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Approach to an adaptive methodology for reading informal structures / The approach of reading informal settlements for the recognition of small typological study cases of intervention for retrofitting surrounding areas

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Abstract

"Most cities in Asia and Africa that have a pre-colonial existence, also have some or all of that original settlement largely intact. [...] In many instances, the original city is separated from the more modern city by its old defensive wall (for example, in Lahore, Pakistan) or a moat, or it is on a hill (such as Salvador, Bahia, Brazil), and often has a distinct name, such as the kasbah (for example, in Marrakesh, Morocco) or the old city (as in Old Delhi, India). It is a distinct neighborhood or even a sub-city within the city"

"Un-Habitat, The Challenge of Slums - Global Report on Human Settlements, London Earthscan, 2003."

This paper discusses a specific integrated methodology for the retrofitting of the historical centers in quick developing countries. This will enhance the use of new technologies for the cataloguing of existing objects and the urban planning, also involving in the process the local population as much as possible, attempting to identify in declaring that this is an integration between already used processes (as cultural planning strategy) and other ones that exist only in literature (as the improvement of BIM systems with heritage soft-details).

Introduction

In the present moment Global South countries are passing through a very quick development, where one of the main risks that could occur relates to their heritage centers, firstly becoming new slums and then devoured in metropolitan centers. This tendency, also written in the same Report on Human Settlements, emphasizes the inner part of the city being subject of ownership disputes, bringing difficulty in the refurbishment or in the redevelopment of the old city areas. Hence, these areas represent part of local cultural heritage and generate claims of conservation, competing with diffused demolition and modernization.

"Their strength also lies in their location within the city and in relation to the centers of commerce and production. The easy access

to employment, real and potential, combined with cheap if rundown housing, are natural magnets [...]"

"Un-Habitat."

From the postwar period, many modifications overtook urban settlements, inside and outside Europe with lot of structural changes in the spatial dimension - the developments of contaminated areas, obsolete places, dismissed structures - as the socio economics one - unemployment, marginalization and alienation. Trying to face the consequences of heavy industrialization, some of these cities have managed the change, sparking the processes of growth and diversification of economic activities, more and more geared to services and new technologies for the creation of a favourable business environment, often supported by macro-

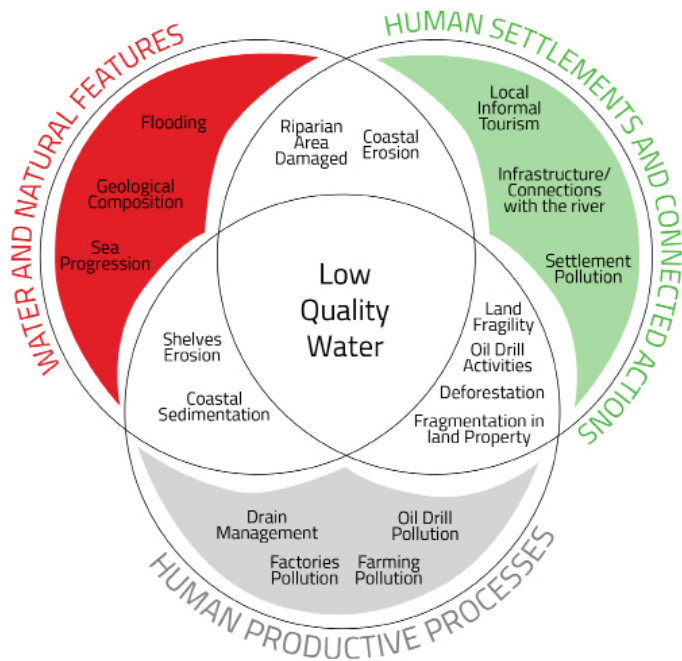


Fig1 / Example of problem scheme developed during the workshop
source / PhD students drawings during the workshop

economic policies and flexible regulations. This happened mostly in Europe during the second half of the XX century. Municipalities, researchers and inhabitants have understood that there is a true necessity to refurbish, recover and most of time adapt existing buildings, transforming them into "functional buildings", instead of creating new. The risk of producing new structures in the city without taking in consideration the old one has also an impact in the deterioration of the micro economy of those areas. Recently the identification of possible - better paths for the retrofitting of heritage centers in developing countries is becoming one of the most important topics all over European research centers. Most of the times it is possible to find this process of conversion into slums and then imposition of forced development to transform them into big cities. As a proof that this is a diffuse trend, it is possible to define worldwide this typology of process: Singapore is one of the cases. Since 1965, the year of the expulsion of the city from the Malaysian Federation, it has been converted from a socialist to a "productive and modern" new center. In "Kuan Yew Lee, The Singapore Story: Memoirs of Lee Kuan Yew. (Singapore Press Holdings, 1998):" Dr. Lee Kwan Yew, leader of People's Action Party, stated:

"We believed in socialism, in fair shares for all. Later we learnt that personal motivation and personal rewards were essential for a productive economy"
Quah, J. S. T. (2010) *Public administration Singapore-style*. Emerald.

Quah, J. S. T believed in the sense of "ownership as vital for a new society", which had no deep roots in a common historical experience. This maybe could be right in a society that can handle the challenge of preserving a heritage of knowhow and local knowledge. But many times the renovation is a chance to increase productivity without a real purpose in the preservation of historic heritage. Thus in 2011, eleven year later, this need of preserving the heritage sites in Singapore came out thanks to Mr Mah Bow Tan, the Former Minister for National Development in Singapore. He underlined that making the economy competitive and globally recognized is one of the most important things.

"We need to conserve our urban heritage, because it contributes towards a greater sense of history and identity, and helps to preserve the soul of our city, making Singapore a special home for our people."
Extracted from Foreword in Lily. Kong and Urban Redevelopment Authority (Singapore), *Conserving the Past, Creating the Future: Urban Heritage in Singapore* (Urban Redevelopment Authority, 2011).

The significance of this example stands in the potentials of countries undergoing big development, such as Singapore during the middle of 1960s, Albania since the past two decades, or India since 1990s. Nevertheless, it is essential to monitor and take advantage of the possibility, though in the right way: the risk of losing important heritage elements that carry a part of local knowledge and vernacular

lifestyles. Vernacular here should be defined as “local style in which ordinary houses are built”, but also “dance, music, art, etc. that is in a style liked or performed by ordinary people” (Cambridge Dictionary, Cambridge University Press, 2016).

In this way local urban housing and ancient precious architecture constitute a living context, a living technology and a morphology, that has to be preserved and adapted to meet the quickly changing needs. Due to the lack of any protective measures and the pressure of urbanization, demolitions have been carried out, fragmenting particularly the inner part of the cities. The protection of a city as a whole is under the guidance of urban management and cannot be limited just to the creation or the implementation of new kind of economies.

Until this moment most of the new projects inside developing cities are trying to imitate the western model, without preserving any kind of historic and local know how or constructive methodology. For instance this is very much evident in Ahmedabad, one of the most developing cities in north west of India where the city center heritage is trying to protect itself from “extraneous wrongly westernized constructions” that are growing very close to the two most famous streets of the historic center (Gandhi and Relief roads), somehow resembling some of the “turbo-architecture” of the Albanian coast. As a result, the issue that is increasing stands in the changes occurring in the inhabitants’ lifestyle, becoming more and more westernized.

Research purpose

The purpose of this article is to study the possibility of using innovative cataloguing systems, in order to find a way to initially understand and classify the heritage sites. The quick spread of social networks as a meeting point for exchanging feelings, sensations, ideas and suggestions is leading to a common discussion on different subjects. Usually it is difficult to find a real estate registry for the city in quick development, whereas the implementation of this technology could be the base of sharing knowledge, in order to identify problematic areas or overpopulated districts. Happening in many European cities, the discussion of the municipality and the cultural corporations with the inhabitants stands in a crucial point in understanding their needs and suggestions.

Thus, the consecutive action shall be through this “understanding methodology”,

identifying guidelines to follow retrofitting-requalification-renovation of the analyzed areas. This calls upon the preservation and enhancement of the heritage. The challenge in doing this is to maintain traditional lifestyle but meanwhile improving inhabitants’ wellness and the healthy conditions.

In the first phase there is need in classifying the information from the social networks regarding the case study (the examined city or area) by density/structure/archetypes, quite a different approach of the analyses regarding other European cities. The comparison is impossible due to the way of living spaces of different cultures, or with the study of initial urban settlements born in many different ways and - of course - the different evolution. It may be easier to analyze these “generator archetypes” in Europe, where most cities hold on to a roman’s structure based city. The original settlements in developing countries were usually conceived in an organic way: this means that on a first aggregation of houses or around a nucleus (as a Fort or a Castle), some houses were initially built, and then others followed, without a precise urban development planning. The same has happened in “vertical” stratification of houses: near by the nucleus of the old city where the density has grown without specific rules on the possibilities of increasing floors/projection on the street. Different layers in the same house coming from different historical moments give the stratified shape of the city. Although the previous research regarding old city’s structure, the challenge stands in finding the right inclusive way in understanding which one is a superfetations (encumbrances, discontinuities in this unitary structure) and which one is not. The discernment has to be done understanding the outlier’s buildings: one of the most common example is the one of colonization, discussed in the next chapter as a good practices adopted by many Asian municipalities, understanding the “outliers” in the heritage city structure.

Understanding composition

Origins and age of the historic centers indicate the legacy of a city, such as its physical asset of heritage building, the root and the speed of its growing, as the different cultures that came and let signature on the urban fabric. In this vision, it is essential to identify which are the most important/common/ancient archetype that have influenced the city and the local culture, in order to understand better the contribution of every architectural era.

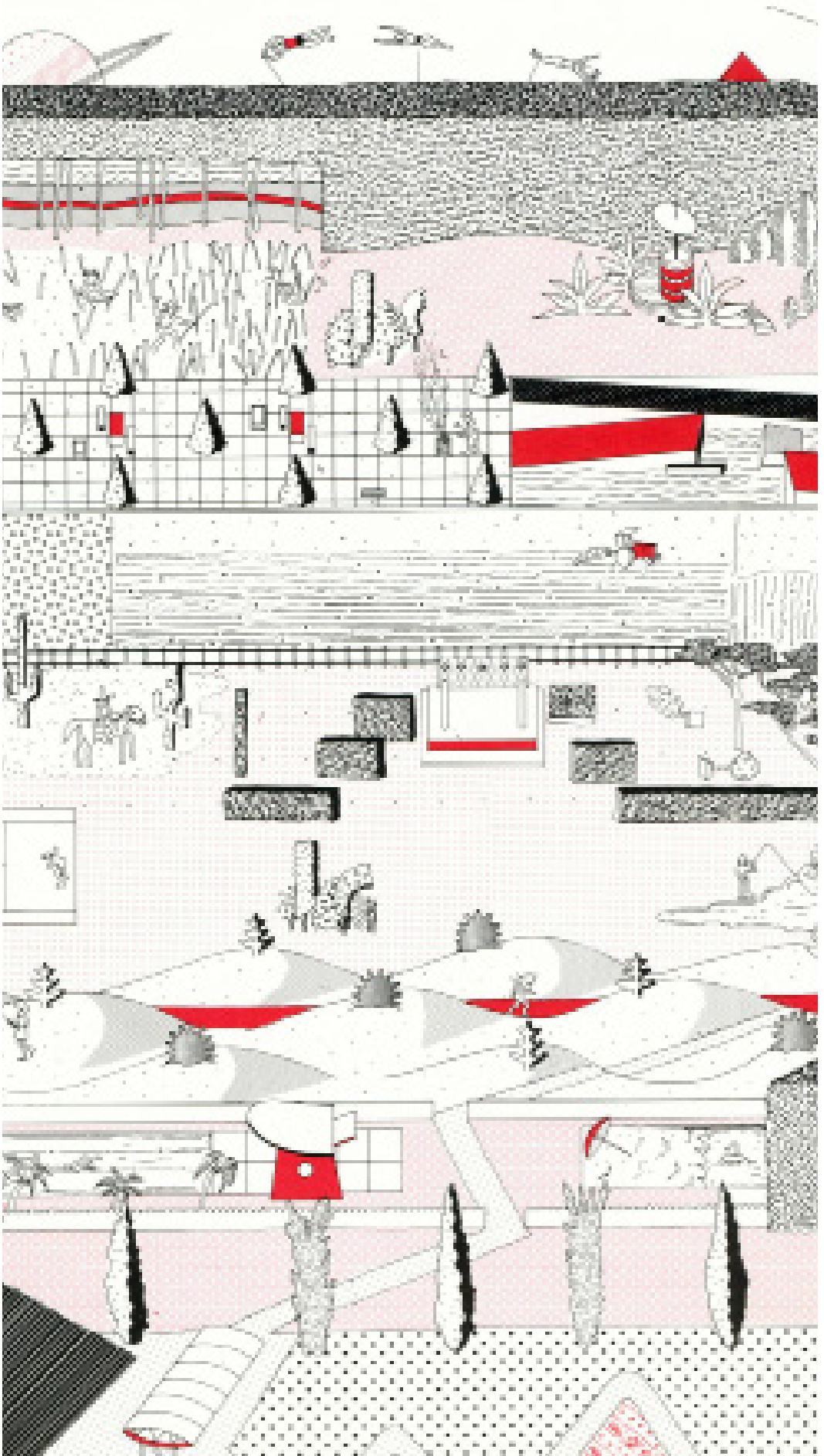
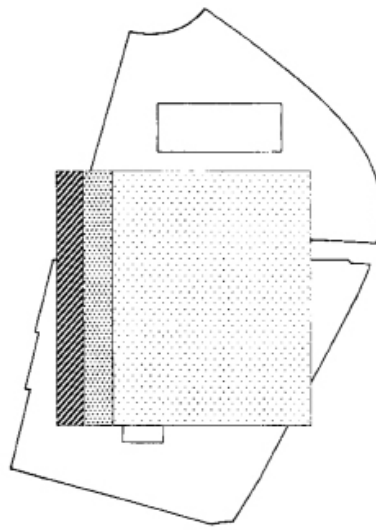
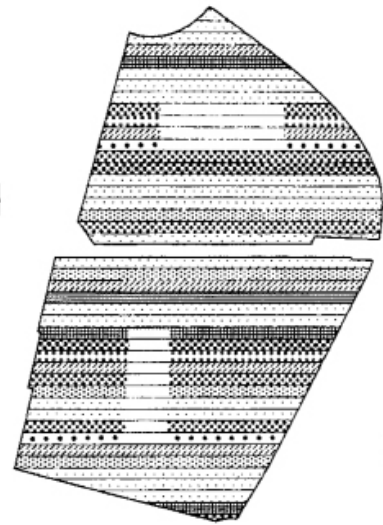


Fig2 / Visual representation of the overlaps of different layers of Rem Koolhaas project for Park de la Villette in Paris / source quondam.com/19/1982



Initial hypothesis (scale: 1/20,000)



The strips

This has to be done in order to outline a scheme of the influencing periods, at an urban and architectural scale. In this part the example that we will focus on is the colonization's influence in Asian countries. The reason upon this choice is the evidence in these countries of the difference between the pre-existing buildings (from the structural part to the decorative one) and the new ones created in the colonial period, that most of time have been abandoned.

The imposition of different detailed rules for the creation of architecture in some colonial cases was not every time positive and this is evident in the housing areas. Mostly in Asian colonized countries this concept is visible: in the city center, where the compositions of a colonial house do not follow the local housing requirements, it is possible to find dismissed or abandoned structures. The sociologist Giandomenico Amendola, in his book "Giandomenico Amendola, Uomini E Case : I Presupposti Sociologici Della Progettazione Architettonica (Edizioni Dedalo, 1984). P. 50" says that

"The house has been defined as 'symbol's made shelter', which express the identity and the relationship with the future and the destiny, as the social status"

In this idea it is clear that a non-coherent structure inside a city context (also if it is semi-defined, but with a common historic background) can be refused or rejected by the inhabitants. For example there are many cases of 10 floors buildings next

to stalls or normal houses. Otherwise the presence upon ancient houses (that needs a restoration to not collapse and be maintained) of other volumes, adjunctive floors, generally without the sense of local and traditional architecture. Just as an example, it's possible to identify most of the times in Asian countries, inner courtyards of houses, very similar to the ancient roman's houses, used to refresh the nearby rooms and cells. As well as the position of the kitchens: it was planned in a central position for the sight from there of the street and of the courtyard. All these unwritten rules have to be catalogued and therefore the requalification has to take into account all this kind of knowledge in the creation of the rules for the revaluation of the both historic centre and new developments. Therefore, it is important to identify the compositional and constructive rules and convert them into an innovative production system that will lead on to the creation of a new class of specialized artisans.

The two actions needed to deal with the problem of loss of intangible and tangible heritage are the following.

Cultural planning strategy

Over the course of fifty odd years it has become clear that development projects "are most success- full when they are low-cost and small in scale, when they respond to the needs of a specific target group and involve the beneficiaries themselves in the planning and implementation process" (Smillie, 1991: 114). In short: architecture alone cannot solve people's problems - no

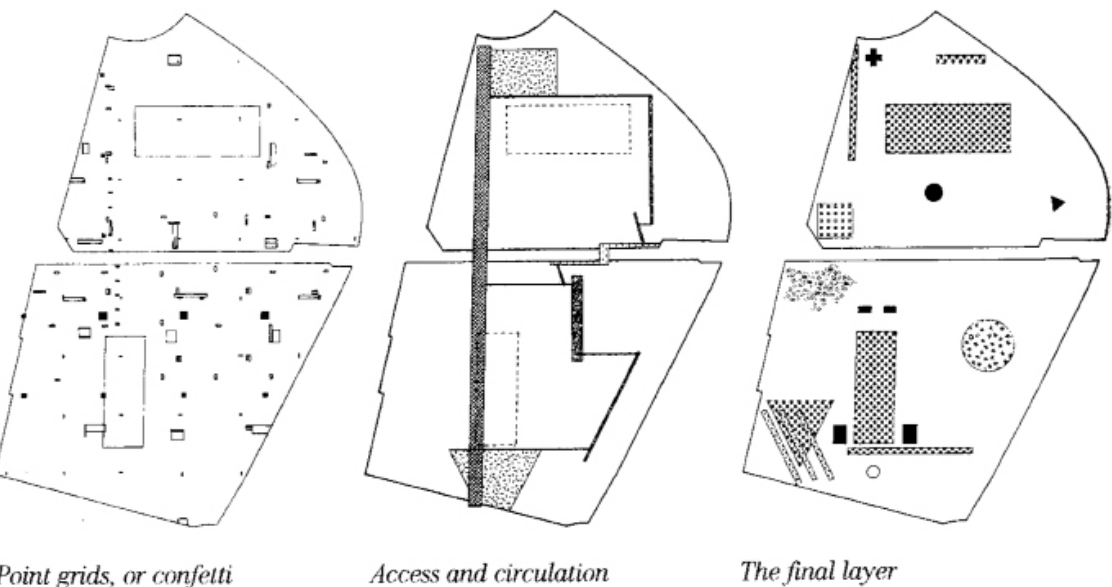


Fig3 / different layers for the study of the project of Parc de la Villette by Rem Koolhaas
source / oma.eu/projects/parc-de-la-villette

matter how well intentioned nor sensitively designed. If architecture is to successfully address the needs of those on the margins it must address what we will refer to as the organizational dimension.

Morgan M Carter, 'Architecture and Social Change in the Development Era,' 1992, 6–20. p. 3

One of the actions that it is important to follow is the creation of a cultural planning strategy, that has as main target the valorization and the enhancement of the cultural resources – cultural goods, environmental protection, cultural events, typical productions through the activation of cultural offerings. It is possible to count some of this actions in developed and developing countries that have been a big success world-wide: the case of Malmo in Sweden, or the one of New Gouna in Africa directed by Hassan Fathy, or Diebedo Francis Kere for the construction of School in Gando, Africa. (Corrado. Trombetta, Rosario. Guiffrè and Hassan. Fathy, *L'attualità Del Pensiero Di Hassan Fathy Nella Cultura Tecnologica Contemporanea: Il Luogo, L'ambiente E La Qualità Dell'architettura* (Rubbettino, 2002).; Hubert-Jan. Henket and Hilde. Heynen, *Back from Utopia: The Challenge of the Modern Movement* (O10 Publishers, 2002).

The cultural planning strategy has to optimize the economic and social impacts through the trigger of activities as the human resources, territorial infrastructures (for example transportation services for tourist and commuters), companies which

valorize the local productions and creation of resources (as companies of restoration, cataloguing, multimedia, touristic, etc.).

A cultural planning strategy identifies, through negotiating processes, the path for the cultural development, in relation with the heritage safeguard. There are many ways for the implementation of this kind of strategy but every one of them follows the path of a first analysis on the cultural and economic main issues and the subsequent creation of focused groups with the stakeholders on different fields. Thus, for the groups is mandatory to find together a feasible solution for the initial problems.

At the end of this phase it is possible to collect all the possible proposals and create a final document to summarize all the suggestion and make them talk to each other in an organic dimension. The third phase of the cultural planning strategy is the one that concerns the intervention of professionals from the sociological, planning and architectural fields. This stage is the most important one in order to create a functional planning by all the points of view and it concerns in a pre-planning phase and the creation of the active planning team.

In the pre-planning the target is to examine the feasibility of the proposal and talk with the cultural representative, most of times trusts or municipalities, about the costs of the requalification operation. At the same time, it is important to emphasize dialogue due to the fact that stakeholders (inhabitants and economic

and political leaders) could understand the importance and the positivity - of economic and social investment - of every action that will follow. In addition on this first phase the scientific committee has to understand the administrative body that will follow the operation: most of time the municipality will be the chosen one who will follow the creation of a detailed development plan of the cultural planning strategy. The presence of the municipality as the coordinator of the operation should ensure in the process the involvement of the inhabitants and the public representative bodies.

It is impossible in a cultural planning strategy, to avoid other factors as the geomorphology of the area, which most of times have historically influenced the production or the settlements in the surroundings. Therefore, in order to better understand the zones where it will be possible to work on, at an urban scale, it will be necessary to catalogue the natural slopes, hills and mountains. All of them will have important influences on the vision for the future use of that area, to make the geomorphological aspect fit with the human function, based on the requalification principles. Some of the possible divisions that can be leaded on for discerning the intervention areas and intersecting them with the human settlements are the followings.

Water and Natural Features: the elements of this group most of time do not / cannot be touched. For example the sea progression/coastal erosion problematic for some areas that cannot be solved on its own, maybe can be blocked with some intervention to repair the coasts, as the creation of quays at a certain distance from the coast itself.

Human Settlements and Connected Actions: It will be possible to work on these elements. However, there is the need of a distinction between informal and legally recognized elements. In this group aiming in categorizing the problems connected with the informal constructions that do not follow any kind of regulation, condoned without legal declaration. The main problem of this kind of aggregations comes from the inhabitants' lack of primary services in the area and from the municipality side of not being able to have control and planning on.

Human Productive Processes: the last group that we can have is the settlement aimed to intensive production that we

can identify as "secondary sector". The main problem for these areas are close to the previous case: when the settlement is informal, the issue is the primary urbanization. Usually both legal and illegal areas are afflicted by the pollution production problem together with a lack of garbage management.

Technological tools

Is possible to identify, in many places of the Global South, the hesitation of the inhabitants towards the trusts and municipalities. The attempt for renovation and the one for globalization that has involved mostly during the '70s and '80s produced a relevant drawback for certain countries: the loyalty from the inhabitants to the public bodies decreased because of the different willingness of the two parts. From one side the population wanted to increase its wellbeing and lifestyle. On the other hand, the first thing that the Trusts and Municipalities tried to do, focused on tourism profits, from opening of the new and international tourism routes (Rabindra. Seth and Om Gupta, *Tourism in India: An Overview* (Kalpaz Publications, 2005)). In some cases, this kind of deployment willingness from the public and semi-public body's raised the discontent from the poorest part of the population: in their opinion the firsts tasks was to undertake healthcare, education and other fundamental ones. Nowadays the consequence of this wrong policy in many places is the gap created between the citizens and the cultural places as museums/cultural institutions/municipalities. Authority that manage this kind of policies – as Trust, still wonder how they could bring back inhabitants to their places with different kind of actions: some workshops that involves together Trusts, Municipalities, Universities and inhabitants; setting up of meetings and discussion on the possibilities with citizens; the creation of new aggregation points and events to make the youngest be involved in this process of renovation. (cfr. K. C. (Kallidaikurichi Chidambarakrishnan) Sivaramakrishnan, *Re-Visioning Indian Cities: The Urban Renewal Mission* (SAGE Publications, 2011); .M. (Masahide) Horita and H. (Hideki) Koizumi, *Innovations in Collaborative Urban Regeneration* (Springer, 2009).)

So nowadays, a lot of Trusts and Municipalities have to re-establish a loyalty relationship with the inhabitants. This can be possible also by using innovating technologies as web portal, online questionnaires and other informatic

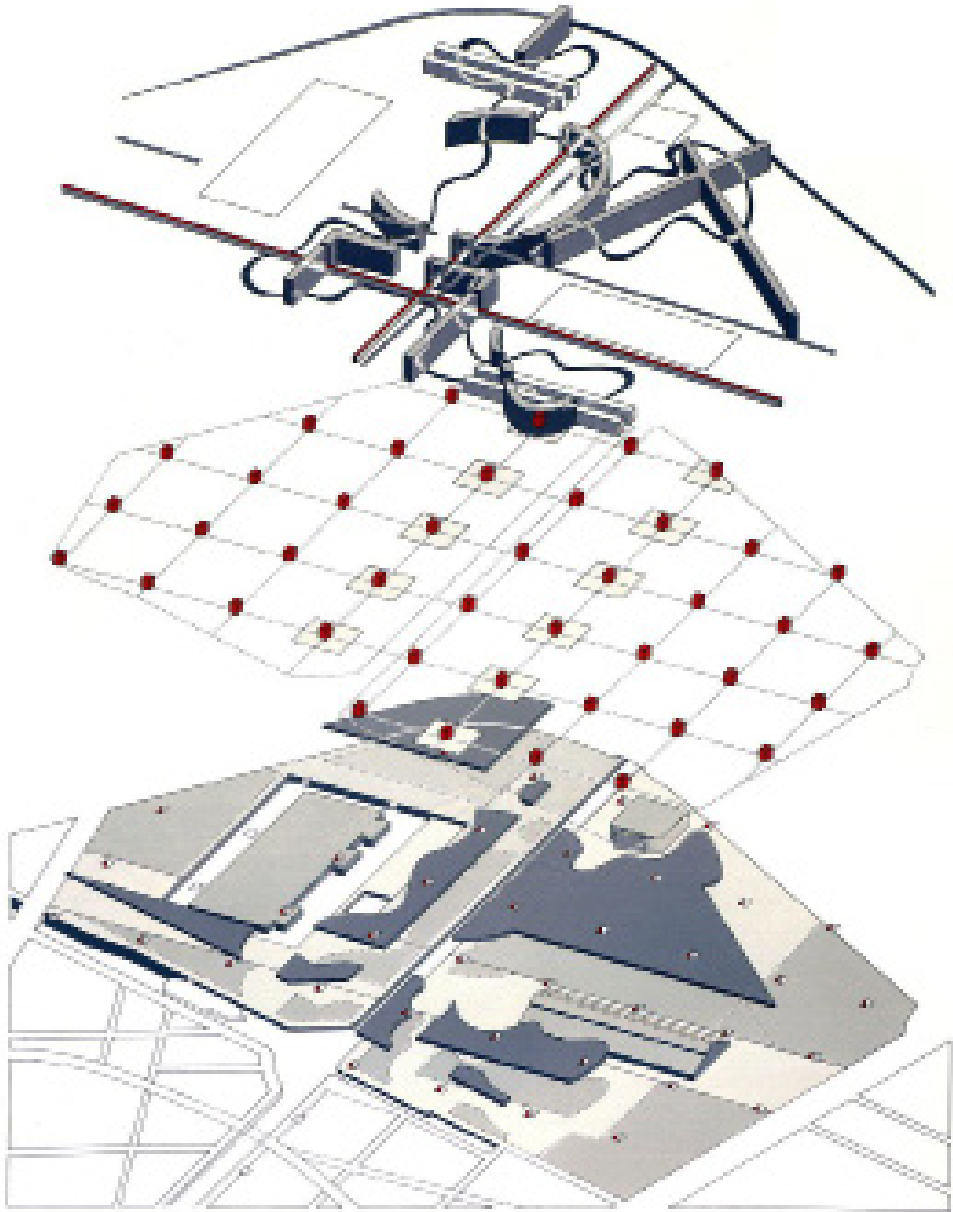


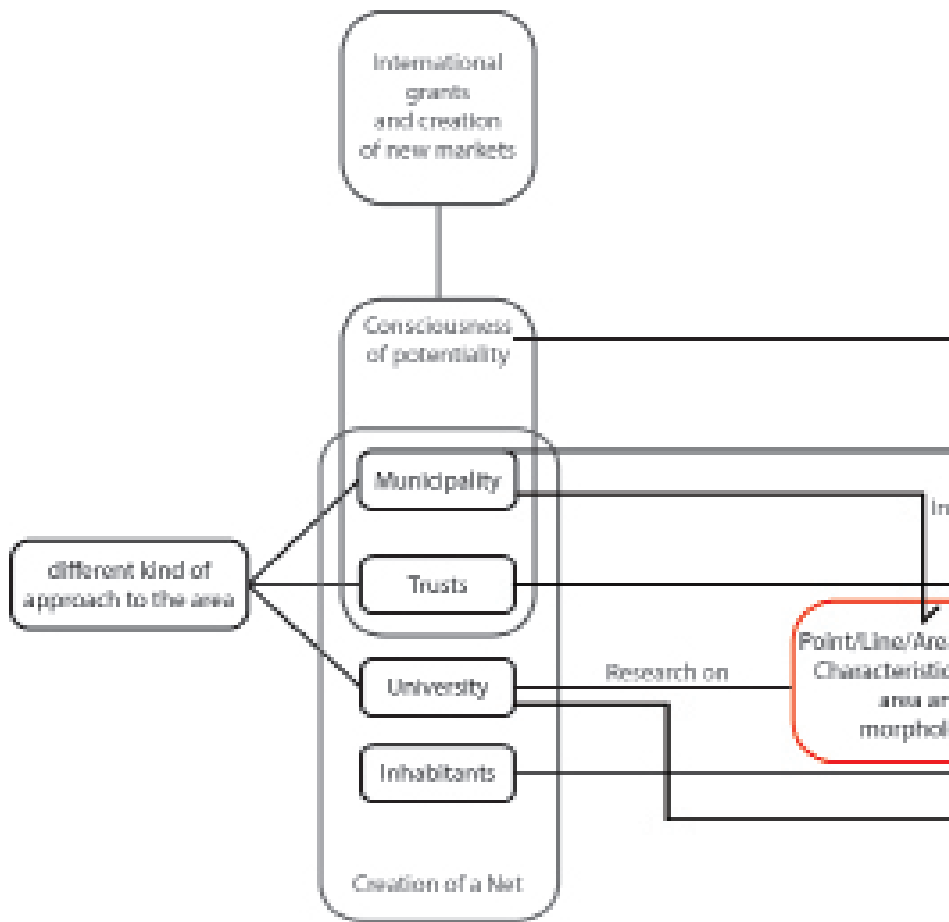
Fig4 / The usage of the points-line-area theory to individuate the right layers inside the project of Parc de la Villette by Rem Koolhaas / source tschumi.com/projects/3/

but user-friendly tools. Many governments are improving financial funds in order to digital empowerment of the development countries (one example could be India: cfr. Digital Empowerment Foundation | Annual Reports <<http://defindia.org/annual-reports/>>. Nevertheless, after that there is another challenge that comes up: the cataloguing of all the surveyed information.

Maybe is it possible to find the answer to this task in the identification of the right technology, as GIS or web-BIM based platform, establishing very quickly the processes of reconstruction and cataloguing, inclusive and user-friendly. In the social era is not possible to avoid the possibility to accumulate big quantity of information and include in the process of data collection the common users. They will feel involved and included in

the process. Just to make an example of a campaign that can be developed for the involvement of the citizens could be the census one: in this part, every citizen can catalogue the problems that they find in their houses and in the nearby areas through questionnaires including here essay question and multiple-choice answers. Another possibility could be the creation of maps with an easy interface or geotag photos that show problems. With the help of statistic instruments, this will lead the scientific coordinators to the identification of the main problems inside the city/countryside structure.

Another one can be inside the culture survey: it will be possible to find and to upload all the expositions and the possibilities for the inhabitants to expose their manufacturing works inside the public spaces and all the exhibitions that



will be led on by the many different Trusts.

Nowadays the BIM (Building Information Modelling) technology is the most useful instruments for collecting data's in all ranges: is possible to insert information about the zoning reports and rules, to the architectural details and construction methodology/technology. The potential of this is the monitoring of all the information concerning all the development processes, requalification, events, and temporary roadworks.

The BIM database will be useful for two important reasons: the possibility to add a lot of information on the morphology and the composition aspect of the architecture in all the different scales as a chance to check the model with assigned rules. This means that from an urban to a technological scale there are modelling software's that allow technicians to be guided by scientific supervisors ensuring that the model pursues the set of rules. The rules are the ones developed during the creation of the cultural planning strategy.

Conclusions

There is not a unique and certain solution to the problems involved in the adoption

of a development planning system as previously described, which contains a deep control of the heritage centre of the cities and a density survey in the country yard. Nowadays, most of the steps that are elaborated in the proposed methodology are in a debate involving Universities, Municipalities and Trusts, also different countries. (Carlos Nunes Silva, Citizen E-Participation in Urban Governance: Crowdsourcing and Collaborative, 30 Giu 2013 (IGI Global, 2013)). In fact, some of the stages, as that of cultural planning strategy or the use of web-BIM integrated technology, are amongst the best methodologies and instrument that make the population and the authority discuss in a bivalent dialogue.

The work in cooperation within the citizens, the trust, municipality, and stakeholders groups involved need to improve and join the discussion regarding cataloguing campaigns in order to reach a new shared and mutual approved regulation plan for old cities and new developments. This will be a regulation that has to include all the factors and characteristic of the ancient city, as the urban and architectural density, as the well living spaces need to maintain and renew some heritage areas, with the introduction of different functions

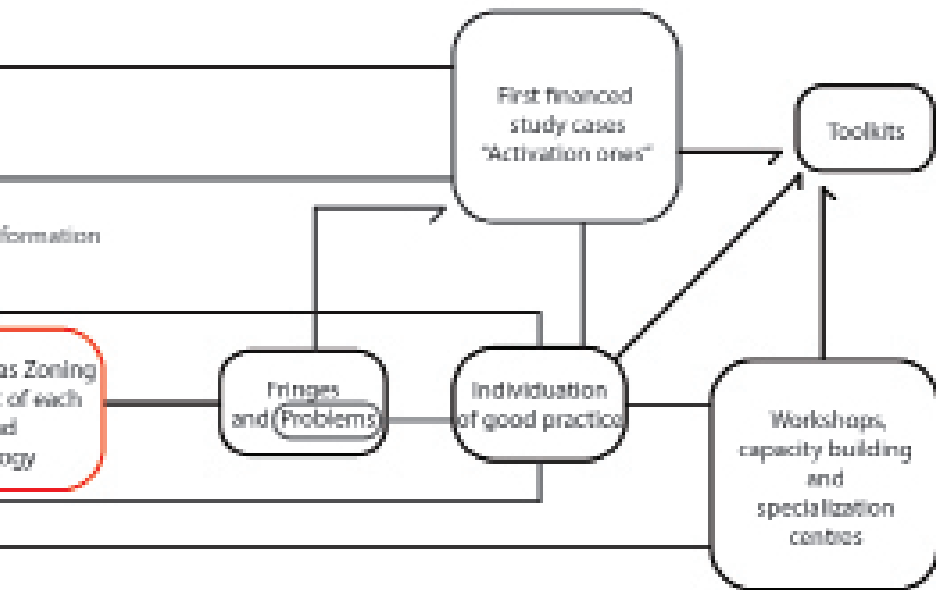


Fig5 / General scheme of the methodology source / drawing by the author

that are not westernized, but that come from a common study on the refurbished traditional know how.

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