GHOST TOWNS

Reviving Abandoned Towns for Sustainable & Sharing Community

Research Writings

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Revitalizing Abandoned Towns
for Sustainable & Sharing Community

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Thank you.

ABSTRACT

English Abstract

The world's population is growing exponentially. Cities are getting too crowded and too dense to live in, personal spaces are getting sacrificed as more and more people migrate to great cities for better job opportunities and better living qualities. As a result, small towns around the cities or rural villages that were not as developed, they were left empty. These empty and abandoned towns are the future of architecture when cities are no longer able to accommodate more population.

This thesis research and intervention aim to explore possible solutions and proposals to "redeem and reuse" abandoned villages and towns, through a utopian vision and concept of sharing community - a community that is democratically managed by the community. Sustainability, ecological, circular economy are the main approaches and objectives of the proposal. A series of theories and principles are proposed to fit on various abandoned towns in the world with different geographical, economic and cultural backgrounds. Strategies and concepts are derived through literature reviews and study of various precedents studies with the main focus on elaborating upon the local cultural values of the abandoned places, at the same time covering aspects of social, architectural, economical and environmental.

Copparo, a town in the region of Emilia-Romagna, has been selected for the implementation of the proposed strategies. From urban planning to architectural intervention, Copparo is regenerated in a social and ecological approach, in the hope to save it from being left abandoned like the rest of the towns.

Keywords: Abandoned villages and towns, "redeem and reuse", circular economy, sharing community

Astratto

La popolazione mondiale sta crescendo esponenzialmente. Le città stanno diventando troppo affollate e troppo dense per vivere, gli spazi personali vengono sacrificati mentre sempre più persone migrano verso grandi città per migliori opportunità di lavoro e migliori qualità di vita. Di conseguenza, piccole città, venivano lasciati vuoti intorno a grandi città. Queste città vuote e abbandonate sono il futuro dell'architettura, quando le città non sono più in grado di accogliere più popolazione.

Lo scopo di questa tesi di ricerca e intervento è quello di esplorare possibili soluzioni e proposte per "riscattare e riutilizzare" villaggi e città abbandonati, attraverso una visione utopica e un concetto di condivisione della comunità - una comunità gestita democraticamente dalla comunità. Sostenibilità, ecologia, economia circolare sono i principali approcci e obiettivi della proposta. Viene proposta una serie di teorie e principi per adattarsi a varie città abbandonate nel mondo con diversi contesti geografici, economici e culturali. Strategie e concetti sono derivati attraverso revisioni della letteratura e ricerche di vari studi precedenti con particolare attenzione all'elaborazione dei valori culturali locali dei luoghi abbandonati, coprendo allo stesso tempo aspetti sociali, architettonici, economici e ambientali.

Copparo, un comune della regione Emilia-Romagna, è stato selezionato per l'attuazione delle strategie proposte. Dalla pianificazione urbana all'intervento architettonico, Copparo è rigenerato in un approccio sociale ed ecologico, nella speranza di salvarlo dall'abbandono come il resto delle città.

Parole chiave: villaggi e città abbandonati, "riscattare e riutilizzare", economia circolare, comunità condivisa

CONTENTS

PART 01
RESEARCH PROPOSAL

"Continuous sprawling of urbanization destroys life, and makes cities unbearable."

- Christopher Alexander, A Pattern Language.

Introduction

Nowadays, the term cities can be well related to several keywords such as overpopulation, pollution, greenhouse effect, etc. There is no doubt that our society revolves around the building of cities and skyscrapers, but we have slowly forgotten our roots of where a community is built before society is formed. It is obvious that ever since World War II, more buildings have been built to cater the fast-growing humanity, and slowly the cities have sprawled over the rural areas, blurring the boundaries between them. Nowadays whenever there is a need to accommodate the new needs of the people, “demolition” is the trendy word that comes into mind.

The initiatives of this research started when I came across the article about the Italian Municipalities putting the houses in their respective towns for sales at a price as low as 1 euro, with the hope to attract people from the cities to keep the once-blooming villages from dying. Italy is one of the countries in Europe that is facing the crisis of old-ageing population. Instead of trying to solve the problem of overcrowded cities, perhaps there is the possibility to look back into the past and revive the left-behind rural areas with the assistance of technologies, that would allow people to communicate remotely from everywhere in the world, without the need to physically live in big cities.

So the questions arise: what is the difference from building another city over the villages? The regenerated villages will slowly become like any other rapidly growing cities just as how the other cities were built. Hence, there comes the proposal with a radical approach in the process - sharing community. Cities today are governed by a group of fascist politicians sitting in their expensively built offices, looking out to the so-called beautiful skyscrapers cityline while they draft and create policies on what they think is appropriate for the people and the society. But, how will a place become if it is run by the community, democratically, with the awareness and aim to give back to the community and the environment?

Case studies and paper research were the first steps into this utopian concept of revitalizing abandoned towns. From participatory budgeting in Brazil to resident managed public places in Italy to taxi cooperatives in the United States, they show the possibility that there are almost no services or infrastructures that cannot be run democratically by the people for the people. With the happening of worsening income inequality, fiscal challenges and drastic climate change, there is the need of a self-organized scheme that can be democratically practised

within one community to meet their own needs by sharing resources with one another.

When all these sound like the powers are in the hands of the politicians and policies planners, it is also reasonable to look from the architecture and urban planning approaches on helping to provide a built environment that can change the way of living that is not able to be practised in the city lives. Public services and infrastructures shared spaces and resources, local goods productions and borderless communities are within the ability to be achieved with the aid of advanced technologies.

Another aspect is to redefine “social equality”. The concept of sharing community does not mean that the same amount of resources to be given access to everyone, but the accessibility based on how much can one individual gives back to the community in return. For instance, if one could not afford his rental of stay, he could possibly contribute in terms of services and workforce back to the community; if one has an empty piece of land but has no knowledge of utilizing it, he could give it to the gardeners or farmers for a plantation of flora and fauna, and the products are then shared amongst the involved parties. Will this be the utter utopian that can only be written and planned on papers, or it will eventually be the future of the next generations?

In the whole of this thesis, it explores the possible practical demonstration on how architecture and urban planning can be part of a community-based solution to the once-abandoned villages and towns.

Problem Statement

The human population is growing very rapidly. More than half of the world's population are living in urban centres, and in a decade, that number will be more than 60 per cent, which our world will be the home to at least 43 megacities - urban areas for more than 10 million inhabitants. According to the Oxford Dictionary, overpopulation is defined as the fact of a country or city has too many people living in it. The definition creates an arguable point: how do we define "too many people"? While in the Oxford Dictionary of Biology, it is defined as the situation that arises when the rapid growth of a population, usually a human population, results in numbers that cannot be supported by the available resources, such as space and food.

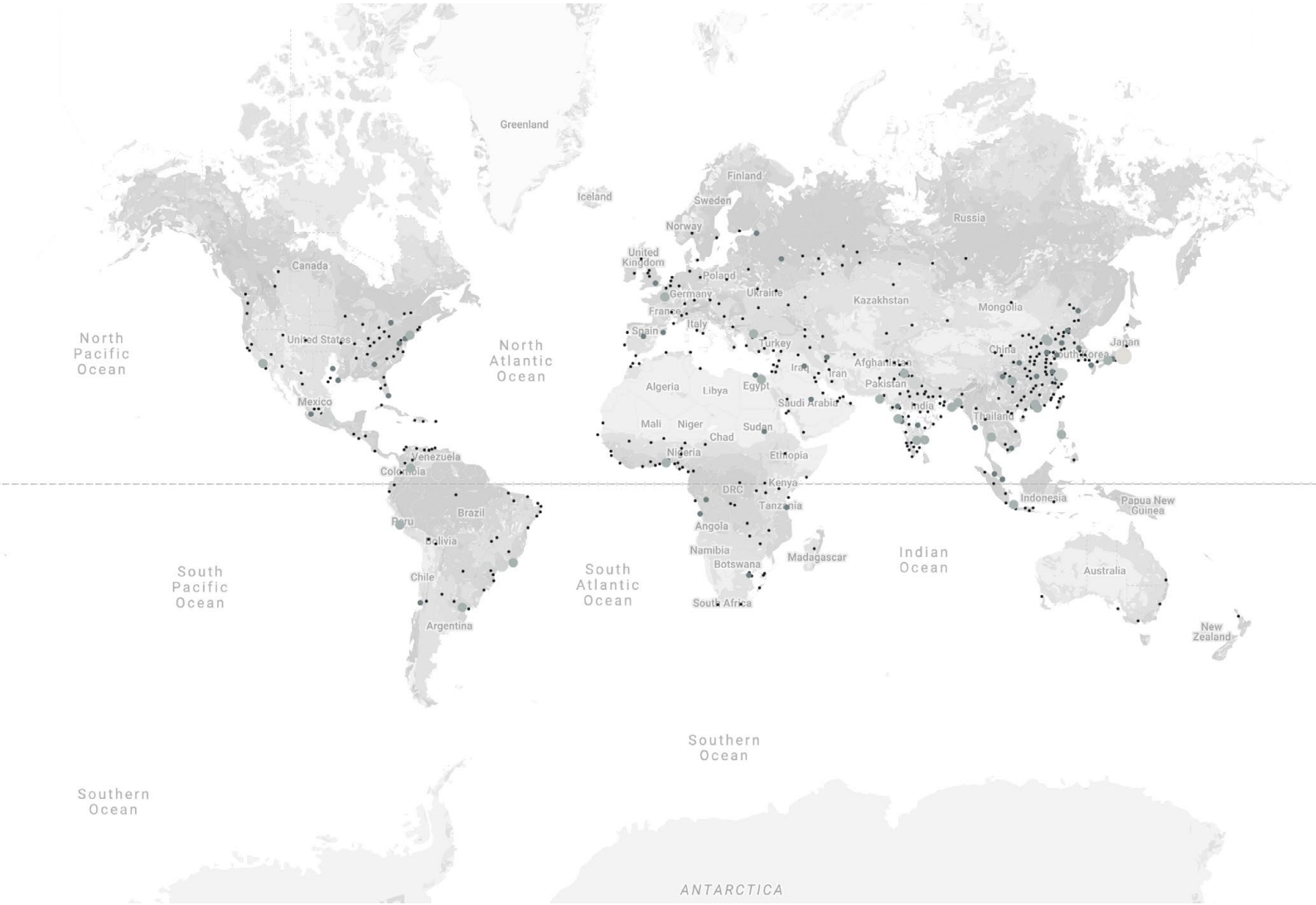


Figure 1.1 : Mapping of overpopulated cities in the world.
Source : The World's Cities in 2018, United Nations

At the beginning of the century in 2000, there were 371 cities with 1 million inhabitants or more worldwide. By the year of 2018, the number of cities with at least 1 million inhabitants had grown to 548 and with a conservative estimation, in 2030, a projected number of 706 cities will have at least 1 million residents.

Most of us can agree that the cities are places where enormous numbers of people live and work - they are hubs for government organizations, national and international commerce centres and transportation nodes. But how best to define the limits of a city in terms of geographical aspects is a matter of some debate. By far, there are no standardized definitions and criteria that give guidelines for determining the boundaries of a city.

As cities grow, perhaps the main concern should be on how they are expanding towards the surrounding rural areas. Over the past centuries, urban cities have not only expanded demographically, but they have also physically sprawled outwards - covering some of the very valuable farmlands. Hence, the actual geographical distinction between city and urban sprawl has become harder to be defined.

On the contrary, while cities are booming with populations migrating looking for better job opportunities, more convenient infrastructures and higher living quality, cities and towns are being abandoned as the result of the said migrations. Rather than allowing the urban sprawl to spread and take ownership of the rural by newly built buildings, the abandoned towns surrounding the cities are left vacant and are worth to be taken as a potential development for the future expanding population when the cities are not able to allocate the people anymore.

Despite the growing population in the world, Italy is experiencing the declination of their nation’s population. Italy’s population density is very uneven. Rome, Milan and Naples dictating as the most populated cities in the country, Italy’s villages and rural are struggling to fight against its depopulation and risks of turning into ghost villages.

According to Legambiente, a national environmental association reported that as of today, at least a third of Italy’s villages are at the risk of depopulation and even extinction. In the past 25 years, one in seven inhabitants has chosen to leave Italy’s small villages, either heading for larger towns or cities or leaving the country. Also, according to ISTAT, there were almost 157, 000 people who left the country in 2018. Whoever left behind are elderly - the number of residents aged 65 or over had increased by 83 per cent in the last quarter of the century. There are almost 2, 500 villages at perilously depopulated, some

Figure 1.2 : Mapping of selected abandoned towns in the world

semi-abandoned and are at risks of turning into ghost communities, with a startling two million homes abandoned or left empty at their owners, according to the research data collected by Consiglio Nazionale delle Ricerche (CNR), National Research Council of Italy.

These villages were once connected to the countryside around them, the people working as farmers and merchants, craftsmen and shepherds. If these villages die, it is not only the population that they lost, so do the very geographically unique traditions and speciality skills associated with each place. As mentioned before, this phenomenon is not happening only in Italy, but also other small towns in the developed countries are left behind as technologies and economies change, forcing the people to migrate to urban cities.

Figure 1.3 : Mapping of selected abandoned towns in the Italy

However, everything has changed for our new generation. A new attitude has emerged towards rural living. With the advanced technology and knowledge, people are starting to make a comeback, retracing the steps of those who left the places many years back, finding possibilities to reform their living habits. These places should now be seen as strongholds that have kept our traditions well preserved, our unique environmental, cultural and social heritage.

Project Objectives

There are a few objectives that the research and design aim to achieve. Firstly, it is to redefine the definition of ghost towns and to analyse the potential hidden within the abandoned towns, which not all of the abandoned towns are equipped with. This means thorough research and understanding of the well-known ghost towns in the world, organizing them based on the reasons why they were abandoned, hence, ranking their potential to be reprogrammed for the future communities.

The second is to propose a concept about what are the new commons for future communities. “To create a sharing community”, an easier sentence said than done. But how do we define the limit of “sharing” within a community? Are there any underlying principles that can be created as ethical guidelines for the people to agree with and to be practised in real life? The proposal promotes a “live for free, contribute as exchange” scheme that hopes to provide equality of living quality for all the people who cannot afford to live in the big cities.

“Sustainability” is another key goal to be achieved in this programme, socially, economically and environmentally. The aim is to reprogram the once-abandoned towns as new attractions for the younger generations to return and that will not once again abandon in the future.

The architectural design objective is rather straightforward: to create and build with the minimal waste and avoidance of artificial building materials. Through technologies, architectural features should have the ability to convert renewable energy as the main resources for the people. This also refers to the raw materials of new structures to be obtained from nature and can be given back to nature when the purpose of the structures ends. With that, architectural functions can be continuously repurposed according to the needs of the people, at the same time not creating more waste to mother nature.

To emphasize the objectives, the thesis will contain both community and architectural proposals, demonstrating in the utopian thinking of how the reprogramming of ghost towns for a sharing community can be the new common for the future generations.

Research Hypothesis

Architecture influences the communities in various different ways, although not as direct and as impactful as it could be, there is no doubt that it is one of the aspects that affects how a community is shaped.

Subsequent questions to narrow down the approaches and researches:

What are the basic principles and guidelines to help a self-organized community?
Who are the stakeholders or potential parties to be involved as initiators?
How do urban designs and public amenities affect the lifestyle of a community?
What are the potential architectural typologies to appropriately reuse the abandoned spaces and buildings?
What is the definition of "sustainability" in all aspects of social, economical and environmental?

Research Methodology

The research started with a range of literature reviews, from architecture to environmental, and extending to the aspect of urban sociology, to understand from an architect's point of view how a community is formed and functioned. Knowledge from other minor courses has also contributed as research skillsets to analyse and organize the findings. Then, architecture projects as case studies were taken as a reference to define the new definitions and to form a new theoretical proposal for the design.

A diagramatic represenration of the different methodologies for all aspect of the research is demonstrated as below:

Figure 1.4 : Diagramatic representation of research methodologies

Research Framework

Figure 1.5 : Diagramatic representation of research framework

“One of the requirements of happiness is equality. Maybe not equality of income, but equality of life and an environment where people don’t feel excluded.”

- Charles Montgomery, The Happy City.

PART 02
THEMATIC DEVELOPMENT

Ghost Towns

Abandoned towns are the spark of interest in this thesis research, starting with the news about the “Casa A 1 Euro” programme by Italian towns which are selling their houses at a price as low as 1 euro to save themselves from dying into a ghost town. It happens to be found that not only Italy is facing a problem of depopulation in its small rural towns, there are more than 200 abandoned cities, known also as ghost towns, in all over the world.

Ghost towns are abandoned settlements, which usually still contain substantial visible remains.

In the past decades, as well as the coming decades, major cities will be urbanized and it can be quite convincing to say that there will be more towns that will be left behind and gradually disappear from the memories of its nation. Since the issues of overpopulated cities are rising and at the same time are creating more political, environmental, economical and social challenges, why are we not looking back into the once inhabited towns?

Figure 2.1 : Mapping of selected abandoned towns in the world

There are many reasons why a town is left abandoned and becomes a ghost town, such as natural disasters, economical downfall, wars, pollution and any other possible reasons. Hence, a collective mapping on the well-known ghost towns has been done, categorised by its reasons to further understand the main reason that the towns were abandoned, at the same time to understand its previous population and the size of the town. This helps to define if the issue of ghost towns is feasible to be proposed for a revival. Economical reasons are the main focused group of towns that this thesis is putting its attention. From the categorizations, it also shows that towns that were abandoned due to economic downfall takes the major percentage of its kind. The proposal shall not limit itself to only a specific town but aims to form a pattern that can be applied to as many towns as possible.

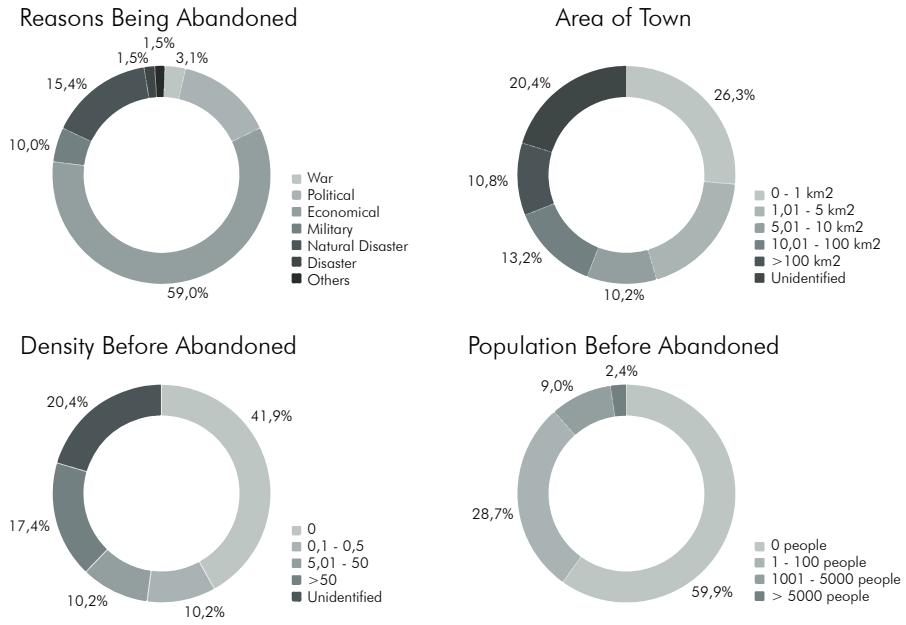


Figure 2.2 : Categorization of selective abandoned towns

As many as 2,500 towns in Italy are facing similar depopulation, according to a 2016 report by Legambiente, an Italian environmental association. As the inhabitants leave the town for better opportunities, the social, cultural, and economic strength of a town collapses, which drives even more people to leave, explains Cecilia Reynaud, a professor of political science at Roma Tre University. Despite the effort of selling the houses for very low prices, it does not help in achieving the aim to revive the towns to their glorious days - the reason being that the interested buyers are mostly foreigners, who take the houses as holiday homes. Programmes like this focus only on the physical assets as an attraction, do not solve the problems in helping to build a new community and new economical activities, it does not create a new life for its people.

Sharing Community

"Sharing Community", is a group of people who come together with a common vision of forming a culture of widespread sharing habits. This means that people pool resources, which allows individuals to get what they need, when they need it, and to give what they do not need. One of the corporate examples is the practice of home-sharing platform, which homeowners rent out their apartment whenever they are not at home, or vehicle sharings that allows people to own a set of wheels only when they need it, but not with the need to commit to owning a new vehicle as a personal asset.

When a community comes together and shares the resources, culture and education is the first step to achieve. Greed and selfishness is a big no in this kind of community. However, that comes with the availability of resources to that community.

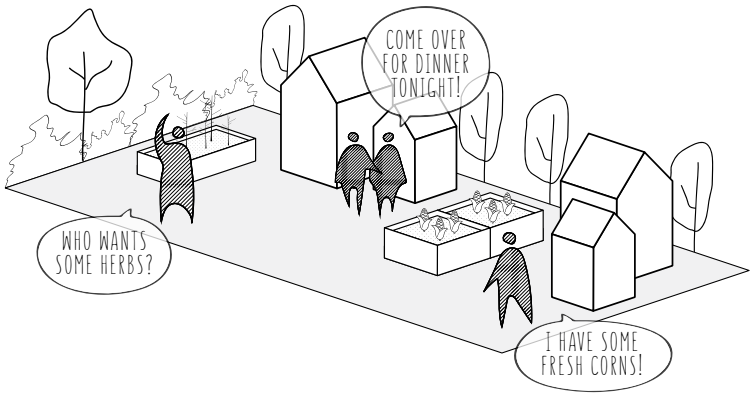


Figure 2.3 : Hypothetical visualization on community interactions

A sharing community is usually a self-organized community, along its way it leads to a sharing economy. The rich share their excess and the poor get their essentials. A sharing community could sustain better together compared to the individualism community, where there is more team effort and togetherness to achieve and keep the community alive. Trust among the people helps to build a more harmonious society and the people live happier.

"Community is kindness.
Community is strength."

Sustainability

The word sustainable is often used to describe environmentally related matters, architecture, technologies and daily habits. In Our Common Future, the Brundtland Commission (which was convened by the United Nations in 1987 to examine global environmental degradation), sustainability is defined as "meeting the needs of today without sacrificing the ability of future generations to meet their own needs". The questions then arise, what is the definition of "needs" and when does "future" stand in this term?

I would like to define "sustainability" in another word - "longevity", and that refers not only to resources, but also community and relationships. Architecture nowadays is designed only for the moment it was built, claiming that they are reusing resources to generate energies, but neglecting the lifespan of the structures. Lifespans of buildings are short, in terms of functions and structural. When a building reaches its lifespan, policies planners will easily propose demolition and rebuild. The building does not live to enjoy the glory of "longevity". It will be forgotten by the community that it once served.

Sustainability applies also to the community and economic activities. Towns that are left behind cause a community and neighbourhood to break its relationship, spreading as they go to separate paths of their life for a better future. A community is sustainable when everyone comes together to build a stronger society and to protect their home. To achieve this, it relates to the concept of "sharing community", a community that has strong bonds and is willing to strive for their future generation.

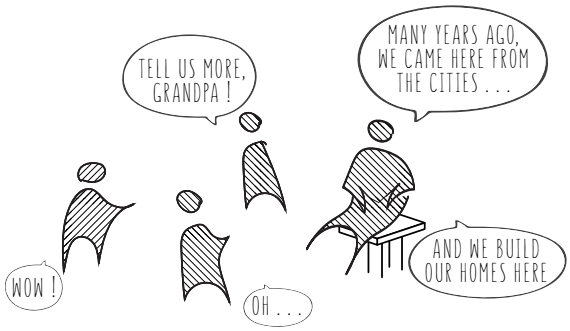


Figure 2.4 : Hypothetical visualization on sustainable community

Despite only the longevity of the community, the availability of renewable resources is also the key to a sustainable neighbourhood. With this, the "Sustainability Index" was proposed by Professor Ingersoll to rate the performance of how a town is coping with the concept of "sustainability". Mobility, Production and Usage of Energy, Waste as A Resource, Equity and Land Ethic.

Mobility
Defines as the mode of transportation concerning the proximity of available resources. Transportations and logistics require a lot of energy in our daily lives. Functions planning and the mixture of diversity is important to reduce the need to travel for daily essentials.

Production and Usage of Energy
That reflects on how the community or neighbourhood uses energy in their daily habits and the effort for the production of energy from renewable resources helps to ensure the availability of resources as time goes.

Waste as a Resource
Wastes are a good resource if one utilizes it in the right way. Organic wastes can be degraded into nutritions for gardens and plants, demolished structural components can be reused into light structural shelter etc. Reusing wastes as a new resource reduces waste that goes into landfill and reduces pollutants.

Equity
Availability of job opportunities is a major factor that sustains a community. Cities nowadays are planned with districts with sole functions and citizens have to cross from one to another for working opportunities. Living in a town that can provide enough job opportunities to its inhabitants is one of the keys to having a long-lasting community.

Land Ethic
Land ethic refers to the ethics of usage of land. Lands should not be focused on building highrises but also to plant greens. A plot of land is only fully utilized if it is given the opportunities to be reused for different purposes in the long run.

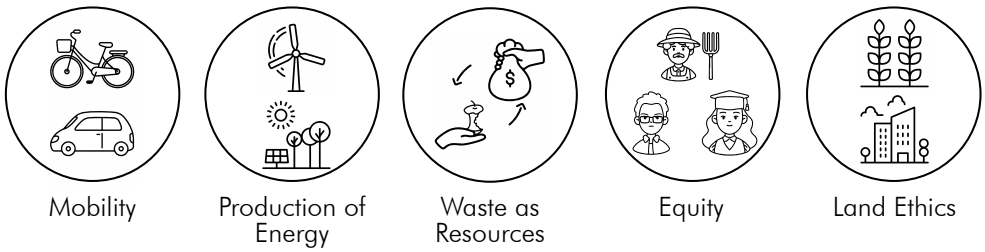


Figure 2.5 : Sustainability Index

Redeem and Reuse

"Redeem and Reuse" is trying to refer to the initiatives of taking ownerships on abandoned and unoccupied buildings or lands. In cities, there are many buildings left empty and its destiny will usually be demolition.

Comodato d'uso, known also as loan for use, is a policy that a loan, or free concession of anything moveable or immoveable, for a certain timeframe, on condition of restoring the same individual after a certain time. This is a useful policy to allow an exchange between the government and the people for a use of abandoned buildings and land, without compensating the rent, at the same time make full use of the available resources.

Many towns in Italy that participated in the programme of 1 euro house face a common problem that the owner of abandoned houses is nowhere to be found. If the houses can be redeemed and re-used for the meanwhile, rather than being left unoccupied and unused, a lot of materials used for new buildings can be saved. With minimal changes and repairs to the building, it can be used as a new place for tourists, homeless, artists and many other purposes.

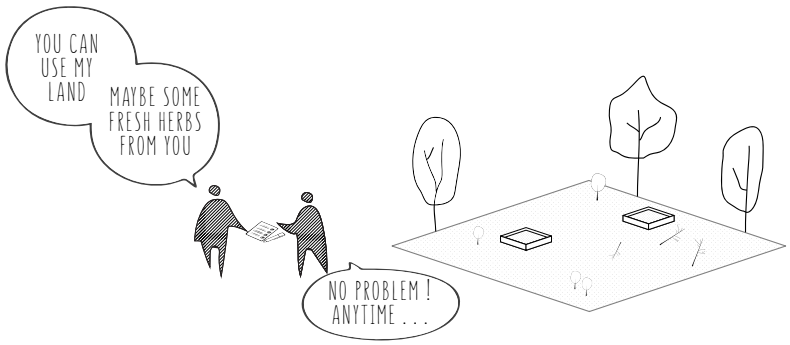


Figure 2.6 : Comodato d'Uso, loan for use

Circular Economy

When one talks about sustainability, the word circular economy will often be mentioned as a part of the conversation. While circular economy typically refers to an economic system of closed loops in which the raw materials, components and products lose their value as little as possible, renewable energy sources are used and systems thinking is at the core. It is against what most of our current industries work - take, make, dispose of.

When the circular economy is used in the architectural term, it aims at redefining growth and focusing on social benefits. Closing the loop is the key point in the system. But if this concept could extend to a sociology level, closing the loop of the social economy to allow a close relationship between key players controlling the economical field.

For example, agriculture activities produce raw materials. Raw materials are then being sent to the factories or workshops for the production of daily goods. This process requires manpower, hence providing job opportunities to the locals. When the goods are used and the remaining of them are being collected and brought back to the production factories, it allows a repair and reuses purpose. In return, the collectors are given incentives for not trashing away the used or broken items. A key point during the production, the packaging has to be rethought in consideration that the end product can be degraded back into nature when it reaches its lifespan. The production of products can then be sold to the consumers and create a market as an economical income to the community. In return, the profits earned from the selling of products contributes to the maintenance of the public services and the cultivation of agricultural activities, and the loop goes on.

With this concept, not only the materials are in the closed-loop of the circular economy, but also the community and social aspects are taken into consideration. A system does not work without a key player, which in this case, the key players are the communities who are handling the process of the loop. Hence, the circular economy in this thesis is to be redefined as a closed loop that links circular economical models, renewable resources and social capital.

Conclusion

As a conclusion, these components come together to make an ultimate combination for a happy town.

Cities are booming quickly, getting denser and denser as predicted by the United Nation, not to mention that it contributes to the acceleration of the pandemic happening during the process of this thesis research. Ghost towns in the rural are the next new opportunities when cities can no longer expand and no longer cater to the capacity of inhabitants. These ghost towns stand in rural areas that are surrounded by vast nature and open land, enough to provide a lower density and calmer life for the people. Advanced telecommunications technologies are proven to be sufficient to allow people to work remotely without commuting to their workplace every day. The reduction of commuting can far reduce the consumption of fuel and energy, saving time for a more efficient purpose in our daily lives.

Redeem and reuse old houses are not degradation in one's life but as an opportunity given to the existing resources to serve us once again. Demolition should not be the first that comes to one's mind when facing an old building. A little fixing and additional building, the building can be ready in no time for its new purpose.

Sharing of community and circular economy puts everyone together to strive for a better future regardless of social status and background. Today, we live in a city that we may hardly know our neighbours next door. The daily routine that consists of commuting to work, time spent on the road to and fro from the workplace, and back to a closed house where we spend a few hours before the day ends. A community with strong bonds helps and knows each other, making the place a marrier neighbourhood to live in, hence increasing the happiness in our lives.

Lastly, environmental factors are hitting us hard but most of us are in total denial. Everyone should take a small step to do our part, and big changes can be seen. It is never too late to get ourselves ready for what is worst to come. We will not change nature to a better environment but we can start to educate ourselves and our younger generation to be ready when a resource has worn out and is no longer available. Alternatives should be ready or even replace the use of non-renewable energy.

This is a proposal on reviving a ghost town into a happy town that strives to give the community a better future.

PART 03
THEORY AND APPROACH

Precedent Studies

ActtivAree by Fondazione Cariplo

AttivAree is a cross-cutting programme initiated by Fondazione Cariplo, seeking to revitalize marginalized areas in its constituency, and enhance their attractiveness for residents, potential investors and nearby urban centres by leveraging the resources of the local communities.

Through the programme of AttivAree, Fondazione Cariplo has successfully funded a few rural reviving projects, a few that are worth mentioning are the Oltrepò Pavese and Resilient Valleys. Both projects have a similar approach to promote local specialities and cultural uniqueness with the involvement of the community. The aim is to attract youngsters, redeveloping new services and infrastructures to encourage the repopulation of rural areas, at the same time strengthen the collective cultural identity of the place.

It is a strategic project because Fondazione Cariplo is highly sponsored and has a wide budget for realizing these projects. Fondazione Cariplo AttivAree programme strives to achieve the following:

- Strengthen and innovate local economies and youth entrepreneurship
- Promote local heritage and cultural identity
- Prevent and reduce hydro-geological risk
- Further education or training and innovative technological and scientific contents
- Encourage social or work integration of migrants and new residents
- Communicate and promote local resources and potential
- Support regulatory advocacy for rural areas

Figure 3.1 : Location Map of Projects

Key Take-Away

- Local Communities
- Redevelop new services and infrastructures
- Local specialties and cultural uniqueness
- Promote local resources and potential

Oltrepò Pavese is a different approach to the usual investment in biodiversity, but understood across the board, in a social, cultural and intercultural sense, attributing a renewed role to agriculture and landscape also as areas of application for scientific research. While the Resilient Valleys project aims to contrast the dynamics of ageing and depopulation, offering prospects to the younger generations and activating endogenous resources of the territory aimed at increasing the attractiveness of the mountain area of the Trompia and Sabbia Valleys as a place for life and work.

Figure 3.2 : Oltrepò relaunch of Forest Heritage

Figure 3.3 : The core of Resilient Valleys

Figure 3.4 : Ethnographic Museum Oltrepò Pavese

Figure 3.5 : Cycle Path or Resilient Valleys

Figure 3.6 : Wine Making Tradition in Oltrepò Pavese

Figure 3.7 : Cheese of Resilient Valleys

Fluminimaggiore, Sardegna

The mayor of Fluminimaggiore has created a community working together and transformed the town into a widespread residence for pension elderly from all over Europe.

The village is located in the south-west area of Sardinia, the province of Carbonia Iglesias. The idea was initiated by one of the residents in the village, Marco Corrias, to transform the place into a place for elderly people from all over Europe, giving it the name of “Happy Village”. The whole initiative started with the aim to regenerate the place, repopulate and provide more job opportunities to the residents.

The whole idea derived from a combination of classic nursing home and the newly initiated Albergo diffuso. Local residents came together to form a community who are responsible to manage the programme and the place. They took charge in dealing with the owners and maintenance of the assets owned by the community. Abandoned and unoccupied houses are re-used and transformed into residences to host pension elderly from the European Union.

By involving the residents in the management of the programme, a circular and sharing community is formed. The programme requires a series of healthcare and services for the elderly, offering young generations some sort of job opportunities, as well as using up all the available resources in the villages, such as the existing unoccupied houses.

Key Take-Away
- Community managed programme
- Re-use abandoned and unoccupied houses
- Offers job opportunities
- Use available recources

Figure 3.8 : View of Fluminimaggiore

Figure 3.9 :
Retired Community

Figure 3.10 : From Germany, Jacqueline Dodemont, 58 and Alexander Schild, 81, loved the village.

Figure 3.11 : Mayor Marco Corrias, the initiator of “Happy Village”

Figure 3.12 : Community of old and young come together for events and activities

Figure 3.13 : Sharing knowledge about culture and traditions

Saint-Pierre-de-Frugie, Dordogne, France

The small village of Saint-Pierre-de-Frugie in Dordogne was abandoned until the newly elected mayor, Gilbert Chabaud, decided to approach ecological means to revive the dying village, currently having 419 inhabitants and covering an area of 2, 000 ha.

In 2008, mayor Gilbert Chabaud implemented his initial idea by banning all forms of pesticides and plant protection treatments in the village. He then introduced the concept of permaculture, leading the villagers and farmers towards the principle of organic agriculture.

A shared vegetable garden was designed by the mayor at the entrance of the village, producing organic fruits, vegetables as well as medicinal plants. The water used for its irrigation is driven by a hydraulic and ecological system from a nearby pond. The mayor then decided to acquire the wetlands around the village to improve the scheme.

New trails for hikers were consequently opened. With this, it attracts hikers coming to visit and enjoy the newly designed landscape. This then leads to the transformation of the abandoned school into country cottages to cater to the accommodation of visiting hikers.

Children residing in the village are taught according to the Montessori system, a system which is an alternative educational system based on ecological principles on the environment. Organic groceries were set up, offering local farmers the opportunity to sell their products from their farms.

Key Take-Away
- Organic agriculture
- Produce and sell
- Tourism
- Education to younger generations
- Sharing community

Through the sale of cow's milk, beef, bread, cold cuts, fresh fruits, and even beer, the people of the village's economy are growing again and able to provide a comfortable life to the people.

The villages were able to adapt to the concept and learn to produce and sell organic products from their farms. Cow's milk, beef, bread and cold meats, fruits and ciders are the well-known organic products by the town.

Figure 3.14 : Animals Farming for production of organic products

Figure 3.15 : Pascale, owner of organic farm

Figure 3.16 : Lucien, partner of Pascale, sells own grown products to the local community

Colletta di Castelbianco, Savona, Italy

Colletta di Castelbianco is an ancient medieval village in the province of Savona, left in ruin after it was hit by an earthquake in 1887. Many inhabitants left the village after the incident, leaving the town as a ghost town in just a few years. Architect Giancarlo De Carlo has recently been entrusted by a group of young entrepreneurs with the responsibility for transforming the place into the very first medieval telematic village in Italy.

Utilizing the advance of technology, fibre optic cables are laid, covering the entire village, to accommodate the concept of capillary hotels. Most of the destroyed buildings are renovated, turning into rooms and recreational facilities for the visitors.

Many locals and foreigners started to get attracted by the hi-tech concept, showing interest in taking the renovated houses as their holiday homes or even permanent residing homes. The stone village is located in the Pannevaira valley, which attracts many trekking enthusiasts. Tourism became part of the element that supports the economical income of the town, providing the locals with job opportunities and better living qualities.

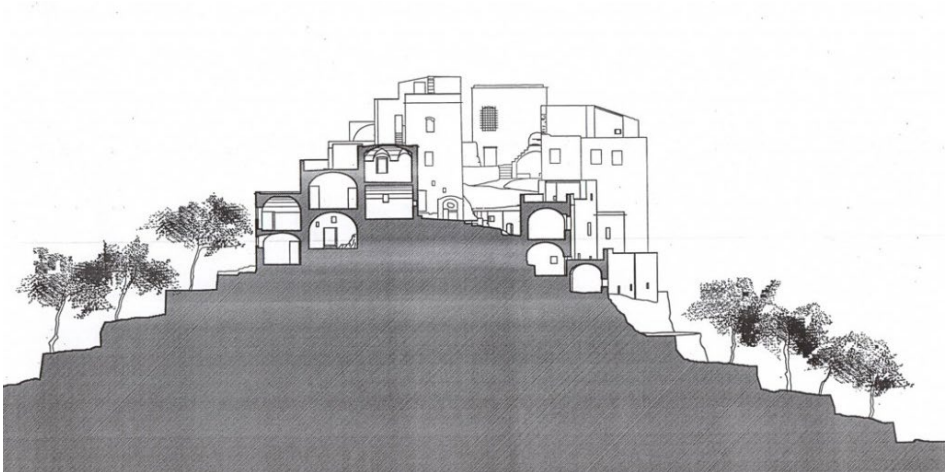


Figure 3.17 : Medieval typology of the ancient village

Key Take-Away
- Telematic technologies
- Hi-tech
- Tourism
- Offers job Opportunities

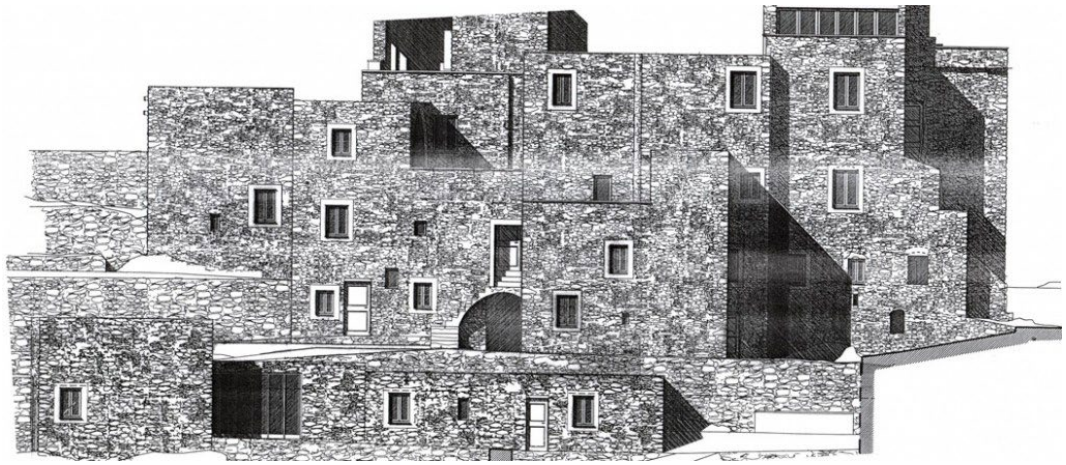


Figure 3.18 : Medieval typology of the ancient village

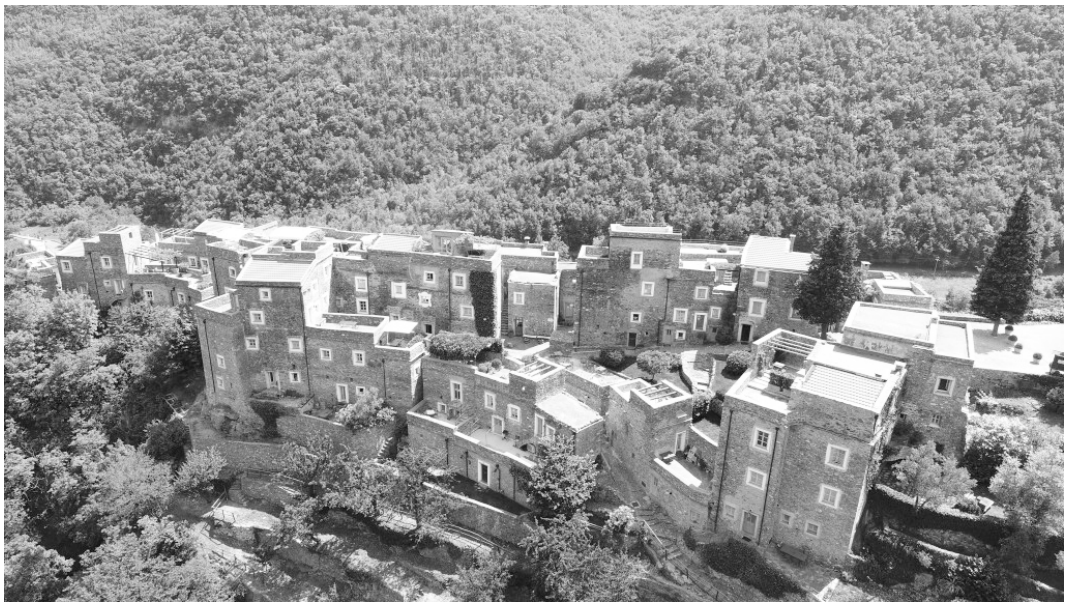


Figure 3.19 : Refurbished Colletta Town

Alberghi Diffusi

Alberghi Diffusi, literally translated as widespread hotels or scattered hotels, is a unique programme that redevelops abandoned buildings in small villages with an eye to host tourists. These accommodations, instead of the modern hotel concept in one vertical building, are distributed among various restored buildings around the settlements, involving visitors within the local community. The concept of alberghi diffusi only started in the early 1980s, when hotel marketing consultant Giancarlo Dall' Ara was trying to look for a concept to help bring the villages of Friuli-Venezia Giulia back to life.

The whole concept was from his experience on his travels to Japan, where he learned the practice of ryokan, known as well as a traditional inn. He realized that each place has the potential to create a system that could promote its regional hospitality.

At the same time, he wanted to incorporate the history of Italian traditional hospitality. Between the Renaissance time and the 1800s, many wealthy Italian families would build small houses around their house to put up to the extension of the family and hosting guests. This sparks the idea in his mind that the hotel concept could be spread out among the buildings.

Today, alberghi diffusi has successfully revived many villages across Italy. The whole concept focuses on preservation, sustainability and economical feasibility.

Key Take-Away
- Redevelop abandoned buildings
- Involving community and visitors
- Tourism
- Culture and Traditions

The Alberghi Diffusi concept serves also as a model of the touristic plan for the locals. It is a network, combining local activities and houses, offering services, infrastructures and experience by either creating them or reorganizing the existing ones.

Figure 3.20 : Conceptual Sketch of comparison between ordinary hotels and alberghi diffusi

Pedralva, Portugal

The village of Pedralva, a rural village of Vila do Bispo, was once a small village inhabited by over 100 people and was left abandoned in the past 25 years.

The village was discovered in 2006, with only 9 inhabitants still living in it, and about 50 houses being left unused. Out of the 50 houses, only 9 of them have barely met the minimum conditions of habitability.

The Municipality of Vila do Bispo has helped in recovering the village to keep its heritage and history. The municipality invested in improving and adding infrastructure, reconstructing electrical lines, new lighting, new plumbing and new pavements for the street, at the same time keeping the changes to a minimal level to maintain its ambient of ancient villages.

Today, the houses in Pedralva are used as accommodation for tourists. The village is now the main village where it has been sponsored by the World Surf Algarve since four years ago. The regeneration programme is still ongoing, the municipality and parties involved intend to activate cultural life in this village by relating it to the arts and artisans.

Figure 3.21 : Abandoned houses refurbished to accommodate tourists and events

Key Take-Away
- Improve and add infrastructures
- Minimal changes to maintain characteristics of place
- Re-use houses for tourism
- Events and Sponsors
- Cultural, arts and artisans

Airbnb Free Holiday

In early 2019, the famous accommodation site Airbnb launched a programme that provides lucky visitors with a 3-month free holiday in a remote Italian village in Basilicata, Grottole. The goal is to give the visitors a cultural exchange with learning local languages, food and history, involving close contact with the local community.

Those were selected for the skills that are potential in offering to the hospitality industry of the town: one is a photographer, another a tour guide, another builds websites and all are fluent in English language exchange with the local residents.

Airbnb claims that the programme not only aims to help open up the accommodation market to visitors rather than typical hotels, it also promotes "experiences" that gives a platform to the local community to showcase their town's craftsmanship, traditions or other cultural draws. In the case of Grottole, it means honey harvesting, pasta making, olive oil production and vegetable farming.

There was no further follow up and outcome for this programme. It is not clear how sustainable these programmes can help these towns. Tourism is arguably a longer-term solution, but it depends on the development of infrastructure to attract the interests of outsiders, and require very careful planning and management to ensure it does not end up overflooding the small community who are trying to survive themselves in these abandoned villages.

Key Take-Away
- Free Holiday
- Cultural Exchange
- Involving local community
- Experiences

Nant Gwrtheyrn, Scotland

Nant Gwrtheyrn was a quarry opened in 1861 with a village called Port y Nant as its centre. Nant Gwrtheyrn was a town that produced setts used for road surfacing. The quarry was isolated away from the city, so did the community, who only got their products shipped out mainly via the Irish Sea, limiting their contact with the outside world.

When the quarry was closed early in World War II, the hillsides of the Nant were left abandoned. The village was then occupied by hippies for some time during the 1960s. With no authority and management, the place was ruined and destroyed by the hippies who left for another village soon after they found the place valueless.

During March 2011, the Welsh government decided to put a huge grant to revive the village by introducing the Welsh Language Center, including a heritage centre, conference facilities and 4-star accommodations.

The centre offers speciality courses for adults who are interested in learning Welsh as an additional language. Locals and foreigners came from all over the world to stay in the village for a while to learn Welsh. This helps to share the cultural heritage of the Welsh language with the people. Furthermore, the village is surrounded by a beautiful natural landscape, attracting writers and photographers to visit and stay for rehabilitation.

Key Take-Away
- Abandoned and ruins
- Cultural Center
- History and Tradition

Figure 3.22 : Heritage remains of old quarries kept as a historical symbolic

Figure 3.23 : Beautiful landscape and nature

Figure 3.24 : Unique landscape formed by old quarries forms interesting hiking trails

Figure 3.25 : Activities for adults and children

Figure 3.26 : Language classes and cultural exchange between visitors and locals

Casa a 1 Euro

The project of "Casa A 1 Euro", known as "House 1 Euro" was initiated in Italy to help fight the depopulation of small Italian villages, especially to attract young people and young families, by putting the abandoned houses on sale at a very low cost.

Sambuca succeeded in selling 16 of their abandoned buildings but the buyers are mainly from the US, China, France, Britain, Russia, and Argentina. It is one of the many towns in rural Italy which tried to put the project to test by offering to sell the houses for only 1 euro.

Sounding as good as it is said, there is a catch amid the good offer. The houses for sales are almost in dilapidated conditions, and the buyers must commit to spending their own money in restoring and renovating the houses to make them habitable again. Some even request a commitment that you must move to the town with your family and begin a start-up of a business.

Foreigners flocked into buying the houses and there are some towns like Mussomeli in Sicily, managed to sell quite a number of its abandoned houses. Mainly due to the geographical and landscape beauty of the town, attracting retired foreigners buying the houses for summer vacation. In the Sicilian town of Gangi, 200 houses of 1 euro scheme have been sold mainly to European professionals and artists.

Key Take-Away
- Fight depopulations
- Rural towns

After seeing the success of these towns, some other towns with similar conditions have tried but failed. For instance, the town of Salemi in Sicily was forced to leave the houses abandoned even before implementing the project because all the properties were indefinite ruins to be declared viable to put on sale. Carrage Ligure in Piedmont faced a different challenge that the municipality was not able to track down and convince the owners of the houses, who most had migrated in the 1940s.

However, according to Professor Andrea Ungari, a contemporary history professor at LUISS University in Rome, says that shoring up communities with an influx of foreigners will fail to address the issues that caused people to desert the towns in the first place. He pointed out that this scheme is only feasible in the short run, but sooner or later, the infrastructures of the towns have to be upgraded to keep them there.

Community Urban Farm in Germany

Cities like Berlin, Cologne and Kiel, food councils are introducing urban and community-supported agriculture, which includes the greening of buildings and the transformation of unused industrial land into community gardens. Local citizens are being encouraged to use public green areas in their neighbourhoods to cultivate crops, to plant rows of potato plants or fruit trees. These urban agricultural spaces where edible plants grow on and around buildings are intended to become focal points where food is produced, processed and traded.

Stadt Macht Satt (The City is Full)
A community programme by Anja Feidler, who seeks to connect city dwellers to nature and urban agriculture through education, community organizing and school gardening education. The programme was initiated with the belief that there should be more support from the municipalities who have the power over the use of land, to integrate with food-producing and ecologically appropriate city trees. Anja collects and develops ideas on how the community can rethink food supply beyond the global food industry. Tackling global climate change, she believes that our current industrial and global food production calls for new approaches.

Nomadisch Grün (Nomadic Green) and Prinzessinnengärten (Princess Gardens)
Nomadisch Grün (Nomadic Green) launched Prinzessinnengärten in summer 2009 at Moritzplats in Berlin Kreuzberg, a site which had been a wasteland for over half a century. Together with friends, activists and neighbours, the community cleared away rubbish, built transportable organic vegetable plots and planted the first fruits of their labour.

Figure 3.27 : Garden in the city

Key Take-Away
- Community
- Practical experiences and sharing of skills and knowledge
- Km 0 production and supply
- Gardens in the city
- Mobilegarden and temporary use

Prinzessinnengärten is a new urban place of learning. It is where the community and the visitors can come together to experiment and experience more about organic food production, biodiversity and climate awareness. The space will help them to learn about healthy eating, sustainable living and a future-orientated urban living style. It is an urban vegetable garden.

Agriculture crops are cultivated exclusively here, locally and organically. The garden as a whole is mobile. The bar, kitchen, workshop and storage facilities are located in unused and converted shipping containers. Crops are planted in raised beds that are made from stacked crates or in rice sacks - a method of cultivation that is independent of the ground below, combined with the use of food-grade materials, allows for organic farming in a city where the lands available are usually either paved or contaminated. Furthermore, the concept of a mobile garden allows it for the possibility of temporary use.

The income is generated through the garden's restaurant and sale of the vegetables. Many people are involved voluntarily in this programme to make it possible - nobody owns their own bed in the garden. Nomadisch Grün (Nomadic Green) was a non-profit company established as framework support for the different social, educational and economic activities, with the primary aim of making the garden a place of learning for the community. Since most involved individuals are amateurs and beginners, they emphasize mainly on informal learning - skills are gained through practical experiences and the sharing of common knowledge.

Figure 3.28 : Community getting together to contribute to the garden

Farming Kindergarten, Vietnam

Located in DongNai, just outside of Ho Chi Minh City, Vietnam, Farming Kindergarten is a new concept of pre-school with the theme of ‘ farming’ that can facilitate up to 500 children, mainly of the factory’s workers of a shoe factory next to it. This programme serves as an experimental prototype for sustainable education in a tropical country, starting from a young age for the children. It strives to provide two core activities to the children: learning and growing food.

The continuous green roof enclosed three courtyards inside as playgrounds for the children, with its lower roof leading an excess to the top of the roof, where an experimental vegetable garden was realized. Five different vegetables are planted in the garden for agriculture education.

Building in a tropical climate with the aim of energy saving is a challenge. Farming Kindergarten uses architectural and mechanical energy-saving methods to achieve this goal. Green roof as insulation, green facade as shadings and solar water heating. Its green facade of louvres run along the outside of the building shades the building from direct sunlight and contributes to the fact that this building does not need air conditioning in the classrooms, despite the country’s harsh tropical climate. Factory wastewater is also recycled to irrigate greenery and flushes for toilets. Local materials and low-tech construction methods were applied to minimize the construction costs, at the same time help to minimize the environmental impact and promote local industry supplies.

The Farming Kindergarten offers a unique educational approach and learning experience to the children starting from their young age by giving them great insight and examples for how designers and architects can affect and emphasize the importance of the environment.

Key Take-Away

- Education for children
- Farming in the city
- Energy-efficient design
- Reuse and recycle

Figure 3.29 : Inner courtyard forming a safe space for children to play and have fun

Figure 3.30 : Experimental garden on roof top of the kindergarten

Figure 3.31 : Children learning on agriculture and farming during school sessions

Marinaleda, The Spanish Anti-Capitalism Town

Marinaleda is a Spanish municipality of the province of Seville that belongs to the region of Sierra Sur, located in the basin of Genil, in the autonomous community of Andalusia. It has an area of 24.8km2 and a population of about 2700 people. It belongs to the judicial party of Estepa.

Marinaleda is predominantly an agricultural municipality and this makes up the bulk of its economy. It is well-known for its left-leaning principles based on a leftist ideology led by its mayor, Juan Manuel Sanchez Gordillo, since 1979. The development of an alternative economic model has achieved its notable results, which began in the late 1970s.

In the late 1970s, the village was suffering more than 60% of unemployment - it was a farming community with no land, its people often forced to go without food for days at a time, at the period of Spanish history was uncertain after the death of the fascist dictator General Franco.

In 1979, Sanchez Gordillo became the first elected mayor of Marinaleda, at the age of 30, and he holds the position ever since - re-elected time after time with an overwhelming majority. In 1991, the 1200 hectare El Humoso farm was finally awarded to the village by the regional government following a decade of relentless occupations, strikes and appeal - cultivation began.

The new Marinaleda cooperative selected crops that would need the greatest amount of human labour, to create as much work as possible. In addition to the ubiquitous olives and the oil-processing factory, they planted peppers of various kinds, artichokes, fava beans, green beans, broccoli: crops that could be processed, canned and jarred, to justify the creation of a processing factory that provided a secondary industry in the village, and thus more employment. The aim of mayor Gordillo is to create jobs but not profit.

Key Take-Away

- Equity
- Equality in community
- Work or contribute to achieve and own
- Communal decision on town management

The village cooperative does not distribute its profits: any surplus is reinvested to create more jobs. Everyone earns the same salary, 47 euros a day for six and a half hours of work, which equates to a monthly salary of 1200 euros, more than double the Spanish minimum wage. Workers are called out in groups via loudspeaker. Decisions about the cooperative including, for example, which crops to farm, are made collectively in the village's general assemblies. The inhabitants are not forced to become members of the cooperative but those who do not sign up can still play an active part in the political aspect of the village.

Life in the village is much cheaper than in the rest of the region. With 15 euros a month, the inhabitants can pay off their mortgages. The same price gets them membership of the sports centre or a kindergarten place for their child. The mayor and other members of the local municipality work voluntarily at the cooperative but at the same time have other jobs through which they earn their wages.

Housing in Marinaleda is very different from Spanish culture. The Ayuntamento, as the local government is known as, has bought and expropriated thousands of square meters of land to convert into a communal property. Prospective residents have to contribute 450 days of their work to the construction of their new homes using materials provided by the local administration and assistance and guidance from professional builders. The hours spent by the resident on the construction are deducted from the total cost of their house, which was mentioned, around 15 euros monthly to achieve ownership of the property.

Figure 3.32 : "Camino a la utopia", street art painting in Marinaleda

Why, the logic runs, should "efficiency" be the most important value in society, to the detriment of human life?

- Mayor Juan Manuel Sanchez Gordillo

Conclusion

The list of precedent studies aimed to study how other examples tackle on reviving abandoned towns or how planners and planning policies support the community for a better organization. There is no single-handed solution for reviving and regenerating an existing community but it requires a combination of all aspects.

The concept of community urban farms is a reference to create awareness of the people living in big cities that they could also grow and produce their fruits and vegetables in the garden. Marinaleda sets another example of providing equity and equality to the people to achieve an anti-capitalism community in which everyone works and contributes to society to get and own something. Of course, in this case, this was mainly initiated and supported by the municipality. AttivAvree demonstrated how the community comes together to enhance and promote the cultural values of a place and work together to improve the depopulated towns. Colletta di Castelbianco suggests that a theme can be introduced to the town by either introducing new infrastructures or refurbishing and discovering the hidden potential of the town itself, turning into a new attraction.

Other than social policies, architectural design has the power to influence how people feel and interact in a place. Diverse city planning encourages people to have more encounters with each other and get along better with their neighbours. In The Death and Life of Great American Cities, Jane Jacobs argued that “a city, or neighbourhood, or block, cannot succeed without diversity: diversity of residential and commercial use, racial and socioeconomic diversity, diversity of governing bodies (from local wards to state agencies), diverse modes of transportation, diversity of public and private institutional support, diversity of architectural style.” In the example of Casa A 1 Euro, there is not a constant success for every town that tried to approach the problem with this programme, that is due to that the programme attracts mainly foreigners with no connection with the local community. Flocking in an influx of foreigners does not address the core issues that caused people to leave the town in the very first place. Moreover, putting the foreign buyers to commit to rebuilding the houses does not improve the existing infrastructures, hence does not contribute to make the town a better place to stay despite the newly renovated pretty houses.

There is the need to look back to the core issues on why the town is deserted in the first place. Community needs, infrastructures, job opportunities, availability of activities, sense of belonging and uniqueness of the town, are some criteria that are worth to be taken into consideration while planning on reviving a depopulating or abandoned town. In mind, it should be emphasized onto a new intervention to be introduced to the town instead of starting from existing elements available in the town, which was one of the reasons that caused the downfall of the town. Target users and populations should be defined before underlining the new programme and policies to the town. Through the various case studies, there are not any precedents that have tried and applied all aspects of social, economical, environmental and architectural to revive a town, which is worth giving a try as a proposal in this thesis.

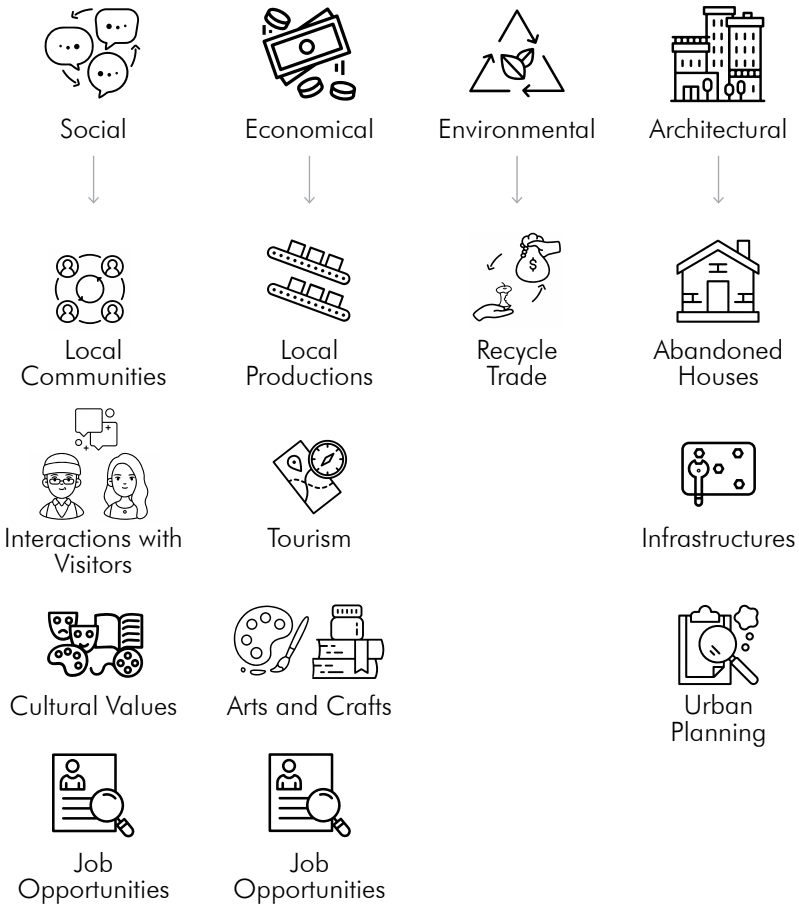


Figure 3.33 : Summary of key takeaways of conducted case studies

PART 04
PROJECT SITE

Introduction

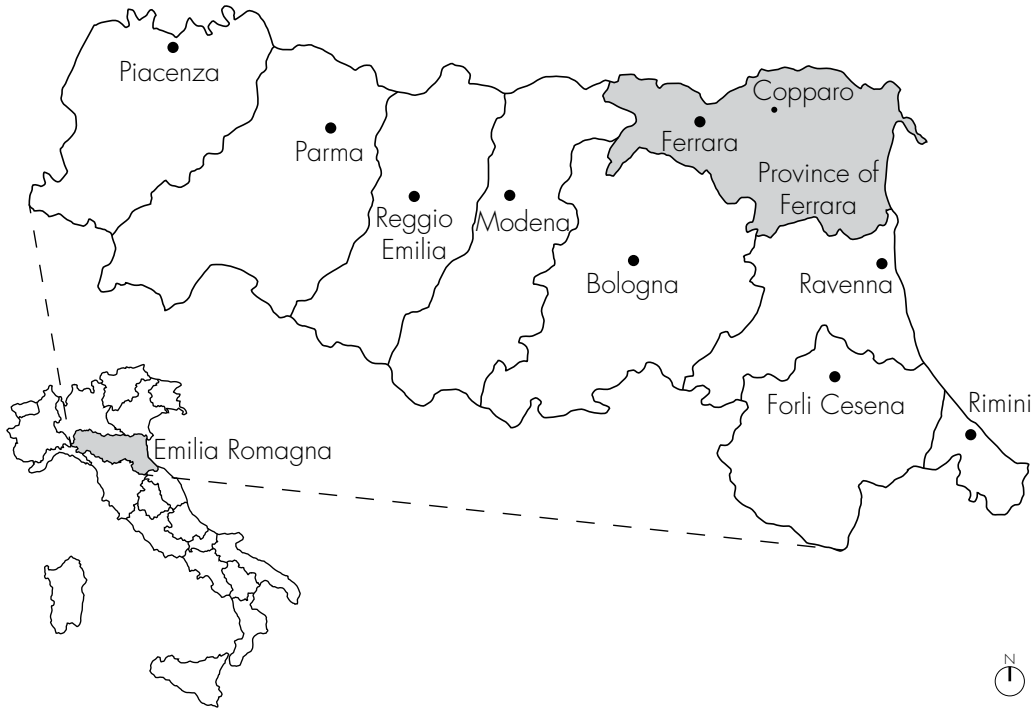


Figure 4.1 : Location Map of Ferrara and Copparo

The territory of Copparo covers an area of 157 km² in the central-eastern part of the Province of Ferrara in the Emilia Romagna Region at the North of Italy. The town is located within the area to the west by the city of Ferrara, to the north by the main course of the River Po, to the east by the Po Delta Park and from the coastal area, to the south by the Po di Volano. The territory, entirely flat, is crossed by 7 provincial roads, thus potentially a sorting hub for traffic between the centre and the lower Ferrara area. The maximum distance between the extreme points of the territory is 30 km. Numerous streams are resulting from the imposing reclamation works carried out since the mid-sixteenth century.

The origin of the name Copparo is uncertain and historians have long tried to reconstruct its etymology: Cuparus, Cupparium, Coparium or Copparium, Massa Occupari or Coppa Aurium (golden cup). Considering the wild nature of the area, a wetland rich in-game, it seems more profitable to support the theory that derives the name from the Latin “Aucuparium”, a place where it is possible to go hunting for birds (“avis-capio-arium”).

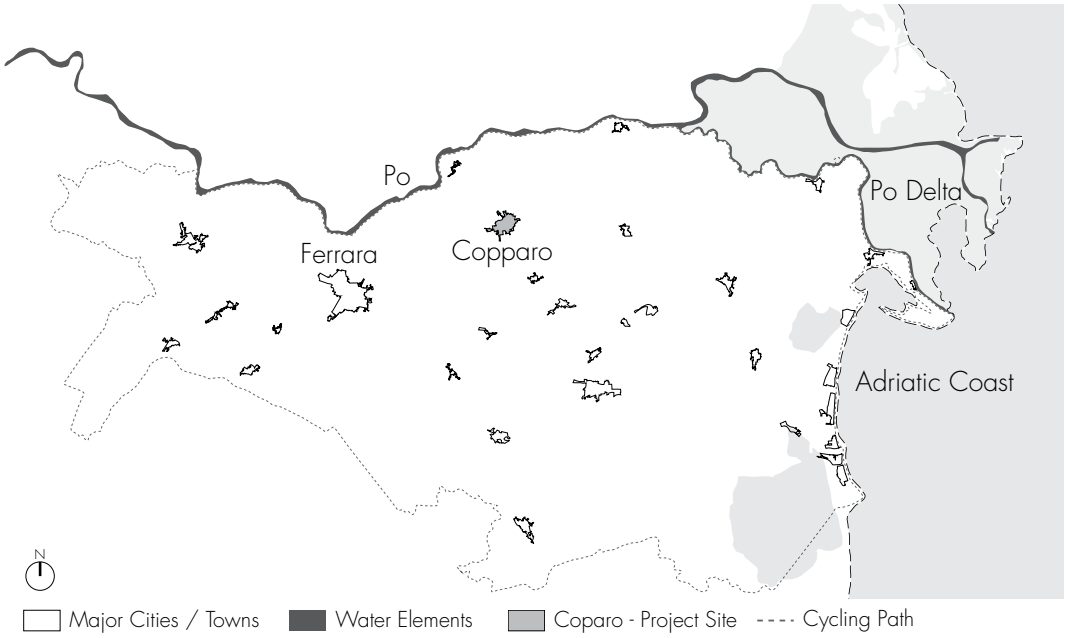


Figure 4.2 : Provincial Map of Ferrara

The historical city is surrounded by a natural environment that turns into a Cultural Landscape. It is one of the most important agriculture towns in the Province of Ferrara. Surrounded by vast open agriculture land, Copparo is listed as a UNESCO Cultural Heritage Buffer Zone is adjacent to another two UNESCO Cultural Heritage Zone. The Great River Po culminates here, into the sea its journey, in one of the largest Delta in Europe, an absolute masterpiece of beauty and biodiversity.

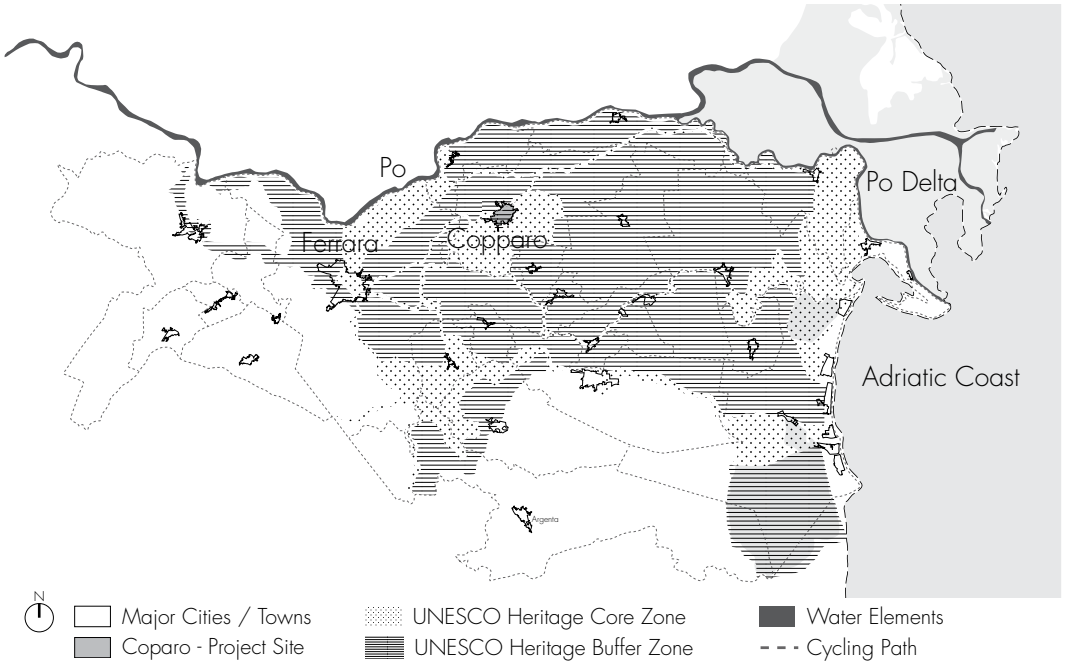


Figure 4.3 : UNESCO Cultural Heritage Mapping of Province of Ferrara

Figure 4.4 : Figure-ground of Copparo township

The town of Copparo is planned out in an almost centrical layout. With a river and a highway on both its north and south edges of the town and two main roads crossing the town. There are not many amenities in the town, other than a very visible zone of large buildings, which is now a metal and steel production factory. The only urban piazza in the middle of the town in front of the municipality building is rather small to accommodate the needs of its inhabitants. Main civic spaces and functional buildings are around the area of the urban piazza, surrounding the rest of the town are mostly residential buildings. With its location in between two UNESCO Cultural Heritage Zones, the town is surrounded by a vast landscape of agricultural lands.

In overall, the town planning of Copparo is neat and is focused on only the essential needs for what makes a town, with not much additional functions in it. This might be due to the already happening depopulation that when people move out of the town, amenities and facilities are reduced. The river at the edge of the town is a potential element to introduce new functions like riverside parks and promenades. There is an existing bicycle path along the river but on the opposite side of the river instead. There are a lot of in-between spaces scattered among the small-sized buildings in the residential areas, which can possibly be a potential space to be used for better functions and purposes.

Figure 4.5 : Kevin Lynch Elements of Copparo

History of Copparo

The history of Copparo dates back to the early Middle Ages and is confirmed by its belonging to the Church of Ferrara and Ravenna (955) under the name of “Massa in Copario. It was mentioned in the 1431 census that it was a large agricultural hub within the territory of Ferrara and its largest area was sown with barley and wheat. After the year of 1251, Copparo fell under the governorship of the Estensi Family - Dukes of Ferrara.

800s
870 - The town was built about 2500 years ago, but the oldest document that speaks of Copparo is from the year 870. The document is a privilege of Pope Hadrian II who confirms Firminiano and his brothers with the Court of Formignana, then bordered by a side with “Cuparus et Caput canilis” (Coccanile).

It is no coincidence that Copparo arose on the south side of the current Naviglio Canal because, in non-remote times, the floods of the Po were very frequent and the Naviglio represented a valid barrier to the fury of the waters.

900s
955 - Copparo was the subject of centuries-old controversies between the Church of Ferrara and Ravenna. Martino, bishop of Ferrara, in 955 recognized the Massa di Copparo at the Church of Ravenna, which then passed definitively to that of Ferrara.

1200s
1251 - The area fell under the title of Dukes of Ferrara, the Estensi family. Copparo was known, in the literature of the time, as a hunting reserve and was therefore equipped with a castle used as a hunting lodge. The castle was destroyed by the Venetians at the beginning of the 16th century and with it, the frescoes by Nicolò Panizzato, painted at the time of Leonello d’Este, were also lost.

1287 - Copparo was mentioned in the Statuta Ferrariae under the name of “Coparius”, recalling the responsibility the citizens of Copparo had in digging the “de preta” channel.

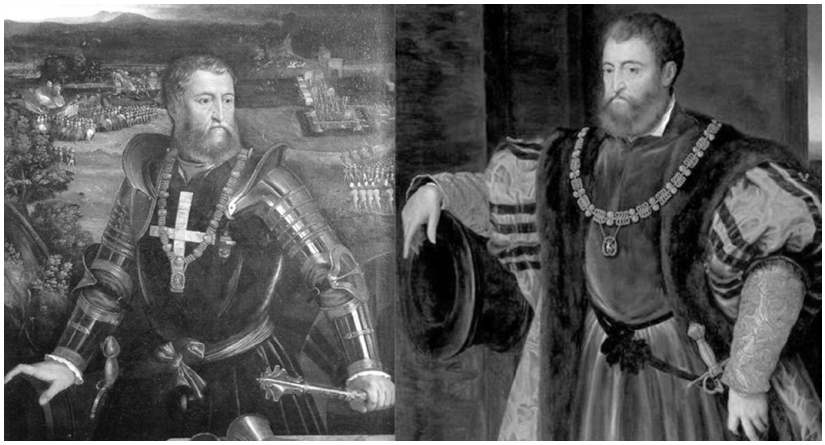


Figure 4.6 : Alfonso I. d'Este, Duke of Ferrara, Estensi Family

1400s

1431 - The 1431 census mentions Copparo as the largest sown with barley and wheat.

Figure 4.7 : Aerial view of Copparo overlooking agricultural land

1500s

Numerous land reclamation initiatives were undertaken to make room for the cultivation of wheat along this period.

1509 - The Venetians invaded the territory of Copparese with troops made up of Dalmatian slaves following Admiral Trevisan. He gave the order to the administrator Grandenigo to plunder Copparo, destroying the crops and stealing the cattle.

1540 - 1547 - Peace returned with the Venetians, on the ruins of the castle Ercole II d'Este, he built a palace which later passed to the Papacy and then to

the Barberini family. The Delizia Estense called the “sumptuous Palagio”, is the last of the nineteen “delights” built by the Estensi in the Ferrara area.

The construction of the building was entrusted to the architect Terzo de Terzi, who designed an imposing building consisting of five towers connected, large porches, internal courtyards and grandiose rooms. Some of the most important artists active in Ferrara were called to decorate the building, including Girolamo da Carpi and Benvenuto Tisi da Garofalo, Battista Dossi and Bastianino.

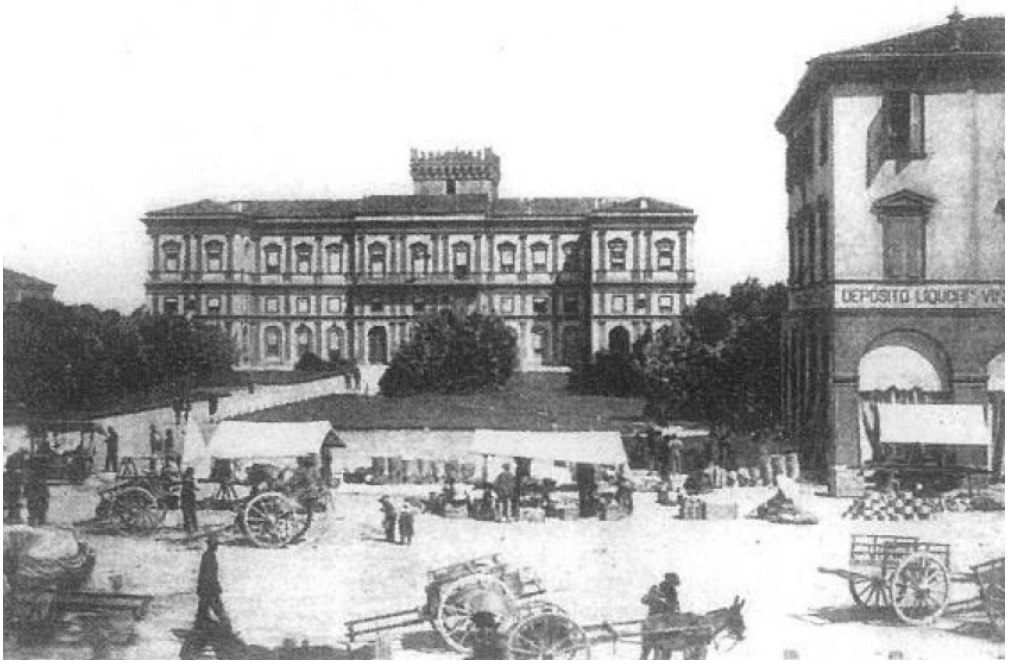


Figure 4.8 : Constructions happening at the castle

1566 - 1572 - To drain the large swampy area between Copparo, Codigoro and Mesola (Polesine di Ferrara), the Estensi started the reclamation project known as the Grande Estense Reclamation.

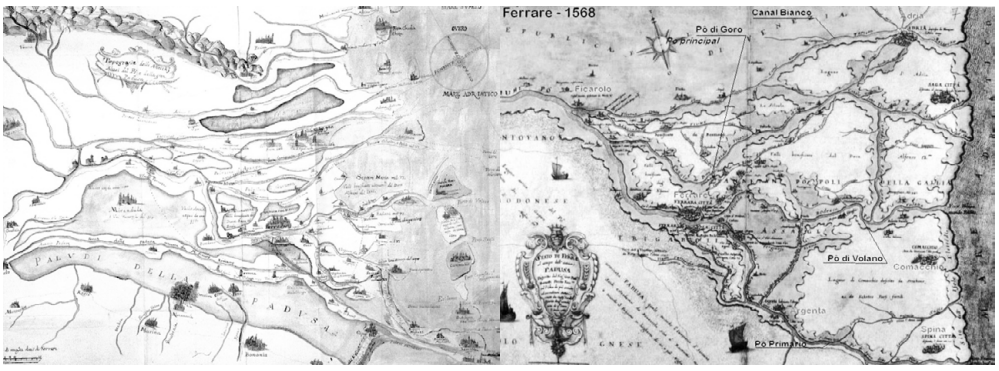


Figure 4.9 : Grande Estense Reclamation

1800s

The reclamation of the years between the nineteenth and twentieth centuries saw the emergence of a new social component, that agricultural proletariat that would become the protagonist of the great conflicts of the time. The first strikes occurred in 1894-95.

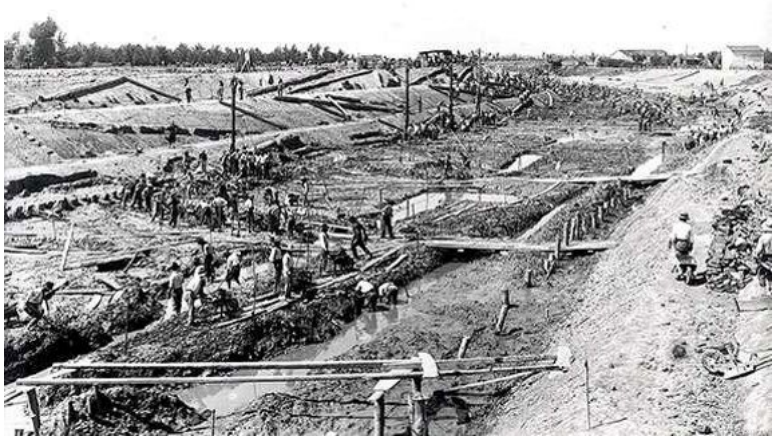


Figure 4.10 : Agriculture strike in 1894-95

1808 - The castle of Copparo fell prey to a terrible fire.

1862 - Mayor Spisani purchased it on behalf of the Municipality.

1875 - Mayor Spisani had the castle restored, making it the seat of the Municipal Residence.

1900s

1908 - The Parliament approved the division of the Municipality of Copparo; Thus the municipalities of Ro, Berra, Formignana and Le Venezie were formed.

1920 - 1940 - The reclaimed lands and swamps bring opportunities to the new community for agriculture activities, planting from rice, sugar beet, hemp, cornfields, and other fruits and vegetables.

1936 - Industrialization started in Ferrara and agricultural culture was shifted to focus on mass production of new factories.

1950 - The Adriatic coast underwent big reconstruction and urban transformation to activate the tourism industry. Buildings like hotels and other infrastructures were constructed and the natural ecosystem of the delta swamp is seriously damaged.

Figure 4.11 : Agricultural revolution in Copparo

1980 - TODAY - Agriculture culture is combined with the idea of industrialization.

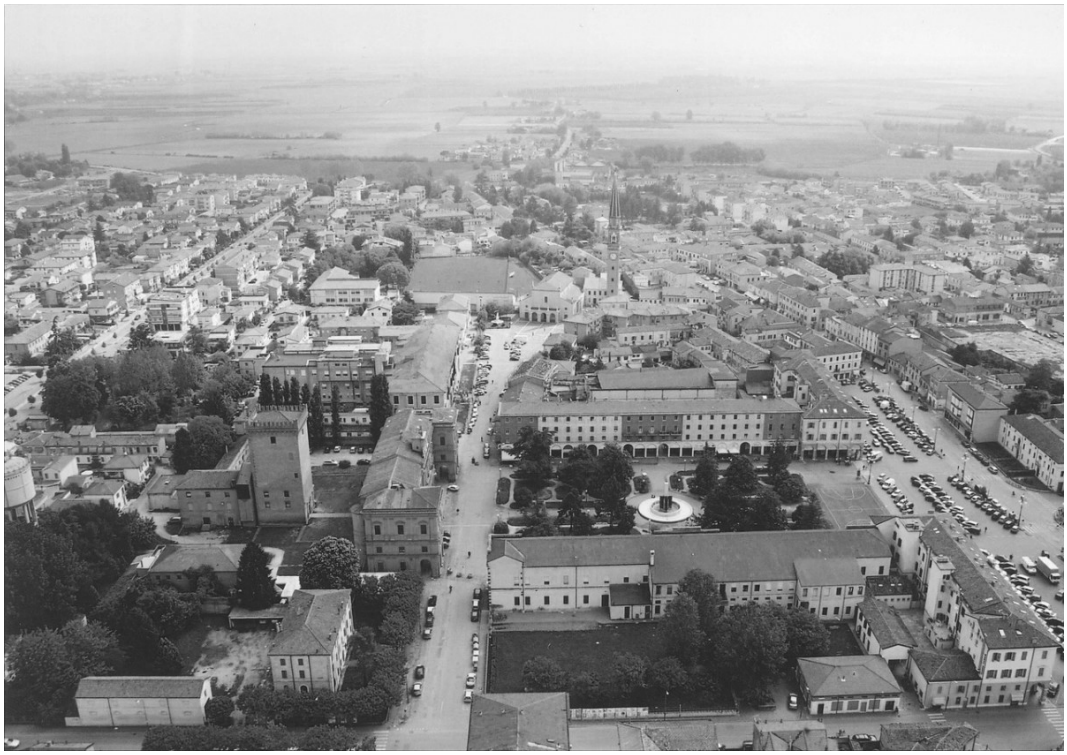


Figure 4.12 : Aerial view of Copparo today

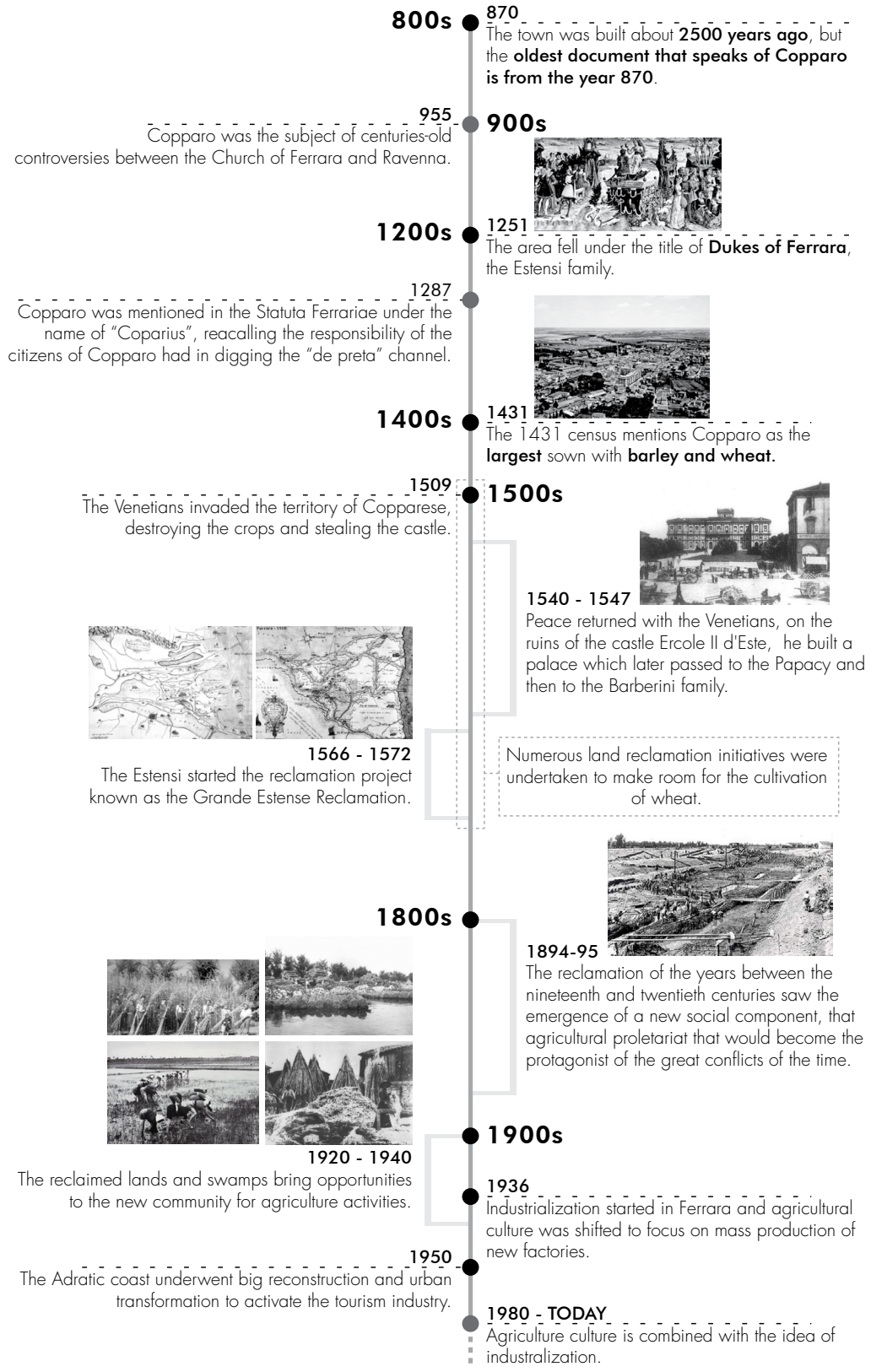


Figure 4.13 : Visual timeline on important events in the history of Copparo

Hemp Agriculture

Hemp

Hemp is an annual field corp. It is very productive and has been successfully grown in many different environments - from Finland to South Africa, and Canada to Australia. For this, indeed, hemp can be considered ubiquitous. Traditionally, hemp was grown for its long bast fibres, which are harvested for the use of clothing, linen, ropes and sails production. Today, the application of hemp has been found and proven more useful than it was used for before. In addition to the low environmental impact of its cultivation, many sectors have slowly realized its potential and consider it as an extremely interesting corp.

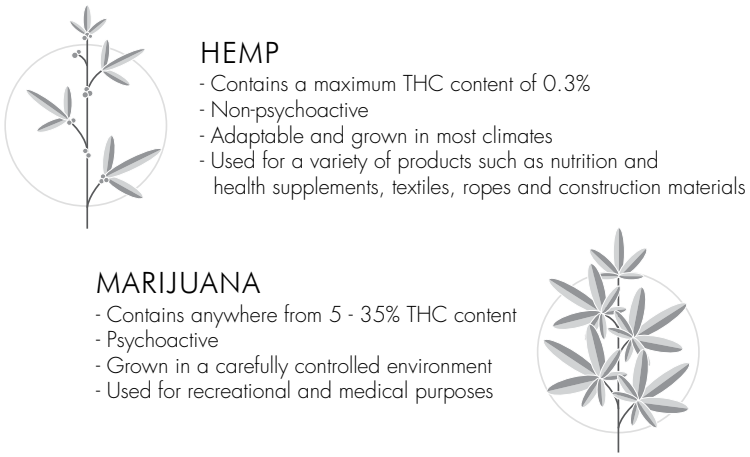


Figure 4.14 : Hemp vs Marijuana

Hemp is a distinct variety of the plant species Cannabis Sativa Light that grows to a height anywhere from 1.2 meters to approximately 4.5 meters and up to 2 centimetres in its diameter. The plant consists of an inner layer called the pith surrounded by woody core fibre, which is also called hurds. Bast fibres form the outer layer of the plant. The primary bast fibre is attached to the core fibre by a glue-like substance called pectin. The primary fibres are used for textiles, cordage, and fine paper products. The wood-like core fibre is used for animal bedding, garden mulch, fuel and a variety of building construction materials.

Due to the similar leaf shape, hemp is often confused with marijuana, another infamous cannabis plant. The major difference between these two is their tetrahydrocannabinol (THC) content, the ingredients that produce the “high” when it is smoked. Marijuana can contain as much as 20% THC, in comparison to industrial hemp that contains less than 1% THC. Farmers who grow hemp claim that it is a great rotation corp and can be substituted for almost any harvest as it grows without requiring pesticides and it is good at aerating the soil.

Advocates of hemp claim that hemp can be used to produce about 25, 000 different types of products, from clothing to food to toiletries. Until the 19th century, hemp was used in 90% of ships' sailing canvas, rigging and nets. Today, hemp fibre is being used as a replacement for fibreglass in automotive components and made into cloth for window dressings, shower curtains, as well as upholstery.

Other products made from hemp fibre include insulation, particleboards, fiberboards, rope, twine, yarn, newsprint, cardboard, paper, horse stable bedding and compost. Hemp bedding has been found useful to be used as straw and other materials for horse stalls in reducing the smell of ammonia. Hemp seeds are used to make methanol and heating oil, salad oil, pharmaceutical products, soaps, paint, ink, etc.

Hemp in Italy

The city of Bologna, home to the oldest university in Europe and famous for its gourmet food, has a long history in the cultivation of hemp for fibre. Although hemp is a crop that can be grown under any condition, there is still some slight difference when the environmental condition can affect the quality of the cultivations. Italy provides the perfect conditions in which hemp can thrive, and centuries ago, before hemp was neglected in favour of synthetic fibres, hemp cultivated in Italy was among the finest that could be obtained anywhere.

Figure 4.15 : Young lady during the Harvesting of Hemp on Italian postage stamp titled 'La Canapa' or 'the hemp' with the region of Emilia-Romagna, 1950

For centuries, hemp production was one of the famous features of Bologna. By the end of Middle Ages, about a third of all cultivated land in the region, from Bologna towards Ferrara and Venice, was used to grow hemp. Traces can still be found in the countryside today. Scattered between the lands of Bologna and Ferrara, there are still remnants of artificial ponds that were used to ret hemp stalks back in the times when cultivation was at its peak. Retting, or soaking the stalks in water or exposing them to moisture, enables the separation of fibre from its woody tissues.

In its heyday, Italy was Europe's second-biggest cannabis producer, trailing after Russia. The Bolognese countryside produced dozens of different hemp varieties used to make ropes, gorgeous clothing and linen; the Italian fibres were known as the best in the world market. In the 1930s, there was more than a million tons of fibre produced annually in Italy, of which about 65% was exported.

Apart from the main hemp production areas around Bologna and Napoli, hemp fields were scattered all over Italy. The name of one of the provinces in the Piedmont region, Canavese, was derived from the Bolognese words for hemp, Caneva. Around Bologna, old folks still say that they sometimes could smell fragrant, hempy sent on the plains - sensing something positive is about to happen.

Usage of Hemp

The most commonly used parts of the hemp plant can be broken down into two categories - seed and stalk.

Hemp seeds also called "hemp nuts" are encased in an exterior husk called "the cake". The hemp seed is one of the most important parts of the plant. Not only that this is how the plant reproduces, but the seeds carry incredible nutrition and benefits.

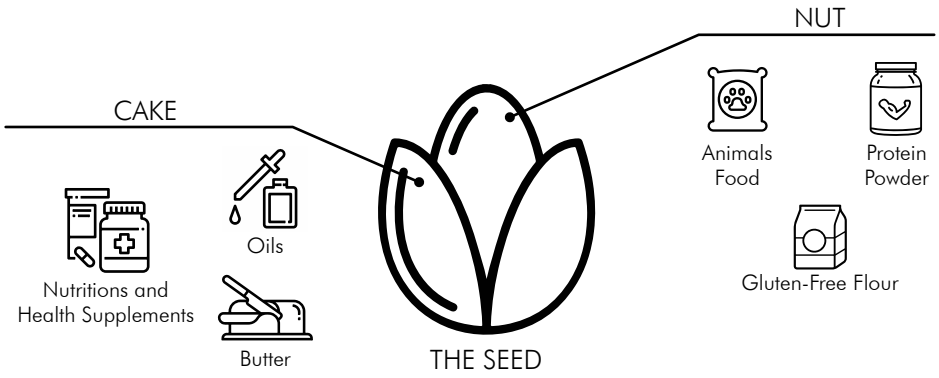


Figure 4.16 : Usage of Hemp Seed

The nut is most commonly used for producing hemp seed oil and hemp milk, which are commonly used in a variety of skincare and food products. While the cake seems useless, it is a highly valuable component used to create products like animal food, gluten-free flour and protein powder.

Similar to the seed, hemp stalk contains two components, the exterior of the stalk is called the bast fibre, while the woody interior core is called the hurd. The bast fibre is what most people are familiar with, usually used to produce textiles, paper, rope and netting. The hurd is commonly used as insulation, construction materials, animal bedding and plasters.

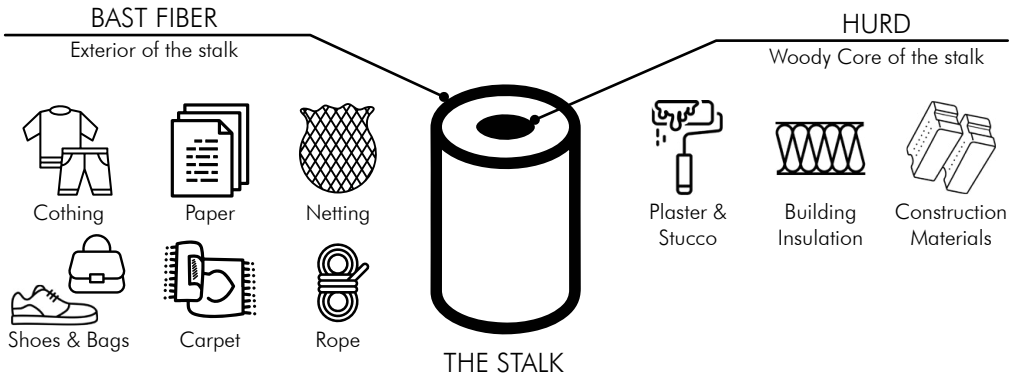


Figure 4.17 : Usage of Hemp Stalk

Construction materials are not the only popular product derived from hemp stalk. When Henry Ford unveiled his plastic car in the 1940s, he gave the world a glimpse at the vast potential of hemp. The car's panels were made from a production formula that called for 70% of cellulose fibres from wheat straw, hemp and sisal. More recently, a man named Bruce Michael Dietzen, was the inventor behind what he called "the green machine", a vehicle that used about 100 pounds of woven hemp to create the body.

Environmental Benefits of Hemp

Despite the useful components from the plant itself, hemp is also a sustainable crop with its unique environmental-friendly characteristics that are seldom noticed by users.

Agriculture

Hemp is a farmer's best friend. Unlike its cousin, marijuana, hemp is a very hearty plant that can grow in a variety of environments and soils. It is also less susceptible to disease and pests: it grows tightly in space and has a fast-growing rate, which leads to high yields. And because of hemp's ability to restore soil fertility, farmers can grow food crops immediately after a hemp harvest without a fallow period.

Environmental
Hemp can clean contaminants found in the soil through a process known as phytoremediation. This term was coined by scientist Ilya Raskin in the 1990s, who was a member of the team who tested hemp's ability to accumulate heavy metals from the soil in contaminated fields.

Almost all types of plants or organic material can be converted to fuel, and the advantages are that these can serve as an alternative over the usage of fossil fuels. As a crop, hemp has good resistance to pests and has very low water requirements when compared to other crops, making it a great option for producing biomass fuels.

Air Quality
Because hemp farming can reduce our dependence on carbon-producing, non-renewable resources such as fossil fuels, lumber and plaster, it is good for improving air quality. In fact, for every ton of hemp that is produced, 1.63 tons of carbon are removed from the air. Much like any other plants, hemp is very efficient in absorbing carbon dioxide through its natural photosynthesis, making it carbon-negative.

"The best hemp and the best tobacco grow on the same kind of soil. The former article is of the first necessity to the wealth and protection of the country. The latter, never useful."

- Thomas Jefferson, President of USA 1801-1809.

Demography

Copparo has a population of 16, 294 as of 1st January 2018, while on the 31st December of the same year, the town had lost 60 of its inhabitants in only one year. Looking at the changes and percentage of its population since 2013, the population has been decreasing constantly. The birth rate is 0.25% lower than its death rate. Although in the statistics it shows that there are a higher number of new inhabitants registering to the municipality, the deleted registers are almost equivalent to the former.

Year	Inhabitants (Number of)	Variations Percentage on previous year
2013	16. 889	-
2014	16. 759	- 0.77
2015	16. 567	- 1.15
2016	16. 428	- 0.84
2017	16. 294	- 0.82
2018	16. 234	- 0.37
Average annual variation (2013/2018): - 0.79 Average annual variation (2015/2018): - 0.67		

Table 4.1 : Inhabitants trend of Copparo. *Source: Istat & Municipality of Copparo*

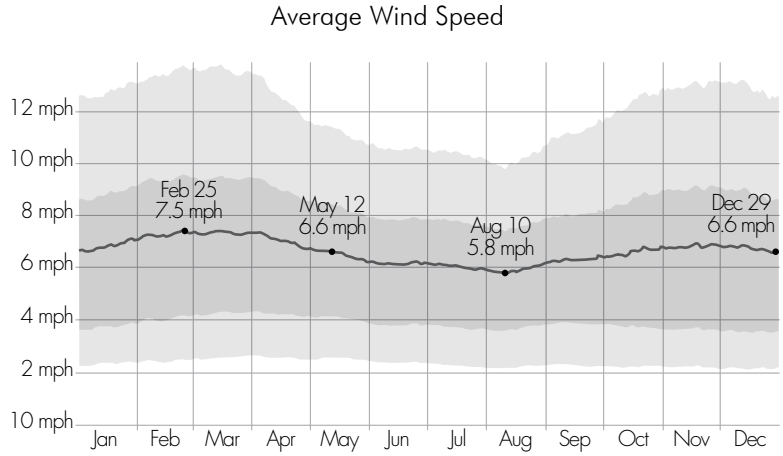
The table below shows the categorization of inhabitants based on their age group. It can be seen that the old age population takes up about 50% of the overall populations, mainly those who are 55 years old and above. That explains the imbalance of the town's birth and death rate ratio.

Age	Total of Male and Female (Numbers of)	Percentage (%)
0 - 2	192	1.18
3 - 5	248	1.53
6 - 11	636	3.92
12 - 17	699	4.31
18 - 24	783	4.82
25 - 34	1, 203	7.41
35 - 44	1, 881	11.59
45 - 54	2, 732	16.83
55 - 64	2, 525	15.55
65 - 74	2, 429	14.96
75 and above	2, 906	17.90
TOTAL	16, 234	100

Table 4.2 : Population by age (as of 31 Dec 2018). *Source: Istat & Municipality of Copparo*

Climate

Copparo is almost an entire flat land, causing the place to have a very slight change in its climate throughout the year. The summers are clear sky and the place is warm and humid, winter is cold and cloudy.



The average of mean hourly wind speeds (dark grey line) with its percentile bands.

Table 4.3 : Average Wind Speed. *Source: WeatherSpark*

Wind Speed

The average wind speed in Copparo experiences mild seasonal variation over the year.

The windier time of the year usually lasts for 4.5 months, from 29 December to 12 May, with an average wind speed of more than 10.7 kilometres per hour. The calmer time of the years lasts for the remaining 7.5 months, from 12 May to 29 December. The highest wind speed can go up to 12.0 kilometres per hour, while the lowest at 9.4 kilometres per hour.

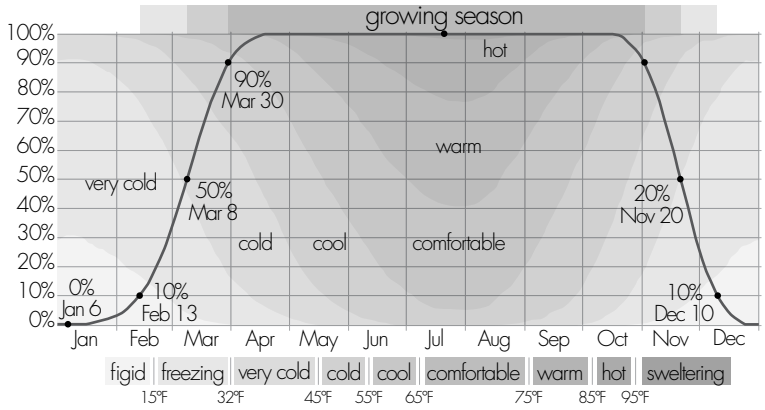
The minimum wind speed required to start generating energy on a small rotating wind turbine is 12 kilometres per hour, which in this case the wind speed in Copparo is not of any advantages.

Growing Season

The growing season in Copparo usually lasts for 257 days, from around 8 March to 20 November, anytime before and after the date range is rarely a harvesting time.

This shows that Copparo is remaining its natural potential as agricultural land.

Time Spent in Various Temperature and the Growing Season



The percentage of time spent in various temperature bands.
The dark grey line is the percentage chance that a given day is within the growing season.

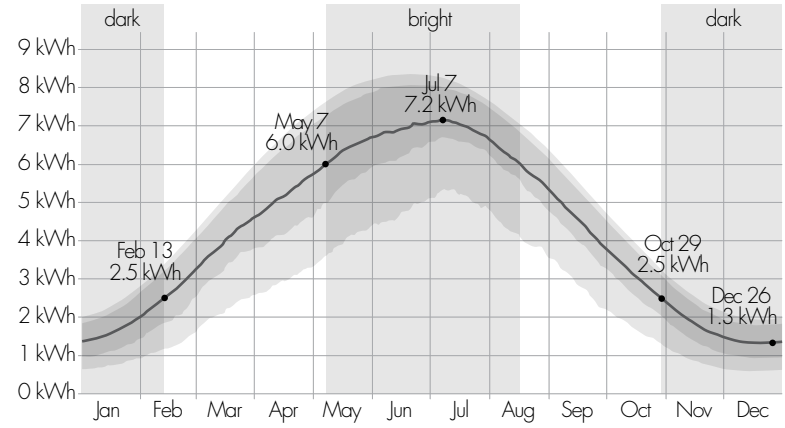
Table 4.4 : Time Spent in Various Temperatures and the Growing Season. *Source: WeatherSpark*

Solar

The average daily sun time and shortwave solar energy experiences extreme seasonal variation over the year.

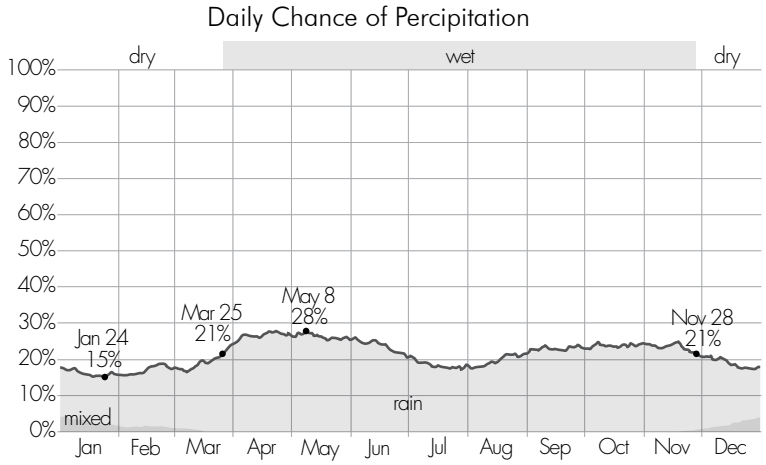
The brightest period lasts for 3.3 months, with an average daily shortwave solar energy per square meter above 6.0 kWh, 12 to 15 hours daily of sunlight. With its geographical characteristic on flat land, the land is exposed to sunlight, therefore solar energy is one of the available resources for generation of energy.

Average Daily Shortwave Solar Energy



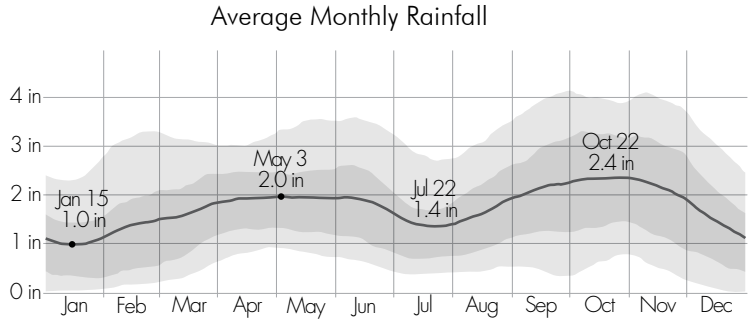
The average daily shortwave solar energy reaching the ground per sqm (dark grey line) with its percentile bands.

Table 4.5 : Average Daily Shortwave Solar Energy. *Source: WeatherSpark*



The percentage of days in which various types of percipitation arre observed, excluding trace quantity: rain alone or both rain and snow fell on the same day.

Table 4.6 : Daily Chance of Precipitation. *Source: WeatherSpark*



The average rainfall (dark grey line) accumulated over the course of a sliding 31-day period centered on the day in observation, along with its percentile bands.

Table 4.7 : Average Monthly Rainfall. *Source: WeatherSpark*

Precipitation and Rainfall

It rains throughout the year in Copparo. The most rain falls during October, reaching the highest rainfall of 60mm on 22 October, while on 15 January is the lowest accumulation of 26 millimetres.

Rainfall is not a strong advantage for Copparo, however, a rainwater harvesting system is a good approach to reduce the amount of water usage in the town. Usually, rainwater harvesting has an efficiency of 80% due to the evaporation rate. Taking the minimum monthly rainfall of 26mm, every 1 square meter of rainwater collection produces 20.8 cubic meters of water a month (20, 800 litres of water).

Economy

The economical activities in Copparo are mainly of four categories - Industrial, Services, Administrative and Commercials. Industrial and services companies take the majority of the sector.

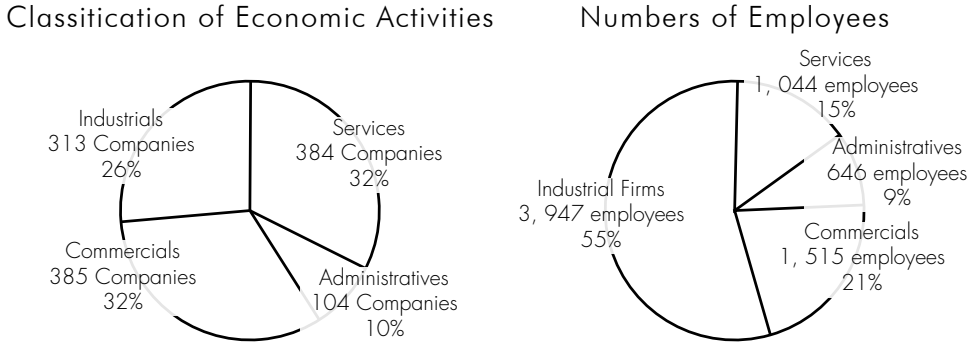


Figure 4.18 : Classification of Economic Activities and numbers of employees.

Source: Municipality of Copparo

Job opportunities focus over 55% on the industrial activities, which is currently having hard times maintaining due to the depopulation of the town. Once the industrial factory, Berco shuts down, over half of the population will lose their jobs.

To encourage and attract newcomers to the town, there is an existing incentive plan by the Municipality of Copparo, as below:

Measure 01 - Consolidation, development and repositioning of the company
Intensity of the contribution : 40%
Maximum contribution : € 8, 000

Measure 02 - Employment and temporary Manager
Maximum contribution :
a) Support for the recruitment of staff already present in the company € 3, 000
b) Support for the recruitment of personnel newly added to the company € 3, 000
c) Support for the master graduates in the company € 1, 500
- Integration of Italian or foreign researchers € 3, 000
- Insertion of a junior managerial figure € 1, 000
- Hiring of a senior managerial figure € 2, 000
- Attendance by employees of a University Master € 1, 000

Measure 03 - Internationalization and Export Support
Intensity of the contribution : 40%
Maximum contribution : € 5, 000

Measure 04 - Participation in EU Programmes, ROP calls for the Emilia Romagna Region 2014-2020 and PSR Emilia Romagna 2014-2020
Intensity of the contribution : 40%
Maximum contribution : € 3, 000

Measure 05 - Business Start Up
Intensity of the contribution : 40%
Maximum contribution : € 5, 000

Based on the mentioned incentives by the Municipality, it can be seen that international and cross-cultural integration is very highly encouraged. Hence, the support from the planning and policies making parties is very important.

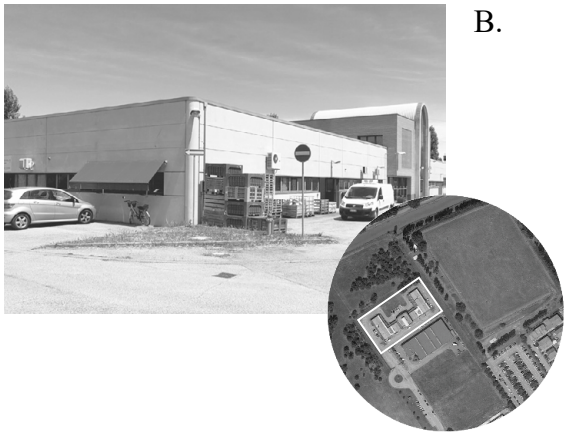
Abandoned Buildings

There are several abandoned buildings in the town, as well as in the region. A few of them have been taken into consideration in the proposal of this project.

Figure 4.19 : Plan of Copparo with highlighted abandoned buildings. (Not to scale)

A. VIA COSME TURA da 6 a 32

Accessibility	ACCESSIBLE
Original use	-
Current use	LABORATORIES/ OFFICES
Floors	1 FLOOR
Built-up area	1, 291 sqm



B. VICOLO DANTE BIGHI da 14 a 30

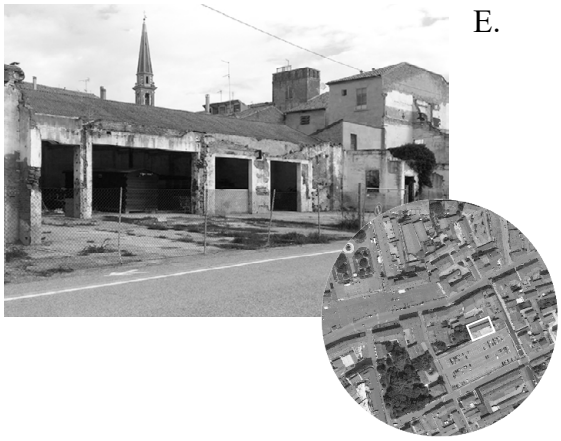
Accessibility to the site	ACCESSIBLE
Original use	-
Current use	-
Floors	1 FLOOR
Built-up area	1, 146 sqm

C. VIA PALMIRO TOGLIATTI 11 & 13

Accessibility to the site	ACCESSIBLE
Original use	CESTA TRAINING CENTER
Current use	-
Floors	1 FLOOR
Built-up area	238 sqm

D. VIA ROMA 32

Accessibility to the site	SUFFICIENT
Original use	SHOPS
Current use	ARCHIVE OF FORMER TOWN PLANNING/ STAFF ROOMS/ EVENTS VENUE/ STORAGE
Floors	1 FLOOR
Built-up area	662 sqm

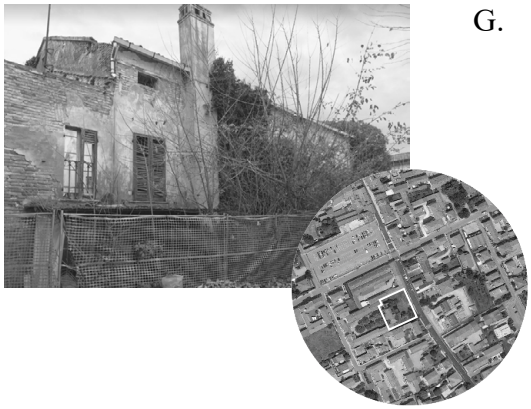


E. VIA MAZZINI

Accessibility to the site	ACCESSIBLE
Original use	BERCO WAREHOUSE
Current use	WAREHOUSE
Floors	1 FLOOR
Built-up area	350 sqm

F. VIA GIUSEPPE MAZZINI 45

Accessibility to the site	SUFFICIENT
Original use	HIGH SCHOOL
Current use	WAREHOUSE
Floors	3 FLOORS
Built-up area	765 sqm



G. VIA GIUSEPPE VERDI 9

Accessibility to the site	SUFFICIENT
Original use	REST HOUSE OF G. MANTOVANI
Current use	-
Floors	3 FLOORS
Built-up area	261 sqm

Source : IL VALORE DEL PATRIMONIO IMMOBILIARE PUBBLICO, Comune di Copparo & SIPRO Ferrara

Sustainability Index Rating

Mobility

There are not many choices on the mode of transportation in Copparo. The only available public transportation is busses. Inhabitants in Copparo rely mostly on private or personal vehicles to move around the town. Bicycle lanes are not a common thing in the town, therefore it does not encourage the habit of cycling even though the town is small.

Evaluation : 10/20

Use and Production of Energy

The Municipality of Copparo joins M'illumino di Meno since 2006 by symbolically turning off the lighting of the Town Hall from 18 to 20 and planting over 60 trees in some public areas. Also, from 2006 to the present day the Municipality of Copparo has purchased 7,037,130 kWh of energy from renewable sources, contributing to a reduction in CO2 equal to 3,398.93 tons of CO2. In 2017, the green energy supply was 613,214 kWh and has largely guaranteed coverage of all electricity consumption of municipal buildings.

Evaluation : 14/20

Waste as a Resource

Like every other Italian town, households in Copparo practice the basic trash separation for recycling purposes. Despite being an agricultural and industrial town, the wastes are not used for generating energy.

Evaluation : 5/20

Equity

According to the statistics, most people living in the town are provided with an opportunity to work for their living. However, over half of the population is working in the industrial sector, which shows that there is no variety or choice of jobs for the people.

Evaluation : 12/20

Land Ethic

The lands surrounding the town are currently used for agriculture purposes, but many empty and in-between open spaces within the town are not being made use of. The municipality proposes a programme "Adopt A Tree", which the municipality will commit to nourish the adopted tree, at the same to raise awareness among the inhabitants about the environmental issues.

Evaluation : 8/20

Total Sustainability Index : 49/100

Conclusion

After a thorough study about the site, there are a few points to be concluded on which could help to enhance the project proposals. Firstly, the climate of the town provides information that suggests what activities are suitable to be done at a different time of the year. It is important to make a proposal that helps to activate the town for as much time as possible to keep the economy and society alive.

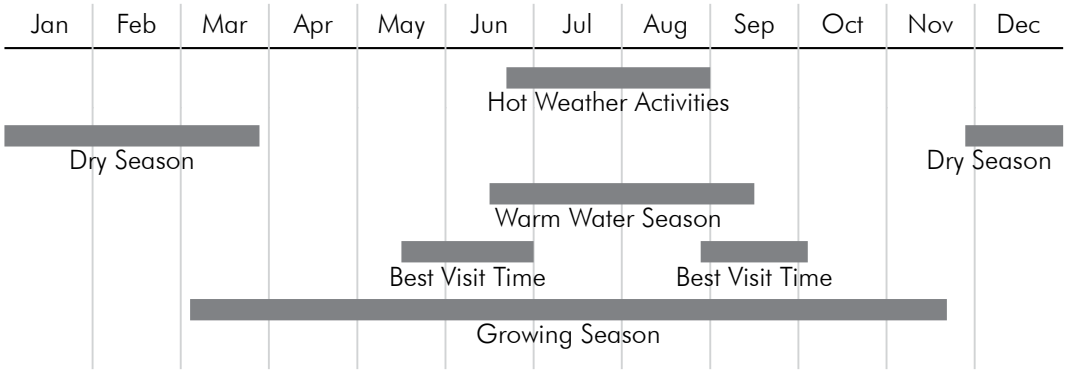


Figure 4.20 : Timeline of different climate conditions that allows for different activities

Then the history and usage of hemp is another uniqueness of the town. It is worth reviving as the special highlight of Copparo, taking that it has such a long and glorious history in the Emilia Romagna Region as well as in Italy. Other agriculture goods help to create a local availability of food sources to the people, solving the fact that the town is far away from cities and is in the middle of agricultural lands. Hemp can be processed and produced into various types of products. It is environmentally friendly and is harmless for the consumers.

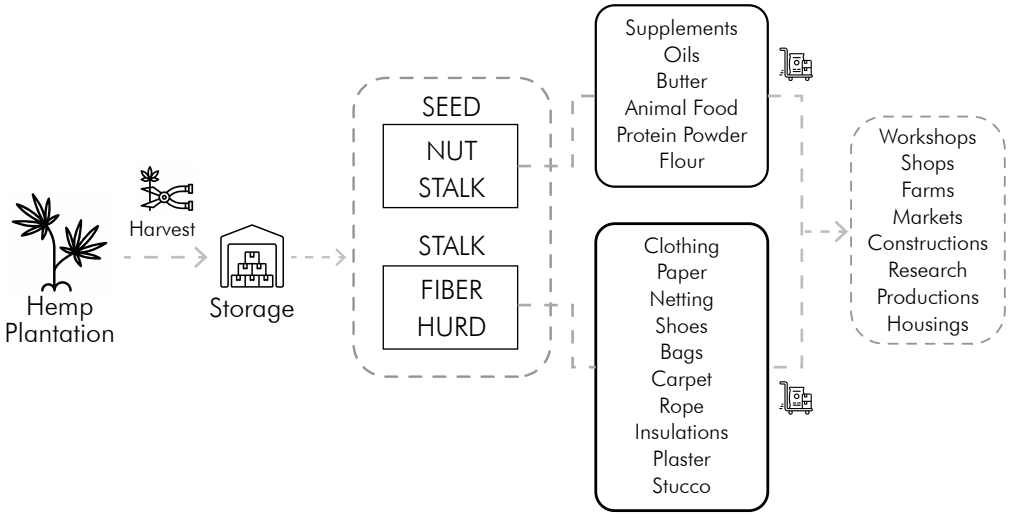


Figure 4.21 : Simplified production procedure of Hemp

The abandoned buildings are yet another resource in the town. With a new proposal and programme for the town, it will bring in people from other places. New jobs and accommodations will be needed for newcomers. Facilities and places for events serve as a backdrop for the interactions of local communities and visitors. By reusing these abandoned buildings, it saves costs of building new structures, which in this case is not possible due to a tight budget of the municipality. With a minimal reconstruction or renovation, the buildings are ready to be used again. Combining the potential of hemp that can produce construction materials, it reduces the embodied energies to transport the needed materials from other places. Rather than letting them rot in place, why not use them and recreate a new life?

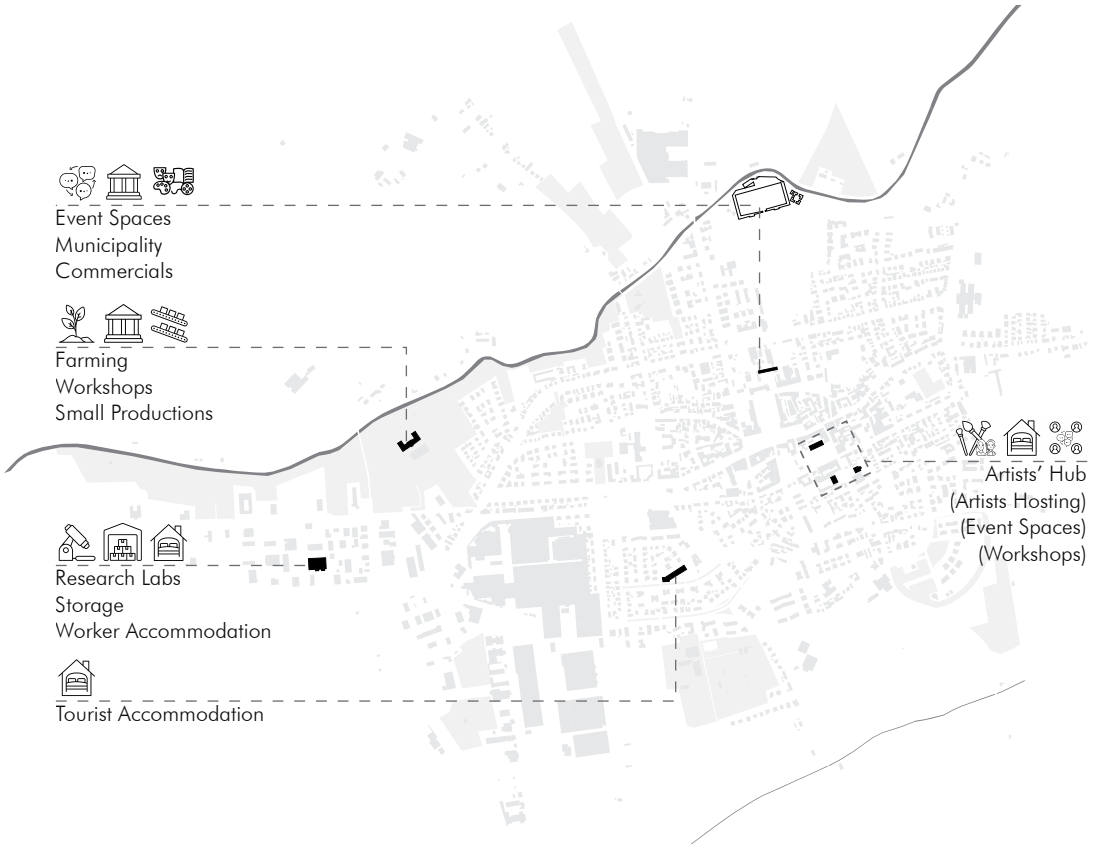


Figure 4.22 : Possible new usage for the abandoned buildings

One of the challenges in reviving Copparo into a sustainable town is the limited availability of renewable energy. Solar power seems to be the only obvious approach in generating energy from renewable resources. However, with the replantation of agriculture, biomass can be another consideration as a new approach to generating energy.

Transportation is a weakness and also a threat in Copparo. New proposals need to consider providing new modes of public transportation, such as bike-sharing

or car-sharing stations, proposing designated bike and pedestrian lanes that connect most points of the town, etc. The municipality can reduce the usage of cars by putting higher taxes on car parks or fuel also helps to reduce the usage of private and personal cars. Limiting the access of cars into specific roads allows a more pedestrian-friendly environment for the people.

As of today, the economic activities in the town relies mainly on the industrial sector, which is believed to be facing serious production problems in these recent years and are planning to move out of the town in a few years. That will cause most inhabitants in Copparo to lose their job and to sustain their lives, it can be foreseen that they will move to other cities for job opportunities, increasing the rate of depopulation in the town. To avoid this happening, the programme should propose a form of economical relationship between the local community and the visitors - circular economy. Diverting the job opportunities into several sectors avoids mass unemployment if one fails. Tourism, agriculture, constructions, education, researches, etc are possible sectors to be implied in the new Copparo, at the same time, more manpower will be needed and it will attract people to come to the town rather than leaving it.

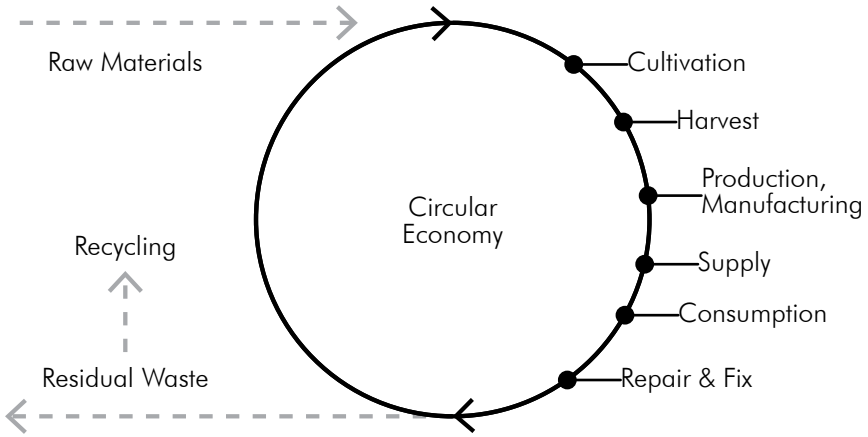
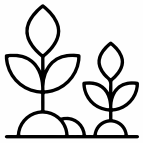


Figure 4.23 : Concept of Circular Economy

In short, Copparo is a depopulating town, but full of unused potential waiting to be found. With properly planned strategies, Copparo can be saved from becoming another ghost town in Italy.

PART 05
PROGRAMME PROPOSAL

Thematic Programme



AGRICULTURAL ACTIVITIES

ARTISTS & START-UPS HOSTING

WORK - AWAY SERVICES

CO-WORKING & CO-LIVING

ARTS & CRAFTS MERCHANDISING

ECO-TOURISM

AGRICULTURAL ACTIVITIES

Agriculture as the historical background of the town is worth keeping as one of the features in the town. This is to expose and develop and monitor the potential and condition of the agricultural land surrounding the town. International and local expertise can come together to exchange traditional and innovative ideas. Production of agricultural harvests into arts and crafts is another part of the programme.

ARTISTS & START-UPS HOSTING

To encourage local production and start-ups, this programme provides free stays for individuals or groups who intend to start a business, with the criteria that it is related to the resources available locally. The returns of favour by the artists or entrepreneurs could be given back in terms of products or knowledge sharing with the local community and visitors - workshops, guided tourists programme, language classes etc.

WORK-AWAY SERVICES

This sets its target users on students or individuals who wish to experience cultural value as part of the holiday from home. Hospitality services such as managing the tourist spots, exchanges of languages or even cooking skills with local communities, assisting artists and start-ups with practical skills, can be taken as a token of contribution in the change of free holiday in the town for a specific time-frame.

CO-WORKING & CO-LIVING

With the involvement of local communities, artists and entrepreneurs, workaway individuals, the principle are to create a place of work-life balance and sharing of community ideas on start-ups and daily lives. It is equipped with workstations, training centres and conference spaces, exhibition areas and workshops. Technology facilities are a key feature to allow people to connect. Rental to external parties is at a minimum price to sustain the maintenance of the place.

ARTS & CRAFTS MERCHANDISING

Merchandising is imagined as a business opportunity and is spread around the town. Harvested agricultural products can be transformed into many by-products for daily life usage and crafts materials. This helps to promote the usage and consumptions of km-zero products, at the same time create a business platform to the farming communities and start-ups.

ECO-TOURISM

One of the main income sources of the programme. Ecological tourism offers accommodation and several activities to the tourists, mainly on cultural and historical elements of the town. Museums, workshops, harvest and consume, and other country-side leisure are some of the example activities to attract tourists for a short visit. The quick turning flow of tourists helps to regulate the small businesses in the town, at the same time expose the local community to the diversity of people from everywhere in the world.

Programme Relationships

The proposed activities are divided into six thematic programmes - taking into consideration all aspects of the town such as the historical background, abandoned buildings and existing available resources. The aim of proposing these activities is to create and allow circular relationships in terms of resources, economy and social interactions.

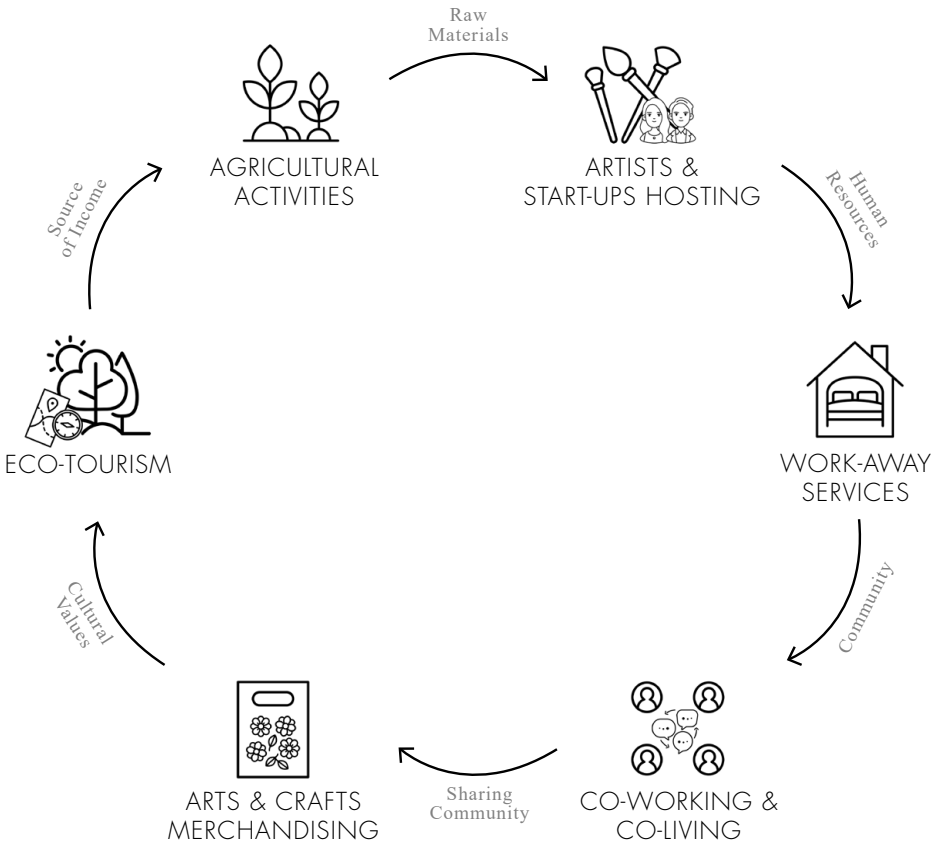


Figure 5.1 : Circular relationships of proposed programmes

The proposal put its target on the local community and visitors to create an exchange of cultural and diversity between cities and the town. By providing more job opportunities and incentives for business start-ups, it helps to retain the locals from moving out of the town, and at the same time attracts people from the nearby towns to invest in starting a new life in Copparo. With its adjacent distance with Ferrara, the City of Art, arts and crafts are given some attention in the programme of reviving the town.

To conclude, the six thematic programmes support each other in a closed loop and could not work without any one of them.

Programme Aims & Features

AIMS

AGRICULTURAL ACTIVITIES

km 0
Tradition & History
Experimental

ARTISTS & START-UPS HOSTING

Interdisciplinary
Cooperative Exchange
Expertise Sharing

WORK-AWAY SERVICES

Community Network
Cultural Exchange
Diversity

CO-WORKING & CO-LIVING

Work-life Balance
Networking
Sharing & Training

ARTS & CRAFTS MERCHANDISING

Customisation
Memories
Skills and Techniques

ECO-TOURISM

Community Organized
Ecological Awareness
Economical Supports

COMMUNITY | SHARING | LIVING | AWARENESS

FEATURES

AGRICULTURAL ACTIVITIES

Sharing Community
Local Production
Farming Development

ARTISTS & START-UPS HOSTING

Art Influences
Exhibitions & Events
Idea Generations

WORK-AWAY SERVICES

Services
Sharing
Encounter

CO-WORKING & CO-LIVING

Spreaded Community
Multifunctionals
Technology Facilities

ARTS & CRAFTS MERCHANDISING

Small Businesses
Sharing Economy
Trainings and Workshops

ECO-TOURISM

Sensational Experience
Education
Income Sources

PRODUCTION | SERVICES | MULTIFUNCTIONAL | ECONOMY

Programme Values

AGRICULTURAL ACTIVITIES

History

ARTISTS & START-UPS HOSTING

Sharing

WORK-AWAY SERVICES

Community

CO-WORKING & CO-LIVING

Networking

ARTS & CRAFTS MERCHANDISING

Creativity

ECO-TOURISM

Encounters

→

SHARING COMMUNITY

CIRCULAR ECONOMY

FUNCTIONALITY

ACCESSIBILITY

DESIGN FOR ALL

STORY TELLING

NETWORKING & INFLUENCES

ENCOUNTERS & EXPERIENCES

Activities and Spatial Functions

AGRICULTURAL ACTIVITIES

Didactive Farms
Open Air Museums
Waterfront
Plant and Harvest
Workshops
Laboratories
Consultations

ARTISTS & START-UPS HOSTING

Workshops
Laboratories
Arts and Crafts Markets
Food Markets
Restaurants
Exhibitions and Galleries
Conferences

WORK-AWAY SERVICES

Guided Tour
Workshop Assistants
Town Maintenance
Repair and Built
Hotels Assistants
Farming Helpers

CO-WORKING & CO-LIVING

Workstations
Internet Facilities
Event Spaces
Conference Rooms
Talks and Lectures
Libraries

ARTS & CRAFTS MERCHANDISING

Mini Factories
Production Workshops
Waste Recycling
Laboratories
Markets

ECO-TOURISM

Accommodations
Bars and Cafes
Thematic Visits
Park & Leisure
Museums

Programme Contextualization

AGRICULTURAL ACTIVITIES

_ Rich historical and geographical characteristics of the town.
_ Existing hemp plantation in its history and should be revived.

ARTISTS & START-UPS HOSTING

_ Niche products of hemp and other agriculture harvests is a good selling point
_ Sustainable production creates awareness for future markets

WORK-AWAY SERVICES

_ Minimal cost for a cultural experience
_ Involvement in local community and cultural exchange

CO-WORKING & CO-LIVING

_ Surreal out-of-cities environment sparks creativities and increase productivity
_ Close to nature

ARTS & CRAFTS MERCHANDISING

_Locally produced raw materials for unique arts and crafts products
_ Handmade and customisable

ECO-TOURISM

_ Proximity to nearby towns and coast
_ Affordable vacation
_ Educational and leisure spot

Key Players Analysis

AGRICULTURAL ACTIVITIES

Municipality

Who?

The main management party in the programme.

Why?

It has the power and connections to obtain needed resources from the state.

What?

Involves in planning and management of the programme operations, however, does not have the sole right to make decisions without consents and agreements of communities.

How?

Organize meetings and discussions, convey community needs to third parties when in need of help and resources.

Farmers & Researchers

Who?

Group of people who are well-equipped with expertise and knowledge in handling this programme.

Why?

The community needs advice and guidance in reactivating the agricultural culture of the town.

What?

Sharing of experience and professional knowledge with newly engaged people on agriculture-related topics.

How?

Conduct workshops or field teaching, explore and experiment possible potential of agricultural products for further usages.

ARTISTS & START-UPS HOSTING

Artists, Designers & Creatives

Who?

Group of people who have started in the field of arts and crafts but have yet to build his/her stable target markets.

Why?

Arts and crafts that are not able to be sold or shared with the community do not bring income to the creator.

What?

Workspace for creatives to work on their artworks will be provided, however, communal services are taken as a token of return.

How?

Engage in tourists workshops, exhibitions and talks to share ideas and skills with interested parties.

Graduates & Entrepreneurs

Who?

Fresh graduated students and individuals or groups who are looking for business opportunities with the idea of creating and innovations.

Why?

During the start-ups the individuals might not be earning much to sustain their livings, providing a place to stay can help to lessen the burden and increase creativity.

What?

Co-working spaces and facilities are provided free of charge or with a special rental price, communal services are taken as a token of return.

How?

At the early stage, before the products can be placed in the markets, individuals can contribute by participating workshops or touristic events.

WORK-AWAY SERVICES

Students & Young Travellers

Who?

Individual travellers who are looking for the long term but low budget vacations.

Why?

Young students are generally active and energetic, accept challenges and look for non-conventional travels.

What?

Participate in communal activities such as farming, workshops or assist in handling tourist accommodations.

How?

Work as a contribution of man-power and knowledge exchange in the available programmes and get to free accommodation in the town.

Researchers

Who?

Individuals who wish to study the agricultural aspects of the town and contribute to the development of agricultural technologies and techniques.

Why?

Scientific research helps to improve the knowledge about agricultural products, improvise framing methods and bring in new technologies for better productions.

What?

Data collected and findings by the researchers contribute to the database of the town.

How?

Involve in research laboratories and field sharing with the community and farmers about new findings on related agricultural matters - farming techniques, new products, etc.

CO-WORKING & CO-LIVING

Freelancers

Who?

Those who have flexible working hours and who usually conduct distanced working mode with flexible hours.

Why?

Allow people to stay out of crowded cities for a better environment and more relaxing surroundings to increase productivity.

What?

Workspace and internet facilities are available for different modes of working, individuals or groups, in a shared space where interactions with other creatives are encouraged to take place.

How?

Working cafes or bars, high-speed internet facilities, accommodation and close proximities to infrastructures are provided with reasonable rental pricing.

Entrepreneurs

Who?

Small business owners who are working alone or with a small group of people.

Why?

Sharing community encourages the sharing of ideas and discussion among common or different fields, increasing exposure and networking.

What?

Co-working and co-living culture create an environment of different diversity of people who come together to exchange expertise, ideas and creativities.

How?

Workplaces and accommodations are available on a minimum rental and that contributes as a form of income to the town.

ARTS & CRAFTS MERCHANDISING

Artists & Craftmen

Who?

People who create new products from raw agricultural materials or any resources that are available locally in the town.

Why?

Raw materials that are harvested from agricultural activities are useful resources to be turned into new products for further usage rather than becoming waste.

What?

Small shops or crafting workshops to sell new products to the local community and visiting tourists to encourage km 0 culture.

How?

New products create business markets to be sold as souvenirs to tourists and visitors, encouraging a circular economy in the town.

Tourists

Who?

Travellers and visitors who are having a conventional vacation, differentiating this from the work-away programme.

Why?

Arts and crafts are unique and customisable as souvenirs for own selves, friends and families. Learning about local craftmanship and food culture is also a valuable experience.

What?

Shops with ready-made arts and crafts products are available for purchasing, learning of craftmanship are also conducted by the local community.

How?

Workshops and field trips about how a product is made, or purchasing of locally produced products serve as a source of income to the community.

ECO-TOURISM




Tourists

Who?

Travellers and families who are interested in learning and experience tourism with agriculture as the thematic highlight of the place.

Why?

The rich historical values and cultural practice of the region are worth to be known and are unique as a characteristic.

What?

New ways of travelling raise awareness of environmentally friendly principles, such as to not use automobiles within the town and consume locally produced food.

How?

Public infrastructures are available to allow movements within the town, km 0 bars and restaurants, harvest and consume programme, etc.

Schools and Academic Partners

Who?

Schools and academic institutes who wish to conduct field visits in regards to thematic agricultural towns.

Why?

Agricultural trips with thematic programmes create awareness among younger students about the environment and encourage simple practices that start from a young age.

What?

Didactic farming, museums, workshops, exhibitions and community sharing events are suitable for all ages.

How?

Short stays or a weekend getaway for the children to learn about farming their fruits and vegetables. Harvest and consume programmes encourage to practice it at home.

Programme Schematic

AGRICULTURAL ACTIVITIES

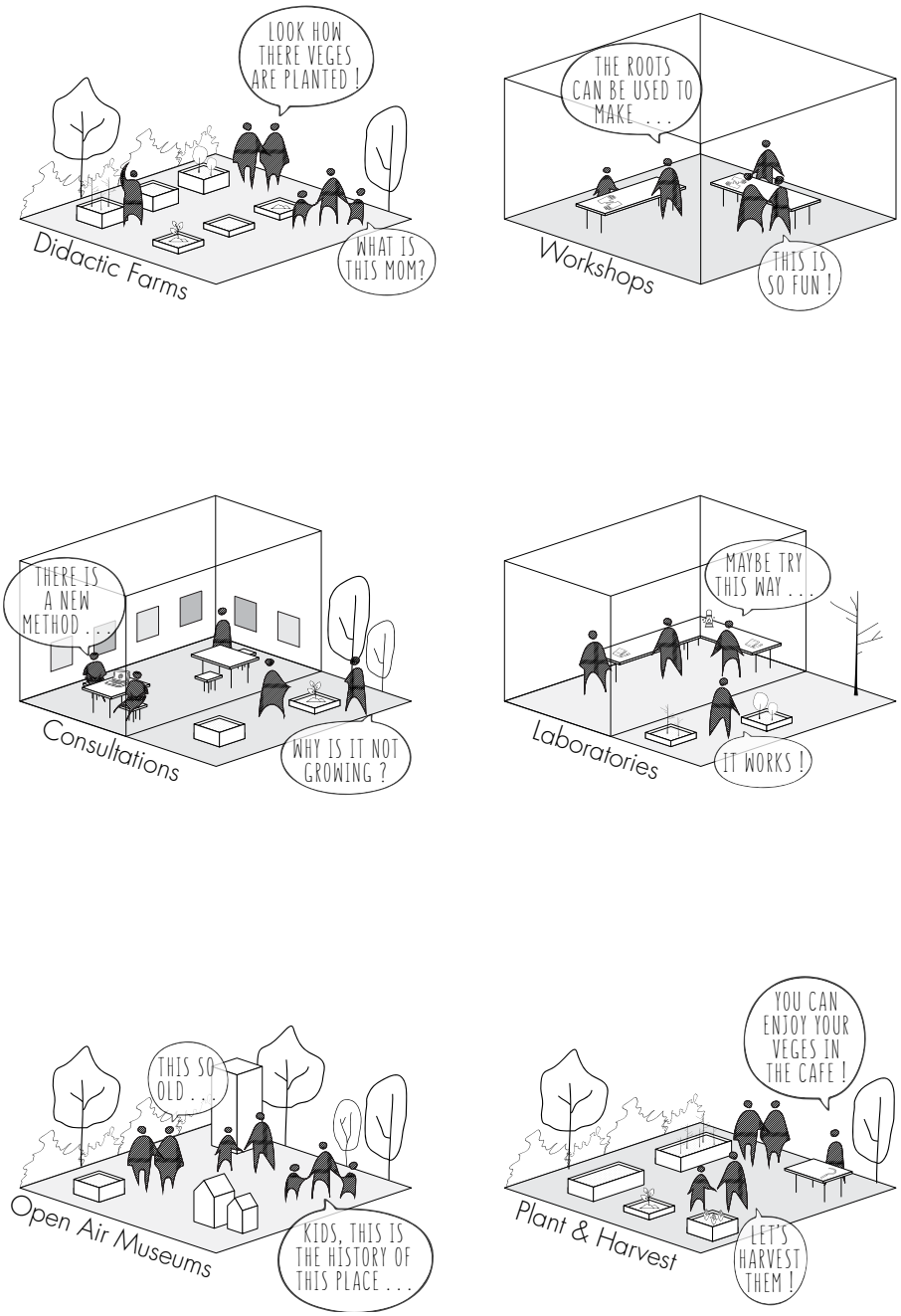


Figure 5.2 : Schematic representation of how each activities functions and contributes to the users through the agricultural activities

ARTISTS & START-UPS HOSTING

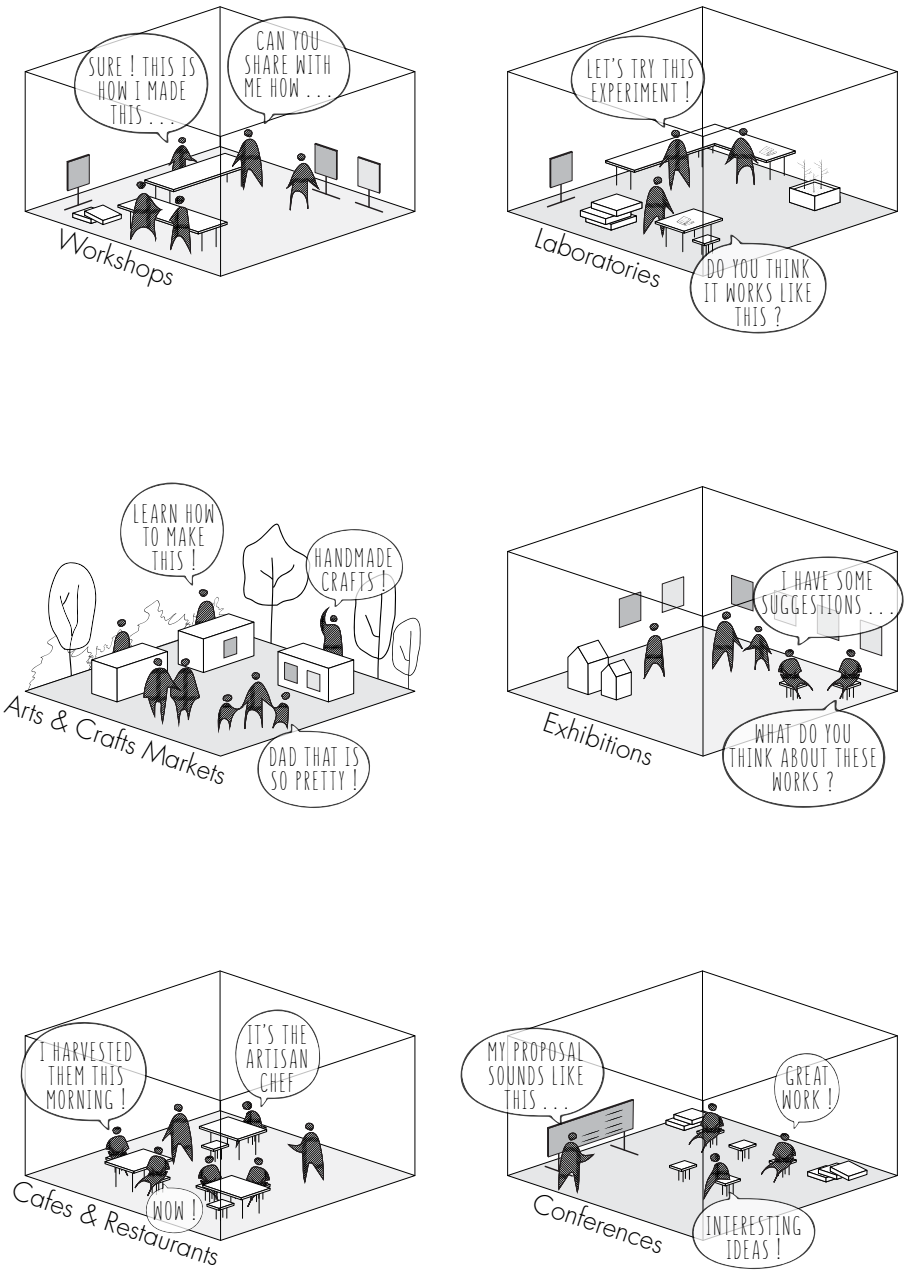


Figure 5.3 : Schematic representation of how each activities functions and contributes to the users by hosting artists & start-ups

WORK-AWAY SERVICES

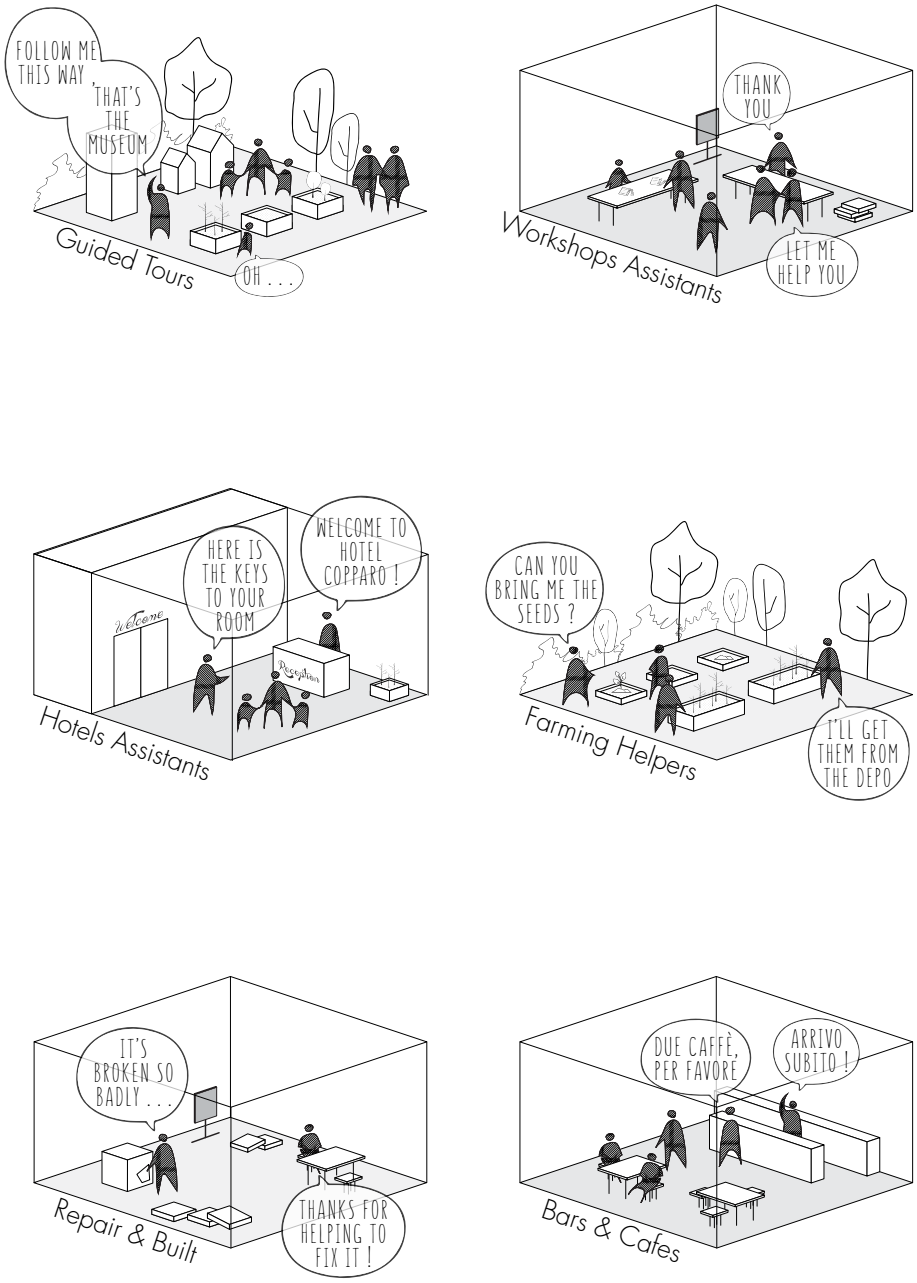


Figure 5.4 : Schematic representation of how the work-away services functions and contributes to the community

CO-WORKING & CO-LIVING

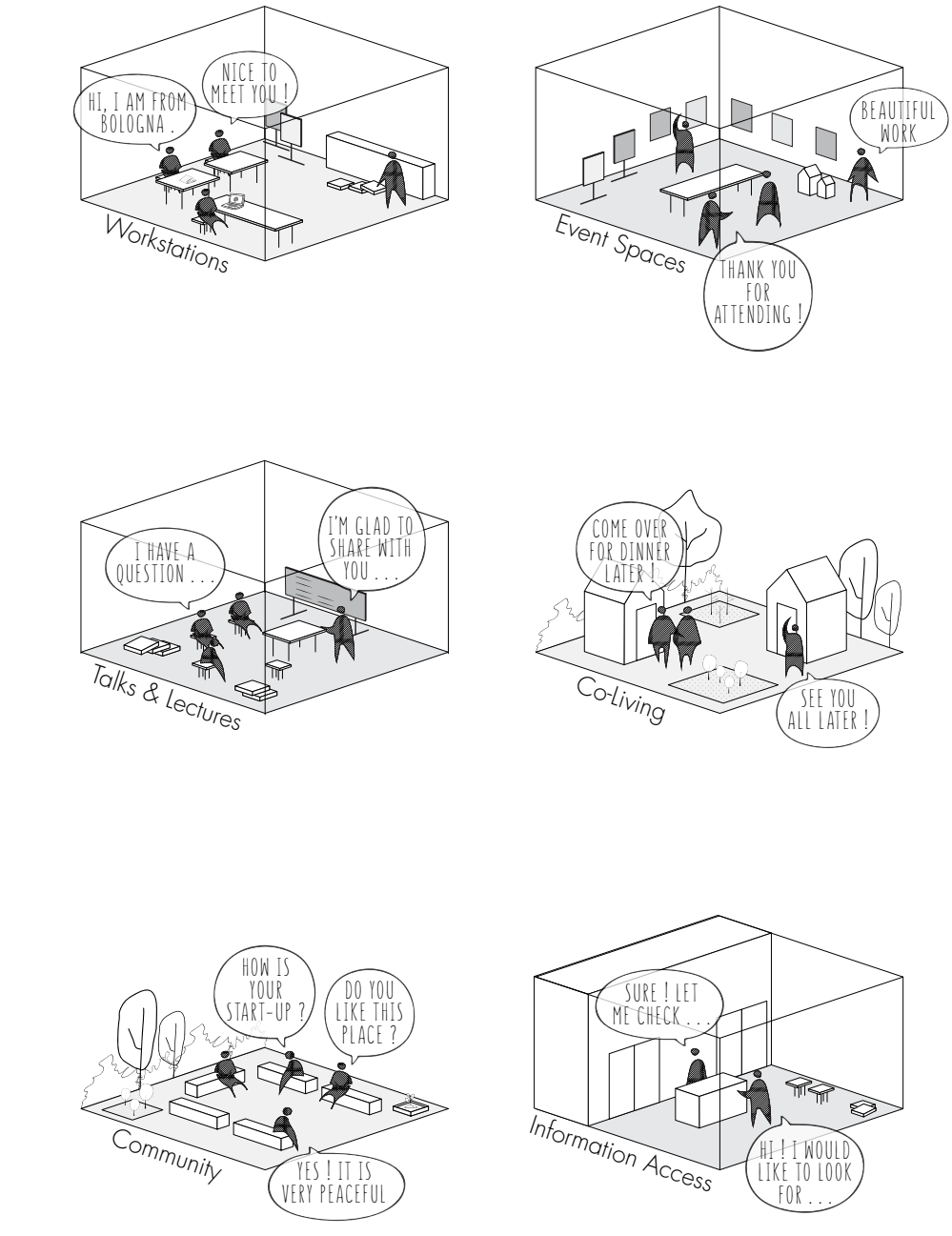


Figure 5.5 : Schematic representation of how the facilities benefits the co-working & co-living community

ARTS & CRAFTS MERCHANDISING

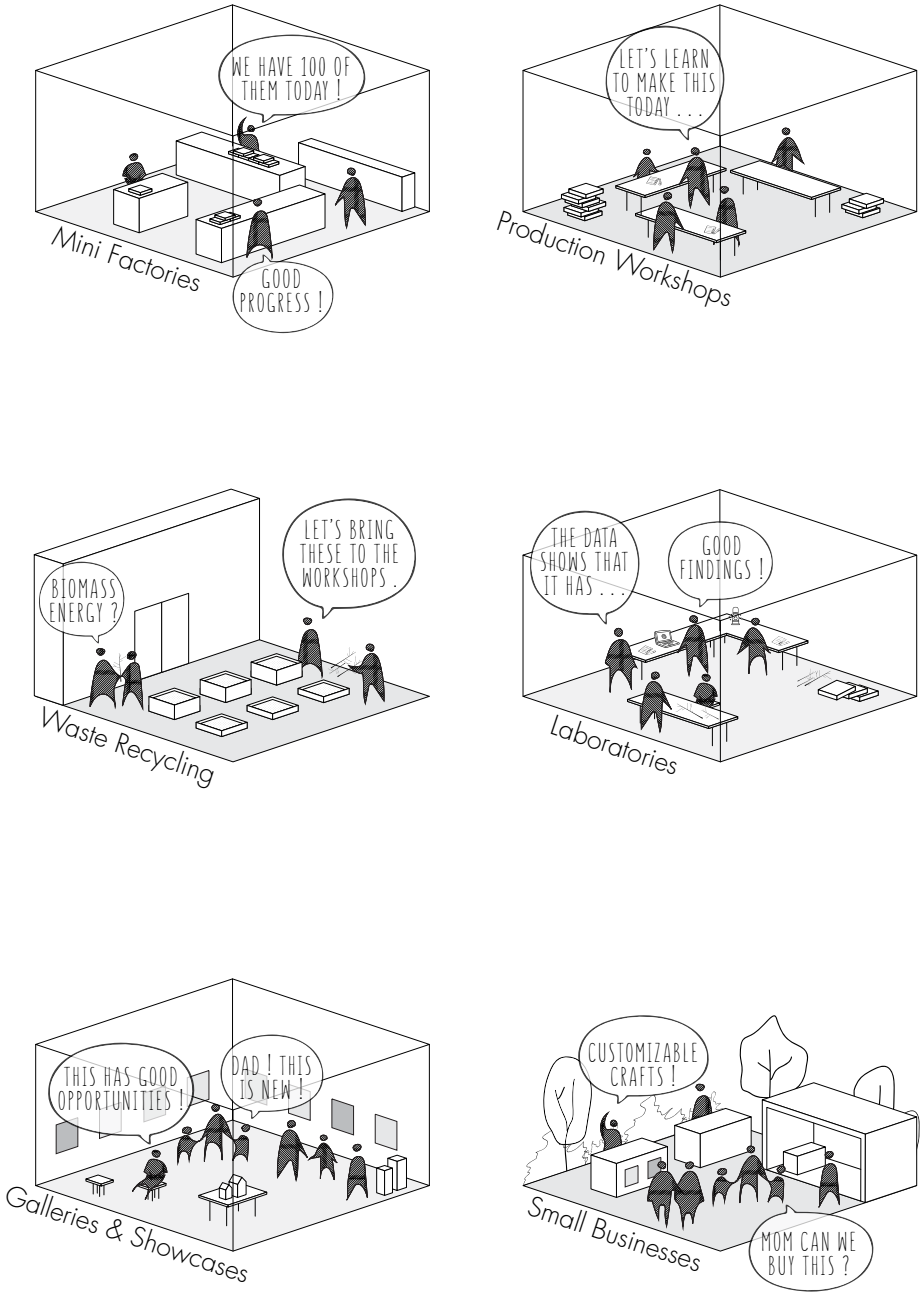


Figure 5.6 : Schematic representation of how activities are generated by arts & crafts merchandising

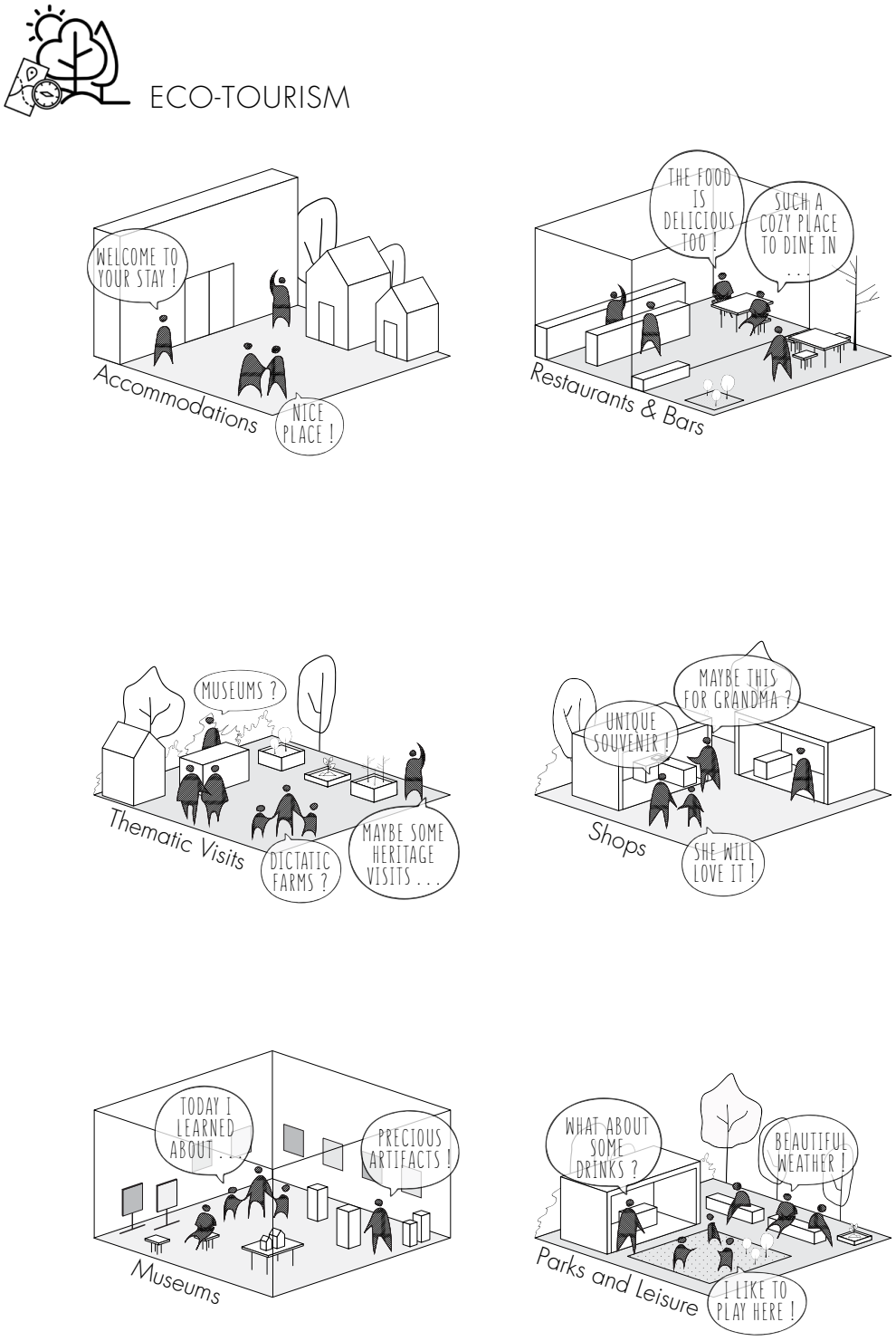


Figure 5.7 : Schematic representation of interactions of tourists through the activities and services provided

PART 06
FINAL THOUGHTS

Final Thoughts

Conclusions & Theories

Abandoned towns are full of opportunities if their problems are faced critically and solutions are provided. There is not a definite solution that can be applied to every town, but some guidelines can be set as a reference to improve their conditions. Through the researches and studies that were carried out, it can be concluded that the majority of towns that were abandoned are mostly due to economic or political reasons, which can be handled through planning and management policies. Several criteria and guidelines are listed for reference.

Social

1. Involve the community. Community is the key to reviving a depopulating or a ghosted town - they were the one who deserted the place in the first place. Bringing back its native community is to create a sense of belonging within the community and follow by other solutions of physical problems in the town.

2. Understand the history and find its value. History tells the background of a place and the community. Understanding the reason why a town is facing depopulation and why it was deserted by its inhabitants influences the decision on how future planning helps to avoid depopulation again.

3. Enhance its local culture and uniqueness. Identity of a place can be formed by enhancing or emphasizing its local cultural elements. Keeping its traditions and cultures upbrings the spirit of the local community with their pride and protections of their identity. Younger generations need to understand their origins and traditions to keep them from diminishing.

4. Expose the community to diversity of people. Creating interactions between local communities with visitors or the outside world helps to widen the social view. Diversity creates cross-cultural learning and improves the social ability of a community

Economical

1. Provide diverse job opportunities. Sparing a diversity of economical activities in a town provides more opportunities for the people.

2. Incentives and Subsidies. Economical support from the government attracts and assists people to pay attention to the opportunities. Startups and businesses which get support can expand and provide more job vacancy for the people. It forms a circular relationship between the stability of businesses and job opportunities.

3. Flexible Taxes Policies. Adjustment of taxes that are imposed on different sectors and be flexible on the performance of the businesses or the income of individuals. A flat policy that applies to all is not serving equity to everyone at different financial levels.

Environmental

1. Look for renewable resources. Renewable resources are the new future. Look for available renewable resources in the town and utilize them rather than using fossil-fuel energy. Otherwise, understand the characteristics and potential of using renewable resources and propose the installations of devices.

2. Close the loop. Control the products that are supplied to the town. Encourage locally produced products that its raw materials are obtained from local resources for future production and encourage manufactures to take back the used products for reuse or recycle.

3. Incentives for recycling acts. Encourage people to collect scraps and household waste and return to the recycling centre by giving incentives for exchange of daily products, deduction of taxes or rebate on mobility expenses. Provide more business supports for those who produce from reused or recycled materials.

Architectural

1. Redeem and reuse existing buildings. Collective information on abandoned buildings and their conditions provides the availability of spaces for future usage. Refurbishment and renovation can be done to the buildings and re-purposes a new function for reuse. They shall not be demolished.

2. Diversity of urban functions. Mixed functional urban planning provides proximity to the neighbourhood on their daily needs and reduces the distance needed to commute.

3. Greens and open spaces. Public open spaces that provide a place for interaction of community and a place for public activities improves the bond in a community. Structures and facilities in parks are built using recycled materials or biodegradable materials that are less harmful to the environment and are flexible to adapt to changes in the future.

4. Improvement of infrastructures. Public transportation systems, vehicle sharing and other infrastructure such as information technologies need to be improved. Infrastructures that give convenience to daily lives increase the comfortability of its community. Also, telecommunications facilities allow people to work remotely and encourage workaway culture to prevent people from moving to the cities.

Copparo being a town with very rich cultural heritage and environmental value is selected as a place to implement the guidelines to revive the town from depopulating. It might be a utopia for the proposed programme or could be a practical solution for other towns to put their eyes and take as an example.

LIST OF FIGURES & TABLES

Part 01 - Research Proposal

Part 02 - Thematic Development

Part 03 - Theory and Approach

Part 04 - Project Site

Part 05 - Programme Proposals

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APPENDIX

Appendix 1.0 World's Cities in 2018, United Nations

		City	City Concept	City Population (Thousand)		
				2000	2018	2030
AFRICA						
Eastern Africa						
	Ethiopia	Addis Ababa	City	2 377	4 400	7 352
	Kenya	Mombasa	City	683	1 214	1 889
	Kenya	Nairobi	City	2 214	4 386	7 031
	Madagascar	Antananarivo	Urban Agglomeration	1 361	3 058	5 189
	Malawi	Lilongwe	City	476	1 030	1 748
	Mozambique	Maputo	City	1 019	1 102	1 486
	Mozambique	Matola	City	498	1 635	2 418
	Rwanda	Kigali	City	498	1 058	1 568
	Somalia	Muqdishi (Mogadishu)	Urban Agglomeration	1 201	2 082	3 497
	Uganda	Kampala	Urban Agglomeration	1 233	2 986	5 506
	United Republic of Tanzania	Dar es Salaam	Urban Agglomeration	2 272	6 048	10 789
	United Republic of Tanzania	Mwanza	City	342	1 003	1 827
	Zambia	Lusaka	Urban Agglomeration	1 073	2 524	4 267
	Zimbabwe	Harare	City	1 379	1 515	1 845
Middle Africa						
	Angola	Luanda	Urban Agglomeration	2 829	7 774	12 129
	Cameroon	Douala	Urban Agglomeration	1 490	3 412	5 112
	Cameroon	Yaoundé	Urban Agglomeration	1 351	3 656	5 734

	Chad	N'Djaména	City	690	1 323	2 122
	Congo	Brazzaville	City	1 022	2 230	3 292
	Congo	Pointe-Noire	City	539	1 138	1 664
	Democratic Republic of the Congo	Kananga	City	604	1 335	2 240
	Democratic Republic of the Congo	Kinshasa	Urban Agglomeration	6 140	13 171	21 914
	Democratic Republic of the Congo	Kisangani	City	586	1 167	1 903
	Democratic Republic of the Congo	Lubumbashi	City	1 089	2 281	3 771
	Democratic Republic of the Congo	Mbuji-Mayi	City	1 011	2 305	3 899
Northen Africa						
	Algeria	El Djazaïr (Algiers)	Urban Agglomeration	2 141	2 694	3 263
	Egypt	Al-Iskandariyah (Alexandria)	City	3 546	5 086	6 417
	Egypt	Al-Qahirah (Cairo)	Metropolitan Area	13 626	20 076	25 517
	Libya	Tarabulus (Tripoli)	City	1 022	1 158	1 272
	Morocco	Dar-el-Beida (Casablanca)	Urban Agglomeration	3 134	3 684	4 349
	Morocco	Fès	Urban Agglomeration	868	1 184	1 455
	Morocco	Rabat	Urban Agglomeration	1 507	1 847	2 192
	Morocco	Tanger	Urban Agglomeration	591	1 116	1 517

	Sudan	Al-Khartum (Khartoum)	Urban Agglomeration	3 505	5 534	8 023
	Tunisia	Tunis	Urban Agglomeration	1 769	2 291	2 703
Southern Afica						
	South Africa	Cape Town	Urban Agglomeration	2 785	4 430	5 468
	South Africa	Durban (Ethekwini)	Urban Agglomeration	2 625	3 134	3 535
	South Africa	Ekurhuleni	Urban Agglomeration	2 339	3 741	4 601
	South Africa	Johannesburg	Urban Agglomeration	3 046	5 486	6 978
	South Africa	Port Elizabeth (Nelson Mandela Bay)	Metropolitan Area	974	1 231	1 429
	South Africa	Pretoria	Urban Agglomeration	1 084	2 378	3 219
Western Africa						
	Burkina Faso	Ouagadougou	City	921	2 351	4 426
	Côte d'Ivoire	Abidjan	City	3 007	4 921	7 136
	Ghana	Accra	Metropolitan Area	1 668	2 439	3 187
	Ghana	Kumasi	Metropolitan Area	1 187	3 065	4 681
	Guinea	Conakry	City	1 192	1 843	2 687
	Liberia	Monrovia	Urban Agglomeration	836	1 418	2 120
	Mali	Bamako	City	1 142	2 447	3 932
	Mauritania	Nouakchott	City	553	1 205	1 925
	Nigeria	Niamey	City	696	1 214	1 988

	Nigeria	Aba	Urban Agglomeration	630	1 023	1 527
	Nigeria	Abuja	Urban Agglomeration	833	2 919	5 119
	Nigeria	Benin City	Urban Agglomeration	975	1 628	2 451
	Nigeria	Ibadan	Urban Agglomeration	2 236	3 383	4 956
	Nigeria	Kaduna	City	881	1 083	1 499
	Nigeria	Kano	Urban Agglomeration	2 602	3 820	5 551
	Nigeria	Lagos	Urban Agglomeration	7 281	13 463	20 600
	Nigeria	Onitsha	Urban Agglomeration	533	1 285	2 138
	Nigeria	Port Harcourt	Urban Agglomeration	1 091	2 731	4 595
	Nigeria	Uyo	Urban Agglomeration	350	1 012	1 771
	Senegal	Dakar	Urban Agglomeration	1 862	2 978	4 339
	Sierra Leone	Freetown	City	690	1 136	1 605
	Togo	Lomé	Urban Agglomeration	1 023	1 746	2 496
ASIA						
Eastern Asia						
	China	Anshan	Urban Agglomeration	1 384	1 600	1 875
	China	Anyang	Urban Agglomeration	548	1 328	1 893
	China	Baoding	Urban Agglomeration	1 070	1 889	2 355
	China	Baoji	Urban Agglomeration	638	1 098	1 422

	China	Baotou	Urban Agglomeration	1 406	2 096	2 608
	China	Beijing	Urban Agglomeration	10 285	19 618	24 282
	China	Benxi	Urban Agglomeration	857	1 122	1 348
	China	Binzhou	Urban Agglomeration	415	1 000	1 371
	China	Changchun	Urban Agglomeration	2 892	4 241	5 257
	China	Changsha	Urban Agglomeration	2 182	4 345	5 525
	China	Changzhou, Jiangsu	Urban Agglomeration	1 698	3 372	4 526
	China	Chaozhou	Urban Agglomeration	691	1 389	1 654
	China	Chengdu	Urban Agglomeration	4 607	8 813	10 728
	China	Chifeng	Urban Agglomeration	677	1 105	1 406
	China	Chongqing	Urban Agglomeration	7 863	14 838	19 649
	China	Cixi	Urban Agglomeration	676	1 480	2 048
	China	Dalian	Urban Agglomeration	3 092	5 300	6 848
	China	Daqing	Urban Agglomeration	1 082	1 763	2 247
	China	Datong	Urban Agglomeration	1 049	1 659	2 102
	China	Dongguan	Urban Agglomeration	3 633	7 360	8 279
	China	Dongying	Urban Agglomeration	706	1 205	1 553

	China	Foshan	Urban Agglomeration	3 831	7 196	8 350
	China	Fushun, Liaoning	Urban Agglomeration	1 358	1 288	1 416
	China	Fuzhou, Fujian	Urban Agglomeration	2 279	3 532	4 377
	China	Ganzhou	Urban Agglomeration	374	1 158	1 692
	China	Guangzhou, Guangdong	Urban Agglomeration	7 812	12 638	16 024
	China	Guilin	Urban Agglomeration	805	1 096	1 329
	China	Guiyang	Urban Agglomeration	1 860	3 136	4 029
	China	Haerbin	Urban Agglomeration	4 100	6 115	7 597
	China	Haikou	Urban Agglomeration	907	1 805	2 253
	China	Handan	Urban Agglomeration	925	2 528	3 423
	China	Hangzhou	Urban Agglomeration	3 570	7 236	9 260
	China	Hefei	Urban Agglomeration	1 532	3 980	5 218
	China	Hengyang	Urban Agglomeration	793	1 433	1 879
	China	Hohhot	Urban Agglomeration	1 005	2 009	2 709
	China	Huai'an	Urban Agglomeration	956	2 420	3 430
	China	Huaibei	Urban Agglomeration	617	1 076	1 394
	China	Huainan	Urban Agglomeration	1 049	1 393	1 677

	China	Huizhou	Urban Agglomeration	1 003	2 360	3 126
	China	Ji'nan, Shangong	Urban Agglomeration	2 923	5 052	6 546
	China	Jiangmen	Urban Agglomeration	834	1 640	1 956
	China	Jiaxing	Urban Agglomeration	440	1 140	1 648
	China	Jieyang	Urban Agglomeration	446	1 049	1 473
	China	Jilin	Urban Agglomeration	1 311	1 569	1 838
	China	Jingzhou, Hubei	Urban Agglomeration	761	1 008	1 206
	China	Jinhua	Urban Agglomeration	353	1 024	1 477
	China	Jining, Shandong	Urban Agglomeration	1 112	1 450	1 738
	China	Jinzhou	Urban Agglomeration	770	1 101	1 354
	China	Kaifeng	Urban Agglomeration	614	1 186	1 588
	China	Kunming	Urban Agglomeration	2 654	4 230	5 335
	China	Lanzhou	Urban Agglomeration	1 890	2 936	3 692
	China	Lianyungang	Urban Agglomeration	769	1 703	2 249
	China	Linyi, Shandong	Urban Agglomeration	1 129	1 843	2 327
	China	Liuan	Urban Agglomeration	349	1 063	1 611
	China	Liuyang	Urban Agglomeration	272	1 020	1 624

	China	Liuzhou	Urban Agglomeration	1 168	2 042	2 641
	China	Luoyang	Urban Agglomeration	1 213	2 236	2 946
	China	Maoming	Urban Agglomeration	654	1 136	1 469
	China	Mianyang, Sichuan	Urban Agglomeration	850	1 228	1 504
	China	Nanchang	Urban Agglomeration	1 903	3 373	4 435
	China	Nanchong	Urban Agglomeration	605	1 173	1 563
	China	Nanjing, Jiangsu	Urban Agglomeration	4 279	8 245	11 011
	China	Nanning	Urban Agglomeration	1 737	3 628	4 734
	China	Nantong	Urban Agglomeration	1 006	2 123	2 828
	China	Nanyang, Henan	Urban Agglomeration	697	1 088	1 372
	China	Ningbo	Urban Agglomeration	1 849	3 815	5 169
	China	Panjin	Urban Agglomeration	683	1 009	1 250
	China	Pingdingshan, Henan	City	632	1 093	1 417
	China	Puning	Urban Agglomeration	646	1 095	1 412
	China	Putian	Urban Agglomeration	613	1 712	2 529
	China	Qingdao	Urban Agglomeration	3 363	5 381	6 684
	China	Qinhuangdao	Urban Agglomeration	744	1 432	1 907

	China	Qiqihaer	Urban Agglomeration	1188	1 515	1 809
	China	Quanshou	Urban Agglomeration	764	1 568	2 132
	China	Rizhao	Urban Agglomeration	613	1 186	1 578
	China	Ruian	Urban Agglomeration	555	1 089	1 456
	China	Shanghai	City	14 247	25 582	32 869
	China	Shantou	Urban Agglomeration	2 930	4 174	5 083
	China	Shaoxing	Urban Agglomeration	1 124	2 350	3 200
	China	Shenyang	Urban Agglomeration	4 737	6 921	8 569
	China	Shenzhen	Urban Agglomeration	6 550	11 908	14 537
	China	Shijiazhuang	Urban Agglomeration	2 591	3 950	4 872
	China	Shiyan	Urban Agglomeration	631	1 162	1 533
	China	Suqian	Urban Agglomeration	397	1 276	1 950
	China	Suzhou, Anhui	Urban Agglomeration	453	1 068	1 507
	China	Suzhou, Jiangsu	Urban Agglomeration	2 112	6 339	9 389
	China	Taian, Shandong	Urban Agglomeration	910	1 290	1 575
	China	Taiyuan, Shanxi	Urban Agglomeration	2 502	3 725	4 628
	China	Taizhou, Jiangsu	Urban Agglomeration	784	1 282	1 622

	China	Taizhou, Zhejiang	City	992	1 818	2 374
	China	Tangshan, Hebei	Urban Agglomeration	1 418	3 145	4 371
	China	Tengzhou	Urban Agglomeration	489	1 094	1 514
	China	Tianjin	Urban Agglomeration	6 989	13 215	15 745
	China	Ürümqi (Wulumqi)	Urban Agglomeration	1 807	4 001	5 574
	China	Weifang	Urban Agglomeration	1 235	2 466	3 318
	China	Weihai	Urban Agglomeration	620	1 216	1 622
	China	Wenzhou	Urban Agglomeration	1 590	3 419	4 416
	China	Wuhan	Urban Agglomeration	6 638	8 176	9 611
	China	Wuhu, Anhui	Urban Agglomeration	634	1 685	2 463
	China	Wuxi, Jiangsu	Urban Agglomeration	1 835	3 144	3 818
	China	Xi'an, Shaanxi	Urban Agglomeration	3 788	7 444	9 984
	China	Xiamen	Urban Agglomeration	1 416	3 585	4 376
	China	Xiangtan, Hunan	Urban Agglomeration	698	1 089	1 371
	China	Xiangyang	Urban Agglomeration	1 202	1 607	1 913
	China	Xining	Urban Agglomeration	844	1 452	1 878
	China	Xinxiang	Urban Agglomeration	762	1 044	1 266

	China	Xuzhou	Urban Agglomeration	1 367	2 054	2 554
	China	Yancheng, Jiangsu	Urban Agglomeration	923	1 779	2 231
	China	Yangzhou	Urban Agglomeration	1 217	1 901	2 385
	China	Yantai	Urban Agglomeration	1 217	2 359	2 135
	China	Yichang	Urban Agglomeration	692	1 432	1 952
	China	Yinchuan	Urban Agglomeration	571	1 483	1 939
	China	Yingkou	Urban Agglomeration	624	1 138	1 497
	China	Yiwu	Urban Agglomeration	560	1 227	1 698
	China	Zaozhuang	Urban Agglomeration	853	1 063	1 250
	China	Zhangjiakou	Urban Agglomeration	878	1 367	1 720
	China	Zhanjiang	Urban Agglomeration	818	1 231	1 533
	China	Zhengzhou	Urban Agglomeration	2 438	4 940	6 669
	China	Zhenjiang, Jiangsu	Urban Agglomeration	743	1 124	1 397
	China	Zhongshan	Urban Agglomeration	1 375	2 872	3 302
	China	Zhuhai	Urban Agglomeration	1 004	1 671	2 120
	China	Zhuzhou	Urban Agglomeration	819	1 145	1 394
	China	Zibo	Urban Agglomeration	1 873	2 555	3 084

	China	Zunyi	Urban Agglomeration	745	1 216	1 545
	China, Hong Kong SAR	Hong Kong	Urban Agglomeration	6 664	7 429	7 987
	China, Taiwan Province of China	Gaoxiong	City	1 488	1 532	1 602
	China, Taiwan Province of China	Taibei	Urban Agglomeration	2 642	2 706	2 844
	China, Taiwan Province of China	Taizhong	Urban Agglomeration	978	1 283	1 434
	China, Taiwan Province of China	Taoyuan	City	1 700	2 190	2 423
	China, Taiwan Province of China	Xinbei	City	3 689	4 325	4 683
	Dem. People's Republic of Korea	P'yongyang	City	2 777	3 038	3 345
	Japan	Chukyo M.M.A. (Nagoya)	Metropolitan Area	8 740	9 507	9 407
	Japan	Hiroshima	Metropolitan Area	2 044	2 095	2 031
	Japan	Kinki M.M.A. (Osaka)	Metropolitan Area	18 660	19 281	18 658
	Japan	Kitakyushu-Fukuoka M.M.A.	Metropolitan Area	5 421	5 551	5 395
	Japan	Sapporo	Metropolitan Area	2 508	2 665	2 612
	Japan	Sendai	Metropolitan Area	2 184	2 306	2 301
	Japan	Shizuo ka-Hamamatsu M.M.A.	Metropolitan Area	1 217	2 899	2 883
	Japan	Tokyo	Metropolitan Area	34 450	37 468	36 574
	Mongolia	Ulaanbaatar	City	765	1 520	1 841

	Republic of Korea	Busan	Urban Agglomeration	3 673	3 467	3 532
	Republic of Korea	Changwon	Urban Agglomeration	1 077	1 060	1 070
	Republic of Korea	Daegu	City	2 323	2 221	2 205
	Republic of Korea	Daejon	City	1 354	1 558	1 610
	Republic of Korea	Goyang	City	734	1 039	1 145
	Republic of Korea	Gwangju	City	1 343	1 518	1 559
	Republic of Korea	Incheon	City	2 371	2 763	2 923
	Republic of Korea	Seoul	Urban Agglomeration	9 879	9 963	10 163
	Republic of Korea	Suweon	Urban Agglomeration	932	1 265	1 420
	Republic of Korea	Yongin	Urban Agglomeration	374	1 039	1 186
Central Asia						
	Kazakhstan	Almaty	City	1 160	1 829	2 170
	Kazakhstan	Astana	City	371	1 068	1 456
	Uzbekistan	Tashkent	City	2 135	2 464	2 835
Southern Asia						
	Afghanistan	Kabul	City	2 401	4 012	5 737
	Bangladesh	Chittagong	Metropolitan Area	3 308	4 816	6 393
	Bangladesh	Dhaka	Metropolitan Area	10 285	19 578	28 076
	India	Agra	Urban Agglomeration	1 342	2 110	2 774
	India	Ahmadabad	Urban Agglomeration	4 815	7 681	10 148
	India	Aligarh	Urban Agglomeration	665	1 143	1 548

	India	Allahabad	Urban Agglomeration	1 028	1 355	1 698
	India	Amritsar	Urban Agglomeration	981	1 335	1 685
	India	Asansol	Urban Agglomeration	1 058	1 391	1 744
	India	Aurangabad	Urban Agglomeration	869	1 476	1 982
	India	Bangalore	Urban Agglomeration	5 581	11 440	16 277
	India	Bareilly	Urban Agglomeration	748	1 195	1 583
	India	Bhopal	Urban Agglomeration	1 428	2 278	3 008
	India	Bhubaneswar	Urban Agglomeration	638	1 100	1 482
	India	Chandigarh	Urban Agglomeration	790	1 110	1 413
	India	Chennai (Madras)	Urban Agglomeration	6 593	10 456	13 814
	India	Coimbatore	Urban Agglomeration	1 562	2 641	3 542
	India	Delhi	Metropolitan Area	15 692	28 514	38 939
	India	Dhanbad	Urban Agglomeration	1 048	1 302	1 604
	India	Durg-Bhilainagar	Urban Agglomeration	911	1 177	1 465
	India	Guwahati (Gauhati)	Urban Agglomeration	801	1 083	1 365
	India	Gwalior	Urban Agglomeration	855	1 317	1 727
	India	Hubli-Dharwad	City	776	1 079	1 374
	India	Hyderabad	Urban Agglomeration	5 650	9 482	12 714

	India	Indore	Urban Agglomeration	1 486	2 822	3 918
	India	Jabalpur	Urban Agglomeration	1 083	1 411	1 763
	India	Jaipur	Urban Agglomeration	2 258	3 717	4 934
	India	Jalandhar	Urban Agglomeration	698	1 014	1 304
	India	Jamshedpur	Urban Agglomeration	1 084	1 543	1 974
	India	Jodhpur	Urban Agglomeration	846	1 397	1 866
	India	Kannur	Urban Agglomeration	1 208	2 048	2 766
	India	Kanpur	Urban Agglomeration	2 664	3 081	3 715
	India	Kochi (Cochin)	Urban Agglomeration	1 399	2 858	4 064
	India	Kolkata (Calcutta)	Metropolitan Area	13 097	14 681	17 584
	India	Kollam	Urban Agglomeration	614	1 670	2 557
	India	Kota	Urban Agglomeration	691	1 299	1 799
	India	Kozhikode (Calicut)	Urban Agglomeration	1 090	3 175	4 993
	India	Lucknow	Urban Agglomeration	2 202	3 505	4 628
	India	Ludhiana	City	1 368	1 806	2 260
	India	Madurai	Urban Agglomeration	1 211	1 676	2 133
	India	Malappuram	Urban Agglomeration	762	2 950	4 976
	India	Meerut	Urban Agglomeration	1 147	1 636	2 093

	India	Moradabad	Urban Agglomeration	626	1 127	1 539
	India	Mumbai (Bombay)	Metropolitan Area	16 147	19 980	24 572
	India	Mysore	Urban Agglomeration	787	1 162	1 504
	India	Nagpur	Urban Agglomeration	2 095	2 808	3 534
	India	Nashik	Urban Agglomeration	1 117	1 952	2 638
	India	Patna	Urban Agglomeration	1 654	2 352	3 002
	India	Pune (Poona)	Urban Agglomeration	3 667	6 276	8 442
	India	Raipur	Urban Agglomeration	720	1 521	2 169
	India	Rajkot	Urban Agglomeration	975	1 767	2 416
	India	Ranchi	Urban Agglomeration	844	1 370	1 817
	India	Salem	Urban Agglomeration	738	1 062	1 363
	India	Solapur	City	853	1 014	1 231
	India	Srinagar	Urban Agglomeration	973	1 515	1 990
	India	Surat	Urban Agglomeration	2 706	6 564	9 711
	India	Thiruvananthapuram	Urban Agglomeration	1 045	2 369	3 474
	India	Thrissur	Urban Agglomeration	1 042	2 774	4 211
	India	Tiruchirappalli	Urban Agglomeration	876	1 134	1 415
	India	Tiruppur	Urban Agglomeration	571	1 369	2 018

	India	Vadodara	Urban Agglomeration	1 465	2 110	2 708
	India	Varanasi (Benares)	Urban Agglomeration	1 204	1 615	2 036
	India	Vijayawada	Urban Agglomeration	1 025	1 911	2 644
	India	Visakhapatnam	Urban Agglomeration	1 323	2 076	2 732
	Iran (Islamic Republic of)	Ahvaz	City	868	1 212	1 394
	Iran (Islamic Republic of)	Esfahan	City	1 382	2 041	2 461
	Iran (Islamic Republic of)	Karaj	City	1 087	1 585	1 687
	Iran (Islamic Republic of)	Mashhad	City	2 073	3 097	3 650
	Iran (Islamic Republic of)	Qom	City	843	1 241	1 469
	Iran (Islamic Republic of)	Shiraz	City	1 115	1 605	1 857
	Iran (Islamic Republic of)	Tabriz	City	1 264	1 582	1 781
	Iran (Islamic Republic of)	Tehran	City	7 128	8 896	10 240
	Nepal	Kathmandu	City	642	1 330	1 939
	Pakistan	Faisalabad	Urban Agglomeration	2 098	3 311	4 401
	Pakistan	Gujranwala	Urban Agglomeration	1 209	2 110	2 883
	Pakistan	Hyderabad	Urban Agglomeration	1 210	1 782	2 323
	Pakistan	Islamabad	City	569	1 061	1 477
	Pakistan	Karachi	Urban Agglomeration	9 825	15 400	20 432

	Pakistan	Lahore	Urban Agglomeration	5 576	11 738	16 883
	Pakistan	Multan	Urban Agglomeration	1 251	1 931	2 552
	Pakistan	Peshawar	Urban Agglomeration	1 075	2 065	2 896
	Pakistan	Quetta	Urban Agglomeration	602	1 042	1 420
	Pakistan	Rawalpindi	Urban Agglomeration	1 477	2 156	2 805
South-Eastern Asia						
	Cambodia	Phnum Pénh (Phnom Penh)	Urban Agglomeration	1 149	1 952	2 805
	Indonesia	Bandar Lampung	City	743	1 047	1 326
	Indonesia	Bandung	City	2 138	2 538	3 002
	Indonesia	Batam	City	415	1 401	2 065
	Indonesia	Bekasi	City	1 622	3 159	4 332
	Indonesia	Bogor	City	751	1 115	1 402
	Indonesia	Depok	City	1 121	2 503	3 564
	Indonesia	Jakarta	Metropolitan Area	8 390	10 517	12 687
	Indonesia	Makassar (Ujung Pandang)	City	1 077	1 530	1 900
	Indonesia	Medan	City	1 912	2 285	2 749
	Indonesia	Palembang	City	1 459	1 665	2 064
	Indonesia	Pekan Baru	City	588	1 138	1 500
	Indonesia	Semarang	City	1 427	1 800	2 245
	Indonesia	Surabaya	City	2 611	2 903	3 413
	Indonesia	Tangerang	City	1 326	2 222	2 884
	Malaysia	Kuala Lumpur	Metropolitan Area	4 176	7 564	9 805

	Myanmar	Mandalay	Urban Agglomeration	847	1 374	1 757
	Myanmar	Yangon	Urban Agglomeration	3 573	5 157	6 389
	Philippines	Davao City	City	1 152	1 745	2 256
	Philippines	Manila	Metropolitan Area	9 958	13 482	16 841
	Singapore	Singapore	Urban Agglomeration	3 914	5 792	6 342
	Thailand	Chiang Mai	Urban Agglomeration	407	1 135	1 318
	Thailand	Chon Buri	Urban Agglomeration	577	1 361	1 580
	Thailand	Krung Thep (Bangkok)	Urban Agglomeration	6 395	10 156	12 101
	Thailand	Samut Prakan	Urban Agglomeration	656	1 272	1 477
	Vietnam	Can Tho	City	439	1 444	2 294
	Vietnam	Da Hang	City	568	1 064	1 449
	Vietnam	Hà Noi	Urban Agglomeration	1 660	4 283	6 362
	Vietnam	Hai Phòng	Urban Agglomeration	599	1 219	1 698
	Vietnam	Thành Pho Ho Chí Minh (Ho Chi Minh City)	Urban Agglomeration	4 389	8 145	11 054
Western Asia						
	Armenia	Yerevan	City	1 111	1 080	1 114
	Azerbaijan	Baku	Urban Agglomeration	1 806	2 286	2 659
	Georgia	Tbilisi	City	1 100	1 077	1 102
	Iraq	Al-Basrah (Basra)	City	759	1 299	1 751

	Iraq	Al-Mawsil (Mosul)	Urban Agglomeration	1 056	1 527	2 200
	Iraq	Baghdad	Metropolitan Area	5 200	6 812	9 365
	Israel	Hefa (Haifa)	Metropolitan Area	905	1 135	1 281
	Israel	Tel Aviv-Yafo (Tel Aviv-Jaffa)	Metropolitan Area	2 739	4 011	4 916
	Jordan	Amman	City	1 017	2 065	2 402
	Kuwait	Al Kuwayt (Kuwait City)	Urban Agglomeration	1 300	2 989	3 622
	Lebanon	Bayrut (Beirut)	Urban Agglomeration	1 487	2 385	2 311
	Oman	Masqat (Muscat)	Urban Agglomeration	564	1 447	1 838
	Saudi Arabia	Ad-Dammam	City	639	1 197	1 478
	Saudi Arabia	Al-Madinah (Medina)	City	795	1 430	1 744
	Saudi Arabia	Ar-Riyadh (Riyadh)	City	3 567	6 907	8 547
	Saudi Arabia	Jiddah	City	2 509	4 433	5 388
	Saudi Arabia	Makkah (Mecca)	City	1 168	1 967	2 379
	Syrian Arab Republic	Dimashq (Damascus)	City	2 017	2 320	3 387
	Syrian Arab Republic	Halab (Aleppo)	Urban Agglomeration	2 204	1 754	2 993
	Syrian Arab Republic	Hims (Homs)	City	856	1 295	1 891
	Turkey	Adana	Urban Agglomeration	1 123	1 730	1 976
	Turkey	Ankara	Urban Agglomeration	3 179	4 919	5 869
	Turkey	Antalya	City	595	1 184	1 481
	Turkey	Bursa	Urban Agglomeration	1 180	1 916	2 263

	Turkey	Gaziantep	Urban Agglomeration	880	1 632	1 967
	Turkey	Istanbu	Urban Agglomeration	8 744	14 751	17 124
	Turkey	Izmir	Urban Agglomeration	2 216	2 937	3 316
	Turkey	Konya	Urban Agglomeration	734	1 271	1 535
	United Arab Emirates	Abu Zaby (Abu Dhabi)	City	505	1 420	1 739
	United Arab Emirates	Ash-Shariqah (Sharjah)	City	457	1 571	2 065
	United Arab Emirates	Dubayy (Dubai)	Urban Agglomeration	907	2 785	3 315
	Yemen	Sana'a'	Urban Agglomeration	1 347	2 779	4 174
EUROPE						
Eastern Europe						
	Belarus	Minsk	Urban Agglomeration	1 700	2 005	2 086
	Bulgaria	Sofia	Urban Agglomeration	1 128	1 272	1 279
	Czechia	Praha (Prague)	City	1 172	1 292	1 345
	Hungary	Budapest	City	1 787	1 759	1 786
	Poland	Warszawa (Warsaw)	City	1 666	1 768	1 800
	Romania	Bucuresti (Bucharest)	City	1 949	1 821	1 741
	Russian Federation	Chelyabinsk	City	1 082	1 216	1 252
	Russian Federation	Kazan	City	1 096	1 254	1 307
	Russian Federation	Krasnoyarsk	City	911	1 111	1 187

	Russian Federation	Moskva (Moscow)	City	10 005	12 410	12 796
	Russian Federation	Nizhniy Novgorod	City	1 331	1 264	1 251
	Russian Federation	Novosibirsk	City	1 426	1 636	1 717
	Russian Federation	Omsk	City	1 136	1 184	1 183
	Russian Federation	Perm	City	1 014	1 062	1 091
	Russian Federation	Rostov-na-Donu (Rostov-on-Don)	City	1 061	1 134	1 143
	Russian Federation	Samara	City	1 173	1 171	1 154
	Russian Federation	Sankt Peterburg (Saint Petersburg)	City	4 719	5 383	5 630
	Russian Federation	Ufa	City	1 049	1 129	1 153
	Russian Federation	Volgograd	City	1 010	1 014	992
	Russian Federation	Voronezh	City	921	1 056	1 091
	Russian Federation	Yekaterinburg	City	1 303	1 482	1 546
	Ukraine	Kharkiv	City	1 484	1 436	1 404
	Ukraine	Kyiv (Kiev)	City	2 606	2 957	3 004
	Ukraine	Odesa	City	1 037	1 011	1 005
Northern Europe						
	Denmark	København (Copenhagen)	Metropolitan Area	1 077	1 321	1 442
	Finland	Helsinki	Urban Agglomeration	1 019	1 279	1 386
	Ireland	Dublin	Urban Agglomeration	989	1 201	1 374

	Norway	Oslo	Urban Agglomeration	774	1 012	1 187
	Sweden	Stockholm	Urban Agglomeration	1 206	1 583	1 814
	United Kingdom	Birmingham (West Midlands)	Urban Agglomeration	2 285	2 570	2 802
	United Kingdom	Glasgow	Metropolitan Area	1 585	1 611	1 778
	United Kingdom	London	Urban Agglomeration	7 273	9 046	10 228
	United Kingdom	Manchester	Metropolitan Area	2 345	2 690	2 934
	United Kingdom	West Yorkshire	Metropolitan Area	1 648	1 864	2 026
Southern Europe						
	Greece	Athínai (Athens)	Urban Agglomeration	3 179	3 156	3 163
	Italy	Milano (Milan)	Metropolitan Area	2 985	3 132	3 209
	Italy	Napoli (Naples)	Metropolitan Area	2 232	2 198	2 207
	Italy	Roma (Rome)	Metropolitan Area	3 708	4 210	4 413
	Italy	Torino (Turin)	Metropolitan Area	1 694	1 786	1 834
	Portugal	Lisboa (Lisbon)	Metropolitan Area	2 672	2 927	3 085
	Portugal	Porto	Urban Agglomeration	1 254	1 307	1 357
	Serbia	Beograd (Belgrade)	Urban Agglomeration	1 257	1 389	1 423
	Spain	Barcelona	City	4 355	5 494	5 812
	Spain	Madrid	City	5 014	6 497	6 907

Western Europe						
	Austria	Wien (Vienna)	City	1 549	1 901	2 080
	Belgium	Antwerpen	Metropolitan Area	945	1 032	1 084
	Belgium	Brux-elles-Brussel	Metropolitan Area	1 783	2 050	2 182
	France	Lille	Urban Agglomeration	1 002	1 054	1 126
	France	Lyon	Urban Agglomeration	1 446	1 690	1 847
	France	Marseille-Aix-en-Provence	Urban Agglomeration	1 476	1 599	1 695
	France	Paris	Urban Agglomeration	9 737	10 901	11 710
	Germany	Berlin	City	3 384	3 552	3 606
	Germany	Hamburg	City	1 710	1 793	1 799
	Germany	Köln (Cologne)	City	963	1 096	1 167
	Germany	München (Munich)	City	1 202	1 504	1 610
	Netherlands	Amsterdam	Urban Agglomeration	1 005	1 132	1 219
	Netherlands	Rotterdam	Urban Agglomeration	991	1 008	1 049
	Switzerland	Zürich (Zurich)	Urban Agglomeration	1 129	1 371	1 514
LATIN AMERICA AND THE CARIBBEAN						
Carribean						
	Cuba	La Habana (Havana)	City	2 186	2 136	2 178
	Dominican Republic	Santo Domingo	Urban Agglomeration	1 997	3 172	3 913

	Haiti	Port-au-Prince	Urban Agglomeration	1 693	2 637	3 488
	Puerto Rico	San Juan	Metropolitan Area	2 508	2 454	2 419
Central America						
	Costa Rica	San José	Urban Agglomeration	1 032	1 358	1 595
	El Salvador	San Salvador	Metropolitan Area	1 062	1 107	1 190
	Guatemala	Ciudad de Guatemala (Guatemala City)	Metropolitan Area	1 973	2 851	3 640
	Honduras	Tegucigalpa	City	752	1 363	1 851
	Mexico	Aguascalientes	Metropolitan Area	763	1 070	1 276
	Mexico	Chihuahua	Metropolitan Area	702	1 012	1 232
	Mexico	Ciudad de México (Mexico City)	Metropolitan Area	18 457	21 581	24 111
	Mexico	Ciudad Juárez	Metropolitan Area	1 223	1 480	1 730
	Mexico	Cuernavaca	Metropolitan Area	803	1 043	1 232
	Mexico	Guadalajara	Metropolitan Area	3 724	5 023	5 943
	Mexico	La Laguna	Metropolitan Area	891	1 490	2 013
	Mexico	León de los Aldamas	Metropolitan Area	1 280	1 780	2 075
	Mexico	Mérida	Metropolitan Area	810	1 122	1 342
	Mexico	Mexicali	Metropolitan Area	770	1 082	1 296

	Mexico	Monterrey	Metropolitan Area	3 405	4 712	5 621
	Mexico	Puebla	Metropolitan Area	2 285	3 097	3 669
	Mexico	Querétaro	Metropolitan Area	825	1 288	1 558
	Mexico	San Luis Potosí	Metropolitan Area	857	1 179	1 396
	Mexico	Tijuana	Metropolitan Area	1 365	2 058	2 491
	Mexico	Toluca de Lerdo	Metropolitan Area	1 553	2 354	2 909
	Nicaragua	Managua	Urban Agglomeration	887	1 048	1 203
	Panama	Ciudad de Panamá (Panama City)	Urban Agglomeration	1 216	1 783	2 247
South America						
	Argentina	Buenos Aires	Urban Agglomeration	12 504	14 967	16 456
	Argentina	Córdoba	Urban Agglomeration	1 348	1 548	1 715
	Argentina	Mendoza	Urban Agglomeration	838	1 133	1 320
	Argentina	Rosario	Urban Agglomeration	1 152	1 488	1 711
	Bolivia (Plurinational State of)	Cochabamba	Urban Agglomeration	735	1 237	1 600
	Bolivia (Plurinational State of)	La Paz	Urban Agglomeration	1 415	1 814	2 174
	Bolivia (Plurinational State of)	Santa Cruz	City	1 049	1 641	2 068
	Brazil	Baixada Santista	Metropolitan Area	1 468	1 853	2 055

	Brazil	Belém	Metropolitan Area	1 724	2 280	2 546
	Brazil	Belo Horizonte	Metropolitan Area	4 807	5 972	6 583
	Brazil	Brasília	Metropolitan Area	2 932	4 470	5 199
	Brazil	Campinas	Metropolitan Area	2 332	3 210	3 627
	Brazil	Curitiba	Metropolitan Area	2 494	3 579	4 040
	Brazil	Florianópolis	Metropolitan Area	734	1 197	1 378
	Brazil	Fortaleza	Metropolitan Area	2 875	3 977	4 446
	Brazil	Goiânia	Metropolitan Area	1 635	2 565	3 056
	Brazil	Grande São Luís	Metropolitan Area	1 064	1 460	1 604
	Brazil	Grande Vitória	Metropolitan Area	1 435	2 003	2 311
	Brazil	João Pessoa	Metropolitan Area	1 018	1 347	1 502
	Brazil	Joinville	Metropolitan Area	924	1 270	1 427
	Brazil	Maceió	Metropolitan Area	952	1 294	1 440
	Brazil	Manaus	City	1 392	2 171	2 537
	Brazil	Natal	Urban Agglomeration	897	1 395	1 642
	Brazil	Pôrto Alegre	Metropolitan Area	3 546	4 094	4 416
	Brazil	Recife	Metropolitan Area	3 205	4 028	4 509
	Brazil	Rio de Janeiro	Metropolitan Area	11 307	13 293	14 408

	Brazil	Salvador	Metropolitan Area	2 891	3 754	4 181
	Brazil	São Paulo	Metropolitan Area	17 014	21 650	23 824
	Brazil	Teresina	Urban Agglomeration	788	1 001	1 108
	Chile	Santiago	Urban Agglomeration	5 658	6 680	7 243
	Colombia	Barranquilla	Urban Agglomeration	1 511	2 218	2 499
	Colombia	Bogotá	Urban Agglomeration	6 329	10 574	23 343
	Colombia	Bucaramanga	Urban Agglomeration	852	1 295	1 473
	Colombia	Cali	Urban Agglomeration	1 929	2 726	3 039
	Colombia	Cartagena	City	740	1 047	1 150
	Colombia	Medellín	Metropolitan Area	2 733	3 934	4 344
	Ecuador	Guayaquil	Urban Agglomeration	2 077	2 899	3 511
	Ecuador	Quito	City	1 357	1 822	2 180
	Paraguay	Asunción	Metropolitan Area	1 700	3 222	3 920
	Peru	Lima	Metropolitan Area	7 294	10 391	12 266
	Uruguay	Montevideo	Metropolitan Area	1 600	1 737	1 819
	Venezuela (Bolivarian Republic of)	Barquisimeto	Metropolitan Area	946	1 189	1 352
	Venezuela (Bolivarian Republic of)	Caracas	Metropolitan Area	2 864	2 935	3 164

	Venezuela (Bolivarian Republic of)	Maracaibo	Metropolitan Area	1 525	2 179	2 574
	Venezuela (Bolivarian Republic of)	Maracay	Metropolitan Area	931	1 178	1 340
	Venezuela (Bolivarian Republic of)	Valencia	Metropolitan Area	1 392	1 860	2 144
Northern America						
	Canada	Calgary	Metropolitan Area	927	1 477	1 779
	Canada	Edmonton	Metropolitan Area	924	1 397	1 673
	Canada	Montréal	Metropolitan Area	3 429	4 172	4 573
	Canada	Ottawa-Gatineau	Metropolitan Area	1 055	1 363	1 535
	Canada	Toronto	Metropolitan Area	4 607	6 082	6 793
	Canada	Vancouver	Metropolitan Area	1 959	2 531	2 834
	United Stated of America	Atlanta	Urban Agglomeration	3 500	5 572	6 602
	United Stated of America	Austin	Urban Agglomeration	911	1 915	2 453
	United Stated of America	Baltimore	Urban Agglomeration	2 079	2 315	2 490
	United Stated of America	Boston	Urban Agglomeration	4 036	4 308	4 581
	United Stated of America	Charlotte	Urban Agglomeration	768	1 886	2 520
	United Stated of America	Chicago	Urban Agglomeration	8 315	8 864	9 424

	United Stated of America	Cincinnati	Urban Agglomeration	1 506	1 733	1 881
	United Stated of America	Cleveland	Urban Agglomeration	1 786	1 776	1 852
	United Stated of America	Columbus, Ohio	Urban Agglomeration	1 139	1 598	1 832
	United Stated of America	Dallas-Fort Worth	Urban Agglomeration	4 168	6 009	7 073
	United Stated of America	Denver-Aurora	Urban Agglomeration	1 944	2 753	3 141
	United Stated of America	Detroit	Urban Agglomeration	3 899	3 600	3 679
	United Stated of America	Houston	Urban Agglomeration	3 847	6 115	7 254
	United Stated of America	Indianapolis	Urban Agglomeration	1 225	1 753	2 021
	United Stated of America	Jacksonville, Florida	Urban Agglomeration	886	1 244	1 427
	United Stated of America	Kansas City	Urban Agglomeration	1 365	1 663	1 834
	United Stated of America	Las Vegas	Urban Agglomeration	1 326	2 541	3 173
	United Stated of America	Los Angeles-Long Beach-Santa Ana	Urban Agglomeration	11 798	12 458	13 209
	United Stated of America	Louisville	Urban Agglomeration	866	1 073	1 188
	United Stated of America	Memphis	Urban Agglomeration	974	1 139	1 241
	United Stated of America	Miami	Urban Agglomeration	4 933	6 036	6 664
	United Stated of America	Milwaukee	Urban Agglomeration	1 311	1 435	1 537
	United Stated of America	Minneapolis-St. Paul	Urban Agglomeration	2 395	2 889	3 177

	United Stated of America	Nashville-Davidson	Urban Agglomeration	755	1 199	1 422
	United Stated of America	New York-Newark	Urban Agglomeration	17 813	18 819	19 958
	United Stated of America	Orlando	Urban Agglomeration	1 165	1 882	2 242
	United Stated of America	Philadelphia	Urban Agglomeration	5 156	5 695	6 114
	United Stated of America	Pheonix-Mesa	Urban Agglomeration	2 923	4 359	5 081
	United Stated of America	Pittsburgh	Urban Agglomeration	1 753	1 718	1 785
	United Stated of America	Portland	Urban Agglomeration	1 589	2 104	2 373
	United Stated of America	Providence	Urban Agglomeration	1 175	1 205	1 267
	United Stated of America	Raleigh	Urban Agglomeration	548	1 327	1 767
	United Stated of America	Richmond	Urban Agglomeration	822	1 081	1 218
	United Stated of America	Riverside-San Bernardino	Urban Agglomeration	1 516	2 374	2 804
	United Stated of America	Sacramento	Urban Agglomeration	1 401	2 054	2 384
	United Stated of America	Salt Lake City	Urban Agglomeration	891	1 147	1 284
	United Stated of America	San Antonio	Urban Agglomeration	1 337	2 217	2 661
	United Stated of America	San Diego	Urban Agglomeration	2 681	3 212	3 526
	United Stated of America	San Francisco-Oakland	Urban Agglomeration	3 230	3 325	3 501
	United Stated of America	San Jose	Urban Agglomeration	1 541	1 776	1 929

	United Stated of America	Seattle	Urban Agglomeration	2 720	3 379	3 747
	United Stated of America	St. Louis	Urban Agglomeration	2 079	2 213	2 351
	United Stated of America	Tampa-St. Petersburg	Urban Agglomeration	2 071	2 807	3 188
	United Stated of America	Virginia Beach	Urban Agglomeration	1 396	1 478	1 569
	United Stated of America	Washington, D.C.	Urban Agglomeration	3 949	5 207	5 868
OCEANIA						
Australia / New Zealand						
	Australia	Adelaide	Metropolitan Area	1 122	1 320	1 472
	Australia	Brisbane	Metropolitan Area	1 611	2 338	2 724
	Australia	Melbourne	Metropolitan Area	3 361	4 771	5 736
	Australia	Perth	Metropolitan Area	1 407	1 991	2 299
	Australia	Sydney	Metropolitan Area	3 780	4 792	5 566
	New Zealand	Auckland	Urban Agglomeration	1 110	1 557	1 791

Appendix 2.0 Selected Abandoned Towns and Ghost Towns in the World

Country	City	Town Name	Size km2	Population	Brief History	Category
Africa						
Angola	Namibe	Tigres Island	98	0	The ocean broke through the isthmus of the peninsula in 1962 and the water line was severed. Tigres became an island without water supply.	Natural Disaster
Central Africa Republic	Ouham-Pende	Goroumo	-	0	Attacked by bandits in 2008.	Bandit Attack / War
Central Africa Republic	Ouham-Pende	Paoua	8.16	0	Soldier attacks in 2006 and 2007.	War
Mauritania	Adrar Region	Chinguetti	3.75	4, 711		Econimical, Natural Disaster
Namibia	Karas Region	Elizabeth Bay	9	0	Shut down of diamond mining town in 2000.	Economical
Namibia	Karas Region	Pomona	-	0	Shut down of diamond mining town in 2000.	Economical
Namibia	Karas Region	Kolmanskop	-	0	Shut down of diamond mining town in 2000.	Economical

South Africa	Limpopo	Leydsdorp	0.79	6	Abandoned when gold was discovered on the Witwaters-rand	Economical
South Africa	Limpopo	Schoemans-dal	-	0	Was a capital of an autono-mous region until the SAR Volksraad was established. The settlement was evacuated after only 30 years due to the attack by Venda militants.	War
South Africa	Knysna	Milwood	-	0	Lasted 5 years for gold min-ing, abandoned due to the difficulty of following the gold vein in much-folded formations of the geographi-cal character.	Economical

Wast-ern Sahara		La Guera	1.15	3.726	In 1979, when Mauritania withdrew from the war, La Guera's popula-tion was esti-mated to be 816 inhabitants. By 2002, the town had been abandoned and partially over-blown by sand, inhabited only by a few Imra-geun fishermen.	War
Antartica						
United King-dom	South Georgia	Grytviken	0.07	3 (Sum-mer time)	Was the largest settlement on South Georgia, the island's capital and administration was based at the British Antartic Survey research station at King Edward Point. The sta-tion closed in December 1966 when dwinding whales stocks made it uneco-nomical.	Economical

United Kingdom	South Georgia	Husvik	0.1	0	Former whaling station on the north-central coast of South Georgia Island. Freezer plant was dismentled and moved to Grytviken in 1960, causing whaling operations at Husvik to be permanently ceased.	Economical
United Kingdom	South Georgia	Leith Harbour	0.12	0	Whaling stations were closed during the Second World War.	War
United Kingdom	South Georgia	Ocean Harbour	0.15	0	Was an active whaling station between 1909-1920. (No abandoned reason to be found, guessed due to the down fall of whaling bussiness)	Economical
United Kingdom	South Georgia	Prince Olav Harbour	-	0	Abandoned due to the down fall of shaling activities	Economical
United Kingdom	South Georgia	Stormness	0.07	0	Abandoned due to the down fall of shaling activities	Economical
Asia						

Azer-baijan	Agdam Rayon	Agdam	4.95	0	In July 1993, after heavy fighting, Agdam was captured by Armenian forc-es during their 1993 summer offensives. As the town fell, its entire population were forced to flee eastwards. Many Azer-baijanis were killed by Arme-nian soldiers. In the immediate aftermath of the fighting, the Armenian forces decid-ed to destroy parts of Agdam to prevent its recapture by Azerbaijan.	Military

China	Zhejiang	Houtou Wan Village	-	0	Houtouwan was once a prosperous fishing village, with a 1980s population of more than 3,000 residents. However, because of its remote and hard-to-access location, its residents started to move out in the ‘90s.	Economical, Infrastructure
India	Tamil Nadu	Dhanushkodi	1.63	500	The town was destroyed during the 1964 Rameswaram cyclone, one of the largest storm in the history and was left abandoned in the aftermath.	Natural Disaster
Japan	Nagasaki	Hashima Island	0.6	0	Abandoned since 1974, former mining island, Japan’s decision to replace coal with petroleum, Mitsubishi decided to close the coal mine and the island was left to rot.	Economical

Japan	Fukushi-ma	Okuma	8.71	0	On 11 March 2011 the 2011 Tōhoku earth-quake and tsu-nami occurred. The earthquake and tsunami caused severe damage to Ōku-ma, especially devastating coastal areas. The tsunami hit and flooded the Fukushima Daiichi Nuclear Power Plant, located on the Pacific coast of Ōkuma, and set off the Fuku-shima Daiichi nuclear disaster. By the follow-ing morning, the Japanese government had ordered resi-dents to evac-uate to outside of a 10 km (6.2 mi) radius of the power plant. Many residents were evacuated to the nearby city of Tamura, among other cities.	Natural Disaster

Malaysia	Terengganu	Bukit Besi	89		It was a former mining town in Terengganu, Malaysia. The population dropped drastically after 1971 when the Eastern Mining and Metal Corporation (EMMCO) closed their operation due to the exhaustion of the iron ore.	Economical
Oman	Jebel Shams	Sap Bani Khamis		0	About 15 families lived there until the mid 1970s. With the advent of Sultan Qaboos, the country underwent profound transformations and the inhabitants were relocated to Wadi Ghul or Al Hamra, the largest city in the region. The inhabitants procticed agriculture. The village had a good water supply. A basin is still visible above the terraces.	Political

Qatar	Ash Shamal	Al-Jemail	6.0	0	These 3 villages were once inhabited by fisherman and pearl drivers speckle the coast of northern Qatar. They were good until 1970s, when the first oil reservoir was found under Qatari soil. This discovery revolutionized the economy of people in Qatar. People no longer had to face hardship of fishing and diving, proximity to the sea become irrelevant. The coastal villages were abandoned.	Economical

Qatar	Ash Shamal	Al-Khuwair		0	These 3 villages were once inhabited by fisherman and pearl drivers speckle the coast of northern Qatar. They were good until 1970s, when the first oil reservoir was found under Qatari soil. This discovery revolutionized the economy of people in Qatar. People no longer had to face hardship of fishing and diving, proximity to the sea become irrelevant. The coastal villages were abandoned.	Economical

Qatar	Ash Shamal	Al-Areesh	14.2	0	These 3 villages were once inhabited by fisherman and pearl drivers speckle the coast of northern Qatar. They were good until 1970s, when the first oil reservoir was found under Qatari soil. This discovery revolutionized the economy of people in Qatar. People no longer had to face hardship of fishing and diving, proximity to the sea become irrelevant. The coastal villages were abandoned.	Economical

Russia	Komi Republic	Khalm-er-Yu	1.0	0	Coal in the area was discovered in the early 1940s. Industrial mining started in 1957. In 1993, it was decided that the mining operations will be shut down and hence liquidated the settlement in 1995. In early 200s it became part of a military proving ground Pemboy as a result of the restoration of the aviation proving ground.	Economical
Russia	Sakhalin Oblast	Neftegorsk (formerly Vostok)	3.34	0	It was devastated on May 28 1995 by an earthquake. Many survivors were relocated to other towns in Sakhalin such as Okha, Yozhno-Sakhlinsk, and Nogliki.	Natural Disaster

Russia	Magadan Oblast	Kadykchan	3.0	0	Kadykchan was built by gulag prisoners during World War ll for the purpose of coal extraction. After the dissolution of the Soviet Union, coal mining in the area become increasingly unprofitable. One mine was closed in 1992, another one was decided to be closed in 1996 due to a killing explosion. As of 2010, the settlement was officially completely depopulated.	Economical
Turkey	Mudurnu	Burj al Babas		0	Work began in 2014, however out of 732 planned buildings, only 587 were completed.	Architecture

Turkey	Bursa	Cokene	0.04	350	The town was closed in 2008 dur to the immigration in Buyukorhan. 350 people living in Cokene has to leave their villages due to financial difficulties.	Economical
Turkey	Kars	Ani	2.40	0	Ani was sacked by the Mongols in 1236. Later, it was hit by an earthquake in 1319 and never recovered, gradually abandoned until it was largely forgotten during the 17th century. Now it is listed as the UNESCO Heritage Site	Natural Disaster
Turkey	Mugla	Kayakoy	1.32	0	Was abandoned as a result of 1923 population exchange between Turkey and Greece.	Political

Europe						
Belarus	Khoiniki	Aravichy	2,59	0	Founded in the 16th Century, in 1959 its population was 923, with 222 families. Abandoned after nuclear disaster of Chernobyl at 1986	Disaster
Belarus	Naroulia District	Dzernavichy	3,25	0	In 1959 it had a population of 1,016, with 308 families. Abandoned after nuclear disaster of Chernobyl at 1986	Disaster
Belgium	Beveren	Doel	8,68	20	In 2000 it had a population of 1000, with 310 families. it was targeted for demolition to allow for the expansion of Antwerp's docks. These days only around 20 people live there, and most of the buildings are boarded up and empty.	Political, Economical
Bosnia And Herzegovina	-	Kalas	-	-	-	War

Bulgaria	Gotse Delchev	Dragostin	0.08	0	The population slowly left because there were no modern amenities and because access to the neighbouring town was difficult. Municipality was erased from the registers and all its land and other properties were shifted to the town of Gotse Delchev on February 29, 2008. Many of the houses are in bad condition.	Political, Economical

Bulgaria	Gotse Delchev	Sredna	0.13	0	The village due to having nor permanent residents, neither any other activity for many years and after a plead from the Municipality was erased from the registers and all its land and other properties were shifted to the town of Gotse Delchev on February 29, 2008. Many of the houses are in bad condition.	Political, Economical
Bulgaria	Gotse Delchev	Zaim Chiflik	-	0	The population slowly left because there were no modern amenities and because access to the neighbouring town was difficult. The village was situated about 3 kilometers south of Gotse Delchev, where now is located the former military airport of Musomishta.	Political, Economical

Crotia	Habsburgs	Brod Fortress	-	0	The fort was designed to accommodate 4,000 soldiers and 150 cannons in 1715. War of Independence in the 1990's, the fortress served as accommodation for the soldiers of the National Army of Yugoslavia. Now it is abondened.	Political, Military
Crotia	Vis Island	Vis Island	-	0	It was a military base from 17th century. During the time it has lost its importance. Now it is abondened.	Political, Military
Cyprus	Famagusta	Varosha	5,14	0	Varoshe is an abandoned southern quarter of the Cypriot city of Famagusta. Before 1974, it was the modern tourist area of the city. the city of Varosha had a population of 39,000 in 1974.	Political, Military

Czech Republic	Milovice-Mlada	Milovice	5,65	0	It is an abandoned military town near Milovice, northeast of Prague. It was abandoned following the Velvet Revolution in 1989, and ownership of the town transferred to the Czech government in 1992. It remained uninhabited until March 2014 when work was started to demolish it.	Political, Economical
Estonia	Vivikonna And Sirgala	Vivikonna And Sirgala	68.77	34000	Viivikonna and Sirgala are former mining towns that started to lose their population after local oil shale reserves were depleted and the industry moved eastwards. By the 21st century, both towns had only a handful of people left, struggling to find a new place to live.	Political, Economical

Faroe Islands	Borðoy	Múli	0.13	4	Múli has been considered abandoned since 2002, though there are still four registered residents. During the summer months, some of its former residents use their old houses as vacation homes.	Economical
Faroe Islands	Sandoy	Skarvanes	0.13	12	Its last permanent inhabitant died in 2000, although there was still a family of four living in a nearby valley. Later a few more people moved back to the village. At the moment there are three families living there. Most of the houses in the scenic village are used as summer houses and for similar purposes nowadays.	Economical

Faroe Islands	Suðuroy	Víkarbyrgi	-	0	The etymology of its name is reputed to be connected with an early settlement of Irish monks who predated the arrival of the Vikings. The last inhabitants had left Víkarbyrgi by 2003.	Economical
Finland	Ekanes	Jussarö	0.15	0	There is an iron ore mine, but it was closed in 1967. The iron ore occurrence is the biggest undersea level in Finland. .In Jussarö some abandoned buildings still remain; which were used by the military until 2005 for urban war simulations. Jussarö is known as the only ghost town in Finland. Part of the island is open to visitors.	Political, Economical

France	Grand Est	Beaumont-en-Verdunois	7,87	0	Beaumont-en-Verdunois is a commune in the Meuse department of the Grand Est region of northeastern France. Since the Battle of Verdun in 1916, the village has had no permanent residents, as is the case with other destroyed villages in world war	Political, Military
France	Grand Est	Bezonvaux	9,23	0	Since the end of the Battle of Verdun in 1916, it has been unoccupied.	Political, Military
France	Grand Est	Cumières-le-Mort-Homme	6,11	0	Since the end of the Battle of Verdun in 1916, it has been unoccupied.	Political, Military

France	Nouvel-le-Aquit-aine	Oradour-sur-Glane	38,16	2502	The original village was destroyed on 10 June 1944, when 642 of its inhabitants by Nazis. Now population is started to grow and reached around 2900 inhabitants. Eventough buildings are mostly abondened.	Political, Military
Greece	Spinalon-ga	Spinalonga	0.09	0	The island was subsequently used as a leper colony from 1903 to 1957. Today, the un-inhabited island is a popular tourist attrac-tion in Crete. In addition to the abandoned leper colony and the fortress, Spinalonga is known for its small pebble beaches and shallow waters.	Economical
Greece	Kastoria	Gavros	0.21	0	Lack of the economical development	Economical

Greece	Lake Prespa	Ano Krani-ounas	0.07	0	Lack of the economical development	Economical
Hunga-ry	Derenk	Derenk	0.75	0	It was depopu-lated between 1938–1943, so that the surrounding area could be used as hunting grounds for Admiral Miklós Horthy, regent of Hungary. Now there is no economical investments.	Economical
Iceland	Súðavík	Súðavík	749 km2	0	Súðavík is a fishing village and munici-pality on the west coast of Iceland. At a public meeting on January 23, 1995, it was decided that the village should be rebuilt at a safer location. The existing properties with-in the danger zone were sold to the Icelandic government.	Natural

Italy	Sardinia	Argentiera	2,93	70	Argentiera is a former mining town. The most florid period for the mining village were the 1940s. The town declined after World War II, and the mine was closed in 1963.	Political, Economical
Italy	Savona	Balestrino	11,13	607	Balestrino is composed by the old historic town, upon a hill, and the new town below it. Abandoned in 1953 for hydrogeological instability, the old centre is a ghost town whereas the modern center is still inhabited today.	Natural
Italy	Liguria	Bussana Vecchia	0,87	66	Abandoned due to an earthquake in 1887, it was renovated and repopulated by an international community of artists in the early 1960s	Natural

Italy	Potenza	Cam-pomaggiore	12.48	794	It includes a modern settle-ment which has replaced the original town Campomag-giore Vecchio, destroyed by an avalanche in 1885 and now a ghost town	Natural
Italy	Matera	Craco	77,04	773	The old town was abandoned towards the end of the 20th cen-tury due to nat-ural disasters. The abandon-ment has made Craco a tourist attraction and a popular film-ing location. In 2010, Craco was included in the watch list of the World Mon-uments Fund	Natural

Italy	Benevento	Tocco Caudio	27,20	1534	In 1980 and 1981, earthquakes damaged much of the old historical center of Tocco Caudio. Rather than rebuild the historic town, the citizens were forced to completely abandon it and resettle around the ridge. Today there are essentially two Tocco Caudios: an empty ghost town and a new town above it in a location called Friuni	Natural
Italy	Turin	Locana	132.74	1438	The main reason behind the decreasing population is that town lost its popularity due to strong industrial potential of neighbour city, Turin. One of the other important reason is the decreasing interest in agriculture.	Economical

Italy	Ferrera	Copparo	157	17000	From many historical documents it appears that Copparo was a rather large agricultural center within the territory of Ferrara. Coppa-ro began to lose population after agriculture lost importance. Now population has started to grow again due to job opportu-nities coming from endustry.	Economical
Latvia	Ranki Parish	Skrunda	1,18	0	It is a town made for Soviet radar station. Station has abondened at 2000.	Political
Latvia	Ance Parish	Irbene	0.76	0	It is a town made for Soviet radar station. After the with-drawal of the Soviet Army in 1993 the town became aban-doned.	Political

Norway	Svalbard	Pyramiden	0.44	0	It is an abandoned Russian coal mining settlement Since 2007, there have been efforts to make it a tourist attraction; the town's hotel was renovated and reopened in 2013.	Political, Economical
Poland	West Pomeranian	Kłomino	0.83	0	It was a training ground for military.Since Russia withdrew, Polish officials have been trying to figure out what to do with the village. It was on the market, priced at 2 million euros.	Political, Economical
Poland	Gmina Lutowiska	Dydiowa	0.73	0	It is a former village. Lack of the economical development.	Economical
Poland	Bieszczady County	Dźwiniacz Górny	0.8	0	It is a former village. Lack of the economical development.	Economical
Poland	Bieszczady County	Łokieć	0.63	0	It is a former village. Lack of the economical development.	Economical

Portagual	Braga	Vilarinho da Furna		300	It is a former village. Lack of the economical development. Only visible during the dry season, when it emerges, becoming a tourist attraction.	Natural, Economical
Romania	Buchin	Buchin	32,54	2147	It is a commune that composed of five under populated villages. Lack of the economical development.	Economical
	Scorțoasa	Scorțoasa	54,67	3.433	It is a commune that composed of eleven under populated villages. Lack of the economical development.	Economical
Spain	Lleida	Erillcastell	0.005	0	It was an village where made agricultural activities. Currently it is completely uninhabited and belongs to the municipality of Pont de Suert.	Economical

Spain	Lleida	Esperan	4.45	0	It was an village where made agricultural activities. Currently it is completely uninhabited and belongs to the municipality of Pont de Suert. Access to the neighbouring town was difficult	Natural, Economical
Spain	Alicante	La Vall de Gallinera	53,45	589	It was an village where made agricultural activities. Lack of the economical development.	Economical
Spain	Treviño County	Ochate	0.52	0	It was an village where made agricultural activities. Lack of the economical development.	Economical

United Kingdom	Highland Council	Boreraig	68,98	0	It was an village where made agricultural activities. Lack of the economical development. It was an village where made agricultural activities. Lack of the economical development.	Economical
United Kingdom	Glasgow	Bothwellhaugh	0.17	0	Former mining towns that started to lose their population after closing mining activities. The pit shut in May 1959 as flooding in the pits which went under the River Clyde meant that pumping became a major cost. The houses had fallen into poor state of repair and sewage was becoming a problem. Now it is abondened.	Political, Economical

United King-dom	Sufflok	Dunwich	0.13	183	The town had an international port. It has been closed since 1980s. After that the popula-tion slowly left because there were no mod-ern amenities	Political, Economical
United King-dom	Devon	Hallsands	0.05	125	The site of the old vil-lage at South Hallsands, is closed off to the public, although South Hams District Council has built a viewing platform, which is accessed from the track below Prospect House Apart-ments (formerly Trout's Hotel). Two houses remain intact and are used as holiday homes.	Economical

United King-dom	Rutland	Martin-sthorpe	2,2	0	It was an village where made agricul-tural activities. Lack of the economical development. One uninhab-ited building remains on the ridge.	Economical
United King-dom	Norflok	Tottington	13,12	0	It was a mili-tary base from 17th century. During the time it has lost its importance. Now it is abondened.	Political, Military
United King-dom	Norfolk	Sturston	7,81	0	After ww2 the place become deserted. Now it is under con-trol of military and abondened.	Political, Military

Oceanic						
Australia	Cue	Big Bell	-	0	Was established for Gold Mining activities. Mining activities ceased in 2003 and the plant was dismantled and transported to the Westonia minesite in 2007.	Economical
Australia	Gippsland, Victoria	Cassilis	12	304	Was a gold rush town in Vistoria that declined during the First World War, most of the gold mine were depleted and closed down.	War, Economical
Australia	New South Wales	Adminaby	0.89	301	Flooded by new lake of Snowy Mountains Hydro-Electric Scheme, result of the construction of tunnels and dams. A prolonged drought saw the ruins of the old township begin to resurface in April 2007.	Construction of Dams

Australia	New South Wales	Boydtown	8.49	70	When Boyd's finances collapsed, the town was abandoned from the 1840s until the first renovation of the Seahorse Inn in the 1930s. Today, Boydtown is the smaller of the two towns in the bay, consisting mainly of housing, tourist caravan parks and the recently (2006) refurbished Seahorse Inn.	Economical
Australia	New South Wales	Cudgegong	-	0	Flooded by construction of Windamere dam	Construction of Dam
Australia	New South Wales	Glen Davis	-	354	Was the centre of an oil shale industry during the Second World War, however the mine was closed down in 1952.	Economical

Australia	New South Wales	Hill End	2.33	102	Hill End is classified as a historical site by the National Parks and Wildlife Services (NPWS). Was once having its heyday for gold mining activities, today its most popular activities for the tourists is gold planning.	Economical
Australia	New South Wales	Joadja	80.96	0	Abandoned due to the closure of shale oil mining activities.	Economical
Australia	New South Wales	Kiandra		0	The last mining operations ceased around 1905. The last resident left Kiandra in 1974, after which the NPWS took over the town and completed its demolition of most of its buildings.	Economical

Australia	New South Wales	Newnes	1.05	4	An abandoned oil shale mining site of Wolgan Valley. The site was operational in the early 20th century and is now partly surrounded by the Wollemi National Park.	Economical
Australia	New South Wales	Silverton	1000	50	Former silver mining town that was deserted when more lucrative silver-lead-zinc ore was discovered at nearby Broken Hill. However, there remains a small permanent population and mainly tourist related businesses.	Economical
Australia	Queensland	Ballara		0	Abandoned due to the closure of coal mining activities.	Economical

Australia	Queensland	Calcifer	0.27	0	The town was established in 1894. By 1907, smelting operations had moved to Chillagoe, and the site was all but deserted.	Economical
Australia	Queensland	Collingwood	7.46	0	Was established in 1878, but abandoned in around 1900s when it was outcompeted as a regional centre by nearby town Winton.	Economical
Australia	Queensland	Clermont	5.57	3031	Was a major hub for large coal mines in the region as well as serving agriculture holdings. The resources was mined out and the last mine station was closed in 2012.	Economical

Australia	Queensland	Mary Kathleen	-	0	First settled during the 1860s. By late 1982, the townshop, mine and mill were dismentled and the tailings of rehabilitated by the end of 1984.	Economical
Australia	Queensland	Maytown	-	0	Active from 1874 to the 1920s. Now listed to the Queensland Heritage Register. Abandoned due to the exhaustion of gold mine.	Economical

Australia	Queensland	Mount Britton	430	255	The township began in 1881 with the discovery of a gold field, and at its height had a population of 1500 inhabitants. At 2006, Mount Britton and the surroinding area had a population of 255. Abandoned due to the diminish of alluvial and shallow reef gold.	Economical
Australia	Queensland	Mount Cuthbert	-	0	Was a former copper mining town. A fall in the world price of copper in 1920 badly affected the local economy, and by 1921, only 267 people remained. By 1927 the settlement was a ghost town, and the railway line was closed in 1949.	Economical

Aus-tralia	Queens-land	Mount Mulligan	1500	55	It was a coal mining town from 1910 until 1921 when an underground explosion killed 75 miners (all miners in the town). The mine was closed, but reopened in 1923 and continued in production until 1957 when a hydro-electric scheme elimi-nated the need for the coal.	Disaster, Economical

Australia	Queensland	Ravenswood	3192	349	After the discovery of gold in 1868 through to the early 1900s, the township flourished and grew to nearly 5000 residents and boasted 48 hotels. However, due to an industrial strike in 1912 and subsequently by World War 2, by 1915 mining declined and the town was deserted. New gold discoveries in the area improved mineral processing technologies have boosted the economy of the area and revived the town.	Economical

Australia	Queensland	Selwyn	10,569.6	0	Selwyn's population peaked in 1918 with an estimated population of 1500 people with a hospital and 4 hotels. However, in 1920, copper prices collapsed and by 1921 only 191 people were still living in Selwyn.	Economical
Australia	South Australia	Cook	7.55	4	Was created when the railway was built. The town depended on the Tea and Sugar Train for the delivery of supplies, and was on the longest stretch of straight railway inthe world. The town was effectively closed in 1997 when the railways were privatised and new owners did not need a support town there anymore.	Economical

Australia	South Australia	Farina	6.5	29	Abandoned when found that the climate is not suitable for farming.	Natural (Climate)
Australia	Tasmania	Crotty			Abandoned when the nearby mine closed down. It is nor submerged beneath Lake Burbury, due to the construction of Hydro dam.	Construction of Dams, Economical
Australia	Victoria	Moliagul	1.48	0	Abandoned due to the exhaustion of gold mine.	Economical
Australia	Victoria	Old Tallangatta	1.31	35	Was abandoned when most of the township was moved 5 miles west due to the enlargement of Lake Hume.	Natural

Australia	Victoria	Walhalla	101.15	20	Founded as a gold mining community in late 1862 and at its peak it was home to around 4, 000 residents. Today the town has population of 20 permanent residents, with large propotion of houses owned as holiday properties. It attracts large number of tourists and is a major focus of the regional tourism industry.	Economical
Australia	Victoria	Western Tyers		0	A timber community in Victoria. Was abandoned after the timber mill was closed in 1969.	Economical

Australia	Western Australia	Broad Arrow		0	Initially called Kurawah, was where gold was first discovered in 1893, triggering a gold rush in the region of north Kalgoorlie. By 1920s the gold had run out and the town had been abandoned.	Economical
Australia	Western Australia	Cossack	23.10	0	Cossack was the birthplace of Wastern Australia's pearling industry and was the home of the colony's pearling fleet until the 1880s. In 1881 a cylone damaged the town, causing several pearling banks to close down due to depletion. In 1886, the main pearling industry moved to Broome.	Natural Disaster, Economical

Australia	Western Australia	Goldsworthy	-	0	The mine at Goldsworthy was closed on 22 December 1982 and mining operations ceased at Shay Gap in 1993. The town was abandoned in 1992. Upon closure, all buildings were removed, all vegetation not indigenous to the local area was burnt and the roads torn up. This was done in accordance with the government's policy of regrowth to avoid the occurence of ghost towns.	Economical
Australia	Western Australia	Gwalia	1.58	0	Abandoned when the gold mine was closed down in 1963.	Economical

Australia	Western Australia	Kanowna	2,690.39	10	After the discovery of gold in the area in 1893, the townsite was gazetted in 1894. However the alluvial gold supply was rapidly exhausted and underground mines following the outcropping vein produced decreasing amounts of gold, resulting in a slow but steady decrease in the population. By 1953 the wotn had been abandoned.	Economical
Australia	Western Australia	Malcolm	2.59	0	Gold was discovered in the area in 1895. By 1904, the town had a population of 400 along with 6 hotels and brewery.	Economical

Australia	Western Australia	Nannine	-	0	Was a former gold mining town. The town and surrounding area was inundated by heavy rains in 1913, causing the railway line to Meekatharra to be flooded and creating a washway a few miles north of the town. By 1919 the town was in deep decline.	Natural Disaster, Economical
Australia	Western Australia	Shay Gap	-	0	The town had a population of over 850 people. Mining activities ceased in December 1993 and the town was closed in February 1994. Buildings and structures were either dold, demolished or relocated to Yarrie.	Economical

Australia	Western Australia	Wittenoom	351.66	3	Was the country's only source of blue asbestos in the 1950s and 1960s. The mine was shut down in 1966, and the residents of the town were gradually relocated, due to concerns that the asbestos in the air posed a danger to their health.	Economical, Disaster
Australia	Queensland	Betoota	-	0	Last permanent resident died in 2004. The only facilities in Betoota are a racetrack, a dry weather airstrip and a cricket field. Visitors are drawn to the town during the annual Simpson Desert Carnical which is held in September.	Economical, Geographical
New Zealand	Buller Gorge	Lyell	-	0	Abandoned due to the exhaustion of gold mine.	Economical

New Zealand	North Island	Te Wairoa	0.18	0	The village was destroyed by the eruption of the volcano Mount Taraw-era. The village is now open to public and shows the ex-cavated ruins of the village.	Natural Disaster
New Zealand	Otago	Kelso	90.37	0	Abandoned after severe and repeated flood-ing in the late 1970s and early 1980s.	Natural Disaster
New Zealand	Otago	Macetown	106.14	696	By 1865 most of the alluvial gold had been extracted and many miners left for the gold fields of the West Coast. Now unhabitat-ed but became a huge tourist attraction.	Economical
New Zealand	Otago	Nenthorn	176	0	Was a gold mining town from 1888 until the 1890s, abandoned when its mining efforts col-lapsed.	Economical

New Zealand	West Coast	Waiuta	45.82	0	Was a mining town but now is abandoned and considered one of the most popular ghost towns and a great tourist attraction.	Economical
North America						
Antigua & Barbuda	Barbuda	Codrington	1,65	0	The population of Codrington was recorded as 700 in the census of 1904, and 1,252 in the census of 1991. The town, along with the rest of the island, was completely evacuated in September 2017 following catastrophic damage caused by Hurricane Irma.	Natural
Canada	Alexo	Clearwater	3,46	2324	The population slowly left because there were no modern amenities and because access to the neighbouring town was difficult.	Economical

Canada	Banff	Bankhead	0,92	1000	Former coal mining community. Lack of the economical development.	Economical
Canada	Yellowhead	Coalspur	0,85	0	The population throughout the Coal Branch area declined during the 1950s as the railroads replaced steam locomotives with diesel, and the mines closed due to lack of markets. The Coalspur post office, which opened in 1914, closed in 1963. Today the community is home to a dozen or so residents	Economical
Canada	Alberta	Flagstaff	4,067	3738	The population slowly left because there were no modern amenities and because access to the neighbouring town was difficult.	Economical

Canada	Alberta	Paintearth	3,283	2102	Former coal mining community. Lack of the economical development.	Economical
Canada	Alberta	Commerce	2,356	0	Former coal mining community. Lack of the economical development.	Economical
Canada	Alberta	Conrad	3,589	0	Former coal mining community. Lack of the economical development.	Economical
Canada	Alberta	East Coulee	1,39	148	Former coal mining community. Lack of the economical development.	Economical
Canada	Howe Sound	Britannia	2,58	300	Former coal mining community. Lack of the economical development.	Economical
Canada	Vancouver	Caycuse	0,70	52	The population slowly left because there were no modern amenities and because access to the neighbouring town was difficult.	Economical, Natural

Canada	Nova Scotia	Broughton	1,52	24	Former coal mining community. Lack of the economical development. It was going to be one of Canada's first planned towns, designed to eventually accommodate 10,000 residents. In reality, it was mostly abandoned when mining operations failed.	Economical
Costa Rica	Cinchona	Cinchona	2,05	25	It was destroyed by the 2009 Costa Rica earthquake	Natural
Mexico	Michoacán	San Juan Parangaricutiro	3,32	120	San Juan Parangaricutiro was destroyed during the formation of the Parícutin volcano in 1943	Natural
Mexico	Mapimi	Ojuela	-	0	Former gold and adamite mining community. Lack of the economical development.	Economical

Mexico	Mexico City	Real de Catorce	0,5	1392	It was once a flourishing silver mining town in northern Mexico. Recent efforts to adapt the town to tourism have created a mixture of ghost town and heritage tourist site adapted to visitors in search of interesting history in the country.	Economical
Montserrat	Plymouth	Plymouth	8,58	0	Plymouth was once the seat of government in Montserrat, and home to around 4,000 people, until it was almost completely destroyed by the Soufrière Hills volcano in 1997. The entire southern half of the island is now off-limits, leaving over 30 villages and towns abandoned.	Natural

United States	West Virginia	Thurmond	0,24	5	Former coal mining community. Lack of the economical development.	Economical
United States	Montana	Virginia City	2,46	198	Former gold mining community. 1900 bought from Charles Sue Bovey and restoreted for mining and tourism. Novadays it has a touristic atraction.	Economical
United States	California	Bodie	0,56	0	Former gold mining community. At 1915 The U.S. Department of the Interior recognizes the designated Bodie Historic District as a National Historic Landmark.	Economical

United States	California	Bombay Beach	2,44	295	Bombay Beach is located on the east shore of the Salton Sea and like many communities along its shores, has had to contend with fluctuating water levels. It is the lowest community in the United States, located 68 mbelow sea level.	Natural
United States	Texas	Orla	34,56	2	Formal oil mine town. Lack of the economical development.	Economical
United States	Alaska	Kennecott	31,16	0	Former gold mining community. Lack of the economical development.	Economical
United States	Pennsylvania	Centralia	0,62	5	The town about two hours northwest of Philadelphia pretty much died as the result of an underground coal-mine fire in 1962, which still burns.	Natural, Disaster

United States	Alabama	Chaba	3,45	384	Former gold mining community. Lack of the economical development.	Economical
United States	Wyoming	Cody	26,99	9520	Old trail town. Lack of economical development. Some of the historical buildings has moved to the history museum.	Economical
South America						
Argentine	Buenos Aires	Villa Epecuen	0.90	1	The small lakeside resort town of Villa Epecuén was abandoned on 10 November 1985, after a series of heavy rains caused the lake water levels to rise and flood the town. The remains of the town re-emerged on 11 May 2013, when the waters of the lake receded.	Natural

Brazil	Aveiro	Fordlandia	14 268	3000	Formal industrial town. 1920s fabrics were closed. Now the town mostly deserted.	Economic
Chile	Palena	Chaiten	8 470	3347	The town was evacuated in May 2008 when the Chaitén volcano erupted for the first time in more than 9,000 years.	Natural
Chile	Andes	Sewell	0,17	0	Formal mining town. 1930s fabrics were closed. Now the town mostly deserted.	Economic
Colombia	Tolima	Armero	440	11724	The original seat of the region was destroyed on November 13, 1985, after an eruption of the Nevado del Ruiz Volcano produced lahars that buried the town and killed about 23,000 people. now the town mostly abondened	Natural

Colom-bia	Choco	Bojaya	3 693	-	Town was attacked by the Revolutionary Armed Forces of Colombia (FARC) on May 2, 2002. Most of the inhabitants hid in the church; A FARC mortar bomb landed in the building, killing approx-imately 140 people, includ-ing 40 children. Today, Bojayá is a ghost town and though plans have been made to rebuild it	Political
Guyana	Jonestown	Jonestown	-	928	Jones orches-trated a mass suicide, re-sulting in the death of 913 of Jonestown's 1,110 inhabit-ants. The town now stands in ruins, and is being slowly reclaimed by the jungle.	Political

Vene-zuela	Tachira	Potosi	-	1200	The town was deliberately flooded by the Venezuelan government in 1985 to build a hydroelectric dam. In 2010, the town was uncovered for the first time since its flood-ing due to a drought caused by the weather phenomenon El Niño	Political

Appendix 3.0 Ghost Towns in Italy

Abruzzo		
City	Province	Reason
Altovia	Teramo	Unfavourable location
Buonanotte	Chieti	Landslide
Faraone	Teramo	Earthquake
Frattura	Aquila	Earthquake
Frunti (Solignano)	Teramo	Probable Earthquake
Gessopalena	Chieti	Economical
Laturo	Teramo	Depopulation
Lecce dei Marsi	L' Aquila	Earthquake
Martese	Teramo	Unknown
Serra	Teramo	Depopulation
Stivigliano	Teramo	Political
Tavolero	Teramo	Political
Torre di Sperone	Aquila	Earthquake and Isolation
Valle Pezzata	Teramo	Unfavourable location
Valle Piola	Teramo	Depopulation

Basilicata		
City	Province	Reason
Alianello	Matera	Earthquake
Brienza	Potenza	Earthquake
Campomaggiore	Potenza	Landslide
Craco	Matera	Landslide
Maratea	Potenza	War
Matera	Matera	Migration
Taccone	Matera	Depopulation
Tursi	Matera	Depopulation
Calabria		
City	Province	Reason
Acerenthia	Crotone	Plague and Earthquake
Africo	Reggio Calabria	Flood
Amendolea	Reggio Calabria	Earthquake and Flood
Avena	Crotone	Earthquake
Brancaleone	Reggio Calabria	Earthquake and Flood
Campana	Cosenza	Depopulation
Carello	Cosenza	Depopulation
Casalinuovo di Africo	Reggio Calabria	Flood
Cavallerizzo di Cerzetto	Cosenza	Landslide
Cirella	Cosenza	War
Fantino	Cosenza	Earthquake and Landslide
Ferruzzano	Reggio Calabria	Earthquake
Gumeno	Reggio Calabria	Flood
Laino Castello	Cosenza	Lans
Nicastrello	Vibo Valentia	Emigration
Papaglionti	Vibo Valentia	Earthquake and Flood
Pentedattilo	Reggio Calabria	Earthquake
Perlupo	Reggio Calabria	Earthquake
Roghudi	Reggio Calabria	Flood
Saguccio	Reggio Calabria	Isolation and Depopulation
Campania		
City	Province	Reason
Apice	Benevento	Earthquake
Aquilonia	Avellino	Earthquake

Castelpoto	Benevento	Earthquake
Conza della Campania	Avellino	Earthquake
Croce	Caserta	Emigration
Fondola	Caserta	Depopulation
Melito Irpino	Avellino	Earthquake
Rione Terra	Napoli	Geographical Changes
Romagnano al Monte	Salerno	Earthquake
Roscigno	Salerno	Landslide
Sacco	Salerno	Flood
San Felice	Caserta	Depopulation
San Pietro Infine	Caserta	War
San Severino di Centola	Salerno	Depopulation
Senerchia	Avellino	Earthquake
Sorbo	Salerno	Unknown
Tocco	Benevento	Earthquake
Emilia Romagna		
City	Province	Reason
Bastia	Forli-Cesena	Isolation
Borgata La Ca	Reggio Emilia	Unknown
Case Banditelli	Bologna	Lack of Water
Case Scapini	Parma	Unknown
Castel d'Alfero	Forli-Cesena	Depopulation
Cerreto di Saludecio	Rimini	Unknown
Lavacchielli	Parma	Unfavourable Location
Pastorale	Forli-Cesena	Earthquake
San Paolo in Alpe	Forli-Cesena	Unfavourable Location
Sant'Antonio	Modena	Unknown
Fruili Venezia Giulia		
City	Province	Reason
Chiout degli Uomini	Udine	Earthquake
Erto	Pordenone	Unstable Ground
Moggessa di Qua e Moggessa di La	Udine	Unknown
Palcoda	Pordenone	Unfavourable Location
Pozzis	Udine	Isolation
Riulade	Udine	Earthquake

Tamar	Pordenone	Depopulation
Lazio		
City	Province	Reason
Camerata Vecchia	Roma	Fire
Castiglione	Roma	Unknown
Celleno	Viterbo	Earthquake
Chia	Viterbo	Depopulation
Civita di Bagnoregio	Viterbo	Landslide
Faleria Antica	Viterbo	Landslide
Faleria Nuova	Viterbo	Deconstruction
Forglieta	Frosinone	Unknown
Galeria	Rome	Plague
Montecoccioli	Frosinone	Unknown
Monterano	Roma	War
Norchia	Viterbo	Plague
Reopasto	Rieti	Depopulation
Roccasecca	Frosinone	Depopulation
Rocchettine	Rieti	Unknown
San Gennaro	Frosinone	Depopulation
Stazzano	Roma	Earthquake
Liguria		
City	Province	Reason
Aia	Genova	Unfavourable Location
Arena	Genova	Unfavourable Location
Balestrino	Savona	Earthquake and Landslide
Brugosecco	Genova	Emigration
Ca di Ferre	Savona	Depopulation
Canate di Marsiglia	Genova	Construction
Case Veixe	Genova	Depopulation
Costa di Soglio	Genova	Unknown
Cravarezza	Savona	Economical Downfall
Filettino	La Spezia	Unfavourable Location
Fontana	Genova	Emigration
Gravero	Genova	Lack of Infrastructures
Il borgo senza nome	Genova	Unfavourable Location
La Stanga	La Spezia	Unknown

Luvega	Genova	Unfavourable Location
Novegina di Cima	La Spezia	Isolation
Osiglia	Savona	Dam Construction
Porciorasco	La Spezia	Unfavourable Location
Teitin	Genova	Emigration
Lombardia		
City	Province	Reason
Assiano	Milano	Depopulation
Borgo del Canto	Bergamo	Emigration
Castel Liteggio	Bergamo	Unknown
Consonno	Lecco	Landslide
Dasile	Sondrio	Unfavourable Location
Monteviasco	Varese	Isolation
Mulini di Piero	Varese	Economical Downfall
Pagliari	Bergamo	Depopulation
Ravaiolo	Pavia	Landslide
Savogno	Sondrio	Emigration
Marche		
City	Province	Reason
Castelnuovo di Auditore	Pesaro Urbino	Depopulation
Cossinino da Piedi	Ascoli Piceno	Unfavourable Location
Elcito	Macerata	Isolation
Ficocchia	Parma	Construction
Gesso	Ascoli Piceno	Emigration
Tevernelle	Ascoli Piceno	Emigration
Vetreto	Ascoli Piceno	Unknown
Vosci	Ascoli Piceno	Unknown
Molise		
City	Province	Reason
Pesche	Isernia	Political
Ripalimosani	Campobasso	Unknown
Rocchetta Alta	Isernia	Damaged Structure
Villa San Michele	Isernia	Landslide
Piemonte		

City	Province	Reason
Antrona	Verbano-Cusio-Ossala	Unfavourable Location
Aramola	Cuneo	Economical Downfall
Avi	Alessandria	Depopulation
Brusaschetto Basso	Alessandria	Unfavourable Location
Casoni di Vegni	Alessandria	Unfavourable Location
Chiapparo	Alessandria	Depopulation
Coindo	Torino	Depopulation
Connio	Alessandria	Depopulation
Ferezza	Alessandria	Unfavourable Location
Lampore	Cuneo	Isolation
Leri Cavour	Vercelli	Various
Narbona	Cuneo	Depopulation
Onunchio	Verbano-Cusio-Ossala	Economical Downfall
Reneuzzi	Alessandria	Unfavourable Location
Saletta di Costanzana	Vercelli	Unknown
Serremorello	Cuneo	Political
Torrione	Vercelli	Unknown
Puglia		
City	Province	Reason
Balsignano	Bari	War
Monteruga	Lecce	Loss of Function
Rione dei Fossi	Foggia	Earthquake
Roca Nuova	Lecce	Plague
San Nicola	Foggia	Unknown
Sardegna		
City	Province	Reason
Gairo	Ogliastra	Flood
Naracauli	Cagliari	Economical Downfall
Santa Chiara del Tirso	Oristano	Political
Osini	Nauro	Landslide
Villaggio Asproni	Sardegna Sud	Economical Downfall
Orbai	-	-

Sicilia		
City	Province	Reason
Bazzina Alta	Messina	Unknown
Borgo Baccarato	Enna	Economical Downfall
Borgo Borzellino		Depopulation
Borgo Lupo	Catania	Depopulation
Borgo Morfia	Messina	Depopulation
Borgo Riena	Palermo	Depopulation
Borgo Schiro	Palermo	Depopulation
Cunziria	Catania	Economical Downfall
Gibellina	Trapani	Earthquake
Gioiosa Guardia	Messina	Earthquake
Massa San Nicola	Messina	Emigration
Noto	Syracuse	Earthquake
Poggioreale	Trapani	Earthquake
Raju	Messina	Flood
Scurati	Trapani	Depopulation
Zucco Grance	Messina	Emigration
Toscana		
City	Province	Reason
Agnino	Massa Carrara	Unknown
Bacchionero	Lucca	Depopulation
Bergiola	Lucca	Earthquake
Brento Sanico	Firenze	Depopulation
Bugnano	Lucca	Unfavourable Location
Buriano	Pisa	Unfavourable Location
Canneto	Pisa	Unknown
Castiglioncello	Firenze	Isolation
Col di Luco	Lucca	Unfavourable Location
Crasciana	Lucca	Unknown
Fabbriche di Careggine	Lucca	Dam Construction
Formentara	Massa Carrara	Social Reasons
Frontignano	Siena	Unknown
Mirteto	Pisa	Closing of Monastery

Pianosa	Livorno	Various
Poggio Santa Cecilia	Siena	Unknown
Toiano	Pisa	Emigration
Vetriceto	Lucca	Unfavourable Location
Villa Saletta	Pisa	Unknown
Trentino Alto Adige		
City	Province	Reason
Borgo Carrero	-	-
Curon Vecchia	Bolzano	Dam Construction
Irone	Trento	Plague
Umbria		
City	Province	Reason
Biselli	Perugia	Earthquake
Marzana	Perugia	Depopulation
Scoppio	Terni	Earthquake
Umbriano	Terni	Emigration
Valle d'Aosta		
City	Province	Reason
Barmaz	Aosta	Depopulation
Fornet	Aosta	Dam Construction
Veneto		
City	Province	Reason
Calidornia	Belluno	Flood
Fumegai	Belluno	Unfavourable Location
Orsetti	Vicenza	Unknown
Poveglia	Venezia	Economical Downfall