Following engineers and architects through slums: history, policies, urban poor populations and the technoscience of slum intervention in the Portuguese-speaking landscape

Summary

This chapter draws from an enlarged view of the history of state intervention in informal settlements and poor built environments throughout the 20th century, in Portugal and in colonial cities such as Lourenço Marques (today Maputo) or Macao, to better illuminate the sociotechnical complexities involved in the current program of rehabilitation of slum neighbourhood Cova da Moura in Lisbon, one of the city's most studied and well-known informal settlements.

Metropolitan policies of housing provision for poor populations, on the one hand, and the provision for, containment of and control of colonial populations, on the other, were part of the common but multi-sited emergence of a technoscience of housing developed by colonial and postcolonial political regimes. Intervention in informal settlements or 'slums' was often one of the first steps in the process of constituting such housing apparatus, or even of rearranging broader social arrangements, and specific options regarding them are a good indicator of the value the populations concerned had, or have, to the state. The case of the the rehabilitation of Cova da Moura, a neighbourhood with a significant population of postcolonial migrants, is better understood by the analytical coupling of these two distinct but related dimensions, the history of housing public policies and the history of urban colonialisms.

In part 1, I will briefly point out the two long-standing paradigms in the state's intervention in deprived housing, the options of, on the one hand, building anew or, on the other, of upgrading, rehabilitating or regenerating dwellings. Loosely inspired by theoretical insights from Science and Technology Studies and social construction of technology models, I look at each as a sort of 'technological frame' in housing provision in the city (Bijker 1995, Aibar and Bijker 1997). Second, I show how more or less participatory approaches to planning and the 'workings' of the city emerged, then were subsumed, and then resurfaced again, in response to very specific political circumstances. Third, and on another level, I show how housing policies were enacted by 'specific intellectuals' (Rabinow 1989; for this case Nunes and Serra 2004) and that the different type of knowledge summoned in different cases was constitutive of the overarching objectives, as if 'recoded' by evolving needs – for example social and economic expertise was essential to the set up of SAAL, a program of assisted self-building from the 1970s; administrative and 'discipline' knowledge to the PER, a clearance and relocation program from the 1990s; or engineering knowledge of the

built environment adapted for the case of slum rehabilitation I present in part 2. Along this path, I show the links to the architectural and planning professions, and intermittently we see how architectural solutions to house the urban poor were connected to the 'place' such populations were ascribed in society. Fourth, I point to the existence of 'time complexities' in this linear history, that is, how ideas and policies were inspired by experiences in other countries (European cases mostly, but also Brazil or African countries), sometimes implemented at the same time as in those countries but sometimes outdated by a decade or two.

In part 2, I focus on the issue of 'scientific knowledges' in housing provision, specifically those involved in an experiment in slum rehabilitation, in order to show how complex decisions linked to multicultural/participatory planning are based on a 'laboratorisation' of the dwelling founded on a continuum of objective-subjective assessments of the built environment.

1. Reviewing the history of public housing and intervention in slums in the Portuguese-speaking landscape, 20th century-present

Continuities in public housing

The history of public housing provision in the 20th century in Portugal, according to Gros (1994: 80) is marked by three types of continuities: the small volume of provision in respect to the general (market) supply, social selectivity in access to housing programs and, at least up to recently, a strict focus on the dwelling unit (not on other urban or social aspects) as the core element of what is the 'habitat'. In this review I will, following Cardoso's data (1983, in Gros 1994: 84), intermittently add a particular indicator to these continuities, that of the quantification of costs of publicly-provided dwelling units in comparison to the average prices in 'free market' general supply. It is an indicator that is very specific to academic research on housing and was only developed at the end of the century, but the rationale which underpins it acted in different times as a powerful basis to policies, emerging as an especially relevant benchmark in periods of experimentation. As such it gives a clear picture of the relationship between public housing, its target populations and their role in society.

The hygienist tradition and the options of building/rehabilitation

The beginning of the 20th century saw the rise of the first, incipient programs of public housing, introduced in response to a 'housing crisis' in the 1910s-1920s and to the calls from 'hygienists' to improve the living conditions of different urban poor populations.

Echoing the advances in European countries – and complaining how the legislative attention given in those to poor populations had not been transposed to the Portuguese case – hygienists like Ricardo Jorge alerted as soon as in 1889 to the fact that the working classes were strangled by higher rents, which they paid for insalubrious living quarters, than those of better-off populations (idem: 81). Twenty five years later, in 1914, another hygienist, António Lemos, based on a topographic survey of tuberculosis-related mortality rates in Porto, argued:

> "There are two systems to sanitise the houses in this city: to build new houses according to all hygiene precepts and in such prices that they are affordable to the working class [*operariado*] or improve by partial works, under strict sanitary control, the state of the existing ones." (Lemos 1914 in Gros 1994: 81)

It was one of the first times the problem was posed with such clarity, and the options of, on the one hand, rehousing or, on the other, upgrade or rehabilitation under technical-scientific supervision, would re-emerge later. To respond to these concerns, it was argued that the crucial point was to commit the state to intervene, which happened with the *Bairros Sociais* (Social Neighbourhoods)[1] program of 1918-1919 with direct financial participation of the state, a measure that eventually failed because of the state's financial shortcomings combined with a 'liberal' (non-interventionist) political culture.

Housing under the dictatorship

Under the political regime instated in 1933 which would quickly become apparent was a fascist, repressive one, Salazar's *Estado Novo*, the provision of public housing became increasingly tied to social selectivity and hierarchy. For example its most emblematic program, *Casas Económicas* (Economic/Affordable Houses), set up in 1935, while of a larger scale than any previous programs, involved a strict control by the state over allocation criteria and instituted very repressive penalties (ultimately loss of tenure) as soon as rent payments were defaulted on or in the case that 'social propriety' was not respected.

Public housing served the ideological aims of the regime, to which social stratification was key: the Economic Houses were usually allocated to lower-middle class state employees[2] who were members of the corporative trade unions (Pinto 2009: 211), the pillars of the regime. The "urban poor in the real sense – dependent on menial forms of casual employment, working in construction or even in the in-between world of agricultural labour in small plots and market gardens that were dotted across the city"

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[1] To this day the most common term used to denominate public housing estates.
[2] In the first decades mostly military or police personnel, later City Council or government employees (Pinto 2009: 211).

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(idem: 211) could only access schemes such as the *Casas para Realojamento* (Relocation Houses), originally aimed at poor families under relocation process. The relative cost of Economic Houses in comparison to the average dwelling unit was 90%; the Relocation Houses, usually pre-fabricated structures with temporary tenure, 38% (Cardoso 1983 in Gros: 1994: 84).

A later update to the Economic Houses program saw it segregated into four different categories, with differentiated construction costs and standards directed at different income strata. Preferentially, each neighbourhood should not have more than two of the four categories (so as not to mix populations with disparate income levels too much). Another program was directed at high-ranking *cadres* of the regime, the *Casas para Funcionários* (Houses for Officials); its relative cost was 120% of the average dwelling. A final program worthy of note was the *Casas de Renda Económica* (Houses with Affordable Rent), which I expand on below; their relative cost was 93%.

The diminutive scale of public housing, and giving in to modernism

Throughout this time, public housing was provided on a small scale. Even in the period between 1953 and 1973, which saw increasing industrialisation thus the need to house the labour force migrating to cities, public provision amounted to only 10,8% of all built dwellings (Cardoso 1983 in Gros 1994: 83). The *Estado Novo* was not inclined to use Keynesian mechanisms of housing provision to support general economic demand (and development). This was the nexus for the first explosion of shanties around Lisbon that happened in the late 1960s-early 1970s period.

Despite this, the social modernity housing model of *grand ensembles*, new towns and similar types (Rowe 1993) started to make its way; what was built increasingly followed modernist architectural styles, and buildings drawing on concepts such as *unités d'habitacion* took shape. An example was Olivais Sul, which started to be planned in 1959 by the municipal division *GTH – Gabinete Técnico de Habitação* (Technical Bureau for Housing) and was completed in 1969. It included 1,012 units built under the aegis of the Economic Houses program and 6,458 under the Houses with Affordable Rent one, for a total of 40,000 inhabitants. What is interesting in this case is that the GTH, and a young generation of 'technocrats' that worked there, was able to articulate the construction parameters and the economic rationale of the Houses with Affordable Rent (which came from conservative housing policy) with a degree of freedom in conceptualising and experimenting on urban and architectural form (which reflected reformist, progressive ideals). It did so by managing scientific techniques of housing, or as Nunes (2007: 63-93) puts it, by managing Economy, Normativity and building standards.

These kinds of entryist approaches to the state institutions that operated the housing system were not entirely deliberate but were nonetheless tied to political resistance to the regime. These strategies were pursued by a range of people, from soft progressive Catholics to members of the Communist Party – which was then illegal and strongly repressed. These groups helped to form a 'reserve' of technocratic expertise in housing provision which would be fundamental in the post-revolutionary period (Bandeirinha 2007).

The African Generation: Modernism and the Informal City

At the same time approximately, i.e. from the late 1950s to the early 1970s, an 'African generation' (Fernandes 2002, Magalhães 2009) of architects and planners, trained in Lisbon and Porto's universities, developed work in colonial cities (most notably Lourenço Marques, today Maputo, in Mozambique; and Luanda, Angola) where they could experiment with modernist languages more freely than in the metropolis.

Although with progressive planning ideals and modernist typologies, they were building the 'white city', that is, the part where the colonial administration and the white workers lived, in what were strongly dominated, racialised and segregated societies;[3] the outer 'black city' was usually unplanned, lacked infrastructure and was segregated from the rest. The experimentation with modernist architectural languages saw the development of an 'African style' that Magalhães (2009) coins as 'Tropical Modern', which was similar to parallel developments in other African countries. Its most distinct features were either 'technical' features related to air and light (the more emblematic were the street-in-the-sky galleries 'shadowed' by reticulate concrete); or figurative expression with reinforced concrete (strongly inspired by the Brazilian modernism of Niemeyer and Lúcio Costa). The style's pinnacle is illustrated by the work of architect Pancho Guedes, for instance his *Leão que Ri* (The Lion that Smiles) building (see Fernandes 2002: 50-52; Magalhães 2009: 63, 197, 224). However, it was developed against a different political background than in those cities, by then the capitals of independent states, where modernist architecture served the development of postcolonial projects (e.g. Dakar, Abidjan, etc.; see Myers 2003 for a complex case in Zanzibar). Here it was still at the service of a space of domination.

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[3] Similarly to French and Belgian colonial legislation, social segregation in Portuguese colonies was organised into the categories of 'white', 'indigenous' and 'assimilated'. The most important pieces of legislation are the Indigenous Statutes from 1929 and 1954 and their revocation in 1961, which granted citizenship to all inhabitants of the 'ultramarine provinces' (Castelo 2007: 292-295). The 'assimilated' status was granted after bureaucratic request, could be cancelled by the state at any time if social or material circumstances changed and could not be passed to offspring. However residual in number – by the time it was abolished, only 1% of Angola's and 0,5% of Mozambique's populations were 'assimilated' individuals – it was an important mechanism of domination.

Elements of this generation sometimes experimented in housing or infrastructure provision for settlements of colonised populations. There was a history to this too, with previous contracted projects where colonial imaginations and racialised views had been behind the provision of mass accommodation for labourers, in which houses followed ideas of 'how the black lived' (see Fernandes 2002: 22 for the planned provision of *sanzalas*, i.e. slave quarters, for black labourers).[4] But experiences of a more progressive nature were to follow. One example was the plan that 'fixed' the *caniço*, the informal black city of 'popular shanties' immediately adjacent to the centre of Lourenço Marques (see Fernandes 2002; Guedes 1971), to the territory. It included infrastructure provision, but more importantly it marked its place in the masterplan designed to steer urban expansion: this was done in order to avoid its population having to move further out and thus not able to cover transportation costs (for most worked in the 'white' part). By allocating it a zone in the masterplan, it was granting it existence and preventing future clearance derived from foreseeable urbanisation pressure. At some point, there was even a *Caniço* department in the City Council (Fernandes 2002: 56).

Another was the innovative *bairro municipal* (municipal neighbourhood) in Lobito, Angola, planned by its master architect/planner Francisco Castro Rodrigues in 1970-73 for *indígenas* ('indigenous'). A type of 'Sites and Services', its plans involved a total of 7,500 units, with the City Council responsible for doing the foundations and providing materials (cement from Lobito, bricks from Catumbela, zinc boards from a factory in Benguela, all linked to the colonial manufacturing economy) and labour by future inhabitants. It was a very successful experience (Fernandes 2002: 47) and in a way prefigured the SAAL a few years later.

Individual cases like that of Castro Rodrigues show the overlap of generations in the 'architectural resistance' to the regime. A member of the Portuguese Communist Party (PCP) until 1949, he was denied a position in the Lisbon City Council and the move to Angola allowed him to practice (Magalhães 2009: 195-196). Architects and planners in the colonial cities had negotiated their practice in the interstices between freedom and power; but they were not as politicised as the generation that followed. In any case, here too a 'reserve' of experience had been garnered in intervening in the informal city and working for the 'urban poor'.

Housing as a social right: from state legitimation to regime demise

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[4] A different illustration from a different type of colonial relationships, those of Portuguese colonialism in China, comes from the landfill of the *Bairro da Ilha Verde* in Macao in the second quarter of the 20th Century, with an embryonic sites & services program to transform a neighbourhood mapped in 1929 as the 'Neighbourhood of Indigent Chineze' (Jesus 1990) into the informal but monitored settlement of a population of fishermen-turned-industrial-workers for a gun powder factory.

A note must be introduced on the notion of housing as a social right. As Pinto (2009) argues, one of the key arenas where the construction of modern citizenship in Portugal was forged was that of housing provision. We have seen that housing programs were used as a way to centralise, strengthen and legitimise the dictatorial state, yet despite being anchored in strong allocation selectivity and enforced by a growing bureaucratic machine, Pinto explains, this changed the nature of the social contract. Housing was increasingly regarded as an entitlement; so the state's inability or unwillingness to properly instate universal, democratic welfare policies eventually led to its demise.

A particular feature in Portuguese society emerged, one that becomes very apparent when analysing the SAAL process: the existence of a 'ballast', or again, a 'reserve' of cogent social mobilisation in the form of popular demands for emancipation – which belies the idea of "South European countries as having 'weak civil societies'" (idem: 215) – but one which is very tied to state-oriented solutions (in fact needs 'activation' from the state). Seen this way, this undercurrent of popular mobilisation (very Gramscian on its link to ideas of popular resistance) is historically hampered by authoritative, distant states; but when it sees openness to popular demands, it effervescently re-emerges.

The SAAL

The *SAAL – Serviço de Apoio Ambulatório Local* (Mobile Service for Local Support) program was instituted in July 1974, a mere three months after the Revolution. Although not presented as such in legislation, it was to develop into a program of assisted self-building which sought to respond to severe housing shortages in a situation where programs of conventional supply were impossible to implement in the short term (Ferreira 1987: 84).

It demanded that the construction of the new neighbourhoods was to be on the same sites of the existing ones; that residents were to build their house with aid in materials and 'technical advise' from FFH or from (freely-elected) City Councils;[5] and that rent payments to partly cover costs were to be calculated according to income. Finally, it stated that the 'brigades' of technical advice (legal, architecture project, financial accounting, construction) were not to substitute the populations: the government 'lent a hand' but those who were in need had to 'take initiative' (idem: 83).

It had been a long time coming. But it had also been prepared. The appointed Secretary of State for Housing, Nuno Portas, along with a generation of architects, municipal officials, lawyers and academics, were the 'specific intellectuals' Serra and Nunes (2004, drawing on Rabinow 1989) identify as sharing "a vision of the city as a

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[5] The unclear jurisidiction was to be a factor in its later demise.

space which [until then had been] politically earmarked and appropriated by the capitalist system" (idem: 56). They had in the previous decade and a half prepared the way for the transformation of urban space that the existing revolutionary situation now allowed for.

The SAAL was only a small part of the complete re-orientation of policies, but it was symbolic because it moved to ideas of direct democracy. It was never intended as a way to solve the general housing crisis, only to tackle its most urgent problem, the 'shanties everywhere'. Even in budget that is clear: at its peak it never exceeded 5% of the overall expenditure with housing (Bandeirinha 2007: 165).

Drawing on the policies of elsewhere, or J.F.C. Turner in Lisbon

The solution of self-building for this particular problem of the housing crisis, had been arrived at after much consideration and inspiration from different policy trends, academic research and urban projects. The work of Turner (1968, 1972, 1976) had influenced an entire decade of thought on housing, and whether arrived at via his work of via first hand knowledge of projects in urban areas in Brazil, what he proposed stuck.[6] The six steps of the methodology were: 1) prioritise populations which were 'organised'; 2) the *in situ* preference; 3) autonomy in the design and building processes for each operation; 4) use of local resources; 5) decentralisation; and 6) experimentalism. The triangle between the FFH, the SAAL brigades and residents was the crux.

Operations and brigades

In total, there were 174 operations planned, involving around 40,000 families; some in small some in larger shanty towns. Of the estimated 40,000 dwellings, only 7,000 actually came to completion (Ferreira 1987: 87). This was well under expectation, it resulted from the program's collapse. The SAAL operations involved many architects who were already or would become star architects in Portugal or globally, such as Álvaro Siza. He was involved in a project in Malagueira, Évora (see Rowe 1993: 253-263), and in his words, the intense interaction between architects and residents the methodology determined was a 'luxury' imported into the design process; a 'welcomed luxury' but a luxury nonetheless (RTP 2008). Portas corroborates and explains that residents would often complain "enough with the discussions, what we want is a house,

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[6] The idea that housing is not what it *is*, but what it *does* for people; that local resources and technologies are key; and that residents should have the most important word regarding the design of their dwellings. (Bandeirinha 2007: 47). Other inspirations were the rehabilitation of the Brás do Pina *favela* in Rio de Janeiro in the early 1960s, which prevented the displacement of populations from the city centre (idem: 48-53) and Italy's program of popular housing *INA-Casa* (idem: 55-56).

any house" (idem). In any case, the participatory method would shape much of the architecture professional practice in Portugal in the following two decades. Cardoso (1983 in Gros 1994: 84) estimates the average relative cost of the houses built under SAAL as of 78%, but this figure is extremely inflated given he aggregates SAAL and housing cooperatives under the same category. Realistically, SAAL houses average costs must have been no more than 50-60%.

The demise of SAAL

Again in the words of Siza, "the SAAL was shut down precisely at the moment when [it was realised] it was not just the neighbourhoods, but the city the program was working on" (RTP 2008). By this he means not the issue of scale but of the implications for the broader organisation of the capitalist city: which parts of the city poor people have the right to; which role property and expropriation have; etc. When it became visible that the SAAL involved a different way of thinking the city – in sum, a mode of production of space which subverted capitalist urban processes – it was shut down. And it was done with Florentine, administrative relish (Ferreira 1987: 92; Bandeirinha 2007: 175-218).

The program was seen by many as a threat in a country that was now exiting its revolutionary period and entering a period of normalisation, towards a market society. The program's exemplification of direct democracy, which had served to legitimise the new democratic state – populations had in effect dealt with their housing problems *in cooperation* with the state (Portas 1986 in Nunes and Serra 2004: 59), thus reconfiguring the latter as "an active facilitator of social emancipation and participatory democracy" (idem: 65) – was now a major nuisance. Any experiences that could be seen as alternatives to 'normal', parliamentary and representative democracy were swiftly eliminated, and Nunes and Serra argue it was this rather than any endogenous flaws of the program what contributed to its end.[7] In parallel with its extinction, the trend of public investment in housing was reversed to slowly drop in the following years (idem: 66).[8]

The remaining effect in municipal planning

A reserve of experience remained after it was extinguished, and in fact many City Councils would, albeit on a piecemeal fashion and at a smaller scale, re-introduce it during the following decade and a half. Using either older legislation on self-building

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[7] It must be noted that the political force 'defeated' in this period, the PCP, had never been a strong backer of SAAL, mainly because it impacted too much with its 'democratic centralism'. In a way, participatory democracy was seen as a threat by Communist views as much as by liberal ones because it empowered populations outside the known circuits, i.e. by themselves. In a way, the SAAL was doomed from the start.

[8] This was also related to macro-economic events such as the oil crisis.

(1962) that had been re-applied (see Ferreira 1987: 94-95) or through schemes of their own, City Councils used self-building to solve some of the problems they were faced with.

For instance in the Loures municipality, the twin schemes of *Auto-construção* and *Auto-acabamento* ('Self-Building' and 'Self-finishing', see Cachado 2008: 119-120) are an example. The first one involved the City Council providing materials and 'controlling' standards but basically delegating construction. Investment was paid back by residents over time, leading to tenure. The scale of both projects was, however, very small (less than 200 families), mainly due to lack of municipal land available to scale it up (idem: 120). It was a drop in the ocean of housing problems in the municipality.[9]

The PER

In the following years the housing problems did not disappear; and from the 1980s onwards, the exponential increase in informal settlement – with a significant influx of migrants from Portuguese-speaking countries (former colonies) and a great number of them settling in and expanding the existing shanty towns – only made them more acute. Of the three trends that had contested urban policy in post-revolutionary Portugal identified by Gros (1994: 85) – pure planning; Keynesian measures to correct the market; focus on general demand supported by credit for home ownership – it was the latter that had prevailed. Part-liberalisation of rent control in 1985 (Ferreira 1987, Arbaci 2007) associated with housing shortages priced immigrants out of the rental market; racist practices of landlords made it even more difficult for African immigrants. All the while, strongly politicised housing academics (Silva and Pereira 1986, Soczka et al 1988, Silva and Costa 1989, Rodrigues et al 1989) drew attention to the need for stronger state intervention in housing provision.

So when the *PER – Plano Especial de Realojamneto* (Special Relocation Plan) appeared, even those who alerted to its traps – the segregation present in the history of French HLMs, for example – were happy it had been instituted. Pereira (1993), for instance, immediately alerted to the scarcity of public land in all of the Lisbon Metropolitan Area, with the exception of the municipality of Lisbon that had conducted acquisitions and expropriations in the 1940s. Roseta (1993), on a different subject, pointed out the absence of consultation with civil society organisations in the preparation of the program, and urged the solution of 'self-surveys' (by populations in association with different types of NGOs). At a different level, Lisbon's mayor, drawing on the city's experience of rehousing projects started before the PER, noted that developing "social housing is not the same as making sausages"[10] (Paixão 1993).

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[9] Regarding SAAL operations in Loures, Bandeirinha (2007: 377-383) lists seven completed ones.

[10] The metaphor used was making *tremoços* (lupine seeds, a traditional appetizer). I change it to preserve the meaning.

These warnings aside, the PER was welcomed as the lesser evil: public housing had at least moved top of the political agenda.[11] In the process, a language with strong echoes of the hygienist discourse was often deployed to justify the option, perfectly illustrated in the decree-law that introduced it (Law-decree 163/93). Even academics with research on the problems and contradictions of relocation used the biological metaphor: "...to banish from Portuguese society the social cancer of shanties and deficient habitability conditions" (Freitas 1994: 27).

The contracts for the many housing developments needed provided a large amount of work for architects, especially *auteur* architects which had been somewhat overlooked in regular, more commercial developments in the preceding decade (particularly in Lisbon). This meant many of the estates built are of an appreciable quality in terms of spatial and architectural solutions, even when the quality of materials was sacrificed in order to reduce costs (thus leading to fast deterioration). Their biggest problem has usually to do with their location in distant, under-serviced areas (in terms of transport, commerce, etc.).

Towards a multicultural politics and 'just' planning practices

The mid-1990s also saw an explosion of inclusion agendas in different sectors – fuelled by the change in government rule to the 'third way' Socialist party[12] – and with it the proliferation of non-governmental organisations tentatively moving towards a multicultural politics. Scholarship on immigration and residential segregation (Malheiros 2002, Malheiros and Vala 2004), ethnographic research on different immigrant communities (Mapril 2002, Bastos 2001) and on those who specifically resided in slum contexts (from Bastos 1990 to Beja-Horta 2004, 2006) was part of a broader move towards 'integration' and 'multiculturality'. Alongside, the academic push for just decision-making in urban policy as a condition for social justice in the city (Cardoso and Breda-Vasquez 2009) sought to challenge the institutional culture in Portuguese planning, which was still strongly framed by technical or political considerations, not citizen-driven.

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[11] On a personal note, although I was young at the time I remember the moment and shared the common sense idea that this financial effort had to be made, regardless of bad examples from French social housing estates. Alternative ways would take too long and waste the favourable timing. Even with hindsight, I still hold the same idea: the program worked well enough when fairly and swiftly implemented in the vicinities of the old sites; not so well in the other cases. Another key element to good or bad implementation regarded how close (or distant) the relationship between City Councils and populations was. This is noted by many academics and policy makers (e.g. Interview 1).

[12] Another example of the 'time complexities' in Portugal (see 4.1.), here with a thoroughly synchronised move: António Guterres' 1995 government was the first 'third way' left-wing party voted for government in Europe.

2. Following engineers (and architects) through the slum: participatory planning, the evaluation of the built environment and the science of slum intervention

It is in this scenario that an initiative for highly deprived neighbourhoods, *Iniciativa Bairros Críticos* (Initiative for Critical Neighbourhoods, from now on IBC), one of many programs for urban regeneration presently in action (see Breda-Vasquez et al 2009: 2221-2223) was devised. Among its overarching aims is to institute a strong participatory element in the regeneration or rehabilitation of three different areas, each with a different type of housing stock. One of them is slum neighbourhood Cova da Moura.[13]

The IBC (*Iniciativa Bairros Críticos*)

The IBC was put in place as an experimental program for the regeneration of these neighbourhoods by the Secretary of State for Cities and Planning and by IHRU. The program includes aspects not strictly linked to the built environment such as job opportunities, the 'integration' of socially excluded populations, etc. (idem: 2222). It institutes a complex framework with a multi-ministerial monitoring task force, an executive commission formed by local associations and local state institutions for each site and a dedicated project team at each site. In Cova da Moura, for example, this involves 21 inter-ministerial partners, three local partners and nine private ones. In addition, it presupposes strong public participation through meetings where the partners present the ongoing developments to the population. It was a cherished project of the Secretary of State João Ferrão (2006-2009) – an academic geographer with research on Lisbon's peripheries – and it seeks to 'demonstrate' how more participative planning practices may take shape (Interview 1, Dec 2009). In other words, it seeks to use these three experiments as 'test tubes' for a more just planning system, to be rolled out for future operations under European Polis XXI urban policies (IHRU 2009).

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[13] The other two are the municipal neighbourhood (*bairro municipal*) of Lagarteiro, Porto; and Vale da Amoreira, Moita (LMA), an area with a particularly interesting juxtaposition of public housing: it started in the early 1970s with FFH, then with housing by central government again or through programs for home ownership at controlled costs, and later with a small number of PER (114 units). See www.portaldahabitacao.pt/pt/ibc, last accessed 12/03/2010.

The IBC project in Cova da Moura

The choice of Cova da Moura as the exemplar of a slum neighbourhood makes sense in many ways. First, and regarding the potential to be replicated in other places in the future, Cova da Moura has a special allure. It is the most famous slum pocket in Lisbon and has the same iconic status as slums such as Kayelitsha in Cape Town, Dharavi in Mumbai, Rocinha in Rio de Janeiro or Kibera in Nairobi have for those cities, albeit with a much smaller population of around 5,000 inhabitants. It also has a particular history of political engagement with local, national and international institutions – specifically, the Residents' Association long-standing 'bargaining' with local party politics and youth NGO Moinho da Juventude's use of EU programs and funding (Beja-Horta 2004, 2006, 2008).

Second, this strong associational life has strengthened the community's demand to 'stay' in Cova da Moura, that is, for upgrade or rehabilitation to be conducted *in situ*. Despite many impediments (the land is private, municipal debt, urban density), the creation of a strong cultural base and its 'pitching' to mainstream society via television has ensured a visibility that prevents top-down decisions against these demands.

Third, the built environment indeed suggests possible if complex rehabilitation. Cova da Moura can be described as a kind of consolidated *favela* with multi-storey dwellings – not all of which were built by residents but by illegal contractors with sub-standard engineering solutions. It also has an an economy of illegal landlords. Of all the slum neighbourhoods, it is the one closer in construction standards to *clandestinos*, hence its dwellings being potentially open to amelioration within the AUGI legal framework, i.e. keeping the structure.

Fourth, the combination of a strong presence of illegal activities (drug traffic, arms and fencing) with a benign informal economy (hairdressers, restaurants, etc.) makes it a perfect site for a comprehensive, 'holistic' urban regeneration that seeks to curb the former and stimulate the latter. Organised around 9 strands, it basically involves 1) reconstructing the image of Cova da Moura ('re-branding' its association with crime and drugs); 2) reconstructing social dynamics (economic opportunities through training, etc.); and 3) reconstructing the physical environment. The last one involves, in order, sorting out land property status (i.e. negotiating the acquisition with owners); the definition of densities and consolidation of the dwellings according to legally defined parameters; and to "qualify" (i.e. regenerate) public spaces (IHRU 2009: 17).

By doing all of this instead of clearing and rehousing, the state is acknowledging the cultures and knowledges intrinsic to the place, making them integral to the rehabilitation scheme. "Involving minority immigrants in the transformation of a neighbourhood" (Sandercock 1998: 173) is a positive sign that, to use Sandercock's

simple language, 'Lisbon has decided it wants to be Cosmopolis' and it is learning how, through little steps like IBC.

The sincere commitment to this was illustrated by the strong backing the Secretary of State gave to the difficult negotiations with the private owners, who had not been interested in the land when the settlement expanded and now used the fact the government was involved to ask for unreasonable compensations, in what could be termed as 'speculation by absence'. After different proposals were rejected, the threat of expropriation was considered and expressed in public (Field notes and Interview 2, Feb 2008), even if expropriation has become a sort of urban policy taboo since the SAAL, or rather, a lesson learned from it: do not use its threat unless in extreme cases, for it can backlash and stop projects.

The rehabilitation of the built environment

The rehabilitation will be a type of exemplary upgrade, not merely provision of infrastructure and makeshift improvements. The houses will have to comply to standards set in dedicated regulation for the reconversion of AUGI – Urban Areas of Illegal Genesis (LNEC 2008: 1), a more flexible approach to housing 'minimum standards' but one that still assures the 'acceptable living conditions' constitutionally guaranteed. The first step for this was an evaluation of the present habitability conditions of each house, to prepare the terms of the international competition to be opened for the design of the *plano de pormenor*. The key point to underline before proceeding is that the rehabilitation of these houses will very likely be more expensive than providing standard housing in a public estate, and this is an accepted fact.[14] The issue of relative costs re-emerges, but in principle the state is willing to pay the 'full price' of a just, multicultural approach.

Defining rehabilitation and participation

Two caveats must be placed at this point, to clarify both rehabilitation and participation. First, the fact the program is not simply one of slum upgrade or of assisted self-building. That, to the project mentors, would be a step backwards:

> "I don't see how a new wave of people building their shack would show the dynamism of civil society. That [self-building] would be a disastrous step

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[14] Even the mere clearance and re-building would amount to at least 120% of the average costs because of the intricate nature of the urban fabric that needs demolition – 20% for clearance and groundwork alone (Interview 34, Oct 2008).

backwards! (...) What there might exist is a... from the perspective of collaborative planning, the need for a new form of governance, for responsibility-sharing, and that is evident to everyone." (Secretary of State, interview3, Jan 2010)

The IBC is thus a project of intervention on the built environment that belongs to the 'urban rehabilitation/regeneration' paradigm, here applied to a slum pocket. Indeed, this is another aspect in which the project is 'experimental': it is not simply a 'demonstration' project to see if it can be replicated; but an 'experiment' that uses known formulas in a new setting.[15] The IBC draws from European paradigms and programs for housing (regeneration of former industrial sites, of historic centres or of old public housing estates) and uses EFTA funding; but will regenerate an unplanned and unconsolidated area, not merely a neglected but formerly planned one or, as in the case of historic centres, unplanned but historically consolidated.

Second, it has the participatory or collaborative element:

> "Regarding the issue of participatory approaches returning.... there are times which favour participation more, times that favour it less, but the type of participation is completely different. One can't compare this with what happened in the 25th of April [the revolution], the context is completely different. (...) Today there are factors that lead to the need for participation, but with solutions that are completely different to those of the 1970s." (idem)

Participation can thus be argued to be a common element between the SAAL and the IBC, but one operated in different circumstances and toned down in comparison. The first meetings to present the project to inhabitants appeared to have no more than token participation, and were contested as such by younger residents. Provided the issue is addressed in future, participation is still a step forward, towards the planning paradigms of the 'negotiated city' (Kesteloot 2005) and produce city in close relationship with residents and users. But it is a step.

The evaluation of habitability conditions and rehabilitation needs

The Evaluation of the Building's Rehabilitation Needs (LNEC 2008) was conducted by *LNEC – Laboratório Nacional de Engenharia Civil* (National Laboratory of Civil Engineering, from now on LNEC) with the objective of characterising all the dwelling units' habitability conditions according to safety standards (structural, fire hazard, etc.); hygiene, health and comfort standards (air quality, humidity, etc.); and whether they

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[15] See the work of Michel Callon (1986; see also Muniesa and Callon 2006) on how experiments and demonstrations are constructed.

were adequate for the use they had (in terms of surface areas, air exhaustion for spaces used as kitchens, etc.).

It was not a detailed survey of the built environment, but a characterisation of it (idem: 2-3). The methodology used reflected the time constraints and human resources available: it would be unfeasible to ultra-sound each house, geometrically draw their different layouts or rigorously measure anomalies such as cracks or unlevel features given the myriad of non-standard solutions each one presented. Therefore these formalised procedures had to be adapted. It is a mixture of 'naked eye' assessment (subjective appraisal) and mandatory criteria filled into a form (objective record).[16]

Teams of architects and engineers visited each of the 1,617 houses for 20 minutes, on a tight schedule prepared beforehand by the project team, which manages the appointments with residents. Each team consisted of 2 or 3 individuals and visited 4 to 6 houses (and the different dwelling units they were formed of) each morning. On a second moment, data was input into software developed by LNEC, which has a mathematical algorithm that calculates whether each house needs mild, average or extensive rehabilitation.[17] Very importantly, the form included a written description of anomalies, which supersedes the calculation from the algorithm should the two differ: if for example the summation of recorded objective criteria calculated by the algorithm states the house requires, say, average rehabilitation, when the evaluator's written description pointed to extensive rehabilitation, then it is the latter that counts.

Experienced eyes as scientific instruments

For this to work, the evaluators had to have a strong experience in similar contexts in order to avoid being too impressed by aspects that may be misleading (uncleanliness, untidiness, smells, etc.; although this did not mean to ignore bodily impressions, I illustrate below). Instead, they were instructed to look for visual indicators of 'hard' structural factors (e.g. cracks or leakage as signs of unsafety or humidity). In a way, 'experienced eyes' were the necessary scientific instruments of the evaluation. Some of the architects and engineers from LNEC and IHRU indeed have great experience of working in shanty towns, and were part of the generation that saw both the SAAL and

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[16] It still was a very complete menthodology, developed by LNEC's Buildings Department drawing on international peer-reviewed research. The LNEC team also used other studies to contextualise the area, such as the initial 'diagnosis report' for socio-territorial intervention (Malheiros et al 2006) or the report produced by the first project team formed by architects Ana Soeiro and Helena Campos (Soeiro and Campos 2007).

[17] The form had three different sections: the first part had different habitability criteria (structure, roof, external walls, windows, common stairs, etc.) divided by type; the second part had a space for written description of anomalies; the third part was for the evaluation of construction and spatial features of the house. Ticking the boxes in part 1 and sections of part 3 was what generated the algorithm calculation (it ponders each criteria).

the PER. They also transmitted some of that embodied expertise and experience to the younger elements in the teams.

Those 'experienced eyes' and reliance on subjective or embodied knowledge was in order to make the evaluation more accurate and 'objective', not less. The impression evaluators had of the houses as soon as they entered them (dampness, darkness, confinement) was the first impact; it was then corroborated by visual register (looking for and photographing) of what leads to those bodily impressions (leaks, lack of light, exiguous areas, etc.).

Figure 1. The 'visual evaluation' methodology, February 2008. An engineer and an architect examine one house, taking photographs, measuring distances and assessing safety features.

As such LNEC's 'visual evaluation' summoned the bodily knowledge of the experts into the overall process. This is an interesting twist in the tradition of state engineers' use of numerical and quantitative aptitude to formulate policy justifications (see Porter 1995: 114-147). Here, we see the incorporation of subjective knowledge into an evaluation that indeed has quantitative outcomes that will be the base for architectural and political decision (how, and if, to rehabilitate).

A day of evaluation - four visits

Next I will present four visits made one morning in February 2008. The visits on this day were not scripted for my benefit, yet they illustrated different sets of problems in progression, from less to increasingly problematic situations. As such they provide a representative overview of the evaluation. To describe the cases I rely on the notes and photographs taken at the time, as well as on a final oral summary by the project's head engineer António Vilhena and head architect António Baptista Coelho (Interview 4, Jan 2008).

House # 1

The first house was an apartment-style dwelling accessed through an alleyway with separate entrances to other houses (images 1 and 2). It comprised one single room where everything was done (living, sleeping, etc.; image 3), a small kitchen space and a small bathroom space (image 4).

The main problem in this unit was the lack of a complete kitchen and bathroom, which according to regulations means it can not be used as an independent dwelling. The absence of a door to close the bathroom and access complications was also pointed out by the team. Overall the team agreed the house did not pose any structural or safety problems. As such, they would probably recommend for wet spaces to be transformed, and for small ameliorations such as the door to the wc, painting, etc. It was unclear how many people resided in that space, but there were no hints of overcrowding (a strong concern for the teams).

Figure 2.

House # 2

The second house consisted of three independent units that formed one three-storey building. Each floor had a different entrance from the outside stairs (image 1). Only two of the three floors/units were visited.
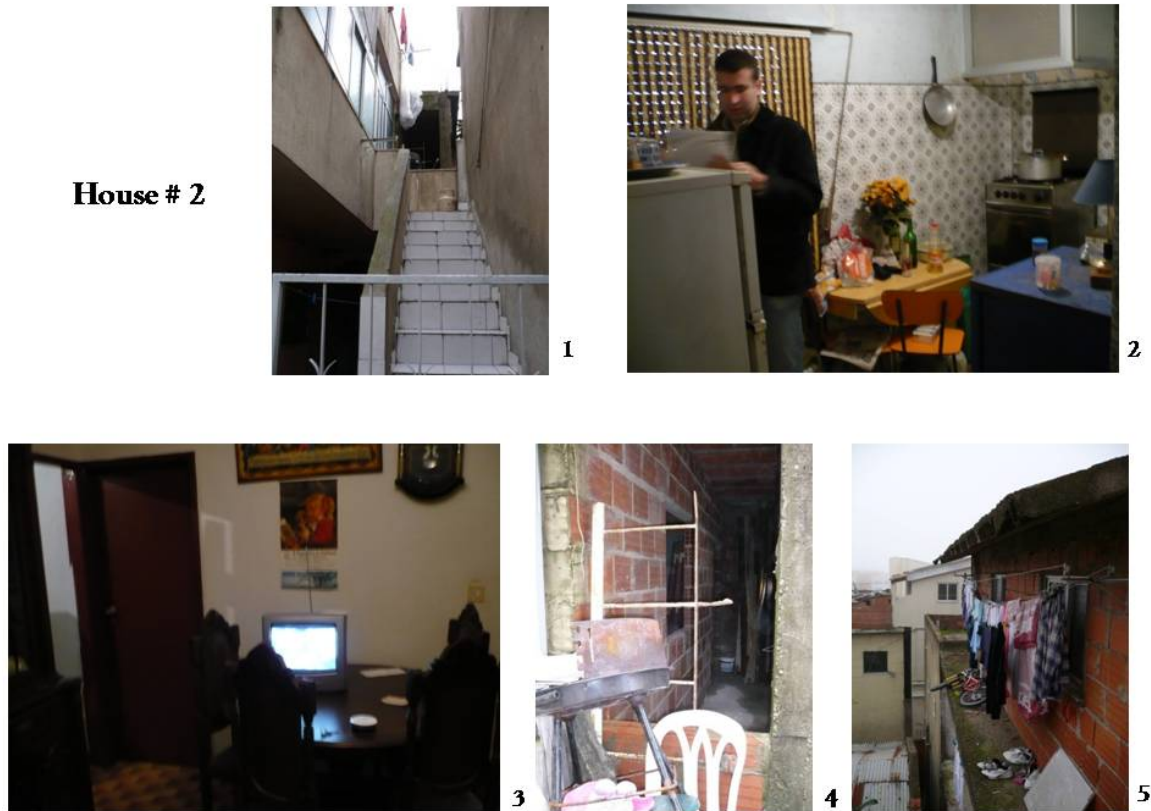

Figure 3.

Structural elements were acceptable, which was expected given its resident-builder worked in construction and because "he fortunately stopped adding floors at the right point" (head architect, interview 4). No problems of humidity or air circulation, but there was a marked lack of direct light (image 3). Some windows opened to contiguous plots.

> "The methodology we use in these cases, which I think is an appropriate one, is to regard each case in isolation. As if we'd take the structure out and put it, isolated, in the lab, with nothing around it. This is to avoid... If it was done any other way we'd never get this finished, this would be of an incredible complexity. So we have to imagine the building as if it was isolated, and then see if we can open windows. Forgetting for the time being the adjoining structures. (...) In this case there is some possibility to open windows in the part that does not lead to the adjoining

lot. At least for the ground floor this would provide some indirect light." (head architect, interview 4)

The attempt at a 'laboratorisation' of urban reality (Guggenheim 2010) is clear here. The built environment was broken down into its constituent parts, and these were 'constructed' as isolated in order to see how they work, first, and how they can be modified, second. Then, as in a molecule 'cooked' and altered for a drug, re-assemblage back into a new, coherent whole is to be made in a third moment (I show below).

On the second floor, the problem was that the walls were in rough (image 4) and that storage spaces that could potentially be sublet were exiguous and had no ventilation. Essentially the issues would be of opening windows where possible.

"The first floor, despite its lack of windows does not have much humidity. But it's a dark, sad place…" (idem)

You start to see how a subjective appreciation (the 'sad' qualification) is strongly rooted in objective elements that can be detected visually (demonstrable lack of light). Both are part of the evaluation. The third floor had a particularly unsafe feature in the form of a balcony without any balustrade (image 5), this will need addressing.

House # 3

The third house was another three-storey building with separate units, each accessible by an independent entrance. The doors to the two highest floors were located in an outside stair (images 1 and 2). At the third floor level, the end of the stairs bounded with a terrace in the adjoining lot, which another team from LNEC was visiting (image 3). Again not rehearsed, this moment exemplified perfectly the impact of add-ons, with houses starting out as independent at ground level and ending up connected at a higher one.[18] They can sometimes structurally 'lean' on the adjoining house.

House # 3

Figure 4.

The first floor had good areas but little direct light as the rooms were all interior. There was no window for exhaustion in the bathroom, but this was minimised by the use of a tube (image 4). Six people lived in this unit.

The second floor was unfinished and used for storage, again potentially to be sublet. The third floor was used by the daughter of the resident in the first floor and her three

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[18] A similar feature can be found in different vernacular architectures, from Cappadocian villages of 'cave dwellings' to highrise towns in Iemen or Greek dwellings in the Cyclades islands. See Oliver 2007.

children. The bathroom had a small glassless window (image 5). Overall, its habitability conditions were poor, in some spaces caused by exiguous areas but mostly from lack of windows and direct light. As in the previous house, there was one unsafe feature, the outside stairs.

House # 4

The three units the fourth house consisted of had the worse habitability conditions found that day. All three had been built in a space between other buildings. The entrance arch (image 1) leads directly to unit 5 and then to two other add-ons built against pre-existing buildings, units 5a and 5b (images 2 and 4). The team had to re-draw the map of the lot's limits (images 3 and 13) as they accessed previously uncharted spaces.

Figure 5.

Unit 5 (as numbered by the team) was a one storey structure with very poor roof insulation. As a result, rainwater was absorbed and slowly leaked it inwards (image 6). This impacted on everything inside the house: incredible humidity levels, with water draining down the walls (image 7, note the plastic paint is bubbled out by the leak); fungi on all of them (image 8); perennially flooded floor (image 9); and safety concerns regarding gas and electricity (uncovered plugs in proximity to water, if a short circuit happened while a person was barefoot inside he/she would be electrocuted). This unit was an aquarium more than a dwelling.

House # 4 (unit 5)

Figure 6.

The engineer inspected the roof (image 4, note unit 5b behind the shirts) and noted that it acted like a sponge, absorbing rain water. He pointed out that fungi growing out of the side of the roof (images 5 and 10) were an indication that it was completely 'soaked'.

Unit 5 is a case of absolute insalubrious quarters and one of immediate risk. It was inhabited by a father and his daughter, making it an especially desolate case. When the team got back to the office, they instructed the local unit to alert social services with urgency.

> "There is 'immediate risk' there. There's a child there... When it's grown-up men, overcrowded like on 5b, it's a concern, yes, but this... with the little girl, it's depressing..." (head architect, interview 4)

Cases like this one are clear demolitions, and this one can indeed re-open the small patio-like space that initially existed there. I get back to this.

Unit 5a, next to it, had similar problems but given it has 5b on top water infiltration is minimised. Still, the roof shows signs of leakage (image 11). There was ongoing work by residents on solutions that will provide some air circulation (image 12). The other main problem with this unit was overcrowding: 6 Senegalese men shared the two rooms and the hall-like space (image 15).

Figure 7.

Unit 5b stands on top of 5a. Images 16 and 17 show the marker for acute humidity, fungi on the walls. In another room, the leak was visually apparent (image 18). Concerns about use (storage potentially used to sleep in, image 21) and about a makeshift solution for tapping water (image 19) were brought up.

House # 4

(unit 5b)

Figure 8.

Overall, all three units fell below any minimum habitability standards, and if the households in 5a and 5b had to wait to get their situation addressed, unit 5 was a matter for social services to act immediately.

Wrap up

The teams went back to the office and conferred their findings with the head of the project team. They explained the new drawings of the lots' limits and their inner configurations, to be kept and later inserted into the map (Figure 9); and registered the information to be forwarded to social/welfare services. They informally speculated on the future solutions for each case, but their work there was done, such solutions are to be devised later by the team responsible for the *plano de pormenor*.
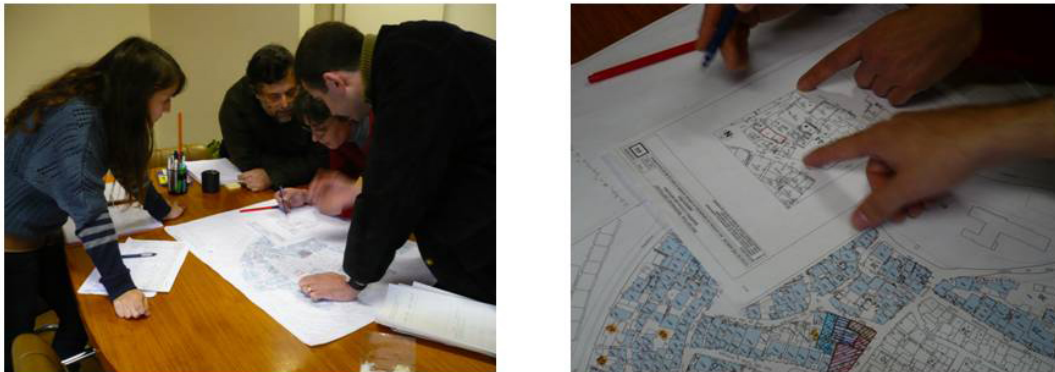

Figure 9. After the visits, new information is forwarded to the project team to update the maps.

During that afternoon, the teams went to the IHRU offices to input the data into the software. This was preferably made on the same day because to keep to the 20' slot for each house the evaluators had to use shorthand, thus requiring a fresh memory of the houses (again a bodily type of knowledge) when inputting the data. Data input took an average of 40 to 50 minutes for each house, depending on how many 'units' had been found out for each.[19] So much depended on the evaluation it had to be as accurate as possible.

Outcomes – mapping habitability insufficiencies

The principal outcomes of the evaluation are maps that classify each unit on its need for mild, average or extensive rehabilitation.[20] The most important ones are:
Map C.6 – Overlaps with adjoining buildings
Map C.7 – Distance between buildings
Map C.8 – Walls/bays without fire resistance

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[19] Data input alone involved 1,350 work-hours. From a total of 1,617 houses, around 2,000 units were registered, 10% of which vacant (LNEC 2008: 41).

[20] Grossly put, mild means paintings, small insulation works, etc; average means tearing down walls or similar solutions; extensive means structural reinforcements and/or change in typology.

Map C.9 – Walls over adjoining lots
Map C.10 – Air and light in habited spaces

The juxtaposition of these data layers is then pondered and calculated – the algorithm working – to give synthesised overall results, distributed by the sections or blocks the map is divided into (61 'blocks' in 3 larger sections of the neighbourhood, see LNEC 2008: 31-38).

The complex strata of data are made operational by cross-tabulation of the two analytical frameworks used, 'level of rehabilitation the building needs' and 'level of anomalies between the buildings' (idem: 39). To give an example, only 17% of the buildings analysed share the two less critical categories (mild or average rehabilitation) in both frames, or put another way, only 17% of the buildings require mild or insignificant rehabilitation of the building itself *and* mild or insignificant work on its anomalies in relation to other buildings. This resulted in 83% of the buildings not complying to AUGI legislation either in 'building standards' or in their 'insertion in the urban fabric' (idem: 39).[21]

The problems and paradoxes of slum rehabilitation

The 83% figure is daunting but must be read with calm. In absolute terms, it portrays a built environment of very poor standards, and is not far off reality. Moreover, to the project team it suggested that rehabilitation could be close to technically unfeasible or simply too expensive to make sense. Indeed, for a period in late 2008 when the research findings had been concluded, such was the concern, even for the LNEC engineers. Finally, the 83% is but one among other discouraging figures, such as the fact that 45% of dwellings needed average rehabilitation and 19% needed extensive rehabilitation when seen in isolation.

Unsubstantiated rumours about the rehabilitation of dwellings overcoming the cost of dwellings in standard public housing by more than 150% had started to appear. If escalated, they could have amounted to an atmosphere conducive to the suspension of the project and reversion to a more standard rehousing solution. However, as time moved on it became clear that the political drive for this 'demonstration project' to succeed was strong. Calm reassurance from IHRU and from the Secretary of State these early signs of unfeasibility would not be used as excuses to halt or abandon the project at such early stage came at the right time. The logical reason was that this evaluation was simply that: an initial evaluation.

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[21] Other problems include the absence of safe fire evacuation routes. A big part of the intricate alleys will have to be re-designed in the *plano de pormenor*.

In any case, the 83% figure can easily start to come down with small, simple measures. One example from the visits: if house # 4 (5, 5a and 5b) is demolished, as it surely will be, 6 or 7 houses in that block will immediately go into less critical categories on the 'distance to other houses' criterion. Furthermore, that simple clearance will also grant space for small ameliorations (such as opening windows) that improve 'habitability conditions' (air circulation, light), thus potentially putting those 6 or 7 houses in less critical rehabilitation categories for the 'housing standards' criteria as well. This can be illustrated by the map below, which refers to air and light conditions in the houses. Those coloured in red require extensive rehabilitation, but close inspection of the map indeed shows a number of pockets where removal of one or two interior units will break up exaggerated density.
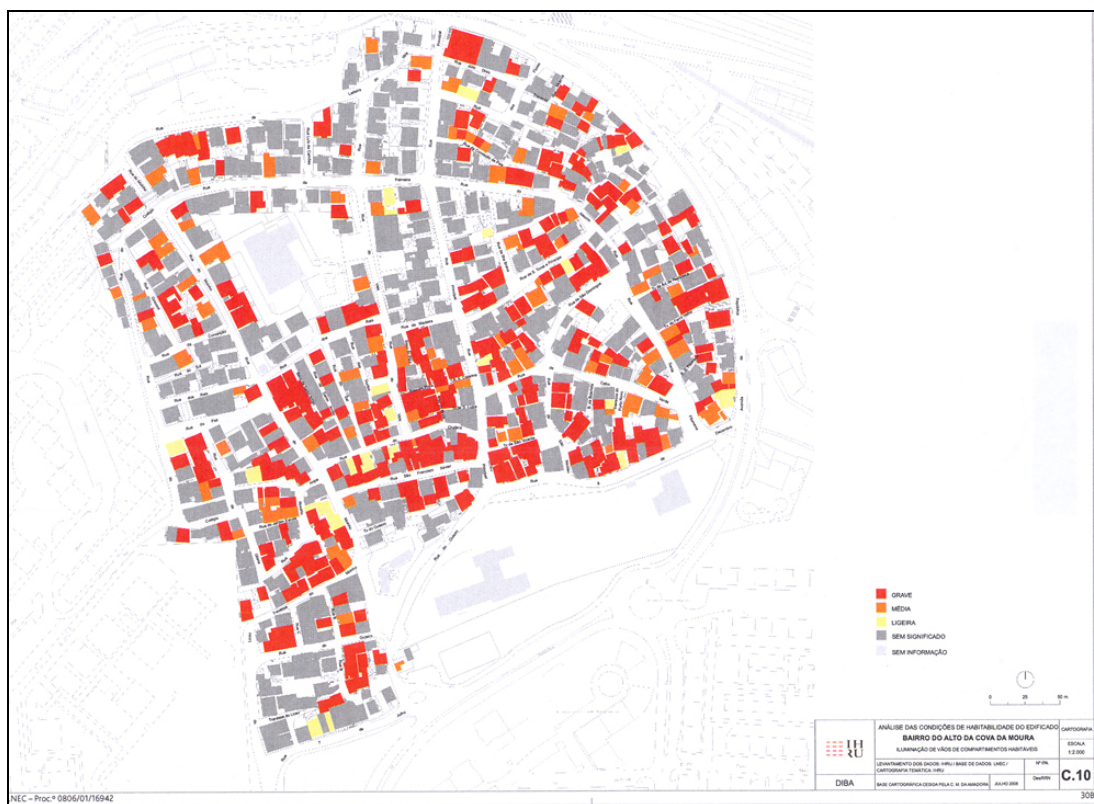

Figure 10. Map C.10, representing air and light conditions in the dwellings. The red colour represents the cases that need extensive rehabilitation. Source: LNEC/IHRU.

Each dwelling unit 'laboratorised' in the evaluation will have to be re-grouped now, back into a new coherent whole, with possible 'extirpation' of some of them. The finely tuned resolution of individual cases is to be made by the architecture/planning team that wins the competition to design the *plano de pormenor*, to be done in collaboration with the population. This sample shows it will be an exciting if challenging task. Not all cases will be as clear as the one of house # 4, but the same principle will apply: the decision to

demolish or rehabilitate will be based as much on their individual merits as on their relation to other buildings and to the urban fabric.

The implications of this principle lead us to a paradox: in order to make the rehabilitation feasible – in spatial as well as in financial terms – some people will have to move out. For instance in spatial terms, house # 4 shows that excessive density can be solved by demolishing some houses (to open up small squares, to extend what at present are dead end alleys, etc.). In financial terms, too, if everyone would stay in place each house's rehabilitation costs would rise to prohibitive levels given such small, economic ameliorations would not be possible. Therefore it is likely that a combination of rehabilitation of old buildings and construction of new ones (on site or in the vicinities) will be required. Such is the understanding of IHRU at present (Interview 3, Jan 2010, updated Oct 2011). The residents will be given the option to stay in rehabilitated houses, in eventual new-built estates or to be relocated elsewhere (through an offshoot of the PER, the PER-Famílias[22]). The freedom to choose will not be 'steered' – this is a point of honour of the project – but the paradox is still evident: in order to grant the community of Cova da Moura its 'right to the city', for which it has cogently fought for two decades, it is likely the only way to achieve it with any quality is if a part of that community chooses to leave.

How this is to be managed will be delicate. The rehabilitation start date is at present still a distant prospect (estimated 2-3 years for completion), so it is likely many people will opt at present to leave. However, it is also likely that as the works' start date gets closer and rehabilitation becomes more tangible or demonstrable, less people will do so.[23] In that sense, it would be convenient if a sufficient number of people choosing the 'exit' option could be guaranteed as soon as possible, thus liberating space for the necessary re-adjustments for those who choose to stay (Interview 3). This is speculation, even if well-informed one, but the point is that the people *who go* will in a way be the safeguard that those *who stay* will have an acceptable built environment to live in.

I repeat that slum rehabilitation was not put forward in this case because it was a cheaper solution than clearance and rehousing – in fact, as we have seen, it will certainly be more expensive, whether it ends up below or above the symbolic 150% figure – but because it responded to a different set of objectives from the part of the state. Those were a general move towards urban regeneration/rehabilitation programs, a specific move towards participatory planning practices and a localised meeting of the

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[22] The PER-Famílias was introduced in 1996 as an alternative to housing in municipal estates and was directed at families with higher incomes. The program regulates the financial support for households for home ownership.

[23] This will be especially acute if the majority of residents do not make their choice by the time the first rehabilitated houses are completed, for in the case they are 'attractive' they would become a sort of 'live showrooms'.

demands of a specific population for its 'right to place' and its 'right to the city'. So far, as it has had strong political backing it is not derailing.[24]

Modernist and postmodernism paradigms as parallel 'technological frames'

The IBC project in Cova da Moura is the culmination of one of the two 'technological frames' (Bijker 1997, Aibar and Bijker 1997) that have co-existed regarding intervention in slums in Portugal. One is the modernist approach, still ongoing with displacement to distant housing estates, but which on some cases has not yet been achieved. The other is this one, an interrupted tradition of collaborative, participatory approaches (and/or *in situ* upgrade/rehabilitation) now resumed, albeit in a more complex context than in the 1970s and enveloped in the urban regeneration paradigm. I have tried to show they have somewhat run in parallel, or rather, with a sporadic resurfacing of the second amidst a more continuous presence of the first. More importantly I have tried to show how each relates to its historical context and 'makes sense' in it; and finally that each encounters problems, paradoxes and delays of a socio-technical nature.

The two technological frames were put forward in a somewhat less adversarial register than STS approaches to urban studies sometimes suggest, with this not minimising 'conflict' as a tool to conceptualise the city but putting it into a perspective where a more diffuse enactment of power between the state, experts and populations exists.[25] One instrument that 'measures' the different power balance between populations and the state is the comparison of the relative cost of public housing provision in relation to that of the 'free market' housing stock: in the periods where immigrants and the urban poor more generally were politically regarded as expendable populations, those relative costs were much lower than in periods of inclusive political projects (national or colonial). There is a voyage to be taken in the Portuguese-speaking universe (Mozambique, Angola, Bissau-Guinea and Macau) on this subject.

I have also shown hygienist notions running from the beginning of the 20th century to the present day (hygiene standards are important, as house # 4 proves); and that 'hard' factors such as land structure, property and planning laws are played out in variegated circumstances but always frame the results. I hope to have shown that

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[24] By March 2011 the competition for the *plano de pormenor* had been completed but works had not yet started. Throughout 2011 and 2012 I will pay attention to the project's developments.

[25] Exemplified by the fact many people involved in solutions of one 'technological frame' were later involved or responsible for solutions of another. For instance Maria João Freitas and Eduardo Vilaça, at present president and vice-president of IHRU, thus in charge of IBC, were key actors in the PER (e.g. Vilaça was at the CET, which did the PER bids for Loures). Similar overlaps existed between the SAAL and the PER or between the 1960s technocrats and the SAAL.

mobilisation and insurgent practices from populations, albeit easily shut down if the historical context is against them, can sometimes initiate empowering projects.

Finally, in showing the evaluation of Cova da Moura I have also pointed out that socio-technical change in the city (Hommels 2009), even when it is a part of a path towards a 'negotiated city' (Kesteloot 2005, Bourdin et al 2006, Bourdin 2009), is enacted in a continuum of objective-subjective knowledge deployed by experts. In the case of intervention in informal settlements, this is a continuum that takes on, 'laboratorises', unpacks and reassembles the un-formalised continuum of knowledge used by poor populations when building a shack or a house of poor standards some 30 years ago.

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