



Typologies of citizen co-production in flood risk governance

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ABSTRACT

Citizens in Europe are increasingly being encouraged by policymakers to contribute to flood risk governance (FRG) by taking individual and/or community-based flood risk measures (e.g. implementing property-level measures). This trend might be described as a transition towards ‘co-produced’ FRG between public authorities and citizens.

The co-production trend is mirrored in literature, with an increasing number of publications discussing citizen involvement in the implementation of FRG. Still, this research is in its infancy and requires more systematic insight into the prevalence, success factors and side effects of co-produced FRG. This article contributes to this endeavour by looking across disciplinary boundaries to critically examine the extent to which co-production types identified in other policy domains match the diversity of co-production forms witnessed in FRG. Taking this co-production literature as a starting point, the authors assemble three typologies to capture the different forms of co-production witnessed in FRG. In order to do so, examples of FRG co-production were identified in England (UK), Flanders (Belgium), France, the Netherlands and Poland, through document analysis and in-depth interviews. These examples were used to test and redevelop co-production typologies described in literature. The resulting typologies concentrate on the i) type of interaction, ii) the role and type of citizen input and iii) the distribution of contributions and benefits. These frameworks have the potential to not only serve as important heuristic devices for future empirical research, but may also facilitate more reflexive governance in practice.

1. Introduction

Increasingly, flood defence policy is claimed by academics and policymakers to have reached the limits of its capacity to mitigate flood risks in an environmentally, economically and socially sustainable manner (Aerts et al., 2008; Johnson and Priest, 2008; Hartmann and van Buuren, 2013; Gralepois et al., 2016). Continuing urbanization, projections of climate change and financial constraints have given way to a discourse of flood risk management (FRM) across Europe (Hegger et al., 2014). While flood defence aims to reduce the probability of flooding, FRM embraces a holistic approach, which not only involves traditional protection measures, but further seeks to mitigate flood damages through strategies of prevention (e.g. spatial planning), preparedness (e.g. emergency management) and recovery (e.g. insurance mechanisms).

With this shifting scope, flood risk governance (FRG)¹ has correspondingly broadened in scope, including new rules, resources, actors, discourses and multi-level coordination mechanisms (Hegger et al., 2014). The discourse of FRM has enabled a new range of actors to enter the governance arena in order to fulfil new duties in spatial planning, crisis management and insurance (Meijerink and Dicke, 2008; Mees et al., 2014). Amongst this growing suite of actors, citizens are also increasingly expected to contribute to FRG, arguably signifying a move towards co-produced FRG (Mees et al., 2016). The ways in which citizens can co-produce vary, from the implementation of property-level measures (e.g. flood gates, demountable barriers, airbrick covers, impermeable coatings, etc.) through to the preparation of emergency plans and assisting emergency services during a flood event.

Citizen involvement in the delivery of FRG is an emerging topic in FRG literature, albeit in most cases not under the name of co-

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¹ In this article, flood risk governance refers to the way how flood risks are approached within a certain territory, i.e. by which actors, rules, resources and discourses (see Hegger et al., 2014). Flood risk management, conversely, is a specific approach of FRG that concentrates on the mitigation of flood risks.

production. In the past decade, numerous studies have observed this emerging shift and redistribution of responsibilities in FRM onto at-risk citizens (e.g. Johnson and Priest, 2008; Bubeck et al., 2013; Geaves and Penning-Rowell, 2016) and its accompanying modification of the ‘social contract’ shaping citizen-government interactions (e.g. Meijerink and Dicke, 2008; Adger et al., 2013; Wamsler and Brink, 2014; Geaves and Penning-Rowell, 2015). Some scholars raise implications for policy (e.g. Wamsler and Brink, 2014; Begg et al., 2015). Others provide insights into the motives and capacities of citizens to take (individual) action (e.g. Harries, 2008; Chamlee-Wright and Storr, 2010; Lindell and Perry, 2012). First steps have also been made to distinguish different types of citizen engagement in climate change adaptation, to which dealing with flood risks forms a primary aspect (e.g. Tompkins and Eakin, 2012; Hegger et al., 2017). What is missing, however, is broad and systematic insight in how citizens are involved in the delivery of FRG in different countries.

This insight is important because citizen co-production is accompanied by expectations and concerns about its societal impact. Indeed, several authors have highlighted the negative consequences that co-produced FRG can have on state-society relationships and their adaptive capacity to climate change (e.g. Begg et al., 2015; Mees et al., 2017; Alexander et al., 2017). Hereby, the potential increase of social inequalities is of particular concern (e.g. Johnson et al., 2007; Kammerbauer and Wamsler, 2017). However, it is likely that various forms of citizen co-production will influence these to diverging ways and degrees. In order to enable researchers to analyse this impact, it is necessary to first have a comprehensive overview on the various ways in which citizen co-production can occur. Given the recency with which co-production has emerged in the study of FRG, important lessons are to be drawn from other disciplines, particularly public administration and service management, where co-production has a long legacy.

The article seeks an answer to the following research questions:

- 1 To what extent do the co-production types described in literature match the diversity of co-production forms in FRG practice?
- 2 Which typologies can be proposed to capture the different forms of co-production witnessed in FRG?

The article takes co-production types and typologies in literature as a starting point, examines to which extent they ‘fit’ the types of co-production that are observed in FRG and further develops them in specific relation to this domain. Hereto, it confronts insights from literature with empirical data on FRG co-production in England (UK), Flanders (Belgium), France, the Netherlands and Poland. Based on the literature review and the empirical evidence, the article presents 3 complementary typologies of citizen co-production in FRG, which are critically reviewed in turn.

2. Theory

In the past, attempts have been made to structure different types of citizen participation into typologies (e.g. Arnstein, 1969; Rowe and Frewer, 2005; Fung, 2006). In most cases, these typologies’ scope is limited to participation in decision-making. Some do include categories such as ‘citizen control’ or ‘resource mobilisation’ (e.g. Arnstein, 1969; Pretty, 1995), but these participation types are presented as a single category, whereas citizen engagement in policy implementation can take various forms. Since each form will have a distinct impact on FRG governance (Mees et al., 2017), it is important to further unravel these participation types. Valuable insights hereto are offered by the literature on co-production, which has been developed in contexts external to the study of FRG.

Indeed, literature on citizen co-production has only recently emerged in the study of FRG, but it has a long legacy elsewhere. Early

proponents of the concept were amongst others Ostrom, Whitaker, Parks, Brudney and England (e.g. Parks et al., 1981; Brudney and England, 1983). Since, it has been broadly applied both in public administration and services management literature, with varying interpretations (see Osborne and Strokosch, 2013). Considering that services management literature concentrates primarily on producer-consumer relationships in market situations, this article draws mainly from insights from the public administration literature.

Several authors limit the use of the term to cases where citizens both produce and use services (e.g. Fotaki, 2011; Pestoff et al., 2012), while others apply it also to describe citizen involvement in decision-making (e.g. Albrechts, 2013; Bovaird and Löffler, 2013; Mees et al., 2016). Considering the focus of this research on citizen involvement in FRG delivery as opposed to participation in its decision-making, the definition of co-production in this article excludes the decision-making phase of a policy unless said activities are combined with action in the delivery phase. Therefore, citizen co-production is defined here as the relationship between a governmental or public organization and (groups of) citizens that requires a direct contribution from these citizens to the delivery of a public good or service (see also Brandsen and Honingh, 2016). The public service in this context refers to the avoidance and mitigation of harmful consequences of flooding at a societal level.

Before citizen input can be regarded as a form of co-production, there needs to be a form of interaction between authorities and citizens (e.g. regulation put in place by government, deliberation between authorities and citizens). This way, co-production distinguishes itself from *self-governance*, whereby citizens or communities deliver public goods or services independently from governmental action (see Driessen et al., 2012). Co-production in this sense pertains to the relationship between the State and civil society, which encapsulates individuals or households, as well as organised groups of individuals working together through communities or NGOs.

3. Research design

In order to answer the research questions, an analysis has been carried out making use of literature review and in-depth interviews. It included the following steps:

- i An literature review was conducted to scrutinise typologies described in co-production literature;
- ii Independently, an empirical analysis has been carried out of co-production types in FRG in England (United Kingdom), Flanders (Belgium), France, the Netherlands, and Poland. This analysis identified citizen co-production based on two main parameters:
 - 1 Citizens delivered direct input to the delivery of flood risk measures (i.e. not (only) to the decision-making process)
 - 2 There was a form of interaction between governments and citizens (one- or multi-directional);
- iii A deductive coding strategy was applied to the collected examples; they were categorised according to the typologies found in literature.
- iv The typologies were redeveloped in order to best fit the purpose of the analysis (see results section);
- v Literature on citizen involvement in FRG delivery (and related topics) was used to complement the empirical analysis and to double-check whether no important co-production forms had been overlooked (i.e. triangulation of the results).

3.1. Literature review supporting analytical steps i and v

In the literature review, over 140 academic articles have been reviewed. The review addressed 3 general themes:

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