

WASTE DISPOSAL AND RECYCLING SITES PERSPECTIVES AND CONTEMPORARY APPROACHES

Silvia Dazlero^a

^a *IUAV the School of Architecture in Venice, Italy*

ABSTRACT: this study shows the changes of the landscape in the presence of waste. Reality that invades the territory in many different ways in time and space and that designs our new landscapes... in the end, how waste becomes a place. Then, an 'indicative atlas' of projects for controlled recovery altered areas takes form where, synthetically, some interesting and modelled recovery plans are illustrated. So, clarifies the statistical, quantitative aspects concerning the production of waste to show the present conditions and to denounce, through a cartography, the consequential environmental impact.

KEYWORDS: waste, landscape, recycled

1. INTRODUCTION

This research, strategically articulated in the complex labyrinth of investigation where 'not everything seems as it is', shows the changes of the landscape in the presence of waste, reality that invades the territory in many different surprising ways in time and space. At first the issue of garbage is faced according to language of creativity that range from literature to art, to cinema...and in a second moment on how the inevitable accumulation of garbage designs our new and unexpected astonishing landscapes... in the end, how waste becomes a place. Then, through a list of projects for more or less controlled recovery altered areas, it is explained how the present territorial dimension is inexorably besieged by garbage and consequently of how it is exposed to a substantial environmental, cultural, economic and political transformation. In this way, a sort of 'indicative atlas' takes form where, synthetically some interesting and model recovery plans are illustrated. Then a close look at Fresh Kills, in the state of New York. So the difficult task of summarizing clarifying the statistical, quantitative 'numerical' aspects concerning the production of waste in order to highlight the surprising conditions that today the modern city is presented and therefore, the reasonable need to investigate. In the light of all this, the present study is dedicated, therefore, both to the merely technical, pragmatic aspects as well as the utopian and illusory ones. In any case, both are essential in this articulated labyrinth of research. With a careful, knowing eye we reach time before study, that is: to the critical, strategic and objective evaluation to report through a cartographic survey the present conditions and the effective distribution of plants for waste disposal and collection on the Italian territory, in particular and generally on the European one. We then single out a territorial section touched by the phenomena: the Lombardy region, and then the territorial morphology

so altered and the inevitable environmental transformations. The study becomes more and more detailed, pro-active and conscious of the state of needing corrections, substantial improvements and experimental developments. On the light of this, the investigation along highway A4 between Milan and Brescia and more specifically the Province of Brescia where the concentration of waste disposal becomes more and more intense, unique and absolutely extraordinary is considered. Then, through a careful study of the present territorial status conceptual, indicative and synthetic models take form of possible and potential scenarios, present and future, of altered areas of the presence of waste and collection plants. Moreover, how their distribution takes place is explained, according to logical criteria, corrected, and in line with the character of the place and even how, substantially, it takes an articulated structure of actions and reactions able to design a territorial (demonstrated on the census taken) recognizable, clear and consequently, a base for future potential planning. Finally the study of these areas, make up a unique path to observe and evaluate the modern urban structure, where presently it is clear, necessary, essential to have a correct, valid and definite location, leading to territorial changes in different ways. Nevertheless, it is always true that a critical and aware point of view cannot alone resolve the present situation, but it can contribute to giving the right measure of what is at play, therefore different territorial perspectives.

2. LECTURE ABOUT THE REFUSAL

2.1 Unusual images of waste



Let's start from the beginning that is: how we experience waste in our daily life, in our imagination and how we elaborate it in our creative language. Often, artist, novelists, poets, directors... have found in waste the very material, the feeling of their works. I remember, for example 'Junk Girl', by Tim Burton; or films regarding the theme of garbage; it seems to renew itself in continuation, as shows the animated film, WALL-E . Instead, going back more than half a century ago: Michelangelo Antonioni in the 1948 documentary 'Garbage men' of the life of garbage men in Rome, as Pier Paolo Pasolini in 1967 in 'What are clouds?' when the last scene of film is directed in a landfill. Beyond time and space, beyond peremptory and sketchy preconception, Pasolini, progagly, is the best poet of waste. The world he describes was and

is, in effect, a mass and magma indistinct of infinite material and physical waste. Consequently, thanks to the description of the author, and of others that have treated the topic 'waste', unusual images have come to my mind, distinct glances, thoughts... which have helped me to investigate in an innovative way, a reality that is just as present as it is hidden. Waste, in effect, is in the foreground as well as the background, 'independent' and at the same time connected to the city context. (as Michael Braungart highlights in 'Cradle to Cradle: A Call for a Revolution of Abundance' it is explained how a different way of planning has to pass inevitably through a new way of viewing and perceiving waste).

3. LOOSING TRACE

3.1 Extreme examples



Waste makes up a world a part, a complex and symmetric one to that of goods: waste is the 'dark side' of a single reality, which indissolubly associates resource and waste. The entire path, from the production and the reuse, up to the elimination, should, however, be subject to particular attention and considered as one only reality.

We live in effect in a world where the idea of reuse should be taken on, even from the same industries that produce (we can observe that the packaging that makes up the greater part of our daily garbage have a very short life span, very often they cannot be directly reused while it would be interesting to think of a secondary use, for example as construction material. Martin Pawley demonstrated how this could be possible when he invited the 'Heineken beer factory' to produce a bottle that can be used as a construction element). For this reason it is noted that the increase of production and of consumption create enormous imbalances in managing waste. So, garbage is transported far from the city limits within bordering states and toxic waste is exported, quite often to Third World countries.

Waste is usually deposited in the borders of settlements, in areas where people with no power live, where rights on land are weak and there are no controls. Consequently, in the Third world, as a result, many 'garbage-cities' real 'dump cities' in which the population

lives, have risen in forced agreement finding, moreover, the source for their livelihood. The scenario is certainly less simple than what I have tried to simplify here, however, there are mysterious losses of dangerous waste and lots of 'dump cities', there are illegal markets and people without scruples. This and much more exists.

We need to consider, however, that in some cases garbage, instead, has become a reason of social emancipation, for example the Norman Forster's & Partners' project for Masdar city, comes to mind as an eco-compatible city, zero-carbon, zero-waste. Infact, Masdar will be a city exempt from polluting emissions, there won't be any waste storage because waste will be 99% recycled while the remaining 1% will end up in the appropriate compost plants and incinerator.

4. BRING BACK A 'SENSE' OF PLACE

4.1 New scenarios

But let's go on... Abandoned objects, in some way are protagonists and evoke something that is no longer there, they give us back unpleasant images, hostile and sometimes even catastrophic... however there are new architectural languages connected to waste management and disposal: incinerators and controlled dumps are an example. They create new architectural scenarios, landscapes always closer to urban centers. We have to learn to live with and consider as planning opportunities.

Here are interesting projects, realized and unrealized, of reclaim for these areas. Beexby Park, in San Francisco bay, is an example. The project was entrusted to Hargreaves and to the artist Oppenheimer, it does not try to reclaim the damaged site by bringing it to its preceding integral order, simulating a landscape that is gone forever and cannot come back, but on the contrary, it reinvents an area with the objective of hosting other realities, uses and functions. The heaps of scraps are not hidden in green land but are dramatized: the non-seen, the non-wanted, that which is rejected, become, in this way, a form of art.

In general, it is noted that the areas subject to storage of waste redeem their own active role within the physical and social environment of the city, through a new planning stage. Certainly there are many other examples available, just as impressive, but I would risk repeating myself or to fall into the trap of simply making a list. Therefore this is my choice. However, later, I will investigate further the case of the Fresh Kills landfill in Staten Island in the State of New York which presently has the largest waste dump in the world and therefore the largest and most complicated recycling-recovery project.

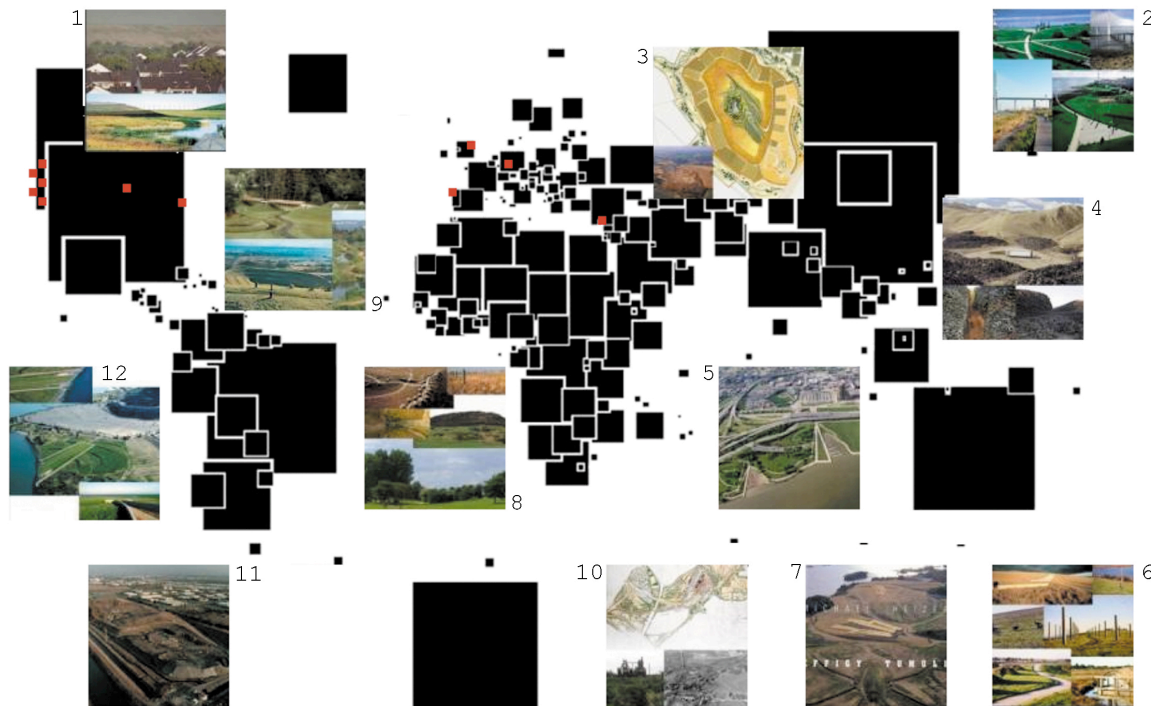


Figure 1. Exemples in the world:

- 1- FRESH KILLS, Staten Island, New York
- 2- TEJO AND TRANCAO, Lisbona. Place which matter and energy are recycled in the same environment, so corroborating in a real sharing between technology and ecology
- 3- HIRIYA, Telaviv. Peter Latz designs here a space for experimentation, in terms of recycling and energy recovery
- 4- MODESTO, California
- 5- LOUSVILLE PARK, Kentucky. The study Hargreaves designs a park not in a dimension Euclidean but natural, varied and absolutely flexible
- 6- BEEXY PARK, California, is itself an abstraction of the natural processes typical of area and through a simple act of reclamation Hargreaves returns life to this place, in the past the landfill of San Francisco
- 7- EFFIGY TUMULI, Illinois. Michael Heizer want express his disagreement about an easy ecological restoration, a recovery of a past status quo held, in fact, impossible, and so gives to the garbage hills some zoomorphic forms
- 8- STOKE ON TRENT, England. Hills and waste accumulations are recovered through planting and bike and walking paths
- 9- LAND RECLAMATION, Seattle
- 10- EMSHER PARK, in the Ruhr district takes form the project of Peter Latz for an area contaminated by repositories waste and so transformed into green areas between decadence and innovation
- 11- SAN FRANCISCO
- 12- CANDLESTIK PARK, California. Hargreaves in this case studies a process away from clear, defined and precise images of landscape but unstable, ephemeral and therefore always changing

Numerous other examples, more or less attractive, could be cite but I fall in common, passive enumerations, then, this is my choice. Selection, however, sufficient to show how, today, is necessary a study not only about a restoration of healthy conditions and also exhaustive technical-functional but as an opportunity for a real, effective spatial planning in order to consider the place in its becoming the capital changing geographic and environmental regeneration which should be potential 'sense' of place more than just a 'correction'.

4.2 Fresh Kills landfill, State Island in New York

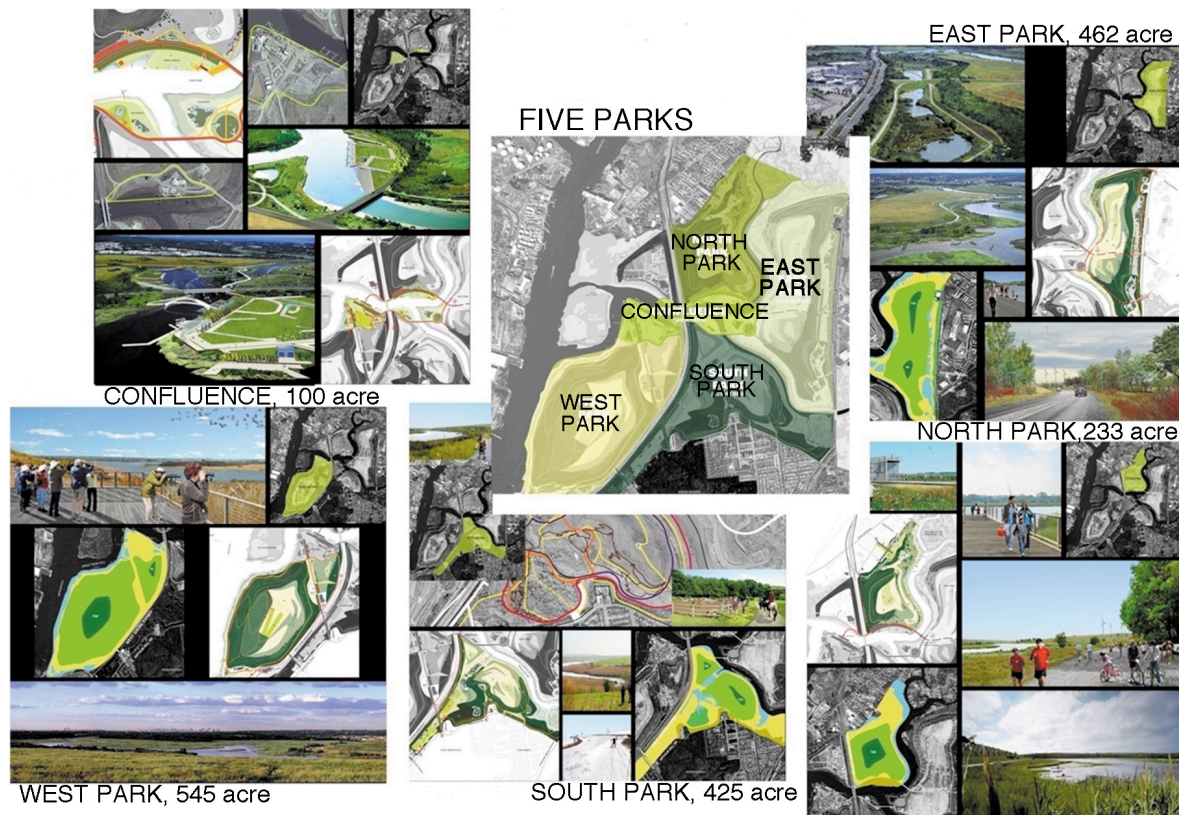


Figure 2. Recycling project of Fresh Kills area

In 1948, FK was delegated by Robert Moses, as a territory suitable to welcome the urban NY solid waste products without exception. Only after the middle of 2001, did mayor Bloomberg declare the place definitely inactive, but opened it only after the tragic terroristic attack of September 11.

The transformation of the horror of over 2.200 hectares of polluted land in the city of NY was entrusted to the Field Operations studio under the guidance of architect James Corner. From the beginning, his exceptional project showed a planning which meant avoiding any rational imposition on nature or an attempt to hide past history with pastoral images which are just as artificial.

The idea of an equipped park functional for the city of New York, a place made up of unusual species of wild flora and fauna, a landscape which would be continuously animated by a lively social life and where every citizen of New York would find space for leisure, play and doing sports was elaborated. In any case, we are here talking about a former waste dump so particular attention is required.

This is the reason why an innovative, changing, varied park is formed... a green area equipped with plants for the production of renewable energies and a park careful to experiment, scientific and environmental research.

Evidently it was a gradual passing from 'Fresh Kills' to 'Fresh Kills Park' whose organizational system was in fact divided into different areas but at the same time cohesive guaranteeing today a dynamic development deferred in time, in different ways, where the public can live.

5. STATISTICAL DEMONSTRATION

5.1 Statistical-quantitative investigation

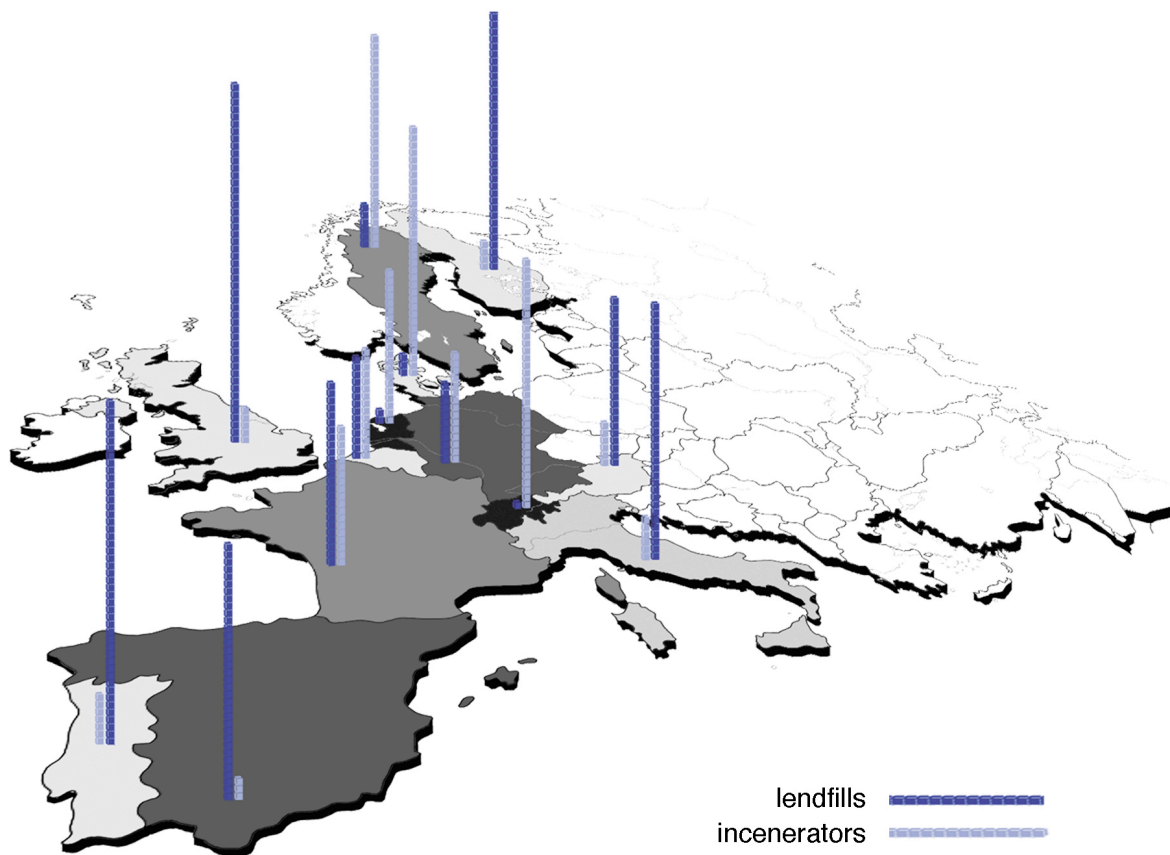


Figure 3. Example: percentage of spread landfills and incinerators

But let us go ahead. Let's begin with the demonstrative phase. The problem of collection and disposal of waste is ancient as that of wastewater, but has become a crucial issue in relatively recent time, as far as quantity to recuperate, recovery of resources to deal with, novelty and variety of materials to destroy and disposal techniques at hand. Infected, every time we throw an object, by choice or obligation, we produce waste. From that time on, the object disappears from our sight, but its life is not over. The process of discharge is divided: it is linked to the type of refusal (urban and special, dangerous and not dangerous), to materials by which it is composed and to treatment plants and disposal on the ground (recycling plants, incinerators, plant composting, landfills etc.). So, as shown from statistical-quantitative investigation, over our heads, hands over a mountain of garbage which we have to absolutely get rid of.

In general, the solutions adapted to eliminate waste are simply a means of taking them away from our senses: in particular from our sight and from our sense of smell. Therefore, waste is 'buried' in landfill sites; it's melted down in meteoric waters and in water courses going into the sea; it's abandoned in external landfills; consigned to the catharsis of fire and by this sent to the sky or just simply left to external landfills to be taken care of by atmospheric agents. So, we need space: an 'empty' space, whether land, water or sky, in order to deposit everything we no longer want to see. Therefore, as shown in this graph: every country uses different techniques at different percentages for waste disposal. Generally more use storage in

dumps, here in dark blue, or incineration plants, in blue.

(in 2008 in Europe there were 358 incineration plants in 18 nations. In some situations, such plants have long been included in urban contexts, such as Brescia, Vienna, Paris, Copenhagen).

6. CARTOGRAPHIC STUDY

6.1 The highway area from Milan to Brescia where most Lombardy plants are located

Following the investigation the state in which Italy presents the current distribution of plants for disposal and collection waste is detailed. This way we detect the uniform distribution throughout the country. Every year, in fact, in Italy more than 30.000.000 tons of municipal waste are produced, managed by the municipalities, whose disposal is due to multiple issues: environmental, political, economic, social...

First, it is important to know their location, state of reclaim, activity degree or their nature (relative to the quality of waste collected) so a synergy of different skills and specific planning responses to every territorial condition found is imposed.

Any way one thing on which we must reflect upon, comparing the collected data, is that large portions of territory are degraded by the phenomenon of landfills and it is clear that from the point of view of the area, the regions primarily interested are: Puglia, Veneto and Lombardy. For this reason, we continue with a detailed study about a section which is particularly subject to this phenomenon, therefore: the Lombardy region, and the highway area from Milan to Brescia where most Lombardy plants are located. Generally, locating a new plant for recycling and waste disposal should not be an element of urban blight. For this reason, the location of some portions of unsuitable land is fundamental to plan and realize these plants. So, regional criteria define the areas where waste disposal plants are excluded (by excluding constraints) and the areas where there are limits for the realization of specific types of plants (areas involved by penalizing constraints).

Evidently, the exclusion criteria, defined during the face of localization in a first time with a general view then in particular. Moreover regional responsibility is also to investigate preferential factors, that is, those logistic/economic elements that can contribute to evaluate the strategic suitability.

For example, location of industrial areas given a good viability of access or the presence of closed business can be preferential elements.

Highway A4 in Lombardia region



Figure 4. Aerial image of highway A4

With this study it is not my intention to report on the presence of waste disposal plants and waste storage to support innovative removal techniques, garbage recycling. Instead, what we want to do is to survey the state of the fact, the environmental impact, the urban 'sense' that sometimes these things take on, in these peculiar disseminated places that outline new metropolitan scenarios as we will later see. In fact, through pictures and land surveys, we address the many issues relative to the location, to the project, to transformation, to environmental pressure that is always detected when a waste collection plant is built in an area.

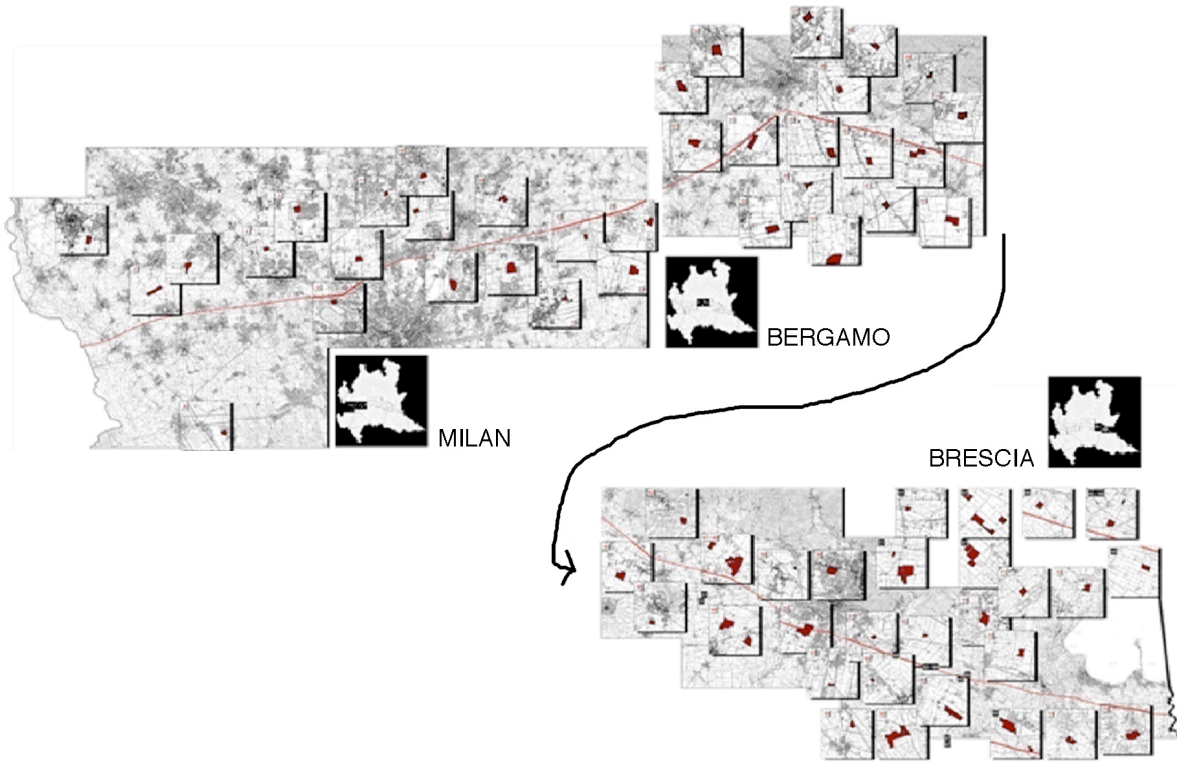


Figure 5. Near the highway Milan-Brescia: main waste disposal plant

7. SCENES...

7.1 Places subject to the presence of garbage



Figure 6. Image of probable landscape scenarios near the highway

In order to evaluate, more objectively and concretely, how this peculiar urban issue interacts with the urban and territorial system the plants in Province of Brescia are studied individually.

So it was possible to put together an outline of the real or probable landscape scenarios that have been altered by waste. This phase reveals surprisingly places subject to the presence of garbage. These territories that seek a new architectonic redefinition with the aim of being integrated into the urban contemporary system. Although they almost always appear as inaccessible or closed systems.

Therefore, from the real exploration of these areas, particular urban scenes clearly emerge. Their variety and articulation comes from a simple declination of three types of plants: incinerators, dumps and waste treatment plants clearly emerges.

(Clarify that incinerator plant is one of the most innovative disposal techniques but also the most feared, because of doubts that remain on the harmfulness of the emissions in the long term. While the controlled landfill are final deposits of waste. The dumps are ancient forms of disposal, technologically elementary but environmentally dangerous).

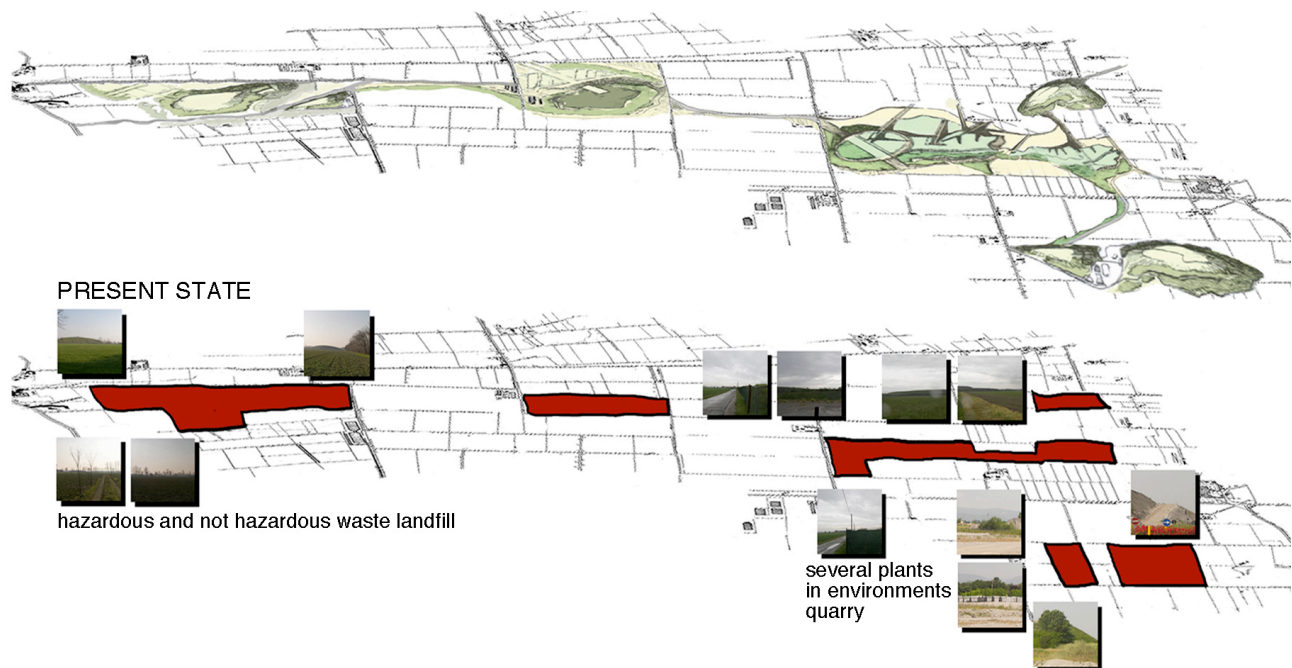


Figure 7. Possible strategy for the interrelation between waste

However, spaces of this type are huge complex facts, and as all urban facts, it is not easy to put them into pseudo analogical typologies.

Anyway, common issues to each these realities are separation, expulsion and isolation that these places have in the contemporary urban system and at the same time we will see the attempts to reduce or mitigate the environmental impact that arises being inadequate, defective and incomplete.

In affect it is clear that city of Brescia has plenty of opportunities to locate plants for waste storage primarily because it is characterized by many caves.

In addition, the city has an extended and well-constructed road infrastructure so it has roads that are well connected to the surrounding urban area which connect strategically the wasted disposal areas. In this way, the streets and roads become technical spaces of connection and service.



Figure 8. Image of probable landscape scenarios that have been altered by waste and then recycling

8. CONCLUSIONS

At last, we reach at the first point of my research and so examining the project. In order to open a window on the present context, to critically, clearly and synthetically illustrate and interpret present or future potentials, to give territorial scenarios that take form in these areas, common factors have been investigated and searched for each of these multiple realities. We are talking about plural scenarios because the experiences registered are many not single. In this case, we do not want to define just one thought, just one imperative solution or even find the beginning of possible regulations. Instead, what we want to do is begin a dialogue among many subjects: political, technical, management or environmental and define in particular, possible territorial relations, among plants, (even past, present or future ones) and among plants and the urban system itself. These numerous spaces can become very active structures in the urban context, they can connect to other urban spaces, whether they are constructed or not, they can be connected to use and not, and they can be a reference point by taking on an identity, a role or other. Actually, waste plants, are a geographic, exploitable capital. They are components in a project of reconfiguration and requalification of territory.

The purpose of this research is to give a detailed study of what is and define strategic maps possible, of what can become a project of recovery in an 'ecological context' able to give the future meaning to the word 'ecologically sustainable' society. Plans, for recovery of spaces that guarantee not only safety, but healthiness and functional performance actively, coherently and in an organic way to better the urban territory as a whole.

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Giovanni Corbellini, as well as by well-renowned national and international professors and professionals.

It is worth mentioning that statistical quantitative data reported in this written paper obviously refer to the doctoral period and were, synthesized in a qualitative way, or rather according to the logic of meaning and territorial influence. This aspect is of absolute importance in this paper that actually has the intention of showing and sometimes explaining the transformation subject to the territory as a result of the invasion of waste, which was more or less controlled.

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