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**Socio-natural disaster,
resilience and vulnerability:
The territorial perspective
in italian current debate**

*Disastri socio-naturali,
resilienza e vulnerabilità:
La prospettiva territorialista
nel dibattito italiano attuale*

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IN ITALIAN CURRENT DEBATE**

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POST-DISASTER RECONSTRUCTION IN CONSTITUCIÓN, CHILE

by Davide Olori*

1. A territorial perspective on vulnerabilities during disasters

Over the last decade, an increasing attention has been paid to the issues related to natural hazards and post-disaster recovery; this has been due the growth of, on the one hand, the so called *real* facts¹ (IDMC, 2015) and, on the other, all those factors contributing to the social construction of disasters (Hewitt, 1983). The combination of the two has called into question the causes as well as the consequences and the social implications of natural hazards, both in the scientific and in the public debates². It is important to point out is that the attention paid to disasters has covered all the phases of the phenomenon, from its pre-conditions to its effects. The phase that involves long term recovery and differentiation processes, political strategies, socio-spatial impacts, resilience practices, etc. is what the Disaster Research (DR) literature defines as “post-disaster”. As discussed in a recent work by Yi and Yang, this represents a crucial moment for the increase of scientific production on the topic (2014). In this phase the concept of space, considered in its twofold dimension of social construct and social actor (Mela, 2016), plays a fundamental role. For example, it represents both the area where major conflicts and disputes materialize (Letelier, 2013) or the symbol of that sense of community that frequently emerges during the resilience processes in post-disaster recovery. Nevertheless, as Fothergill and colleagues have pointed out in their work on disasters and gender issues, there is a deep gap, in terms of scientific production, between the sociological research and the (still developing) “territorialist” research on spatial equity and environmental justice (Fothergill, Maestas and Darlington, 1999). Two main reasons could be identified to explain such a shortcom-

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¹ For example, the increase in the number of natural events and of people directly hit by them, the urbanization of the problem, the relevance of environmental migration flows, the rising economic impacts of natural hazards, etc.

² For instance, the increasing relevance of post-apocalyptic genre in film production and in narrative, the central role acquired by natural hazards and environmental issues in political agendas, public opinion and in trans-national politics, etc.

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ing: the search for a more defined disciplinary autonomy and the epistemological definition of the object under study. Especially in the US context, the closure of the discipline, in a perpetual state of tension between contamination and autonomy, has inhibited the attempts to broaden the definition of the field beyond the extreme and acute event (Tiefenbacher, Hagelman, 1999). As a result, a wide range of environmental disasters has not been taken into account despite equally affecting people's lives, as extensively reported in geographic and social research (Cutter, 1995). This frames its works in the historical and socio-economic contexts where disasters occur (Pellow, Weiberg, Schnaiberg, 2005) (King, McCarthy, 2005), by analysing the intersection between demographic (e.g. ethnicity, class, gender, social vulnerability) and structural variables. In so doing, it specifically addresses the production of urban space in the aftermath of a disaster, thus its socio-spatial impacts. The focus on the pre-disaster local conditions has partly influenced the inclusion of the ecological factors in the analysis of the social processes that precede, accompany, and follow the environmental disaster as such. Yet accounts of this type remained marginal until the first studies on Katrina were published³. The first attempt may, in fact, be traced in the *Crisis Cities*, a book by Gotham and Greenberg, in which the authors evaluated and compared the reconstruction of New Orleans and New York. Inspired by the concept of "landscape of risk and resilience", the sociologists sought to evaluate the relationship between poverty/segregation and vulnerabilities/risk exposure in some areas of the analysed cities. Their research showed that, in both cases, the production of space is not just the simple outcome of specific urban policies and local real estate dynamics but of their combination with (historical and ethnical) contextual features and the ability of communities to have access to resources and aids, during and after the emergency phase (Gotham, Greenberg, 2015). It is mainly in the study of minorities and socially vulnerable groups that the territorialist perspective may provide relevant contributions to the sociology of disaster, as highlighted by Bob Bolin in the Handbook of Disaster Research (book by Quarantelli):

To enrich future disaster research, a better grounding in the historical geographic development of class and race relations in particular places is necessary. This should be combined with more attention given to theoretical issues regarding race and class processes and to spatial analysis of patterns of segregation. Environmental justice research and vulnerability studies both provide models for such analyses

³ For some important exceptions see Kroll-Smith (Kroll-Smith, Couch, 1991) Peacock (Peacock, Morrow, Gladwin, 2001).

that could be incorporated into the ensemble of methodologies already deployed by disaster sociologists (Bolin, 2007).

As it will be discussed more in detail in the following contributions, sometimes studies on social differentiation and vulnerability have become an obstacle; nevertheless, thanks to them, space has been included among the main determinants of the social processes that are simultaneous and subsequent to socio-natural disaster. By overcoming the definition of social vulnerability as something merely related to marginal populations living in high environmental risk urban areas, studies have emphasized the emergence of new forms of spatial vulnerability that exist before and after the event. The relationship society/environment affects the vulnerability of individuals and groups and, despite being subverted by the event, may re-emerge, sometimes even more consolidated by the shock. During the last twenty years, DR has thus abandoned the definition of community as a unitary monolith in favour of a wider one that encompasses all the subgroups constituting the community itself (Tierney, 2007). Such a perspective may be traced in the work carried out by Stalling (2002). By recalling Moore's classical research, *Tornadoes Over Texas* (1958), he re-interprets post-disaster recovery not as a communitarian act of resilience, but as a form of resistance by some privileged residents to restore a more advantageous social order.

The aforementioned study has been at the basis of the assumption, today largely accepted in DR, that socially disadvantaged groups go through processes of vulnerabilization during disasters as well as in the post-disaster long term recovery. The investments for the reconstruction do not improve their condition. On the contrary, it further exacerbates it (Fox, Gotham, 2015).

Nevertheless, although classical DR frequently referred to the ecological dimension of the phenomenon under study, it continued to be trapped in an "extreme" structuralist and macro perspective. By contrast, the latest investigations have succeeded in understanding the plurality of the social processes before and after natural hazards, by shifting their focus on the subgroups level. Yet they have not managed to apply the territorial perspective to the micro scale (see the studies on neighbourhood communities during reconstruction processes contrasting with the macro-regional research of the 60s and 70s).

Although this research approach, built on a case-study methodology, continues to inspire most of DR investigations, it remains limited from the ecological point of view. As Elliot and Pais (2015) state, this stems from

the methodology adopted. A case study approach does not allow researchers to build a strong comparative base to interpret the post-disaster long term reconstruction as an agent of spatial change. Moreover, contemporary analyses have not included how the environmental aspect of a socio-natural disaster affects the spatial redistribution of socially vulnerable sub-populations in the space, in the aftermath of a natural event. Quoting Bolin:

As discussed extensively in environmental justice studies, the focus on the relative statistical effects of race versus class obscures any understanding of the concrete ways that race and class are bound together and embodied in human subjects, structuring people's everyday lives, including where and how they live, and their particular ensembles of capacities and vulnerabilities (Bolin, 2007).

In most cases, such variables have been neglected: environmental parameters have not been identified among the variables that determine the social and spatial transformation after a socio-socio-natural disaster. In the light of the above, within the environmental justice literature, two competing yet complementary hypotheses emerge:

1. Displacement hypothesis: after a major environmental disaster, socially vulnerable sub-populations are the most subject to risks of displacement. Especially in those urban areas targeted by massive real estate investments and going through redevelopment processes, such sub-groups lose their ability to re-establish "normality". In urban sociology, such a model recalls the literature on the socio-spatial impacts of urban renewal: according to it, the direct consequence of the implementation of mega-projects is the displacement of disadvantaged groups from neighbourhoods, in favour of the arrival and of the establishment of better off sub groups (Elliot, Pais, 2010).
2. Concentration hypothesis: given the decrease in the economic value of the land and the lacking infrastructure, better off sub- groups prefer to move out of the areas hit by the environmental disaster. Hence, they are re-densified by socially vulnerable groups. (Dash *et al.*, 2007). The outcome is a jeopardized reconstruction model characterized by a high percentage of empty and vacuum estates, abandoned places, etc. To a certain extent, this paradigm evokes the so called "transition-zones" model: disadvantaged and socially vulnerable sub-populations tend to cluster in derelict areas, less profitable for investors to renew. Such a scenario is also shared by the so called "move-in paradigm", adopted by several territorialist

researchers: socially vulnerable sub-groups spontaneously cluster in areas lacking urban benefits and amenities, but more economically sustainable. In both scenarios - the displacement and the concentration one - the ecological factor represents an important agent in post-disaster long term recovery, which brings about both direct and indirect impacts. The former include all the physical damages to the environmental system - e.g. the destruction of sewage systems, infrastructures, industrial parks - which directly affect the decision on timing, costs and location of the reconstruction. The latter are connected to all those means, such as private insurance policies, public assistance programs, community networks, which, on the one hand, are very selective in the identification of the beneficiaries (mostly better positioned residents with an already high socio-economic and cultural capital) and, on the other, foster speculative real estate practices.

Having introduced the two paradigms, here I explore the moderating hypothesis by Elliot and Pais. Its main argument is that the ecological system plays an important role in the aftermath of a socio-socio-natural disaster: impacts are, in fact, largely determined by the local context, in particular, by the density of the urban development before the socio-socio-natural disaster occurs⁴ (local development coalitions and so on). As a consequence, as the recovery costs substantially increase, the coalitions of actors interested in the redevelopment become more organized and aggressive. Their main aim is to ensure larger capital returns. The combination of such dynamics may have two possible outcomes: 1. they may further boost the displacement and the concentration of socially vulnerable sub populations (*intensification hypothesis*); 2. they may induce inverse situations (*divergence hypothesis*). In their work on the spatial redistribution of socially vulnerable sub groups after the hurricanes in Louisiana and in Miami, Elliot and Pais sought to combine the case oriented approach with the comparative one to corroborate the two aforementioned hypotheses. The result was a divergence between the two contexts: while in the case of New Orleans the concentration hypothesis could be verified, in the denser areas of Miami the displacement model was the most accurate to interpret the post-disaster long term recovery. Therefore, the two authors validate the *moderating hypothesis*, thus underlining the relevance of local contexts in DR.

⁴ The denser an area is, the larger the number of the people hit by the disaster and the higher the land economic values become.

The approach used to analyse, a small town located on the Chilean coast, is based on this hypothesis, whose main assumption is that scholars have to take into account local real estate dynamics and regulatory systems when examining the socio-spatial polarization and the displacement of socially vulnerable sub populations.

2. Housing subsidies and socio-spatial dynamics in Chile

Housing policies in Chile belong to the neo-liberal model codified in the National Constitution by the Military Government in 1980. The *Política Nacional de Desarrollo Urbano* (National Policy on Urban Development) denied the scarce availability of urban land, thus reducing edification costs and launching a phase of extreme dynamism for the real estate market, which is still going on⁵.

This policy was in contrast with what was happening during same period in other South-American countries, where informal settlements (e.g. *poblaciones, favelas, etc.*) were being demolished without giving any kind of guarantee to evicted families: in Argentina, for example, the military operation respected the slogan of Buenos Aires' Mayor "the city is for those who deserve it". On the contrary, in Chile, the government adopted an interventionist policy, aimed at building new neighbourhoods in the urban outskirts to be assigned to disadvantaged social groups. Such a strategy, quietly strange for Chicago Boys' model of the "minimal state intervention", was employed for two main reasons: to stabilize the precarious national real estate market characterized by a dangerous and critical macro-economic instability; to neutralize potential conflicts and tensions that would have put the normalization and pacification of the national security at risk (Renna, 2011).

As this policy was not accompanied by a strong urban planning regime, its concrete spatial outcome was an unregulated expansion of Chilean cities beyond their borders. Several negative externalities followed. Among them, here I mention, without being comprehensive, the main issues that emerge in scientific literature (Bazzucchi, 2010): lacking mobility system and increasing vehicular congestion in large non-decentralised towns; the efficacy of public transport; the criticism of urban services management, etc. mar-

⁵ The latest Chilean Capital's town plan (Plan Regulador Metropolitano de Santiago - PRMS100), approved in 2013, disciplined an increase of 10,200 hectare of building land (Riedel, 2014).

ginalization of periphery areas, marginalization of vulnerable groups, etc. urban sprawl had direct consequences on their (socio-cultural-spatial) structures as it gave impetus to the further marginalization and exclusion of socially vulnerable groups from the social and cultural city life.

Behind the spread of cities there was mainly the policy on housing subsidies aimed at reducing extreme poverty. This actually brought about the diffusion of dormitory neighbourhoods and enhanced socio-spatial segregation. A new social category thus emerged: “los con techo” (who have ‘just’ a roof), which derives from the expression “*los sin techo*” (who haven’t a roof, homeless). This was used to refer to the poor who lived in subsidized houses in the Chilean peripheries. Such a rhetoric artefact clearly showed that the ownership of a small dwelling did not concretely improve disadvantaged groups’ living conditions (Rodríguez, Sugranyes, 2005).

This is the reason why, although in 2012 the World Bank and the Inter American Development Bank applauded the Chilean government for its attempts to diminish the number of homeless, the government itself implemented a plan aimed at demolishing part of the *viviendas sociales* estates (cost: \$ 23 billion, in 2013). This explains why those houses, built without a regulation framed within a well-defined urban vision, had a high cost for the community and probably represented a clear damage for the whole society (Tapia, 2014).

3. The earthquake and the acceleration of the model

On Saturday 27th February 2010 at 3:34 a.m. an earthquake with magnitude 8.8 Mw hit the central Chilean region for almost three minutes. After the natural event in Valdivia in 1960, long considered the strongest in the world history, it was one of the most intense earthquakes registered in the country. Induced by the settling of the Nazca plate on the South American plate off the Pacific coasts, it caused a tsunami that, 35 minutes later, destroyed the central Chilean coast and placed other 53 countries on the Pacific Ocean on a state of alert.

Since the epicentre was located underwater and not far from the coast, in the BioBio region and in part of the Maule region, the natural event and the subsequent seaquake reached the eighth degree of the Mercalli scale, thereby expanding beyond the coastal areas and moving to the mainland for hundreds of meters. According to official reports, 525 people died, although some statistics are probably underestimated because they are based on certified deaths and family identifications. Almost 500,000 dwellings

were irremediably damaged. Two millions of people were evacuated. The Plan de Reconstrucción - Reconstruction Plan - write by Government describes the dramatic moments after the disaster as follow:

[...] diffused damage in all national economic sectors, generalized collapse of communication and of basic services' provision, closure of commercial activities, and acute crisis of public order and security. The country lacked in communication for hours and, during the aftershocks, many citizens looked for their relatives in the rubble, helped by Carabineros, Firefighters, regional authorities and civilians, who reached even the most isolated places to collaborate in this difficult task. Also attacks to public order and to private property were documented (or registered). (MinVU, 2010)

Almost 75% of the Chilean population (12,8 million people) were affected by the earthquake. Among the 2 million people hit by the disaster, 83% belonged to the two fifths of the most socially vulnerable groups. According to official data, ten detention centres either collapsed or could no longer provide minimum living conditions for detainees; prisoners were thus forced to evacuate to survive. Yet, in the most affected areas, composed by five cities with over 100,000 inhabitants, 45 with more than 5,000 inhabitants, and about a thousand rural or coastal villages, 370,051 houses that were severely damaged: 179,693 were completely destroyed; 108, 915 seriously damaged, and 179,693 were no longer habitable (ONU, 2010). Likewise, the infrastructural system was greatly damaged: highways, bridges, harbours, railways, irrigation and energy systems. So were hospitals, schools, public amenities, etc. Although such loss did not really affect the population, it tragically compromised the environment and the whole post-disaster phase. As the International Labour Organization (ILO) declared, in the aftermath of the disaster about 93,928 individuals lost their jobs; 34,438 in the BioBio region and 38,090 in the Maule region. Small enterprises, which guaranteed 81% of paid employment, were the most affected (International Labour Office, 2010). Although deaths were miscalculated, the Chilean earthquake and seaquake clearly represented destructive events that “profoundly affected the national social life with multidimensional and complex effects and with evident consequences for the medium-low social sectors” (Letelier, Boyco, 2011). After the first dramatic emergence phase and through an intense period of violence against malls and retails, characterized by military interventions and the imposition of cur-

few⁶, one of the moments that clearly expressed the social complexity of the phenomenon was the post-disaster phase, in particular, the reconstruction. The policies implemented during that phase did not really benefit from the creation of institutions *ex-novo*; on the contrary, they extended the number of existent subsidies, including those assigned to the families hit by the earthquake. Through the distribution of public vouchers, the flows of public investments increased, thus fostering the real estate market. Hence, to understand the social consequences of the reconstruction, both in their individual and collective dimensions, it is important to focus on such financing procedures and on the mechanisms adopted to assign public aids. By encouraging access to credit and direct purchase, subsidies turned into devices used to support the expulsion of those who were not able to financially integrate them.

The government's aim was to allocate 220,000 dwellings in two years, as many as those allocated in 2007 when there was no earthquake emergency. Unfortunately, the goal, although objectively sustainable, was not achieved. The main reason was the reduction of profit margins for the real estate enterprises engaged in the construction of subsidized housing. In such a case, in fact, the strategies to obtain a return of capital are to use land with low economic value or to operate in economies of scale. These conditions, if any, may be found only in peripheral urban areas and not ever. For instance, in case the dwellings just required to be repaired, real estate enterprises did not foresee any reasonable profit returns. Hence, they simply decided not to invest in it. Even when households owned the land or the estate, the subsidize mechanisms favoured the construction of new dwellings. As public vouchers were not enough to cover the repairing costs, families integrated them with the profit from the sale of their properties, so that they could later buy new houses in remote outskirts. Such a dynamic went hand in hand with the gradual, and already consolidated, phenomenon of eviction. Due to the large number of displaced people after the disaster, it greatly accelerated the expulsion.

In Talca, the capital of the Maule region, the expulsion of the population from the city centre involved a lot of poor people, contributing altering the heterogeneity of the area. Already in 2007, a study carried out by the Minister of Planning and Housing (Ministero de Vivienda y Urbanismo - Min-

⁶ It was a dramatic moment for the country and its institution in 2010 chaired by Michelle Bachelet, an ex-political prisoner which his parents murdered by civic-militar government of Augusto Pinochet. The after-quake was the first time with soldier in the streets since the end of dictatorship. For a deepening view on the looting of Chilean post-disaster see Aguilera S., 2010 and on the role of the Army in the history of Chile see Maira L., 1999.

VU) documented a lack of housing projects for low and medium income subgroups in the central areas of the city. The research, prior to the earthquake, pointed out that once the poorest groups were thrown out the centre of Talca, they moved to the small villages of the San Clemente area, in the South of the city. Indipendencia and San Patricio, two large real estate enterprises, gathered more than 70% of the total subsidies of the three municipalities. Most of it was spent to finance the new urbanization of Maule, a small town that has grown over the last decade by 150% mainly through the construction of new housing estates that have affected the city's social profile (Letelier, Boyco, 2011). Due to the increase in demand and supply during the post-disaster phase, this trend towards urban sprawl further intensified and became even more restrictive. Moreover, it caused the expulsion of those people who could not afford the repairing costs, the construction in situ and the purchase of better dwellings. In many post-disaster contexts, this meant that socially vulnerable groups were excluded from urban centres. Areas that had been always characterized by social heterogeneity and high rates of liveability and accessibility were now marked by polarization and differentiation.

Beside the critical issues of the voucher system concerning the selection of the beneficiaries (such as the difficulties for socially vulnerable individuals to access the credit system, the non-recognition of informal settlements and insolvency, etc.), it is important to point out that no value was attributed to the localization before the natural event. Households did not receive any indication on where to invest the public aids. They could decide autonomously and independently. Housing subsidies were thereby turned into powerful devices to unravel the social fabric of the vulnerable groups who were most affected by the natural event.

This mechanism which was in the grip of the increasing of the market, was not only limited to the housing sector. The lack of neighbourhood planning, the resulting empowerment of local investors, and the low urbanization costs brought about serious shortcomings in terms of urban planning, which, in turn, engendered negative outputs in terms of liveability, accessibility, disaster recovery security, etc. In order to identify the instruments that most influenced the urban reconstruction, it is important to combine the bottom-up dynamic behind the post-disaster subsidies with the consolidated procedures of vouchers assignment to the most socially vulnerable groups. Nevertheless, we must also recall the main models of public planning interventions which, in almost all cases, were entrusted to pri-

vate actors. Due to the institutionalization of EGIS⁷, private companies were in charge of the whole housing construction process, from the organization of the demand to technical design and building construction, while joint ventures of foundations, enterprises, research centres, etc., were entitled to define priorities concerning the public space design. Their aim was to define the content of Planes Maestros (PM). These regulatory instruments, whose guarantor is the MinVU, were mainly based on the formalization of public private partnerships (PPPs) among municipalities, regional governments, companies, and social organizations. Such practices also showed some problematic issues: as Letelier states « [...] it is particularly significant that large economic groups have been in charge of many of these plans. They have operated arbitrarily to promote the city as a tourist destination and to attract private investments, rather than meeting the needs of the earthquake victims» (Letelier, Boico, 2010).

In general, such plans were directed to orient the decision-making process, especially concerning the works to be carried out, the distribution of housing subsidies, the reconstruction of infrastructures and the local long-term planning and investment criteria. The non-legally binding nature of such plans shows that both their success and their implementation relied on investors' strength. This clearly corroborates the hypothesis on the urban density factors developed by Elliot and Pais.

According to MinVU, 162 reconstruction plans were implemented in the aftermath of the disaster: among them 25 Planes de Reconstrucción Estratégico-Sustentable (PRES) - plans for sustainable and strategic reconstruction-, 2 Planes de Reconstrucción Estratégica (PRE) - Plans For Strategic Reconstruction-, 110 Planes de Regeneración Urbana (RU) - Urban Regeneration Plans-, and 25 Planes Maestros del Borde Costero (PMBC) - Master Coastal Plans, for coastal areas reconstruction. Aimed at promoting innovative, responsible and sustainable urban planning strategies, they set priorities and selected the proposals to be realized over the following eight years. As the cost of a single building was about 2,000 million pesos, such plans provided a sum of 16,000 million pesos to be allocated in the six regions hit by the earthquake by 2011. Some scholars argue that the lack of an institutional framework to regulate the time and the financial resources invested in the post-disaster phase turned the reconstruction plans into utopias (Cociña Varas, Boano, 2013). The Chilean government itself defined such

⁷ Entidades de Gestión Inmobiliaria de Empresa (EGIS) They are usually offices, owned by construction companies and/or NGOs and foundations that collect and organize housing subsidies, in order to include individual applications into collective projects.

plans as “non-binding strategies: the Master Plan is not an instrument for territorial planning, but rather a technical tool” (Frequently Asked Questions - FAQ - on the National Reconstruction Plan).

In conclusion, I would argue that the poor effectiveness of PRESs did not depend on the emergency situation in the disaster aftermath; the instruments were, in fact, directly subordinated to the will, the ability and the power of each PPPs. It is paradigmatic that the consultancy offices in charge of the planning instruments’ design were more effective when closely tied to stakeholders and investors. By adopting these plans, the State ultimately delegated the planning to economic actors that were profoundly interested in return of capital from the reconstruction phase. Nevertheless, Rodriguez stresses, this did not represent a guarantee of effectiveness (2010).

4. The Constitución case

The above-mentioned double dynamic, bottom-up and top-down, fully emerges in the context of Constitución, a small-medium sized town on the Maule Coast (41,000 inhabitants), hit by the earthquake and the tsunami, and with a high number of victims.

Here, the PRES-Constitución planning strategy was added to the above mentioned dynamics of Chilean subsidies market, accelerated by the expansion of subsidies for the earthquake victims. This produced a double process characterized by the expansion of the urban area, although the population did not increase, the relocation of a marginal group of citizens in the new suburbs and the emptying of the town centre, followed by a gentrification process.

Supported by a consortium of local investors, the Strategic Sustainable Reconstruction Plan - PRES-Constitución - together with the housing subsidy policy have reshaped the face of the town. Unlike many other plans, the PRES acted incisively and crucially in the urban recovery process. It is/was, indeed, the result of an agreement between the municipality and the private sector, represented by the cellulose enterprise ARAUCO Y CONSTITUCIÓN (CELCO), a company that had strong economic interests and employees in the town.

The government grant amounted to \$ 102 million (Barrientos, 2012) in addition to 55 million from the private sector; the project was carried out by

Elemental⁸, a Chilean design office, linked to the holding group headed by the cellulose company. Even if we do not take into consideration the problems linked with the role of CELCO in local environment pollution (olca.cl, 2014), according to some authors, the major issues were the lack of transparency and horizontality of the means. Firstly, it was highlighted that, although the donations made by private institutions for PRES were publicized, it was «impossible to determine explicitly and recognizably who or which entity made the donation, nor what the donated amount was» in the MinVU website. Despite this, it is sufficient to point out that, out of the total investments made by the private sector to Planes Maestros in the Maule region, the largest share of donations was concentrated in the town of Constitución (65%). «The unequal geographical distribution of investments, in which you cannot identify a unified methodology», was, therefore, clear (Barrientos, 2012). In other words, what emerges is a process of prudent investments rather than one of scattered investments: this suggests that the financial support of the strongest private enterprise in the area represented a mere economic interest rather than social philanthropy.

Secondly, the vertical and specialist nature of the PRES of Constitución should be pointed out. According to the scholars of Observatorio Reconstrucción, PRES did not have a medium- and long-term vision and a strategic planning, due to the lack of a real horizontal involvement (OR, 2013). In fact, the referendum to decide about the local administration and the investments with binding effectiveness, involved less than 10% of the citizenry. After a citizen consultation (134 voters), in the initial phase, the studios in charge of designing the plan (one of which is/was owned by CELCO, while a European one was commissioned by the same company) specified that the planning strategy priorities would include: 1. Tourist development 2. Costanera (road along the sea and the main access road to the cellulose plant); 3. Natural environment; 4. Public spaces and green areas; 5. Security. In this list of priorities, the direct interest of the multinational corporation CELCO and of other investors are clearly recognizable: PRES concentrated its proposal only on the town centre and on the river coast, disregarding the overall reality of urban space, the problems of accessibility, the demand for new residential areas and other relevant issues emerged after the tsunami-earthquake. As argued by the Movimiento Nacional para una Reconstrucción Justa (MNRJ), the investments plan has been constituted basically as a short-term strategy with an immediate economic return. Accord-

⁸ The Chilean architect Alejandro Aravena is the executive director of Elemental S.A. and he won the Pritzker Architecture Prize in 2016.

ing to this perspective, the mitigation park “Parque Fluvial Borde de Constitución” was created. It cost around 9,000 million Chilean pesos and destroyed the habitat of dozens of small fishing families of the area⁹, consequently causing their expulsion, but it made it possible to satisfy a (supposed) demand of security and green areas¹⁰. More in detail, the short-term strategy produced three main results: a) it became a driving force for the recovery of tourist development, revamping the image of the seaside resort and then re-stimulating tourist and commercial investments b) it build an important route of access to the cellulose factory, which had been previously longer and forced the transportation of incoming and outgoing goods through alternative routes because of the peculiar density of the old town planimetry c) it conveyed a powerful symbolic message, since the renovation of the centre and the construction of infrastructures, which could ideally counteract the impact of the natural agent, was carried out by the Angelini family (owner of CELCO).

As the image illustrates, PRES interventions were destined exclusively to the centre of Constitución, thus fostering a gentrifying trend that supported the dynamics of expulsion of vulnerable groups (figure 1).

Indeed, the sum of these two processes (the PRES interventions and the market of subsidies) has exacerbated the socio-economic polarization phenomena and the gentrification of the town centre. They boosted each other and contributed both to the worsening of vulnerable people’s living conditions and their relationship with space.

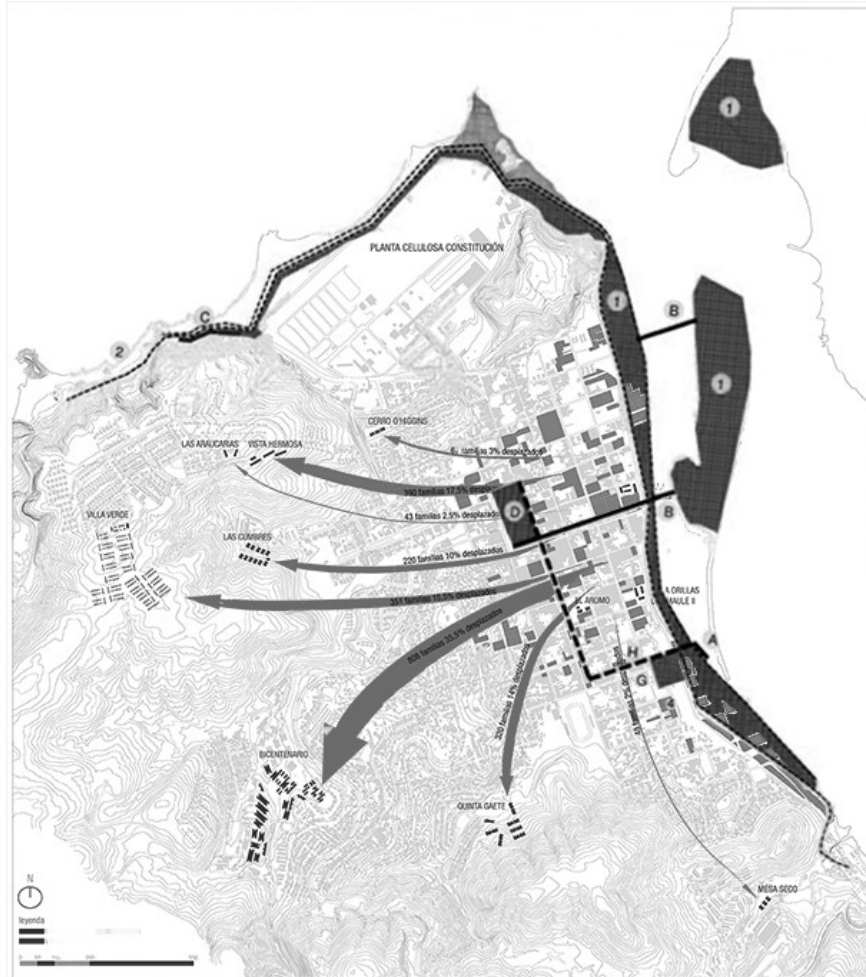
As pointed out by some authors, the central area of the town has undergone a socio-functional distortion and a change in the inhabitants composition, characterized by signals of gentrification following the emptying of the old town by earthquake victims and the hypothesized investments outlined in the reconstruction plan of PRES. The governmental participation in the reconstruction of the town centre was limited to 5.5%, while 51 buildings were built for residential use on privately owned lots (2.3% of the total). The restructured houses represented 0.001%, while about 200 remained empty, waiting for the real estate speculation to make them exploitable and habitable. 50 buildings are still being demolished (4.3%), while

⁹ Except for some fishermen who were self-organized in grassroot committees and were able to obtain that the State took charge of the public housing project “La Poza 2”, located on the edge of the river that flows into the ocean, not far from the evacuated area.

¹⁰ There are no studies that prove the ‘anti-tsunami’ effectiveness of the park: the outcome of the impact depends on its strength and on some secondary factors (mechanical, social, temporal, etc.)

approximately 3 hectares of derelict land in the area next to the market increase the perception of urban decay (Contreras, Benitez, 2015).

Figure 1 - Top-down (Pres) and bottom-up (subsidies) dynamics in the post-disaster reconstruction of Constitución



In the image above, two maps are overlaid: the first one indicates the relocation of families hit by the earthquake from the centre to the new urbanized area (arrows) at the periphery of the urban area, highlighting the urban voids (polygons), the areas abandoned in the city centre (Prieto, 2015). This is superimposed on the map of Pres interventions: it includes the “anti-tsunami” park (1), new access routes (dashed lines) to the Celco plant, the panoramic viewpoint “Mirador” (C) and the pedestrian zones linking the square (D) to the park through the bridge (B) and through the new commercial area, down to the tourist port (Pres, 2011).

In the flooded area, about 200 houses have been repaired by the earthquake victims on their own initiative: they were mainly lower-middle class people, who could not have access to mortgage credit because of their state of insolvency (in most cases, related to the previous loans obtained to buy a house, later destroyed by the tsunami). We should note that 13.2% of the lots were bought by supermarket chains and medium-sized or large stores, converting them to commercial use.

The analysis of this trend, alongside the progressive depletion and consolidation of the “transition zone”, namely urban areas left unused and abandoned, shows an emerging gentrification process of the area, due to substantial investments made by the private sector to improve tourist infrastructures, to the centrality of the places and to the proximity to the river and the seaside. All these factors are transforming the centre into an object of speculation, with negative consequences for the habitat and for the disadvantaged people who remained in the city centre. Contreras and Benitez, who have studied the gentrification process of the city centre, have highlighted the increased real estate value of the entire central area, especially in the station area and around the central square, redeveloped in the PRES projects.

For this reason, the projects that MINVU endorses and to which SERVIU (the local authority of MINVU reference, for projects application and implementation) suggests/offers to the earthquake victims, are all located outside the urban centre and in poorly accessible areas, although the 45% of them lived in the old town. Apart from some few organized families of fishermen in La Poza, who were able to get a reconstruction on the spot after the struggles made together with the grassroots neighbourhood committee, the earthquake victims were delocalized in the apartment buildings of Cerro O’Higgins (partially collapsed during the earthquake); or in the complex of Vista Hermosa, Las Araucarias, Las Cumbres, Villa Verde, built by CELCO company for its displaced workers, or in the Bicentenario project and Quinta Gaete, a complex designed to respond to the pre-27F housing needs and increased in volume after the earthquake (figure 1).

Hundreds of families, who were relocated in the extreme periphery in a very short period of time after the earthquake, lost their habitats: as it emerged from the qualitative analysis of the Chilean post-earthquake¹¹, the

¹¹ The results presented here have been obtained thanks to an extensive fieldwork carried out by using mostly qualitative techniques with ethnographic sensitivity. The years I spent in Chile were useful to prepare my doctoral thesis called *Processes Of Socio-Spatial Vulnerabilization In Contexts of Post-Disaster Reconstruction*, presented at the University of Bologna in

acceleration of urban sprawl has enabled the socio-spatial vulnerabilization processes for certain categories, which generated multiplier effects of existing vulnerabilities. Precariousness has made the most vulnerable groups insecure (elderly, single mothers, etc.) and it has been a crucial issue in the vulnerabilization process. Those who have had few social and economic resources, therefore difficulties in accessing credit, in dealing with the bureaucracy etc., have fallen into negative spirals when tried to improve their situation but failed to invest in social and relational capital. Insecurity, uncertainty, urgency, and the concept of aids and subsidies as a generous charity rather than a right, pushed individuals to develop short-term strategies which turned out to be counterproductive for individuals and communities in the long term. At the same time, the issue of accessibility represents one of the pillars of sub-groups segregation in the periphery. Also in this case, it is useful to highlight the experiential differentiation of individuals according to the resources they had. We observed that the lack of services forced the categories expelled from the city to resort to private mobility. Moreover, when focusing on timing and manner, we can state that mobility is one of the dimensions where the vulnerabilization processes develop, connected to the subject-environment relationship: individuals who are able to activate the few resources they own can overcome the obstacles that environment and relocation pose; otherwise, these obstacles operate as multipliers of existing problems. After the disaster, having access to a dwelling is experienced as a gift by many people: one more reason to affirm that the ability to implement strategies to face the consequences of the relocation is often connected with the ability to analyse the existing possibilities and to recognize them as equal in a range of rights.

However, what really affects the vulnerabilization processes is the activation of capitals, resources or networks to reformulate a strategy; the alternative is being crushed in a spiral that progressively drags a person in more critical conditions. The relationship between offshoring and sudden increase in the number of vulnerabilization processes is, therefore, a key point for interpreting the changes in the post-disaster reconstruction. This vulnerability does not focus exclusively on the pre-existing conditions (consider the jobs where social vulnerability vectors are crossed with those of environmental hazards to define the socio-spatial vulnerability zones), nor on the post-disaster phase (Dash *et al.*, 2007), but it reflects also the dynamics of the production of space as a result of the urban processes, the

joint supervision with the University of Chile and the *Centre de Investigación en Vulnerabilidades Desastres Socio-Naturales* (CIVDES) of the *Facultad de Ciencias Sociales*.

historical neighbourhood characteristics, the social inequalities before the disaster, the ability of the communities to access resources and assistance during the emergency and the ability to reconstitute in the aftermath. This perspective also allows to spatialize “micro” studies or case-based studies, and to use the post-disaster reconstruction as a socio-spatial device that accelerates the vulnerabilization exclusionary processes of the most vulnerable groups, characterized by general tendencies of marginalization which are at the basis of the mechanisms of social habitat production.

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