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### The politics of design in cities

#### Preconceptions, frameworks and trajectories of sustainable building<sup>1</sup>

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Moss, Slob and Vermeulen address the limited impact of local policy and planning initiatives in promoting the introduction of sustainable energy technologies in the design of new housing. They begin with a critique of the policy response of removing individual 'barriers' to technology take-up, commonly identified as inadequate regulations, funding and information. They then argue the need for a broader understanding of how local policy contexts shape decision-making processes in this field and how recent shifts in these contexts – relating, in particular, to market competition, new constellations of actors and technological diversity – are creating new windows of opportunity for green housing. In this way the authors question the view that the diffusion of proven environmentally beneficial technologies and construction techniques is simply a technical challenge. Instead they suggest that in order to assess the changing opportunities for actors in design and development to put their already existing knowledge into practice, we must deepen our understanding of the competing social and technical logics governing development processes.

#### Introduction

The process of designing, planning and creating sustainable buildings is tied up in a complex web of problem perceptions, actors' interests, decision-making procedures and policy frameworks. Experiences in practical application suggest that these factors are not peripheral or trivial. They shape the process of implementation significantly and can have a substantive influence over the design and features of the building or development. There is a growing recognition in the literature on sustainable architecture that some of the dominant assumptions on how sustainable and energy-efficient building can best be promoted are fundamentally flawed (Guy and Shove 2000). Broadly speaking the critique is, firstly, that policy-makers and planners pursue a rational choice logic that is often at odds with everyday experiences of human behaviour. Secondly, the role of key individuals in decision-making processes is often overemphasised at the expense of consideration of the real and potential contribution of other affected parties. Thirdly, the notion of implementation following a linear path from original design to ultimate construction, overcoming 'barriers' encountered on the way, overlooks the inherent complexity, unpredictability and reversibility of the implementation process. Several chapters in this book take up this critique and investigate different dimensions to the broader picture of promoting sustainable buildings.

The purpose of this chapter is to explore one of these dimensions – sustainable building policy in urban contexts – as a way to contribute to this debate and raise our understanding of the contextual forces that frame opportunities for energy efficiency.

The focus is not on the choice of technology or the design of buildings but rather on the ways these issues are framed and shaped by policy priorities, actor engagement and urban development forces. Drawing on experiences in European countries with strong traditions of municipal influence over local energy and housing policy – in particular the Netherlands – we investigate urban contexts that contribute to, or otherwise affect, efforts to create more sustainable locations and designs for new housing.

We characterise our perspective on the debate as ‘the politics of design in cities’. The terminology is deliberately chosen to capture a number of different ‘worlds’ that interact in efforts to promote sustainable building in urban contexts: the world of politics, where power is exercised and interests negotiated (Fearon 1998), the world of policy-making, with its beliefs in planning and control and its institutional structures, the world of design, which strives to combine aesthetics with functionality (von Meiss 1998), and the world of the urban environment, with its multiple physical dimensions and social interpretations. Each of these worlds engages a particular constellation of actor groups – local politicians, planners, architects, developers and so on – who pursue their interests and responsibilities according to their own perceptions of problems and logics of action. Increasing sensitivity towards the relevance of these different worldviews and interests is one objective of this chapter.

A second objective is to raise awareness of the dependence of sustainable building on a wide range of policy issues. Even in the context of a single locality, efforts to promote sustainable building get caught up in debates and issues not readily associated with the immediate task at hand. Sustainable building can be significantly affected, for instance, by local transportation policy, the structure of technical infrastructure networks or the activities of technology consultants. How these contextual factors can shape initiatives in sustainable building has not been well documented to date. In particular, little is known about how shifting contexts of action can create new openings for promoting sustainable building or undermine the premises on which current building policy is based. The liberalisation of energy markets, for example, can substantially alter the interest of the local energy utility in contributing to a sustainable building programme. Finally, we need to know more about the combined effect of these diverse factors in specific urban contexts. Identifying contributory factors alone is not enough; understanding ways in which they interact is important to identifying the emergence of windows of opportunity for policy action. It is contested here that the ‘mainstreaming’ of sustainable building practices cannot be achieved without a good understanding of the politics of design.

The chapter begins by exploring the gap in policy implementation that exists in promoting sustainable building, setting the ambitious policy objectives against the relatively modest results. In the subsequent section we identify some common explanations given by local authorities for the low rate of dissemination of sustainable building practices – including inadequate regulations, lack of funding and information deficiencies – and criticise how these problem perceptions often lead to selective solutions. On the basis of this problem analysis we then set out our own conceptual understanding of the politics of (sustainable) design in urban contexts. This broadens the perspective to encompass the multiple factors which influence the decisions of investors, developers, housing associations and owners to adopt or reject sustainable technologies when building, refurbishing or managing housing. The paper then indicates how some of these frameworks of action are currently shifting, creating new openings for sustainable technologies and practices and requiring novel approaches to planning sustainable

housing in the future. The following section then gives examples of more context-sensitive approaches to pursuing sustainable building objectives and exploiting the new windows of opportunity being created. We conclude by summarising the implications of the findings for future ways of promoting sustainable building in urban contexts and for the role local authorities can play to this end. Examples drawn from empirical research from the Netherlands, in particular, serve to illustrate the central arguments of each section.

### **The policy implementation gap**

Many European countries have strong traditions of municipal influence over local housing and energy issues. Local authorities possess various powers, ranging from planning regulations and ownership of housing to responsibility for relevant policy fields to promote sustainable building. They are also well placed to create pilot projects of sustainable housing, encouraging the take-up of innovative technologies such as high-efficiency condensing boilers, solar domestic hot-water systems, heat pumps and combined heat and power. The Agenda 21 document of the Rio Conference on Environment and Development recognises the pioneering role of local authorities in promoting sustainable development. In recent years considerable steps have been made by local authorities in advancing energy efficiency in buildings. In the Netherlands, the central government has successfully introduced energy performance standards, financial incentives and voluntary agreements with the building and construction industries (Haarman et al. 2000). Extensive checklists of possible techniques and designs are available, such as the national packages for sustainable building (Anink et al. 1996). These policies have been supported and often elaborated by local energy-efficiency policies. As a result, by 1998, 32 per cent of all new building permits met a specified minimum standard for sustainable building, the so-called 'yardstick' (Novem 1999). Although this appears to be quite an achievement, a comparison across Europe shows the Netherlands to be somewhere in the mid-field in terms of environmental innovations (van Hal and Dulski 1999).

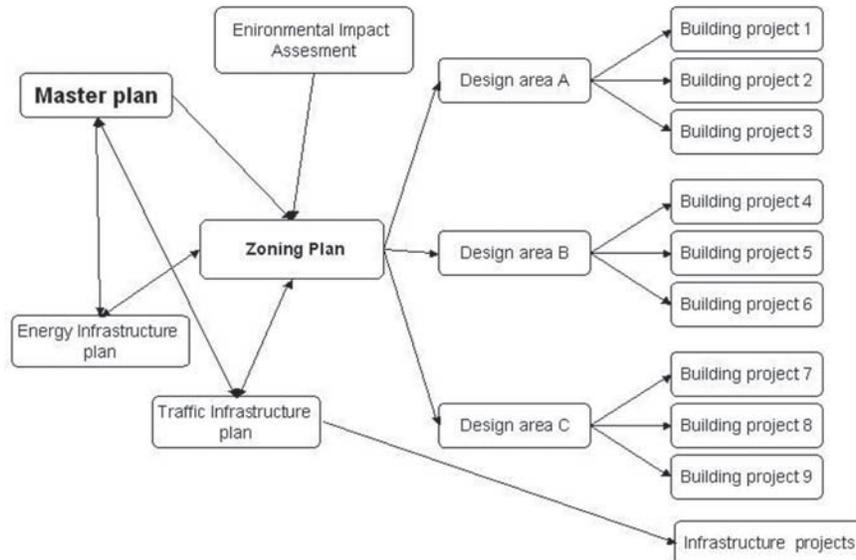
Despite a number of success stories and growing recognition of the multiple benefits of energy-efficient housing, it cannot be denied that many local policies to promote sustainable building fail to live up to expectations. Criticism is levelled in particular at the relatively low rates of technology dissemination (van der Waals 2001). Even if individual pilot projects of sustainable housing prove successful in their own right they seldom stimulate significant take-up of the innovative technologies on a broader scale. Without the favourable financial backing, involvement of actors and exemption from regulations that pilot projects have available, the technologies they advance often prove unattractive and unviable. There exists a substantial gap in policy implementation. Compared with the ambitious policy objectives, the outcomes have been modest.

This generally acknowledged observation has been substantiated by empirical research in the Netherlands on the role of sustainable building in planning processes for urban development and urban renewal. Studying the early generation of government-endorsed demonstration projects of the early 1990s Silvester concluded that the focus of these projects had been merely on 'getting the demonstration done' (Silvester 1996). It took almost ten years for a target-group oriented communication strategy to be developed for disseminating the acquired knowledge. Similar findings for other European countries have been made by van Hal (2000).

A more recent study examined the degree to which major urban development projects of the late 1990s in the Netherlands met national policy targets on energy and transport (van der Waals et al. 1999). The survey covered 26 locations, each including at least 4000 new dwellings and together covering 36 per cent of the planned new dwellings in all large urban expansion plans in the country, for the period 1995 to 2005. It was found that, although sustainable building was generally given a high priority at the strategic planning level, many of the more ambitious objectives were not carried over to the following implementation phases or taken up by the respective sets of actors (van der Waals et al. 1999: 21–33; van der Waals and Vermeulen 2000. See Figure 5.1). This applied to many urban design and technological options generally considered highly important to sustainable building, such as the location and orientation of the buildings, access to public transport and ways to minimise car use.

A further study on the implementation of CO<sub>2</sub> reduction targets in urban reconstruction plans reveals an even larger implementation gap (van der Waals et al. 2003). In projects of this kind many opportunities for CO<sub>2</sub> reduction are being overlooked. The few technical options introduced, such as insulation, condensing boilers and high-performance glass, were often applied to only some of the houses or part of the house shell. The take-up of technologies would appear to depend to a substantial degree on the market viability and maturity of each technology, as perceived by developers and property owners.

These studies show some 'successes' but also various dimensions of an implementation gap. Discussions on levels of success are always strongly coloured by the perceptions of what 'sustainable building' actually is. In the Dutch case, 'preferable packages' have been formulated in consultation with authorities, businesses and experts, creating one practical definition of sustainable building. The government's claim to success rests on the level of implementation of these 'preferable packages', which offer considerable



5.1 *The sequence of planning processes for building locations.*

freedom of choice over individual measures while limiting additional costs for new housing to between 2 per cent and 3 per cent. However, seen from the perspective of specific design options, as in the studies discussed, levels of success clearly vary according to the option. Here, the degree of maturity and market viability of the technologies is important. Given the growing attention being paid to sustainable building, the pace of technological development in this field is rapid and accelerating. Technologies which only recently were experimental are breaking through into the mainstream, creating a challenge for businesses and authorities to keep up with developments.

### **Perceived problems and selective solutions**

Local policy-makers are well aware of this implementation gap between policy objectives and operational achievements. Those engaged in promoting sustainable building are frustrated that years of demonstration projects backed by considerable resources have generally not succeeded in mainstreaming energy-efficient technologies and practices that exceed the regulatory requirements. They attribute limited dissemination to specific obstacles encountered during the process of implementation. These barriers, it is widely held, relate essentially to a lack of information among key actors about the technological options, inadequate financial incentives for actors to adopt sustainable technologies and market forces that favour short-term cost-saving for the developer over long-term benefits for the user of a building. These three barriers are similar to the 'barriers' cited in Guy and Shove (2000: 60–1): lack of knowledge and information, capital priority and market distortions.

It follows from this definition of the problem that the solutions, in the eyes of many protagonists, are to be found in improving knowledge transfer, providing additional subsidies and tightening the regulatory net to favour energy-efficiency measures (Ministerie van VROM 1995). These three strategies are examined in more detail here.

### ***The conventional toolbox***

#### *Tightening the regulatory net*

One general explanation for the limited dissemination of innovative energy technologies is that building regulations are not strict enough (Umweltbundesamt 1998). This line of argument is based on the understanding that architects, developers and builders tend, for commercial reasons, to follow the minimum legal requirements when designing and building housing. Disseminating environmentally sustainable technologies not (yet) commercially viable will, it is argued, require adequate regulatory incentives and sanctions. Following this logic, regulations in many European countries have been made more stringent in order to raise levels of insulation, promote the use of double glazing and increase the efficiency of heating equipment. Experiences in Denmark and the Netherlands have shown that raising standards for insulation may indeed contribute to a decrease in the energy used for heating buildings (Ministry of Foreign Affairs 1996; RIVM 2000).

At the local level municipalities may be able to add their own regulations. The city of Eindhoven, for instance, required developers on the Meerhoven site (owned by the city) to sign a letter of intent binding them to meet high environmental standards and requiring the construction companies to contribute to the cost of installing a combined heat and power system (van der Waals et al. 1999: 66). In Nieuwland, the new district



*5.2 The Information Centre for Sustainable Living in Utrecht, the Netherlands. It was built as a 'zero-energy house' with 50 m<sup>2</sup> of photovoltaic panels integrated in the roof and high isolation levels (roof and façades 6 m<sup>2</sup>.K/W; floor 5 m<sup>2</sup>.K/W; triple windows 0.7 W/m<sup>2</sup>.K). It is intended to have a modern, non-alternative look. (For more information see *Duurzaam Huis 2004*.)*

of Amersfoort, building companies that wanted to be engaged had to agree with a list of requirements drawn up by the municipality and the developer.

#### *Covering additional costs*

A second explanation frequently given for the limited dissemination of sustainable energy technologies is lack of funding. The argument here is that new energy technologies are relatively expensive, being at an early stage of development, and require initial subsidies to help them become commercially viable and more widely established. Early subsidies may in time even reduce production costs by increasing production numbers.

Here, again, local authorities can provide financial incentives of their own. The city of Rotterdam, when building the *Kop van Zuid*, introduced a checklist of environmental measures with a point-scoring system for implementation. Developers scoring 70 points or more receive a subsidy of €455. In this way, the municipality knows what measures are taken and has some degree of control over developers. The city also grants subsidies, funded from the sale of the development site, for meeting the strict energy performance coefficient of the Rotterdam Energy Plan and for introducing solar

domestic hot-water systems. A special fund is used to promote options of a more experimental nature, such as photovoltaic systems, heat pumps or combined heat and power (van der Waals et al. 1999: 62).

#### *Removing information deficiencies*

A third common explanation for poor dissemination levels is lack of information and inadequate information transfer. The underlying assumption is that the relevant actors, provided with proper information, will act rationally in ways framed by their knowledge base. They follow, it is held, largely predictable patterns based on maximising benefits for the organisations they belong to and for themselves individually. The logical solution has been to seek ways of improving data collection, information transfer and communication (Nijkamp and Perrels 1994; Selman 1996; Umweltbundesamt 1998). In several countries available knowledge has been collected in sizeable technical handbooks, such as those developed by the Danish and Dutch governments (Miljørigtig projektering 1998; Stichting Bouwresearch 1999). Other forms of information transfer are encouraged through the help of information centres, training programmes for professionals, information campaigns or energy advisory services for housing associations and households.

Some local authorities have developed sophisticated forms of knowledge transfer. For example, the city of Amersfoort introduced an environmental supervisor for the new urban district of Nieuwland whose job it was to check plans at various stages of the implementation process and to inform developers of options for environmental improvement. In addition, project teams were formed to manage building projects, each team comprising an 'environmental architect' alongside a 'design architect' and 'housing expert'. Workshops were held to raise awareness of environmental options, and media coverage helped to create a positive public image of the project and those involved (van der Waals et al. 1999: 64–5).

#### ***Limitations of the conventional toolbox***

Solutions of this kind have undoubtedly contributed to overcoming some of the difficulties encountered in promoting sustainable technologies and building practices. Experiences indicate, however, that each has its own structural deficits that have limited their overall impact. Some of these are briefly outlined here.

#### *Limitations to tightening the regulatory net*

With regard to the process of rule making, regulations on sustainable building have to be integrated into a complex web of existing building regulations addressing a variety of situations. Exceptions are often necessary, as uniform rules tend to lack context sensitivity. Efforts to make the rules more contextually sensitive are often strongly opposed. An additional problem lies in keeping pace with the rapidly changing technologies for sustainable building. Considerable time can elapse between the introduction of a technology on the market and its prescription by regulations. A time lag of 10 to 15 years is not exceptional. During the process of rule enforcement, regulations designed to promote sustainable energy technologies can have negative side effects. Thorough enforcement often demands a major commitment of resources, particularly on the part of local authorities. Furthermore, unpopular regulations tend to generate creative ways of avoiding their stipulations.

*Limitations to covering additional costs*

Here, too, a time lag can be observed between the emergence of new technologies and their inclusion in funding schemes. Another limitation revealed by research is that the use of subsidies is subject to what is termed the 'Matthews effect'. This refers to the frequent cases where those who receive subsidies would have introduced the technologies anyway without additional funding. Limited effectiveness may also be explained in part by the complexity of funding programmes. Developers and investors are often outpaced by the bureaucracy involved in applying for, and meeting the requirements of, funding schemes. These limitations seriously question the assumption that subsidised pilot projects will lead to widespread future dissemination.

*Limitations to removing information deficiencies*

In practice, there is often a discrepancy between the information that is needed and what is available. Information can be aimed at specific target groups only, missing actors deemed peripheral to the central decision-making process. It may be presented in a way that overlooks the fact that most of those being addressed act not simply according to rational choice models but under multiple constraints. Supply of information, often part of a 'technology push' strategy, may also be heavily technical; contextual information, by contrast, is often missing (Almlund et al. 2001). A study by van Hal (2000) of demonstration projects for environmental innovations in housing across Europe shows that information transfer is often poorly organised. Attention is often directed at the innovation itself and how to implement the demonstration project rather than at attracting wider interest.

More significantly, efforts of this kind have, collectively, not succeeded in enabling the mainstreaming of more sustainable building practices. Besides their inherent limitations it would appear that the challenge of promoting sustainable building involves more than overcoming the barriers of lack of funds, regulations and information commonly identified. It raises the question of what other factors need to be addressed when promoting sustainable building and, more fundamentally, whether the notion of overcoming readily identifiable 'barriers' is a helpful way of understanding the problem. This leads us to consider the politics of design in urban contexts.

### **Conceptualising the politics of design**

In their pioneering book on the sociology of energy and building Guy and Shove (2000) challenged a number of assumptions underpinning the conventional discourse on sustainable building and set out an alternative way of conceptualising the processes involved. Their critique is essentially three-fold. Firstly, they challenge the common notion of 'removing' non-technical 'barriers' to progress and the confidence placed in using improved knowledge dissemination to this end. Without denying the relevance of problems that confront efforts to promote sustainable building, they claim that these problems can rarely be readily isolated from all other factors and 'removed' by means of providing better information or applying incentives or sanctions. Processes of creating sustainable building, they argue, are much more complex. From this follows, secondly, their criticism of the linear narrative surrounding the development of sustainable technologies: from invention, design and demonstration to

application and dissemination. The reality of technology diffusion, they argue, is frequently at odds with this model path. More consideration is needed of the delays, setbacks and reversals that generally accompany processes of technological innovation. Thirdly, they challenge the focus, in promoting sustainable building, on creating incentives for individuals assumed to be acting according to rational motives alone and on targeting select groups of decision-makers in particular. This narrow focus runs the risk, they argue, of overlooking the contextual factors preventing individuals from acting rationally and the potential importance of actor groups beyond the immediate decision-makers.

On the basis of this critique Guy and Shove develop an alternative way of conceptualising processes of urban design. They emphasise the existence of multiple potential 'design routes' (Guy and Shove 2000: 67) for a sustainable building, rather than a single linear model. These varied options and trajectories available to the actors are influenced substantially by the local context of action, not merely by the inner rationale of a specific policy. Time and place take on particular importance in framing the opportunities available (Guy and Shove 2000: 69, 110). When planning and implementing sustainable building projects it is important to consider how some contextual factors can be used to advantage and how others may pose difficulties to implementation. Broadening the perspective in this way means also considering the role of actor groups other than those immediately responsible for a sustainable building project. Introducing environmental technologies, altering the local infrastructure or creating new development locations can affect the interests of a wide range of organisations and individuals (Guy and Shove 2000: 68). Identifying this web of interests and enrolling particular actors to support a project poses a major challenge to those responsible. In essence, it means shifting the emphasis of policy away from influencing the decision-making process in isolation towards structuring choice in such a way as to draw benefit from potential windows of opportunity as they present themselves or are created (Guy and Shove 2000: 95).

We build on this line of argument, focusing on two aspects in particular: the policy domain and urban contexts of sustainable building. Critical to the policy domain of sustainable building is the extent and degree of access to the decision-making process. The various stages of design, planning and construction are generally characterised by a high level of exclusivity, with clear roles for a set number of expert groups: architects, engineering consultants, urban planners, property owners and developers. Open planning processes that engage, for instance, residents, local businesses or utilities are rare (van der Waals et al. 2000). Yet actors like these have important and relevant interests in urban development processes of this kind that can potentially have a determining influence on the degree of success of a sustainable building project. Commonly, these peripheral actor groups are – initially at least – not strongly motivated by the project. Their interest in sustainable building is shaped by the extent to which it ties in with their other concerns. It follows that enrolling such actors can be significant in creating greater sensitivity to local contextual factors and identifying potentially beneficial ways in which these can be taken into consideration when implementing a particular project. Such a process is inherently political. It entails extending access to decision-making to those not directly responsible and creating procedures for negotiation between actors with diverse interests and power bases. It is about acknowledging and managing the politics of design in a broader context.

### **Contexts of design in transition**

Exploiting the opportunities offered by local contextual factors requires not only identification of those most pertinent to sustainable building but an understanding of how they may be changing. External pressures, such as globalisation and liberalisation, and internal pressures, such as budget deficits and socio-economic restructuring, combine to alter the operational framework of development projects of this kind. Such shifts can have a determining influence on the effectiveness of policy instruments and the success of project implementation. In this section we select three areas of change of direct relevance to the pursuit of sustainable building in cities: changing markets, new actor networks and technology dynamics.

#### ***Changing markets***

The influence of housing or energy markets on the diffusion of sustainable building and sustainable technologies in buildings has received little attention in the past. If considered at all it is largely as constants representing the economic framework for action rather than as drivers of change themselves. Yet markets for energy as well as for housing are changing quite dramatically across Europe – albeit in very differing degrees – creating new openings for energy technologies.

The liberalisation of energy services is the more obvious case in point. As territorial monopolies of supply for electricity and gas are eroded and competition between utilities increases, new market dynamics are emerging, encouraging new types of entrepreneurs to access this market (Guy et al. 1997; Guy and Marvin 1996; Guy et al. 2001, Agterbosch et al. 2004). In their efforts to cut costs and retain or attract customers, energy utilities are gradually distancing themselves from the costly 'build and supply' logic that so characterised infrastructure management in the past (Guy et al. 1997). Instead, they are reorienting their business strategies towards raising cost efficiency and providing a wider range of energy services. This new approach to energy management is creating a number of opportunities for sustainable energy use. Housing associations and developers, being key determinants of energy consumption in residential buildings, represent important customers for electricity or gas utilities. In a competitive energy market they can often be beneficiaries of energy services, such as free energy audits or tailor-made packages for a whole housing estate that might comprise the installation and management of low-energy heating appliances. In the Netherlands, for instance, social housing corporations have negotiated collectively with energy companies for low-price electricity for their tenants. Whereas some supply just partially green electricity, other corporations (such as DUWO in The Hague region) supply their tenants with cheaper green electricity, benefiting from major supply contracts.

Changes in the housing market can also create new opportunities for energy-efficient technologies. In the past the status of a local housing or building market was rarely considered a factor influencing the diffusion of environmental technologies; yet recent localised shifts in the supply and demand of housing suggest this can be crucial to technology up-take. In a buyers' market environmental technologies can give the edge over the competition. Conversely, the omission of energy-saving measures can, in certain hotly contested markets, leave houses unsold (van der Waals et al. 2000). We can observe how, in several European countries, green technologies have acquired an important image-building function under certain market conditions (Roedekro Kommune 2000).

It is worth noting that, parallel to the housing sector, the market in environmental technologies has its own dynamics that influence green building. The emergence of a large number of companies specialising in the manufacture, installation and maintenance of energy-efficient technologies has in recent years created a substantial driving force for technology diffusion in new and refurbished housing (van der Waals 2001). These emerging market dynamics offer considerable potential for energy-saving technologies. Those involved in promoting green housing could benefit from ensuring that their strategies build on, rather than ignore or run counter to, these dynamics.

### ***New actors, new roles, new relationships***

These shifts in market structures are encouraging the emergence of new actors, altering the roles of those involved and giving rise to new relationships among actors. Following the liberalisation of utility services, the traditional relationship between energy provider and user – limited essentially to one-directional contact via the annual bill – is giving way to more complex forms of interaction involving a wider range of actors. New services such as energy audits, price deals and appliance management are creating a more intensive relationship between energy utility and consumer, as well as engaging third parties – such as independent energy consultants or contractors – operating between utility and the end user (Guy et al. 1997; Guy and Marvin 1996). In the housing sector these emergent actor constellations are particularly apparent where substantial contractual commitments exist, as with larger housing associations or developers.

Contributing to this emergence of new actor groups and forms of interaction is the growing diffusion of small-scale energy technologies that engage a wider range of actors than under centralised systems of energy generation and distribution. The decision to install a solar collector or photovoltaic units is made by the house owner, not the utility; its operation is similarly a matter for the owner, if necessary with professional assistance. What we can observe, therefore, is not only the emergence of new actors in the energy management of housing but also the redistribution of roles and responsibilities among a larger number of actor groups, a process often requiring the renegotiation of established positions. To take one example: in Berlin the local gas utility offers owners of apartments the installation and maintenance of block-type combined heat and power plants, relieving the owner of maintenance tasks, providing a more cost-efficient source of heating and electricity for tenants and developing a market niche for itself in an increasingly competitive local energy market.

The changing social organisation of energy provision and consumption requires a rethinking of the role of the state in promoting sustainable energy use. Local authorities need to consider, when designing their energy policies, what different options might mean in terms of the actor groups involved, their interests and lifestyles, their scope for action and their relations to other relevant groups.

### ***Technology dynamics***

The emergence of small-scale environmental technologies that are economically viable has created multiple openings for energy-efficient housing. The traditional dominance of large-scale, centralised power generation and distribution systems is being gradually eroded – or, at least, complemented – by decentralised systems. Dunn (2000) argues that many OECD countries are today on the threshold of a new era of micro-power. This transition, he predicts, will necessarily be accompanied by the adaptation of the original

market rules developed to protect the centralised monopoly structures of the past. Both in the United States and Europe new tariff and regulatory systems are being designed to accommodate small-scale, sustainable energy technologies, enabling market access for new entrepreneurs (Dunn 2000: 50–4). This is creating new opportunities for green housing projects to place greater emphasis on promoting innovative decentralised technologies at the micro-level of a building.

The problem with addressing only the end point of the energy distribution chain, however, is that technological diffusion of this type tends to create 'islands of sustainability' that relate little or not at all to the surrounding technical networks of power lines and gas pipes. Proponents of green housing rarely show any interest in the compatibility between their new technologies and existing technical systems. This may be accidental, but it often reflects a deliberate attempt to escape the influence of large-scale, centralised technical systems. Recent research suggests that incompatibility between small-scale technologies and existing infrastructure networks – whether of a physical, social or economic nature – limits the effectiveness of the small-scale technologies (Jensen 2001). The more successful cases of technology diffusion in buildings are those that respect the wider technological environment of infrastructure networks. If this entails some adaptation of original designs to meet local circumstances, it need not mean following the dominant logic of the existing system. Rather, it requires understanding this logic and identifying opportunities for integrating specific technologies within this context. Failure to respect the socio-economic as well as the technical rationales underpinning large-scale supply systems – as in the familiar conflict between district heating and solar heating in Denmark and elsewhere (Elle 2001) – can seriously limit the dissemination of new technologies. To summarise, we can observe how the contextual factor 'existing physical infrastructure' acts primarily as a limiting factor for technology diffusion but is itself undergoing transformation as the old mono-structural, centralised networks are complemented by new, smaller-scale technologies.

Interestingly, local authorities often regard these recent changes to the contexts of sustainable building as a threat to their traditional avenues of power. They point rightly to their loss of influence over municipal utilities following the liberalisation and privatisation of energy services. The emergence of new actors and actor constellations in the dissemination of sustainable energy technologies has, furthermore, made local energy policy and planning more complex. As a result, local authorities find it harder to implement their energy policies and to control processes of technology dissemination. The command and control logic of the past (including control over utilities) is being undermined.

On the other hand, changes in energy, housing and technology markets are creating new openings for local government involvement. To a greater or lesser extent the new market opportunities require increasingly detailed knowledge of a locality: its economic development, physical infrastructure, consumption patterns and spatial development plans. Energy utilities keen to maximise use of their existing technical networks for commercial reasons are showing a growing interest in the performance of individual sub-networks, differentiating between areas of high and low demand (Moss 2003). The introduction of small-scale power or heat generation plants within larger energy supply networks also requires a more spatially sensitive approach to infrastructure planning than in the past. Such examples illustrate the need for new forms of cooperation between energy service providers and local agencies responsible for spatial planning and economic development, through which local authorities could influence decisions relevant to energy in housing and other sectors.



*5.3 Photovoltaic panels integrated in the design of a Berlin office block.*

### **Building on shifting urban concepts**

What are the implications of these findings for those engaged in promoting sustainable buildings in urban environments? More specifically, how can windows of opportunity emerging in specific urban contexts be exploited to promote sustainable building and housing? The answer, we argue, lies in appreciating the (urban) politics of design and devising projects and programmes to reflect a broad range of institutional and non-institutional factors that could contribute to their success. Mainstreaming sustainable building requires building on, rather than merely operating within, a local political context.

What do proponents of sustainable building need to consider in order to draw maximum benefit from a particular urban setting? As a preliminary step, they need to identify what contextual factors have the potential to contribute to – or to work against – the overall objectives. Here it is important to appreciate that solutions may well lie in policy fields not readily associated with sustainable building. The aim should be to pinpoint drivers for change and areas of uncertainty where shifting contexts and their impacts are hard to predict. Secondly, on the basis of this broader perspective the relevant actor groups can be identified and their (potential) interest in sustainable building assessed. This requires looking beyond the immediate circle of ‘experts’ and prime movers to others less directly implicated but whose involvement may nevertheless be crucial. At the same time the strength of vested interests and the persistence of established rules and

procedures need to be taken into consideration. It should then be possible, thirdly, to assess the range of possible options for embedding the strategic approach and instruments for promoting sustainable building in the local policy context. Here it is important to consider the process not as one of implementing a preconceived plan but of structuring choice and framing the decisions so as to derive maximum benefit from the identified contextual factors and actor interests. It should then be possible, fourthly, to map the possible trajectories, or pathways, for pursuing the policy objectives. The purpose of this step is not to limit the number of trajectories, prematurely excluding potentially useful options, but to think through the progress along each pathway, bearing in mind potential setbacks, critical junctures and inherent weaknesses. Finally, ways need to be developed for enrolling the relevant actors in the process, creating openings for greater access to decision-making. This requires special consideration of the wide range of actors involved and the different degrees of interest in a project.

To illustrate one possible point of entry to a process of this kind we draw on one example of a policy experiment in open, collaborative design in the Netherlands. In the city of Hoorn a workshop-based procedure was introduced in 1999–2000 to highlight opportunities for reducing CO<sub>2</sub> emissions at a planned urban development scheme at Bangert Oosterpolder (van der Waals and Vermeulen 2002; van Hoorn et al. 2001). An unusually wide range of local actors was involved in the workshop, ranging from the local authority, housing association and developer to representatives from the local building industry, the energy utility, the public transport company, non-governmental organisations and future residents. The intensive, open exchange resulted in a number of agreed targets and proposed measures for reducing CO<sub>2</sub> emissions that were considerably more ambitious than those identified by the group at the start of the workshop. These included building 'low-energy houses' with an energy performance coefficient of 0.75, capable of reducing CO<sub>2</sub> emissions by between 40 per cent and 60 per cent of the 1987 figures, and ensuring that 20 per cent of the energy used in the houses and buildings would come from renewable sources.

Subsequent to the workshop the level of commitment of the participants to the joint declaration of intent was evaluated on two separate occasions. After three months the majority remained committed to implementing the agreed actions. However, it subsequently transpired that many of the recommendations were not adequately pursued during the construction of the new locations. The workshop was not effectively bound into the formal planning procedure. In retrospect it would have been advantageous to have followed up the workshop with further activities, such as elaborating on the actions agreed, in a continuous consultation process, guaranteeing the continued involvement of all participants, discussing necessary adjustments in response to changing contexts of operation and monitoring progress, providing feedback to those involved.

## **Conclusions**

The purpose of this chapter has been to illustrate how a broader, contextually sensitive approach to promoting sustainable building – considering what we term the politics of design – can contribute to a better understanding of the range of contributory factors and how they might be harnessed to better effect. Our point of departure was the policy implementation gap over sustainable building, widely acknowledged by the principal proponents. Despite considerable advances in establishing sustainable building on the political agenda, the achievements have generally failed to live up to expectations.

Practical applications in many instances fall well behind policy objectives. Even in relatively favourable urban contexts with influential local authorities, as in the Netherlands, energy efficiency and sustainability principles have not become mainstreamed in the design and construction of buildings beyond the legal requirements.

Our analysis of policy implementation processes suggests that part of the problem lies in the way decision-makers perceive barriers to implementation and how this perception gives rise to particularly selective solutions. We have identified three common problem perceptions – inadequate regulations, funding and information – deemed to be restricting the take-up of sustainable technologies and practices in the building sector. In order to remove or, at least, lower these 'barriers' to more effective implementation, policy-makers seek to tighten the regulatory net, offset additional costs with targeted subsidies and improve knowledge dissemination of best practices and technological options. This strategy is pursued not only by national governments but also, as we have demonstrated in the case of the Netherlands, by local authorities keen to promote sustainable building practices.

The limited overall impact of this strategy of overcoming barriers indicates that other factors beyond the immediate incentives may play a significant role in framing the opportunities for sustainable building. We have argued here for the need to appreciate how efforts to promote sustainable building get caught up in a wide range of policy agendas and actor interests that may not, at first sight, seem directly relevant. A policy initiative to improve energy efficiency in a new housing settlement touches, for example, on urban transportation policy, local power and gas infrastructure systems and the state of the housing market. Behind each of these relevant issues lie actor interests that may, or may not, be sympathetic to a particular aspect of sustainable building. It is important to identify these forces and understand how they work in a specific urban context. This arena we have termed the (urban) politics of design in order to focus attention on the political nature of the process of enrolling actors and negotiating positions.

It is important to appreciate, in addition, that urban contexts are dynamic. The wide range of institutional and non-institutional factors relevant to sustainable building can change – sometimes radically – in response to external or internal pressures. We selected three examples to demonstrate how recent shifts in energy, housing and technology markets are creating new openings for energy-efficient technologies. To a greater or lesser extent the new market opportunities require increasingly detailed knowledge of a locality: its economic development, physical infrastructure, consumption patterns and spatial development plans. Energy utilities keen to maximise use of their existing technical networks for commercial reasons are showing a growing interest in the spatial distribution of demand. The introduction of small-scale power or heat generation plants within larger energy supply networks also requires a more spatially sensitive approach to infrastructure planning than in the past. Both examples illustrate the need for new forms of cooperation between energy service providers and local agencies responsible for spatial planning and economic development through which local authorities could influence energy-relevant decisions in housing and construction.

This leads us to a final observation on the future role of local authorities in stimulating greater actor interest and involvement in sustainable building. If local authorities were to initiate and coordinate a collaborative process of this kind they could gain some influence over local energy planning and management, compensating at least to some extent for that lost in recent years. The kind of influence exerted would, however, differ from the past practices, which were reliant on restrictive planning powers, distribution

of subsidies and ownership of local utilities. Rather than intervening in decision-making processes to rectify a perceived problem with the help of more regulations, money or information, local authorities would be acting as facilitators of a mutual exchange of ideas between a wide range of actors relevant to the policy process. They would be framing the debate, seeking windows of opportunity, structuring the options and managing the process of selecting the ones most suitable to their particular urban context.

### **Note**

- 1 This chapter is based on a shorter paper published in *Built Environment* entitled 'Rethinking Local Housing and Energy Planning: The Importance of Contextual Dynamics' (Elle et al. 2002). We are grateful to the publisher for permission to publish brief excerpts of this paper here.