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We're in this together: Capacities and relationships to enable community resilience

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ABSTRACT

This paper studies how residents in the neighbourhood Bospolder-Tussendijken (BoTu) have dealt with the COVID-19 restrictions. Prior to the pandemic, significant investments in community-building were made to increase resilience of individuals and communities in BoTu. This paper identifies the key assets BoTu residents had developed and actually during this ultimate challenge. Interviews with formal and informal actors in BoTu revealed that community leadership, engaged governance, problem-solving ability, and information sharing environment were essential to adequately respond to the crisis, and were successfully deployed. The paper concludes with five policy implications to help strengthen capacities and relationships needed for community resilience.

KEYWORDS

Community resilience; crisis management; governance; neighbourhoods

Introduction

The well-being of people in cities relies on a complex network of institutions, infrastructure and information, but also on networks within and between communities and associational life (The Rockefeller Foundation & Arup, 2014). These networks are under pressure when confronted with crises, such as floods, extreme weather, or economic decline (Adger et al. 2020). Resilient city approaches have gained popularity amongst policy makers and urban planners to enable the city and its urban community to adequately respond to such sudden shocks or stressors (Torabi, Dedekorkut-Howes, and Howes 2021). This paper specifically focuses on community resilience: the capacity of an urban community to withstand or adapt with change (Keck and Sakdapolrak 2013; Mehmood 2016), through management and engagement of community resources by community members to thrive in such an uncertain environment (Magis 2010; Matarrita-Cascante et al. 2017).

Resilient communities benefit from collaboration between formal community actors, such as local institutions, and informal community actors, such as residents and associations (Galal Ahmed 2019). These actors collaborate to organise the fulfilment of functions in a community (Colten, Kates, and Laska 2008; Edelenbos, van Meerkerk,

and Schenk 2016). An engaged and cohesive community can emerge from the dynamics and interaction between these actors (Slingerland et al. 2020a).

While the need for collaboration between formal and informal actors for community resilience is acknowledged (Linnell 2014; Nespeca et al. 2020), much uncertainty still exists about adequate ways of working together. As such, practitioners and researchers struggle to formulate strategies and policies to enable and support community resilience in cities (Torabi, Dedekorkut-Howes, and Howes 2021). Current studies into community resilience from the resident perspective (e.g. Fastiggi, Meerow, and Thaddeus (2021), Linnell (2014)), or governance perspective (Beilin and Wilkinson 2015) contribute to understanding what a resilient community in practice really needs to successfully cope with crises.

Scholars have identified resources that play an important role for communities in crisis situations. The value and necessity of these resources is partly determined by the nature of the crisis they face (Vos and Sullivan 2014). For example, natural hazard crises require fast coordination between actors as well as prepared infrastructure that can withstand the hazard (Colten, Kates, and Laska 2008). In contrast, social crises such as the COVID-19 pandemic require established social structures that can quickly adapt their activities and be creative in dealing with the imposed restrictions and rules (Caruso, Mela, and Pede 2020). In general, people's reaction to a crisis is based on their past routinised patterns of behaviour, influenced by their previous experiences and their social bonds, yet dependent on the dynamics at play. Community infrastructure is vital to reduce inequalities caused by crisis and cascading effects (Klinenberg 2018; Portugali 2011).

This paper takes a closer look at the required community assets that enable resilience by posing the following research question: *Which capacities and relationships enable a community to be resilient?* To answer this question, the paper starts with a background section identifying core assets of resilient communities described in literature. These assets are then analysed in the context of a Dutch neighbourhood-based community that was faced with sudden lockdown restrictions due to the breakout of the COVID-19 pandemic. This analysis reveals which of their capacities and relationships the community needed to respond adequately to the imposed lockdown. In the discussion section, five factors are identified that support the resilience of the community in terms of access to these assets or to strengthen these relationships and capacities.

Background: building strong and resilient urban communities

Many cities have realised the need to be prepared for unexpected crises, shocks, or stressors: to address their strategies for resilience (The Rockefeller Foundation & Arup, 2014). Linnell (2014), for example, has shown that coordination and interaction during crisis response requires formal and informal actors to work together to adapt to the crisis situation. Asset-based approaches to community development (such as asset-based community development [ABCD] (Kretzman and McKnight 1993)) provide a promising approach to this end. Assets, in these approaches, are defined to include skills, knowledge and networks of local residents and voluntary associations, physical and economic resources of the place, resources of public, private and non-profit institutions, and stories and shared experiences of residents (Kretzman and McKnight

1993); see also (Russell 2020). Mathie and Cunningham (2003) consider the focus on social relationships the core of ABCD. Formal and informal networks also provide a means to gain access to other community assets and resources (Mathie and Cunningham 2003). In the presented case, ABCD aims to develop the district bottom up, by sustainably working together to create strong and connected local communities, where residents can experience and utilise their collective strength (Visser 2021). During the past five years, the case study neighbourhood on which this paper focuses, has followed an ABCD approach to strengthen the local community. Specifically, efforts were made by formal actors to gain trust, share responsibility in neighbourhood development and emphasize the need to collaborate. Key actors such as active residents, local civil servants, police and the main housing corporation explored and found different ways to work together.

This paper concentrates on the assets this community used in their response to the COVID-19 crisis.

Social structures as a pre-requisite for community resilience

Many scholars describe activities such as coordination, collaboration, and interaction as key processes in resilient responses of communities to crisis (e.g. (Colten, Kates, and Laska 2008; Comes 2016; Linnell 2014; Nespeca et al. 2020; Ram 2021)). Community resilience comes to practice when interaction between agents actually takes place (Adger et al. 2020). In fact, social structures, interconnectedness, and networks within and between communities are described by many as the main pre-requisites for communities to access other resources and start up key processes during crisis (Berkes & Ross, 2013; Linnell 2014; Vos and Sullivan 2014). Established social structures and working relationships enable ad-hoc coordination of actors (Comes 2016), knowledge exchange (Grube and Storr 2014), and mobilisation of other resources (Nespeca et al. 2020). When there is no existing social structure, a lack of trust, or exclusion of particular groups, community resilience is undermined because actors have difficulty finding each other, communicating, and working towards mutual goals (Adger et al. 2020; Spialek and Houston 2019). In this context, the presence of social structures, working relationships, and social interaction is considered as the starting point of resilient communities, enabling access to other necessary assets (Keck and Sakdapolrak 2013). What are necessary assets to community resilient is identified from the literature below.

In this paper assets that influence community resilience have been identified based on a bibliometric analysis of the literature published between 2000 and 2018. Google Scholar and Scopus were searched using (strings of) the keywords crisis management, social resilience, community resilience, self-organisation, governance, local, and neighbourhood. All abstracts were first reviewed to determine relevance with respect to the topic of community resilience. All relevant papers were reviewed in more detail to understand what community resilience requires. These findings are discussed in the next paragraphs and concluded by identifying four key assets to community resilience in crises. As outlined in the paragraph above, these assets become available through interactions between actors, that, in turn, requires an established social network structure in the community. Resilient communities communicate and collaborate effectively

and adequately (Comes 2016; Nespeca et al. 2020). Walsh (2007) addresses the need for clear and consistent information sharing during problem solving processes, as well as collaborative decision-making, planning, preparedness, and resourcefulness. Stronger community resilience is also signalled when communication enables citizens to share stories about disasters and to validate this emerging knowledge (Goldstein et al. 2015; Spialek and Houston 2019). Vos and Sullivan (2014) stress the need to include all formal and informal actors in crisis communication. Comes (2016) focuses on the role of expert networks with changing roles, fast communication and coordination support in distributed networks, and ad hoc reasoning to address challenges and changes. Nespeca et al. (2020) propose a framework for decentralised information management to support flexibility and adaptability of actor roles and dynamic information sharing in crises.

Governance and policies also influence community resilience (Beilin and Wilkinson 2015). Wilson (2013) studied the interaction between policy and resilience, and found that most successful policies are directed at the needs of specific communities and based on the correct timing of implementation. The importance and influence of local control and culture are addressed by Hills (2002) and Stark and Taylor (2014). When governments direct and shape transformations for strong community resilience (Wilson 2013), this has been coined by Ross and Berkes (2014) as ‘engaged governance’.

Nespeca et al. (2020) concentrate on mutual coordination between actors during a crisis and the required ability to effectively self-organise. Their earlier mentioned framework provides a way to focus on actor roles and interaction. Goldstein et al. (2015) stress the importance of engaging multiple voices for self-organisation. Ross and Berkes (2014) conceptualise this self-organisation as leadership, requiring certain citizens to take on the role of community leaders, to facilitate resilient actions in times of crisis.

According to the US National Research Council (2011), social capital is key to community resilience in private-public collaborations. ABCD, with a strong focus on relationships, considers social capital to be a community asset (Mathie and Cunningham 2003). Social capital describes the potential resources a community can access through its networks, for example to facilitate actions to reach community goals (Bourdieu 1983; Coleman 1988; Eizaguirre and Parés 2019; Magis 2010). In the same vein, Slingerland et al. (2020a) propose a framework for city actors to ‘together make it work’ in which they distinguish five principles: community-focused, inclusive, playful, self-sustaining, and reflective. These principles overlap with the principles of ABCD and provide guidelines for fruitful collaboration between city actors to tackle the problems with which they are confronted (Doff 2017; Edelenbos, van Meerkerk, and Schenk 2016; Grube and Storr 2014; Kapucu and Sadiq 2016; Slingerland et al. 2020b).

Four key assets to facilitating community resilience

The literature illustrates a multitude of perspectives on community resilience and highlights four assets that many scholars mention as essential to community resilience: 1) information sharing environment, 2) engaged governance, 3) community leadership, and 4) problem-solving ability. These assets become available through social structures in the community. An information-sharing environment determines how

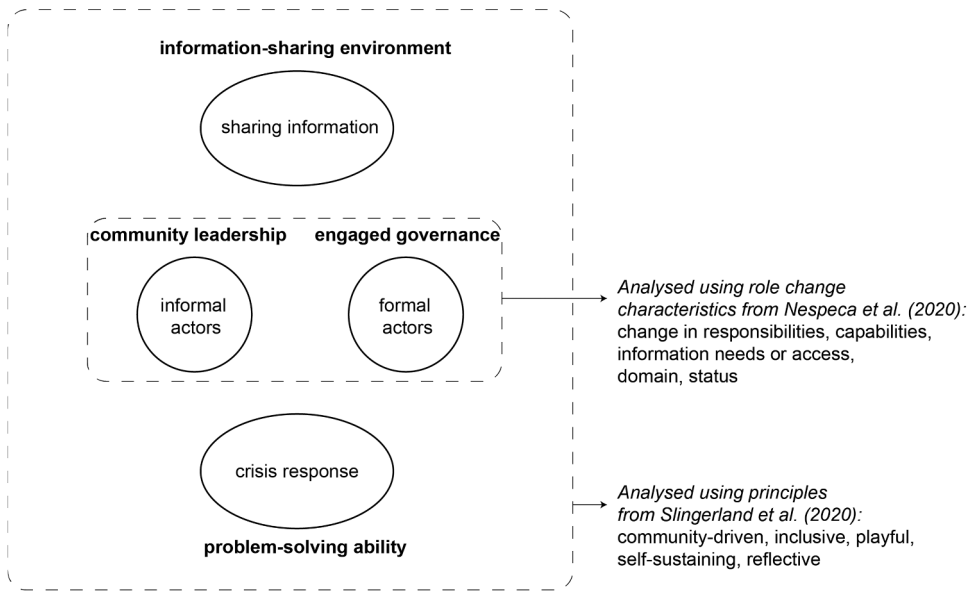


Figure 1. The four key assets for community resilience and how they are analysed in the context of the case study.

actors communicate. Engaged governance relates to the extent to which formal and informal actors who govern or manage procedures in a community respond to the needs of a community to develop specific community related policies and practices that influence a community's resilience. Community leadership functions as a bridge between informal citizen groups and formal authorities with active engagement of community members in various roles and connections to actors outside the community. The fourth asset, problem-solving ability, relates to the activities a community takes towards a resilient response. The problem-solving ability as such is where community resilience is manifested: through coping, adapting and transforming. This paper analyses these four assets (see Figure 1) to understand which capabilities and relationships communities need when faced with an unexpected social crisis.

Methodology

An exploratory qualitative case study is performed to study which capacities and relationships enable community resilience, and specifically how city actors interact in response to a social crisis. This study design is considered to be appropriate for the exploratory stage of research into community resilience, as most existing studies focus on understanding the concept from a theoretical perspective (e.g. Doff (2017) or Matarrita-Cascante et al. (2017)). Exploratory qualitative research provides a means to gain knowledge about a relatively new phenomenon (Creswell 2009, 13; Yin 2003) and is used in this paper to generate and elaborate theory on community resilience (Ketokivi and Choi 2014).

Bospolder-Tussendijken area (BoTu) in the City of Rotterdam is the case considered. The choice for this single case is justified on the basis of its unique and extreme

characteristics (Yin 2003, 40). The area was already part of a community development programme (initiated and supported by the City of Rotterdam) when faced with sudden lockdown restrictions due to a crisis. The research team had studied the community before the pandemic struck the Netherlands and hence had the unique opportunity to observe what changed in the community in response to the lockdown.

Characteristics of the research area

BoTu consists of two neighbourhoods (Bospolder and Tussendijken) and has 14,500 residents and approximately 7,100 households. Many young people live in BoTu: more than 20% of the residents are under the age of 18 years old, while the percentage of elderly (11%) is below city average (Rotterdam 2020). Almost 80% of the neighbourhood's community has an immigrant background, of which almost 70% has a non-western background (Rotterdam 2020). Furthermore, these neighbourhoods are two of the poorest neighbourhoods in the Netherlands. Due to a high concentration of social problems such as unemployment, high indebtedness, and low quality of housing in the areas, BoTu is often described as a 'disadvantaged' area (Rotterdam 2017, 2020).

BoTu has been selected by the City of Rotterdam for a ten-year programme to improve the neighbourhood's resilience, as part of the Resilient Rotterdam Strategy (Rotterdam 2017). The goal of the 'Resilient BoTu 2028' programme is to develop the resilience of the neighbourhoods' residents. BoTu aims to be the first resilient neighbourhood of Rotterdam within ten years, increasing its social index score, one of the metrics used by the municipality to measure urban development¹. The goal is to rise the metrics of Bospolder (=99) and Tussendijken (=88) to the city's average of 2018 (=110).

The strong (informal) social networks in BoTu are clearly an asset. Improving community resilience by strengthening and expanding these social networks is the focus of the Resilient BoTu 2028 programme, building on existing ABCD initiatives that had been started to mobilise key actors on local issues such as safety. An illustrative example is that local police, community workers, and local organisations met on a regular basis to discuss safety of BoTu, and possible initiatives to increase safety. The BoTu 2028 programme further builds on such interventions and particularly used ABCD to strengthen the connections and relationships between formal and informal actors in BoTu.

About one year after the start of the Resilient BoTu 2028 project, the COVID-19 pandemic reached Europe and the BoTu community was faced with a nation-wide lockdown. Corresponding measures included social distancing, working from home, and the closing of schools, community centres, restaurants, and local farmers market. This paper specifically zooms in on this first lockdown, when the community was faced with the challenge of adapting to this sudden and extreme change in the neighbourhood.

Approach and data collection

A semi-structured interview guide was designed (Strauss and Corbin 2015; Stuckey 2013) based on an interview guide used earlier in the Resilient BoTu 2028 project to monitor existing initiatives in the community. As such, the guide included questions about the roles and initiatives within the neighbourhood that were used to guide

interviews: for example, asking how a participant continued or started their initiative during the lockdown, which neighbourhood networks the initiative included, what activities the initiative organised, and how initiators organised themselves.

Participants were recruited from the existing inventory of initiatives, through snow-ball sampling and from personal networks of the researchers within the community. The participants were mostly but not exclusively active actors. Those who were not active were recruited from the researchers' personal networks. In total, 65 interviews were held, from April to July 2020, recorded and transcribed with the consent of interviewees,² and analysed. Among 47 individual participants were 24 who represent formal actors and 23 who represent informal actors. Eleven key actors, including civil servants who act as 'neighbourhood networkers', were interviewed multiple times (two to four interviews) over the course of the research period to acquire updates on the emergence of new initiatives. As a result, the length of the interviews varied widely (2–58 min). On average, an interview lasted 30 minutes (standard deviation: 17 minutes)

Data analysis

As visualised in [Figure 1](#), analysis of the interviews focused on the four key assets for community resilience and how they are manifested in the interaction between formal and informal actors in BoTu, by performing an inductive process through consensus on the interview transcripts (Braun and Clarke 2006). Three researchers coded the interview transcripts using the earlier mentioned framework of Nespeca et al. (2020) and principles of Slingerland et al. (2020a) (see [Figure 1](#)).

The assets *engaged governance* and *community leadership* were coded from the perspective of the formal and informal actors. The formal and informal actors that participants mentioned and that have played a role during the lockdown are listed in [Table 1](#). Institutions and organisations with a top-down structure, with formal decision-making power and influence, possibly with ties to the municipality, are considered to be formal actors. They relate to the asset of engaged or enabling governance. Foundations, small-scale (social) entrepreneurs and citizen driven (bottom-up) initiatives initiated by local residents are considered to be informal actors. They relate to the asset of community leadership. In line with Nespeca et al.'s (2020) understanding of actor roles and possible role changes, the research team coded the moments when participants described themselves or another actor to change their (1) responsibilities or duty related to a role, (2) capabilities to perform certain activities, (3) information needs and access, (4) domain of expertise and (5) status, regarding formal and informal status.

The assets *information sharing environment* and *problem-solving ability* were coded using the principles proposed by Slingerland et al. (2020a) for city actors to 'together make it work' as briefly described above. One researcher coded moments in the transcripts that indicate if and how the actions taken by the city actor adhere to the five principles of being (1) focused on the community, (2) inclusive to all actors, (3) playful and open-ended, (4) self-sustaining the activities, and (5) supporting reflection on the position and role of city actors in the wider community. One university researcher started with initial coding, that was then checked and adjusted by the two other researchers from the Veldacademie. This checking and adjusting of the coding was discussed in several meetings until all of the researchers agreed on the results as

Table 1. List of formal and informal actors that were mentioned in the interviews to play a role in the community response of BoTu during the pandemic.

Formal actors	Informal actors
Mosque	Community council
Salvation army	Restaurants
General practitioner	Community foundations
Charities	COVID-19 response community initiative
Neighbourhood committee	Collaboration and network platform
Church	Network and meeting centre
Municipality of Rotterdam	Care foundations
Housing corporation	Sports clubs
Youth organisation	Social entrepreneurs
Supermarket	Islamic foodbank
Municipal community centre	Community garden
Schools	Volunteers
Food multinational	Community initiatives
Local police officer	Community members
Organised community care	
District nurse	
Formal welfare organisation	
Makerspace	
Non-profit organisation for refugees	
National foodbank	

presented in this paper. Discussions related to both placement in the framework of Nespeca et al. (2020) and that of Slingerland et al. (2020a). With respect to the framework of Nespeca et al. (2020), most discussion revolved on the codes placed in ‘capabilities’: researchers debated whether actors really acted on new capabilities or whether these were capabilities already within their capacity, but not used. With respect to the framework of Slingerland et al. (2020a), most debate concerned the sustainment of activities: researchers discussed which aspects indicate that activities were sustained, or have the possibility to be sustained, and which not. Due to varying circumstances, the researchers involved in the coding did not keep track of a specific percentage of the initial agreement.

Results

As this paper is concerned with the question: *Which capacities and relationships enable a community to be resilient?*, the analysis focused on the roles and the actions that individual members of the BoTu community took in response to the COVID-19 crisis. The following subsections outline how the community leveraged the four key assets for resilience. The first part focuses on the role changes that were made in the community, the second part of the results address the interactions and activities that were observed.

Community leadership and engaged governance through actors changing roles

The two key assets Community Leadership and Engaged Governance were analysed by focusing on the formal and informal actors in BoTu, and whether they made any changes in their role to support these assets. Role changes were mentioned 33 times during the interviews and through actor interaction. Role changes were made both by

representatives of informal actors (to support community leadership) and of formal actors (to support engaged governance). Table 2 outlines the type of role changes that were mentioned in the interviews of informal and formal actors. Please note that one actor could engage in multiple types of role changes (e.g. changing responsibilities and expanding capabilities).

Community leadership of informal actors

Three citizens changed their role to achieve community leadership, when they received signals from the community that vulnerable people needed help during the lockdown. One of these citizens shared this problem online, and two other citizens reacted to this post. These three citizens started to connect significant actors and further identify the needs in the community: ‘... she was worried about elderly people and she wrote “adopt an elderly person” or something. And then I thought, yes, that might be a good idea to get some more people to join in.’ (community leader, informal). These citizens became community leaders whereas in the past they were active residents and/or social entrepreneurs involved in initiatives in the neighbourhood and networked with formal and informal actors through collaboration prior to the crisis. They responded to the COVID-19 crisis by acting as individuals independently of their organisations to initiate the local initiative ‘Delfshaven Helpt’ because they considered it to be necessary. They were able to do this, because of the existing social structures in BoTu that they were part of. ‘People were able to play an effective role here because they were already doing that, so they have the right networks, knowledge and experience at their disposal and know the area well.’ (informal initiative respondent).

All informal actors who made a role change were facilitated through the existing network; it made it easier to connect, collaborate and communicate. Furthermore, a significant group of new volunteers, mainly students, stood up to support the community. Their role change was supported by flexibility in tasks: a result of job loss and working from home. ‘People who usually just go out to work, they are working from home now. Some volunteers said they normally don’t do anything for their district.’ (informal initiative respondent).

The interviewees mentioned 17 informal actors whose role changed and six whose role did not change. Table 2 shows that informal actors mainly changed roles by changing or expanding their activities, using different capabilities. Some organisations switched to online communication, facilitated by digital resources and communication. Existing social networks within the community and contacts to formal organisations played an important role, as did physical resources such as a work place in the neighbourhood.

Table 2. Overview of what type of role changes were mentioned in the interviews of informal and formal actors.

Type of role change	Informal actors	Formal actors
Responsibilities	7	3
Capabilities	14	17
Information needs	1	6
Domain	0	0
Status	1	2

Informal actors used their personal networks to recruit sponsors for a laptop project. *'A great deal of money has been collected through sponsoring, so there are a number of people in the Delfshaven Helpt network who just have a very good professional network and who manage to get money out of all sorts of major organisations. And this money is now being used to buy lots of laptops.'* (informal initiative respondent).

As mentioned above, 6 informal actors were not able to adapt their role. The main factors that prevented role changes and caused frustration were regulations and restrictions. For example, the market place was closed and a local festival was cancelled due to the ban of events. Ineffective communication also frustrated community resilience. Meetings were cancelled and meeting places closed, resulting in inaccessible formal aid and insufficient knowledge about what was happening in the neighbourhood, and therefore little action was taken. *'You hear less news from the neighbourhood, even though everyone from the neighbourhood committee lives close by. Because we no longer see each other and we don't use Zoom, for example, I didn't hear anything anymore'* (member neighbourhood committee, informal). Also, an overflow of irrelevant information in online groups, and poor digital resources and skills frustrated role changes: *'Not everyone is equipped to deal with Whatsapp, websites, entering passwords. That can be quite a disability for someone. You can call but they will just refer you to the Whatsapp group or website. That is when people get stuck.'* (informal initiative respondent). Furthermore, role changes were obstructed by financial constraints and limited network access.

Formal actors operating as engaged governance

Formal actors who changed their activities to support local initiatives were already part of an existing initiative or part of the local network through previous collaboration. As such, the existing social structures of BoTu played a major role in supporting formal actors to deal with the crisis. For example, community leadership actors met with formal actors to discuss the needs and problems within the community, and to propose possible solutions. They could easily contact each other because they had worked together or already knew each other. Formal actors supported informal actors with capacities and resources necessary to perform their tasks and develop their activities. Housing association Havensteder provided a vacant building to the new initiative 'Delfshaven Helpt', that was then used as a volunteer-based grocery giveaway shop to distribute food packages. The rent was waived for the first months. The use of PIER 80, a municipal 'House of the Neighbourhood' enabled actors to work together and facilitate storage of goods. Also, cars and bicycles were needed for the distribution of materials, such as aid packages and flyers.

The interviewees mentioned that 18 formal actors made a role change in response to the imposed lockdown and became involved in engaged governance, one actor did not, and for three actors this is unknown due to lack of data. As illustrated in [Table 2](#), the most common type of role change of formal actors was that their activities changed or expanded (capability related).

Actors who changed responsibilities often also changed or expanded their capabilities. For example, healthcare professionals, like general practitioners, changed their role by exchanging information about a need for support for vulnerable patients that could be fulfilled through emerging local COVID-19 initiatives.

Another role change that occurred is a shift in status among formal actors, as actors started to act more informally, carrying out activities as a group of equals and formal roles did not determine who took on what task. *'It no longer matters who works where or who has which role, whether you are an official neighbourhood manager or area networker, all have been handing out flyers,'* (community leader, informal). Furthermore, formal actors worked as individuals at the periphery of their organisations, and offered individual skills that go beyond their formal tasks and capabilities. *'There was someone from the daycare who apparently could also build a website,'* (community worker, formal). Local formal actors, such as the municipal neighbourhood team, worked from home on the basis of the municipal protocol. They acted fairly quickly at their own discretion, including presence in the neighbourhood (against the official directive), where possible. *'You can certainly notice that one official creates more freedom in dealing with the rules compared to another,'* (informal initiative respondent). Local professionals were frustrated by the rules and regulations. The message from the Municipality was *'work from home, limit contacts. There was actually nothing like "make sure you maintain your network"'* (neighbourhood manager, formal).

In response to the lockdown, [Table 2](#) shows that formal and informal actors changed responsibilities, capabilities, information access, or status. The fourth dimension of roles changes (domain) was not observed for the informal and formal actors in BoTu. The role changes found were from informal actor to community leader, and from formal actor to engaged governance. The existing social network and relationships in BoTu were essential to facilitate these role changes. The next section focuses on the actions these actors took, supported by their information sharing environment and their problem-solving ability.

Interactions and activities: information-sharing environment and problem-solving

The information sharing environment and problem-solving ability of the community enable actors to initiate and develop activities to help the community cope and adapt in a crisis situation. They can access these assets through the social structures and interactions. This part of the results focuses on the coding of factors that supported or frustrated organising activities, such as Delfshaven Helpt, and to what extent they adhered to the principles that support the problem-solving ability of communities, identified by Slingerland et al. [2020a](#)).

Actor interaction: community-driven and self-sustaining

The interaction between the formal and informal actors activated the existing social network in BoTu for initiatives to emerge and evolve in response to the lockdown. In other words: formal and informal actors in BoTu accessed required resources to deal with the lockdown through the existing social structure. The earlier presented actor role analysis shows clearly that the informal community members took the initial initiative as community leaders in response to the lockdown. This is a result from the earlier investments in the BoTu community, explained by one of its residents: *'I think the reason why it came about so quickly in this district, or more specifically in Delfshaven, is because in recent times, years already, investments have been made in the resilience of*

various networks. So we can find each other very quickly and therefore also have a kind of shared framework of values, which makes it easier to work together on the basis of trust,' (community leader, informal). This quote shows that the informal actors feel they are able to make a change and take up responsibility, indicating that problem-solving takes place in a community-driven manner.

The problem-solving ability of the BoTu community was shown to be self-sustaining through the established social relationships that were activated and strengthened among actors who collaborated in response to the lockdown. The existing working relationship and previous experiences could be leveraged during this crisis. This, for example, provoked formal actors to be more flexible in dealing with the official rules. Several municipal employees bypassed the official guidelines to facilitate activities that were initiated by the informal actors. These officials were aware of the importance of visibility and trust in the neighbourhood, as means to inform and engage residents. Such a response from the formal actors shows that activities can be self-sustaining, due to the collaboration between formal and informal actors to solve local problems. Such a response needs an established relationship that is built on trust, mutual respect, and empathy (Wellman and Wortley 1990).

Emerging activities: inclusive, playful, and reflective

Many citizens and professionals in BoTu took initiative as a response to the lockdown. The Delfshaven Helpt initiative in BoTu is inclusive, based on close collaboration between formal and informal actors reaching a greater group within the community than other smaller local informal initiatives. As one formal actor explains: *'Now we have a common goal. That is to help as many elderly and vulnerable people as possible. [...] Previously, of course, you also had other goals and now you work together on a task that is more inclusive.'* (volunteer organisation member, formal). On the other hand, another interviewee mentioned that despite door-to-door distribution of flyers to promote Delfshaven Helpt, many residents in BoTu still were not aware of the existence of this initiative.

The problem-solving ability of BoTu shows flexibility: *'We are resilient because we are relaxed and deal well with the things that come our way. Nobody sits down to cry. At the beginning of the crisis, women came here and gave all mothers a flower bouquet to cheer us up. Yes, they came from BoTu, so there is enough flexibility here.'* (neighbourhood committee member, informal). The BoTu community continuously explored what support residents needed, and adjusted their activities accordingly. These activities and initiatives included: a caller hotline, groceries and food packages, home visits, distribution of laptops for schooling, gifting flowers, a grocery giveaway shop, and youth activities. The high flexibility that the BoTu community has shown is exactly the kind of playfulness and open-endedness that resilient communities need (Stark and Taylor 2014).

To be successful to this purpose, information management is vital. Sharing information mainly happened digitally. While crucial on the one hand, this also caused frustration due to inefficient communication and accessibility problems: *'... and everyone added or asked people to add at some point [to messaging groups]. So, that became more and more extensive, which resulted in a message every three seconds. So that was also a bit, uh, intense.'* (community foundation member, informal). In dealing with

these new ways of communicating and organising, the BoTu community shows that its problem-solving ability is also reflective: actors are willing to learn new things and adjust their ways of working when required.

Discussion

The results described how the formal and informal actors in the BoTu community worked together to engage in activities to support residents during the lockdown period. A reflection on these results helps to further understand which assets support a community to be resilient and as such answers the research question: *Which capacities and relationships enable a community to be resilient?* In addition to outlining these assets, the discussion also provides policy implications on how to strengthen these community capacities and relationships, based on the findings of this research. The identified capacities are networked community, collaboration between actors, flexibility in roles, rules and regulations, and communication. As illustrated in [Figure 2](#), these factors support the community to leverage its assets in times of crisis (Mathie and Cunningham 2003)

Networked community

The crisis response of the BoTu community clearly shows the advantage of a networked place-based community. Social bonds between community leaders were key to the initiatives taken. Existing networks in BoTu made it easier for community members to connect and allocate resources. Actors knew each other's strengths and had a relationship of trust from prior collaborative experiences. Investments made in the network as part of the Resilient BoTu 2028 project paid off: informal community members were empowered to take action, understood each other's diverging perspectives, and could easily connect with formal actors for needed support.

The community response in BoTu, characterised by action initiated by informal actors, followed the logic of Linnell (2014), who discussed that semi-organised and non-organised volunteers may be potential resources for enhancement of community resilience. One of the challenges is to connect significant community actors to each other (Comes 2016). The prior investments in the BoTu network gave the community a big advantage in responding to the COVID-19 crisis, because contacts and relationships were already established (Berkes & Ross, 2013; Eizaguirre and Parés 2019; Walsh 2007). Informal and formal actors could easily find each other to set up expert networks, communication, and coordination as suggested by Comes (2016) and Caruso, Mela, and Pede (2020).

These results demonstrate that a significant level of internal and external networks and networking (activity) is essential for a community to be resilient. Investments in formal and informal networks in a neighbourhood community have shown to pay off, because an established neighbourhood network, including formal and informal actors, becomes a community asset that can be used in times of crisis. During crisis response, this network is further strengthened, although it remains unknown whether it leads to structural change (Magis 2010). As such, policy makers should continue to invest in

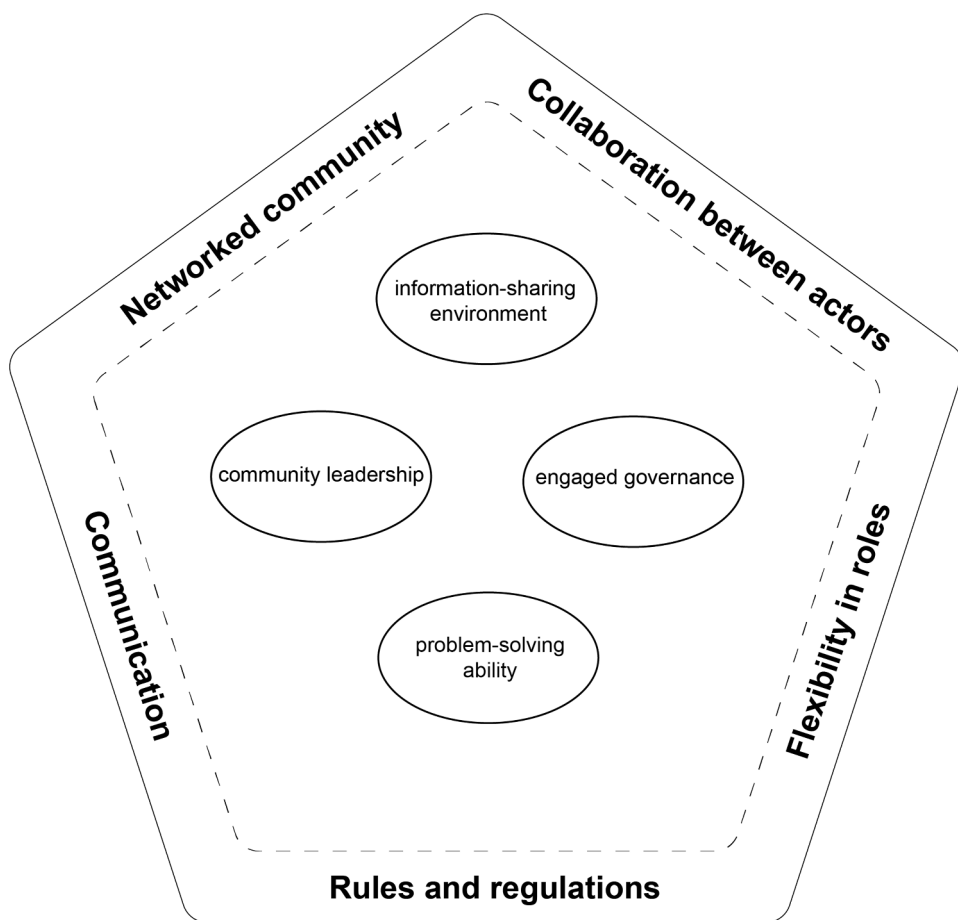


Figure 2. Four community assets can be accessed in times of crisis, and five factors support this process.

neighbourhood networks and establish relationships between formal and informal actors to strengthen the community's resilience.

Collaboration between actors

The established network, as discussed above, also enhanced the collaboration between the various actors in BoTu. While prior to the crisis, some initiatives experienced competition, during the lockdown, actors aligned to a common goal and shared vision to help the residents of BoTu. Initiatives, formal, and informal actors collaborated: they had more access to resources to solve problems. For example, Pier 80, also known as a 'Home of the Neighbourhood', originally being a meeting place, became a central hub, that provided storage space for goods and functioned as a workplace for formal actors in the community.

In line with Williams et al. (2017) and Caruso, Mela, and Pede (2020), this research shows that when formal and informal actors collaborate, they are better able to solve problems in response to a crisis event. Resources and community assets become

available through the community network and relationships (Mathie and Cunningham 2003). The initiated collaboration could develop into a long-term participative collaboration network and become another asset of the BoTu community (Magis 2010). Involvement of formal and informal actors in such collaboration is necessary, as they have different types of characteristics and qualities which are both needed (Goldstein et al. 2015; Hills 2002). To prevail the collaboration, policy makers should offer some infrastructure for support and sustain actor collaboration (Caruso, Mela, and Pede 2020). Municipalities should enable continuity to local initiatives and other types of collaboration, for example through long-term funding or stable initiative policies.

Flexibility in roles

The role changes of several actors showed the flexibility of individuals and as such enabled more actions and activities to be possible in response to the lockdown. The results identified that almost all actors in BoTu adapted their role, either making use of other capabilities, focusing on other responsibilities, or even formal actors acting towards the informal domain. This flexibility of actors to their role facilitates actions or access to several resources (Bourdieu 1983; Coleman 1988; Nespeca et al. 2020). In the case of BoTu, the role adaptations facilitated the community to solve problems in a crisis response.

While several formal and informal actors changed their role within the community to fulfil a function that was needed, formal actors sometimes failed to act when informal actors needed their support, for example civil servants who were not available when needed, institutions not stepping up to reach a bigger group in the community, or not supporting initiatives in administrative burdens to financially cope with the crisis. This resulted in citizens trying to fill the gaps the government left in dealing with the COVID-19 restrictions.

In general, the actions taken in the BoTu community came from established formal and informal actors in the community. New volunteers stood up to support these actions, however the BoTu community was not able to extend participation with other initiators to include even more citizens. Self-organised citizens need to represent a large group of citizens to succeed (Edelenbos, van Meerkerk, and Schenk 2016). Policy makers can play a role in this: they should facilitate and support activities that enable informal actors to reach a more diverse group of community leaders, and adjust initiative policies to being more focused on reaching different types of citizen groups, rather than on focusing on efficiency.

Rules and regulations

The policies and guidelines that affected the community in the case study were mostly nationally imposed and, on several occasions, frustrated the ability to act resilient. For example, municipality employees were, according to the protocols, not allowed to meet in person with partners or collaborators, which meant being limited in the support these employees would be able to provide the community. Another aspect was financial constraints, that limited actions of informal actors. Due to the pandemic, some initiatives had to halt usual operations and therefore endured a financial hit. Additionally,

institutions initially fully closed meeting places that residents used to visit for information exchange, instead of finding another useful function for these valuable meeting and information points.

Although municipalities had some flexibility in the policies, they were not able to adapt to incorporate the community's local practices, thus frustrating the community's ability to act (Stark and Taylor 2014; Wilson 2013), and hence their resilience (Edelenbos, van Meerkerk, and Schenk 2016; Grube and Storr 2014; Kapucu and Sadiq 2016). This lack of action from the formal actors was partially caused by the imposed regulations and rules, and the lack of mandate that local actors were given to adapt protocols to the local situation. Nevertheless, this research has shown that flexibility of actors, in terms of their roles and corresponding actions, is required for community resilience (Beilin and Wilkinson 2015; Caruso, Mela, and Pede 2020). Policy makers should further experiment with this flexibility in terms of boundary spanning (Aldrich and Herker 1977), to give local actors the space (mandate or financial) to act adequately in times of crisis (Fastiggi, Meerow, and Thaddeus 2021).

Communication

To effectively solve problems in times of crisis, communication between community members, formal and informal, is essential (Grube and Storr 2014). From the start of the COVID-19 crisis, the BoTu community set up communication between various actors and expressed the need to further structure communication to better respond to the needs of the community. Initial communication could be set up quickly, due to existing connections between actors. Digital resources or devices played a major role in furthering the communication between actors, especially informal. Mobile communication applications and video conferencing software were used to form communication groups and have online meetings. ICT and social media are clearly an asset in crisis response (Linnell 2014). Therefore, the aim to develop technological means to allow collective contributions of residents during crises is very much justified (Comes 2016; Vos and Sullivan 2014).

The value of meeting places was affirmed in light of community resilience, because meeting places were closed as a consequence of the measures to prevent the spread of COVID-19. As previously stated, meeting places like Pier 80, 'Home of the Neighbourhood', provide an environment in which some locals get their information or help with other aspects of their lives. In contrast, ineffective communication was experienced during communication with digital resources, and for promoting local initiatives such as Delfshaven Helpt. Although flyers were spread from door to door, many citizens did not read or see them, as many locals did not know of the existence of the support initiatives. While much information was distributed through digital media, not all residents are digitally literate. As such, closing down meeting places in BoTu hindered the possibility of people to gather together and share information. Digital communication tools supported the BoTu community to organise themselves, but the closing of physical meeting points, such as community centres, frustrated communication at the same time. Closing off parts of the community from the network undermines resilience (Edelenbos, van Meerkerk, and Schenk 2016). Policy makers should be

careful when closing down these public places, because they are communication nodes and by closing them, some residents in the community lose access to local information.

Conclusion

Resilient communities respond to ultimate challenges through adequate communication (Comes 2016) and effective collaboration between formal and informal actors (Linnell 2014). To further understand what capacities and relationships resilient communities need in times of crisis, and how they access it through existing social structures, this research studied how a neighbourhood-based community in Bospolder-Tussendijken (BoTu) dealt with lockdown restrictions due to the COVID-19 crisis. A literature review identified four key assets that communities may use to be resilient: community leadership, engaged governance, problem-solving ability, and information sharing environment. These assets require the existence of social relationships and interactions between members of the community (Keck and Sakdapolrak 2013).

Semi-structured interviews with representatives of formal and informal actors in the BoTu neighbourhood were analysed to understand which actions community members took, and how they adapted their role in the community to help others during the lockdown. The results show that those who were active in the community were aware of, and most often involved in, the many initiatives in the community, whereas those who were not actively involved, were most often not aware of community initiatives. The analysis showed that the use of key assets to community resilience was supported by five factors: networked community, collaboration between actors, flexibility in roles, rules and regulations, and communication.

In their response to the lockdown, the BoTu community benefitted from the existing network in the community. Formal and informal actors had prior relationships which made it easier to connect, communicate, and collaborate to start local initiatives in response to the crisis. The research further showed that many actors, both formal and informal, were flexible in changing their roles to this purpose, for example taking up other responsibilities, using different capabilities, or being more open in sharing information with other actors. The nationally imposed rules and regulations sometimes frustrated these role changes, and restricted the flexibility to adjust to the local context.

While this study confirms findings on community resilience from others, such as the benefit of existing networks (Berkes & Ross, 2013; Walsh 2007), the need for adequate collaboration (Williams et al. 2017), and the required flexibility of actors to change roles in crisis response (Nespeca et al. 2020), it produces more specific knowledge on the capacities and relationships that are needed for community resilience, and how these can be strengthened and accessed by local actors. Institutions such as the local government can help communities to be more resilient, and this paper suggested five policy implications that will help communities leverage their assets in dealing with crisis.

The findings of this research open up new questions on the capacities and relationships needed for community resilience. For example, how does prior collaboration between local actors influence their ability to effectively connect and collaborate in times of crisis? Or to what extent are the four key assets identified from literature exhaustive? And are the five factors, found in this research to help communities leverage their assets, all of equal importance for community resilience? Another

burning question following a heated debate in resilience literature (Berkes & Ross, 2013), is to what extent communities such as BoTu should ‘bounce back’ to their original state to show resiliency, or what would indicate that they have adapted to be better prepared for future crisis. The authors look forward to further exploring how community resilience works in practice, based on these questions, to help policy makers and communities better prepare for challenging times.

Notes

1. The *social index* includes how citizens perceive the liveability in their neighbourhood, citizen participation, and place attachment. The scores go from 0 (low) to 200 (high) and the benchmark is the Rotterdam average in 2014 (100) (OBI 2018).
2. Interviews were held by researchers of University and of the Veldacademie. Participants interviewed by University gave their written consent for participation (9). Participants interviewed by the Veldacademie gave their oral consent (37). All participants who are quoted gave their consent for their quote to be included in this paper.

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