

# From Public to Citizen Responsibilities in Urban Climate Adaptation

## *A Thick Analysis*

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### Introduction

Climate change is a reality. Insights on climate change impacts worldwide show that climate change will pose increasing challenges to cities (Adger et al., 2003; Rockström et al., 2009). Even in the unlikely event of a short-term fundamental alteration of current production and consumption practices and decreasing carbon dioxide (CO<sub>2</sub>) emissions, there will be a need to cope with extreme weather events that will become more frequent (Runhaar et al., 2012). These events include extreme storms, fluvial and pluvial floods, stronger urban heat waves, and longer dry periods, among other climate impacts. Increasing urbanization will exacerbate the potential consequences of such events (Hegger et al., 2014; Runhaar et al., 2012).

Until the beginning of the twenty-first century, debates in the literature and practice focused predominantly on the need to mitigate climate change. But from then on, a vast literature emerged on the need to accompany mitigation efforts with climate change adaptation (Adger et al., 2009; Mees, 2017). This literature has addressed several different issues regarding the governance of climate change adaptation. To contextualize this literature, it is important to note the differences between world regions in how adaptation governance is discussed, both in academic literature and practice. Literature on adaptation in the Global South focuses on adaptation by and within communities (community-based adaptation) (Olsson et al., 2015). Literature on the Global North focuses more on adaptation policy and actions by governments, households, and individual citizens. Within literature focusing on the Global North, there is an important distinction in the roles attributed to governmental actors vis-à-vis other actors. In North America and predominantly the USA the default position is that adaptation should be pursued by individuals and companies, in short, that it is private actors' responsibility. In Western Europe, with its long welfare state legacy, the assumption in debates

in literature and practice is that governmental actors have an important duty of care (Driessen & van Rijswick, 2011). These two distinctions are important to keep in mind to be able to interpret debates on adaptation governance. The current chapter draws on literature and practice with a focus on the Global North and discusses literature and empirical examples from the Netherlands, a prosperous Western European country.

In this context, among other issues, the literature has addressed questions on the kinds of approaches that should be used. For instance, is a dedicated approach desirable, in which predominantly governmental actors develop and implement specific ‘adaptation policies’ (Jordan & Lenschow, 2010)? Or is a ‘mainstreaming’ approach preferable, in which climate change adaptation is routinely embedded in other policy domains (Uittenbroek et al., 2013)? The adaptation governance literature has also focused on the issue of agency, i.e. the role of different public and private actors in adaptation (Mees, 2017). It was shown that in practice it is often local governments that take the lead in making concrete local policies or taking specific actions (Hegger et al., 2017; Mees, 2017).

With respect to agency, a recent strand in the debate on the governance of climate change adaptation is that of citizen responsabilization (Mees et al., 2012; Tompkins & Eakin, 2012). Responsibilization of citizens is often associated with “... how politicians and governments publicly frame and legitimize a new realm of state intervention dedicated to enticing, persuading and nudging citizens to ‘take responsibility’ in producing public value” (Peeters, 2013: 586). Citizen responsabilization signals towards a shift from welfare state collectivism to the responsabilization of individuals (Ilcan & Basok, 2004), and is criticized by many for being a hyper-individualist and depoliticized brand of neoliberal governmentality (Kistner, 2009). In the context of this debate, it is increasingly argued that citizens need to take more responsibilities in climate change adaptation to decrease the burden on local governments (Hegger et al., 2017; Wamsler & Brink, 2014). A substantive argument put forward in favour of citizen responsabilization is that governmental actors do not have the capacity or the authority to act on private properties, while many adaptation measures such as urban green or decoupling of rainwater from the sewage system by reducing the amount of hardened surface can and should be taken on such private properties (Tompkins & Eakin, 2012). Besides that, also more normative arguments for citizen responsabilization are put forward. One of these is the position that governmental actors should limit themselves to those actions that cannot be taken by individuals or groups of citizens (Driessen & van Rijswick, 2011). Arguably, this argument is sometimes made in the context of a broader neo-liberal political agenda and budget cuts, as mentioned before. Another

argument is that citizen responsabilization may increase community resilience (Driessen & van Rijswijk, 2011).

It is often implicitly suggested that such citizen responsabilization will lead to citizen empowerment and that it will enable societies to make better use of the ‘energy’ that is present in what Hajer (2011) has aptly termed ‘the energetic society’. These are assumptions that deserve to be problematized and critically reviewed. Among other concerns, there is the risk that citizen responsabilization might lead to inequalities in the sense that some (arguably well-off) citizens become empowered while others become disempowered (Driessen & van Rijswijk, 2011). There is also the risk of maladaptation (i.e. that the results of an action, directly or indirectly, increase the vulnerability to climate change rather than reduce as is intended with adaptation) (Wamsler & Brink, 2014) and citizen fatigue as a result of overcharging citizens with responsibilities (for which they might not have the necessary time, knowledge, etc.).

This chapter will address these concerns by providing a critical review of current academic debates about and practice of citizen responsabilization in urban climate change adaptation. To achieve the chapter’s goal, it will take the following steps. First, it provides a brief state of the art of insights from the domain of environmental governance both on citizen responsabilization more generally and on urban climate change adaptation more specifically. Next, we introduce a prominent framework for evaluating the quality of environmental decision making – Adger et al.’s (2003) thick analysis that incorporates the criteria of economic efficiency, environmental effectiveness, equity, and political legitimacy. The chapter goes on by providing an illustrative practical example of citizen responsabilization in climate adaptation, namely Dutch experiences. The examples illustrate the tensions regarding citizen responsabilization that have been documented in the literature and also shows the potential synergies and trade-offs between the four evaluation criteria. We conclude this chapter by briefly summarizing the current state of the art in literature and providing an overview of approaches that are currently proposed to deal with the observed tensions.

### **The Shift from Public to Private Responsibilities in Climate Adaptation: A State of the Art**

With the rise of the neo-liberal agenda and its wave of privatization in the 1980s the automatic link between public issues and the public domain was challenged (Mees, 2017). It is now increasingly accepted that the responsibility for public issues can be shared with or even completely transferred to private actors (Dubink, 2003). The shift from public to private responsibilities for public issues is a main feature of the ‘shift from government to governance’ as discussed in the governance literature

(e.g. Jordan et al., 2005; Rhodes, 2007; van Kersbergen & van Waarden, 2001). Power and authority are transferred not only from the government downward and upward to other levels of government, but also outward to private actors. New governance arrangements have emerged in which governments have a 'steering' rather than 'rowing' role (Mees, 2017). Nevertheless, governance scholars also claim that the concept of governance is vague, and often it is more an ideal or normative prescription than that it reflects empirical reality (Arts, 2014; Capano et al., 2015; Jordan et al., 2005). While there are numerous and varying definitions of governance, they have in common that they refer to governing styles in which the boundaries between and within public and private responsibilities have become blurred (e.g. Rhodes, 2007; Stoker, 1998).

When it comes to dealing with public issues in the environmental policy domain, many scholars claim that a governance approach is needed in which responsibilities are shared between public and private actors. That is because environmental issues are troubled by uncertainties, complexities, and ambiguities (e.g. Driessen et al., 2012; Lemos & Agrawal, 2006). Likewise, scholars of climate adaptation governance argue that the 'wickedness' of climate adaptation induces new governance arrangements with more involvement of private actors such as citizens and businesses (e.g. Lorenzoni et al., 2007; Mees, 2017; Termeer et al., 2013, 2017). The divisions of responsibilities between public and private actors in climate adaptation have been conceptually explored in recent years (Mees, 2017; Mees et al., 2012).

Regardless of this normative strive towards *more* governance in climate adaptation, it is also argued that in specific instances precisely *more* government is needed. Governments as public actors have an important role to play in supporting and enabling climate adaptation at multiple levels (Urwin & Jordan, 2008). An important consideration for assuming responsibility with governments is *effectiveness*. In situations in which market failure leads to a complete lack of adaptation, maladaptation, or insufficient adaptation, governments may need to take up responsibilities to raise the effectiveness of adaptation action (Mees, 2017). In such cases governments can require citizens to take up insurance to cover the damages of extreme events; or they can become insurance providers (Aakre & Rübhelke, 2010; Mendelsohn, 2006; Osberghaus et al., 2010). Governments can also generate and distribute knowledge on climate impacts as public goods (Aakre & Rübhelke, 2010; Osberghaus et al., 2010; Stern, 2007), for instance in situations in which private actors do not have access to sufficient information on climate risks, impacts, and solutions. Governments can also ensure *equity*, by correcting for the distributional consequences of climate impacts and of adaptation action (Bulkeley et al., 2013; Marino & Ribot, 2012). Climate change leads to different impacts on different groups and localities (e.g. Hess, 2008), and governments can help out

those groups and localities most affected by those climate impacts (Osberghaus et al., 2010; Stern, 2007). Governments are also regarded to be key actors in matters of national security, which includes water safety issues such as severe flooding (Mees, 2017). In most Western European countries governments are responsible for the construction and maintenance of flood defense and emergency planning (Aakre & Rübhelke, 2010; Heltberg et al., 2009; Osberghaus et al., 2010), in order to ensure an effective, legitimate, and equitable adaptation to increased flood risks.

In contrast, an important consideration for assuming responsibilities with *private* actors is *efficiency*: private action is regarded to be more efficient and innovative (Mendelsohn, 2006; Stern, 2007). For instance, insurance companies can stimulate the uptake of adaptive building measures to reduce the impacts of floods to private buildings through differentiation of insurance fees, or discourage building in flood plains (Mees, 2017). Another consideration that is often cited is that it raises the support for and *legitimacy* in terms of input, throughput, or output of a policy (Adger et al., 2009; Mees, 2017; Paavola, 2008). Public policy is viewed as more legitimate when the decision-making process is participatory and deliberative and involves both public and private actors (e.g. Dryzek, 2000; Smith, 2003). It is also claimed that such interactive policy making promotes joint fact-finding and social learning processes, thus raising the adaptive capacity of society to cope with climate change (Driessen et al. 2001; Gupta et al., 2010; Pahl-Wostl, 2009). Besides the list of possible positive effects of interactive policy making, there are also many authors who point out the possible pitfalls of (too much) participation (e.g. Newig et al., 2018; van der Heijden & Ten Heuvelhof, 2012). For example, the possible exponential costs in terms of time and money, and the overrepresentation of small groups.

In the section “A Framework for ‘Thick’ Analysis” the aforementioned considerations for assuming public and/or private responsibilities, i.e. effectiveness, equity, efficiency, and legitimacy, will be used as evaluation criteria to conduct an analysis of the responsabilization of citizens in climate change adaptation in the Netherlands.

### **Citizen Responsibilization in Climate Adaptation Governance**

In the debate about public and private responsibilities in the governance of climate adaptation, the role of citizens and communities gains increasing attention (Hegger et al., 2017). Governments involve citizens through participation and collaboration in decision-making processes of issues that directly affect them, and through the coproduction of public services. These developments are closely linked to the rise of bottom-up initiatives in which consumers create innovative solutions to become more self-supportive in terms of energy, water, or food production (De Vries et al.,

2016). Citizens are seen as empowered actors with resources who can contribute to the resilience of their communities, as is for instance propagated by the *Big Society* program in the United Kingdom. In the Netherlands, a similar political agenda of the *Energetic Society* was introduced in 2011. The premise is that the energy and creativity of citizens is both desirable and much needed to solve complex societal issues in addition to governmental action (Hajer, 2011). Citizens are encouraged to initiate all kinds of community initiatives such as for instance in the area of community care, urban green maintenance, and renewable energy collectives to name a few (Hajer, 2011; Tonkens, 2014). Citizens are also crucial actors for realizing adaptation measures in and around the house. Citizens' initiatives or consent is often necessary (Mees et al., 2012; Tompkins & Eakin, 2012) while they can also play a role in tailoring adaptation measures in terms of technical (im) possibilities, specificities of climate risks and residents' individual needs (Wamsler & Brink, 2014).

This results in an increased responsabilization of citizens (Klein et al., 2017; O'Hare et al., 2016; Roth & Prior, 2014; Wamsler, 2016) in which the government encourages the governed to become responsible for issues previously held to be the responsibility of government authorities (Barry et al., 1996: 29). The government enables, persuades, entices, or nudges citizens to 'take responsibility' for their lives and their communities (Peeters, 2013: 584). The responsabilization of citizens in climate change adaptation is discussed by both scientists and policymakers. Hegger et al. (2017) distinguish between three types of roles of residents in climate change adaptation: (1) as citizens vis-à-vis the government, (2) as consumers vis-à-vis the market, and (3) as civil society members.

Such a distinction is useful, as it provides directions for how these citizens' roles can be promoted and stimulated through government interventions: an increased responsabilization of citizens also requires a shift of roles from the side of the government: from a steering and regulating government, to a facilitating and enabling government (e.g. Gilbert, 2005) that supports, rather than directs citizens. To stimulate the roles of residents as citizens, governments will need to engage citizens more actively and on an equal basis, so as to empower them to take on those types of responsibilities (Hegger et al., 2017). As such, governments employ a "subtle way of 'stepping into' society and managing citizen behavior" (Peeters, 2013: 585). Governments can, for instance, provide financial incentives for individual adaptation; and develop formal or informal agreements with individuals who engage in improving city-citizen collaboration (Wamsler, 2016). To enhance the roles of citizens as consumers vis-à-vis the market, governments can also create or regulate markets for adaptation products through the use of taxes and subsidies for entrepreneurs or for citizens (Hegger et al., 2017). To promote the roles of citizens as civil society members, governments merely need to have a facilitating

role. Often, these citizens' activities will be bottom-up forms of self-governance which by definition are not orchestrated by governmental actors, and therefore an adaptive and receptive stance towards such initiatives is necessary (Edelenbos et al., 2017). Facilitation can be done in various forms, such as for instance by establishing knowledge-sharing dialogues, schooling and other forms of citizen empowerment, and allowing for experimentation by providing legal exemptions or financial support (Hegger et al., 2017; Wamsler, 2016).

### A Framework for a 'Thick' Analysis

Adger et al. (2003) have coined the term 'thick analysis' to provide an alternative to taking a sectoral view to environmental issues that leads to 'thin' explanations. Hence, a thick analysis includes multiple indicators in order to provide insight in the different values that affect environmental decisions. As illustrated in the previous section and supported by Adger et al. (2003) (but also Haus et al. 2004 and Kemp et al. 2005), such indicators are efficiency, effectiveness, equity and legitimacy. Furthermore, Adger et al. (2003) point out that while applying a thick analysis the physical, social, and institutional context matter and should be taken into consideration. We will briefly conceptualize these four indicators below before we apply them to the Dutch case study (also see Table 10.1). At the beginning of the case study, we will address the contexts influencing local climate adaptation in the Netherlands.

*Effectiveness* refers to the capacity of a decision to achieve its expressed objectives (Adger et al., 2003). Effectiveness can be measured in terms of (financial) costs and benefits, or by purely looking at the extent to which there is a match between predefined goals and actual outcomes. However, this might not be a sufficient way to look at goals, as goals can be unrealistic, contested between stakeholders, or set without any underlying problem. Therefore, it is important to measure the level of support for the goals and the outcomes. This indicates that there is a strong link between effectiveness and legitimacy.

*Efficiency* relates to the use and allocation of resources towards environmental decisions. It highlights the relation between benefits and expenses and the emphasis generally lies on welfare maximization. In other words, efficiency takes stock of whether the specific goals are achieved in a cost-effective manner. Efficiency has become a dominant criterion in public policy-making more generally (Peters & Pierre, 1998), in environmental policy (Lemos & Agrawal, 2006) and in urban adaptation to climate change as a new field of environmental policy (Mees, 2014). Nevertheless, the emphasis on economic efficiency as the main selection criterion in decisions regarding environmental policy has become increasingly criticized

Table 10.1 *Operationalization of concepts*

Concept	Operationalization	Citizen responsabilization in local climate adaptation, and its effect on sustainable development
Effectiveness	The capacity of a decision to reach its expressed objectives	Adapting public and private space to climate risks – and not solely public space
Efficiency	The use of resources in relation to welfare maximization	Sharing costs/investments in adapting the city to climate change
Equity	The distributive consequences of a decision (distributive justice)	Not all citizens will be able to invest in adaptation measures and this can translate into unequal distribution of adaptation measures. But it can also translate into inequity, as less wealthy people who cannot invest in adaptation will become more vulnerable to flooding.
Legitimacy	The extent to which decisions are acceptable to participants (procedural justice)	Citizens vary in their acceptance of taking up more responsibilities; governments also differ in their acceptance to shift responsibilities towards citizens.

Source: Adapted from Adger et al. (2003).

because it neglects distributive justice issues related to, for instance, the allocation of costs and benefits (Bromley & Paavola, 2002; Lemos & Agrawal, 2006).

The concept of *Equity* focuses on distributive justice or the distributive consequences of environmental decisions (Adger et al., 2003). This refers to a fair distribution of costs, resources, and benefits, but also spatial impacts and/or political change that occurs due to environmental impacts. Fair, however, does not always mean equal. As Adger et al. (2003) point out, ‘sometimes equity may require distribution according to contribution, whereas at other times need or equality may be the most appropriate basis for equitable decisions in terms of their outcomes’ (also argued by Bromley & Paavola, 2002; Radin, 1996).

*Legitimacy* refers to the acceptance of the authority, and with that the support for their decisions, by the people (Bernstein, 2005; Biermann & Gupta, 2011; Mees et al., 2014;). This is also referred to as procedural justice. The extent of acceptance is often measured in terms of values, norms, and rules (Beetham, 1991). Legitimacy can be gained through engaging and participating with stakeholders throughout the environmental decision-making process. Inclusiveness (input) and



deliberation (throughput) during the decision-making process can increase the support for the decisions and the actual outcome (output).

### **Adapting Dutch Cities with the Help of Citizens**

A retrospective thick analysis is here applied on the Netherlands. For this, we have gathered illustrative examples from self-organized workshops with Dutch municipalities and regional water authorities; in-depth interviews with local policy makers from various Dutch municipalities; and involvement in the *City Deal* program on climate adaptation (in Dutch: *Agenda Stad*). The City Deal is a collaboration among national government, municipalities, and stakeholders to stimulate growth, innovation and livability of Dutch cities (Agenda Stad, 2017). There is collaboration in various relevant themes, among which climate adaptation. Municipalities interested in this topic can participate in an exchange of information and in this way learn from each other. Some of the authors of this chapter have participated in the *City Deal* ‘climate adaptation and social initiatives’ and provided reflections upon the sessions organized on this topic. The overall issues discussed in these sessions related to how municipalities can facilitate citizen initiatives and how to stimulate initiatives in less active neighbourhoods. Together these illustrative examples provide a prefiguration of how citizen responsibility in local climate adaptation could work.

While the Netherlands can expect a variety of climate change risks such as floods and heat stress, the main focus has been on floods (Hegger et al., 2017; Runhaar et al., 2012). Almost two thirds of the country is susceptible to flooding. Therefore, flood defense, with a large system of dikes, dunes, barriers, and sluices, has historically been very important, and still continues to be to date (Gralepois et al., 2016; Kaufmann et al., 2016). Tasks related to the defense against flood risks from rivers and sea is implemented by both ‘Rijkswaterstaat’ (the Dutch office of Public Works) and 26 regional water authorities, both functionally specialized agencies that operate in relative isolation from political whims (Kaufmann et al., 2016). Responsibilities for the governance of pluvial flooding lie with the municipalities and its citizens. Municipalities are responsible for the efficient collection and processing of rainwater run-off on public grounds, while citizens are responsible for collecting rainwater on their own properties. Yet, flood risks from heavy rainfall have predominantly been tackled by using and increasing the capacity of the sewage system. As a result of climate change, flood incidents from heavy rainfall are occurring more frequently and have resulted in considerable material damage and regular inundations of infrastructure (NRC, 2016). Municipalities increasingly call upon their citizens to contribute to mitigating

risks from pluvial flooding. Citizens are, for instance, required to store a certain amount of rainwater on their properties (Volkskrant, 2017).

### *Effectiveness*

The general objective of Dutch cities is to adapt their cities to heavy rainfall events in order to allow none or little<sup>1</sup> urban flooding. Local governments currently have the responsibility to collect and process excessive rainwater by adapting public space. But solely adapting public space might not be sufficient to meet the expressed objective. In order to reduce vulnerability to urban flooding both public and private space needs to be adapted. For this, citizen responsabilization in local climate adaptation sounds as a promising solution. Private property owners should also take adaptation measures or at least, be made aware that they should not install measures that lead to maladaptation, for example, by paving gardens which reduces infiltration of storm water. Clear communication and knowledge sharing regarding what measures will facilitate local climate adaptation is crucial. Overall, shifting responsibilities towards citizens can assist in raising awareness of and accelerate the investments in local climate adaptation throughout a city. Hence, it could be stated that in terms of effectiveness, citizen responsabilization seems logical. Examples in which local governments invest in communication on the matter are the programs ‘Amsterdam Rainproof’ and ‘Utrecht Waterproof’. In these programs, local governments aim to establish a network for citizens, local businesses, and other stakeholders to share knowledge and resources (Uittenbroek et al., 2014). These programs show results in terms of increasing awareness for the topic. But it is too early to state whether these programs are effectively contributing to the reduction of the vulnerability of an area to urban flooding.

### *Efficiency*

As stated before, local governments are generally taking the lead in local climate adaptation (Bulkeley et al., 2013; Mees et al., 2012). Some are investing in physical measures such as water squares, green roofs, and expanding green infrastructure, as is the case in Rotterdam, Tiel, and Den Bosch. Other cities such as Amsterdam and Utrecht are setting up networks in which social learning and involving of citizens and local organizations are key. In general, cities acknowledge the urgency to address climate change by adapting the urban design. Yet, finding resources to invest solely in adaptation measures is a difficult task. By mainstreaming climate adaptation in existing urban policies, they intend to share resources and deal with

<sup>1</sup> Allowing streets to have water on them for a couple of hours is allowed.

multiple policy goals (Uittenbroek et al., 2013). For example, the water squares in Tiel and Rotterdam function not only as water storage facilities but also as public places for encounters and play. This illustrates that local governments are looking for efficient ways to allocate resources to local climate adaptation. Reallocating responsibilities to citizens is another way to increase efficiency. Citizens can assist by removing pavement in private gardens or by collecting and storing excessive rain water on private property (e.g. in rain barrels or green roofs) before discharging it to the public sewage system. Local governments can share their responsibilities for the collection and discharge of water, and in this way, possibly reduce investments in measures in public space. Besides actively adapting their own property, several Dutch municipalities also wish to have citizens involved and participating in the design, implementation, and managing of adaptation measures in public space. Several municipalities are exploring whether citizens want to take responsibility for maintenance tasks of, for example, public greens. Yet, some municipalities have experienced that citizens do not yet see this as their task. Citizens generally like to have influence on the design, but not necessarily on maintenance tasks which require a frequent and consistent time contribution over a longer time period. There are few examples in which citizens do want to take up these responsibilities for maintenance, but generally these concern very small lots. In terms of efficiency, citizen responsabilization in local climate adaptation sounds useful, as costs and benefits can be shared between public and private actors, and within policy domains as adaptation solutions such as water squares and additional green infrastructure generally also add to the esthetic quality of the built environment, health, biodiversity, etc. (Gill et al., 2007).

### *Equity*

Citizen responsabilization can thus be an efficient way to address local climate adaptation. Yet, there might be equity issues. If all citizens took their newly assigned responsibility for adapting their properties to climate change, this would lead to fairness and equity. However, not all citizens might have the resources (time, finances, and knowledge) to invest in adaptation measures. For example, Mees et al. (2016) found examples in which it was mostly the highly educated people who took part. These people have the knowledge, access to government networks, and most likely resources to invest in adaptation measures. Citizens who know how to organize themselves and know how to present ideas to the local government are most likely to get attention and assistance of the municipality. However, there will also be groups of citizens who do not have these characteristics, which makes it more difficult for them to take up responsibilities for local climate adaptation. During meetings with various Dutch municipalities, several

municipalities said to be reluctant to shifting responsibilities to citizens because they are afraid of unequal distribution of climate adaptation measures. Those who are capable of bearing the costs will invest in sufficient measures, yet those who are not will fall behind and become more vulnerable to urban flooding. This will fuel inequity. The local policy makers aim to have an even allocation of adaptation resources throughout the city. However, they also recognize that currently only a select group of citizens requests for facilitation of adaptation initiatives or is capable of taking adaptation measures on their own property. Therefore, equity will most likely become problematic if the Dutch municipalities continue to shift responsibilities to citizens as inequity can come from citizen responsabilization. Yet, our examples show that many Dutch municipalities are also aware of and have experienced these differences between citizens. This makes them reluctant to simply shift these responsibilities without seeking ways to facilitate/empower all kinds of citizens.

### *Legitimacy*

As indicated before effectiveness relates to legitimacy in which citizens accept the decisions made by public authorities. In this analysis, the question is whether citizens will accept the shift in responsibilities for local climate adaptation. While from the perspective of effectiveness this could be considered a legitimate shift, in practice, this shift is not easily legitimized. Citizens have different interests and consequently, vary in the amount of responsibility they want to have. In the Rooftop Park Rotterdam project, a group of citizens wanted to participate in the planning, implementation and maintenance of the park. But the municipality only gave them limited responsibilities, because the maintenance department of the municipality was afraid that citizens would not uphold their responsibilities over a longer period of time. As opposed to that, in Amsterdam the municipality was willing to hand over maintenance responsibilities of an adapted public square to citizens from the neighborhood, but citizens considered maintenance a government task. These two examples illustrate two relevant findings: (1) it takes two parties to legitimize the shift in responsibilities – both citizens and governments need to accept this decision of citizen responsabilization in local climate adaptation; and (2) both parties rely on historical institutions: the government as main responsible actor in addressing public issues. As a result, citizens expect local government to take their responsibilities in reducing vulnerability. They also expect that governments take their responsibilities seriously and that they want to circumvent situations of which unsatisfied citizens arise. In order for citizen responsabilization in local climate adaptation to be successful, this shift in responsibilities needs to be considered legitimate by most stakeholders. While society in general can benefit

from reduced vulnerability to urban flooding, not all citizens might see the direct need to address local climate adaptation. Hence, citizens might not accept this shift in responsibilities and accordingly, might not take up these responsibilities.

### Conclusion

Worldwide, there is an increasing focus on local climate adaptation. Currently, cities are learning how complex this adaptation challenge is. The issue cannot be solved solely by local governments, but requires the involvement of citizens. We have shown, however, that Western European countries such as the Netherlands are struggling with how to involve and share responsibilities with citizens in this challenge of local climate adaptation. As illustrated in our research, increased citizen responsabilization could have benefits in terms of effectiveness and efficiency, as this might stimulate investments in adaptation measures in private space and the sharing the costs for local climate adaptation with multiple stakeholders. But at the same time, there are good reasons to assume that citizen responsabilization increases inequalities and might lead to legitimacy problems in some circumstances. To begin with, the actual handing over of responsibilities to citizens may be problematic. In our Dutch examples, we have seen cases in which authorities are reluctant to actually hand over responsibilities. In other cases, however, the challenge might be that citizens do not accept the fact that administrations give down responsibilities rather than dealing with them themselves. Once responsibilities have actually been delegated to citizens, other issues might arise. Not all citizens will be capable of or able to invest in adaptation measures in private space. They might not have the knowledge, resources, or networks. At the same time, other citizens might not consider local climate adaptation their responsibility or do not consider it in their interest to make personal investments in climate adaptation. In other words, they might not legitimize this shift in responsibilities from the public to the private domain. If citizens are not capable of implementing adaptation measures or are not willing to accept new responsibilities, the required level of local climate adaptation may not be reached. This is problematic as this can lead to maladaptation or (increased) vulnerability to climate risks. This can be read as an argument to tailor efforts at citizen responsabilization to different target groups. Loosely based on Dahl (1989), one can argue that to provide equal opportunities to participate, groups need to be treated differently.

The trend of citizen responsabilization will most likely continue and therefore it is relevant to consider ways to deal with the tensions between these four criteria. We consider three (intertwined) pathways for this. First, the focus should be on processes of *upscaling of local adaptation initiatives*. In spite of the fact that there might be citizens who are unwilling or unable to invest in climate adaptation, there

are also citizens who are already adapting their own properties or who are participating in social initiatives that relate to climate adaptation. Understanding these good practices and deriving lessons from them is relevant and useful for gaining ground. These lessons can be crucial to stimulate both *horizontal* and *vertical* upscaling (van Doren et al., 2016). *Horizontal* upscaling refers to the possibility of using lessons as input for copying successes. *Vertical* upscaling refers to structural learning and changing existing institutions to support local climate adaptation by citizens. We hold that the learning that provides input to these upscaling processes should pertain to all of the four considerations discussed earlier: effectiveness, efficiency, equity, and legitimacy. This relates to our second pathway, *improving interactions between governments and citizens*. For each country, the relation between governments and its citizens might vary widely. In many Western European countries, this relationship is based on trust and solidarity; while in other countries, citizens expect governments to do as little as possible as is the case in the United States and the United Kingdom. Facing climate change is however a problem that requires ‘all hands on deck’. Governments can play a guiding, stimulating, and/or facilitating role in preparing cities for climate change risks. As an example, Amsterdam does this by establishing a network in which knowledge, resources, and connections are shared (Bulkeley et al., 2013). This brings us to the final pathway in which governments need to *gain experiences with how to substantiate this ‘facilitating’ role that is often proclaimed in literature* (Hegger et al., 2017). In order to improve the relationship with citizens and to learn how to vertically upscale the citizen responsabilization, governments have to experiment with policy instruments. Communication through setting up such networks and providing subsidies for adaptation measures are possible ways to facilitate citizens in local climate adaptation (Mees et al., 2014).

Still, the question remains if mobilizing citizens in the end leads to sufficient capacity to solve the anticipated problems (see also van der Heijden & Heuvelhoff, 2012). Not many cities choose to regulate climate adaptation. However, it can be questioned if non-committal approaches in the end will lead to the mobilization of sufficient adaptive capacity. Possible explanations for the non-committal character of citizen responsabilization to date are that (1) local governments want citizen responsabilization but do not know or agree to what extent; or (2) they might not know how to enforce these responsibilities. There is also a fine line between ‘dumping’ responsibilities on citizens and empowering citizens to take up their responsibilities. Some governments are aware of this and therefore experiment with more soft steering instruments (Bulkeley & Castán Broto, 2013). Yet, if we want to keep our cities liveable, local climate adaptation cannot go without obligations (Mees, 2017; Runhaar et al., 2016).

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