

GOVERNANCE TOOLS FOR CLIMATE CHANGE ADAPTATION

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Abstract

The scientific evidence presented by the latest IPCC report leaves little discussion on climate change. The question is not anymore if it happens, but how we can adapt to its effects, such as drought, heat waves and increased precipitation, that are threatening the living quality in our cities, offices and houses.

On an international scale, the European Union is preparing a strategy for adaptation to climate change. Several national governments are drawing up adaptation plans as well. So far, the lowest governance level that has shown awareness of the necessity of adaptation is the municipal level. Focusing on an even lower level, that of housing associations, a recent study on the awareness of housing associations concluded that they do not show much awareness. This conclusion shows the need for policy development on adaptation in social housing.

This paper presents a literature study on governance strategies for housing associations, resulting in a comprehensive list of measures. As a reference for the governance of climate change adaptations, literature on environmental governance is used. Recommendations are given to assign the tools to groups of housing associations that are categorized according to their level of awareness of climate change.

This paper provides basic information on governance strategies for climate change adaptations that is valuable for governmental and non-governmental policymakers on national, regional and local level.

Introduction

Until a few years ago, climate change research focused on the effects of climate change and on the mitigation of climate change (Biesbroek et al., 2010; McEvoy et al., 2010; Smit et al., 2000). In the case of mitigation, the intensive research efforts have resulted in a large number of governance strategies. Even if not all equally successful (www.climateactiontracker.org), the strategies have proven to be able to raise broad awareness of climate change mitigation among policy makers and stakeholders at all levels. Examples of governance strategies are the Kyoto Protocol on a worldwide scale, at regional level the European 'Energy Performance of Buildings Directive' (EP, 2002) and national legislation as the Dutch 'Energy Performance Coefficient', being part of the building code. Because buildings have to be built according to legislation, both property owners and the building industry are familiar with the issues related to the mitigation topic.

However, for climate change adaptation the situation is particular. Due to its relative early stage of intellectual development, both research field and governance framework are still evolving. For example, at a regional level the European Union has presented a White Paper on adaptation to climate change where it only proposes legislation on climate change adaptations (CEC, 2009). On a national scale, several countries are drawing up adaptation strategies (Biesbroek et al., 2010) and this is happening on a municipal level as well, albeit in small number (MIT, 2011). Moreover, the setup of the local adaptation programs is driven mainly by internal interests focusing on local aspects rather than guided and supported by an overall framework (Anguelovski and Carmin, 2011). In order to be effective, the phase of policy development has to be followed by a phase of implementation. Only then, property owners and the private field of industry, start taking action.

In a recent case-study, the level of awareness among housing associations in the Netherlands was analyzed, in order to determine the Dutch social housing stock's state of adaptation and its possible vulnerability to climate change effects. The housing associations were categorized in four groups according to their level of awareness (Rodgers et al., 2011). For each group, different governance tools can be used to improve the awareness and consequently stimulate adaptations. A broad spectrum of governance strategies is available for this purpose. In this paper a comprehensive list of measures is presented, which can help raise awareness and eventually improve the climate change resilience of the building stock.

Methodology

With the aim to draw up a comprehensive list of governance strategies for climate adaptations in social housing, a narrative literature survey has been carried out. Although this method is criticized by Hofmann et al. (2011) for being 'not reproducible' and 'not transparent on e.g. the criteria for selecting studies and the methodology used for combining their results and drawing conclusions from these', it was considered appropriate for the purpose of establishing a comprehensive list, exactly because the range of methods has to be as wide as possible, in order to cover as much as possible the wide spectrum of governance strategies. Moreover, climate change as a subject of research can be characterized as a 'wicked problem', meaning that it has no unique solution and it is difficult to consider it solved, that is, if it can be solved at all. The solutions are classified as good or bad rather than true or false (Rittel and Webber, 1973). This means that in a first phase as much options as possible have to be found in an evolutionary process. In a second phase the options can be systematically evaluated, knowing the specific context where the solutions have to be applied. However, this step does not fall within the scope of this paper.

In this paper governance is understood as the framework of strategies for housing associations to 'get things done' or to have them 'start taking action'. The governance tools on the comprehensive list are grouped into five main types of tools based on the categorization of tools for implementation of strategies to preserve built heritage, by De Monchaux and Schuster (1997). Even though they have grouped the tools against the background of built heritage, which is a completely different research field than implementing climate adaptations, the framework itself is supportive, because it provides a logical subdivision of the levels of state intervention into the social autonomy.

The tools themselves can be further characterized by the modes of governance as elaborated by Treib et al. (2007). The governance measures presented in this paper have a base in the research field of environmental governance, assuming that climate change can be considered as an environmental issue as well. The tools described are redesigned with focus on social housing and adaptation measures for residential buildings in urban areas in the Netherlands.

Current situation

To date, Dutch housing associations own and maintain 2.3 million dwellings, which is approximately 32% of the total Dutch housing stock (CFV, 2010). By law, their activities have to contribute to the improvement of six performance fields, quality of the dwellings being one of them (BBSH). Within this field lies their obligation to become aware of the threats of climate change and to take appropriate action. Most housing association building stock is situated within urban areas. The main effects of climate change that have to be taken into account by housing associations are heat and precipitation, presuming that flooding by sea or major rivers is covered by the national government as suggested by the Delta Commission (2008).

In the case-study by Roders et al. (2011) the housing associations were classified according to their level of awareness. The building stock of housing associations at the lowest level – unaware, not adapted – has the highest vulnerability to the effects of climate change, because the dwellings are not adapted, and the housing association does not show awareness of the effects of climate change. The dwellings of housing associations at the two middle levels – aware, not adapted and unaware, adapted – have a medium vulnerability, because either the housing association is aware of the effects of climate change, but has not taken action (yet) or, adaptation measures have already been implemented, without the association being aware of it. For example, by applying insulation with the objective to reduce CO2 emission (mitigation), the dwelling becomes automatically better protected against warm outdoor temperatures in summer (adaptation). In this case, although the dwelling is adapted, attention is needed, because the dwelling is only adapted to heat, and not to heavy rainfall. Moreover, possible negative effects of changed circumstances are not noticed because of the unawareness of the housing association. The dwellings of housing associations in the highest group – aware, adapted – have the lowest vulnerability. The houses are adapted to the currently known effects and the housing association is aware of changing circumstances which may cause new threats, forcing the associations take action again (figure 1). Of course, it is not the level of awareness of the housing association that directly determines the vulnerability of the dwellings, but the physical environment of the dwelling, such as location and material used in construction, as well as the type and chance of the effects occurring at the location. However, in order to make dwellings less vulnerable and increase resilience, housing associations need a high level of awareness and knowledge of climate change issues in order to be able to take appropriate action.

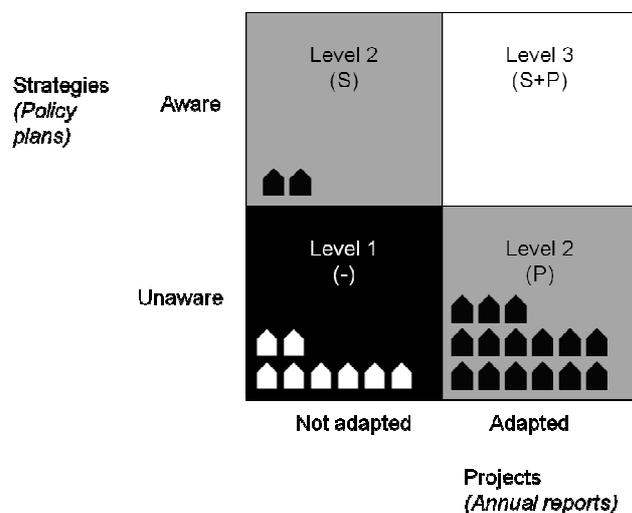


Figure 1: Housing associations categorized according to awareness (Roders et al., 2011)

Governance Dimensions

Before listing and categorizing the specific tools, insight will be given into the various dimensions that can be distinguished in the governance realm. Treib et al. (2007) developed a conceptual framework where they describe the ‘typical properties of governing mode’. The various modes of governance were then classified according to three dimensions: policy, polity and politics. The main criterion for inclusion was that the dimension had to deal with the relation between ‘state intervention’ and ‘societal autonomy’, following Pierre (2000), who defined governance as ‘the role of state in society’.

This approach resulted in a comprehensive overview (see figure 2) of governance modes within the field of state intervention versus societal autonomy, which is useful to categorise the modes for implementing climate change adaptations in social housing.

The policy dimension regards ‘policy instruments’, referring to the steering method of the strategy itself. The modes that belong to this dimension range from: *legal bindingness to soft law*; *rigid to flexible implementation approach*; *presence to absence of sanctions*; *material to procedural regulation* and *fixed to malleable norms*.

The politics dimension deals with ‘actor constellation’, the type of actors involved. The corresponding governance mode ranges from the two opposite poles *public actor involvement* to *private actor involvement*.

The polity dimension deals with ‘institutional properties’, the way various actors interact. The modes range from *hierarchy to market*; *central locus of authority to dispersed loci of authority* and *institutionalized to non-institutionalized interactions* (Treib et al., 2007).

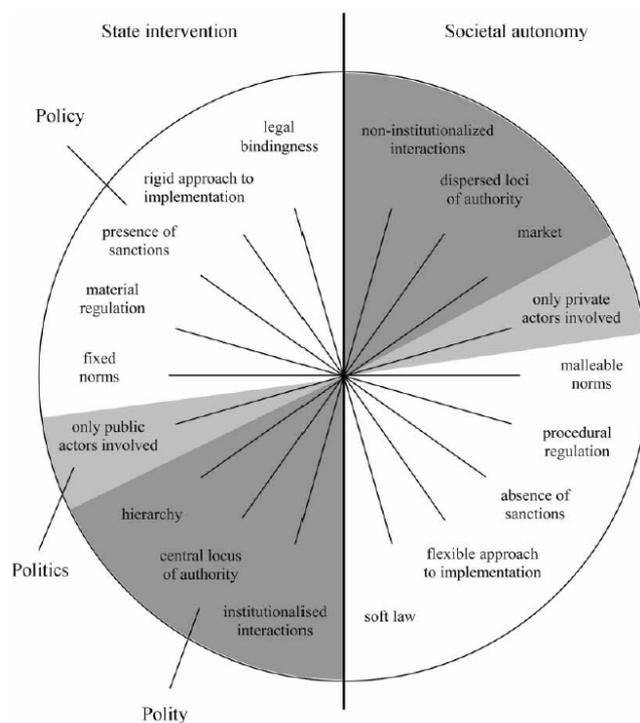


Figure 2: Typical properties of governing mode (source; Treib et al., 2007)

Network governance

Within the framework of governance dimensions, special attention goes to the mode defined between the hierarchy-market poles and the public-private poles. An increasingly important mode that interconnects these poles is network governance. This mode is characterized by the involvement of a number of societal actors, being governments, organizations and institutions working together in initiatives, projects and programs, aiming to support the public decision-making process or influence private actors (Pattberg, 2010). For various reasons, network modes have emerged as an alternative for purely hierarchic governance modes as regulation. The hierarchic system was not able to address environmental problems caused by multiple actors which cannot be solved by one actor or the government alone (Driessen and Vermeulen, 1995). Moreover, hierarchic governance can be sensed as limiting and it may cause feelings of a loss of freedom (Fisscher et al., 2011). Furthermore, it hampers innovation as it predefines the desired outcomes of a process and does not stimulate actors, such as

housing associations to address societal objectives (Van Bueren, 2009). Another advantage is that actors are participating in the decision-making process. This gives them the possibility to defend a solution that suits them best, which implicitly makes them support the policy (Van Bueren, 2009).

Governance Tools

De Monchaux and Schuster (1997) defined five groups in order to subdivide the various governance tools. The groups are: information, property rights, incentives, regulation and ownership.

Information and communication

The first category with the lowest level of state intervention contains the Information and communication tools. De Monchaux and Schuster (1997) describe these as instruments to 'collect and distribute information intended to influence the actions of others'.

With information tools employees of housing associations can be provided with the appropriate knowledge so that they can easily take action, because they know things can be changed to be improved.

Online tools (Murphy and Meijer, 2011); websites with information on the effects of climate change that are threatening a certain area. The tool can show generic options for adaptation, based on reference class dwellings.

National TV campaigns (Murphy and Meijer, 2011); information transmitted by television with easy accessible knowledge on climate change effects and possible solutions that can be taken by citizens and/or institutions.

Tailored advice (Murphy and Meijer, 2011); information provided by an specialized advisory body that knows the exact effects of climate change in a certain area and gives an advice on how to adapt a dwelling, taking into account the characteristics of the dwelling, such as size, age, orientation etc.

Road shows (SEV, 2011); a (governmental) advisory body visits housing associations and provides information on the effects of climate change in the areas where the housing associations have their property.

Demonstration projects (SEV, 2011); a dwelling that has successfully been adapted to the effects of climate change, that can be visited by interested people responsible for or participating in climate change adaptation projects.

Communities of Practice (CoP) (SEV, 2011); a group of housing associations joins forces and searches for solutions on the implementation of climate change adaptations. They firstly share their experiences with the other housing associations in the CoP and in a second stage the CoP shares information with external stakeholders.

Deliberation; the possibility to share opinions on climate change has proven to have an impact on the initial opinion of individuals when confronted with the topic. They became less skeptical and were more open to governance structures that were not completely government-based (Hobson and Niemeyer, 2011). Employees of housing associations could be invited to deliberate on the topic in order to build adaptive capacity among them, which they could disseminate in their own organization.

Educational programs (Schuster, 1997). These programs, set up or sponsored by the state are intended to educate employees of housing associations on the subject of climate change adaptations. The education sessions can take form of seminars, conferences, in-house courses.

Establishment, allocation and enforcement of property rights

The group of property rights is described as ‘the state can establish, allocate and enforce the property rights of individual parties as these affect the (...) resources’. This kind of tools focuses on a shared or split ownership or use of a property, as in some way or another is the case with leasing, mortgaging and easement (Costidis, 1997).

Long lease: This system can be used by municipalities in order to keep control over the development of the city and to prevent speculation. Moreover it generates a stable income for a long time span (Gerber et al., 2011). In the long lease system the municipality is the owner of the ground, while the premises are property of a private entity or an individual.

For adaptation measures, similar schemes can be considered. For example, housing associations can lease out the roof surface of apartment blocks to the municipality to create green roofs with the purpose to retain rainwater. By doing so, the peak load of the drainage system after heavy rainfall will be diminished, and an upgrade of the carrying capacity of the sewage system will not be necessary.

Incentives

According to De Monchaux and Schuster (1997), the governance tools based on incentives are ‘designed to bring the actions of other actors (...) in line with a desired policy’. They focus on the activities that are employed by housing associations. If they do the right thing, they will be rewarded. Incentives can have an economic background or a merely social background, based on the image that housing associations have among their stakeholders. In the latter situation, the governance tools are merely concentrated in the societal autonomy section, without much state intervention. Critical remarks on the governance tools in this incentives group, are that the tools can be considered ‘rationally based incentives’, meaning that the behaviour change is directly related to the incentive (Maller and Horne, 2011). This implies that if the incentive stops, so does the desired behaviour (Murphy et al, 2011).

Financial incentive: subsidy (Murphy and Meijer, 2011); Money to reward the desired behavior. Generally, the subsidy scheme comes with conditions that define the intended behavior or activity (for example, the energy performance of a dwelling has to be improved by 30%). If the conditions are fulfilled, the subsidy is granted.

Financial incentive: green loan/mortgage (Murphy and Meijer, 2011); Housing associations can borrow money against low interest rates, under the condition (specified by the bank) that the money is used to make sustainable or ‘green’ investments.

Financial incentive: VAT reduction (Murphy and Meijer, 2011); In order to stimulate investments on a specific matter, the government can reduce the VAT rate, which makes the investment financially more attractive than investing in other measures with a high VAT rate.

Financial incentive: Tax Deduction (Murphy and Meijer, 2011); For enhancing investments in certain products or projects, the government has the possibility to allow tax deduction on that products or projects.

Social incentive: Contest (SEV, 2011); In 2009 and 2010, the federation of experiments in social housing and an accounting office launched a contest wherein housing associations are challenged to deliver the most transparent annual reports, where they justify their achievements of the past year on sustainability topics.

Social incentive: Social Corporate Responsibility: The European Commission defines it as “a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis” (CEC, 2001). This is a phenomenon in the ‘market’ pole of the polity dimension. In order to maintain their ‘social’ image, which brings them benefits in developing their building stock and attracting

renters, housing associations can feel themselves obliged to take action which strengthens this image.

Political incentive: Agreements: The local or national government can draw up agreements with housing associations where efforts for both government and housing associations are arranged. Two main types of agreements can be distinguished, voluntary and negotiated, being the first less binding than the latter (Bressers et al. 2009).

Regulation

Regulation in general is a strong governance strategy. In this regard, De Monchaux and Schuster (1997) state that 'the state might choose to regulate the actions of other actors, particularly those private individuals or institutional entities that own and occupy (...) resources'. Laws can be established with which housing associations have to comply. Directly connected to the system of regulation are enforcement measures, which can be for example fines that have to be paid if the requirements on a certain topic are not met.

Building code; This regulatory document prescribes the basic principles a building has to fulfill. The requirements have to be met before the building permit can be issued. The government has the possibility to include requirements regarding climate change resilience.

Energy Performance Certificate; Existing dwellings in the Netherlands need to have an Energy Performance Certificate at the moment the occupant (both tenant and owner) changes. The obligation stems from the Energy Performance of Buildings Directive (EPBD), adopted by the European Parliament (EP, 2002). In 2011 the energy performance, expressed by the energy label, became part of the Dutch valuing system for social housing (BZK, 2011), which determines the maximum rent a landlord is allowed to ask for the dwelling. The adoption in the valuing system gave the energy label a legal status. The higher the label, meaning a better energy performance, the higher the rent may be asked. A similar system could be set up for the level of climate resilience of buildings.

Building permissions: Apart from the building code, which focuses on the building itself, the government controls more aspects in the built environment, by issuing permissions to housing associations on topics such as environmental impact, demolition and monuments (IenM, 2010). A permission on the impact of the dwelling on the local climate can be added to this permission system, taking into account the heat and precipitation threats. At the scale of urban planning the so-called 'water assessment' is already in force since 2001 (IenM, 2001), which can serve as an example for the building scale.

Ownership and operation

In this situation, the government 'might choose to implement policy through direct provision, in this case by owning and operating (...) resources' (De Monchaux and Schuster, 1997). It is not likely that a situation of ownership occurs in the case of climate adaptations in social housing, as it is exactly one of the institutional functions of the housing associations to own and maintain the dwellings. It is merely the scale of neighbourhoods or cities where the government as a property owner is requested to act.

Discussion and conclusion

In the governance realm many tools are available to create awareness of climate change and to promote and drive adaptations to climate change. A comprehensive list has been created with tools that have their origin in the environmental governance. The list is subdivided into

five groups being information, reallocation of property rights, incentives, regulation, and ownership.

In order to improve the climate resilience of the Dutch building stock, the different groups of tools can be used to stimulate the housing associations to take action. It is suggested to approach the housing associations in each category of awareness with a different mix of tools, in order to be as effective as possible. Based on the results of the literature study, suggestions are made which tools are the most suitable for each awareness category.

The information tools are applicable to the two categories with the unaware housing associations, because this kind of tools improves the general awareness. The tools in the groups of property rights and incentives are applicable to the category of aware – not adapted housing associations, in order to stimulate them to take action. Finally, considering that climate adaptation is to date still a relatively new policy field, enforcing adaptation of the housing stock by regulation is not recommended yet. However, in the administrative field, regulation on for example yearly registration of the improvement of the building stock is necessary for the government to take appropriate measures if the housing associations remain unaware or not adapted in spite of the use of the information, reallocation and incentives tools. If it turns out that those tools did not sort the right effects, the tools of regulation and ownership have to be put in place.

Although the suggested usage of the tools is rather indicative, it serves as a starting point for policy makers, which has to be further underpinned and debated in further empirical research.

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