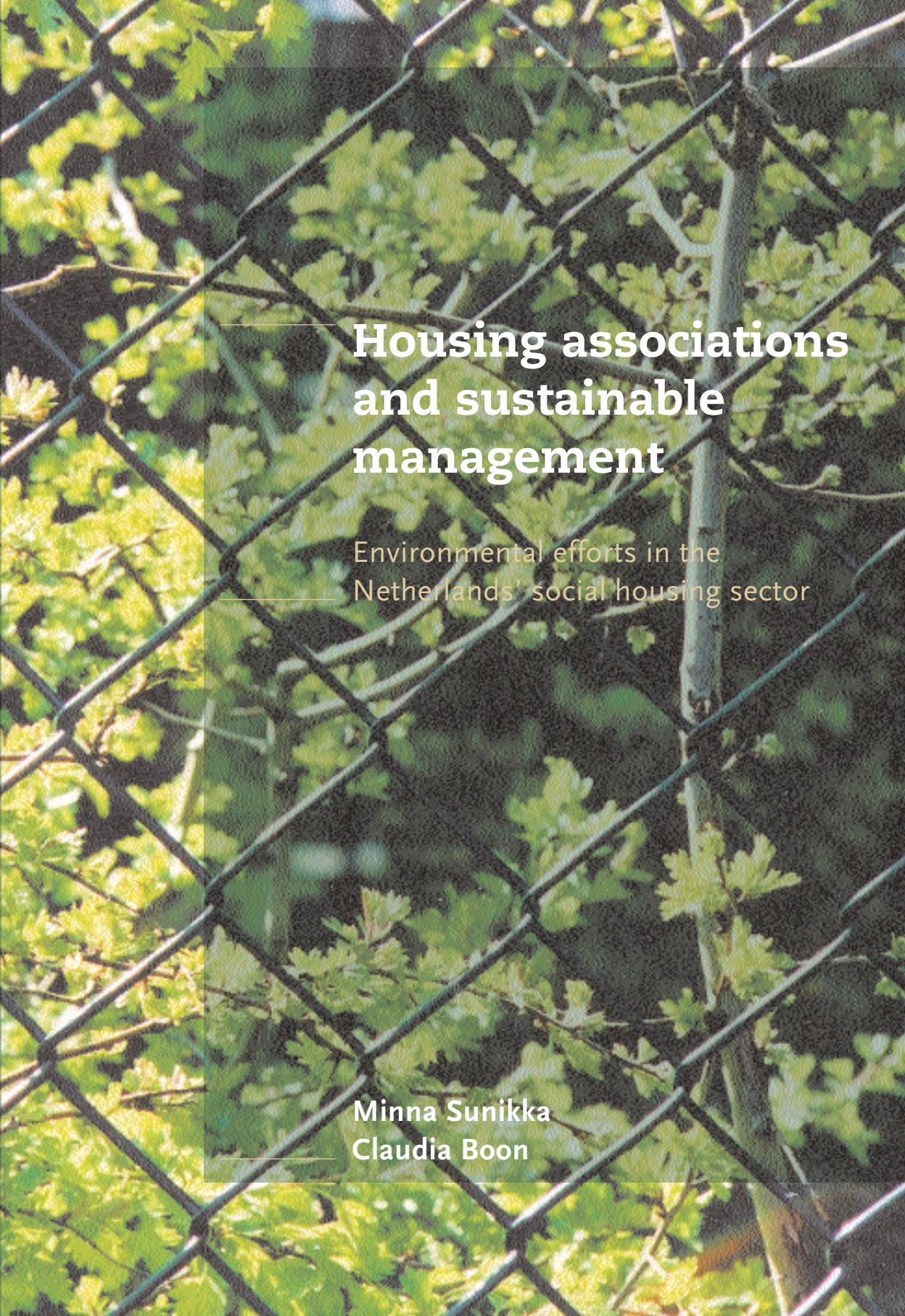




Housing associations and sustainable management

Environmental efforts in the
Netherlands' social housing sector

**Minna Sunikka
Claudia Boon**

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Foreword

This report is a product of the Sustainable Housing and Management research project. That project is being conducted in the framework of The Ecological City, the Delft University of Technology's Interdisciplinary Research Centre, which carries out pioneering research on the sustainable built environment and is one of the university's key programmes. Previously in this project, Sunikka (2001) studied policies and regulations for sustainable building in five European countries, and their impact on the social housing sector. This report continues the study by examining sustainable management in housing associations in the Netherlands. The Netherlands was chosen as a case study because of its large social housing sector and its experience in sustainable building. Sunikka's policy analysis concludes that, of five countries analysed, the social housing sector in the Netherlands has the most developed sustainable building policy.

In conducting our research, we drew on data from a survey of the Sustainable Building Agreement (Het Nationaal Convenant Duurzaam Bouwen), an agreement between Aedes vereniging van woningcorporaties, the Ministry of Housing, Spatial Planning and the Environment (VROM) and other parties. Special arrangements were made with Novem, Knowledge Centre for Energy and the Environment. OTB Research Institute for Housing, Urban and Mobility Studies in Delft helped to draft the questionnaire for the 2000 survey, which was carried out in 2001. In return, we granted OTB permission to use the information compiled in our research project and publication.

Our objective here is to present a deeper analysis of the survey results with a view to describing the current situation and identifying measures that could be effective in stimulating sustainable management in housing associations. We have also considered the results of previous surveys in 1998 and 1993. In addition, our discussion contains references to an extensive market research study about sustainable building, which the SBR Foundation for Building Research (Stichting Bouwresearch) published in 2001. Our data is based on the situation in the Netherlands. Even so, we consider the need to stimulate sustainable management a general problem and one that should be tackled on the international scale.

Our research was conducted in the OTB Research Institute, under the supervision of Professor André Thomsen, engineer and Dr. Geert Vijverberg.

We would like to thank Novem and Monique Lacroix for their assistance in this project.

Delft, 31 May 2002
Minna Sunikka and Claudia Boon



1 Introduction

1.1 Research objective

Sustainable building in the Netherlands falls into two policy areas: legislation for energy efficiency and general voluntary agreements for sustainable building. These voluntary agreements are called covenants. Their main objective is to establish agreements between different parties on sustainable building. Consultation between the parties involved is an important part of the process. Covenants are used complement the existing legislation. Since they are voluntary, however, they have no legal status.

In 1998, Aedes, acting on behalf of its members, drew up such a voluntary agreement with the Ministry of Housing, Spatial Planning and the Environment, the Ministry of Economic Affairs, the Dutch Tenants Union (Nederlandse Woonbond), EnergyNed, the Association of Water Boards VEWIN, and Novem, the Knowledge Centre for Energy and the Environment. In signing that agreement, (entitled Sustainable Building Agreement), the member associations undertook to strive towards sustainable building and greater energy efficiency in new housing development and housing management. The agreement is based on the National Packages for Housing and Management, which were developed for sustainable new construction and renovation of dwellings (SBR, 1996; SBR 1997). These packages lay down measures for implementing sustainability and have resulted in broad application of sustainable building principles.

The agreement outlines seven main objectives for reducing the environmental impact of dwellings by January 2002 and includes a survey programme. In keeping with the terms of that programme, Atrivé, a consultation agency surveyed the agreement and its objectives in 1998 and 2000. In addition, the OTB conducted a research study into sustainable management in housing associations in 1993 (Quist, Van den Broeke, 1993).

Our research study focuses on the 2000 survey and offers insight into the environmental policies of housing associations, the tools used and the sustainable measures taken during maintenance, renovation, refurbishment, demolition and new construction. Our analysis includes cross-analyses based on the 2000 survey results. In conducting these cross-analyses, we related the answers to the size of the housing association and examined whether the housing association had any environmental policies. Finally, we describe the developments in sustainable housing management that have taken place in housing associations since 1993. In tracing those developments, we drew on the surveys conducted in 1993 and 1998.

In 2001, the Stichting Bouwresearch (SBR) carried out an extensive market research study into sustainable building. During the course of that study, 2,341 developers, housing associations, municipalities, architects, engineers and contractors were interviewed in regard to their opinions on sustainability

and the National Packages for Housing and Management. In total, 225 housing associations responded in the study (SBR, 2001). In examining whether the SBR results support our research findings, we used this market research study as a major reference source.

Our research was conducted as part of the Sustainable Housing Management project. That project has been carried out in the framework of The Ecological City, the Delft University of Technology's Interdisciplinary Research Centre, which conducts pioneering research on the sustainable built environment. Earlier in the course of this research project, an international inventory was drawn up of sustainable building policies, building regulations and the impact on the social housing sector. The five European countries studied were the Netherlands, Germany, France, the United Kingdom and Finland. According to the findings, the national policies and regulations in all five countries neglect the existing stock. Moreover, the social housing sector's potential to contribute to environmental targets has lain to waste so far. Without subsidies, the social housing sector simply has very limited means for making environmental improvements, and the gap between environmental and economic targets will remain. This study builds on previous research efforts by exploring how, from a practical viewpoint, housing associations can be encouraged to strive towards sustainable management. It is useful to everyone interested in gaining a broader understanding of sustainable building and management issues and policies, policy applications and their impact on the social housing sector.

1.2 Research approach

We focused on social housing in this study because of its great potential to benefit the environment. For one thing, the government can push social housing towards sustainability, using such means as subsidies. What is more, since social housing accounts for such a large segment (36%) of the (Dutch) housing sector (Haffner and Dol, 2000), environmental improvements in it would achieve remarkable results. As new construction adds only about 1% annually to the total building stock, the real potential for sustainable building lies in stock management, an area left largely ignored in current research and development activities (Sunikka, 2001).

In the Netherlands, sustainable building is referred to as *Duurzaam Bouwen*, commonly abbreviated as *DuBo*. For practical purposes, we will also use that term here to refer to sustainable building, but will refer to the covenants simply as agreements.

This study is based on the data from the 2000 survey of the *DuBo* agreement in the social housing sector, which agreement was drawn up in 1998.

In conducting our research, we set out to answer the following questions:

1. What is the national strategy for sustainable new construction and housing management in the Netherlands?
2. What was the status quo in sustainable management in social housing associations in 2000?
3. What tools do housing associations currently use for sustainable housing management, and how do those associations rate them in terms of usefulness?
4. What kind of agreements do housing associations have with third parties?
5. Do the tenants receive any educational materials about environmental issues?
6. How does the size of housing associations influence how actively they implement sustainability measures?
7. Are housing associations with environmental policies more active in implementing environmental measures?
8. In light of the 1993 research study and the 1998 and 2000 surveys, what developments have taken place in sustainable social housing management?
9. Given the research findings, how can social housing associations be encouraged to strive towards sustainable management?
10. What recommendations can we make regarding the Sustainable Building Agreement (Nationaal Convenant Duurzaam Bouwen) and survey process?

Chapter 2 examines the first question regarding the Netherlands' national strategy. Section 2 of chapters 3, 4, 5 and 6 deal with the second question; 3.2 describes environmental policies in housing associations; 4.2 focuses on tools for sustainable housing management; 5.2 explains environmental agreements between housing associations and other parties; and 6.2 discusses the practice of educating tenants about environmental issues. The second sections of these same chapters also examine questions 6 and 7, using cross analysis relating the size of the housing association and its environmental policies (or lack thereof). Section 3 of chapters 3, 4, 5 and 6 seeks to identify various trends in sustainable housing management, thereby addressing question 8. Chapter 7 presents new ideas for the Dutch situation by examining measures used to encourage sustainable building in the UK's social housing sector. Chapter 8 concludes this report with conclusions and recommendations focusing on questions 9 and 10.

This study focuses on housing management in the social sector. Housing management includes a variety of activities, such as maintenance, renovation, refurbishment and demolition, as well as new construction. For the purposes of our research, we defined sustainable housing management as follows: new construction, maintenance, renovation, adaptation and the demoli-

tion of housing, in which the activities involved, the consumption of energy, water and materials, as well as the production of waste and CO₂ emissions, place the least possible strain on the environment. Our research focuses on building-related aspects: energy saving, materials and waste management, and water conservation. These are important measures in sustainable building and are measurable and manageable in terms of their impact.

1.3 The 1998 and 2000 surveys, and the 1993 research study

The 1998 survey

The DuBo agreement on the social housing sector includes a survey programme. Working in co-operation with Novem and Aedes, Atrivé, a consultation agency, surveyed the Aedes agreement in 1998 (Novem, 1998). Of the 763 housing associations that were sent questionnaires, 316 responded. That questionnaire was based on different formulas (see also appendix 3 and 4):

- formula 1: inventory of the tools used, the sustainability agreements and environmental education as regarding sustainable maintenance
- formula 2: sustainability measures in new construction
- formula 3: sustainability measures in housing maintenance
- formula 4: sustainability measures in daily maintenance

Based on the outcomes of these four formulas, conclusions were drawn regarding the seven objectives in the Aedes agreement. These objectives are listed below:

- The housing associations must invest €1,361 per dwelling in environmental measures relating to the development and implementation of new constructions;
- In housing maintenance, the housing associations must use the National Package for Management;
- In housing maintenance, the housing associations must invest €0,72 billion between 1998-2001 in environmental measures, including energy efficiency;
- The housing associations must realise 15% in energy saving in the total dwelling stock (including new construction) as compared to 1995;
- The housing associations must adjust the air circulation flow on the ground floor to Building Degree level;
- The housing associations must implement water conservation measures in the total dwelling stock (including in new constructions);
- The housing associations must replace internal lead piping in at least 24,000 existing dwellings.

In tracing the developments since 1993 in section 3 of chapters 3, 4, 5 and 6, we used the 1998 survey results as our reference source.

The 2000 survey

The 2000 survey was structured much like the 1998 survey, except that formulas 1 and 4 were omitted. Formula 1 was covered by more questions regarding the adoption of environmental policies, the implementation of environmental measures, the tools used, and perceptions of barriers and incentives (see also appendix 1 and 2). The data from the 2000 survey was the main source of information for this study. In total, 700 housing associations were sent a questionnaire. Of those, 190 responded.

We should note here that in comparing the three studies to trace developments in sustainable management, we found differences between the 1998 and 2000 surveys and the 1993 research study, a finding that must be considered in drawing conclusions. As observed above, formulas 2 and 3 in the 1998 and 2000 surveys are comparable and consistent. The same does not hold entirely true for formula 1, and the research questions in 1993. In light of that, we concentrated only on similar questions from the questionnaires that we could compare and translated the corresponding developments.

The 1993 research study

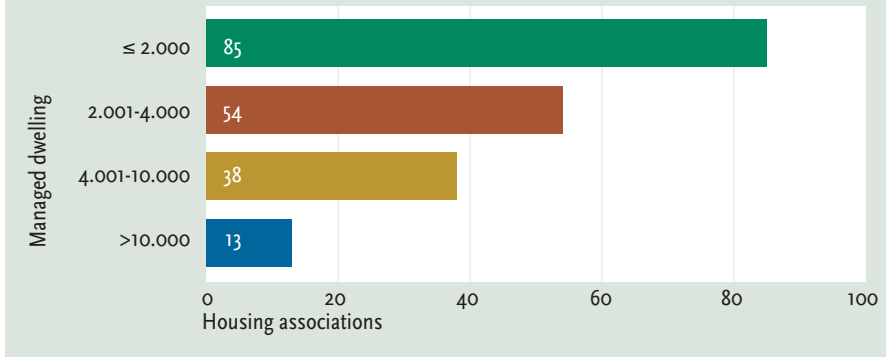
Commissioned by the Ministry of Housing, Spatial Planning and the Environment, the OTB carried out the Sustainability and Housing Maintenance study in 1993 (Quist, Van den Broeke, 1993). One of the research objectives was to determine the status quo in sustainable housing management and the environmental performance of social housing. Altogether 253 housing associations and 362 commercial landlords were interviewed in the study. The 1993 questionnaire dealt with the adoption of environmental policies, the implementation of environmental measures, the environmental themes and phases considered, agreements, and barriers to and incentives for sustainable management (see also appendix 5).

In describing the developments since 1993 in section 3 of chapters 3, 4, 5 and 6, we used the results of the research study conducted in the same year as our reference source.

Cross analysis

In total, 190 housing associations responded to the 2000 survey. A closer look at the number of dwellings managed by each respondent would show that small housing associations are well represented in the survey. One fourth of the housing associations that completed the questionnaire manage fewer than 1,073 dwellings. The remaining three fourths manage fewer than 4,228 dwellings. In terms of average size, the housing associations manage 2,227 dwellings (median); in terms of mathematical average, they manage 3,795 dwellings (mean). The variety is also wide. The smallest housing association to participate in this survey has 31 dwellings, whereas the largest association manages 38,400 dwellings. Only 7% of the respondents manage over 10,000

Figure 1.1 Number of dwellings managed by the housing associations in the 2000 survey



dwellings. (See Figure 1.1.)

Housing associations that manage fewer than 500 dwellings and those in charge of over 10,000 differ in their practical situations. It can be argued, therefore, that their responses to the questionnaire will also differ accordingly. Bearing that in mind, we analysed each question in relation to the managed stock in order to gain a better understanding of how the size of housing associations influences their implementation of environmental measures. To do this, we divided the respondents into four categories:

< 2.000, 2.001-4.000, 4.001-10.000 and ≥ 10.001.

It would stand to reason that housing associations that have adopted environmental policies are more active in implementing environmental measures. To determine whether environmental policies make associations active, and if so, in which measures, we conducted cross analyses relating the survey answers to the adoption of environmental policies (or lack thereof). The cross analyses were completed using the SPSS data analysis program.

The SBR market research study

In early 2001 SBR, conducted an extensive research study into the attitudes of market actors, including housing associations and municipalities, towards sustainable building (SBR, 2001). USP Marketing Consulting carried out the interviews. In total, 2,341 questionnaires were received and analysed, 225 of which came from housing associations. As SBR is the developer of the National Packages for Housing and Management, the study addresses several questions concerning the use and the development of the National Packages. The market actors and municipalities were also asked about their environmental policies and about barriers to and incentives for sustainable building. As the SBR market research study enables an interesting comparison to this study, we will refer to the results of that study throughout this report.

1.4 Contents

Chapter 2 describes the national strategy for sustainable building in the Netherlands. Chapter 3 goes on to explain environmental policy in housing

associations, the implementation of sustainability measures, sustainability themes and the phases to which they apply. Barriers to and incentives for sustainable management are also discussed. Chapter 4 focuses on a number of tools available for sustainable housing management, their use in housing associations and their evaluation by users. Chapter 5 describes sustainability agreements between housing associations and other parties, and chapter 6 examines the current practice of environmental education for tenants. Chapters 3, 4, 5 and 6 are structured as follows. Section 1 opens with an introduction. Section 2 continues with a discussion of the status quo and cross-analyses. The last section closes with a look at developments since 1993.

Drawing on the experiences of others for new ideas, chapter 7 examines environmental efforts in the UK's social housing sector. Finally, chapter 8 presents the conclusions and closes with various recommendations for stimulating sustainable management in housing associations.



2 National strategy for sustainable building

2.1 Introduction

This chapter introduces a number of policy documents that define the strategy for sustainable building in the Netherlands. It focuses on measures that can have an impact on sustainable management, and how the policy is implemented through mandatory building regulations and voluntary stimulation measures. This chapter aims to offer basic background information for the survey results and the comparisons between 1993, 1998 and 2000. Section 2.2 presents policy measures and section 2.3 focuses on incentives and environmental requirements in building regulations.

2.2 Policy measures

The development of sustainable building, DuBo, in the Netherlands started in the seventies with a number of energy conservation experiments in buildings. DuBo accelerated in the eighties, at a time when building materials had become a special focus of attention. A series of demonstration projects, such as Ecolonia (source), were conducted and a growing interest in sustainability resulted in large-scale projects all over the Netherlands. During the nineties, sustainable measures that required no advanced technology were widely applied in large housing projects. More innovative measures were restricted to experimental projects. This cautious approach resulted in a very slow increase in the scope of sustainability in the building sector (Joosten, 1995).

Since 1989, the construction industry has been a major target group in environmental policy. The appendix to the National Environmental Policy Plan Extra elaborates on the policy guidelines outlined above for the building sector. The national policy for sustainable construction is defined in the Action Plan for Sustainable Building, Investing in the Future, which was published in 1995 (MVRM, 1995), as well as in the Second Action Plan for Sustainable Building in 1997 (MVRM, 1997a).

Because of the Netherlands' high population density, efficient land use is an important aspect in sustainable building in the country. A new trend has emerged, in which the focus in sustainable construction has shifted to the urban level, where further developments are underway and many more aspects of sustainable development can be taken into account (Hendriks, 2000). In the future, sustainable building policy will focus on urban development, the climate in the built environment and materials, including in relation to recycling and health issues. The consumer will be the focal point. The new policy seeks to limit sustainable building measures, as the concept has become so extensive. The new approach has already attracted criticism aimed at eliminating measures, such as water conservation, and parties working on non-priority themes. Moreover, professionals in sustainable

building have pointed out that progress in this field does not depend solely on rules and regulations, but also on environmental education and the exchange of experiences (van Hal, 2002).

Despite extensive subsidies, energy efficiency in the existing stock is still fairly poor. Although the potential for energy conservation in the existing stock far exceeds what is feasible even with the most effective new construction techniques, government strategies and regulations still focus on new construction. Recently, changes have been devised with a view to introducing a more updated, stock-focused policy (Sunikka, 2001). However, these changes have yet to be implemented.

2.3 Regulations and incentives for sustainable building

Building regulations

Building regulations are often seen as an efficient way to force current construction towards more sustainable practice. After all, regulations can have an impact on all new construction. The building regulations include a number of requirements, especially regarding energy conservation in buildings, use of environmentally friendly materials and more efficient waste management (source).

The overall consumption of energy in buildings forms the main focus of thermal regulations. In 1995, the Energy Performance Coefficient or (EPC) was introduced. The EPC value is calculated by dividing the characteristic use of energy in a building by the characteristic energy performance, which depends on loss area, heated floor area and building type. The lower the value, the more energy-efficient the building. The performance standard for residences was tightened from 1.4 to 1.2, and later to 1.0 in 2000.

The Energy Performance per Location (EPL) describes location-based CO₂ reduction and energy conservation. The The Energy Performance Advice (EPA) was developed for existing buildings and may be established as a mandatory standard for future building permits (Sunikka, 2001).

Most material-oriented building regulations focus on substances, not on materials or components. Mandatory substance regulations concern the ozone-depleting substances, cadmium and asbestos, which are banned. They also limit the use of formaldehyde in building materials, such as chipboards. Material and life cycle-related building regulations include bans on dumping 'dangerous materials' (building and demolition waste), manufacturing asbestos and producing and using CFC and Cadmium. In the future, attention will shift more towards performance-based regulations on building (Sunikka, 2001). A prototype method has been developed to determine the environmental performance of buildings. If all goes as anticipated, this method will be

incorporated into the 2002 Building Decree.

Buyers and sellers of building products in the Dutch construction industry want information about the environmental performance of those products. Several manuals and detailed lists have been developed in response to that demand. The building industry, in its turn, has undertaken to provide environmental information about the products and materials themselves. This initiative has resulted in a certificate entitled Environmentally Relevant Product Information (MRPI). Manufacturers are required complete the MRPI procedure in a certified research institute in order to obtain an MRPI for their products.

The Building Materials Decree, which entered into force in 1996, lays down mandatory regulations regarding hazardous building and demolition waste, the use of building and demolition waste for civil works and recyclable demolition waste. The decree also links material emissions to soil contamination. Any use of secondary materials must – without exception – be accompanied by an assessment of the long-term environmental impact of those materials on the soil. The Building Materials Decree also includes stringent regulations that ban any dumping of recyclable waste. This serves to ensure re-use of 80% of the materials in other constructions. The 1993 Policy Declaration on Environmental Targets includes reduction, separation and secondary use targets for demolition waste.

The Demolition and Construction Wastes Landfill Ban was introduced in 1997. It prohibits land filling with re-usable or flammable demolition and construction waste and the use of unprocessed waste. One objective is to promote the separation of construction waste into component streams that are transported to processing plants, rather than taken outside the construction industry cycle. The Landfill Ban also applies to the residues from construction and demolition waste processing methods, such as sorting and crushing. Landfill operators are permitted to accept residues only from certified companies and demolition contractors that separate waste at source. They are also required to take non-reusable materials to a sorting plant before they can transport it to a landfill site. This can make at-source separation less attractive as it costs more. Nonetheless, the Landfill Ban and the quality requirements in the Building Materials Decree have improved processing of demolition and construction waste and increased its acceptance (Van Dijk & al., 2000).

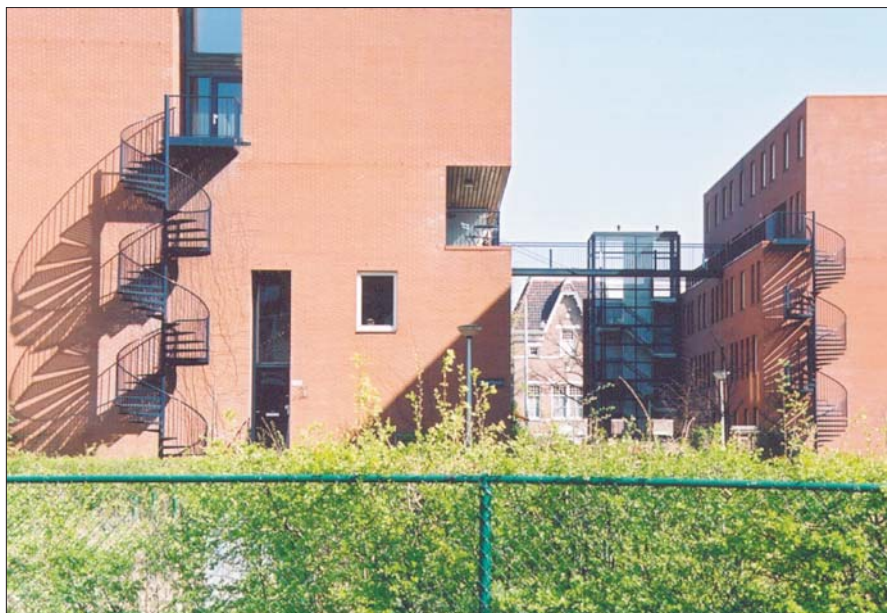
Dutch building legislation lays down no mandatory regulations for quality improvement in the discharge of waste and rainwater. However, the 1993 Policy Declaration on Environmental Targets for the construction sector does include agreements regarding water conservation devices in buildings. Incentives are used to promote water conservation equipment, such as in showers and toilets. However, their use is not required in the building regulations (Sunikka, 2001).

Stimulants

The National Packages for Sustainable Building have been available for residential building since 1995 and are now well known in the construction sector. In 1998, 61% of all building permits adopted some measures from the Packages. At that point in time, the prognostications for 2000 put that figure at 80% (MVRM, 1999a). Another important step in disseminating information was the establishment of the National Sustainable Building Centre in 1996. This centre was set up to offer the construction sector objective information on sustainable building.

The Dutch Government also uses incentives to encourage sustainable building. The Green Investment initiative, for instance, helps to promote sustainable construction. An environmental point system is used in housing projects. This system allows borrowers with a qualifying score to take out lower-interest loans, which, in turn, makes sustainable construction more attractive (Novem, 2000). Since early 2001, a new subsidy, the Energy Premium Regulation, EPR, has been available for all homeowners, including housing associations, and can also be used for renovation purposes.

In 1993, the Environmental Council for the Construction Industry, the MBB, the Government and the construction industry, adopted the Policy Declaration on Environmental Targets. The agreement on Tropical Wood limits the use of tropical hardwood to that originating from regions that practice sustainable forest management. The environmental negotiation group for the construction industry is a discussion forum in which different parties can establish common goals.



3 Environmental policies in housing associations

3.1 Introduction

This chapter describes the current situation in sustainable housing management in housing associations. The questions examined here address environmental policies, the sustainable building measures implemented, the phases in which those measures are considered, and barriers to and incentives for sustainable management. Section 3.2 deals with environmental policy (specifically, questions 1.7 and 1.8 in appendix 1). The discussion focuses in on the implementation of environmental policy, and cross-analyses relating the answers to the size of the stock managed. Section 3.3 continues with a look at the environmental measures that housing associations consider and their corresponding phases in the building process. (See questions 1.9 and 1.10 in appendix 1). A distinction is made between new and existing dwellings. Section 3.4 describes the barriers and incentives that housing associations consider important to the future of sustainable housing management. (See 1.14 and 1.15 in appendix 1). Section 3.5 compares the situation in 2000 to conditions in 1998 and 1993. Finally, section 3.6 presents the conclusions.

3.2 Environmental policies

To determine whether the housing associations in our study had environmental policies, we examined the following questions. Had the association developed a plan, preferably in writing, describing how to systematically implement sustainability in the long term, and stating its commitment to the objectives in that plan? Did that environmental policy plan establish actual tasks and activities and specify how the association was to achieve its environmental objectives? Did that plan also describe how to monitor and survey the implementation of the policy? In other words, we defined an environmental policy as a statement of the housing association's environmental commitment. One third of the housing associations that responded in the 2000 survey indicated that they had adopted an environmental policy. (See Figure 3.1.)

Figure 3.1 reveals that the majority of housing associations have not adopted an environmental policy. However, when the housing associations were asked about the implementation of sustainable building, 75% said that they implement environmental measures on a regular basis, and 15% claimed to implement sustainable building through experiments. This shows that the implementation of sustainable building in practice does not necessarily depend on an actual environmental policy. (See Figure 3.2.)

According to the 2000 survey, fewer than half of the housing associations that implement environmental measures have adopted an environmental policy.

Figure 3.1 Environmental policies of the housing associations in 2000

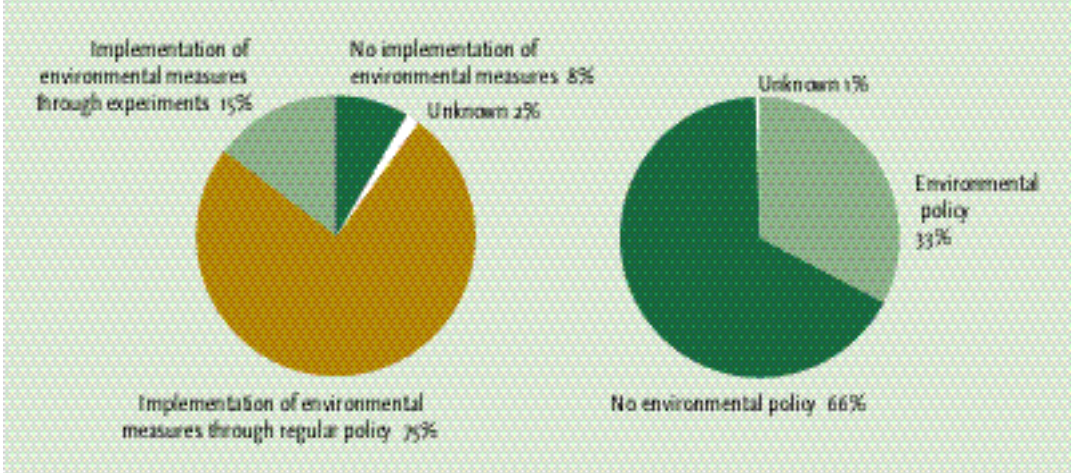
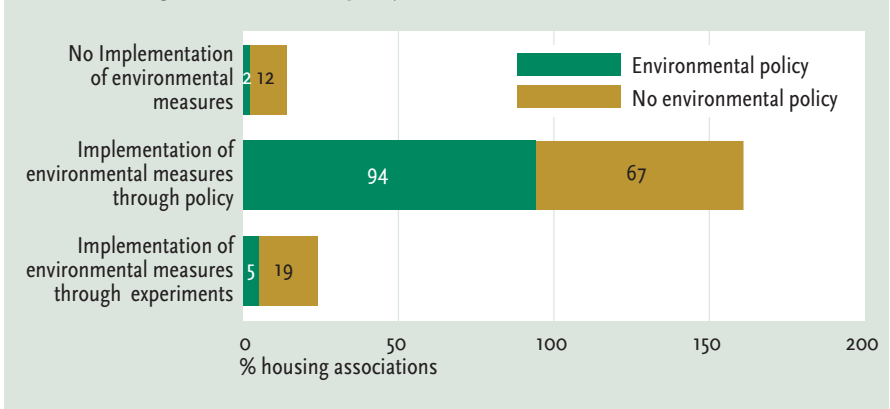


Figure 3.2 Implementation of sustainable building measures by the housing associations in 2000 having an environmental policy or not

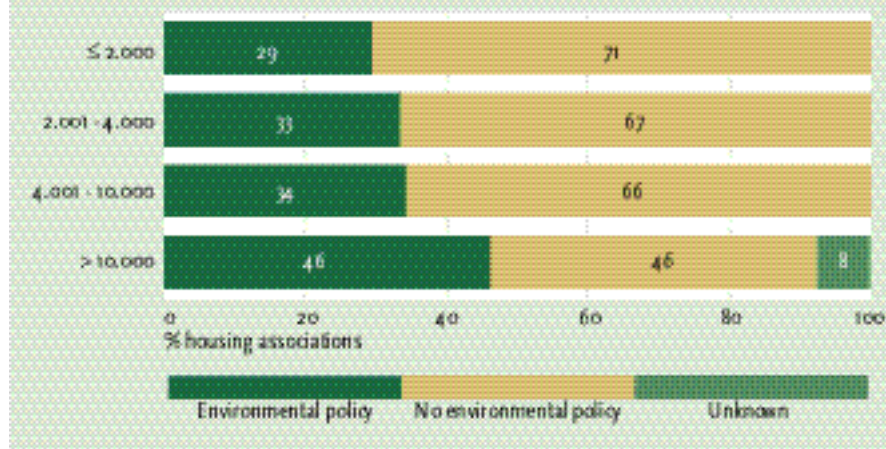


Also, most of the associations implementing sustainable building through experiments have no regular policy. A total of 8% indicated that they did not implement any sustainability measures.

To determine what impact the size of housing associations has on their implementation of environmental measures, we divided the associations into four categories based on the number of dwellings they managed (see chapter 1). The cross analyses show small and large housing associations to differ in their situations. Of the small housing associations that manage fewer than 600 dwellings, one fifth have an environmental policy. The corresponding figure for larger housing associations is one third. And for the associations with over 10,000 dwellings, the numbers rise even higher to half. (See figure 3.3.)

As shown in figure 3.3, the more dwellings a housing association manages, the more likely it is to have adopted an environmental policy. The fact that the average size of associations with environmental policies is one third large-

Figure 3.3 Adaptation of an environmental policy by housing associations in 2000 in relation to their managed stock

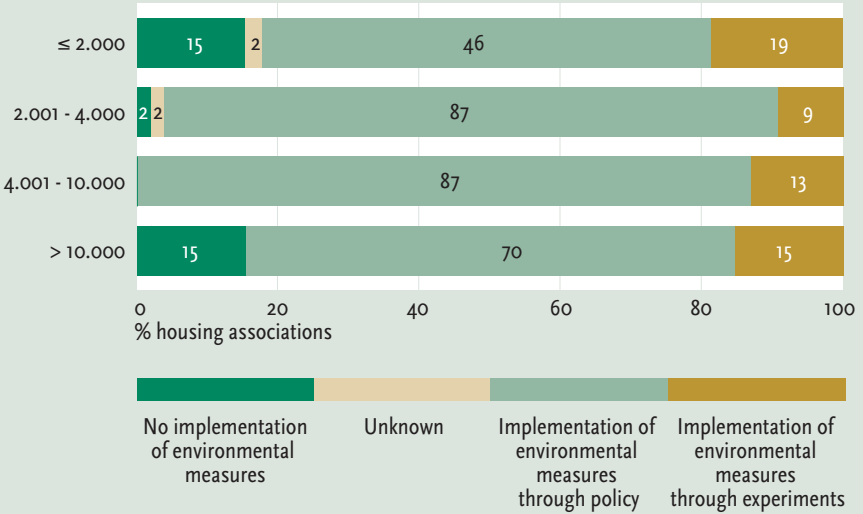


er than those with no such policies supports this correlation. In the 2000 survey, the housing associations with an environmental policy manage an average 4,490 dwellings. By contrast, those without any such policies manage an average of 3,319 dwellings. However, there are exceptions to this rule. The smallest housing association in the 2000 survey to have an environmental policy manages approximately 200 dwellings. On the other hand, one housing association in charge of nearly 40,000 dwellings has no environmental policy. Our cross analysis regarding the implementation of sustainable building measures and the managed stock showed housing associations managing large stocks to be more environmentally active than small associations. Approximately 60% of the housing associations in two smallest size categories indicated that they implement environmental measures, whereas nearly all housing associations managing over 2,000 dwellings claimed to do so. (See figure 3.4.)

According to the 2000 survey, one out of every ten housing associations does not implement sustainable building. Most of these manage fewer than 600 dwellings. In total, 29% of the associations in this category indicated that they have not considered taking any environmental measures. Figure 3.4 shows, however, that even the largest housing associations that manage over 10,000 dwellings are not very active in implementing sustainable building despite their capacity.

The definition of an environmental policy, however, remains vague and open to different interpretations. Housing associations can interpret it in various ways. According to the SBR market research study (2001), 79% of the housing associations implement sustainable building, whereas 21% do not. The SBR also found, however, that a commitment to sustainable building agreements with municipalities is also considered an environmental policy, regardless of whether housing associations actually implement the agreement in practice. In light of this, it is vital that future surveys and agreements contain a more specific definition of environmental policy as that is essential to further questions.

Figure 3.4 Implementation of sustainable building measures by the housing associations in 2000 in relation to the managed stock



3.3 Implementation of sustainable building measures

The SBR market research study (2001) asked housing associations to name measures they associate with sustainable building. All in all, 88% of the respondents mentioned energy conservation and 84%, environmentally friendly materials. As regarding the other themes, water consumption was named by 44%, safety by 36%, serviceability by 33%, indoor climate by 26% and flexibility by 10%. Energy and materials are, therefore, often considered important aspects of sustainable building. They are also measurable and manageable. In addition to water conservation and good indoor climates, the adaptability and accessibility of dwellings, as well as safety issues have become an increasing focus of discussions regarding sustainability.

The housing associations in the 2000 survey were asked to name the environmental measures they consider in their activities. A distinction was made between new buildings and the existing stock. The results show that energy and materials are still the most popular sustainability measures, both in new and existing dwellings. (See Figures 3.5 and 3.6.)

Figures 3.5 and 3.6 indicate that the indoor climate and water conservation receive less attention in housing associations than do energy conservation and the use of materials. Flexibility, accessibility and safety measures have become relatively popular measures, especially in new dwellings. In the 2000 survey, the average housing association named 7 themes in new building and 6 themes in the existing stock. In total, 25% of the respondents named over 10 sustainability themes, whereas in the existing stock, only 8% of the housing associations had considered more than 10 themes.

As concluded in section 3.2, the housing associations that manage large

Figure 3.5 Implementation of sustainability measures in new constructions by the housing associations in 2000

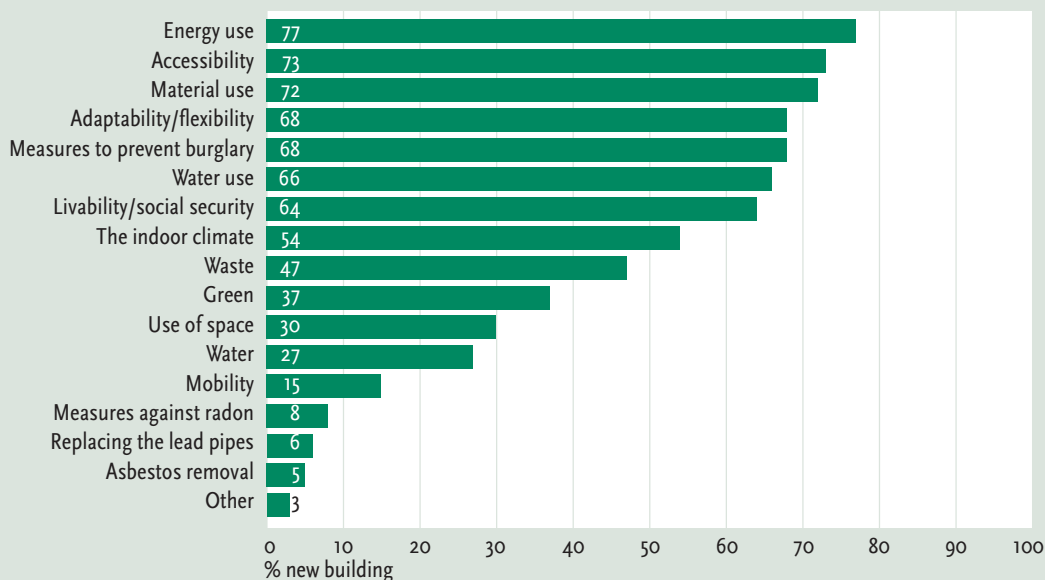


Figure 3.6 Implementation of sustainability measures in the existing stock by the housing associations in 2000

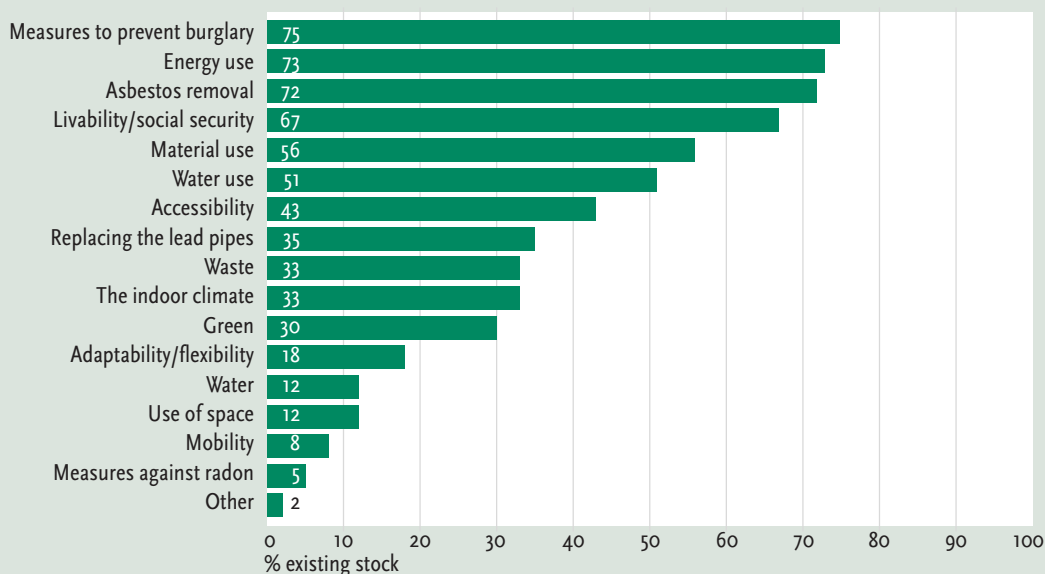


Table 3.1 Consideration of the environmental measures by the housing associations in 2000 in the different phases in the building project

Building proces	Consideration of sustainability measures %				
	Energy	Materials	Water	Indoor climate	Other
New building					
Fixing the program	77	75	55	56	5
Alternatives in design	36	37	22	21	2
Other	1	1	1	1	1
Existing stock					
Daily maintenance	23	43	24	17	1
Planned maintenance	66	68	44	37	3
Renovation	73	73	50	50	4
Demolition and new building	45	44	32	37	4
Other	1	1	1	1	1

Source: Atrivé (2001)

stocks are more active in implementing sustainable building than are their smaller counterparts. Cross-analyses regarding environmental measures (presented in Figures 3.3 and 3.4) and the number of managed dwellings, supports this correlation. Almost all housing associations with over 4,000 dwellings claimed to consider energy and material use in new buildings, whereas half of the associations with fewer than 2,000 dwellings did. One out of every five housing associations does not consider any of these environmental themes in new buildings. The small associations showed the greatest tendency towards passiveness: one third of those that manage fewer than 2,000 dwellings implement none of these environmental themes. Only one of the housing associations in charge of more than 4,000 dwellings implements no environmental themes. In total, 12% of the housing associations do not consider any of these themes in the existing stock; half of that group manages fewer than 1,000 dwellings.

The housing associations in the 2000 survey were asked to name the phases of the building process in which they consider sustainable building as relating to energy conservation, material use, the indoor climate and water conservation. A distinction was made between new and existing buildings. The answers revealed that environmental measures are usually considered in the early construction phases of new buildings, (i.e. the programme phase), or in major projects in existing stock, such as renovations. (See Table 3.1.)

Table 3.1 shows that sustainability is not a major consideration in the search for alternatives during the design process, in daily maintenance, or in demolitions. Fewer than half of the housing associations indicated that they consider the environmental impact in terms of energy and materials when demolishing buildings, and replacing them with new constructions. Given the

environmental impact of these activities, that percentage is low. Energy conservation and material use are more popular themes in each building phase than are water consumption and a good indoor climate. Nearly 75% of the housing associations indicated that they consider energy and materials in the programme phase of new buildings, or in renovations. Only half of the associations, however, claimed to take water conservation and a good indoor climate into account as regarding the same phases. In all, 17% of the housing associations consider material use in all phases. All of the environmental themes receive little consideration in daily maintenance. A total 24% of the housing associations take account of water conservation in daily maintenance. Another 15% do not consider energy or material issues in any of the phases named. Moreover, one out of every three takes no account of water and the indoor climate in any of the phases.

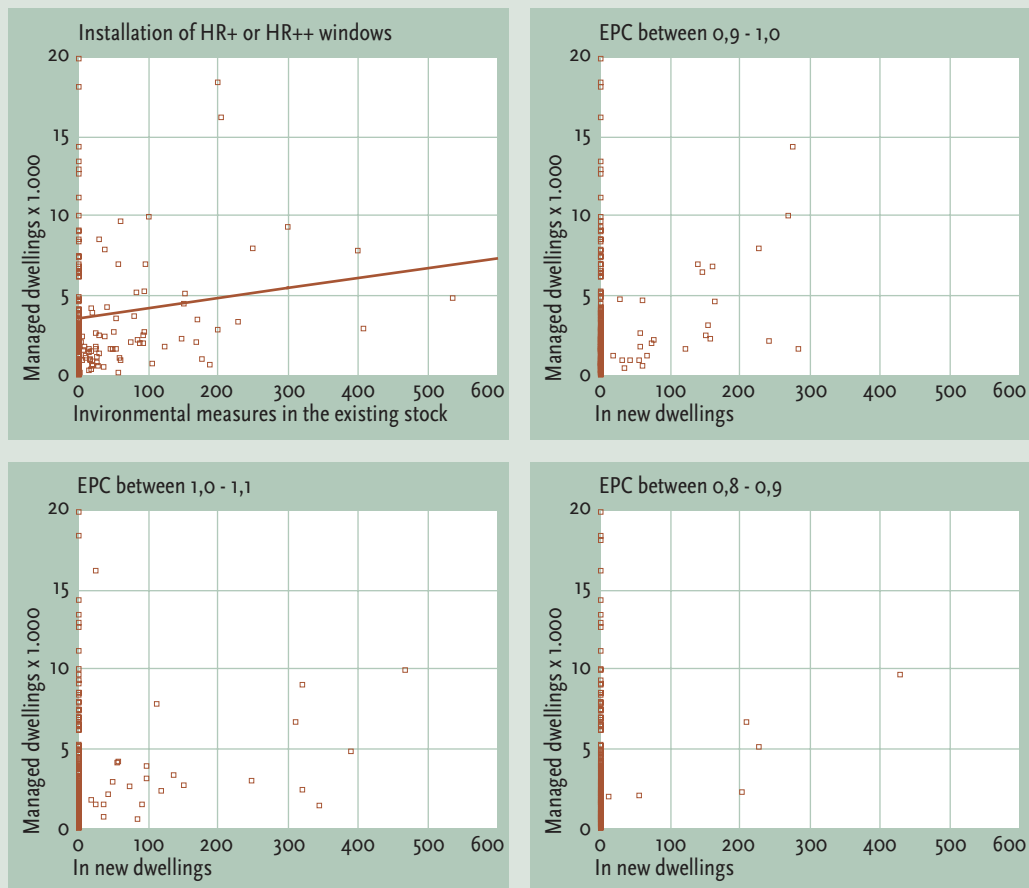
According to the SBR market research study (2001), 60% of the housing associations consider sustainability measures in the development phase, and 36% in the initiative phase. Only 2% invest effort in sustainability in their maintenance. None of the respondents mentioned the operation phase. Nonetheless, the maintenance and operation phases are significant to a building's overall environmental impact. This neglect of the existing stock poses a serious disadvantage to the future of sustainable building.

Cross-analyses relating the answers in Table 3.1 and the managed stock show that small housing associations consider fewer sustainable building alternatives in the design phase, or in demolitions as compared to larger ones. Small housing associations do not often give much consideration to the indoor climate. Roughly 75% of the associations with over 4,000 dwellings indicated that they take account of a good indoor climate, whereas less than half of those with fewer 2,000 dwellings did. Small associations, however, place slightly more emphasis on daily maintenance.

Housing associations with an environmental policy might be expected to be more active in implementing environmental measures. To determine whether environmental policies stimulate more environmental efforts in housing associations, we conducted a cross analysis relating the answers in Figures 3.5 and 3.6 and Table 3.1 about environmental themes and phases to the adoption of an environmental policy. Our cross-analyses revealed that housing associations with policies do not consider more environmental measures in the existing stock than do those with no policies. We also found the housing associations with policies to be slightly more active in their environmental efforts in new buildings.

The 2000 survey also included quantitative questions about the implementation of sustainable building measures in practice (see appendix 2). Measures addressed in the questions are based on the National Packages for Housing

Figure 3.7 Implementation of energy conservation measures in the existing stock (HR+ and HR++ windows) and in new building (EPC) by the housing associations 2000



and Management. A distinction was made between new buildings and the existing stock. The quantitative data show that material-related measures are well adapted to new dwellings. In 2000, the material-related measures in the National Packages were adopted in over half of all new dwellings built for housing associations. The quantitative data supports the results in Figures 3.5 and 3.6, which show that indoor climate measures are not often implemented in practice. The police safety label has become popular. In 2000, it was issued for 71% of all new dwellings.

The quantitative data also show, however, that energy measures lag behind material-related measures in practice despite what the policy questions outlined earlier in this chapter might indicate. According to those data, energy conservation measures in 2000 focused on satisfying building regulations, rather than on experimental measures, such as the installation of sun boilers or heat pumps, which are still seldom used. In the existing stock, the most popular energy conservation measure in 2000 was the installation of energy efficient HR++ windows. Figure 3.7 describes the implementation of energy

conservation measures in new and existing dwellings. One square represents one housing association. The vertical line represents the number of dwellings managed, and the horizontal line the number of new dwellings in which environmental measures were implemented in 2000.

Figure 3.7 shows the EPC value to remain high in new dwellings. Building regulations require an EPC value of 1.0. In 2000, most new dwellings had EPC values ranging between 1.0 and 1.1. It should be noted, however, that the building regulation requirements that applied were those existing at the time the building permits were issued and not those in force during the time of construction. Nevertheless, the results indicate that despite stimulation measures and information about energy efficiency, the building regulation level is seldom exceeded in practice. An EPC value of 0.9 is still uncommon in new dwellings, although energy conservation is often mentioned as a priority in the environmental policies of housing associations. Meeting the building regulation target levels can hardly be considered sustainable building. Thus, future questionnaires and agreements should make clear distinctions between legislative and voluntary measures.

3.4 Barriers to and incentives for sustainable management

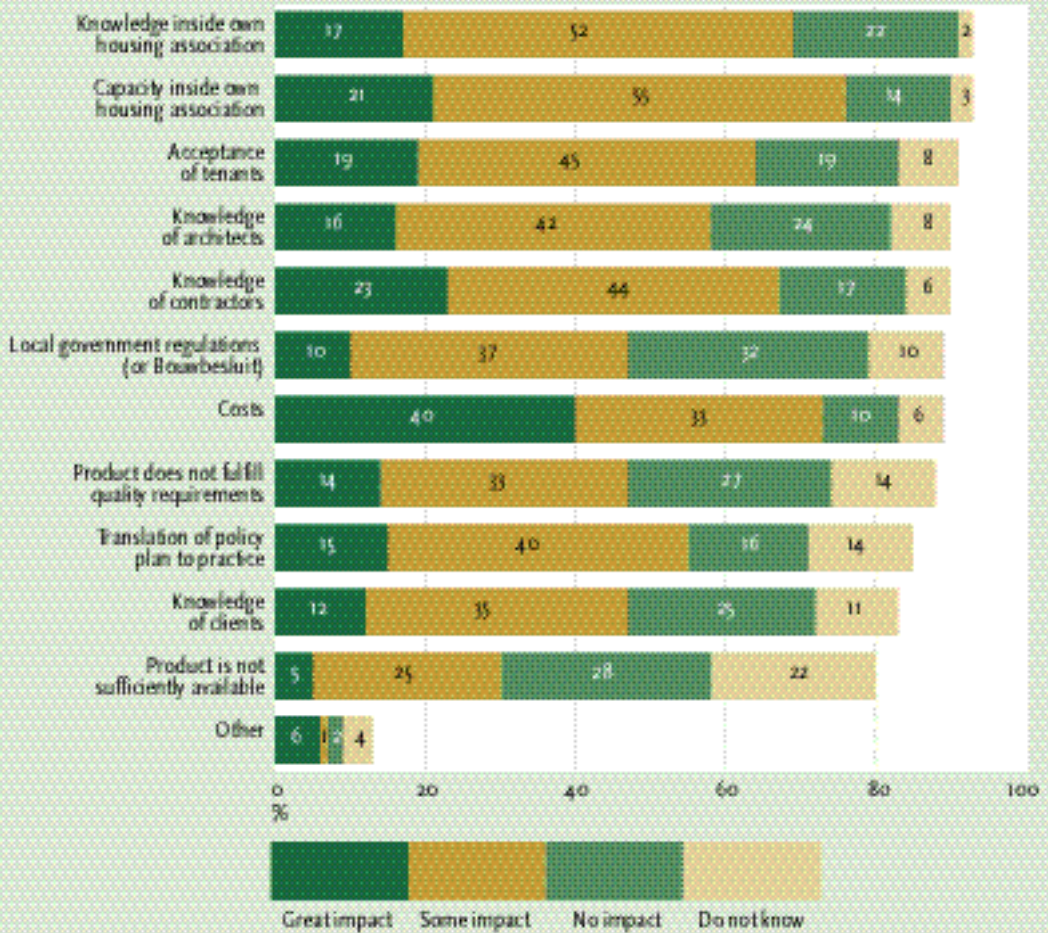
According to the SBR market research study (2001), 96% of the housing associations consider sustainable building important. Although sustainable building is an issue well familiar to housing associations, it is still implemented little in practice. It is important, therefore, to recognize barriers if we are to find effective ways to improve the situation.

According to the 2000 survey, the main barriers perceived to sustainable housing management are the demands individual housing associations face in terms of costs, capacity and knowledge and the problem of acceptance on the part of tenants. The quality and availability of sustainable building products and building regulations are considered more minor barriers. Knowledge of architects and contractors are seen as a more important barrier than knowledge of clients. (See Figure 3.8.)

Each theme addressed in this question is considered a barrier in some way. The sufficient availability of sustainable products is the only exception. It stands to reason, however, that if housing associations buy no environmental products, they will not perceive the availability of such products to be a problem.

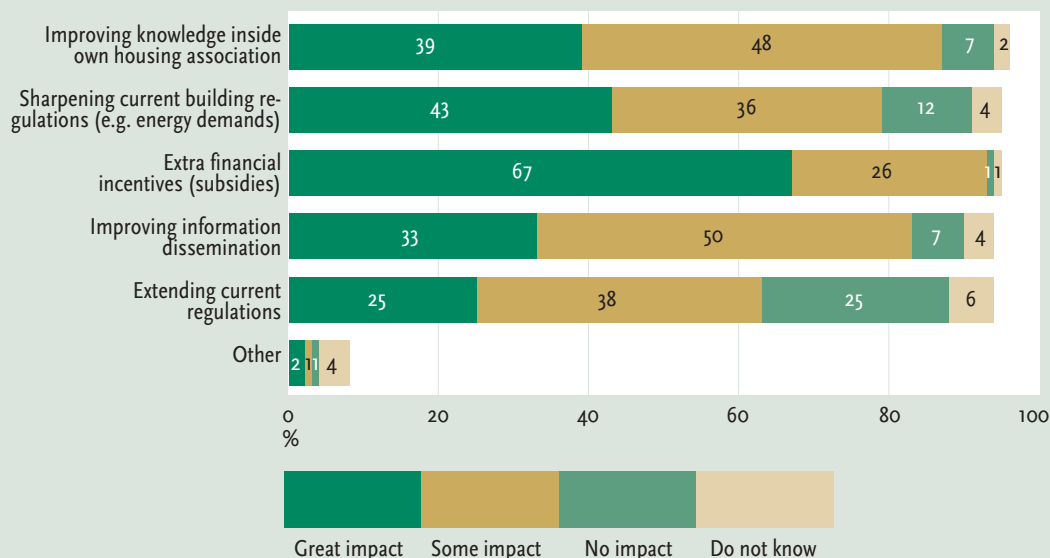
We conducted a cross analysis relating the results in Figure 3.8 to the stock managed, but found no correlation between the consideration given to barriers and the number of dwellings managed in housing associations, or the

Figure 3.8 Barriers to sustainable management in the housing associations in 2000



presence an environmental policy. Clearly, however, the 'do not know' answer was most common among housing associations with fewer than 2,000 dwellings. Approximately one fifth of the associations in this size category have no opinions about barriers. This applied to only a handful of associations in the other categories. Small housing associations do not perceive their internal capacity to be a bigger problem than do their larger counterparts. Costs are considered a great barrier to sustainable housing management in all housing associations. In fact, the housing associations managing large stocks view costs as a more important barrier than do smaller associations. On average, the associations that consider costs a major barrier manage 4,500 dwellings. Those that see costs as a partial barrier manage an average 3,500 dwellings. And finally, the corresponding average for those who felt costs to pose no barrier was 3,200.

Costs were also the main barrier cited in the SBR market research study. In total, 36% of the housing associations consider sustainable building too expensive. In answering open questions, some respondents said they felt sus-

Figure 3.9 Incentives for sustainable management in the housing associations in 2000

tainable building projects to be too few in number. Others, however, expressed doubts about the entire concept, pointing out that it was still changing. However, many housing associations in the market research study felt that sustainable building would become a priority in the future. According to 86% of the housing associations, sustainable building had gained importance in the recent development of new dwellings. What is more, 74% of the associations expect the importance of sustainable building to increase in the future, whereas 23% anticipate no changes in the current situation. As regarding renovations, 82% of the housing associations felt that sustainable renovations of dwellings had increased, as opposed to 18% who saw no change in the status quo. The percentages for expectations of future developments in new buildings were similar to those found for the existing stock. As compared to other market actors that participated in the market research study, the housing associations are the most optimistic about the increasing importance of sustainable building.

Chapter 2 outlined a number of measures introduced to stimulate sustainable building in Dutch housing associations. The housing associations in the 2000 survey were asked which stimulation measures they felt influenced a positive development towards sustainable building in their actions. Subsidies are considered the most important stimulation measure. (See Figure 3.9.)

Internal information dissemination and increasing knowledge in housing associations falls in second position. Objective information about sustainable building is, therefore, still needed. Support has grown more for tighter building regulations than for more extensive ones. The fact that current building regulations are not considered a barrier, but seen as a motivating factor that can have impact, may be a cue to tighten the regulations. In responding to open questions, however, a number of housing associations clearly expressed

objections to tighter building regulations, especially regarding energy requirements. They fear that new energy measures will cause indoor climate problems and increase allergies.

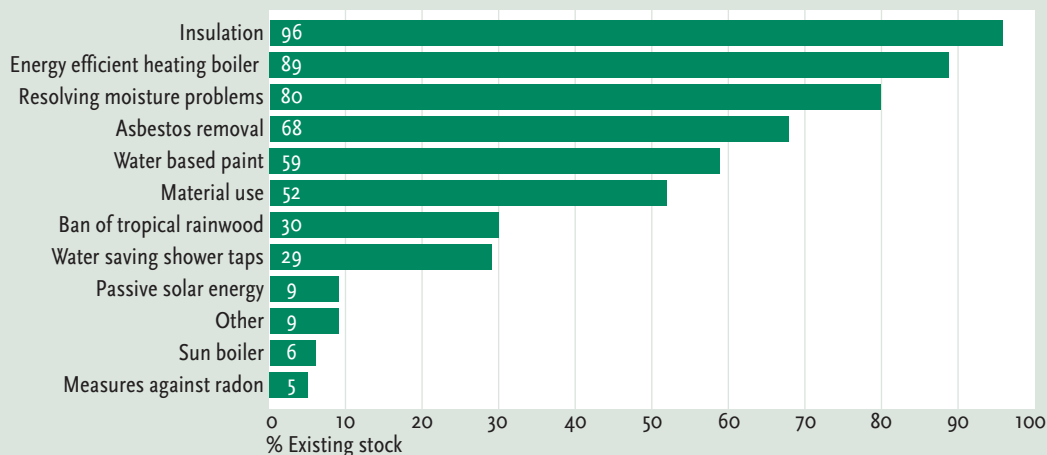
Our cross analysis found no correlation between the consideration given to stimulation measures and the size of the stock managed, or the presence/absence of environmental policies. Subsidies and other financial measures are clearly seen as the most important incentives in all housing associations, regardless of their size.

According to the SBR market research study, 43% of the housing associations see subsidies as an important measure in promoting sustainable building. The number of housing associations in the study that expressed a desire for subsidies was significantly higher than the corresponding figure for other market actors. Other important stimulation measures recognised in the SBR market research study include: cost-cutting methods, campaigns geared towards private individuals and a stronger lead from the municipality. The majority of the housing associations (69%) support the 'DuBo label', which could be given to building projects that meet a certain sustainability standard. The DuBo label could make sustainable building more concrete for consumers, and other market actors, such as architects and contractors. Moreover, 81% of the housing associations support the proposition that different levels of sustainable building could stimulate environmental improvements. There is no guarantee, however, that stimulation measures will always attain their target. According to the SBR research, the Green Finance programme was used in 3% of the housing associations for new dwellings and 4% of the associations for renovations.

Other stimulation measures cited by the housing associations in open questions were: making sustainable building interesting to consumers, introducing more pilot projects and educating tenants. The public must be able to see the impact of sustainable building. Clarity and standardisation needs to be introduced in the concept. Financial measures, such as taxes on unsustainable products and higher energy prices were presented as possible measures. Arguments can be presented to support both the mandatory approach (e.g. through building regulations) and the voluntary approach (e.g. via initiatives from market actors themselves). In conclusion, most respondents in the SBR study felt that clients who initiate projects need to be environmentally aware and that there should be a market demand for sustainable building.

3.5 Developments since 1993

To trace developments in sustainable management in housing associations, we compared the 1993 research study by Quist and Van den Broeke (1994) with the 1998 survey by Atrivé (1998) and the 2000 survey by Atrivé (2001).

Figure 3.10 Implementation of sustainability measures by the housing associations in 1993

The 1993 study concludes that the development of an environmental policy is important to housing associations. In 1993, 37% of the housing associations claimed to have adopted an environmental policy. By 2000, however, that percentage had dropped. This finding reveals a steady decline in the number of housing associations with environmental policies between 1993 and 2000. In 1993, 72% of the housing associations said they intended to incorporate environmental objectives in their housing maintenance, focusing on developing an environmental policy plan. We should note here that the surveys are not identical and, therefore, not perfectly consistent. All the same, even a general comparison would reveal little development in sustainable management in Dutch housing associations during that interim seven-year period.

The 1998 survey includes quantitative data about environmental measures implemented in practice (see appendix 4). According to the 1998 results, the housing associations spent an average of €1,812 per dwelling on sustainable building measures in new construction, mainly on energy and materials, and €80 per dwelling in existing residential units. Aside from these investments, the housing associations spent an approximate additional sum of €55 million to remove asbestos.

In 1998, over two million dwellings were adapted with water conservation measures, bringing annual water conservation to 3 million cubic metres. Lead water pipes were replaced in 6,332 dwellings. All in all, 14,000 ground floor dwellings were renovated due to the presence of radon. Energy targets, however, were not achieved. The objective was to achieve annual savings of 46 m³ gas per dwelling. The actual figure came to half of that target at 23 m³ in 1998. According to the survey results, the housing associations spent an average €2,964 per dwelling on sustainable building measures in new construction, and €71 per dwelling in the existing stock. Thus, as compared to 1998, the total investment in sustainable building decreased by 25% in 2000.

Energy efficiency was the most popular sustainable building measure in 1993, 1998 and 2000. The energy measures adopted in 1993 were mostly traditional, and required in part by law. One example is the insulation standard in the

Figure 3.11 EPC values implemented in new construction by the housing associations in 1998 and 2000

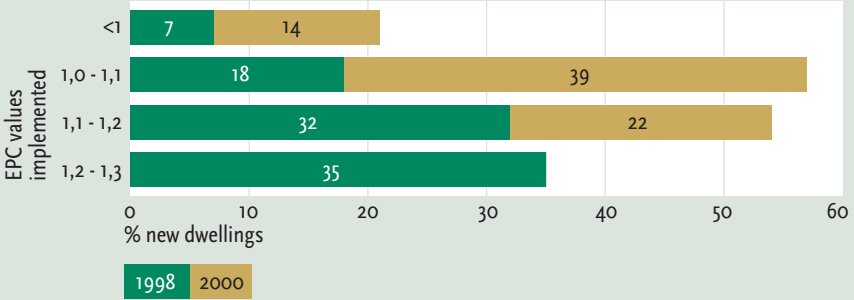
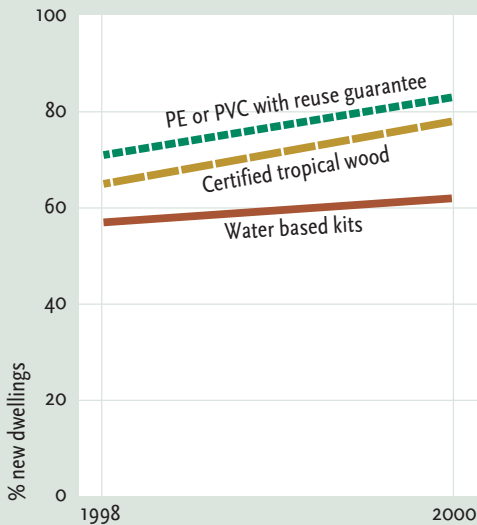


Figure 3.12 Material-related measures adapted to new dwellings by housing associations in 1998 and 2000



Dutch Building Decree. More innovative forms of energy conservation, such as the use of active and passive solar energy, were seldom applied, as those measures were more curative than preventive. (See Figure 3.10.)

According to the 1998 and 2000 surveys, the energy measures implemented, such as extra insulation, are still traditional. In 1998, the majority of new constructions had EPC values ranging between 1.1 and 1.3. In 2000, the number of new dwellings with EPC values between 1.0 and 1.1 increased by 20%, and new dwellings with an EPC under 1.0 increased by 7%. This trend results from developments in building regulations. Since 1993, the minimum EPC value has been 1.0. The EPC, which is more stringent than the building regulation level, is still uncommon in new dwellings. (See Figure 3.11.)

In 1998, sun boilers were installed in 11% of new dwelling and in 2000, in 8% of new dwellings. The most popular energy measures

in the existing dwellings were the installation of a combined boiler for heating and water and the use of energy efficient HR+ and HR++ windows. The use of heat recovery and low temperature systems in the existing stock was practically negligible.

According to the 2000 survey results, material-related measures are well adapted to new dwellings. In 1998, the number of material-related measures being implemented was already fairly high. By 2000, the figure increased, especially for measures involving the use of PE or PVC with guaranteed reusability. In 1998, certified tropical wood was used in 65% of newly constructed dwellings, a figure that rose to 75% in 2000. (See Figure 3.12.)

In the existing stock, the use of acrylate paint is the most common material-related sustainable building measure. In 1998, acrylate paint was used more

than any other sustainable building measure covered in the survey. Acrylate paint was used in 100,801 dwellings, whereas a combined boiler for heating and water was installed in 62,364 dwellings.

A comparison of water conservation measures would reveal that they were more popular in 1998 than in 2000, both in existing stock and in new dwellings. The use of water conservation and short water installations is on the decline. The percentage was nearly 95% in 1998, but dropped to 75% in new dwellings and from 61% to approximately 50% in existing dwellings.

The 2000 survey results show that housing associations have broadened their consideration of sustainable building measures to include new aspects, such as adaptability, accessibility and safety. Unfortunately, aside from addressing the police safety label, the survey questions do not cover further implementation of these measures. The popularity of this safety measure in 1998 as well as in 2000 proves that there is a demand for it. It is easy and inexpensive for housing associations, and tenants accept it as important. Given the success of this kind of label, one could make a case for developing special labels for sustainable building projects.

In examining the building process phases where environmental measures are considered, we found that in 1993, most attention regarding sustainability measures in the existing stock focused on renovation and maintenance plans. Much less consideration was given to environmental measures in daily maintenance. The same applies to 2000.

In the 1993 and 2000 surveys, the housing associations were asked about their opinions regarding barriers to and incentives for sustainable building. In 2000, the housing associations still saw costs as a major problem in sustainable management. As compared to 1993, a relatively higher number of housing associations felt acceptance on the part of tenants to be a barrier to sustainable building. Knowledge on the part of different actors was also seen more as barrier than was the case in 1993. Knowledge might have been expected to increase, especially given the establishment of several methods of information provision and organisations, such as the National Packages and the National DuBo Center. Possibly, that information does not reach housing associations, which would indicate a gap between policy and practice in the dissemination of information.

In 1993, the housing associations saw environmental consciousness and education as the most important incentives to promote sustainable building. Less than one fourth of the housing associations considered subsidies a very important incentive. In 2000, however, 93% of the housing associations indicated that subsidies and other financial measures encourage them to implement environmental measures. Moreover, the SBR market research study found housing associations to want subsidies for sustainable building more than any other group of market actors.

The government's role is also essential in promoting sustainable building. In 1993, the housing associations named a government with priorities and regulations as a major incentive. In 2000, 78% of the housing associations were in favour of tighter building regulations, and 63% felt that extending the regulations could encourage sustainable building.

In examining future development, the 2000 survey questioned the housing associations about their plans for the next five years. The answers show that most housing associations have plans for sustainable building. Arguably, the associations with environmental policies were better able than those without such policies to name clear targets for both new housing and the existing stock. Many associations with an environmental policy aim to implement sustainability through experiments. However, there are housing associations with no intention of implementing sustainable building.

Several associations have plans to formulate an environmental policy in the near future. Some associations indicated that their primary aim is to meet the targets in their sustainable building agreement with the municipality or energy company. In addition, many refer to the implementation of measures from the National Packages for housing and management. In light of that, the contents of agreements and the National Packages are important to the future of sustainable building. Most of the concrete measures involve efficient use of energy and materials. A number of respondents mentioned the construction of multifunctional housing and accessible elderly dwellings. Use of energy efficient HR++ glass has continued to be a popular measure in renovations. A number of housing associations cited sustainable maintenance and renovations of their existing stock as their plans for the future. Only a handful of associations mentioned water conservation, or the use of rainwater as an objective. Hardly any plan to take account of the indoor climate. Thus, unless more attention is steered towards water conservation and a good indoor climate, the next survey results can be expected to reveal the negligent attitudes towards water conservation measures and the indoor climate.

3.6 Conclusions

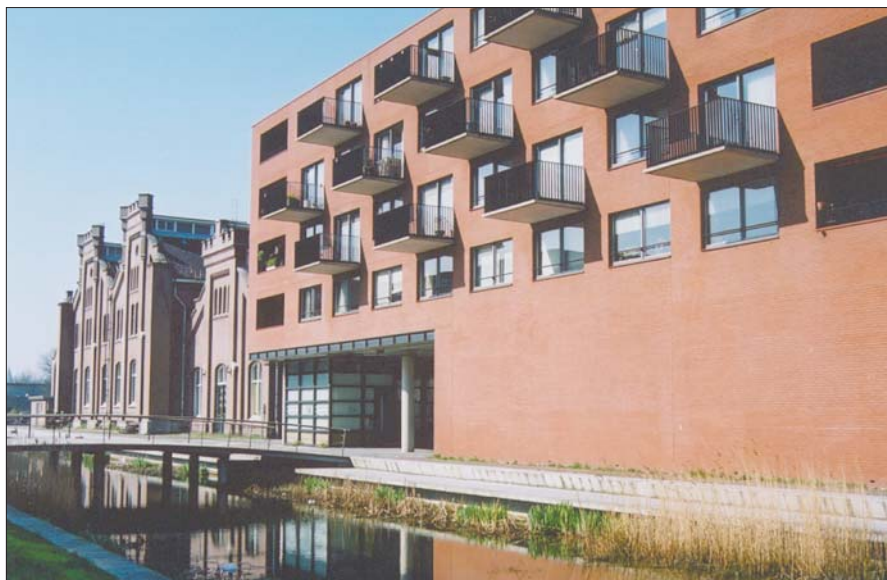
The 2000 survey results show that 75% of the housing associations implement sustainability measures on a regular basis, and 15% through experiments. Fewer than half of the housing associations that implement environmental measures have not incorporated it into environmental policy. A total of 8% do not implement any sustainability measures. Our cross analysis showed this group to consist mainly of small housing associations. The size of housing associations with environmental policies is one third bigger on average than those with no such policies. The question is, therefore, how can

these small housing associations be encouraged to adopt an environmental policy and to implement sustainable building measures.

Energy efficiency and the use of environmentally friendly materials have continued to be the most popular measures considered, both in new and existing dwellings. The quantitative data confirm that the material aspects have begun to be well adopted in new buildings. However, energy measures are taken in order to satisfy building regulations rather than to invest in better EPC values or in experimental devices, such as sun boilers. Despite their well-established position in sustainable building, measures aimed at ensuring good indoor quality and water conservation receive less attention in housing associations than might have been expected. Moreover, they are still implemented little in practice. The National Packages, for instance, place no emphasis on indoor climate measures. What is more, these measures are often difficult to implement, especially in the existing stock. However, a good indoor climate is essential to human health, and should receive more emphasis in the future. As the concept of sustainable building broadens, measures of flexibility, accessibility and safety have become increasingly associated with sustainability in housing associations, especially in new dwellings.

Environmental measures are often considered during the early construction phases of new buildings, and in major projects in existing stock, such as renovations. Daily maintenance and demolition are the phases where sustainability receives less consideration. This lack of attention to the existing stock poses a serious disadvantage to the future of sustainable building, as much can be done to benefit the environment with existing dwellings.

A comparison of the 2000 survey results to those for the 1993 and 1998 surveys would show that, despite developments in national strategy, sustainable management in Dutch housing associations has developed little since 1993, and certainly not since 1998. Even water conservation measures, to name one example, have shown a decline. The housing associations themselves cite the demands they face in terms of costs, capacity and knowledge and the problem of acceptance on the part of tenants as the main barriers to sustainable housing management. Since 1993, attitudes have changed, with the focus increasingly on costs. It is important, however, to bear in mind that the market situation has changed for housing associations: increasingly, they are being expected to focus their activities on profit. Other incentives mentioned by the housing associations include campaigns geared towards private individuals and a stronger lead from the municipality.



4 Use of sustainable management tools

4.1 Introduction

One of the main barriers to sustainable management that housing associations cited in 2000 was the need for more information. In addition, three fourths of the housing associations with environmental policies indicated that the task of applying their policies in practice posed a partial or major barrier. Yet a number of tools and methods for supporting sustainable housing management, such as the National Packages and Duwon, have been already available for some time (Sunikka, Klunder, 2001). This chapter examines the housing associations' use of current tools and their ratings of those tools (1.13 in appendix 1). Section 4.2 opens with a brief introduction to the tools. This is followed by a look at their use in housing associations, and at the results of the cross analyses relating the size of housing associations to their adoption of environmental policies (or lack thereof). Section 4.3 goes on to compare the situations in 1998 and 2000, with some general remarks regarding 1993. Finally, section 4.4 presents the conclusions.

National Package for Housing

The National Package is a collection of common measures and recommendations aimed at achieving sustainable building. The National Package for Housing has been available for residential building since 1996 and is now well known in the construction sector (SBR, 1996). In 1998, 61% of all building permits included some measures from the National Package. At the time, the corresponding figure forecasted for 2000 was 80% (MVRM, 1999a). The sustainability measures for housing apply to the following phases: initiative, design and development, preparation of production, application and use. The subjects examined include materials, energy, water and the indoor climate. The introduction of the National Packages brought about consensus about the definition of sustainable measures in the construction industry and among product manufacturers, developers and government authorities. However, the average reduction in the environmental burden achieved by means of measures in the National Package is still relatively modest (Blaauw & Klunder, 1999).

National Package for Management

The National Packages for Management are collections of measures involving the following themes: materials, energy, water and the indoor environment, including costs (SBR, 1997). The environmental benefits are predominantly qualitative. The reduction of emissions is a case in point. Occasionally, quantitative data are specified for energy and water conservation measures; examples include m³ gas, kWh electricity or m³ conserved water (Klunder & Sunikka, 2001). The National Package for Management links the measures to the four levels of housing management: repairs, replacements, improvements and additions. Examples of repairs include recovering concrete components

and moisture treatment for masonry work. Replacement can include insulation glazing for glazing or framing that requires replacement. Replacements and improvements differ in that the latter enhance quality, for instance, by means of enlarging the dimensions of front openings when the framing requires replacement. Additions, by contrast, involve introducing measures for environmental purposes only, such as the installation of a thermal solar energy system and extra insulation for dwellings.

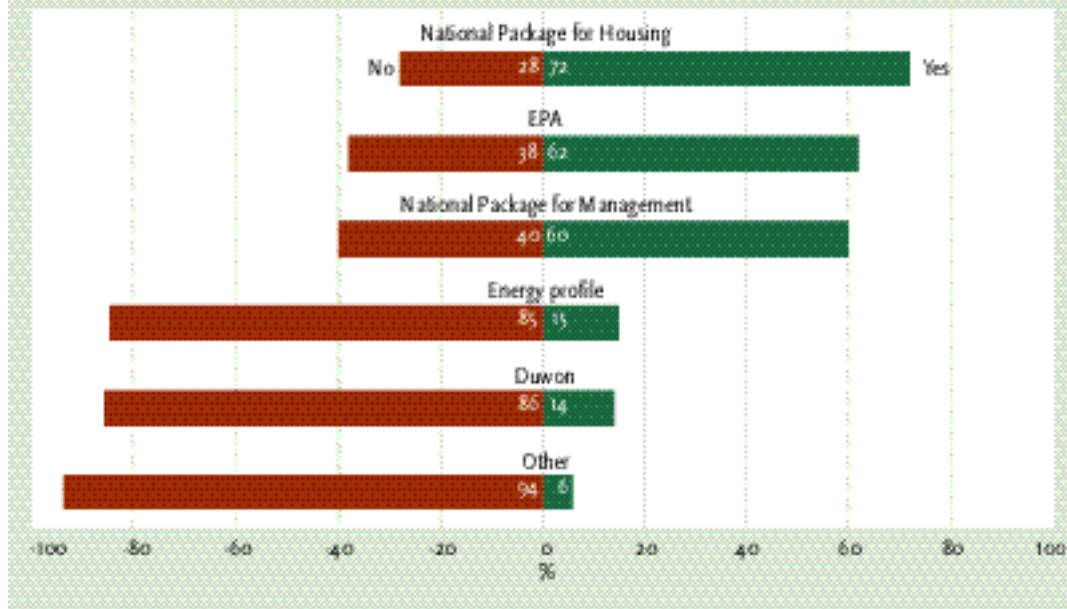
Duwon

Duwon is a manual that helps housing managers take account of environmental performance as a quality aspect in the complex decision-making processes involved in strategic policy development for the housing stock and building-related planning. Duwon contains targets, strategies and concepts. The steps involved proceed in a cyclic process and serve to translate the task of management into measurements (De Haas, 1997). Preferably, targets should be performance requirements regarding such matters as energy conservation, the quality of the indoor environment and life span extension. Strategies direct the search for solutions towards improving the environmental performance of buildings. Concepts are coherent packages of measures stemming from the targets and strategies. They also serve as an aid in gaining insight into the effects in terms of: the quality of dwellings, the use of gas and the costs of living costs before and after the managerial plan is implemented. Seven concepts have been formulated, including maintenance, consolidation and restructuring. Duwon contains an environmental scale for general scoring of the environmental benefits of the concepts. The criteria include: the quality of the living environment, the quality of the dwelling, the quality of the indoor environment, the use of materials, energy consumption and water consumption. Incidentally, of the seven concepts, restructuring scores the highest on the scale (Klunder & Sunikka, 2001).

EPA

The EPA focuses on energy conservation and was developed to provide insight into the current energy performance of existing dwellings, and future dwellings when recommended energy measures are implemented. Since early 2000, a new subsidy issued under the Energy Premium Regulation, EPR, has been available to all homeowners, including housing associations, and can also be used for renovation purposes. Thermal insulation, low energy glazing and photovoltaic systems are examples of the measures covered in the EPR. Housing is rated with an energy performance assessment (EPA), and an extra subsidy of 25% is granted for all measures recommended (Sunikka, 2001).

Figure 4.1 Use of sustainable management tools by the housing associations in 2000



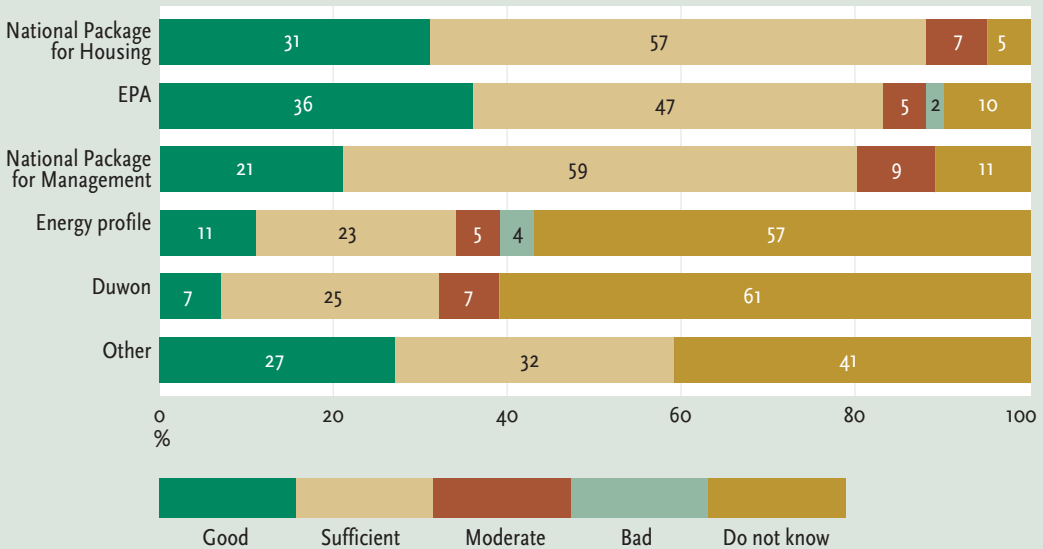
4.2 The use of tools by housing associations

The survey results in Figure 4.1 show that most users rated the tools as sufficient or good. The National Package for Housing and the EPA were the most popular tools in 2000. The management methods, the National Package for Management and Duwon, were used less, although the users considered them fairly useful. All in all, 69% of the users rated Duwon as sufficient or good, and 14% as fair. None of the users gave it a bad rating. However, 61% of the respondents were unfamiliar with Duwon, or had no opinion about the tool. Other methods used by the housing associations (6%) include: Green Financing, the Woonkeur, Milieuchecklist ZHZ, NWS PCV, OPPLUSSEN-SEV, and the Internet. The survey results show that over half of the housing associations use more than one tool.

The most popular tool, the National Package for Housing, received high praise from users in the evaluation. In total, 88% of the users rated the tool as sufficient or good, and 7% as fair. (See Figure 4.2.)

According to the SBR market research study, three fourths of the sustainable building agreements established between housing associations and municipal authorities are based on the National Package for Housing. In light of that, the contents of that package are vital to the development of sustainable building. The most common reason cited by housing associations in the SBR market research study for buying the National Package was its use as a reference source. It is also used to stay abreast of developments in sustainable building. Of the housing associations in the SBR study that did not use the National Package for Housing (21%), most cited its lack inapplicable nature as their

Figure 4.2 Rating of the sustainable management tools by their users in 2000



reason. The respondents were also asked to name the strengths and areas requiring improvement in the National Package. Strikingly, the points named as the tool's strengths (e.g. its general overview and practicality) were also cited as its weaknesses: the respondents preferred something less extensive and more practical.

To obtain a general profile of particular methods, we studied the use of tools in relation to the size of the housing associations. Our cross analysis revealed that most tools are used fairly little in small associations. On average, the respondents in this study manage 3,795 dwellings. By contrast, the average user of the National Package for Housing manages 4,500 dwellings, which is almost three times higher than the corresponding figure for non-users. Housing associations that use Duwon are even larger, managing in the range of 6,000 dwellings. Of the respondents in the smallest categories of housing associations, 42% and 63% use the National Package for Housing, whereas nearly all (92%) of the large housing associations (i.e. those managing over 4,000 dwellings) use it. (See Figure 4.3.)

We conducted another cross analysis examining the presence/absence of environmental policies in housing associations. It would stand to reason that housing associations that have adopted environmental policies are more active in using tools. And indeed, our cross analysis confirmed that all of the tools are used more by the housing associations with environmental policies than by those with no such policies. In total, 92% of the housing associations with an environmental policy use the National Package for Housing as compared to 62% of those without any policies. (See Figure 4.4.)

The National Package for Management is somewhat less popular among the housing associations than the package for housing. It is also used less commonly in the small housing associations (25% and 57%) as compared to those

that manage over 4,000 dwellings (76%). The National Package for Management is used by 71% of the housing associations with environmental policies; the corresponding figure for those with no such policies is 54%. The Duwon tool is used by 14% of the housing associations. (See Figure 4.1) Strikingly, Duwon users also tend to be large housing associations. (See Figure 4.5.) On average, the housing associations that use Duwon are six times larger than non-users. Again, the size of the stock managed makes a difference and the cut-off line appears to be 4,000 dwellings: one tenth of the housing associations with under 4,000 dwellings use Duwon as opposed to one fourth of those with over 4,000 dwellings. The housing associations with sustainable building policies are more active in their use of Duwon than are those with no environmental policies. In total, 23% of the housing associations with an environmental policy said they use Duwon, as compared to 10% of those with no such policies.

Figure 4.3 Use of the National Package for Housing by the housing associations in 2000 in relation to their managed stock

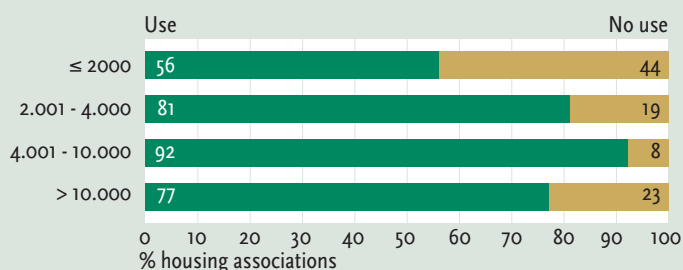


Figure 4.4 Use of the National Package for Housing by the housing associations in 2000 in relation to the adaptation of an environmental policy

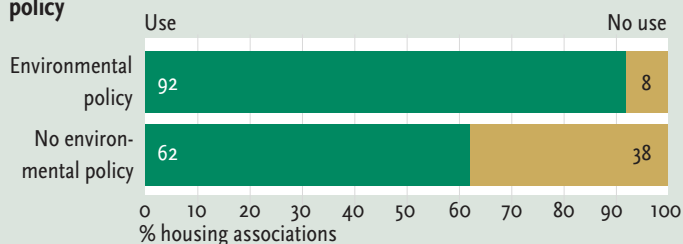
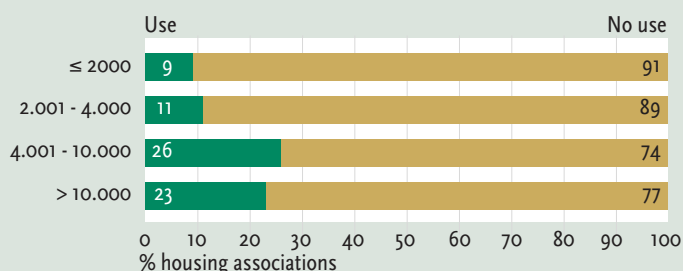
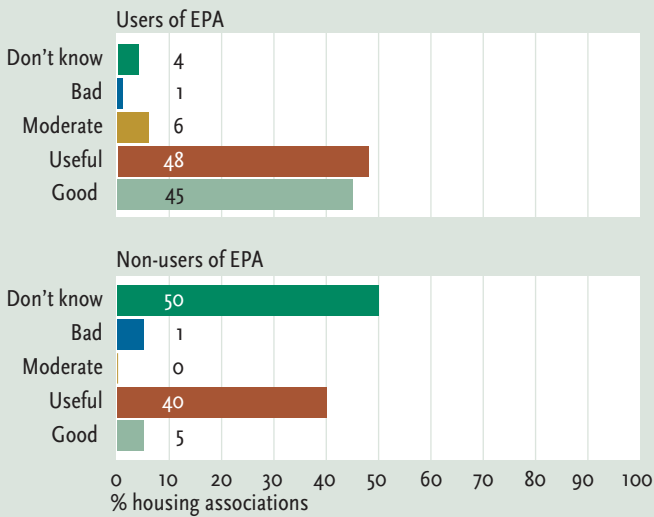


Figure 4.5 Use of Duwon by the housing associations in 2000 relation to the managed stock



Unlike other tools, the EPA is popular among all size categories. Use of the Energy profile is highest in the smallest housing associations. The housing associations that use the EPA have also rated it as a useful tool. (See figure 4.6.)

Of the housing associations in the SBR market research study, 58% claimed to use the EPA, which tallies with the 2000 survey findings. According to the

Figure 4.6 Rating of the EPA by housing associations in 2000

market research study, the housing associations used the EPA relatively more often than did other market actors, such as developers or architects. The SBR study includes various questions about tools that are not addressed in the 2000 survey. One of these tools is the EcoQuantum, which was developed to measure the environmental performance of buildings using a life cycle assessment. It is a computer-aided tool, which

calculates environmental effects throughout the entire life cycle of a building. The objective is to determine, analyse and improve the environmental performance buildings (Mak & al., 1996). According to the SBR study, 14% of the housing associations use the EcoQuantum. This number is relatively small as compared to the figures for other market actors, such as developers (22%). On the other hand, however, architects comprise the main target group for this method. All in all, 23% of the responding housing associations use the Cost Reference Model. One out of ten associations use such material-orientated tools as the MRPI, Milieu relevantie product informatie and MMG, Materiaal gebonden milieu profiel (see chapter 2). The Dutch Association for Integral Biological Architecture (VIBA) and SBR are cited as other information sources, in addition to books, magazines and pilot projects. Architects, product manufacturers and distributors are also frequently cited as sources of information.

4.3 Developments since 1993

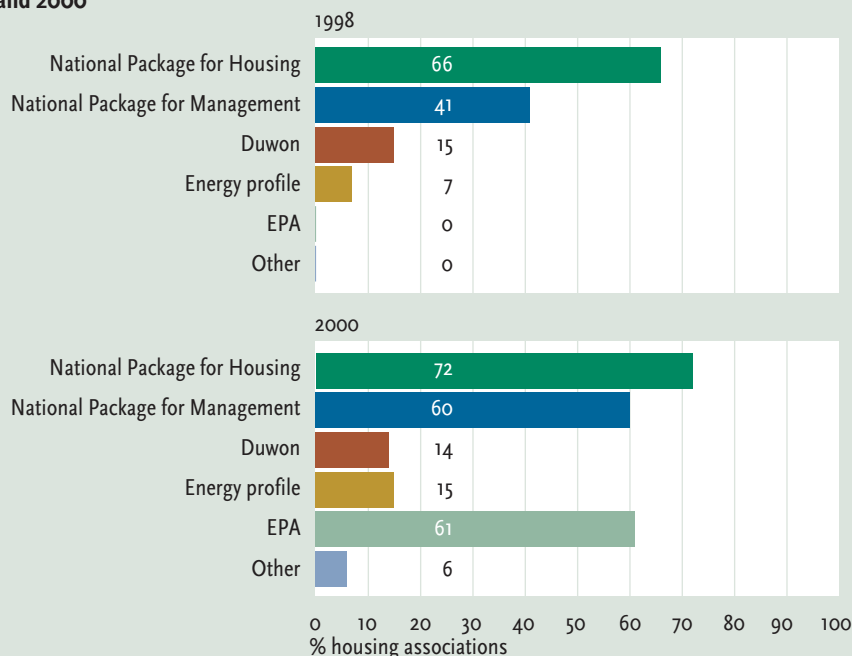
Nearly all of the sustainable management tools discussed in this chapter, including the National Packages for Housing and Management, were developed after 1993, the year that Quist and Van den Broeke conducted their sustainable management study. None of the tools examined by the 2000 survey existed yet in 1993, which precludes any comparisons with that year.

The results of the 1998 and 2000 surveys, however, reveal a change in the housing associations' use of these tools. (See Figure 4.7.)

In 1998, 66% of the housing associations used the National Package for Housing, and 41% the National Package for Management. In that same year, a small percentage of housing associations also used energy efficiency tools, such as the Energy profile.

Between the 1998 and 2000 surveys, the use of all these tools showed an

Figure 4.7 Use of sustainable management tools by the housing associations in 1998 and 2000



increase. Use of the EPA is popular in existing stock and became so within a fairly short period: in 2000, over half of the housing associations were using the EPA. Use of the National Package for Housing is still more common in the housing associations than the National Package for Management.

The SBR market research study supports the 2000 survey findings as regarding use of the National Package for Housing. According to the SBR study, nearly all of the housing associations (99%) implement sustainability measures from the National Package in new dwellings, and 73% use it in renovating dwellings.

4.4 Conclusions

While tools can support sustainable management, the 2000 survey found that housing associations still make relatively little use of them. Most users rated the current management tools as good or sufficient; only a handful expressed dissatisfaction. Thus, the quality of the tools appears to be fairly good. However, the housing associations need to be motivated to use them.

In 2000, the National Package for Housing was the most commonly used tool in housing associations. It lays down the general structure for sustainable building. In fact, three fourths of the environmental agreements between housing associations and third parties are based on it. Many housing associations found the EPA to improve energy efficiency. Duwon is used little, but the National Package for Management is more popular.

Our cross analysis shows that the current tools are used less commonly in small housing associations than in their counterparts with large stocks. Users of the National Package for Housing, for instance, are almost three times larger on average than non-users. And Duwon users are six times larger than non-users.

The 1998 and 2000 survey results reveal a change in tool use. In 1993, none of these tools existed yet. By 1998, however, 66% of the housing associations were using the National Package for Housing and 41% the National Package for Management. Since 1998, the use of these tools has been on the rise. In 2000, the National Package for Housing was still more common in the housing associations than the National Package for Management, although use of the latter increased by almost 20%.



5 Environmental agreements with third parties

5.1 Introduction

Two types of policies define sustainable building in the Netherlands: legislation for energy efficiency and covenants, which are voluntary agreements for sustainable building in general. These covenants are drawn up mainly for the purpose of establishing agreements with different parties on sustainable building. Deliberation among the parties involved is important in the process. These agreements are used to complement legislation, but have no legal status, as they are voluntary. Since 1994, the Dutch government have established many covenants on sustainable building with other parties involved in the building sector, such as architects and contractors.

This chapter focuses on environmental agreements between the housing associations and other parties (question 1.13 in appendix 1). Section 5.2 examines the agreements drawn up to benefit the environment. This section also presents cross analyses relating the answers to the stock managed and the presence/absence of environmental policies. Section 5.3 goes on to discuss developments since 1993 and section 5.4 closes with conclusions.

5.2 Environmental agreements with third parties

According to the 2001 SBR market research study, environmental agreements and the role of the municipality are important in promoting sustainable building. These findings are supported by the 2000 survey results. (See also chapter 3). The SBR report equates sustainable building agreements entered into by housing associations with environmental policies. The year 2000 witnessed the establishment of numerous voluntary agreements between housing associations and municipalities. With every third party, these agreements focus on energy but also cover also other sustainability measures such as those relating to materials, water and the indoor climate. (See Figures 5.1 and 5.2.)

Nearly half of the housing associations signed agreements establishing energy conservation objectives with their energy providers. The agreements between other housing associations and water companies were less popular. We conducted a cross analysis relating answers to the stock managed and found the size of housing associations to influence their readiness to enter into sustainable building agreements. The more dwellings a housing association manages, the more likely it is to sign an environmental agreement. (See Figure 5.3.)

The housing associations that have agreements with municipalities are, on average, almost six times larger than those who do not. In 2000, 50% of the

Figure 5.1 Establishment of environmental agreements of the housing associations with third parties in 2000

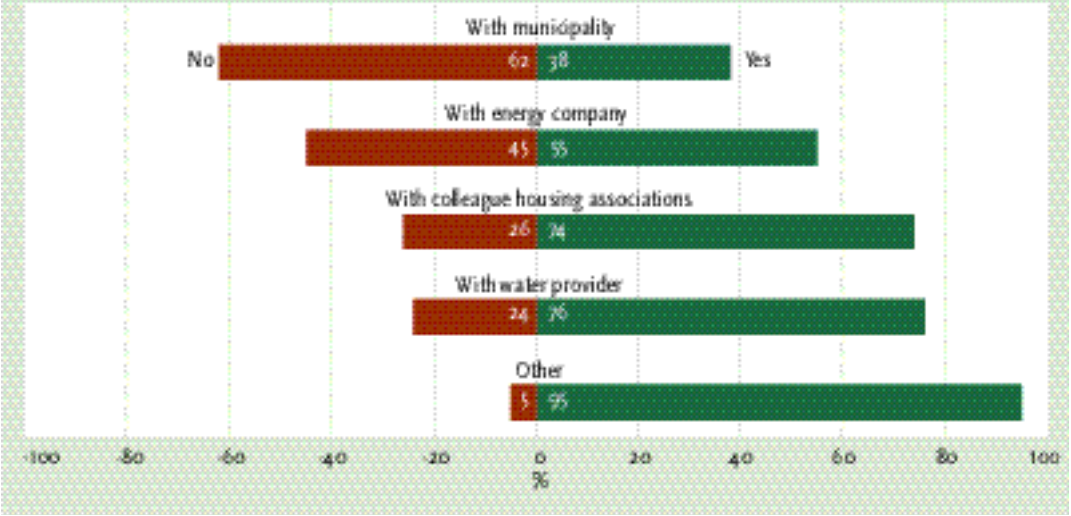
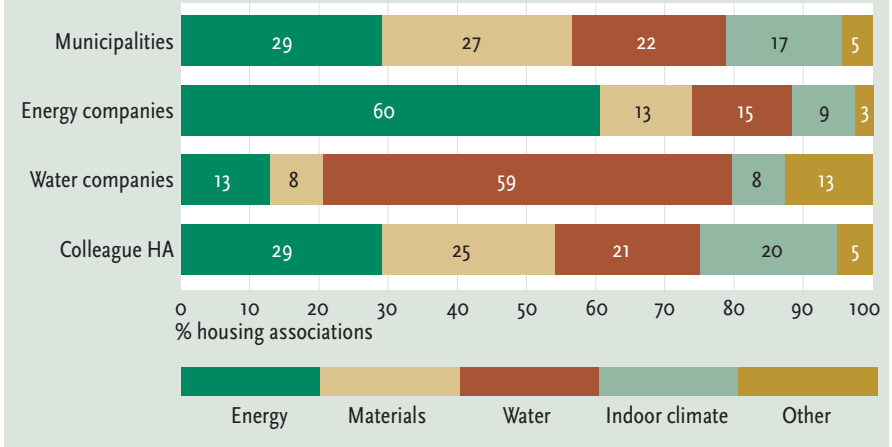


Figure 5.2 Contents of the environmental agreements between the housing associations and third parties in 2000



associations with fewer than 2,000 dwellings established sustainable building agreements with municipalities; the corresponding figure for large housing associations was 70%.

Housing associations with environmental policies are clearly more inclined to enter into sustainable building agreements than are those with no such policies. Figure 5.4 shows that 79% of the housing associations with environmental policies have agreements with municipalities. The corresponding figure for those without policies falls at half.

A similar trend has emerged in agreements with other parties. The associations with environmental policies had entered into more agreements with third parties than those with no policies.

Of the housing associations in the SBR market research study, 59% had signed environmental agreements, whereas 33% had not. In total, 7% of all respondents did not know whether their organisation had signed any agreements, even though all the people interviewed were responsible for sustainable building in their organisation.

These environmental agreements focus on new buildings: the market research study found that 92% of the agreements concern new dwellings, whereas roughly half (55%) cover renovations.

As mentioned in chapter 4, three fourths of the sustainable building agreements with municipalities are based on the National Package for Housing. Strikingly, 8% of the housing associations responding to a similar question in the SBR study were unfamiliar with the contents of the environmental agreements their associations had entered. The corresponding figures were higher for other market actors, such as developers (22%) and contractors (26%). The SBR study included a question concerning monitoring or verification of the agreement's objectives in practice. In total, 37% of the housing associations felt that the government does not monitor the outcome of these objectives in practice. Another 30%, however, maintained that there is structural control.

Figure 5.3 Environmental agreements in 2000 with third parties of the housing associations in relation to the managed stock

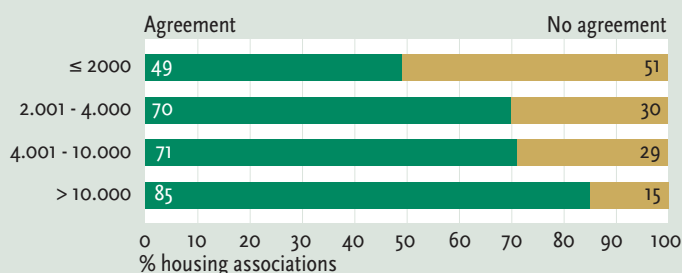
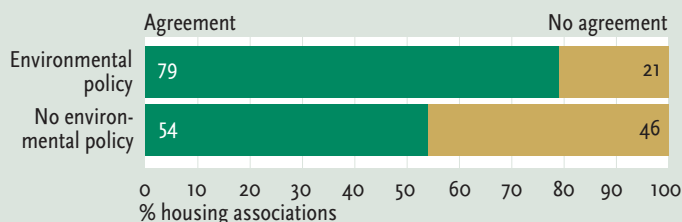


Figure 5.4 Environmental agreements between the housing associations and third parties in 2000 in relation to the adaptation of an environmental policy



5.3 Developments since 1993

Since 1993, the establishment of environmental agreements between housing associations and other parties has evolved. The 1993 study found that only 6% of the responding housing associations cited environmental agreements as a means of changing their approach to developing and implementing sustainable building. In 1998, over 50% of the housing associations entered into sustainable building agreements with other actors, such as municipalities and other housing associations, and 40% of the associations established energy conservation objectives.

Another development has emerged in the contents of sustainable building

agreements. As compared to 1998, themes relating to sustainable building expanded in 2000 and cover more than just the environment and energy. (See Figure 5.2.)

5.4 Conclusions

Most of the sustainable building agreements in 2000 were drawn up between the housing associations and municipalities. The focus of these agreements has expanded beyond energy to include other, broader aspects of sustainable building, such as materials, water and the indoor climate.

We conducted a cross analysis relating answers to the stock managed and found that small housing associations sign relatively few agreements as compared to their counterparts with large stocks. The housing associations that have established agreements with municipalities are almost six times larger on average than those who have not. In light of this, it is important to avoid overlooking the small housing associations in efforts to promote environmental agreements in the social housing sector.

The practice of establishing environmental agreements with third parties has developed since 1993. At that time, only 6% of the housing associations cited agreements as a means of developing and implementing sustainable building policies. By 1998, however, over half of the associations had concluded sustainable building agreements with other actors, namely municipal authorities. The conclusions in the SBR market research study also emphasise the importance of environmental agreements in promoting sustainable building. According to the SBR report, the sustainable building agreements entered into by housing associations are equivalent to environmental policies. However, since these agreements contain no mandatory requirements, it is impossible to monitor their implementation adequately. Moreover, the mere establishment of these agreements does not yet guarantee the application of sustainable measures in practice. In light of this, the question we face is whether environmental agreements should remain voluntary or be enforced by legislation.



6 Environmental education of tenants

6.1 Introduction

Efforts to reduce the burden that the social housing sector places on the environment must take account of tenant behaviour. Housing associations can play an important role in educating their tenants about the ways they can contribute to sustainability in their living habits. This chapter examines how the housing associations guide their tenants, what kind of education materials they use and what environmental measures they cover (question 1.12 in appendix 1). Section 6.2 discusses the materials that the housing associations use for the environmental education of their tenants. This section also examines cross analyses relating the answers to the stock managed and the presence/absence of environmental policies. Section 6.3 follows with a look at developments since 1993, and section 6.4 presents the conclusions.

6.2 Environmental education: material sources and themes

Housing associations can promote sustainable living habits by informing their tenants about such issues as energy efficiency and sustainable building. They can either use their own materials to this end or those of other organisations, such as the Ministry of the Environment, or Novem.

According to the 2000 survey results, one third of the housing associations offer their tenants environmental education. Most of the education materials focus on energy conservation. Considering the volumes of educational materials about sustainable building available from organisations such as Novem, these percentages are very low. (See Figure 6.1 and Table 6.1.)

The quantitative data on the measures implemented in 2000 (see appendix 2), support the results in Table 6.1, which indicate that tenants in 60% of new dwellings receive environmental education. In practice, this form of education is made more frequently available to the residents of new buildings than those in the existing stock.

Our cross analysis shows that small housing associations offer little environmental education to their tenants as compared to their counterparts with larger stocks. (See Figure 6.2.)

The small housing associations provide environmental education in 20% to 30% of new dwellings. As the size of the stock increases, so too does the practice of educating tenants. Quantitative information on the measures implemented (see appendix 2, questions 2.5) confirms this. The most active group consists of the housing associations with over 4,000 dwellings. Up to 72% of the housing associations in this category claimed to give their tenants user

Figure 6.1 Environmental education of tenants by the housing associations in 2000

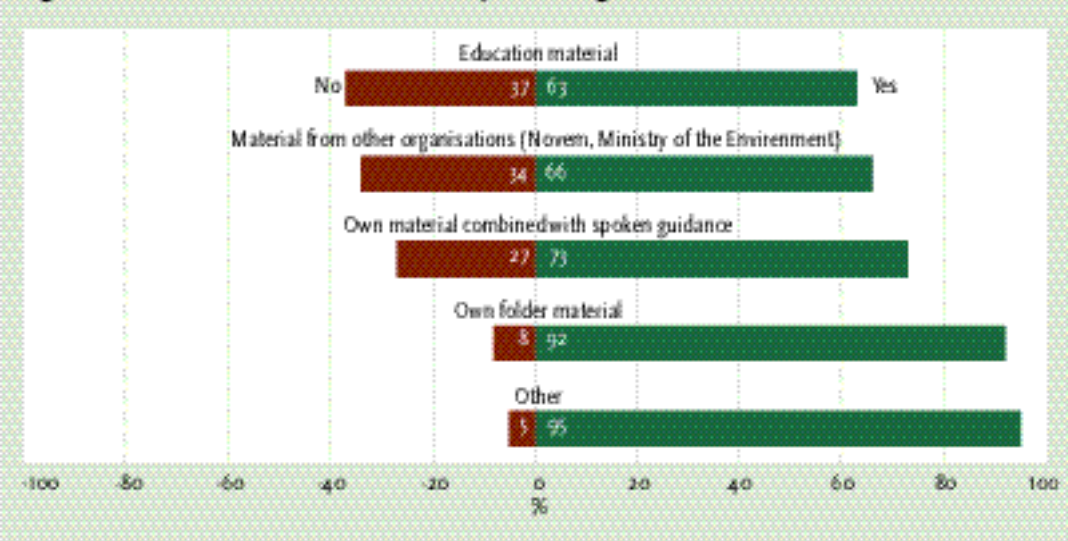


Table 6.1 Environmental education material of the housing associations distributed among their tenants in 2000

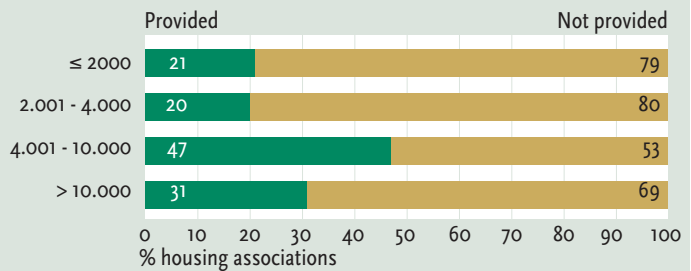
Education material	Yes %	No %	Energy	Materials	Water	Indoor climate	Other
Material from the other organisations (Novem, MVRM)	37	63	83	30	50	49	9
Own material combined with audio presentation	34	66	77	45	31	58	9
Own folder material	27	73	78	23	45	71	12
Other	8	92	88	31	50	69	6

Source: Atrivé (2001)

guidance about sustainable building. In examining the educational materials used, we observed a greater tendency in the large housing associations to work with their own materials. Among associations in the remaining size categories, we found no differences in the use of educational materials from other sources, such as the Ministry of the Environment. All of the housing associations make relatively little use of materials from other organisations. Our cross analysis regarding the presence/absence of environmental policies showed housing associations with these policies to be slightly more active in offering their tenants environmental educational materials as compared to those with no policies. When asked whether they use their own materials, 37% of the housing associations with environmental policies indicated that they did. The corresponding figure for those with no policies is 22%. The difference in the use of materials available from other organisations was negli-

gible: 40% of the housing associations with environmental policies use these materials as compared to 35% with no policies.

Figure 6.2 Own environmental education material provided by housing associations to tenants in relation to the managed stock in 2000



The SBR market research study does not directly address questions about environmental education. However, the study does focus in on client involvement in building projects. According to the SBR's results, 46% of the housing associations include the clients, i.e. future tenants, in the process developing new dwellings. This is a positive figure, although it does not necessary relate to sustainability guidance. Of the responding housing associations, 35% claimed to inform their future tenants about sustainable building in general. However, the majority (65%) does not. The housing associations that use the National Package for Housing keep their tenants informed on a more frequent basis than do the non-users. The other market actors in the SBR study, such as the developers and contractors, are more active in informing tenants, or future owners, than are housing associations.

On the other hand, the market research study clearly shows that the tenants are not yet very interested in sustainable building. According to 33% of the responded housing associations, tenants are interested or very interested in sustainable building, 49% of the tenants are somewhat interested, and 9% have no interest whatsoever. Furthermore, of those tenants who are interested in sustainable building, only few are willing to invest extra money in it. The housing associations estimated that 16% of the tenants would be prepared to pay extra for environmental measures, and indicated that 6% have actually requested sustainable building.

According to the SBR market research study, only 6% of the housing associations say that they always profile themselves with sustainable building; 38% claimed to do so often, 41% sometimes or rarely, and 14% never.

6.3 Developments since 1993

The housing associations in the 1993 study were asked what developments they considered necessary to successful sustainable housing maintenance. According to 33%, sustainable housing maintenance requires environmental education. In 1993 only 23% of the housing associations saw subsidies as a major condition for implementing sustainability. As discussed earlier in chapter 3, the 1998 and 2000 surveys found that costs were considered the main barrier in developing and implementing sustainable building policy, and consequently, that subsidies were seen as the solution. Remarkably enough,

Figure 6.3 Environmental education material of the housing associations distributed among their tenants in 1998 and 2000

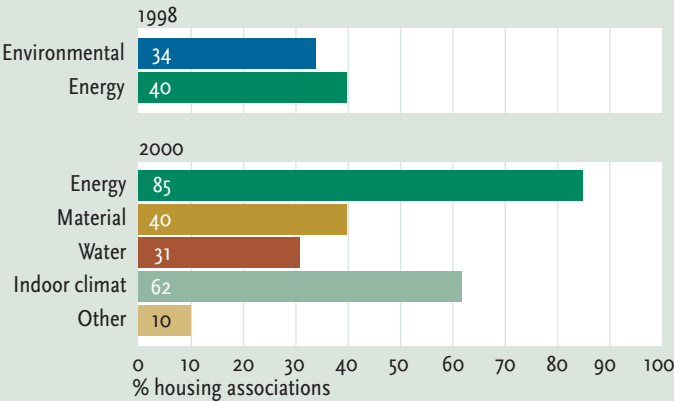


Figure 6.4 Lack of environmental knowledge as a barrier to sustainable management of housing associations in 2000

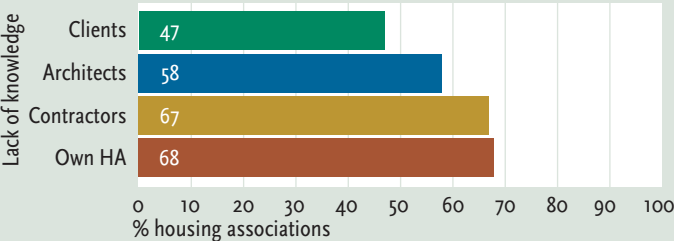
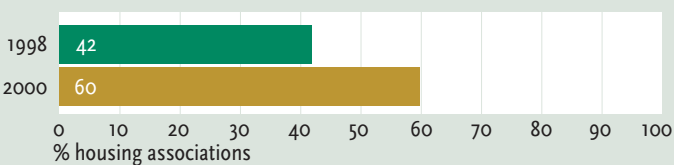


Figure 6.5 User guidance for tenants of new construction provided by housing associations in 1998 and 2000



the housing associations proposed environmental education in 1993.

The 1998 and 2000 surveys examined the extent to which housing associations offer their tenants environmental education. The question regarding tenant education in the 1998 survey focused in on the environment and energy. (See appendix 4, question 1.14.) In the 2000 survey, that focus shifted more towards sustainability themes (see appendix 1 and 2). The results for both years showed the environmental education of tenants to concentrate on energy conservation. In 2000, the percentage of energy-related education doubled. The focus in tenant education does not fall in line with what might be expected from environmental agreements with other parties (see also chapter 5), as those agreements deal with a wider variety of sustainability themes. (See Figure 6.3.)

As shown in Figure 6.4, over 50% of the housing associations

in the 2000 survey consider the lack of environmental knowledge on the part of different actors, including themselves and tenants, to be a major barrier to sustainable building.

In 2000, the percentage of environmental education given by housing associations to tenants in newly built dwellings increased by almost 20% as compared to the 1998 survey results. (See figure 6.5.)

6.4 Conclusions

According to the 2000 survey results, tenants in 60% of the new dwellings receive environmental education. The educational materials used include: the associations' own materials (27%), a combination of the associations' materials and audio presentations (34%), and materials from other organisations, such as the Ministry of Environment and Novem (37%).

The quantitative data regarding the measures implemented shows that user guidance is offered more frequently in new dwellings than in the existing stock. Housing associations should tap in more to the potential contributions that tenants in existing dwellings can make to sustainability even if they do not stand to benefit directly in terms of energy conservation, etc.

Large housing associations tend more to give tenants their own materials on sustainable building than do smaller associations. Among associations in the remaining size categories, we found no differences in the use of educational materials from other sources, such as the Ministry of the Environment or Novem. All of the housing associations make relatively little use of materials from other organisations.

Of the housing associations questioned in the 1993 study, 33% cited more environmental education as a condition for developing sustainable building; another 23%, however, saw subsidies as a key condition. By 1998, the latter view had gained more ground and subsidies were considered a solution to the need for promoting sustainable building.

Questions on education in the 1998 survey focused in on the environment and energy. In the 2000 survey, that focus shifted more towards sustainability themes, such as water, materials and the indoor climate. In both years, the housing associations focused on energy in educating their tenants. By 2000, however, the figure for energy-related education had soared to 83%, slightly over double what it was in 1998 (40%).

It is important to assure tenants that their environmental suggestions and actions will be considered. Enthusiastic tenants can help in drawing up plans that will motivate the majority of tenants to make a commitment to sustainability.



7 Sustainable housing management in the UK

7.1. Introduction

Environmental developments should proceed in co-operation and a spirit of mutual learning. With that in mind, we will now turn to the United Kingdom as a case study since its social housing sector comprises a considerable segment of its housing market. Approximately 18% of social housing in the UK is owned and managed by local authorities, and another 5% by housing associations (Haffner and Dol, 2000). The UK also encourages its social housing sector to implement sustainability more in practice. The use of a standardised environmental management system, i.e. the ISO 14001, is tested in British housing associations. This practice is an option to consider in developing environmental policies in Dutch housing associations.

Section 7.2 opens with an explanation of environmental efforts in the UK's social housing sector. Section 7.3 goes on to describe how housing associations are supported in formulating environmental policies and action plans. And finally, section 7.4 presents the conclusions.

7.2 The social housing sector and sustainability

The Housing Corporation is a non-departmental public body, which is sponsored by the Department of the Environment, Transport and the Regions (DETR). Its role is to fund and regulate the Registered Social Landlords in England, who are the main providers of social housing and manage almost 1.5 million homes in England. The Corporation standards are important, as the social housing projects must meet them in order to receive partial funding. Scottish Homes, Scotland's equivalent to the Housing Corporation, has also recently published its Environmental Policy and a Sustainable Design Guide (Sunikka, 2001).

The Housing Corporation published its Environmental Policy in 2000. It supports government strategy by working in partnership with others with regard to the social, environmental, resource and economic aspects of the proposed scheme development. In addition to making its own operations more environmentally friendly, the policy commits the Corporation to changing its investment and regulation policies and procedures in order to maximise the impact of the environmental policy in housing associations. An annual report about progress has been prepared and a formal review will be held in three years (The Housing Corporation, 2000).

Sustainability is one of the four main themes of the Housing Corporation's Innovation and Good Practice Programme. The aim of this IGP programme is to support innovative projects that develop and test new ideas in order to improve services to residents. In 1999, some 1,000 projects received funding.

Through this programme, the Corporation has supported the Sustainable Homes project, which promotes awareness of sustainable development and encourages housing associations to improve their environmental performance and adopt environmental policies. Recently, Sustainable Homes has developed an EcoDatabase that offers practical sustainability guidelines and examples of good practice projects for social landlords and housing associations. This includes an EcoDatabase for environmental housing schemes and a Good Practice Guide on development in the UK.

7.3 Environmental policies and action plans at the housing association level

The Housing Corporation does not have an accredited Environmental Management System. The use of the environmental standard ISO 14001 is now being tested, for example, in one regional office, the Vale Housing Association. Depending on the results, it may be extended throughout the Corporation. The EMS in the Vale Housing Association consists of the public Environmental Policy, Environmental Performance Data and Environmental Statement. The contractors are required to apply environmental standards and adopt the environmental policy of the housing association. Focal concerns include the need to keep abreast of legislation and survey environmental performance. EMS documentation is supported by other documents, such as the Tenants' Handbook and the Design Guide. The ISO 14001 standard is valid for three years, and surveillance visits by a nationally accredited company are conducted every six months (Vale Housing Association, 2000).

The Housing Corporation aims to support housing associations in formulating environmental policies. Working in the framework of the Sustainable Homes project, the Housing Corporation organised a series of seminars concerning environmental policies, offering support for housing associations in developing and improving their own environmental policies and action plans. Each seminar consisted of three workshops, where the process of formulating a policy was studied in smaller groups, presentations, and assignments between the workshops. Housing associations were explained the benefits of an environmental policy, and possible barriers that they are likely to meet during the process of formulating one. Clarity and simplicity in the policy were emphasised. A number of objectives need to be prioritised, particularly for the first year to increase motivation and commitment to it. This applies especially in the management. According to Wain (2001), the development of an effective policy requires time and budget resources, which should not be underestimated. Savings from environmental improvements can be expected in the long term, however, and these finances can be used to develop sustainable building even further.

What is emphasised in the UK, but less discussed in the Netherlands, is the fact that an environmental policy requires an action plan. An action plan focuses on the implementation of policy in practice and describes specific tasks to meet policy targets. It ensures that policy is more than a mere statement and that action follows from it. Furthermore, every policy should include information on how the action plan will be documented and reviewed. An effective audit or management system could prove useful in achieving this. For small and medium-sized housing associations an internal audit system is recommended, whereas larger associations would be better served to adopt a formal environmental audit system, ensuring consistency between different departments. Two options are available for formal accreditation via Environmental Management System: the international ISO 14001 and the European EMAS. Both systems aim at continuous environmental improvement and comply with legislation. In the UK, the Environmental Management Matrix software has been developed especially for housing associations. According to Wain (2001), if a housing association aims to increase its environmental image with a policy, an internationally recognised and standardised system is more effective than its own environmental statement.

In the United Kingdom, dialogues between tenants and housing associations exchanging information, ideas and suggestions are considered important in implementing environmental policies. The guide for formulating environmental policy (Wain, 2001) suggests that housing associations call a meeting of enthusiastic tenants, make pilot projects focusing on one environmental measure and survey experiences properly. The pilot tenants can help housing associations disseminate information to other tenants, for example in newsletters or community events. The guide also suggests finding outside partners and sponsors, such as energy companies, for environmental improvements. Local authorities can be encouraged to introduce recycling schemes, whereas housing associations can encourage tenants to use the service by providing space for the containers.

Finally, housing associations are instructed as to how to deal with barriers they are likely to encounter while formulating environmental policies. Advice given to staff and tenants alike must be clear. Moreover, while a multidisciplinary team is to guide the process in housing associations, one person should be responsible for encouraging action. Wain (2001) concludes that problems can be solved, if the senior management is committed to the policy, time and funding are sufficiently allocated, sustainability is recognised as one core activity in housing association, and integrated with the other priorities, and a long-term, co-ordinated approach is ensured.

7.4 Conclusions

Both Aedes in the Netherlands and the Housing Corporation in the United Kingdom have conducted a great deal of research and development in the field of sustainability. This is attributable to the large size and importance of the social housing sectors in both countries. However, environmental investments in both countries are strictly limited by tight budgets, as social housing associations face the challenge of coping in a market where they are not allowed to operate at a loss.

The Housing Corporation has developed a compelling innovation programme and a database of model projects to encourage sustainable building in housing associations. Moreover, it aims to support associations in formulating environmental policies and action plans. For small and medium-sized housing associations, an internal audit system is recommended, whereas large associations would be better served to adopt a formal environmental audit system. The ISO 14001 has been introduced in pilot programmes in housing associations in the UK, and the experiences may of interest to some Dutch housing associations. In general, the Housing Corporation's approach towards sustainable management is more market orientated than that in the Netherlands. The Housing Corporation sees environmental policy as 'greening' a business plan, which can result in more efficient management and a better PR image. It is possible, however, that sustainable building has more market value in the UK than it does in the Netherlands.

On the other hand, the UK and other countries could draw ideas and suggestions from the tools that Aedes has developed for sustainable housing management. Aedes has also surveyed environmental performance at the housing association level. The Sustainable Building Agreement and its survey process can serve the Housing Corporation, whose own environmental policy remains rather vague. The Dutch government has also introduced subsidies for green investments in the social housing sector. These are new measures and have yet to be adopted in many other countries, including the UK.



8 Conclusions

8.1 Introduction

Social housing associations in the Netherlands made a commitment to sustainable building in an agreement established in 1998. The results of the 2000 survey have been analysed in this report. In presenting that analysis, we have sought to address the following questions:

1. What is the Netherlands' national strategy for sustainable building?
2. What was the status quo in sustainable management in social housing associations in 2000?
3. What tools do housing associations use for sustainable management, and how do the users evaluate them?
4. What agreements do housing associations have with third parties?
5. Do tenants receive any educational materials from housing associations about environmental issues?
6. How does the size of housing associations influence how actively they implement sustainable management?
7. Are housing associations with environmental policies more active in implementing environmental measures than those with no such policies?
8. Since 1993, what developments have emerged in sustainable housing management in the Netherlands?
9. Given the research findings, how can social housing associations be encouraged to strive towards sustainable management?
10. What recommendations can we make regarding the Sustainable Building Agreement and survey process?

This chapter presents the main conclusions based on the 2000 survey results and developments in sustainable management since 1993. Section 8.2 presents answers to the research questions. Section 8.3 follows with a number of recommendations. Finally, section 8.4 concludes this report with practical suggestions for future surveys and the next Sustainable Building Agreement.

8.2 Conclusions

Conclusion 1

The national strategy for sustainable building does not devote sufficient attention to the renovation and management of the existing stock

The focus of the government's strategy for sustainable building is slowly shifting towards the existing stock. Progress in actual practice, however, lags behind as it is often more difficult and expensive to introduce environmental improvements in existing dwellings than it is to incorporate them in new buildings.

The Kyoto Protocol has increased pressure on governments in various countries to develop strategies for sustainable building aimed at reducing CO₂ emissions. Waals et al. (2000) and Sunikka (2001) conclude that the real

potential for sustainable building and CO₂ reduction lies in managing the existing dwelling stock. As managers of a large segment of the entire housing stock, housing associations can play a key role in realizing this potential. This area, however, has been largely ignored in current research and development activities. Consequently, the environmental approach has remained cautious in housing associations.

Conclusion 2

Sustainable management in housing associations focuses on energy and material-related measures

The 2000 survey shows that although housing associations have positive attitudes towards sustainable building, they still do not implement environmental measures much in practice. In total, 75% of the housing associations implement sustainable building measures regularly, and 15% through experiments. Less than half of the housing associations that implement environmental measures have adopted an environmental policy.

Material-related measures are relatively well adopted in practice, especially in new buildings. The quantitative data regarding the measures implemented in 2000 confirms this. It can be argued, therefore, that the need to prioritise material use in the government's strategy for sustainable building is becoming less important. However, energy measures are based more on building regulations than on investing on experimental measures. An Energy Performance Coefficient (EPC) value below 1, which is the current building regulation level, is uncommon in new dwellings, even though the housing associations like to cite energy conservation as a priority in their environmental policies. This implementation of building regulations can hardly be considered sustainable building. Solar panels are still rare in practice, and sun boilers were implemented in 8% of the new dwellings in 2000. Water conservation and the indoor climate receive less consideration than materials and energy, especially in the existing stock. The scope of sustainable building is broadening from energy and material-related measures towards the other issues. Increasingly, flexibility, accessibility and safety measures have become associated with sustainable building, especially in new dwellings.

The survey results show that sustainable building in housing associations focuses mainly on new construction. The associations are also very slow in recognising the importance of environmental improvements in existing dwellings. Environmental measures are usually considered either in the early construction phases of new buildings, or in major projects in existing stock, such as renovations. Daily maintenance and demolition are the phases where sustainability receives less consideration, despite the major environmental impacts of these activities. Of the housing associations in the SBR study (2001), 2% said that they take account of sustainability during maintenance. None of the respondents named the operation phase, which is highly signifi-

cant to a building's overall environmental impact. This neglect of the existing stock poses a serious disadvantage to the future of sustainable building, as many environmental improvements can be successfully introduced in existing dwellings. The task of shifting the focus more towards daily maintenance and the operation phase is not a burden for managers to bear alone. It must be shared by tenants, whose environmental education is essential to their ability to minimize the environmental impact of social housing.

Conclusion 3

Housing associations rate current tools for sustainable management as useful

A number of tools have been developed to support sustainable decision-making in housing management processes. In the 2000 survey, the users rate all tools as being fairly useful. Most users rated the tools as good or sufficient; only a handful expressed dissatisfaction. Thus, the quality of current tools for sustainable management appears to be fairly good.

In 2000, the most popular tool was the National Package for Housing, which was used in 72% of the housing associations. The National Package for Management was used in 60% of the housing associations. Although use of the National Package for Management increased by almost 20%, the National Package for Housing is still more common in the housing associations. In fact, the National Package for Housing has become the 'back-bone' of sustainable building in the Netherlands. In total, 75% of the environmental agreements between housing associations and municipalities are based on it. Thus, the contents and ambition level of the National Package measures have an enormous impact on the sustainability measures taken in daily practice and perceptions of what sustainable building is. To promote water conservation and the indoor climate, which will require special attention once tighter thermal regulations are introduced, the relevant measures in the National Packages must be revised.

The Energie Performance Advice (EPA) has been developed for energy efficiency in the existing stock. Over half of the housing associations use the EPA, which gained popularity in a relatively short period due to its well-organised system and subsidy provisions. In light of that, the EPA is a useful model to follow in developing new methods to promote sustainable building, etc. The 2000 survey shows that there are housing associations, especially small ones, which still use no tools. More information about the current tools and a clear explanation of their benefits will be needed to encourage this group to use tools.

Conclusion 4

Voluntary environmental agreements with municipalities and energy companies have become increasingly popular

Voluntary environmental agreements are typical of the type of sustainable building policies established in the Netherlands. The 2000 survey shows that

most of the environmental agreements entered by housing associations are with municipalities. These agreements focus on energy conservation, but are also expanding to include other aspects of sustainable building.

The objectives in current agreements have remained very technical. Environmental objectives, however, can also be qualitative and more process-orientated. They can serve, for instance, to promote the development of environmental policies, the use of tools and environmental education for tenants. Aside from their highly technical nature, current environmental agreements between housing associations and municipalities focus too much on new buildings. According to the SBR market research study (2001), 92% of the sustainable building agreements concern new dwellings, and only 55% renovations.

The conclusions in the SBR market research study (2001) emphasise the importance of environmental agreements and the role that municipal authorities can play in promoting sustainable building. While that sounds reasonable enough, we must bear in mind that current environmental agreements are voluntary. The mere establishment of these agreements does not yet guarantee the application of sustainable measures in practice. Furthermore, 37% of the housing associations in the SBR study feel that the government does not monitor the implementation of sustainable building agreements with municipal authorities. Only 30% of the housing associations maintained that there was some structural effort to monitor fulfilment of the objectives. If sustainable building is to be encouraged by means of voluntary agreements, progress towards the objectives in those agreements must be monitored and documented.

Conclusion 5

Housing associations do not offer their tenants extensive environmental educational materials

Progress in reducing the burden that buildings place on the environment depends on housing associations and tenants alike. Tenants must, therefore, be educated about the ways they can contribute to sustainability in their living habits. The environmental impact of housing associations stems mainly from their tenants. Yet the 2000 survey revealed that only one third of the housing associations issue their tenants any environmental educational materials. The quantitative data show that user guidance is offered more frequently in new dwellings than in the existing stock. Housing associations should take greater account of the potential contributions that tenants in existing dwellings can make to sustainability even if they do not stand to benefit directly in terms of energy conservation, etc.

Conclusion 6

Cross-analyses show that the small housing associations are more passive in implementing sustainable management than their larger counterparts

According to the 2000 survey, 8% of the housing associations still do not implementing any environmental measures. We conducted cross-analyses relating the answers to the size of stock managed and found this group to consist mainly of small housing associations. We found a correlation between the size of associations and their implementation of sustainable measures. The more dwellings a housing association manages, the more likely it is to have an environmental policy, to establish sustainable building agreements with third parties, and to offer its tenants environmental education. Housing associations with an environmental policy are approximately one third larger on average than those with no such policies. One fifth of the small housing associations have environmental policies as compared to half of the large associations.

Our cross-analyses relating the use of tools to the size of the stock managed shows that current tools are less common in small housing associations than they are in those managing larger stocks, (i.e. over 4,000 dwellings). For example, the average size of the user of National Package for Housing is almost three times higher compared to a housing association that does not use it. It is difficult to argue whether this is due to better capacity of time and financial resources in large housing associations, or whether current management tools do not serve purposes in small housing associations.

Our cross-analyses relating the answers regarding environmental agreements to the number of dwellings managed show that small housing associations establish relatively few environmental agreements with third parties as compared to large associations. The housing associations that have established agreements with municipalities are almost six times larger on average than those who have not. In light of this, more effort should be made to encourage small housing associations to establish environmental agreements.

It is hardly surprising that housing associations with large stocks, (i.e. over 4,000 dwellings) offer their tenants more environmental educational materials and produce more of their own materials than smaller associations. We found no differences, however, in the use of educational materials from other sources, such as the Ministry of the Environment. All of the housing associations make relatively little use of materials from other organisations.

Conclusion 7

Our cross-analyses show that housing associations with an environmental policy are not necessarily more active in implement measures than those with no such policies

The 2000 survey indicates that 75% of the housing associations implement sustainable building measures regularly, and 15% through experiments. Less

than half of the housing associations that implement measures have adopted an environmental policy. It can be argued, therefore, that an environmental policy is not a requirement for implementing sustainable building in practice. However, it can facilitate a more systematic approach and focus attention on environmental values in housing associations. According to the survey results, the mere establishment of an environmental policy does not guarantee effective implementation, but does stimulate more active use of tools and the like. Housing associations with an environmental policy tend to know slightly more about sustainable building and can usually cite concrete targets when asked about their future plans. By contrast, associations with no environmental policies checked the 'do not know' response more frequently in filling out the survey. The British examples presented in chapter 7 underscore the fact that it takes time and financial resources to formulate solid environmental policies and action plans. If housing associations are to succeed in developing effective and consistent policies, they need examples and information about the benefits involved. A standardised audit or management system can improve the gap between a policy and its implementation in practice.

Conclusion 8

Sustainable management in Dutch social housing associations has developed little since 1993, and certainly not since 1998

A comparison of the survey results in 1993, 1998 and 2000 would show that, despite developments in government strategy, building regulations and incentives, housing associations have not made much progress in sustainable management since 1993. The quantitative information about the measures implemented in 1998 and 2000 confirms this. According to the survey results, the housing associations spent an average €1,345 per dwelling in sustainable building measures in new construction in 2000, and €71 per dwelling in the existing stock. As compared to 1998, the investment decreased by 25% in 2000.

On comparing the measures implemented we found that water conservation was more popular in 1998 than it was in 2000, both in new dwellings and in the existing stock. The use of water conservation and short water installations is on the decline. In 1998, they were installed in almost all new dwellings. By 2000, the figure had dropped to 75%. Similar developments have taken place in existing dwellings.

Various positive developments have also emerged. Since 1993, the use of tools that support sustainable housing management has undergone a radical change. None of the current tools covered in the surveys existed in 1993. By 1998, however, 66% of the housing associations were already using the National Package for Housing, and 41% the National Package for Management. The use of tools is still on the rise. Another major development in sus-

tainable management since 1993 has been the practice of establishing environmental agreements with third parties. At that time, only 6% of the housing associations cited agreements as a means of developing and implementing sustainable building policies. By 1998, however, over half of the associations had concluded environmental agreements with municipalities, and 40% with energy-companies.

Why sustainable management in housing associations has improved so little since 1993 is a question that requires deeper study. The housing associations themselves cite the demands they face in terms of costs, capacity and knowledge and the problem of acceptance on the part of tenants as the main barriers to sustainable housing management. A comparison of the surveys would show that since 1993, attitudes have changed, with the focus increasingly on costs.

Conclusion 9

Due to the lack of market demand, successful environmental improvements in the social housing sector require regulations as well as subsidies

According to the SBR market research study (2001), most housing associations expect sustainable building to become more important in the future, including over the next five years. In total, 43% of the housing associations consider subsidies an important incentive for sustainable building. Housing associations mentioned subsidies significantly more frequently than did other market actors, such as developers and contractors. It is important to note that the market situation has changed radically for housing associations in recent years: increasingly, they are being expected to generate profits. It is, however, unrealistic to think that subsidies alone can increase sustainable building. Other incentives mentioned by the housing associations include campaigns geared towards private individuals and a strong lead from the municipality. Some associations feel that tighter building regulations would serve as an incentive.

Environmental initiatives can also come from tenants, and not just from the management. Quite disappointingly, the SBR market research study shows that tenants are not very interested in sustainable building. According to 33% of the responded housing associations, tenants are interested or very interested in sustainable building, 49% of the tenants are somewhat interested, and 9% have no interest whatsoever. Furthermore, of those tenants who are interested in sustainable building, only few are willing to invest any extra money in it. The housing associations estimated that 16% of tenants would be prepared to pay extra for environmental measures, and indicated that only 6% of tenants have actually requested sustainable building. This is where the real problem in sustainable housing management lies. Consequently, most organisations do not want to establish their profile as being associated with

sustainable building. According to the SBR market research study, 6% of the housing associations indicated that they have always associated sustainable building with their profile. Another 38% claimed to do so often, 41% sometimes or rarely, and 14% never.

However, if tenants have no information about sustainable building, they are unlikely to request it. Housing associations are, therefore, responsible to inform their tenants about the options and costs of sustainable building. One way to do this would be to develop the standardised DuBo label for sustainable buildings, or actors involved in the construction and management processes, such as architects or contractors. Most of the housing associations in the SBR study (2001) were in favour of the DuBo label and different levels of sustainable building.

8.3 Recommendations

Housing associations need consistent environmental policies

According to the 2000 survey, several housing associations are planning to adopt an environmental policy in the next five years. Successful examples of such policies can serve to aid these associations in achieving this objective. That approach would spare them the task of re-inventing the wheel and introduce a measure of consistency among them. In larger housing associations, standardised environmental management systems, such as the ISO 14001 or EMAS, can ensure an effective policy. What is more, these systems have a marketing value. The UK's Housing Corporation has organised seminars, where housing associations are advised to formulate an environmental policy and action plan. In the Netherlands, institutions, such as Aedes, could take serve a guiding role in this regard.

Practical implementation of environmental agreements needs to be encouraged and controlled

Thanks to the sustainable building agreements, municipalities have the capacity to promote sustainable building, if they choose to. While environmental agreements between housing associations and municipalities are becoming established practice, co-operation with other parties, such as local water companies, still needs to be encouraged. Material-related measures have begun to be well adopted. In light of that, it could be argued that it is not necessary to focus on these measures in establishing the objectives in agreements with municipalities. The ambition level for energy conservation objectives should be higher than it is in building regulations. Water conservation should also be a priority. In addition, other sustainable building measures, such as dwellings for the increasingly growing population of elderly people, should be included in the scope of these agreements. Sustainable building

agreements often fail to bring about any action. Agreements could, therefore, be established with accompanying practical action plans that include step-by-step instructions for actual implementation in the housing association.

Government organisations can support housing associations in the environmental education of tenants

The operation phase and tenants can play a key role in reducing the environmental impact of the social housing sector. In light of that, housing associations should be encouraged to educate their tenants. The information they provide should be clear and captivate interest. The associations should also inform tenants about how they can benefit directly from energy and water conservation and a healthier indoor climate. One point that must be clarified is that sustainable building does not necessarily entail taking an ecological approach to every little detail. Rather, it involves making reasonable choices that are comparable to, say, buying energy efficient home electronics. In establishing a working dialogue with tenants, it is important that their environmental suggestions be heard in the housing association's management, and not lost in the bureaucracy. To educate tenants, housing associations do not need to produce environmental educational materials themselves. They can make more use of materials that other organisations, such as Novem and the Ministry of the Environment, have already produced about sustainable building. Dissemination can be done via branch organisations and partners in the sustainable building agreement with Aedes, (e.g. the Dutch Tenants Union).

Small housing associations need to be environmentally motivated

The number of dwellings that small housing associations manage may not be crucial to the future of sustainable building. However, they can contribute to the social housing sector's efforts to reduce the burden on the environment. Our cross-analyses show that large housing associations are more active than their small counterparts in developing environmental policies, using tools, establishing environmental agreements and educating tenants. It is important, therefore, to include small housing associations in sustainable building policy. Since the managerial needs of small and large housing associations can differ, efforts to encourage small associations may require slight policy adjustments.

Environmental policies, regulations and tools should focus more on the existing stock

To achieve the objectives in the national strategy for sustainable building, such as those regarding energy conservation, environmental policies must focus more on managing and renovating the existing stock. This applies both to government policies and strategies at the housing association level. While

tighter building regulations may seem an effective means of introducing more sustainable practices, the legislation usually applies to new buildings only. Projects in the existing stock require other measures, such as systematic environmental policies and agreements with third parties. Current environmental agreements between housing associations and municipalities, to name one example, focus on new construction. Their scope, however, should extend to include targets for the existing stock as well. Moreover, there should be more emphasis on existing dwellings in the development of tools.

DuBo label can standardise, advertise and stimulate sustainable building market

Energy labels for domestic appliances with energy efficiency ratings from A to G, have increased sales of the A-labelled goods, which are associated with good quality and long-term financial savings. A successfully developed environmental label for buildings could give consumers a sense of assurance that they are getting value for their investment and therefore, increase their interest in sustainable building. Furthermore, if sustainable buildings become market assets in the future, a standardised label could reduce confusion on a growing market of different consultation and evaluation services. One practical concern is that effort would seldom be made to do more than what is strictly necessary to meet the requirements for the label. In other words, the minimum value may also become the maximum value in practice. Avoiding this would require a system consisting of different environmental levels, or a flexible structure where requirements can be updated regularly. Although sustainable building is not a successful product yet, housing associations should contribute to it by informing their tenants about the potential benefits in plain language without mystifying sustainability. Since a consumer-oriented approach is a priority in the government's sustainable building strategy and in its current policy document *Nota Wonen*, attention is bound to focus on it in the future as well.

8.4 Suggestions for future surveys and the next Sustainable Building Agreement

This study also aimed to draw up suggestions based on the findings for future surveys and the next Sustainable Building Agreement. These recommendations are described below.

The survey process

The 1998 survey was based primarily on quantitative data (see appendix 2 and 4). As found in the 2000 survey, however, the task of assessing the status quo in sustainable housing management requires qualitative data about envi-

ronmental objectives in housing associations. (See appendix 1). If descriptive questions about environmental policies are not included in the questionnaire, the overall picture it will provide will be too technical, and therefore, incomplete.

Questions concerning the development of environmental policies must be more specific than they are now. Otherwise, the definition of an environmental policy will remain open to different interpretations. Vague questions could also ultimately result in a lack of consistency between the policies of different housing associations. It is significant whether an environmental policy consists of an oral agreement, a written plan, or a certified environmental management system. The question addressing environmental policy should introduce policy criteria. (Is the policy in writing? Does it include implementation requirements and control and review plans? Etc.). If a housing association's environmental policy meets the criteria, it would be interesting to obtain more detailed information about the areas the policy covers.

In examining the implementation of sustainable building, the survey should distinguish between building regulation levels and additional voluntary measures, especially in the area of energy efficiency. For example, it can be specified that the questions regarding energy measures cover more than the required EPC value.

The 2000 survey results reveal that the concept of sustainable building has extended to include other measures. Various quantitative questions and questions concerning adaptability, accessibility and safety need to be adjusted in the survey.

The survey must take into account that the mere establishment of a sustainable building agreement does not yet guarantee that the housing association will actually implement it. For that reason, the questions should address how the housing association implements any sustainable building agreement it has established, and not just whether it has entered one.

In developing future surveys, special efforts must be made to formulate questions clearly and to employ effective interview techniques. The SBR market research study, which was conducted by telephone and prepared with a few qualitative interviews, achieved a high response rate. In light of that, it is a better example of an effective approach than the agreement surveys.

The next Sustainable Building Agreement

The focus of the objectives in the next Sustainable Building Agreement should not be limited to the financial investments that housing associations are expected to make in sustainable building measures, although such concrete figures are important. Objectives must be clear, but should also include qualitative, and more process-gearred targets. Example 1: '80% of housing associations should establish an environmental policy in writing with an accompanying action plan'. Example 2 (in order to encourage experiments):

‘Sustainable building measures in 15% of housing production should be experimental’. One concrete target would be to set objectives in relation to the ambition level of building regulations. Example: ‘20% of new dwellings should be built with an EPC value 30% higher than the building regulation level’. The findings show that material-related measures are already quite well adopted in practice. For that reason, it can be argued that materials do not need to be prioritised. To keep pace with the ever-broadening scope of sustainable building, the next agreement should also cover other issues of sustainable building, such as flexibility, accessibility, the indoor climate, water conservation, and safety.

The next Sustainable Building Agreement could be based on different ambition levels instead of one. These levels can motivate more housing associations to join the agreement and to improve their environmental performance to higher levels, especially the small ones. This kind of system of levels could also serve to show tenants and the market at large that sustainable building can work on several ambition levels, and does not mean living in experimental conditions or Ecolonia.

The EPA is an example of a successful measure that has made one aspect of sustainable building, namely energy conservation, more attractive and approachable in housing associations. In the next Sustainable Building Agreement, the EPA can be used to set energy objectives.

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Organisations and instruments

Organisations

Aedes vereniging van woningcorporaties

Aedes is the Dutch national umbrella organisation for social housing providers. See www.aedeswcp.nl.

Atrivé

Atrivé is a Dutch consultation agency. See www.atrive.nl.

The Dutch Tenants Union (Nederlandse Woonbond)

The national tenants' association aims to guarantee the availability of low-priced good quality houses for tenants, safe neighbourhoods that provide a positive social environment and to encourage strong local organisations of tenants. See www.woonbond.nl.

The Ecological City, the Delft University of Technology's Interdisciplinary Research Centre, (DIOC-DGO De Ecologische Stad, Technische Universiteit Delft)

The Ecological City carries out pioneering research on the Sustainable Built Environment in the Delft University of Technology. See www.ecologische-stad.tudelft.nl.

EnergyNed (EnergieNed)

EnergieNed is a broad-based federation for all companies playing an active part in the production, transport, trade or supply of gas, electricity or heat in the Netherlands.

The federation represents the interests of its member companies. See www.energiened.nl.

The Housing Corporation

The Housing Corporation is a non-departmental public body which funds and regulates the Registered Social Landlords in England. See <http://www.housingcorp.gov.uk>.

The Ministry of Economic Affairs (Ministerie van Economische Zaken)

The main task of the Netherlands Ministry of Economic Affairs is ensuring an efficient economy with a strong and dynamic private sector. See www.ez.nl.

The Ministry of Housing, Spatial Planning and the Environment, (MVRM Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieu)

The Netherlands Ministry of Housing, Spatial Planning and the Environment is operating under the leadership of the Minister and the State Secretary. See www.minvrom.nl.

National Sustainable Building Centre (Nationaal DuboCentrum)

The National Sustainable Building Centre is an independent centre for information, communication and knowledge about sustainable building in the Netherlands for all professionals who are involved in the design of the built-up environment. See www.dubo-centrum.nl.

Novem Knowledge Centre for Energy and the Environment (Nederlandse onderneming voor energie en milieu)

Novem is the Netherlands Agency for Energy and the Environment whose activities fall under four themes: Sustainable Construction, Living, Working, Sustainable Energy Provision, Sustainable Production and Sustainable Mobility. See www.novem.nl

SBR Foundation for Building Research (SBR Stichting Bouwresearch)

SBR Foundation for Building Research assimilates knowledge and information that building partners need in their daily work. See www.sbr.nl.

VEWIN The Association of Water Boards (VEWIN, Vereniging van waterleidingbedrijven in Nederland)

VEWIN is the branch organisation of the water providers in the Netherlands. See www.vewin.nl.

VIBA The Association for Integral Biological Architecture (de Vereniging voor Integrale Biologische Architectuur)

VIBA is an association that promotes biological and ecological construction, living and working in the Netherlands. See www.viba-expo.nl.

Instruments

Duwon (Duurzaam Woningbeheer)

Duwon is a manual that helps housing managers take account of environmental performance in the complex decision-making processes involved in strategic policy development for the housing stock and building-related planning.

EcoQuantum

The EcoQuantum tool measures environmental performance of building on the basis of life cycle assessment. See www.ecoquantum.nl.

EPA Energy Performance Advice (Energie Prestatie Advies)

The EPA focuses on energy conservation and was developed to provide insight into the current energy performance of existing dwellings, and future

dwellings when recommended energy measures are implemented. See www.epadesk.nl.

EPC Energy Performance Coefficient, (Energie Prestatie Coëfficiënt)

The EPC measures energy performance in buildings. An EPC calculation includes target values, but it does not limit measures for achieving those values. The EPC may not exceed a certain fixed value that is defined in the Dutch Building Decree.

EPL Energy Performance per Location (Energie Prestatie per Locatie)

The EPL describes location-based CO₂ reduction and energy saving.

EPR Energy Premium Regulation (Energie Premie Regeling)

Since 2000, a subsidy issued under the Energy Premium Regulation has been available to all homeowners, including housing associations, and can also be used for renovation purposes.

National Package for Housing (Nationaal pakket woningbouw, Duurzaam bouwen – Nieuwbouw)

The National Package for Housing is a collection of measures and recommendations aimed at achieving sustainable housing involving the following themes: materials, energy, water and the indoor environment, including costs.

National Package for Management (Nationaal pakket woningbouw, Duurzaam bouwen – Beheer)

The National Package for Management is a collection of measures and recommendations aimed at achieving sustainable housing management.

The Sustainable Building Agreement (Het Nationaal Convenant Duurzaam Bouwen)

In 1998, the Dutch social housing sector, the Dutch government and a few third parties drew up the Sustainable Building Agreement, which includes a survey programme for the evaluation of environmental objectives.

Appendix 1 Survey in 2000, formula 1

DuBo-monitor 200D Algemene bedrijfsinformatie en beleid		
1.1	Naam corporatie	
1.2	Contactpersoon	
1.3	Telefoonnummer	
1.4	Postcode en plaats	
1.5	Hoeveel woningen (totaal) had u in beheer op 01-01-2000	721.104
1.6	NRV-nummer	190 ingevoerde enquêtes
1.7	Heeft uw corporatie een actueel milieubeleidsplan of milieuprogramma?	
o	ja	62
o	nee	127
o	onbekend	1
1.8	Brengt uw corporatie milieumaatregelen in de praktijk?	
o	ja, via regulier beleid	143
o	ja, via experimenten	28
o	nee	16
o	onbekend	3

1.9 Kunt u in de onderstaande tabel aangeven welke thema's in het milieubeleidsplan (en/of in de praktijk) zijn opgenomen?

Milieuthema op niveau van woning	Nieuwbouw	Bestaande bouw
1. Materiaalgebruik	136	106
2. Energiegebruik	147	138
3. Watergebruik	125	97
4. Binnenmilieu	102	63
5. Toegankelijkheid	139	81
6. Aanpasbaarheid/Flexibiliteit	129	35
7. Vervangen van loden leidingen	11	66
8. Maatregelen tegen radon	15	9
9. Asbestverwijdering	10	136
10. Inbraakwerende voorzieningen	130	142
11. Anders, nl.	5	4
12. Afval	90	62
13. Ruimtegebruik	57	22
14. Leefbaarheid/sociale veiligheid	122	127
15. Mobiliteit	29	16
16. Groen	70	56
17. Water	52	23
18. Anders, nl:	0	0
19. Anders, nl.:	0	0

1.10 In welke fasen van het bouw- en beheerproces spelen welke milieuthema's een rol bij uw corporatie?

Bouwproces	Milieuthema's				
	energie	materialen	water	binnenmilieu	anders
N i e u w b o u w					
o Vaststellen van het programma van eisen	147	142	105	107	10
o Alternatieven in de ontwerpfase	69	71	41	40	4
o Anders, nl.:	1	1	1	2	1
B e s t a a n d e b o u w					
o Dagelijks onderhoud	44	82	45	32	2
o Planmatig onderhoud	125	129	83	70	6
o Groot onderhoud en renovatie	138	138	95	95	7
o Sloop/vervangende nieuwbouw	85	83	60	70	7
o Anders, nl.:	1	1	1	1	1

1.11 Welke van de onderstaande instrumenten en hulpmiddelen past uw corporatie toe en hoe waardeert u de instrumenten? (indien u een instrument niet gebruikt, toch graag een oordeel)

Instrument of hulpmiddel aanwezig?	Ja	Nee	goed	voldoende	matig	slecht	Weet niet
Duurzaam Bouwen, Nationaal pakket Woningbouw Nieuwbouw	137	53	47	86	11	0	7
Duurzaam Bouwen, Nationaal pakket Woningbouw Beheer	113	77	28	80	12	0	16
Duwon	27	163	5	18	5	0	43
EPA	117	73	46	60	7	2	13
Energieprofiel	29	161	8	17	4	3	43
Anders, nl.:	12	179	6	7	0	0	9
Anders, nl.:	4	186	2	1	1	0	5

1.12 Op welke wijze vindt milieuvorlichting plaats aan bewoners en om welke thema's gaat het?

Milieuvorlichting	ja	nee	Milieuthema's				anders
			energie	mate- rialen	water	binnen- milieu	
foldermateriaal van andere organisaties (Ministerie van VROM, Novem, gemeente, e.d.)	70	120	58	21	35	34	6
eigen foldermateriaal	51	139	40	23	23	36	6
eigen foldermateriaal gecombineerd met mondelinge voorlichting	64	126	49	29	20	37	6
anders, nl.:	16	174	14	5	8	11	1

1.13 Maakt uw corporatie afspraken met derden over het toepassen van milieumaatregelen en zo ja voor welke milieuthema's?

Afspraken met derden	ja	nee	Milieuthema's				anders
			energie	materialen	water	binnenmilieu	
met gemeente	118	72	99	92	76	57	15
met energiebedrijf	85	105	88	19	20	14	3
met waterleidingbedrijf	45	145	10	7	43	5	1
met collega-corporaties en overige beheerinstellingen	49	141	42	36	30	28	7
anders, nl. met:	10	180	5	5	4	4	2

1.14 Wilt u aangeven in welke mate de onderstaande knelpunten door u in de praktijk van duurzaam bouwen en beheren worden ervaren?

Knelpunten?	groot	klein	geen	weet niet
Product voldoet (nog) niet aan de kwaliteitseisen die de corporatie eraan stelt	27	62	51	26
Gemeentelijke regelgeving (of Bouwbesluit)	18	71	60	19
Kennis bij opdrachtgevers	23	66	47	21
Kennis bij architecten	31	79	46	15
Kennis bij aannemers	44	83	32	11
Acceptatie van bewoners	36	86	36	16
Kennis binnen de eigen corporatie	32	98	41	4
Capaciteit binnen de eigen corporatie	40	104	27	5
Vertaling beleidsplan naar praktijk	29	76	30	27
Kosten	76	62	19	12
Product is niet of onvoldoende verkrijgbaar	10	48	53	42
Anders, nl.:	1	0	3	8

1.15 Wilt u aangeven in hoeverre de onderstaande items door u in de praktijk van duurzaam bouwen en beheren als een stimulans zouden worden ervaren

Stimulans?	groot	klein	geen	weet niet
Aanscherpen van huidige regelgeving (bijv. energie-eisen)	81	68	23	7
Uitbreiden van de regelgeving	47	73	48	11
Extra financiële prikkels (subsidies)	127	49	2	2
Vergroten van kennis (binnen eigen organisatie)	74	91	13	3
Verbeteren van informatievoorziening	63	94	14	7
Anders, nl.:	4	0	1	2

Appendix 2 Survey in 2000, formulas 2 and 3

DuBo-monitor 2000 DuBo-maatregelen in Nieuwbouwprojecten

Heeft u nieuwbouwwoningen in 2000 aanbesteed (*aankruisen wat van toepassing is):

nee*	107		
Ja*	83	5.551	aantal aanbestede woningen
hoeveel woningen hiervan zijn koopwoningen:	1.928		aantal koopwoningen

2.1 Energiebesparende maatregelen in nieuwbouwprojecten

SBR-code	DuBo-maatregelen	aantal woningen
2.1.1	- Energieprestatiecoëfficiënt tussen de 1,1 – 1,2	1.223
2.1.2	- Energieprestatiecoëfficiënt tussen de 1,0 – 1,1	2.171
2.1.3	- Energieprestatiecoëfficiënt tussen de 0,9 – 1,0	1.598
2.1.4	S002 Energieprestatiecoëfficiënt tussen de 0,8 – 0,9	375
2.1.5	S003 Energieprestatiecoëfficiënt < 0,8	184
2.1.6	S480 Warmtepomp toegepast	268
2.1.7	S033 Zonneboiler toegepast	462
2.1.8	S041 Hoeveel woningen zijn er aangesloten op een warmtedistributienet	1.007
		437

2.2 Materiaaltoepassingen in nieuwbouwprojecten

SBR-code	DuBo-maatregelen	aantal woningen
2.2.1	S063 Gecertificeerd tropisch hardhout of gecertificeerd naaldhout toegepast (bijv. FSC-keurmerk of keur van Stichting Keurhout)	4.351
2.2.2	S074 Beton met 20% beton- of menggranulaat als grindvervanger	3.449
2.2.3	S071 Indien kunststof is gebruikt is PE, PP of PVC met hergebruikgarantie toegepast	4.613
2.2.4	S444 EPDM, APP en/of SBS gemodificeerd bitumen of PVC dakbedekking voor platte daken	3.372
2.2.5	- Kitten en lijmen op waterbasis	2.989
2.2.6	* High solid of acrylaat (verfsysteem op waterbasis) verfsysteem	4.903
2.2.7	S339 Kunststof waterleidingen toegepast (PE)	1.345
	anders	120

kosten- kengetal [f]	investeer- kosten [f]	energie- kengetal [m³/gas]	energie- besparing [m³/gas]	water- kengetal [m³]	water- besparing [m³]	CO ₂ - kengetal [kg/CO ₂]	CO ₂ - besparing [kg/CO ₂]
2.518	3.079.514	276	337.548		0	484	591.932
3.113	6.758.323	388	842.348		0	680	1.476.280
5.434	8.683.532	486	776.628		0	865	1.382.270
6.456	2.421.000	602	225.750		0	1.066	399.750
10.361	1.906.424	798	146.832		0	1.420	261.280
	0		0		0		0
	0		0		0		0
	0		0		0		0
	0		0		0		0

kosten- kengetal [f]	investeer- kosten [f]	energie- kengetal [m³/gas]	energie- besparing [m³/gas]	water- kengetal [m³]	water- besparing [m³]	CO ₂ - kengetal [kg/CO ₂]	CO ₂ - besparing [kg/CO ₂]
	0		0		0		0
80	275.920		0		0		0
250	1.153.250		0		0		0
404	1.362.288		0		0		0
	0		0		0		0
199	975.697		0		0		0
200	269.000		0		0		0
	0		0		0		0

2.3 Waterbesparende voorzieningen in nieuwbouwprojecten

	SBR- code	DuBo-maatregelen	aantal woningen
2.3.1	S383	Waterbesparende voorzieningen toegepast (bijvoorbeeld waterbesparende douchekop, toilet, volumestroombegrenzer en aparte warmwaterleiding keukenkraan)	4.040
2.3.2	S384	Korte warmwaterleidingen tussen warmwatertoestel en warmwatertappunt < 5m	2.574
		anders	201

2.4 Binnenmilieu maatregelen in nieuwbouwprojecten

	SBR- code	DuBo-maatregelen	aantal woningen
2.4.1	S407	Ankerloze (woningscheidende) spouwmuren	2.391
		anders	0

2.5 Algemene maatregelen in nieuwbouwprojecten

	SBR- code	DuBo-maatregelen	aantal woningen
2.5.1	S443	Gebruikershandleiding (gebruiks- en onderhoudsgegevens)	3.319
2.5.2	S437	Inbraakwerende voorzieningen aangebracht waarmee voldaan wordt aan Politiekeurmerk Veilig Wonen Nieuwbouw	3.920
		anders	34

2.6 Opmerkingen

TOTAAL:

kosten- kengetal [f]	investeer- kosten [f]	energie- kengetal [m³/gas]	energie- besparing [m³/gas]	water- kengetal [m³]	water- besparing [m³]	CO₂- kengetal [kg/CO₂]	CO₂- besparing [kg/CO₂]
1.190	2.833.390		0		0		0
	0		0		0		0

32.072.278	2.533.066	151.696	4.473.492
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DuBo-monitor 2000 DuBo-maatregelen in Beheer Bestaande Bouw

Heeft u in de bestaande woningvoorraad in 2000 opdrachten verstrekt (*aankruisen wat van toepassing is)

30 Nee* retourneer enquête

158 Ja* vul onderstaand formulier in

3.1 Energiebesparende maatregelen in Beheer Bestaande Bouw

	SBR-code	DuBo-maatregelen	aantal woningen
3.1.1	B013	Gevel nageïsoleerd ($R_c > 1,3 \text{ m}^2\text{K/W}$)	2.893
3.1.2	B014/ 015	Dak nageïsoleerd ($R_c > 3,0 \text{ m}^2\text{K/W}$)	3.139
3.1.3	B012	Begane-grondvloer nageïsoleerd ($R_c > 3,0 \text{ m}^2\text{K/W}$)	1.998
3.1.4	-	HR+- of HR++-glas in alle verwarmde ruimten ($U_{\text{glas}} < 1,9 \text{ W/m}^2\text{K}$)	6.403
3.1.5	B033	Zonneboiler toegepast	538
3.1.6	-	Warmtepomp toegepast	60
3.1.7	B038	Isolatie leidingen voor warm tapwater volledig	823
3.1.8	B042	Isolatie cv-leidingen in onverwarmde ruimten	1.870
3.1.9	B040	Individuele combitoestel HR toegepast	14.991
3.1.10	B472	Gebalanceerde ventilatie met warmteterugwinning toegepast	122
3.1.11	B024	Individuele bemetering verwarming meergezinswoningen	2.187
3.1.12	B037	Een lage-temperatuur-verwarmingssysteem (vergrote radiatoren)	0
		anders.....	818

3.2 Materiaaltoepassingen in Beheer Bestaande Bouw

	SBR-code	DuBo-maatregelen	aantal woningen
3.2.1	B063	Gecertificeerd tropisch hardhout of gecertificeerd naaldhout toegepast (bijv. FSC-keurmerk of keur van Stichting Keurhout)	2.679
3.2.2	B071	Indien kunststof is gebruikt is PE, PP of PVC met hergebruikgarantie toegepast	4.282
3.2.3	B444	EPDM, APP en/of SBS gemodificeerd bitumen of PVC dakbedekking voor platte daken	4.142
3.2.4	B252	Kitten en lijmen op waterbasis	3.511
3.2.5	B288	High solid of acrylaat (verfsysteem op waterbasis) verfsysteem	24.275
3.2.6	B339	Kunststof waterleidingen toegepast (PE)	465
3.2.7	B452	Vervanging loden waterleidingen	1.160
3.2.8	-	Asbestverwijdering *	9.246
		anders	0

* Kosten zijn niet meegerekend in de totale kosten en vallen buiten de convenantafspraken.

kosten- kengetal [f]	investeer- kosten [f]	energie- kengetal [m³/gas]	energie- besparing [m³/gas]	water- kengetal [m³]	water- besparing [m³]	CO ₂ - kengetal [kg/CO ₂]	CO ₂ - besparing [kg/CO ₂]
1.164	3.367.452	511	1.478.323		0	909	2.629.737
4.045	12.697.255	246	772.194		0	440	1.381.160
1.415	2.827.170	184	367.632		0	327	653.346
5.600	35.856.800	491	3.143.873		0	873	5.589.819
4.500	2.421.000	164	88.232		0	292	157.096
4.500	270.000	400	24.000		0	712	42.720
	0	20	16.460		0	35	28.805
	0	15	28.050		0	25	46.750
550	8.245.050	177	2.653.407		0	317	4.752.147
3.274	399.428	165	20.130		0	294	35.868
339	741.393	113	247.131		0	201	439.587
	0		0		0		0
	0		0		0		0

kosten- kengetal [f]	investeer- kosten [f]	energie- kengetal [m³/gas]	energie- besparing [m³/gas]	water- kengetal [m³]	water- besparing [m³]	CO ₂ - kengetal [kg/CO ₂]	CO ₂ - besparing [kg/CO ₂]
	0		0		0		0
250	1.070.500		0		0		0
453	1.876.326		0		0		0
	0		0		0		0
	0		0		0		0
200	93.000		0		0		0
400	464.000		0		0		0
3.000	0		0		0		0
	0		0		0		0

3.3 Waterbesparende voorzieningen in Beheer Bestaande Bouw

	SBR-code	DuBo-maatregelen	aantal woningen
3.3.1	B383	Waterbesparende voorzieningen toegepast (waterbesparende douchekop, toilet, volumestroombegrenzer en aparte warmwaterleiding)	9.322
3.3.2	B378	Individuele waterbemetering	3.729
		anders	0

3.4 Binnenmilieu maatregelen in Beheer Bestaande Bouw

	SBR-code	DuBo-maatregelen	aantal woningen
3.4.1	B005	Koudebruggen isoleren	1.979
3.4.2	8049	Extra ventilatievoorzieningen in de kruipruimte	2.177
3.4.3	B468	Vloer luchtdicht uitvoeren of bodemafsluiting kruipruimte	3.030
		anders	370

3.5 Algemene maatregelen in Beheer Bestaande Bouw

	SBR-code	DuBo-maatregelen	aantal woningen
3.5.1	B443	Gebruikershandleiding (gebruiks- en onderhoudsgegevens)	2.028
3.5.2	B437	Inbraakwerende voorzieningen aangebracht waarmee voldaan wordt aan het Politiekeurmerk Veilig Wonen	22.288
		anders	50

3.6 Opmerkingen

TOTAAL:

kosten- kengetal [f]	investeer- kosten [f]	energie- kengetal [m³/gas]	energie- besparing [m³/gas]	water- kengetal [m³]	water- besparing [m³]	CO₂- kengetal [kg/CO₂]	CO₂- besparing [kg/CO₂]
250	2.330.500	40	372.880	35	326.270	70	652.540
430	1.603.470	11	41.019		0	20	74.580
	0		0		0		0

kosten- kengetal [f]	investeer- kosten [f]	energie- kengetal [m³/gas]	energie- besparing [m³/gas]	water- kengetal [m³]	water- besparing [m³]	CO₂- kengetal [kg/CO₂]	CO₂- besparing [kg/CO₂]
799	1.581.221		0		0		0
209	454.993		0		0		0
719	2.178.570		0		0		0
	0		0		0		0

kosten- kengetal [f]	investeer- kosten [f]	energie- kengetal [m³/gas]	energie- besparing [m³/gas]	water- kengetal [m³]	water- besparing [m³]	CO₂- kengetal [kg/CO₂]	CO₂- besparing [kg/CO₂]
	0		0		0		0
883	19.680.304		0		0		0
	0		0		0		0

98.158.432	9.253.331	326.270	16.484.155
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Appendix 3 Survey in 1998, formula 1

DuBo-monitor 1998 - Formulier 1 – Algemene bedrijfsinformatie

1.1	Naam corporatie
1.2	Adres
1.3	Plaats
1.4	Contactpersoon
1.5	Telefoonnummer
1.6	Postcode
1.7	Lidnummer
1.8	Hoeveel nieuwbouwwoningen heeft u aanbesteed in kalenderjaar 1998?
	Eengezins
	Meergezins
1.9	Hoeveel woningen (totaal) had u in beheer op 1-1-1998?
	Eengezins
	Meergezins
Beleid	
1.10	Past u het handboek Duurzaam Bouwen, Nationaal pakket Woningbouw 'Nieuwbouw' toe
1.11	Past u het handboek Duurzaam Bouwen, Nationaal pakket Woningbouw 'Beheer' toe
1.12	Past u de handleiding Duurzaam Woningbeheer (DUWON) van de SEV, Novem toe
1.13	Past u de methode Energieprofiel van Novem toe
1.14	Vindt milieuvorlichting aan bewoners plaats met betrekking tot:
1.	energie
2.	milieu
1.15	Registreert u maatregelen op het terrein van energie en milieu
1.16	Heeft u afspraken met derden (gemeente, energiebedrijven e.d.) gemaakt op het gebied van:
1.	energiebesparing
2.	DuBo-maatregelen

De volgende formulieren zijn toegevoegd:

- DuBo-maatregelen in nieuwbouwprojecten
- DuBo-maatregelen in projectmatig of planmatig onderhoud
- DuBo-maatregelen in het dagelijks onderhoud (klachten en mutatieonderhoud).

Appendix 4 Survey in 1998, formulas 2, 3 and 4

DuBo-monitor 1998 – Formulier 2 – DuBo-maatregelen in nieuwbouwprojecten

Wilt u in de onderstaande tabellen per DuBo-maatregel het aantal woningen invullen waarin deze maatregelen getroffen zijn. Het betreft hier de woningen die in 1998 aanbesteed zijn. Een toelichting op de maatregelen kunt u vinden in het handboek Duurzaam Bouwen, Nationaal pakket Woningbouw 'Nieuwbouw', een toelichting op de invullijst kunt u vinden op blad 1.

2.1 Energiebesparende maatregelen in nieuwbouwprojecten

SBR code	DuBo-maatregelen	Nieuwbouwwoningen	
		Aantal eengezins- woningen	Aantal meergezins- woningen
2.1.1	-	Energieprestatiecoëfficiënt tussen de 1,2 - 1,3	
2.1.2	So02	Energieprestatiecoëfficiënt tussen de 1,1 - 1,2	
2.1.3	So02	Energieprestatiecoëfficiënt tussen de 1,0 - 1,1	
2.1.4	So03	Energieprestatiecoëfficiënt <1	
2.1.5	-	Warmtepompboiler toegepast	
2.1.6	So33	Zonneboiler toegepast	
2.1.7	So41	Hoeveel woningen zijn er aangesloten op een warmte-distributienet	

2.2 Materiaaltoepassing in nieuwbouwprojecten

SBR code	DuBo-maatregelen	Nieuwbouwwoningen	
		Aantal eengezins- woningen	Aantal meergezins- woningen
2.2.1	So63	Tropische hardhout gecertificeerd of naaldhout toegepast	
2.2.2	So74	Beton met 20% beton- of menggranulaat als grindvervanger	
2.2.3	So71	PE of PP toegepast of PVC met hergebruikgarantie	
2.2.4	S444	Aangepaste bedekking platte daken EPDM/SBS/APPJ	
2.2.5	S252	Kitten en lijmen op waterbasis	
2.2.6	*	Verfsysteem, high solid / acrylaat (verfsysteem op waterbasis)	
2.2.7	S339	Kunststof waterleidingen (PE)	

* SBR – code S288 / S291 / S300

2.3 Waterbesparende voorzieningen in nieuwbouwprojecten

	SBR code	DuBo-maatregelen	Nieuwbouwwoningen	
			Aantal eengezinswoningen	Aantal meergezinswoningen
2.3.1	S383	Waterbesparende voorzieningen toegepast (SEV, Waterbesparende douchekop, toilet, volumestroombegrenzer enz.)		
2.3.2	S384	Korte warmwaterleidingen ≤ 5 m.		

2.4 Binnenmilieu maatregelen in nieuwbouwprojecten

	SBR code	DuBo-maatregelen	Nieuwbouwwoningen	
			Aantal eengezinswoningen	Aantal meergezinswoningen
2.4.1	S407	Ankerloze (woningscheidende) spouwmuren		

2.5 Algemene maatregelen in nieuwbouwprojecten

	SBR code	DuBo-maatregelen	Nieuwbouwwoningen	
			Aantal eengezinswoningen	Aantal meergezinswoningen
2.5.1	S443	Gebruikershandleiding		
2.5.2	-	Inbraakwerende voorzieningen aangebracht waarmee voldaan wordt aan het politiekeurmerk		

2.6 Opmerkingen

DuBo-monitor 1998 Formulier 3 – DuBo-maatregelen in projectmatig of planmatig onderhoud

Wilt u in de onderstaande tabellen per DuBo-maatregel het aantal woningen invullen waarin de maatregelen getroffen zijn. Het betreft hier de woningen waarvoor in 1998 opdracht verstrekt is. Een toelichting op de maatregelen kunt u vinden in het handboek Duurzaam Bouwen, Nationaal pakket Woningbouw 'Beheer', een toelichting op de invulijst kunt u vinden op blad 1.

3.1 Energie besparende maatregelen in projectmatig of planmatig onderhoud

SBR code	DuBo-maatregelen	Bestaande woningen	
		Aantal eengezins-woningen	Aantal meergezins-woningen
3.1.1 Bo13	Gevel met isolatiewaarde $R_c \geq 1,3 \text{ m}^2 \text{ K/W}$		
3.1.2 *	Dak met isolatiewaarde $R_c \geq 3,0 \text{ m}^2 \text{ K/W}$		
3.1.3 Bo12	Begane-grondvloer met isolatiewaarde $R_c \geq 3,0 \text{ m}^2 \text{ K/W}$		
3.1.4 Bo16	HR+-/HR++ -glas in alle verwarmde ruimten		
3.1.5 Bo33	Zonneboiler toegepast		
3.1.6 -	Warmtepompboiler toegepast		
3.1.7 Bo38	Isolatie leidingen voor warm tapwater volledig		
3.1.8 Bo42	Isolatie cv-leidingen in onverwarmde ruimten		
3.1.9 Bo40	Combistoestel HR Gebalanceerde ventilatie met warmteterugwinning		
3.1.10 -	Gebalanceerde ventilatie verwarming meergezinswoningen		
3.1.11 Bo24	Individuele bemetering verwarming meergezinswoningen		
* Bo14 / Bo15			

3.2 Materiaaltoepassingen in projectmatig of planmatig onderhoud

SBR code	DuBo-maatregelen	Bestaande woningen	
		Aantal eengezins-woningen	Aantal meergezins-woningen
3.2.1 Bo63	Tropische hardhout gecertificeerd of naaldhout toegepast		
3.2.2 Bo71	PE of PP toegepast of PVC met hergebruikgarantie		
3.2.3 B444	Aangepaste bedekking platte daken EPDM/SBS/APP		
3.2.4 B252	Kitten en lijmen op waterbasis		
3.2.5 *	Verfsysteem, high solid/acrylaat (verfsysteem op waterbasis)		
3.2.6 B339	Kunststof waterleidingen (PE)		
3.2.7 B452	Vervangen loden waterleidingen inclusief dienstleiding		
3.2.8 -	Asbestverwijdering		
* 8288 / B291 / B300			

3.3 Waterbesparende voorzieningen in projectmatig of planmatig onderhoud

	SBR code	DuBo-maatregelen	Bestaande woningen	
			Aantal eengezins-woningen	Aantal meergezins-woningen
3.3.1	B383	Waterbesparende voorzieningen toegepast (SEV, waterbesparende douchekop, toilet, volumestroombegrenzer enz.)		
3.3.2	B378	Individuele waterbemetering		

3.4 Binnenmilieu maatregelen in projectmatig of planmatig onderhoud

	SBR code	DuBo-maatregelen	Bestaande bouw	
			Aantal eengezins-woningen	Aantal meergezins-woningen
3.4.1	Bo05	Koudebruggen isoleren		
3.4.2	Bo49	Extra ventilatie voorzieningen in de kruipruimte		
3.4.3	B468	Vloer luchtdicht uitvoeren of bodemafsluiting kruipruimte		

3.5 Algemene maatregelen in projectmatig of planmatig onderhoud

	SBR code	DuBo-maatregelen	Bestaande woningen	
			Aantal eengezins-woningen	Aantal meergezins-woningen
3.5.1	B443	Gebruikershandleiding		
3.5.2	-	Inbraakwerende voorzieningen aangebracht waarmee voldaan wordt aan het politiekeurmerk		

3.6 Opmerkingen

Formulier 4 DuBo-maatregelen in het dagelijks onderhoud (klachten en mutatieonderhoud)

Wilt u in de onderstaande tabellen per DuBo-maatregel het aantal woningen invullen waarin de maatregelen getroffen zijn. Het betreft hier de woningen waarvoor in 1998 opdracht verstrekt is. Een toelichting op de maatregelen kunt u vinden in het handboek Duurzaam Bouwen, Nationaal pakket Woningbouw 'Beheer', een toelichting op de invulijst kunt u vinden op blad I.

4.1 Energiebesparende maatregelen in het dagelijks onderhoud (klachten en mutatieonderhoud)

SBR code	DuBo-maatregelen	Bestaande woningen	
		Aantal eengezins-woningen	Aantal meergezins-woningen
4.1.1	Bo13	Gevel met isolatiewaarde $R_c \geq 1,3 \text{ m}^2\text{K/W}$	
4.1.2	*	Dak met isolatiewaarde $R_c \geq 3,0 \text{ m}^2\text{K/W}$	
4.1.3	Bo12	Begane-grondvloer met isolatiewaarde $R_c \geq 3,0 \text{ m}^2\text{K/W}$	
4.1.4	Bo16	HR+-/HR++ -glas in alle verwarmde ruimten	
4.1.5	Bo33	Zonneboiler toegepast Warmtepompboiler toegepast	
4.1.7	Bo38	Isolatie leidingen voor warm tapwater volledig	
4.1.8	Bo42	Isolatie cv-leidingen in onverwarmde ruimten	
4.1.9	8040	Combitoestel HR Gebalanceerde ventilatie met warmteterugwinning	
4.1.11	Bo24	Individuele bemetering verwarming meergezinswoningen	
* Bo14 / Bo15			

4.2 Materiaaltoepassingen in het dagelijks onderhoud (klachten en mutatieonderhoud)

	SBR code	DuBo-maatregelen	Bestaande woningen	
			Aantal eengezins-woningen	Aantal meergezins-woningen
4.2.1	Bo63	Tropische hardhout ecertificeerd of naaldhout toegepast		
4.2.2	Bo71	PE of PP toegepast of PVC met hergebruikgarantie		
4.2.3	B444	Aangepaste bedekking platte daken EPDM/SBS/APP		
4.2.4	B252	Kitten en lijmen op waterbasis		
4.2.5	*	Verfsysteem high solid/acrylaat (verfsysteem op waterbasis)		
4.2.6	B339	Kunststof waterleidingen (PE)		
4.2.7	B452	Vervangen loden waterleidingen inclusief dienstleiding		
4.2.8	-	Asbestverwijdering		
* B288 / 8291 / B300				

4.3 Waterbesparende voorzieningen in het dagelijks onderhoud (klachten en mutatieonderhoud)

SBR code	DuBo-maatregelen	Bestaande woningen	
		Aantal eengezins-woningen	Aantal meergezins-woningen
4.3.1	B383	Waterbesparende voorzieningen toegepast (SEV, waterbesparende douchekop, toilet volumestroombegrenzer enz).	
4.3.2	B378	Individuele waterbemetering	

4.4 Binnenmilieu maatregelen in het dagelijks onderhoud (klachten en mutatieonderhoud)

SBR code	DuBo-maatregelen	Bestaande bouw	
		Aantal eengezins- woningen	Aantal meergezins- woningen
4.4.1	B005	Koudebruggen isoleren	
4.4.2	Bo49	Extra ventilatie voorzieningen in de kruipruimte	
4.4.3	B468	Vloer luchtdicht uitvoeren of bodemafluiting kruipruimte	

4.5 Algemene maatregelen in het dagelijks onderhoud (klachten en mutatieonderhoud)

SBR code	DuBo-maatregelen	Bestaande woningen	
		Aantal eengezins- woningen	Aantal meergezins- woningen
4.5.1	B443	Gebruikershandleiding	
4.5.2	-	Inbraakwerende voorzieningen aangebracht waarmee voldaan wordt aan het politiekeurmerk	

4.6 Opmerkingen

Appendix 5 The 1993 sustainable management research study

Vragenlijst verhuurders

Blok 1: algemene gegevens

1. *Wilt u zo vriendelijk zijn eerst de volgende algemene gegevens betreffende uzelf en uw organisatie te verstrekken?*

Naam organisatie:

Uw naam:

Uw functie:

Telefoonnummer:

Gemeente:

2. *Hoeveel woningen heeft uw organisatie in beheer (per 1-1-1993)?*

aantal woningen:

- 3a *Kunt u de verdeling van de beheerde woningen naar woningtype op 1-1-1993 aangeven?*

woningtype	aantal
eengezinswoningen	
meergezinswoningen	

- 3b. *Kunt u de ouderdom van de beheerde woningen op 1-1-1993, onderverdeeld naar vooroorlogs en naoorlogs, aangeven?*

ouderdom	aantal
vooorlogs	
naoorlogs	

Blok 2: milieukwaliteit van het woningbezit

De vragen 4 en 5 gaan in op de milieukwaliteit van de bestaande woningvoorraad in beheer van uw organisatie. Allerlei woningkenmerken beïnvloeden de milieukwaliteit. Te denken valt aan:

- het energieverbruik bij verwarming;
- de uitstoot van gassen door aanwezige installaties;
- de aanwezigheid van voor de mens schadelijke materialen;
- de mate van geluidsbelasting.

Deze kenmerken die gezamenlijk de milieukwaliteit van een woning bepalen omschrijven we met milieuthema's. Milieugegevens tenslotte geven informatie over de milieukwaliteit van woningen of onderdelen daarvan. Bijvoorbeeld: in 20% van het woningbezit is sprake van onvoldoende isolatie.

4a. Verzamelt uw organisatie milieugegevens over de bestaande woningvoorraad

☐ ja

☐ nee

(naar vraag 5)

4b. Hoe worden deze milieugegevens verzameld? (Meer alternatieven kunnen worden aangekruist)

☐ woningopname, inspecties

☐ via bouwplan- en bestekgegevens

☐ vastleggen van klachten

☐ anders, nl.:

4c. Welke milieuthema's beslaan de verzamelde gegevens? (Meer alternatieven kunnen worden aangekruist)

☐ energie

☐ geluidsbelasting

☐ verwerkte bouwmaterialen

☐ installaties

☐ binnenmilieu

☐ bodemkwaliteit

☐ woonomgeving

☐ sloopafval

☐ anders, nl.:

5. Maakt de milieukwaliteit ingrepen, onderhoud en/of renovatie, in de voorraad noodzakelijk?

☐ ja

☐ nee

☐ weet niet/geen mening

Blok 3: milieubeleid

De onderstaande vragen gaan in op mogelijk milieubeleid voor de bestaande woningvoorraad. Zo'n beleid richt zich op het voorkomen en/of verhelpen van milieugebreken in de voorraad en kan in allerlei documenten zijn vastgelegd. Te denken valt aan een milieubeleidsplan, een milieuprogramma, een standaard programma van eisen en een onderhoudsbestek. Deze beleidsdocumenten verschillen in mate van detaillering. Zo bevat een milieubeleidsplan de doelstellingen van het beleid, terwijl een milieuprogramma kort en bondig aangeeft op welke wijze, met welke middelen en op welke termijn het milieubeleid zal worden uitgevoerd. Misschien heeft uw organisatie wel een milieubeleid in bepaalde documenten vastgelegd, maar hebben deze een andere benaming. Wilt u dit aangeven in de vragenlijst?

6a. Heeft uw organisatie een milieubeleid c.q. milieuvoorschriften voor onderhoud en renovatie geformuleerd?

☐ ja

☐ nee

(naar vraag 8)

6b. In welke van de volgende beleidsdocumenten is dit milieubeleid vastgelegd? (Meer alternatieven kunnen worden aangekruist)

☐ beleid is niet vastgelegd in een beleidsdocument

☐ milieubeleidsplan

☐ milieuprogramma

☐ standaard programma van eisen voor renovatie

☐ onderhoudsbestek

☐ anders, nl.:

7. Kunt u een globale beschrijving van de geformuleerde doelstellingen, actiepunten, voorschriften en/of richtlijnen geven?

Beschrijving:

8. Bestaan er voornemens om in een of meer van de volgende documenten een milieubeleid voor de bestaande voorraad te formuleren? (Meer alternatieven kunnen worden aangekruist)

☐ geen voornemens

☐ milieubeleidsplan

☐ milieuprogramma

☐ standaard programma van eisen voor renovatie

☐ onderhoudsbestek

☐ anders, nl.:

Wilt u documenten waarin een milieubeleid ten aanzien van het beheer van de voorraad is geformuleerd (milieubeleidsplan, milieuprogramma, programma van eisen, onderhoudsbestek en/of andere documenten) meezenden met de ingevulde enquête?

Blok 4: treffen van milieumaatregelen in het woningbezit

Onderstaande vragen behandelen 'het treffen van milieumaatregelen in de bestaande voorraad'. Hieronder vallen allerlei beheeringrepen bij renovatie en onderhoud specifiek gericht op het voorkomen en/of verhelpen van milieugebreken in die woningvoorraad. Het gaat in tegenstelling tot de vragen in blok 3 om concrete activiteiten die de organisatie op dit terrein ontplooit. Bijvoorbeeld: het aanbrengen van een waterbesparende douchekop; het isoleren van een woning; het verwijderen van asbest; het verven met oplosmiddelvrije verf.

9. Treft uw organisatie bij renovatie en onderhoud van de bestaande voorraad milieumaatregelen?

☐ ja

☐ nee

(naar vraag 12)

10. Waarom worden dergelijke maatregelen niet genomen? (Meer alternatieven kunnen worden aangekruist)

☐ milieukwaliteit van de voorraad vereist geen ingreep

☐ het milieubeleid is reeds geformuleerd maar moet nog leiden tot concrete maatregelen

☐ beleid is richt zich op voor de doelgroepen betaalbare huren

☐ geen subsidies beschikbaar

☐ geen eigen vermogen beschikbaar

☐ huurders weigeren huurverhoging

☐ de organisatie legt geen prioriteit op milieuaspecten

☐ onvoldoende kennis aanwezig

☐ onvoldoende capaciteit aanwezig

☐ milieuverbetering door ingrepen in de voorraad weegt niet op tegen milieubelasting van deze ingrepen

☐ anders, nl.:

11.a Heeft de organisatie voornemens om milieumaatregelen in de bestaande voorraad te gaan treffen?

☐ ja

☐ nee

(naar vraag 24)

11b. Om welke milieumaatregelen gaat het?

Milieumaatregelen:

(naar vraag 24)

12. Welke maatregelen wendt uw organisatie ter verbetering van de milieukwaliteit aan? (Meer alternatieven kunnen worden aangekruist)

☐ aanbrengen isolatie

☐ installeren van energie-efficiënte verwarmingsketels

☐ maatregelen t.b.v. passieve zonne-energie

☐ verwijderen van asbest

☐ het niet toepassen van tropisch hardhout

☐ verven met watergedragen of high-solid alkydhars verf

	☐ aanbrenge n waterbesparende douchekoppen
	☐ installeren van zonneboilers
	☐ gebruik van weinig milieubelastende materialen
	☐ aanpak van vochtproblemen
	☐ aanpak van te hoge radonconcentraties
	☐ anders, nl.:

De onderstaande vragen gaan in op de mate waarin milieumaatregelen getroffen worden. Het technisch beheer van de woningvoorraad kan daarbij worden onderverdeeld in: dagelijks (klachten) onderhoud, planmatig onderhoud, mutatie-onderhoud, groot onderhoud, renovatie en sloop.

13. Bij welke van de volgende beheeronderdelen treft uw organisatie milieumaatregelen? (Meer alternatieven kunnen worden aangekruist)

☐ dagelijks (klachten) onderhoud
☐ planmatig onderhoud
☐ mutatie-onderhoud
☐ groot onderhoud
☐ renovatie
☐ sloop

14. Op welk(e) milieuthema('s) zijn deze ingrepen doorgaans gericht? (Meer alternatieven kunnen worden aangekruist)

☐ energie
☐ geluidsbelasting
☐ bouwmaterialen
☐ installaties
☐ binnenmilieu
☐ bodemkwaliteit
☐ woonomgeving
☐ sloopafval
☐ anders, nl.:

15a. Gaat het bij het treffen van milieumaatregelen in de voorraad voornamelijk om experimenten c.q. proefprojecten?

☐ ja	
☐ nee	(naar vraag 16a)

15b. Hoeveel van deze projecten zijn in 1991 en 1992 aangepakt?

Aantal projecten
1991:
1992:

16a. Is het in het verleden voorgekomen dat reeds voorgenomen milieumaatregelen niet zijn uitgevoerd?

☐ ja	
☐ nee	(naar vraag 17a)

16b. Kunt u aangeven welke maatregel(en) het betroffen kunt u de reden van niet-uitvoeren noemen?

Maatregelen:	reden:
--------------	--------

17a. Verwacht u veranderingen in de werkwijze van de organisatie, om milieuproblemen in de bestaande voorraad te voorkomen en/of te verhelpen?

☐ ja

☐ nee (naar vraag 18)

17b. Welke veranderingen in de werkwijze verwacht u bij het treffen van milieumaatregelen?

Veranderingen:

Blok 5: afweging en prioriteitstelling

De keuzen die in het voorraadbeheer worden gemaakt, en uiteindelijk tot bepaalde ingrepen leiden, zijn op tal van overwegingen en afwegingen gebaseerd. Zo zullen milieudoelstellingen passen bij andere doelen die de organisatie zich heeft gesteld. Vaak zal het stellen van prioriteiten, voor wat betreft de keuze van doeleinden en de verdeling van middelen, noodzakelijk zijn. De volgende vragen gaan na hoe deze afweging en prioriteitstelling binnen uw organisatie plaatsvindt.

18. Wie neemt in het algemeen het initiatief tot het treffen van milieumaatregelen in de woningvoorraad? (Meer alternatieven kunnen worden aangekruist)

- ☐ organisatie zelf
- ☐ huurders(organisatie)
- ☐ gemeente
- ☐ anders, nl.:

19. Waarop baseert de organisatie de in de voorraad te nemen milieumaatregelen? (De twee belangrijkste redenen aangeven)

- ☐ o de feitelijke milieukwaliteit van de woning
- ☐ o de beschikbaarheid van subsidie
- ☐ o bouwtechnische en milieutechnische regelgeving
- ☐ o realisatiekansen van maatregelen
- ☐ o anders, nl.:

Milieumaatregelen kunnen worden getroffen in combinatie met renovatie of onderhoud waartoe reeds op andere gronden (bouwtechnische kwaliteit, verhuurbaarheid) is besloten. Maar ook als er geen andere aanleiding bestaat kan tot het treffen van milieumaatregelen besloten worden.

20a. Worden milieugebreken in de voorraad aangepakt los van een op andere gronden voorgenomen onderhoud- of renovatie-ingreep?

- ☐ o ja
- ☐ o nee

20b. Kunt u toelichten waarom dit juist wel of toelichting: juist niet gebeurt?

21a. Ervaart uw organisatie bij het vormgeven van een milieubewust beheer knelpunten?

- ☐ o ja
- ☐ o nee (naar vraag 22)

21b. Wilt u aankruisen om welke knelpunten het gaat? (Meer alternatieven kunnen worden aangekruist)

- ☐ o onduidelijkheid over de milieu belasting van beheer activiteiten
- ☐ o meerkosten van een milieubewust woningbeheer
- ☐ o strijdigheid van milieudoelen met andere doelen van de organisatie
- ☐ o geen subsidies beschikbaar
- ☐ o geen eigen vermogen beschikbaar
- ☐ o huurders weigeren huurverhoging
- ☐ o binnen de organisatie geen prioriteit voor milieuaspecten
- ☐ o onvoldoende kennis aanwezig

☐ onvoldoende capaciteit aanwezig
☐ milieuverbetering van ingrepen weegt niet op tegen milieubelasting van ingrepen
☐ anders, nl.:

In de onderstaande tabel worden een aantal, veel bij het beheer van de woningvoorraad, voorkomende keuzen opgesomd.

22. Spelen in uw organisatie bij de volgende keuzen milieuoverwegingen een rol en zo ja op welke wijze?

Keuzen	Spelen milieuover- wegingen een rol?	Wijze waarop
Instandhouding of sloop/Vervangende nieuwbouw	☐ ja ☐ nee	
Toepassen van materialen in het beheer van de voorraad	☐ ja ☐ nee	
Keuze van de aannemer bij ingrepen in de voorraad	☐ ja ☐ nee	
Keuze van de architect bij ingrepen in de voorraad	☐ ja ☐ nee	
Omgaan met bij het beheer vrijkomende afvalstromen	☐ ja ☐ nee	

Aan het besluit om een bepaalde ingreep in de voorraad te plegen gaan bepaalde afwegingen vooraf. Zo'n afwegingsproces kan uit een aantal fasen bestaan. Te denken valt aan: formuleren doelstellingen, opstellen alternatieven, toetsen verhuurbaarheid.

23. In welke van de volgende fasen worden milieu aspecten expliciet meegenomen? (Meer alternatieven kunnen worden aangekruist)

☐ vaststellen kwaliteit woningen
☐ vaststellen wensen huurders
☐ formuleren doelstellingen
☐ opstellen alternatieven
☐ doorrekenen alternatieven
☐ afwegen alternatieven

Vraag 24 legt enkele 'prikkelende' stellingen aan u voor. Enerzijds over het belang van milieudoelstellingen in het voorraadbeheer. En anderzijds over de mogelijkheid om een milieubeleid te voeren.

24. Kunt u aangeven of u het met de stellingen eens dan wel oneens bent?

Stellingen	Mee eens	Mee oneens
Het voeren van een milieubewust beheer is onder de huidige omstandigheden (wetgeving/kennis) zeker mogelijk		
Het is de taak van een beheerder om een maatschappelijk doel, als een schoner milieu, te bewerkstelligen		

Stellingen	Mee eens	Mee oneens
Financiële overwegingen wegen te allen tijde zwaarder dan milieuoverwegingen		
Milieuoverwegingen zullen in de toekomst een grotere rol spelen in het voorraadbeleid dan nu het geval is		
Prestige-overwegingen spelen een belangrijke rol in het besluit om milieumaatregelen te treffen		
Beheerders moeten niet afwachtend en subsidievolgend te werk gaan, maar het milieubeleid zelf actief initiëren		
25. Welke ontwikkelingen binnen de organisatie acht u noodzakelijk om een milieubewust beheer van de woningvoorraad kansrijk te laten zijn?		
Ontwikkelingen:		
26. Welke ontwikkelingen buiten de organisatie acht u noodzakelijk om een milieubewust beheer van de woningvoorraad kansrijk te laten zijn?		
Ontwikkelingen:		

Blok 6: gemeentelijk beleid

Als laatste onderdeel van deze enquête gaan de vragen 27 en 28 in op het gemeentelijk beleid. Centraal staat de vraag of de gemeente een milieubeleid voert voor het onderhoud en renovatie van de bestaande woningvoorraad door beheerders van woningen in haar gemeente. Nadrukkelijk buiten deze afbakening vallen initiatieven van de gemeente om bijvoorbeeld huishoudelijk afval gescheiden in te zamelen of een milieubewust bewonersgedrag te stimuleren.

27a. Stelt de gemeente eisen en/of voorwaarden waaraan het milieubeleid van uw organisatie op het terrein van het woningbeheer moet voldoen?

☐ ja

☐ nee

(naar vraag 28)

27b. Kunt u een korte omschrijving, naar inhoud en vorm, van deze eisen of voorwaarden geven?

Omschrijving:

28. Welke steun voor het milieubeleid van uw organisatie geeft de gemeente? (Meer alternatieven kunnen worden aangekruist)

☐ geen

☐ voorlichting

☐ financiële ondersteuning

☐ inzet menskracht

☐ anders, nl.:

29. Heeft u nog suggesties of opmerkingen naar aanleiding van deze enquête?

Suggesties/opmerkingen:

Hartelijk bedankt voor uw medewerking aan dit onderzoek

U kunt de vragenlijst (zonder postzegel) retour zenden in de bijgevoegde antwoortenvelop. Vergeet u niet eventuele beleidsdocumenten mee te zenden?

The real potential for sustainable building and CO₂ reduction lies in managing the existing stock of residential buildings. Housing associations are key actors in fulfilling this potential. Therefore in 1998, the Dutch social housing sector, the Dutch government and a few third parties drew up the Sustainable Building Agreement.

This research report provides insight into the environmental policies of Dutch housing associations in 2000, the instruments used and sustainable measures taken during maintenance, renovation, refurbishment, demolition and new construction. Drawing on similar research studies in 1993 and 1998, this analysis also examines developments in sustainable housing management that have emerged in Dutch housing associations since 1993. The analysis of the Dutch situation leads to several conclusions about sustainable management in the social housing sector which could be used to encourage sustainable building across Europe.

This report was written as part of the Sustainable Housing and Management research project. That research project was conducted within the framework of the Interdisciplinary Research Centre 'The Ecological City' which carries out pioneering research on the Sustainable Built Environment at the Delft University of Technology.



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