

Dialogue and Requirements in Malmö, Sweden: Assessing Local Programmes for Energy Efficient Buildings.

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Abstract

Local governments increasingly initiate measures addressing global sustainability challenges, so called local governance experiments. But the knowledge about their actual outcome is limited. Responding to this gap, this paper provides an assessment of local governance experiments in the form of a local programme for sustainable buildings, *Miljöbyggprogram Syd*, as well as the *Developer Dialogue* in Malmö, Sweden, focussing on its energy components. The study assesses the initiative by looking at all new multi-residential units constructed in the city and analysing their performance along with programme applicability. Findings indicate the effectiveness of the programme, and further improved performance when the programme was combined with a dialogue process together with developers (Developer Dialogue) in a showcase area of Malmö. The findings contradict the view that local initiatives addressing global sustainability challenges are merely rhetorical. However, the partly insufficient implementation, risks undermining the trust-building function of local governance experiments.

Introduction

Cities have been taking an increasingly proactive stance in the governing of global sustainability challenges, including energy and climate issues (Bulkeley 2010). Hoffmann (2011), Castán Broto & Bulkeley (2013) and others have described these initiatives as governance experiments. Local governance experiments are here understood as (a) purposive and strategic while seeking to capture new forms of learning or experience, (b) carried out in the name of an urban community, and (c) they have the purpose to address global sustainability challenges¹. According to this line of work, innovative forms of governance may serve to build up experience and trust in new institutional and technological solutions and through this play an important role in the addressing of global sustainability challenges. However, the actual implementation and effectiveness of these types of initiatives have still been insufficiently evaluated. The multitude of initiatives leads to a risk of double counting impacts; and the attribution of effects to one single initiative is difficult (Bulkeley & Betsill 2013). Further, the direction of causality is often uncertain (Millard-Ball 2012). Thus, addressing this research gap is vital for the further study of local governance experiments and for the development of associated evaluation approaches.

The present study responds to the need for evaluation by assessing local programmes for energy efficiency in buildings developed and applied in Malmö, Sweden. Swedish municipalities have been taking a range of initiatives for enhancing new dwellings' energy performance. Because the municipal jurisdiction in the area is limited, many of these strategies rest upon the municipality's civil role as a land owner. One approach has been to set environmental requirements in land allocation agreements², when selling land for development. The City of Malmö has been among the pioneers in setting such requirements in civil land allocation agreements, this through a programme called *Miljöbyggprogram Syd*³ (hereinafter MBP South) launched in 2009.

¹ The definition is based on that by Castán Broto & Bulkeley (2013) but extended to not only address climate change.

² Land allocation agreements are agreements in which a building developer acquires the right to, during a certain time, solely negotiate with the municipality about development of a certain plot of land owned by the municipality, potentially followed by transfer of land from the municipality to the building developer (Kalbro & Lindgren 2010)

³ Meaning approximately Programme for environmentally sustainable construction in South Sweden.

The objective of this paper is to discern and describe immediate and intermediate outcomes of the programme MBP South addressing energy efficiency in buildings in the City of Malmö, Sweden. The study covers the first years of employment of the program and is thus limited to the assessment of the signed and reported ambition level in the land allocation agreements as no actual measurements had been performed yet at the time of the study. All multi-residential developments in Malmö initiated in 2010 and 2011 are investigated and compared along with programme applicability in order to identify the initiatives' effectiveness on energy ambitions in the design stage. Data has been collected through document studies and structured interviews.

MBP South applies to all multi-residential developments, professionally built single family houses and non-residential buildings built on municipal land. The programme's objective is: "decreased resource use and a decreased impact on the environment in general and the climate in particular" (Malmö City et al. 2009). The programme, which has been developed jointly by the municipalities of Lund and Malmö, consists of requirements in several environmental areas on new building developments. Within the different areas, developers have to commit to one of three different ambition levels of which the lowest, C, is slightly better than national regulation. The higher levels, B and A, are voluntary for building developers. Focus in this assessment is on MBP South's requirements in the energy area. These are described in Table 1 (see the next page). The commitment is included in the civil land allocation agreement when municipal land is sold for development. The possibility for the building developer to choose ambition levels in MBP South, distinguishes it from most other municipalities' corresponding programmes in Sweden. As a potential driver for choosing higher ambition levels, the programme includes a public web page, which presents ambitions and results for the individual projects. The strongest incentive for living up to requirements seems to be the ability for developers to compete for future land allocations.

A large share of the projects subject to MBP South covered by this study were part of a flagship-area located in the Western Harbour and, due to this, also subject to the Developer Dialogue, which is a dialogue with building developers coordinated by the City of Malmö with the purpose to enhance the sustainability profile of a district to be developed. The dialogue is based on regular meetings within the developer group as well as between developers and different municipal departments. The dialogue also consisted of study visits and ad hoc collaborations throughout the development process. As part of the Developer Dialogue in the district named Fullriggaren⁴, building developers in collaboration with the municipality applied for, and received, state funding for "showing a multitude of contributions, both concerning architecture, building technology, material, sustainability solutions and cutting edge technology" (Malmö City 2011). As the Developer Dialogue is only studied as a complement to MBP South in this study, Svensson (2013) and Smedby et al. (2013) are referred to for a more detailed description of the dialogue process.

Research approach

In this study, focus is on results in terms of a) immediate outcome: coverage, compliance and ambition level and b) intermediate outcome: the status of the building as it is designed, calculated specific energy consumption as well as other energy-related requirements in the programme described in Table 1. The study also addresses the use of energy-related technologies which were new to the developer.

The method introduced here draws, to a large extent, on language associated with the evidence-based stream of policy evaluation, where the virtues of quantitative, experimental methods are emphasised (Pawson 2006). The terminology is used, not because such a hierarchy of evidence is subscribed to here, but because it is useful to describe the case at hand. The importance of context is also emphasised and, by turning to interviews instead of distributed surveys, contextual richness is added to the case. Important parameters in this regard include the role of branding and building

⁴ 15 of the 16 projects with Developer Dialogue in our study were included this specific development which is located within the Western Harbour.

developers' organisational characteristics.

Table 1. Extract from energy requirements in MBP South for multi-residential developments with non-electric^a heating, and nationally regulated requirements at the time

	A ^b	B ^b	C ^c	National regulation BBR 16 (BFS 2008:20)
Energy performance^d	-max power demand 10 W/m ² -max bought energy 50 kWh/m ² /year	-max power demand 16 W/m ² -max bought energy 70 kWh/m ² /year	-Max bought energy of 85 kWh/m ² /year	- max bought energy 110 kWh/m ² /year
Verification of specific energy consumption by measured values	Required	Required	Required	Advised ^e
Pressurised fan testing of air tightness	Required	Required	Required	Not required
Air tightness, max. Level	0.3 l/s m ²	0.3 l/s m ²	0.6 l/s m ²	Not required
White goods of best available environmental class	Required	Required	Required	Not required
Energy and water saving taps	Required	Required	Required	Not required
Separate metering of energy for hot water	Required	Required	Required	Not required

Comment.

^a Electric heating is not relevant for the current study (see comment on Figure 2)

^b For the A and B levels, MBP South requirements refer to FEBY's voluntary guidelines for Passive- and Minienergi houses in Sweden (FEBY 2009a, 2009b). For building energy performance, the effect requirements are the de facto delimiting requirements in these guidelines. The maximum level for energy consumption is advised and not likely to be exceeded if effect requirements are followed. The standards also specify the procedures for verification of measured energy and pressurised fan testing.

^c The C level refers to definitions and concepts in the national regulation for buildings (BBR) for rules applicable at the time of the study, see BBR 16 (BFS 2008:20).

^d Bought energy includes here delivered energy for heating, cooling, hot water and basic building operation. Floor area is for the C level (in accordance with BBR - the national regulation for buildings) measured by Atemp, which is defined as floor area in temperature-controlled spaces intended to be heated to more than 10 °C, enclosed by the inside of the building envelope (m²). The guidelines for the B and A levels (according to the Passive and Minienergi house guidelines) have a different area measurement, including garage but this is not deemed to influence the results to any considerable extent (FEBY 2009a).

^e The law on energy declarations requires energy performance to be determined through measured values two years after the building has been occupied (BFS 2007:4 BED).

The study takes a quasi experimental approach in the sense that the data material is grouped into treatment groups and control groups with the purpose to investigate causality (Scriven 1991; Vedung 1997). The treatment groups include those projects which are subject to MBP South, i.e.

those built on municipal land, whereas the control group consists of the projects built on private land and thereby not subject to MBP South. The treatment group is in turn divided in two. In the first group, MBP South only applied. In the second group are those projects where both MBP South and the Developer Dialogue applied.

Building developers' own energy calculations presented to the municipality, both as part of the building permitting process, and as part of the documentation processes for MBP South, were collected and compared for all new multi-residential developments in Malmö initiated in 2010 and 2011, in all 34 projects, 1777 apartments⁵. Interviews were carried out with 26 project leaders, or persons with a similar position in the project, representing 19 building developers from 32 of the 34 building projects. The interviewees primarily had the role of informants, responding to concrete questions on the specific project's characteristics. Some parts of the interview form, mainly those referring to additional costs for following the programme, included questions more related to building developers' perceptions.

Potential differences between control and treatment groups, which may impact the results, including tenancy and intended customer segment, were mapped and controlled for when possible. First, as regards tenancy, in a setting such as Sweden, where heating costs normally are included in the rent, buildings built to be rented out may be expected to have better design in terms of energy efficiency than owner-occupied housing. On the other hand, buildings built to be sold to individual homeowners are often associated with financially stronger customer segments and, therefore, additional investments, including those in energy efficiency, might be more feasible there. In the analysis, tenancy is controlled for by separate analyses for rented and owner-occupied housing respectively.

Second, the intended customer segment is considered. As mentioned, for a project addressing financially stronger customer segments, additional investments at the beginning of the building life cycle, such as those in energy efficiency, may be more viable. In the analysis, intended customer segment is addressed by describing the material according to median gross income in the neighbourhood where the project is located and including this as a parameter when interpreting the results. Statistics Sweden disaggregates Malmö's approximately 300 000 inhabitants into 135 administrative subareas. Median income for each project's area has been used and, from that, mean for the relevant treatment/control group has been calculated.

The quantitative analysis is mainly descriptive. Even if drawing on quasi-experimental methods in the research design, the particular set of local governance experiments is seen as unique. Hence, this is a total population study and methods of statistical inference are not seen as relevant (Löfgren 2006). Data was collected at the project and building levels but in the analysis it is weighted according to the number of apartments, unless otherwise stated, in order to account for the different sizes of the projects. The quantitative analysis is complemented with data of more qualitative nature obtained through interviews. Then the project becomes the natural unit of observation, not the apartment.

Analysis

It has been argued above for the importance of evaluating local governance experiments and the specific approach taken has been described. The findings in this section are presented in line with this framework, but first, the data material, divided into the relevant groups of analysis, is described in Table 2. The table shows that the share of rented housing is considerably higher where MBP South applies. Another observation from Table 2 is that customer segment, in terms of median gross

⁵ Swedish Regulation provides developers with a lot of freedom in their energy calculation, for example when it comes to simulation software and calculation assumptions. Therefore, the calculations for the different buildings are very diverse. Developers are expected to choose the most appropriate method in order to reach requirements on actual energy consumption. The provided results by the building developer are here taken as given and a scrutiny of the exact calculations done is beyond the scope of the article.

income, does not vary considerably with MBP South applicability, except for the area where MBP South is combined with the Developer Dialogue, where it is higher.⁶

Table 2. Group characteristics

	No programme	MBP South	
		without Developer Dialogue	with Developer Dialogue
Number of projects	10	8	16
Number of apartments	672	417	688
Share of rented housing (apartments)	47%	83%	87%
Customer segment ^a	1.11	1.03	1.30

Comment. ^a Median gross income, mean among the projects, in relation to median for Malmö as a whole.

Immediate outcome

Figure 1 shows the immediate outcome of MBP South and the level of ambition within the programme on the level of individual apartments. All residential developments for which MBP South was supposed to apply (i.e. which were built on municipal land) included a signed agreement and thus also partook in the programme. The figure shows that a large share of the apartments built were subject to MBP South and that most chose ambition level B in the field of energy. However, for the projects with MBP South but no Developer Dialogue, all had ambition level C. This result indicates that within the field of energy, MBP South on its own is insufficient to motivate higher ambitions than the obligatory C level. All of the building projects subject to the Developer Dialogue and located in the sustainability-oriented area of the Western Harbour had ambitions level B or A.

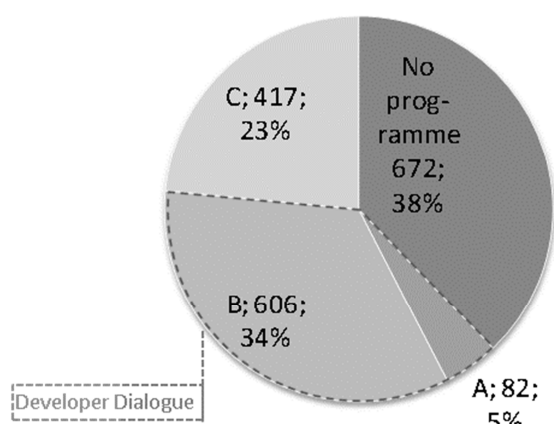


Figure 1. Programme coverage

Observations from the interviews give guidance as to the motivation for choosing a particular ambition level. Building developers choosing level C mainly referred to the company's own standardised building concept as the reason. A response from a project leader, on the question of why ambition level C was chosen for the specific project, is illustrative: "Because [the building developer company] is so steered by Stockholm [i.e. the headquarters in the capital], I have been doing the Stockholm race and I do not know MBP South that well" (Site Manager, nationally operating developer).

Many of the building developers choosing level B, in contrast, claimed that they were aiming for level A but chose B to be "on the safe side". One recurrent justification for aiming high, but being careful not to promise too much was to ensure the municipality's perception of the building developer as serious. This is important for being able to compete in future allocations of municipal land. According to these project leaders, level C was not perceived as an alternative; "the whole point of building these types of projects is to lie in the forefront, so level C was not an option. That is

⁶ Interpretations should be made with care where MBP South occurred in combination with Developer Dialogue as these projects all belong to the same district, Fullriggaren, and hence lie within a single administrative subarea. Then more extreme values in terms of median income can be expected. Still, it is relevant to note that this flagship initiative is situated in a newly developed part of the city with both a green profile and high-income residents.

how we brand ourselves. [...] The reason that we construct in Malmö is that many customers and others come to the Western Harbour.” (Project Architect, nationally operating developer)

Lastly, for those having committed to the A level, interviews indicate a clear focus on constructing a good building. One of the interviewees said: ”it was our starting point to build a very energy efficient building, so for the field of energy, MBP South did not influence us much” (Design Manager, nationally operating construction company, project partner).

Intermediate outcome

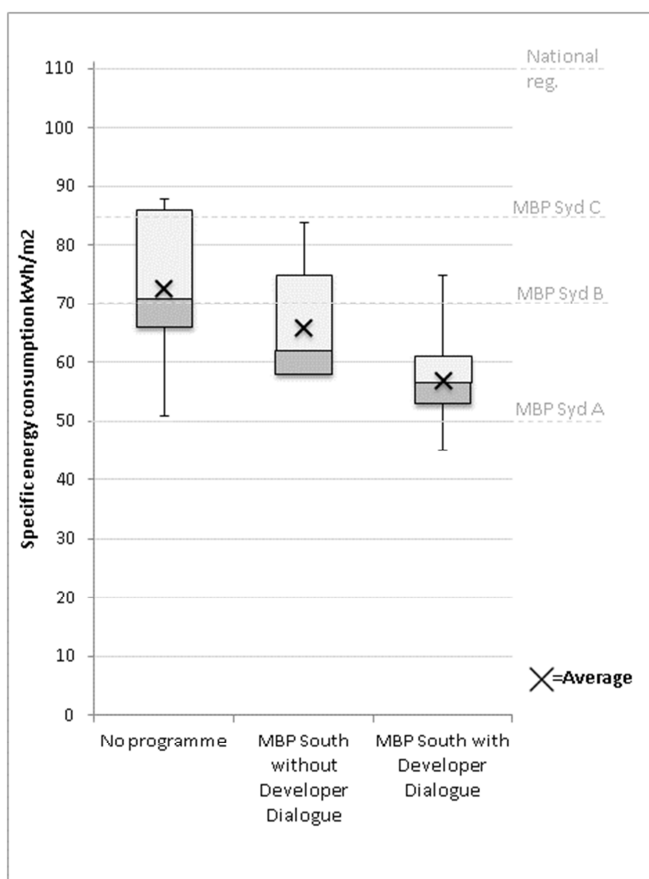


Figure 2 Comparison, Calculated specific energy consumption.

Comment. Box diagram with quartiles and max.- as well as min.-values. Due to few units of observation, quartiles or max/min-values coincide for certain panels. This explains missing quartile boxes or whiskers. The values refer to buildings heated by district heating. For buildings heated mainly by electricity, values were adjusted according to their share of the nationally regulated maximum energy use, which are specified separately for electric and non-electric heating. As far as possible, municipal documentation has been used. When this was not available, calculations submitted by building developers were used. Lastly, oral information from building developers was turned to.

⁷ This, despite that many of the calculations include safety margins and these accordingly are included in the figure.

⁸ As some of the least ambitious developers only gave partial response on the interview questions, and this by email, it is likely that some of those who did not motivate their (low) ambition level would give a similar response.

Specific energy consumption.

Figure 2 shows the results in terms of specific energy consumption. It shows that all developers designed their buildings to have an energy consumption considerably below the maximum specified by national regulation, even those which were not subject to any local programmes.⁷ Several motives were given for the choice of energy performance in the interviews, including the company’s sustainability work, the minimisation of costs over the life cycle and the wish to be ahead of national regulation. One developer in a project with high specific energy consumption (84kWh/m²) mentioned a safety margin for being able to live up to the national regulation, which limits *actual* energy consumption, as the only motivation for the chosen level.⁸

Apartments, for which MBP South applied (the second and third panels from the left), have even lower calculated specific energy consumption than apartments for which no type of local programme applied. According to a standardised measure of the effect size (Cohen’s *d*), the difference between the groups is medium to very large, see Table 3. The difference in outcome is considerably larger when MBP South is combined with the Developer Dialogue. This suggests that the two programmes have additional impact on how buildings were designed in terms of energy efficiency.

Table 3. Standardised effect size

	MBP South only, compared to no programme	Developer Dialogue, compared to no programme	Developer Dialogue, compared to MBP South only
All apartments	0.58	1.35	0.77
Rented apartments	0.91	1.70	0.79
Owner-occupied apartments	0.11	0.96	0.85

Comment. Standardised effect according to Cohen’s *d*, i.e. difference in means, divided by standard deviation for the population (Cohen 1992). According to Cohen, an effect is small, but not trivial, if the value of the index is around 0.2, if it is around 0.5, it is medium, in the sense of being visible to the bare eye of a careful observer. Values of 0.8 and above are considered large.

However, as shown in the description of the different sub groups (in Table 2 above), there is a difference in the share of rented housing, which potentially provides an alternative explanation to the differences in outcome. To control for differences in tenancy, separate analyses were carried out for rented and owner-occupied housing respectively. The results, shown in Figure 3, still indicate a lower calculated specific energy consumption at the point of construction where MBP South applied, and an even lower level when this was combined with the Developer Dialogue, with large standardised effect sizes. One exception is for the owner occupied housing, where the difference between no programme and MBP South is very small. Still, conclusions should be made with caution in this disaggregated analysis as the number of observations in each sub group is low, at its extreme with as few as two different observed values (representing 69 apartments) for owner-occupied housing with MBP South only. Over all, the difference in tenancy does not explain the difference between the groups. This strengthens the conclusion that the MBP South and the Developer Dialogue are actually effective.

The disaggregated analysis in Figure 3, as well as the effect sizes in Table 3, also suggest that the difference in specific energy consumption in relation to programme applicability is larger for rented housing than for owner-occupied, implying higher programme effectiveness for rented housing. Again, be reminded

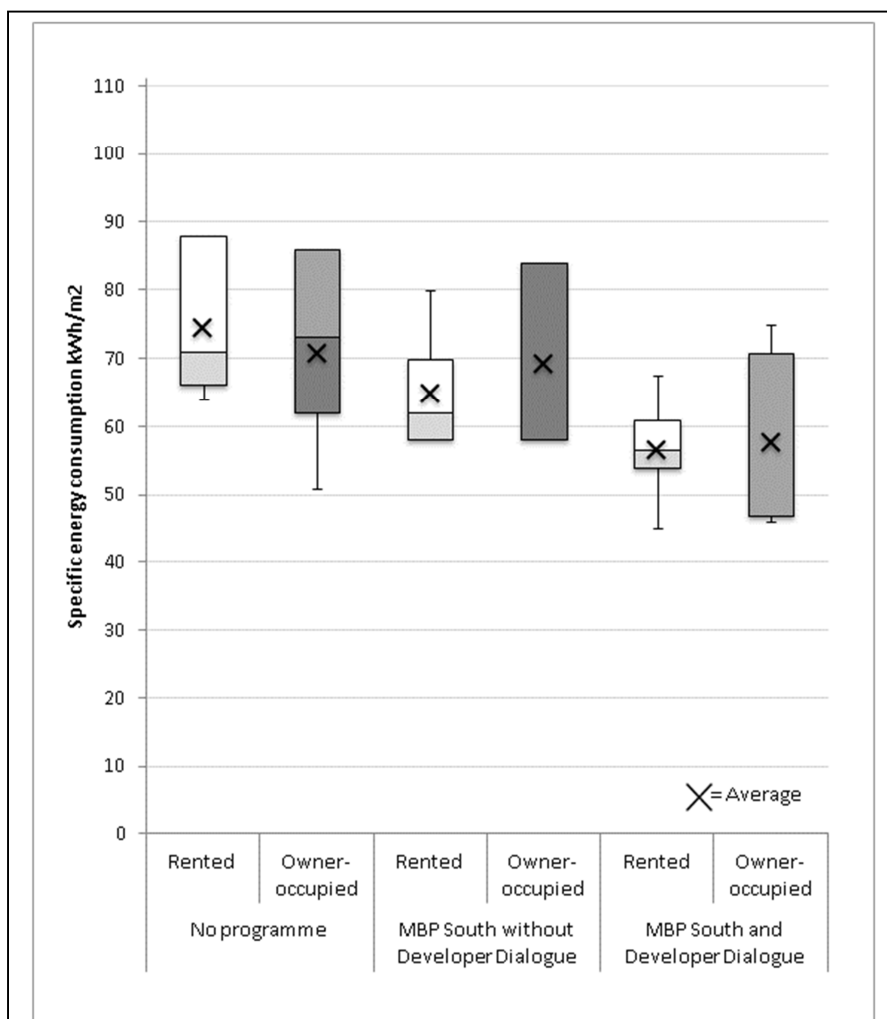


Figure 3. Calculated specific energy consumption, disaggregated according to tenancy

Comment. See Figure 2.

that this disaggregated analysis is based on few observed values. Moreover, the qualitative findings suggest a slight mutual relationship between tenancy and energy performance, highlighted in the following quote by one of the building developers subject to both MBP South and the Developer Dialogue “We planned to sell the flats in this building [...] but then we decided to turn it into a passive house and then it ended up being a too high quality building to sell, so I decided to keep it” (CEO, locally operating developer and property owner).

Other Energy Requirements. In addition to specific energy consumption, the study addresses the other energy related requirements of MBP South (recall Table 1 above). The municipality did not collect documentation for the fulfilment of these requirements. Hence, interviews is the only source of information. A general finding was that these requirements were lacking in specification, leaving room for interpretation in their implementation.

For white goods, results indicate a level slightly higher than EU average market data (approximately A+, as compared to A-A+) (Van Holsteijn en Kemna B.V. et al. 2013) but the developers were unable to provide detailed information about the specific products. No difference depending on programme applicability could be discerned. MBP South requires the highest available class, but there seemed to be some room for interpretation of what *available* actually meant and this was normally conferred with the municipal administrator for each individual case.⁹ The results were similar for energy- and water saving taps. For virtually all building projects it was claimed that the taps were of energy and water saving kind, but the actual definition of energy- and water saving taps was unclear, both the one applied within the programme and that used by building developers.

MBP South in combination with the Developer Dialogue seems to have had some influence on whether energy for hot water was made possible to measure separately. This was possible in 79% of the projects (response rate 88%) covered by MBP South and the Developer Dialogue, while the number was 67% (response rate 75%) for projects with MBP South only, and 50% (response rate 80%) for projects with no programme. Hence, MBP South on its own did not seem to influence this.

Also for pressurised fan testing of air tightness, MBP South appears to have had an influence only in combination with the Developer Dialogue. Air tightness was tested in all projects subject to both programmes (response rate 88%). Projects subject to MBP South only tested air tightness in 83% of the cases (response rate 75%), while for projects not subject to any programme, the corresponding figure was 75% (response rate 80%). As regard the results of the testing, the projects with no programme had considerably poorer results, 0.48 l/s at 50Pa pressure difference (response rate¹⁰ 50%), than those subject to MBP South only, whose average was 0.34 l/s (response rate 100%), and than projects with MBP South in combination with the Developer Dialogue, where the corresponding number was 0.20 l/s (response rate 43%). However, interpretations should be made with caution as response rates were low. It is still notable that none of these numbers exceeds the limit for the C level in MBP South.

New technical solutions. The informants were also asked whether they applied any technical solutions related to the buildings energy performance that they had previously not used. As oppose to what would be expected, the results indicate that projects outside the programme are more prone to include new technologies than those subject to MBP South only (38% instead of 0%, response rates of 89 and 50% respectively). On the other hand, in the projects with MBP South and Developer Dialogue combined, a high degree of new technical solutions prevails (85%, response rate 100%). This may be associated with these projects’ participation in a national programme where the goals for the programme emphasised aspects related to innovation. (see Background section).

There are several possible explanations to the low adoption of new technical solutions in projects subject to MBP South only. One is that building developers do not want to take any risks

⁹ According to personal communication with Charlotte Fingal, programme responsible, MBP South, City of Malmö, 2013-08-19.

¹⁰ As share of respondents answering that they have been testing air tightness.

which may impede them from living up to the commitments made towards the municipality. Indeed, the driver to make a good impression on the municipality and thus ensure future land allocations does appear as strong. It might also be that the framing of the question excluded more process-related solutions. The current status of technical development in relation to energy efficient buildings is one where many isolated technical solutions exist but these have not come to broad implementation. Therefore, in the intermediary segment between mainstream construction and demonstration projects, the challenge is rather for the building developer to develop/adopt ways of integrating these solutions into the building in a holistically sound way. It might be that the projects subject to MBP South only are in this intermediary segment.

For the projects outside any programme, these included loose-fill insulation, strong air tightness focus and ground water heat pump, i.e. not particularly groundbreaking technologies from an energy efficiency point-of-view. For the projects subject to MBP South and Developer Dialogue, new solutions include air based heating system (no radiators), solar collectors, individual measuring and billing of hot water, natural ventilation, rotary heat exchangers, unusually thick walls. Also these are relatively established. Generally, the key strategy for enhancing energy efficiency was a good building process and incremental improvement of a number of technical aspects of the building. Hence, innovation was mainly located in the actor and institutional dimensions of the socio-technical system in the form of practices.

Discussion

Implementation and effectiveness

This study has presented an evaluation of a case of local governance experiments addressing building energy efficiency in Malmö. MBP South has been used for all multi-residential developments where it was intended to be used, i.e. on municipal land in Malmö. This corresponds to 62% of the apartments built in the municipality during the relevant time period (71% of building projects). Further, the results indicate that MBP South has contributed to increasing energy ambitions for multi-residential developments in terms of calculated specific energy consumption at the point of construction. For those projects subject to Developer Dialogue, energy performance was even higher. However MBP South on its own seems little effective in terms of the more detailed technical requirements. Moreover, the programme on its own was unable to spur the adoption of new technologies, or maybe even counterproductive in this regard. Again, where MBP South was combined with Developer Dialogue the results were more positive.

The lack of effectiveness for the more detailed technical requirements can be traced to administrative challenges and limitations in the implementation process. For example, in the case of taps or white goods, there was a lack of specification of requirements and insufficient control. Moreover, the results suggest that insufficient administrative resources have been set aside for the programme. The recent revision of the programme meant an adjustment to these limitations and an increased reliance on self control, which might lead to an implementation closer to that described by the relevant programme. On the other hand, reliance on self control may also undermine the legitimacy of the programme, which previous research on similar programmes indicate (see, e.g., Savola 2007). This is particularly problematic if trust building is seen as one of the important outcomes of local governance experiments.

In terms of building energy performance, it is important to keep in mind that this study addresses *calculated* energy use *at the time of construction*. This could be considered a limitation as measured energy use often differs from the calculated levels at the design stage (see, e.g., Nilsson 2003). On the other hand, because this study partly relies on involved actors' memory, studying relatively recently built buildings may have an advantage, and then reliable data on measured energy consumption is not available. Moreover, these calculations are believed to be what guides the

architects and engineers in their work. Therefore, they are relevant. Measured data would also have been problematic in that it is sensitive to user characteristics. In combination with planned follow-up research on measured energy use in the same projects, the current study can provide a particularly comprehensive understanding of the initiatives' effectiveness.

A challenge with the comparative approach taken, when evaluating programme effectiveness, is that buildings outside the programme might still be affected by it (Cook & Campbell 1979). For example, economies of scale might lead developers to adopt more ambitious company guidelines than what they would have done, were there no programme. This would mean that this study indicates a lower effectiveness than was actually the case. But the opposite is also possible here, that building developers choose to locate their sustainability oriented projects, which would have been built anyway, on the municipal land, and their less sustainable project on the other land, i.e. a form of Tiebout sorting (Hoffmann, 2011) where little overarching effect is achieved, even if large differences in outcome between the subgroups can be discerned. It has not been possible to control for such impacts in the analysis, and it is an important area for future research.

The role of dialogue in raising sustainability ambitions

As previously pointed out, energy ambitions in terms of specific energy consumption was considerably higher where MBP South was combined with the Developer Dialogue, i.e. in the Western Harbour area. In addition, the dialogue process appears important in order to ensure that the more detailed requirements in the programme were actually followed. The difference in outcome for MBP South in combination with the Developer Dialogue, as compared to without, raises a number of points for discussion. It is clear that the Developer Dialogue is associated with a more resource demanding process, both from the municipality's, and from the building developer's, side. This is likely to have strengthened effectiveness, but possibly at the expense of cost-effectiveness. For the broader scale, a programme such as MBP South might be a more feasible path, in this regard. Further, part of the higher ambitions shown in the projects subject to Developer Dialogue may be attributed to the external funding that the building developer received for being a sustainable city showcase. Causality is not straightforward, however. In fact, when building developers applied to be part of the project, the external funding was not present. Instead, the decision to apply for external funding occurred during the process and can thus also be seen as a consequence of the high sustainability ambitions for the area.

The Developer Dialogue as considered in this study also needs to be understood in its geographical context, i.e. as part of the Western Harbour. This neighbourhood is central to Malmö's identity as sustainable city. Taking its starting point in the housing fair Bo01 in 2001, the Western Harbour has been the home for a series of sustainability-oriented developments, where the municipality has used its land ownership to put sustainability requirements, while simultaneously working with Developer Dialogue.¹¹ It is likely that the difference in outcome associated with the Developer Dialogue also relates to this "branding" of the Western Harbour area (which is also associated with financially strong building-customer segments). A quote from one interview (also quoted above) illustrates this particularly well: "The whole point of building these types of projects is to lie in the forefront. [...] That is how we brand ourselves. [...] The reason that we construct in Malmö is that many customers and others come to the Western harbour." (Project Architect, nationally operating developer). It should be noted that, in this study, effects of the Developer Dialogue process has not been separated from such branding effects, instead, the two are seen as inherently interlinked, in the sense that through its persistence, with the Developer Dialogues and

¹¹ The developments have not been without critique, nor in terms of its environmental qualities (Nilsson 2003) neither regarding (the lack of) social sustainability (Lindberg 2012). Indeed, as mirrored by the data on disposable income in Table 2, the area has turned into a relatively wealthy neighbourhood with both social and environmental sustainability challenges associated with this.

other initiatives in the field of sustainability, the municipality has, in the Western harbour, managed to create an arena for those who want to do something extra in terms of sustainability.

Lessons beyond Malmö

The relevance of the results in relation to other local governance experiments can be discussed at two levels. First, to what extent can we generalise results to other municipalities with similar programmes? Second, to what extent can we draw any conclusions for local governance experiments at large? Local energy requirements on buildings built on municipal land are increasingly prevalent in Sweden and other countries and they all share the ambition to raise energy standards beyond those stipulated by national regulation. However, both the programmes' design, and their context, including the municipalities' characteristics, differ across municipalities which means that the possibility to generalise from the findings to corresponding programmes in other municipalities is limited.

In terms of programme design MBP South gives the building developer a choice between three different ambition levels, whereas most other programmes only set one level of the requirements. This may lead to relatively lower costs for complying with MBP South. If building developers choose the lower ambition level, it could also lead to a lower outcome, as the lowest ambition level in the programme is relatively low, in relation to other programmes' single one. The recommended level for a single level of municipal energy requirements is approximately 75% of the maximum required by national regulation (SALAR 2013). Another important difference regarding the programme is that MBP South is combined with a public web page which presents ambitions and results for the individual projects. This gives a programme with more competitive elements than many other local programmes for buildings.

Considering the municipality of Malmö more generally, it can be described as having a relatively strong ability to implement governance experiments, as compared to other Swedish municipalities. One obvious aspect is the municipality's relatively high share of land ownership, which increases the immediate outcome of the programme.¹² Another key aspect which seems to have contributed to the effectiveness of the programme is that the city has been working relatively long-term and explicitly with sustainability. As a result, actors operating in the city might be more committed to sustainability issues, and thus more willing and able to comply with municipal programmes, than is the normal case. Lastly, the relatively large size of the municipality – the third largest in Sweden (310 000 inhabitants), as well as the fact that the programme is developed jointly with another municipality, gives economies of scale for the administration of the programme, and therefore should provide for more effective implementation. This also provides economies of scale for the individual developer. Indeed, among the more locally operating developers, interviews indicate that the programme has influenced the development of company specific guidelines and two of the building developers use the programme in its entirety as building guidelines.

On the whole, Malmö can be seen as a *most likely case* (Eckstein 1975) for the successful implementation of local governance experiments today, due to its sustainability profile and its relatively strong administrative capacity.¹³ This has implications in terms of generalisability to other local governance experiments. Had the study indicated no or very limited effectiveness of local governance experiments, could this have served to strongly question the effect of such programmes. Our more positive results, on the contrary, motivate further investigation into different types of local

¹² Typically, municipalities' share of land ownership relevant for new developments is in the range of 40-60% (Ceasar et al 2013).

¹³ Although mainly focussing on earlier stages of the policy process than what is done in this study, Bedsworth and Hanak (2013) as well as Liu et al. (2013) found size, in terms of population, and political commitment and –culture to be key factors for these kinds of initiatives in the US setting. For the case of buildings, the municipal ownership of the energy utility also had an influence.

governance experiments and their effectiveness, as well as effects at different scales. Moreover, it should be noted that Malmö was probably not seen as a most likely case a couple of decades ago. The current sustainability profile has been acquired through long term strategic work. Therefore, it is argued, must individual governance experiments be understood as part of a development; and Malmö ought not to be disregarded as a special case, which is not relevant for other cities.

Conclusions

The objective of this study has been to assess the immediate and intermediate effectiveness of a local programme for sustainable buildings, MBP South, in Malmö, Sweden. The programme was used for the majority of new multi-residential units in Malmö 2010 and 2011 and these had lower calculated specific energy consumption than those not subject to the programme. Hence the programme has been having an important influence on the energy performance of Malmö's recent building stock. The findings indicate that the programme has been effective in fostering building energy performance; but the effects are limited when it comes to the more detailed technical requirements, such as those addressing white goods and taps, revealing problems in programme implementation. Where the requirements in MBP South were combined with a Developer Dialogue in the area of the Western Harbour, effectiveness was higher. The City's long-term commitment to sustainable urban development in this part of the city may have contributed further to this difference.

Even if building on a single case, the results give some guidance as regard policy recommendations. Firstly, it confirms the potential influence that municipalities may have through these types of programmes. Yet, the results also reconfirm the importance of being careful in the formulation of specific technical requirements in order to ensure that these are actually possible to enforce. Related to this is the importance of ensuring that administrative resources match the programme design. Reference to voluntary standards, such as the passive house standard appears as one way of handling such challenges in policy design. The urban setting also points to the importance of place and branding. Even if not at the core of this study, interviews do imply that persistent local policies and programmes may contribute to shaping a place's identity which may enhance the effectiveness of local programmes. While resource intensive, the possibility to engage in persuasive and knowledge developing activities, such as a Developer Dialogue, may contribute significantly to the effectiveness of local programmes in this regard. The study's results at the local level also suggests that the *national* regulation at the time of the study served poorly to spur building energy performance. The regulation has been tightened since the time period addressed by the study, now requiring a maximum specific energy consumption of 90 kWh/m² (as oppose to 110). It is likely that even this change is insufficient to spur technical development, as implied by the results. However, more knowledge is needed on the current relation between calculated energy use at the design stage and actual energy use (which is the one addressed by national regulation), in order to make any certain statements in this regard.

The study highlights several challenges for the evaluation community in light of arising governance experiments. Firstly, it underlines the importance of addressing programmes at all levels of jurisdiction and scales, and understanding them in their multi-level governance context. While some challenges becomes particularly pertinent for these types of programmes, such as the addressing of Tiebout sorting effects and issues of causality, the programme may also serve well for experimental policy evaluation designs and their evaluation may therefore be important for more general knowledge development.

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