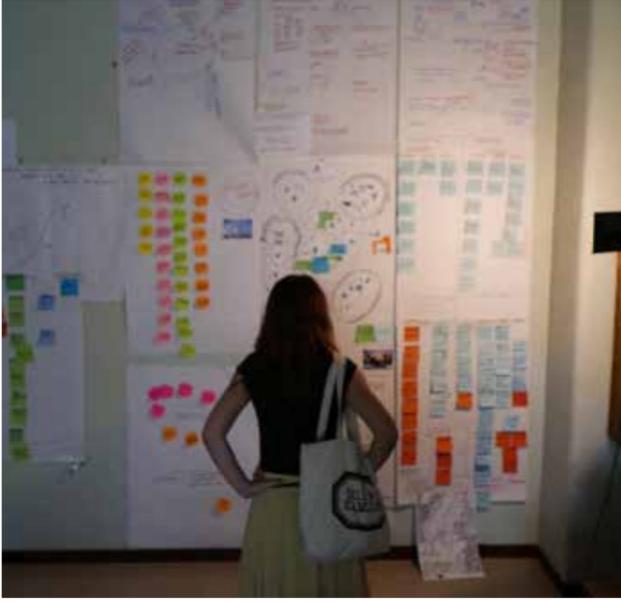
in order to help creating a future for the Parco.

The three-day participatory workshop

In this section we describe how we applied the curatorial cycle to the “wicked problem” we faced at the Parco. The first action was to create a curatorial situation. We achieved this by suggesting to the local authorities that the complexities of the Parco’s development could be addressed by compressing a large variety of viewpoints and forms of knowledge in time and space, a compression that took the form of a three-day, on-site, hands-on workshop with around 60 participants from the area that was organised in June 2015. Due to high level of uncertainties regarding the unfolding of the workshop, we structured it as flexible as possible; its programme consisted of blocks of

The Curatorial Method





Workshop, day 2

presentations followed by practical workshops whose content and sequence could be rearranged in real-time. The overall architecture of the workshop, however, was structured in form of the six steps of the curatorial approach presented above. During the three-day workshop we completed two full cycles: after finishing Step 5 in the morning of Day 2, we started again with Step 1.

Step 1. Framing

Step 2. Channeling

Step 3. Engage via signification

Step 4. Rechanneling

Step 5. Reframing

Step 6. Positioning

Step 1. Framing.

Our working definition of the overall problem area of the Parco embraced a non-neutral and political stance: we decided to engage with the local stakeholders and the site in order to help co-constructing a meaningful vision. During the initial conversations with the municipality and regional representatives, a meaningful narrative first arose as an opposition to the mainstream of developing peripheral land for housing. Indeed, land such as the one at the Parco is exposed to strong economic pressure from the housing market, which tends to turn arable plots in peripheral locations of metropolitan areas into allotments of suburban dwellings for commuters - in fact most of the surrounding areas of the Parco went down this path. We wanted to promote a positive vision that would suggest to the local and regional decision makers that the Parco could play a completely different role in the urban system. We will not argue in this paper whether our vision is sensible on scientific, political, moral or any other terms, but rather show how we incorporated it in our curatorial approach. While the representatives of the local municipality shared our non-neutral assessment from the beginning, we further curated the narrative to help narrow the problem area.

Instead of neutrally referring to the aim of the project as “finding a sustainable future for the Parco Agricolo”, we clearly stated in all communications that the purpose of the workshop was to “create a community-based food system” of which the Parco was to be the heart. This reflected our intention and values in favour of a more localised food economy and the importance we attach to community-based development.

We then further framed the workshop experience through a mix of visual artefacts, physical exposure and presentations. For instance, we prepared and exhibited on the site of the Parco a series of large photos and descriptions of community-based food projects from different contexts across the globe, thus providing references, even if indirect, to other experiences we wanted to incorporate into the narrative for the Parco. Day 1 also included a guided walk around the site that heavily emphasised current and potential agricultural use of the Parco. This was followed by short impulse presentations that again focused on community-supported food projects in other cities. These presentations were given by five individuals from different European countries that we selected on the grounds of their expertise related to community-based food systems. Finally, the workshop gave reason to collect a vast amount of background data, reports and maps on the project. We curated this material by emphasising references to the potential of the site as a hub for a community-based food system and made this material available prior and during the workshop.

Neither during the first cycle on Day 1 nor during the second cycle on Day 2 the overall vision of working towards a “community-based food system” was contested. It was clear from the plenary presentation in the morning of Day 2 that most participants had already come to the workshop with similar narratives (for instance in terms of “kilometro zero” initiatives popular in Italy) or had adopted elements of the curatorial vision during the first cycle.



Workshop, day 3

Step 2. Channelling.

Moving from the whole to the particular was achieved by channeling participants and conversations into a limited set of themes: Steps 2-4 thus took place within thematic groups composed of 10-15 participants. Upon registration on Day 1, all participants were allocated to one or several of five color-coded themes. This allocation was based on the municipality's assessment of each participant's knowledge, interests and professional training. This being said, participants were free to affiliate and follow other themes as well (and many did).

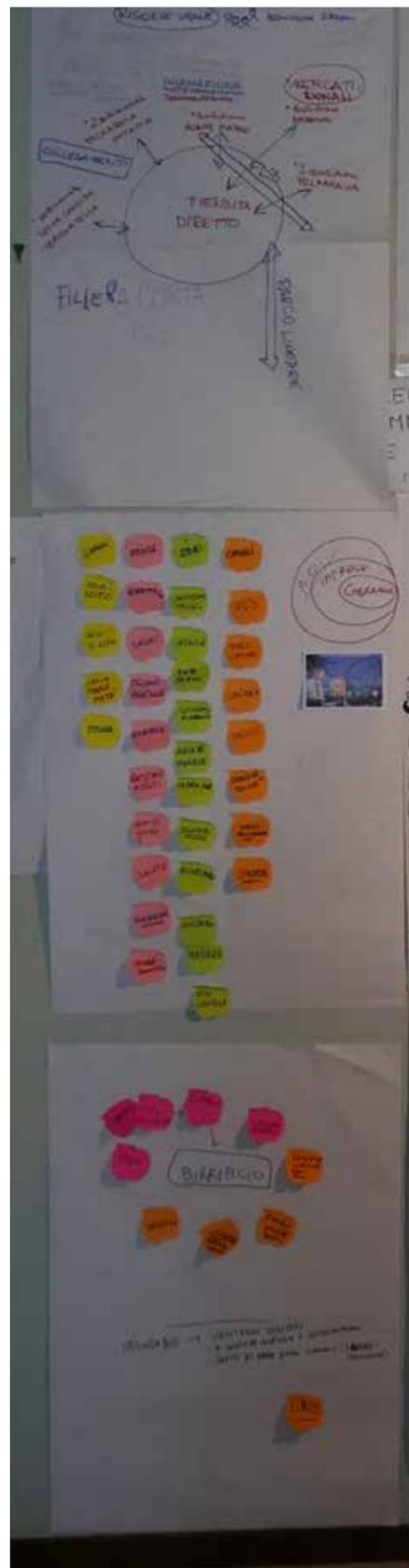
The themes were similar to the “principles of relevance” that designers identify when addressing wicked problems (Buchanan 1992) and made reference to specialised disciplines in the arts and sciences and included agriculture, urban integration, landscape, energy and resources, and economy. These themes were set prior to the workshop by the research team and representatives from the municipality in order to save time and ongoing discussion during the workshop, but also allowed a targeted recruitment of participants. It further allowed the collection of specific background material for each theme.

In the logic of framing the workshop as co-creating a vision for a community-based food system, each theme was framed as a “sub-system”. During Step 2, the groups formed by each theme were given a set of clear objectives and tools that aimed at developing systematic thinking within the group, including intermediate objectives such as “understanding system analysis”, “understanding system maps”, “identifying the elements of the system” etc. While the themes were somewhat elaborated for the teams, it was expected that the team validated or redefined them as they saw it.

Group leadership turned out to be a big challenge. The municipality had identified two knowledgeable individuals for each group and assigned them as “coordinator” and “facilitator”.

In addition, the research team (curators) assigned an international mentor to each group with the intention to provide references to community-based food systems at the sub-system level. The coordinators/facilitators were then handed over a detailed script including the objectives and suggested ways to reach them. However, coordinators, facilitators and international mentors had all been selected for their knowledge on a particular theme and not for their capacity of taking the group through the challenging oscillation between the whole and the particular. This decision was based on our (overly optimistic) assumption that they would be able and willing to guide their groups towards reaching the different objectives; with hindsight it is clear that the designated leadership in each group was tilted towards specialised knowledge rather than embracing a systems approach, which created minor tensions in at least one group regarding the usefulness of the workshop methodology. This being said, all groups worked towards the general objective of a “system vision”.

We think that the act of actually drawing a system, even a simple system (IE how a carrot travels from farm to fork) was enough to create a common vocabulary to help avoid certain actors from participating in the map-making process. We observed that groups that did not start to draw a visual representation of “their” system either struggled to structure their ideas and lost time talking abstractly or otherwise resorted to a communication language that fit the predominant vocation, therefore leading to a partial analysis (such as schematic design drawings for the landscape group). The workshop confirmed that people are rarely trained to think in systems and will clutter down and focus on their specialisation if left to their own accord. The basic concept of systems thinking proved to be quite didactic and helped individuals to clutter up and express their knowledge in a way that would be commensurate with other conversations.



Presentation 1

Step 3. Engaging through signification.

Step 3 is pivotal in our framework as it strives to create situations in which all three curatorial aspects come into play. Step 3 further splits the thematic groups into more specific issues and groups of 2-4 individuals that would be most likely to lead to meaningful exchange on a personal level (aspect of meaning). Second, these more intimate conversations would span a broader and deeper spectrum of human communication, and participants were encouraged to walk around the site so as to situate Step 3 in the landscape (multiple ways of knowing and rooting that 'knowing' in meaning). Third, the conversations were framed as a mid-point of the cycle whole-particular-whole (elements within a whole).

The precise content of the conversations in Step 3 was to some extent left to the groups to define, as long as these conversations were oriented towards creating a vision for the thematic sub-system that could be later incorporated into the vision for the whole system. On Day 1 most conversations focused on the values or overall objective that the development of the Parco should pursue, therefore touching not only on analytic but also on personal and emotional aspects that are difficult to discuss in larger groups. The conversations on Day 2 were directed at exploring and defining concrete actions for transitioning towards the overall vision established in Step 5 of the first cycle. Discussing specific interventions in personal conversations proved to be instrumental for keeping discussions relevant and interesting while also fostering commitment and tangible steps towards implementation, as most conversations involved specific actions that individuals wanted to be and could feel personally involved in.

We felt that Step 3 was extremely valuable for the entire workshop process and featured deep conversations about actions that are too often missing from other participatory approaches to planning. The diversity of situated conversations also rendered the work on each theme more resilient: while not all conversations made equal progress, having many of them simultaneously on each theme ensured that the groups could build on a diverse mix of creative, constructive, visionary, and realistic conversations. Also, as the team members could freely engage with other groups, cross-pollination of ideas allowed both collaboration and competition and propelled the groups forward.

Step 4. Rechannelling.

Step 4 is the last step at theme-level and serves to redefine or update the results of Step 2. We set the objective of this step as identifying the action areas with the highest leverage for transitioning the Parco's system in the desired direction. For this purpose, overlapping conversations could be merged and irrelevant or conflicting ones discussed and discarded.

Step 4 was instrumental as a bridge between the personal conversations of Step 3 and the plenary presentation in Step 5. We believe that the symmetric nature of the curatorial cycle allowed to keep the group-level discussions relevant and constructive: results from the personal conversations were presented as contributions to the thematic objectives as well as in the context and language of the framework that the group defined together prior to splitting. This meant that members of the group perceived themselves as "playing for the same team" without excluding the psychologically rewarding sensation of proposing a particularly creative or useful individual contribution.

INTEGRAZIONE CON IL QUARTIERE

VISIONE

1 FAMIGLIA

COLLEGAMENTI

FAITORE TEMPO

DIFFICOLTA'

MODELLO ECONOMICO RECONOMIA

VOGLIAMO CREARE UNA FILIERA CORTA SOSTENIBILE INTEGRANDO AGRICOLTURA, EDUCAZIONE E TURISMO

L'ECONOMIA DEL PARCO AVVICINERA CITTADINI, AGRICOLTORI, IMPRESE LOCALI E AUTORITA' LOCALI

VOGLIAMO COSTITUIRE UN PARTENARIATO PUBBLICO-PRIVATO CHE SIA IL MOTORE DELLA RECONOMIA LOCALE

IMPLEMENTAZIONE DEL MOTORE DELLA ECONOMIA LOCALE

- ✓ ALLINEARE GLI INTERESSI DEGLI STAKEHOLDERS
- ✓ INDIVIDUARE UN AVVOCATO PER DEFINIZIONE E ATTUAZIONE DEL PPP
- ✓ SOSTITUIRE UN MANAGEMENT TEAM PROFESSIONALE
- ✓ FINANZIAMENTO PARTECIPATIVO COINVOLGENDO CITTADINI, IMPRESE LOCALI E PROPRIETARI TERZIARI SOSTENUTI DALLE AUTORITA' LOCALI E DALL' UNIONE EUROPEA
- ✓ ESSERE OPERATIVI

GENNAIO 2016

RECONOMIA PER DIVENTARE UN MODELLO REPLICABILE IN ROMA CAPITALE E IN ALTRE REGIONI ITALIANE

POTENZIALITA DELLA TERRA

INTEGRAZIONE CON IL PAESAGGIO

TIPI DI PRODOTTI

EDUCAZIONE

CRICAZIONE

ATTORI (ORGANIZAZIONE)

POTENZIALITA E ENERGETICA RISORSE

Sup 460 ha **SCENARIO 1** 0-5 ANNI

Sup 460 ha **SCENARIO 2** 6-10 ANNI

	EN. ELETTRICA	EN. TERMICA	EN. SOLARE	EN. EOLICA	EN. GEOTERMICA	EN. IDROELETTRICA	EN. BIODIESEL	EN. BIOMETANO													
COBRAGOR																					
SAVIA PIRA																					
ACQUAZZANO BIC																					
S. FILIPPO NERI																					
IST. PASTOR																					
CARICARE MA																					
ENI																					
Mc DONALD'S																					
SUPERMERCATO																					
ICE PARK																					
DEPOSITO AHA																					
CAMPUS NAMED																					
PROVINCIA R.H.																					
ORTO STORICO																					
TENNIS MASSARA																					
VITTORINI																					
UNICREDIT																					
MIN. GIUSTIZIA																					

Presentation 2

Step 5. Reframing.

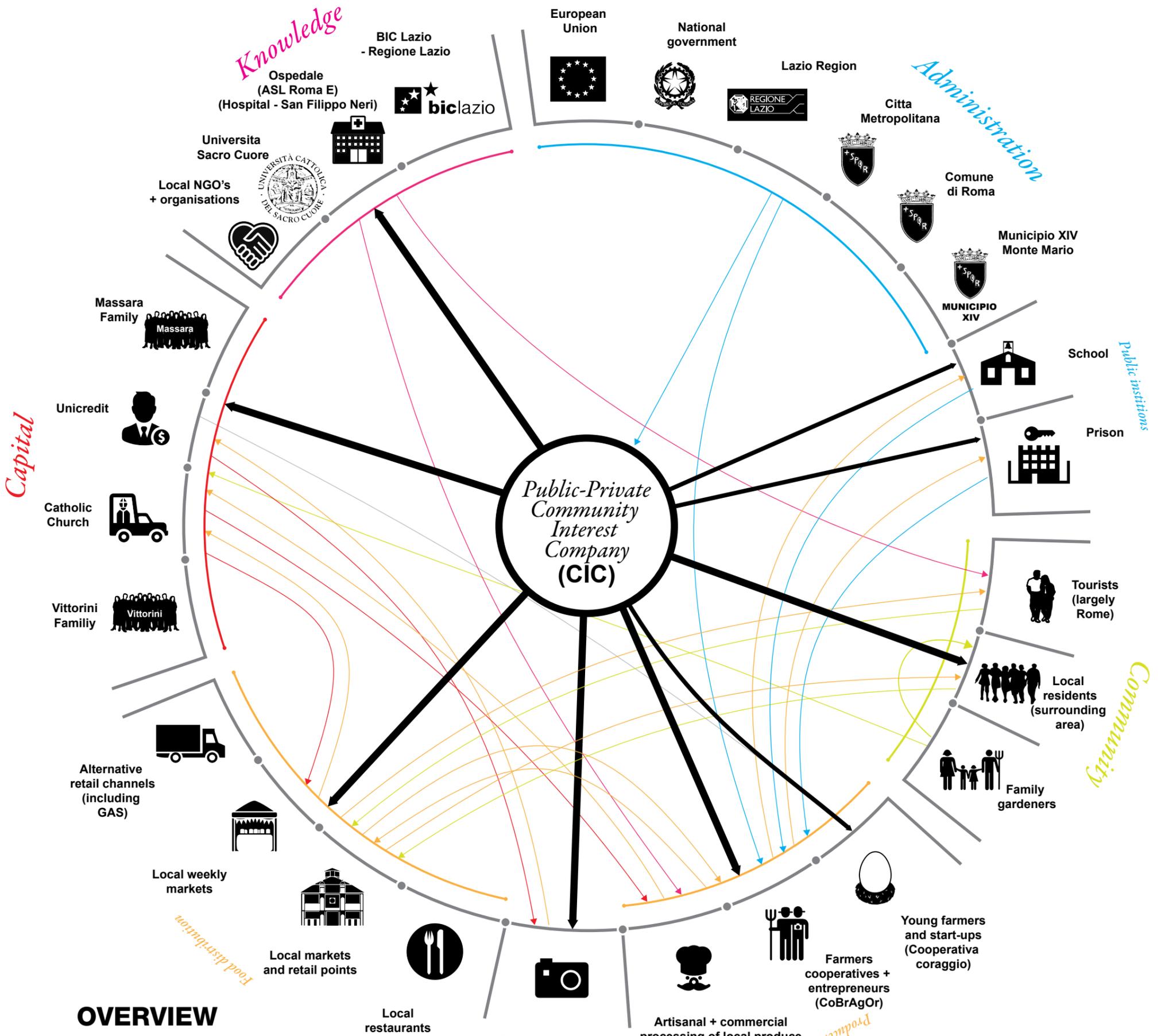
This step is intended to bring all thematic groups back to the system level and allowed to assess to what extent the agricultural, urbanistic, landscape, energy and economic subsystems fit together to form a whole: we like to think of Step 5 as an “assembly” of both people and knowledge. At the Parco workshop this took the form of a plenary session in which a collage of visual material (including vision drawings and subsystem maps) was exhibited as a backdrop. Representatives of each thematic group presented in turn the main outcomes of Steps 2-4 to the plenary, again in an atmosphere of “playing for the same team” since the thematic work was framed as specialised contributions towards the overall vision for the Parco.

At the end of the first cycle, Step 5 naturally produced a rather heteroclitic collage of ideas, concepts, propositions and partial visions. But presenting these elements side-by-side as a first step towards a more coherent vision nevertheless created the impression of an ensemble. It also provided material for fertile interactions between the thematic groups since we observed that many substantial and procedural achievements of Day 1 appeared in the work of other groups in Day 2. On any account, we believe that the presentation of the results as a collage fostered a deep sense of ownership for both the partial results and the vision for the whole. Already after the first cycle many participants referred to the process as “our method” and the research team’s main achievement as “having brought us all together so that we can work this out”.

Since we were able to go twice through the curatorial cycle, Step 5 was again followed by Step 1. At the end of the three-day workshop, we proceeded to Step 6 which positions the workshop output through different elements of documentation that are presented in the next section.

Step 6. Positioning.

The Figures 5.1-5.6 (above) shows the range of ideas developed within the groups. This is only a sample of the output however shows the diversity of the material developed by the participants and how they represented their ideation process. The groups were asked to include 3-5 ‘action areas’ based on the most significant priorities - many of these were those explored during Step 3. The compilation of all of these diagrams helped define overlaps and the main leverage points for the project as a whole. In this case one of the main conclusions from the workshop was that an independent organisation, we refer to as a ‘community interest company’, was necessary to represent the vision, drive and negotiate change.



OVERVIEW

The Parco involves a vast number of actors, issues and conditions with a limited by complex regulations and an overarching vision. To simplify this process and to provide an eye over the activities occurring on the site, a development agency is proposed. This agency is intended to minimise processing time, improve development opportunities and help stimulate community activities.

The development agency is intended to speed up processes, yet act in the public interest while avoiding a public cost. Therefore the agency is intended to be a public-private partnership or a 'Community Interest Company' (CIC).

The CIC acts as a link between relevant stakeholders and brings them together when relevant. It includes a board of directors that represent the main community interests defined in the vision for the Parco. It has three main roles:

- 1/ Define what is possible based on existing regulations and the vision of the site.
- 2/ Help stimulate action and projects.
- 3/ Help bring the community together.

Knowledge is about agricultural knowledge as much as it is about innovation.

The CIC can connect organisations that have knowledge and those that need it.

Capital in the Parco involves two groups: the land owners and financiers. By chance, Unicredit is both.

Both land owners and financiers will have much to gain from agricultural and community focused projects however will need to create the appropriate conditions for it to happen.

The CIC can act as a go-between, between those that have ideas or initiatives and those that have land or cash.

There are three types of **business** identified.

Firstly there are the businesses that produce the food: cooperatives, kitchens processing food, and innovators that are exploring new forms of agriculture. Secondly the typical markets for the products developed on the site that range from retailers to distributors or even restaurants. Finally there are the operators that are developing tourism projects such as tours, bike hire, festivals and so on.

The CIC can help initiate possible businesses opportunities or help accommodate those that would like to invest on the site.

Administration involves both the various levels of government - from the Municipality to the European Union. Furthermore there are also public institutions that are associated with government however have

more specific objectives.

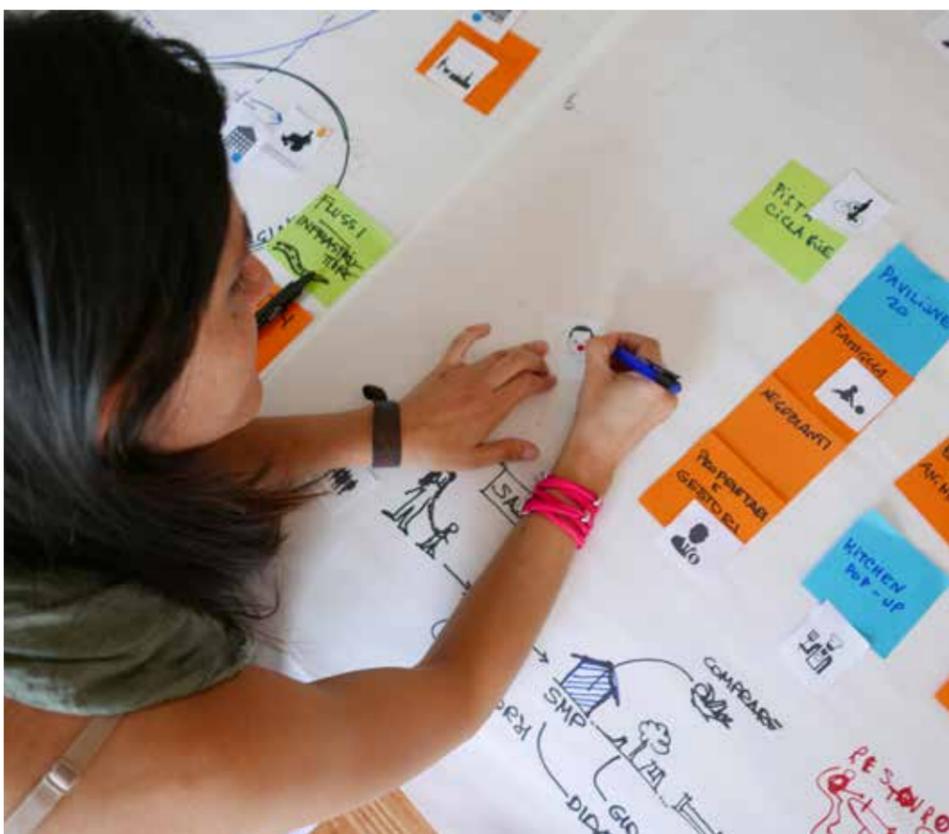
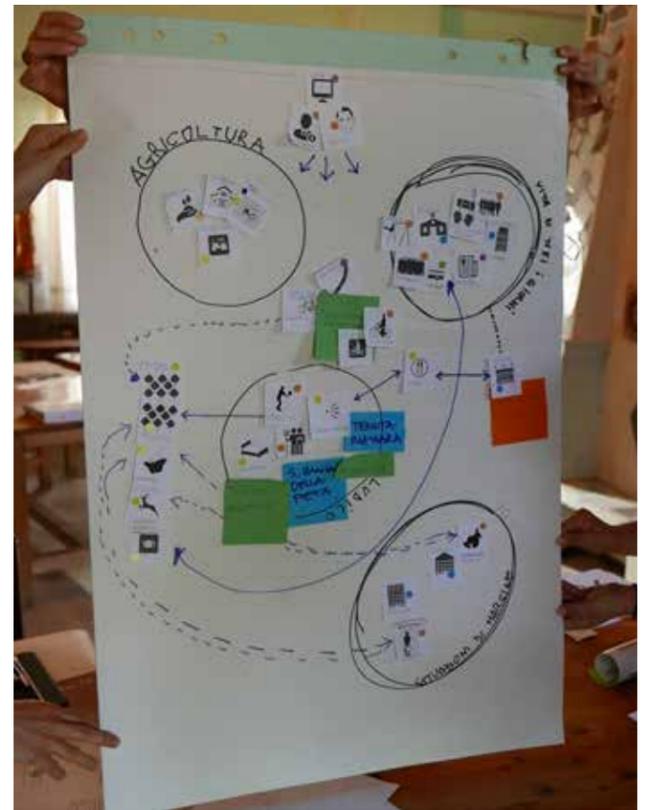
At present there is a problem between those that have the greatest interest and those that have the greatest power (this includes those such as national and EU level government) that have power through funding.

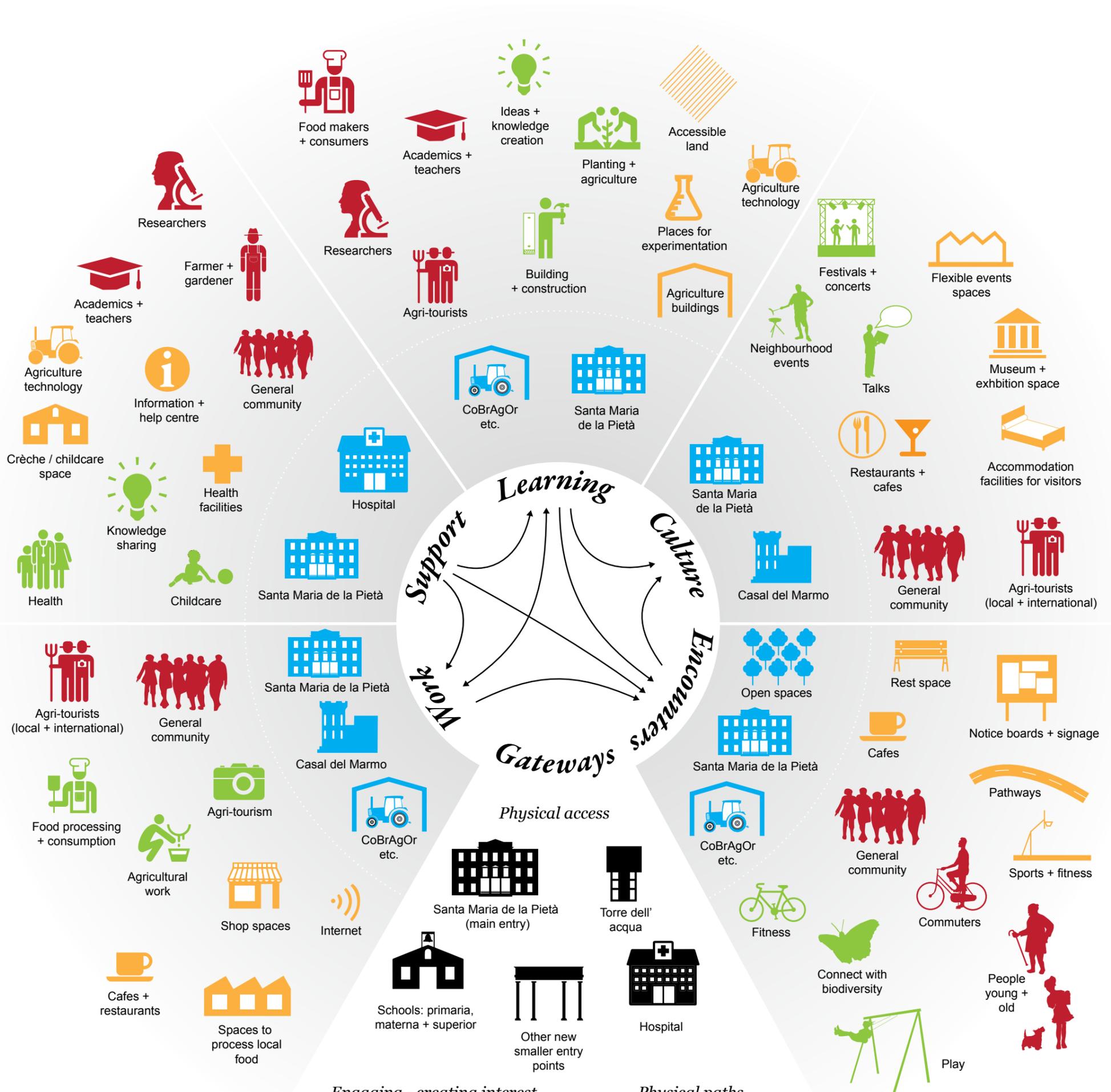
The CIC can act as an go-between, between government policy objectives and the potential of the site. It can also help engage with government institutions such as the schools and the prison.

The **community** involves two groups. Firstly those that are actively involved with the site - family gardeners - who's business is not of a commercial nature. Secondly those that are informally involved with the site - both local residents that may like to use the site as a park or tourists that have an interest in the agriculture and food.

The CIC can help to coordinate between the gardeners and the land owners and create events to attract both local and tourist visitors.

The urbanism system





OVERVIEW

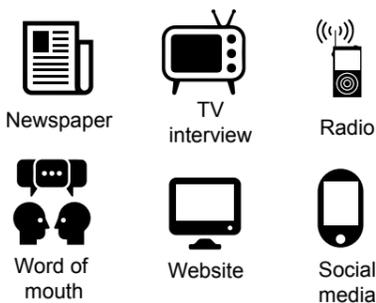
The urbanism strategy looks at the socio-cultural functions necessary to support the Parco. The site contains a number of precincts that will eventually support numerous functions. It is useful to understand the variety of demands of a certain building or area to define how it should look or act.

To split up the components of each function we had five topics:

- **Places:** essentially the physical place.
- **Artefacts:** the thing or tool to facilitate action.
- **Activity:** the action occurring in the space.
- **User/Actors:** who would be involved.
- **Channels:** how people connect.

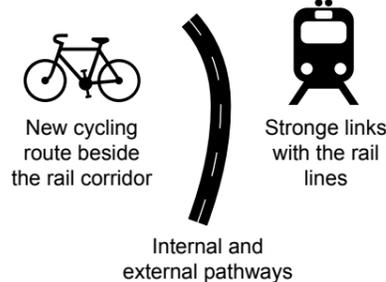
Five themes were defined (work, services, learning, culture and encounters).

Engaging - creating interest



Work conditions (excluding those within the hospital, prisons and schools) are likely to focus around the buildings and the commercial agricultural areas. A site such as the CoBrAgOr can provide physical manual labour type work. SMdIP and the Casal del Marmo will provide a range of jobs from basic food and tourism to education or training - these are non-core and supporting

Physical paths



jobs that gain from the popularity of the site. **Services** are certain functions that can help people either interact with the Parco or use the Parco for care. For example an day-care could allow parents to do some work on their garden. A doctor or nutritionalist could help with dietary conditions to improve health. There may be direct agricultural services to improve production.

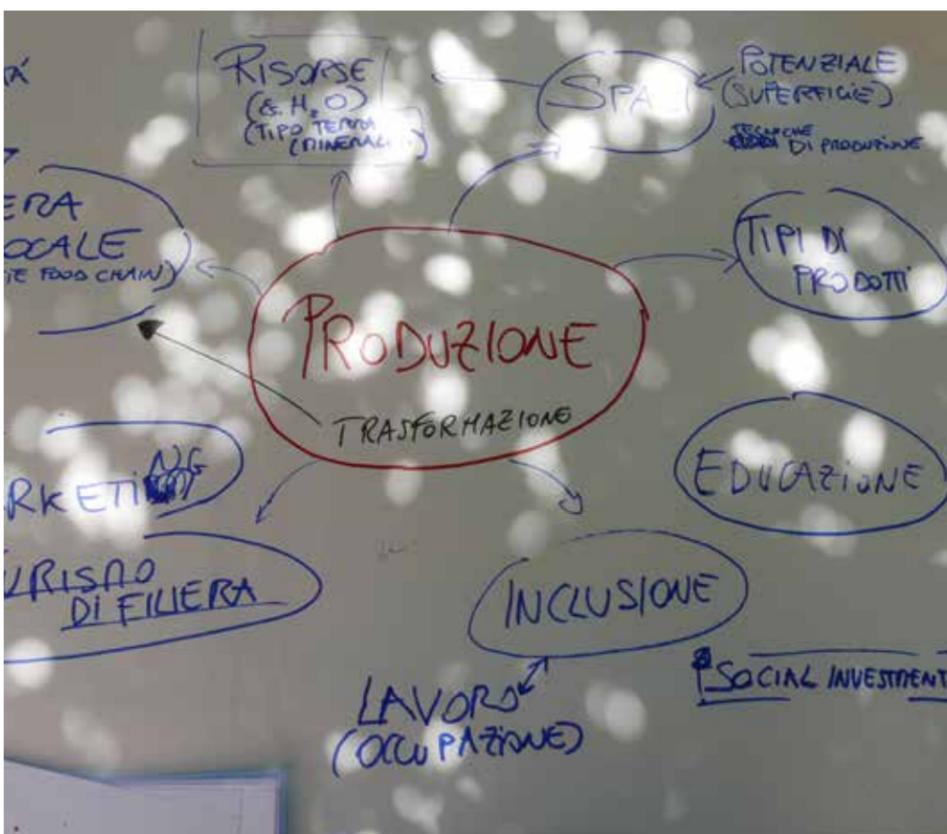
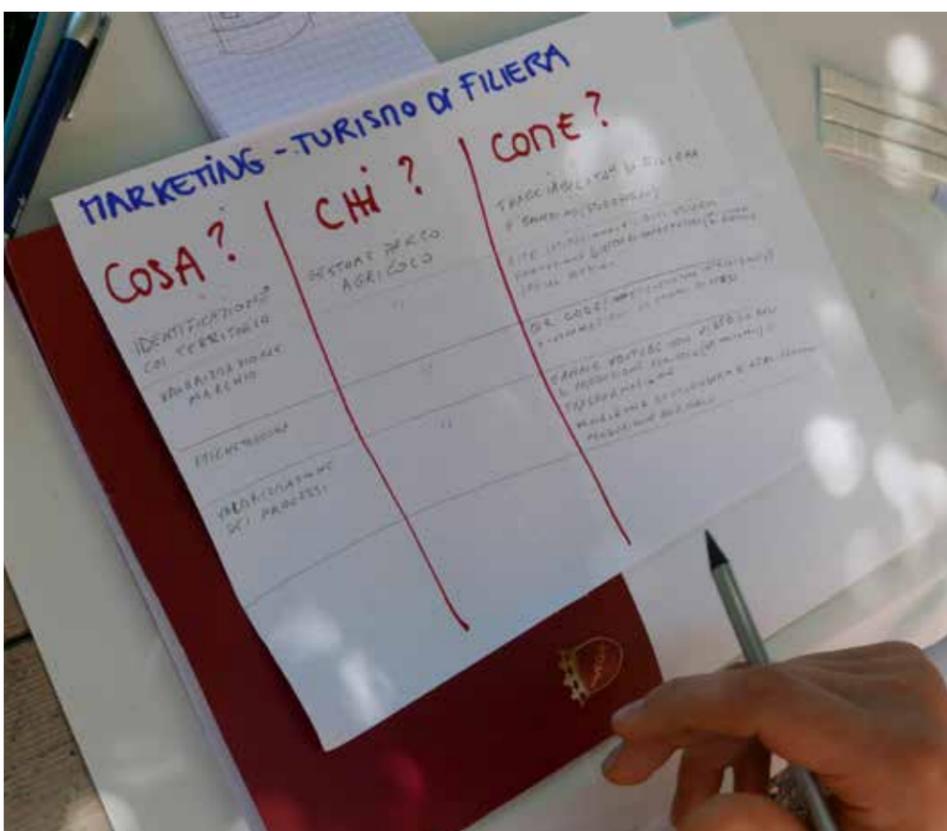
Learning is always an important way to create engagement. Hands on learning is very useful. But theoretical classes and places to learn about innovations or new techniques is very important for getting the most out of the site.

Culture is the binding agent for the community and should not be disregarded. Residents should feel the Parco is improving their quality of life. Therefore culture could involve music, theatre or even history.

Encounters and meeting places (formal and informal) are an important ingredient in supporting a robust and resilient community. The community should recognise each other.

Gateways are the final point - how the site connects with residents and users. This will depend according to the function, the location, the medium and of course the individual.

The agricultural system



LAND USES

LAND AREA

Allotment gardens



These are small gardens of between 20-60m², which are often fenced, one garden per person. The gardens require little management.
- 35 ha proposed.

Collective gardens



Spaces where groups of people meet to garden on the same plot and where the produce is shared. Produce is not sold, but shared. A few staff may be paid for organising.

Cooperative agriculture



A for profit organisation however the profit is distributed amongst workers. The CoBrAgOr is an example.

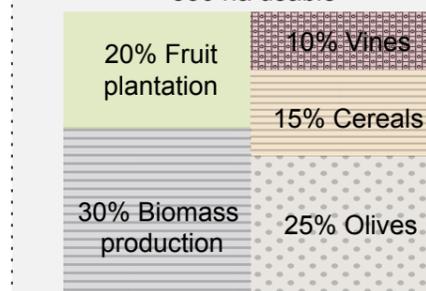
Commercial agriculture



Where there is an owner (or owners) that ultimately have a profit objective. This often means that high efficiency food production is expected.
- approx 30%

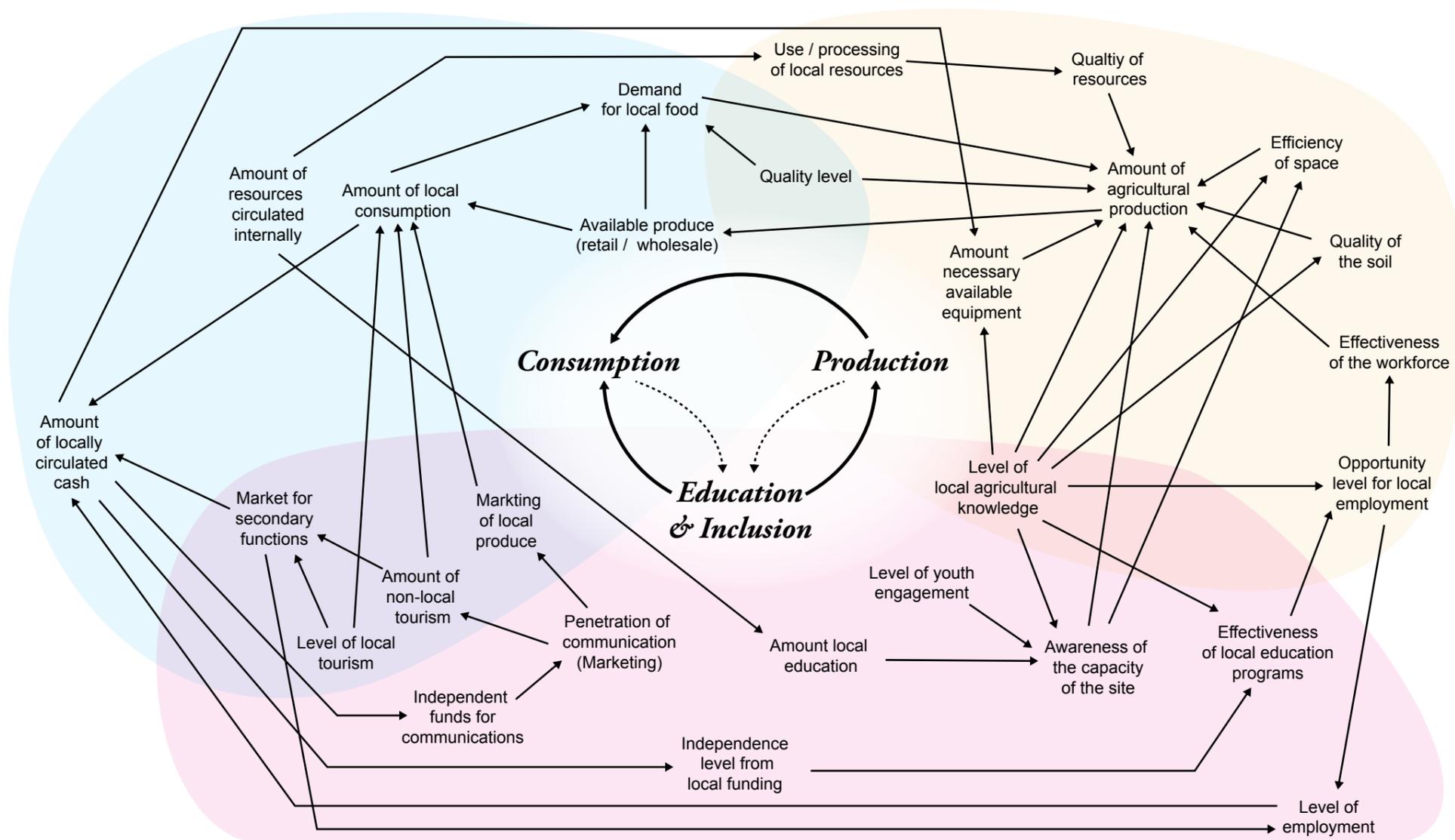
450 ha site

350 ha usable



During the workshop, five main sections were sketched out. These areas will depend much on the market and the demand for produce and the capacity of the soil, therefore agriculture must be developed slowly to test demand.

FLOWS



OVERVIEW

As the theme of the Parco is agriculture, it is important to define what agriculture means for this site. Here the site offers the opportunity to support various types of agriculture - from small private allotment gardens to larger cooperative and commercial farms.

The objective is to allow skills and knowledge to be improved and easily shared. This essentially creates engagement, participation and value. It also creates a market for local food production and consumption.

Therefore there should be a way that every member of the community can somehow be involved with agriculture. Likewise there should be the opportunity for enterprising individuals to profit from their labour.

EDUCATION & INCLUSION

Actors

- Children
- Young adults
- Local residents
- Public authorities + organisations

Places

- Schools + education institutions
- Community learning spaces
- Onsite
- From home / online

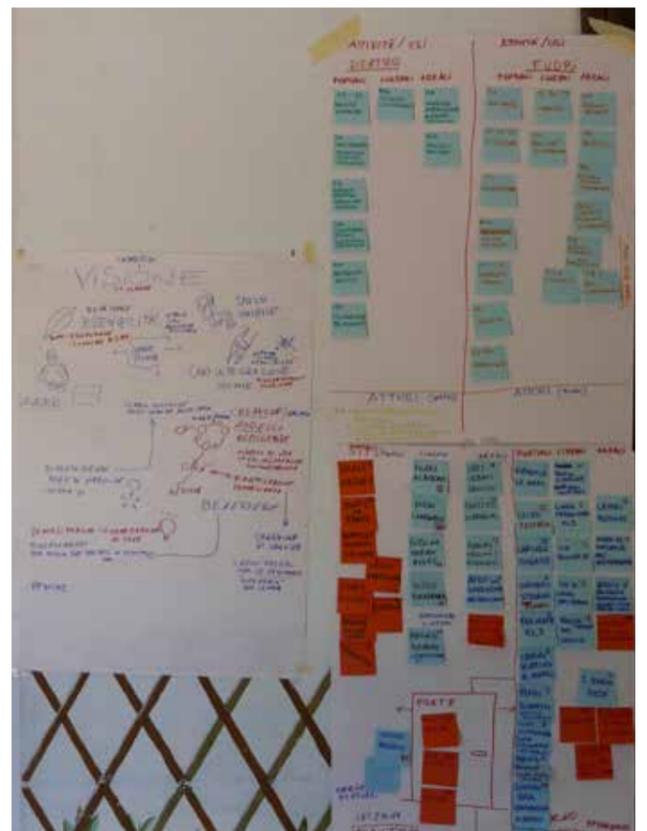
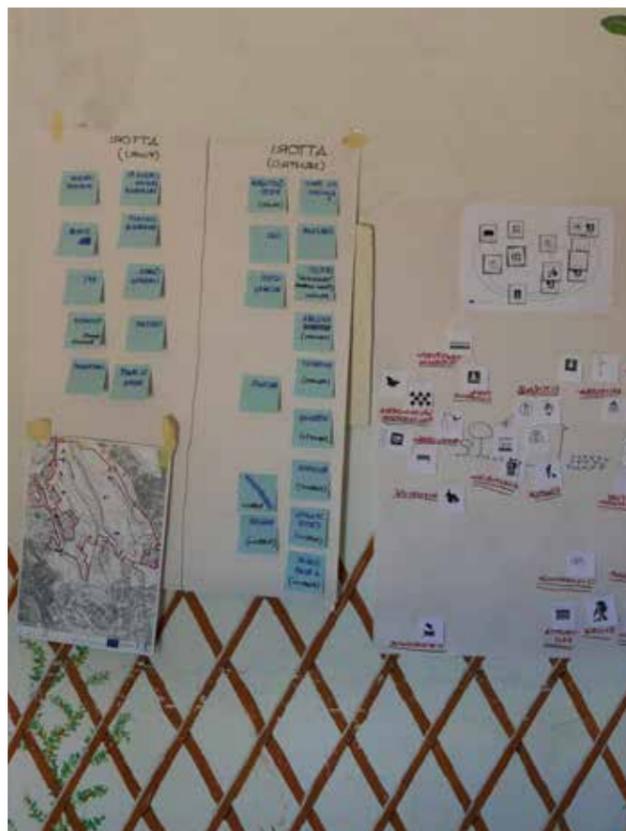
Functions

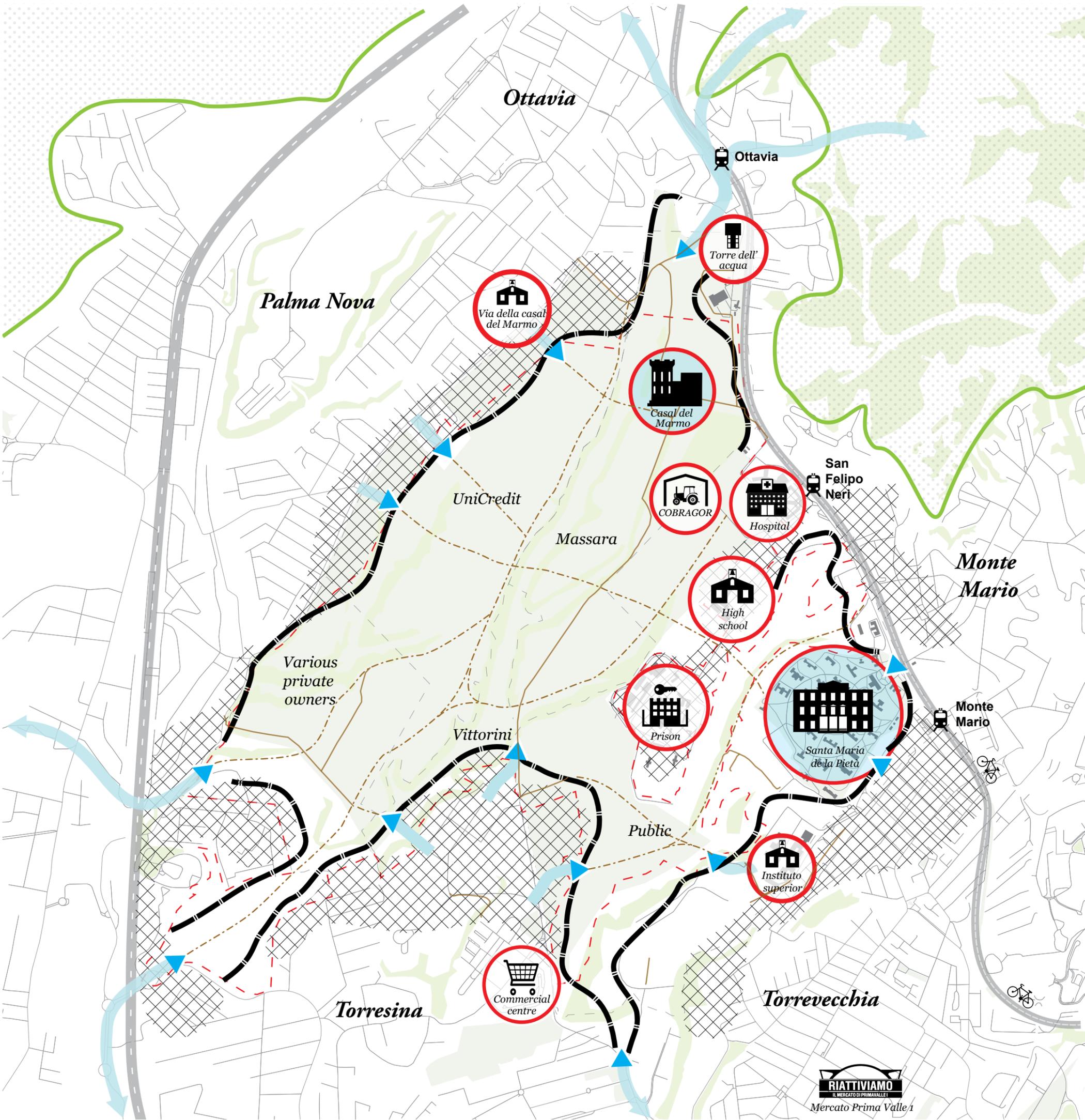
- Presentations
- Courses
- Onsite experience
- Laboratory
- Green therapy

Purpose

- Understanding agriculture
- Appreciation for the site
- Supporting local economy + buying local produce
- Creating or supporting jobs
- Improving knowledge

The landscape system





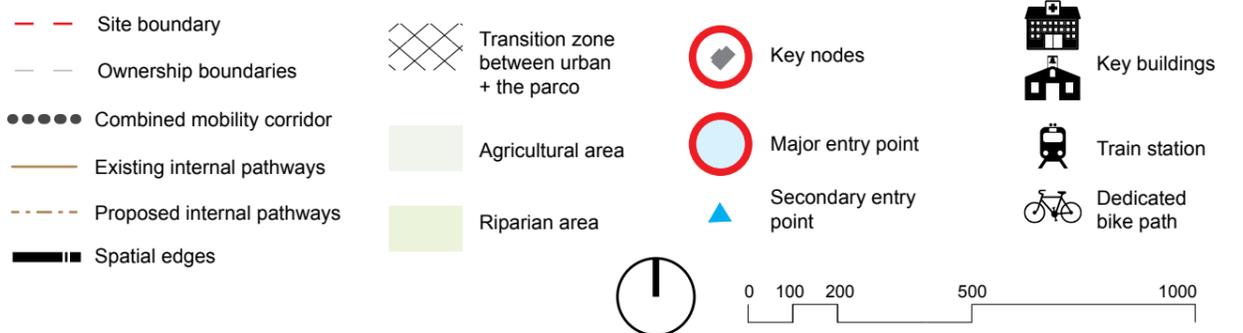
OVERVIEW

The Parco Currently sits between a number of neighbourhoods (including Ottavia, Palma Nova, Torrevecchia, Torresina and Monte Mario) yet it also acts as a barrier as there are no access points. It is also located near a number of other green areas yet these green areas are cut off by infrastructure or buildings.

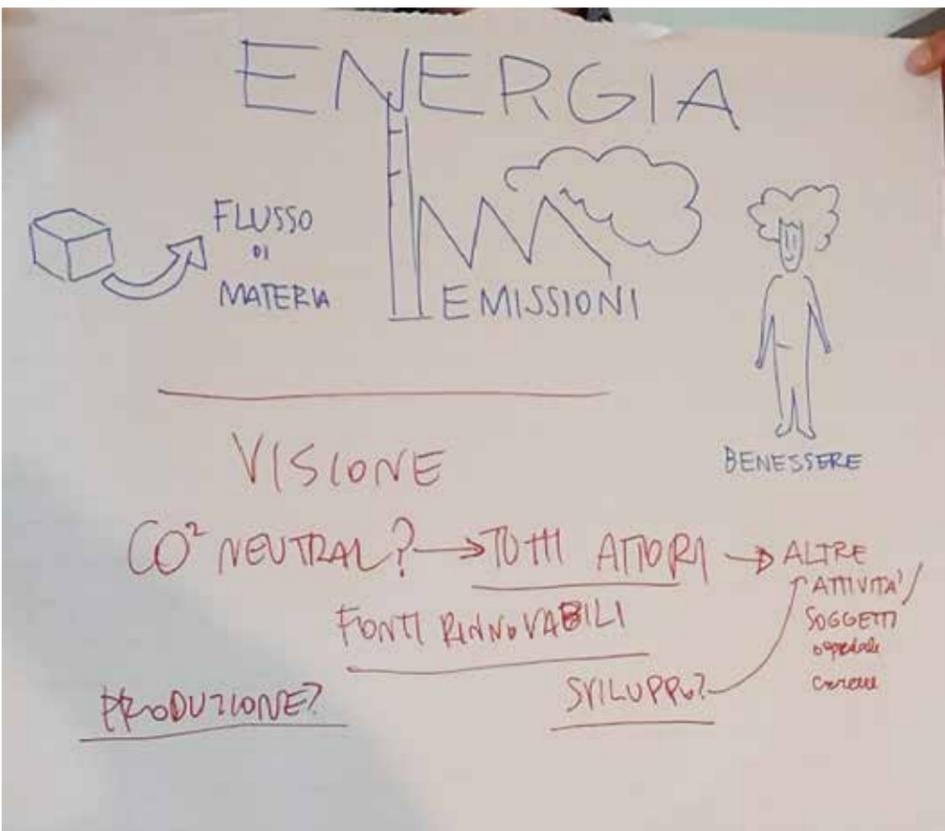
The landscape integration strategy proposes greater links within the park and into the park. This means having a number of 'gateways'. Some gateways can be quite iconic such as Santa Maria de la Pietà, while others will simply be small pathways from neighbouring areas.

The access network can include simply pathways for walking and cycling. A further step would to build greater links between other isolated green areas for wildlife habitat

LEGEND

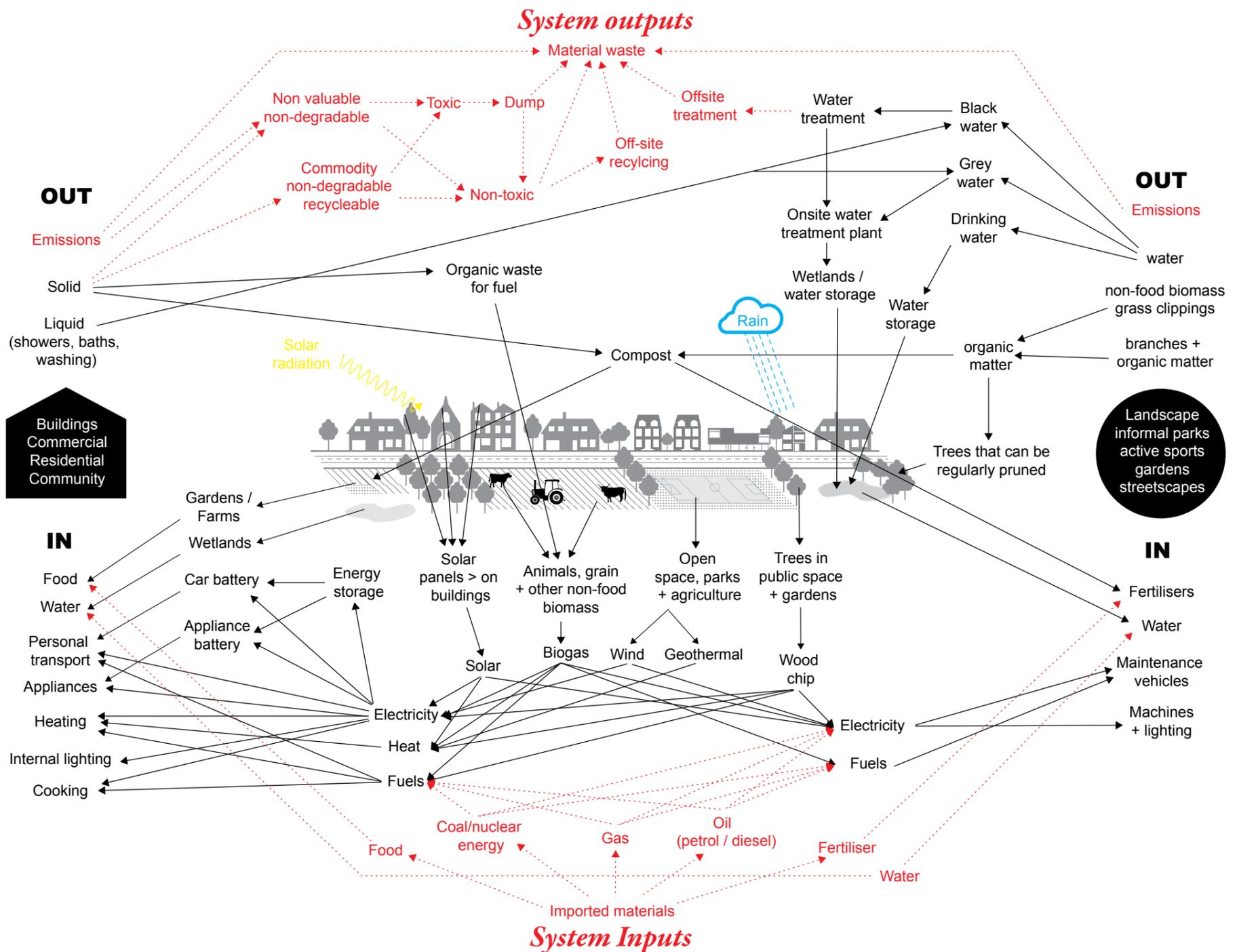


The resources & energy system



Sup. 460 ha	SCENARIO 1 0-5 ANNI							Sup. 460 ha. SCENARIO 2						
	EN. ELETTR.	EN. TERMICA	ACQUA	RIFIUTI	MOBILITA'	SUP. = PV+ST	MICRO MINI EOLIO	GGO TERMO	BIO MASSA	EN. ELETTR.	EN. TERMICA	ACQUA	RIFIUTI	MOBILITA'
COBRAGO B.														
S. MARIA PIETÀ														
INCUBATORE BIC														
S. FILIPPO NERI														
IST. PASTEUR														
CARICRE MIN.														
ENI														
Mc DONALD'S														
SUPERMERCATO														
ICE PARK														
DEPOSITO AMA														
CAMP. NOMADI														
PROVINCIA R.M.														
ORTISTI STORICI														
TENUTA MASSARA														
VITTORINI														
UNICREDIT														
M.M. GLAZIA GIOSTE														

RESOURCE FLOWS BETWEEN BUILDINGS & LANDSCAPE



OVERVIEW

ENERGY PRODUCTION & CONSUMPTION

Agriculture is much more than simply food production. It can be a very complimentary whereby the waste of one becomes the fuel or inputs of the other.

In practice, houses may have a demand for food and energy (for heating and electricity). This could be at least partially provided by the production of resources from the Parco. Food naturally can be grown. Energy can be produced through biomass (wood or bio-gas). In turn wast from the housing areas can be turned back to the Parco to create compost and fertilisers. Above we have mapped how various resources could move throughout the system. The most important objective is to avoid any valuable resources from leaving the system. The second objective is to avoid any unnecessary resources from entering the system that cannot be reused within the local system in the first place.

While energy can be produced in the Parco, it will be barely enough to provide energy to the neighbouring areas, let alone for its own present needs. If energy is to be taken seriously, it will mean thinking very carefully about the kind of technology to be used. Energy production is not necessarily the most effective solution, energy reduction is often the cheapest and quickest way to have a positive impact on energy demands.

