

MANAGING CRISES BEYOND THE EU BORDERS: A NETWORK-BASED ANALYSIS

Author: Carlos D. Bravo Laguna

TESI DOCTORAL UPF / 2022

Thesis supervisor: Prof. Jacint Jordana Casajuana

DEPARTMENT OF POLITICAL AND SOCIAL SCIENCES



I would like to begin by thanking Jacint Jordana for his excellent supervision and wise counsel during these years. This work would not have been possible without his mentorship.

This doctoral thesis was supported by the Spanish Ministry of Education and Vocational Training through a Formación del Profesorado Universitario Grant (FPU16/01087). This institution granted additional funding to conduct research stays in Konstanz (EST18/00206) and Tübingen (EST21/00430). I also would like to express my gratitude to the Israeli Council for Higher Education, the Jean Monnet Network on Research and Teaching in EU Foreign Affairs (NORTIA), and the Young European Research Universities Network (YERUN) for funding this research.

Throughout these years I have worked with fantastic colleagues who have helped me grow personally and professionally. Among many others, I would like to mention Andrea Bianculli, David Levi-Faur, Ixchel Pérez Durán, Juan Carlos Triviño Salazar, Melanie Nagel, and Volker Schneider, with whom I have had the privilege to work closely before graduating. I have learned a lot from you.

Many individuals have selflessly provided constructive feedback in countless meetings, workshops, conferences, and revisions that has helped me refine this doctoral thesis. Thank you all.

Last but not least, I would like to thank my parents, siblings, and friends, who have relentlessly supported me through this journey.

Abstract

This thesis discusses the role and weight of the European Union institutions and Member States in the responses to three crises whose epicenters are located beyond the EU borders. To do so, it examines the responses to the 2010 Icelandic ash cloud crisis, the 2013-2016 Ebola Virus Disease outbreak, and the 2019 humanitarian crisis triggered by Cyclones Idai and Kenneth. By combining social network analysis with semi-structured interviews with crisis managers, this thesis provides novel empirical evidence that contributes to understanding how theories of European integration, global public goods, or resource dependencies come into play in crisis management efforts. Its findings show the multilateral nature of EU crisis responses as well as the relevance of supranational EU bodies in these efforts. They also suggest that there is room for improvement in the coordination between the supranational and Member State levels for crisis management purposes.

Resumen

Esta tesis discute el papel y el peso de las instituciones europeas y los estados miembros de la Unión Europea en las respuestas a tres crisis cuyos epicentros están situados fuera de sus fronteras. Específicamente, el análisis se centra en la crisis aérea originada tras la explosión en 2010 del volcán islandés Eyjafjallajökull, el brote de ébola en 2013-2016, y la crisis humanitaria ocasionada por los ciclones Idai y Kenneth en 2019. Mediante el uso de análisis de redes sociales en combinación con entrevistas semiestructuradas, esta tesis aporta evidencia empírica novedosa que contribuye a entender la aplicabilidad de teorías de integración europea, bienes públicos globales, o dependencia de recursos a la gestión de crisis. Sus conclusiones destacan la naturaleza multilateral de la respuesta europea, así como el peso de organismos europeos supranacionales en estos episodios. También sugieren que existe margen de mejora en la coordinación entre los Estados Miembros y organismos supranacionales en estos contextos.

Table of contents

	Pag.
Abstract.....	v
1. INTRODUCTION	1
1.1. Europe in Crisis	1
1.2. Comparing EU Reactions to External Crises	2
1.3. The Role of Networks in Crisis Management	4
1.4. Methodology and Case Selection	7
Bibliography	9
2. TRANSBOUNDARY CRISIS MANAGEMENT UNDER THE VOLCANO: THE CASE OF THE ICELANDIC ASH CLOUD	15
2.1. Introduction	15
2.2. The Rise of Transboundary Crises	16
2.3. Transboundary Crisis Management through the Lens of European Integration Theories	19
2.4. Methodology	22
2.5. The 2010 Icelandic Ash Cloud Crisis	25
2.6. Analysis and Results	28
2.7. Conclusions	32
Bibliography.....	33
Annex 2.1	38
Annex 2.2	39
3. READY TO MANAGE A GLOBAL PANDEMIC? EXAMINING THE EU RESPONSE TO THE 2013- 2016 EBOLA VIRUS DISEASE OUTBREAK	41
3.1. Introduction	41
3.2. The EU Communicable Disease Control System ..	44
3.3. The Role and Weight of the EU in the Provision of Communicable Disease Control	46
3.4. Methodology	49
3.5. Analysis	54
3.6. Discussion	64
Bibliography.....	65
Annex 3.1	70
Annex 3.2	71
Annex 3.3	74
4. EXAMINING THE REACTION TO A HUMANITARIAN EMERGENCY FROM A NETWORK PERSPECTIVE: THE RESPONSE TO CYCLONES IDAI AND KENNETH	81
4.1. Introduction	81

4.2. The EU and the Management of Humanitarian Emergencies Overseas	84
4.3. Explaining the Coordination of Humanitarian Emergency Responses	87
4.4. Methodology	89
4.5. Analysis and Results	92
4.6. Conclusion	101
Bibliography.....	103
Annex 4.1	107
Annex 4.2	108
5. CONCLUSIONS	111
5.1. Main Findings of the Thesis	111
5.2. Towards a Typology of External Crisis Networks?	115
Bibliography.....	119

1. INTRODUCTION

1.1. Europe in Crisis

Several virulent crises have recently shaken the building blocks of Europe. Episodes such as the 2008 financial crisis or the massive refugee flows from the Middle East in 2015 have monopolized media attention in the continent and have concentrated the efforts of European Union policymakers in recent years. Debates around the legitimacy deficit of the EU have reemerged after an increased recurrence of such incidents (Boin and Rhinard, 2008). Accordingly, many scholars have turned their eyes to new types of crises that demand distinct forms of policy-making due to their exceptional nature (Boin, 2019). However, research on this area is still in its infancy. For example, few academic papers have approached the topic of coordination between EU and non-EU countries for crisis management purposes.

This thesis addresses these shortcomings by determining the role and weight of the EU institutions and Member States in the responses to three crises with an epicenter beyond the EU borders. More specifically, it examines the reactions to the 2010 Icelandic ash cloud crisis, the 2013-2016 Ebola Virus Disease outbreak, and the 2019 humanitarian response to Cyclones Idai and Kenneth from a network perspective. The choice of social network analysis —along with elite interviews— as the methodology of this study was made on the basis of its ability to produce abundant empirical evidence regarding formal and informal practices (Pouliot and Thérien, 2018); these have a significant weight in crisis management (Schomaker et al., 2021). By doing so, this work shifts its analytical focus away from formal rules and the institutional setup of the EU (i.e., what it ‘is’) in order to reflect upon its behaviour (namely, what it ‘does’) (Aggestam, 2008): this approach echoes the ‘practice turn’ that EU studies have recently experienced (Adler-Nissen, 2016).

This introduction is subdivided into three sections. Firstly, it presents the different types of crises reviewed in this thesis and reflects upon the EU reactions to these. Later, it examines the role of networks in crisis responses. The final section discusses some considerations related to the methodology and the case selection of this work.

1.2. Comparing EU Reactions to External Crises

This thesis examines the role and weight of the EU institutions and Member States in the responses to three external crises. Crises are complex events characterized by policy overload and government failure. They have been defined as unexpected serious threats that endanger the survival of a system; crisis managers need to produce quick responses and assume political risks under conditions of deep uncertainty (Boin and Rhinard, 2008; Rosenthal et al., 1989). Boin et al. (2013a) coined the rather EU-centric term ‘external crises’ to refer to those incidents whose epicenters are located beyond the EU borders.

This research expands this definition by distinguishing between three different sub-categories of external crises. Firstly, localized crises whose effects remain circumscribed to relatively small non-EU areas. Secondly, global crises that end up spreading all over the world. These two sub-categories form the polar opposites of a continuum that includes incidents that fit perfectly in none of these categories. In this somewhat middle ground lies the notion of external transboundary crisis, which describes those incidents that affect more than one country during an unspecified time period (Ansell et al., 2010) and originate outside the EU borders. Transboundary crises tend to affect multiple policy domains and escalate rapidly (Boin, 2019; Boin et al., 2014). By definition, it is not always easy to mark the beginning and the end of a transboundary crisis (Ansell et al. 2010). Indeed, a transboundary crisis might unfold days or weeks after the occurrence of the related disaster. On the other hand, memories of certain transboundary crises might influence policy-making years after the emergency situation itself is thought to be over (Hutter and Lloyd-Bostock, 2017). Accordingly, many scholars (Rosenthal et al., 2001; Smith, 1990) warn against the division of transboundary crises in clearly defined stages. Instead, other authors (Backman and Rhinard, 2018; Boin et al., 2013b) have identified a series of tasks for effective transboundary crisis management: these are detection, sense-making, decision-making, coordination, meaning-making, communication, accountability and lessons-learning.

Beyond these distinctions, it is worth reflecting upon the implications pertaining to the direct or indirect nature of an external threat to the security of the EU. Occasionally, the EU intervenes in localized external crisis responses even when it does not perceive such incidents as direct threats to its integrity. Possible motivations include an interest to

prevent potential negative side effects of a neglected crisis from reaching the EU borders. Refugee waves or the emergence of terrorist hubs constitute examples of such side effects.

The tools for managing external crises vary according to their nature. Hence, examining different types of incidents allows for understanding how contextual variations condition the coordination of crisis responses. For example, Gleicher and Kaul (2013) identified the provision of global public goods as an effective strategy to prevent global threats. At the same time, the demanding requirements for the effective delivery of global public goods make their inefficient governance a source of emergencies: for instance, the inability to control communicable diseases in certain world regions explains the recurrent emergence of epidemics with potentially global effects, such as the 2013-2016 Ebola Virus Disease outbreak (Gleicher and Kaul, 2013). Furthermore, the decentralized (i.e., away from the control of particular sovereign states), devolved (considering the prominence of private-sector and civil society bodies), and disaggregated (in several levels of governance) nature of global public policymaking demands more sophisticated crisis management approaches than national strategies organized under the hierarchical authority of the state (Stone, 2020).

Both global and external transboundary (as well as some localized) crises require coordination between EU and non-EU countries. Hence, they offer an opportunity to examine the ability of different actors to play central roles in their responses; theories of European integration such as neofunctionalism or intergovernmentalism show great potential to explain this puzzle. For instance, Boin et al. (2013a) have argued that the EU faces less demanding diplomatic challenges and is better able to build the necessary legitimacy to intervene in non-EU countries with higher levels of socialization and integration into its fabric. Bearing in mind the pertinence of this research agenda, existing work has discussed how and why crises affect European integration (Degner, 2019). However, further research needs to examine in depth the interplay between European integration and the manner in which EU reactions to external incidents are conducted.

The ability of the EU to provide effective responses to external crises is also conditioned by its internal structure. Hence, studying crisis responses involving the EU requires a reflection regarding the intricacies of its complex multi-level governance system. The idea of multi-level governance was originally conceived to describe the functioning of the EU: it accounts for the distribution of authority across different levels (e.g., national,

subnational, and supranational) (Hooghe and Marks, 2001). The inclusion of the word ‘governance’ refers to the gradual loss of policy-making authority that national governments have experienced in recent decades, and the growing relevance of non-state actors in policy-making (Tortola, 2017).

In the face of crises, the multi-level system of the EU is prone to conflicts between the aspiration to provide supranational answers to these incidents and the reluctance of national governments to relinquish their sovereignty when confronted with threats to their national security (Boin and Rhinard, 2008). These circumstances explain the coexistence of multiple national crisis management strategies in the European continent, a phenomenon that hampers the elaboration of a consistent EU foreign policy vision (Smith, 2011). On the other hand, the creation of shared competence systems in different sectors (e.g., public health, humanitarian policy) has empowered supranational organizations such as the European Commission. That being said, the delegation of authority to different legal pillars constrains the ability of the EU institutions to work together (Boin and Rhinard, 2008).

In any case, collective decision-making and the subsequent incorporation of new actors into the EU policy-making process are gaining space in the current ‘crisisified’ landscape of the European continent (Rhinard, 2019). This greater weight of non-state, subnational, and supranational actors in policy-making has been paralleled with an increased attention to the role of networks in this process. This will be the topic of the following section.

1.3. The Role of Networks in Crisis Management

This section reviews the role of networks in crisis management. Early attempts of applying network science to political contexts sought to connect policy outcomes with the nature of wide, complex structures comprising a set of actors, the relations between them, and the practices within such systems (for example, see Rhodes and Marsh, 1992). Some of these works highlighted that “the structure of a network has a major influence on the logic of interaction between the members of the networks” (Börzel, 1998: 258). Other theorists even claimed that structures of social relationships might be more powerful explanatory factors than individual actor characteristics (Kenis and Knoke, 2002). Later studies found that certain practices result in the creation of new social ties,

the reinforcement of existing ones, and the alteration or strengthening of power relations (Pouliot and Thérien, 2018). For their part, crisis management scholars claimed that the increasingly networked nature of threats demands networked responses to these (Slaughter, 2004). In such contexts, “specific organizational arrangements may exacerbate crises or limit loss or damage” (Christensen et al., 2016: 889).

That being said, network scholars have not agreed on a consensual definition for this idea, which has been used a) as a generic umbrella concept to describe the development of more or less stable structures constituted by the relations between the state and a series of non-state actors, b) with a more specific focus to refer to a form of governance (Kohler Koch and Eising, 1999), or c) as an analytical framework (Börzel, 1998; Raab and Kenis, 2006) or structural phenomenon that consists of a set of actors and the relationships among them (Siciliano et al., 2020). While these approaches are not mutually exclusive (Börzel, 1998), each of them emphasizes different aspects.

The first usage refers to networks as “typologies of interest intermediation” (Börzel, 1998: 256). The vagueness of this definition allows for heavily centralized, hierarchical structures to be placed under the category of networks (Raab and Kenis, 2006). In any case, the idea of policy networks refers to a handful of firms, non-governmental organizations, public agencies, lawmakers, and thinkers that cooperate with each other in order to achieve common policy goals (Provan et al., 2007). Interorganizational policy networks support individual actors with the necessary stability, legitimacy, and information to operate under conditions of uncertainty (Lee et al., 2012). They tend to appear in environments with high levels of interdependence (Jordana and Sancho, 2005), as they offer solutions to collective action problems (Feiock et al., 2010). Nevertheless, interorganizational policy networks are vulnerable to transaction costs, which occasionally lead some of their members to behave opportunistically (Lee et al., 2012).

As progress in international technology has enabled communications along greater distances and incorporated new actors into the policy-making process, the concept of transnational policy networks has gained relevance in crisis management. Transnational policy networks are defined as “multilateral policy deliberative and policy generating fora composed of government officials (including officials of international organizations), NGOs, and even corporate partners that engage in initiatives marked by a consensus-based decision-making process that is not clad in binding legal treaty-based provisions”

(Kingah et al., 2015: 234). This definition highlights that transnational policy networks are ‘necessarily informal’ arrangements without legal status (Stone, 2020). For its part, the word ‘transnational’ emphasizes the role of non-state actors such as private firms or non-governmental organizations in these structures. On a related note, this thesis is embedded in the so-called ‘methodological transnationalism’, which removes the state from the center of the picture and identifies the nation-state as one of several possible governance frameworks in which to situate policy processes and the public sector (Stone, 2020).

The second usage refers to network governance, an idea that focuses on the involvement of actors other than national governments in the fulfilment of governing tasks. This concept is associated with specific structural features: among these, open channels of communication, shared authority, high levels of trust in other network members, and the pursuit of common goals through coordinated efforts are typically found among the participating actors, which enjoy relatively high degrees of autonomy (Börzel and Heard-Lauréote, 2009; Raab and Kenis, 2006). The premise of shared authority does not necessarily involve non-hierarchical interactions: occasionally, authority is just dispersed among a handful of actors that are by themselves able to jeopardize coordination across the entire network (Moynihan, 2009). Informal interactions, characterized by a non-binding voluntary engagement of the actors involved, also play a central role in networked forms of governance (Hollis, 2010).

Crisis networks have been conceptualized as goal-oriented structures (Kilduff and Tsai, 2003). In other words, crisis managers tend to form ties with peer institutions in order to reduce uncertainty and produce quick, effective, and coordinated reactions (Galaskiewicz, 1985); the diversity of motivations and resources within crisis networks as well as the high levels of stress and uncertainty inherent to crises complicate such goals (Ansell et al., 2010). While preexisting arrangements with various degrees of formality and centralization may affect the configuration of some crisis networks, on other occasions these are formed spontaneously (Ansell et al., 2010; Olsson, 2015). In this regard, the specialized literature concludes that no specific model is clearly advantageous for crisis management purposes (Boin et al., 2014). In any event, there is still a need for empirical evidence that brings conceptual and theoretical refinement to the notion of crisis networks (Olsson, 2015). Furthermore, the study of structural characteristics and social dynamics within crisis networks could potentially advance our existing knowledge of

processes such as European integration or the provision of global public goods (e.g., by showing how EU actors coordinate with non-EU countries for crisis management purposes), in view of the scarcity of research focusing on these aspects. This thesis addresses these literature gaps by examining three cases of crisis networks.

1.4. Methodology and Case Selection

The third usage refers to a methodological perspective that involves the use of social network analysis (SNA). Network science assumes the existence of dependence between network relations; this circumstance requires the use of a particular methodological lens (other than, for example, regression analysis) to study these phenomena (Robins, 2015). This work addresses the criticism that network theorists have limited themselves to proving the existence of networks without assigning them any explanatory power (Börzel, 1998; Raab and Kenis, 2006). For example, this technique helps capture the ability of networks to rapidly share information throughout crisis responses (Ansell et al., 2010).

To construct the networks, this thesis relies on survey data. Survey data capture in a precise way the dynamics underlying socially constructed systems (Kim, 2020). While the first two articles simply present a series of descriptive centrality indicators, the third paper applies an Exponential Random Graph Model (ERGM) in order to identify drivers of tie formation.

Besides SNA, this work uses elite semi-structured interviews with crisis managers as sources of evidence. Interviews provide in-depth qualitative insights into the role and weight of the EU in the management of the examined crises. They also help understand the extent to which EU supranational and Member State actors become involved and coordinate effectively within external crisis networks. The methodology section of each paper describes these aspects in greater depth.

This research applies a diverse case selection logic that aims at “illuminating the full range of variation” within the heterogeneous universe of external crises (Gerring, 2007: 89). Hence, it examines the responses to an external transboundary incident whose effects rapidly spread across Europe, a global disaster, and a localized crisis that did not pose a direct threat to the EU. More specifically, its first paper examines the extent to which theories of European integration shed light on the response to the 2010 Icelandic ash cloud

crisis. For its part, the second article analyzes the 2013-2016 Ebola outbreak in order to discuss the EU involvement in the provision of a global public good, namely communicable disease control. Finally, the third paper studies the humanitarian disaster resulting from the 2019 Cyclones Idai and Kenneth in Mozambique through the lens of resource dependence theory.

This case selection strategy captures variation in several dimensions that are relevant to crisis response efforts, such as the type of crisis, how direct the threat to the EU is, or the location of its epicenter. While the epicenter of the Icelandic ash cloud crisis was located next to the EU borders, the latter two incidents were initially enclosed in a more distant, less integrated area. Having said that, the 2013-2016 Ebola outbreak managed to reach the European continent after the first infections in its territory were registered; this was never the case for the 2019 Cyclones Idai and Kenneth, which was never perceived as a direct threat to the EU. For this reason, the levels of politicization and salience of the latter episode were considerably lower than those of the 2014-2016 Ebola outbreak or the 2010 Icelandic ash cloud crisis. Moreover, each of these crises affected different policy sectors (namely, the air transportation, public health, and humanitarian fields, respectively). Among these, air transportation has a pre-eminently technical nature, whereas the humanitarian and public health fields have a greater political component. Therefore, this selection encompasses incidents affecting issue areas with varying levels of centrality in the policy agenda. Such variation might have also affected the degree of politicization of these crises (Rhodes and Marsh, 1992).

Bibliography

- Adler-Nissen, R. (2016). 'Towards a Practice Turn in EU Studies: The Everyday of European Integration'. *Journal of Common Market Studies*, Vol. 54(1): 87-103
- Aggestam, L. (2008). Introduction: Ethical Power Europe? *International Affairs*, 84: 1-11
- Ansell, C., Boin, A., & Keller, A. (2010). Managing Transboundary Crises: Identifying the Building Blocks of an Effective Response System. *Journal of Contingencies and Crisis Management*, 18(4): 195-207
- Backman, S., & Rhinard, M. (2018). The European Union's Capacities for Managing Crises. *Journal of Contingencies and Crisis Management*, 26: 261-271
- Boin, A. (2019). The Transboundary Crisis: Why We Are Unprepared and the Road Ahead. *Journal of Contingencies and Crisis Management*, 27(1): 94-99
- Boin, A., Busuioac, M., & Groenleer, M. (2014). Building European Union Capacity to Manage Transboundary Crises: Network or Lead Agency Model? *Regulation & Governance*, 8: 418-436
- Boin, A., Ekengren, M., & Rhinard, M. (2013a). *The EU as a Crisis Manager: Patterns and Prospects*. Cambridge, UK: Cambridge University Press.
- Boin, A., Kuipers, S., & Overdijk, W. (2013b). Leadership in Times of Crisis: A Framework for Assessment. *International Review of Public Administration*, 18(1): 79-91
- Boin, A., & Rhinard, M. (2008). Managing Transboundary Crises: What Role for the European Union? *International Studies Review*, 10: 1-26
- Börzel, T. A. (1998). Organizing Babylon – On the Different Conceptions of Policy Networks. *Public Administration*, 76: 258-273
- Börzel, T. A., & Heard-Lauréote, K. (2009). Networks in EU Multi-Level Governance: Concepts and Contributions. *Journal of Public Policy*, 29(2): 135-152
- Christensen, T., Lægreid, P., & Rykkja, L. H. (2016). *Organizing for Crisis Management: Building Governance Capacity and Legitimacy*. *Public Administration Review*, 76(6): 887-897
- Degner, H. (2019). Public Attention, Governmental Bargaining, and Supranational Activism: Explaining European Integration in Response to Crises. *Journal of Common Market Studies*, 57(2): 242-259
- Feiock, R. C., Lee, I. W., Park, H. J., & Lee, K-H. (2010). Collaboration Networks among Local Elected Officials: Information, Commitment, and Risk Aversion. *Urban Affairs Review*, 46(2): 241-262

- Galaskiewicz, J. (1985). Interorganizational Relations. *Annual Review of Sociology*, 11: 281-304
- Gerring, J. (2007). *Case Study Research: Principles and Practice*. Cambridge: Cambridge University Press
- Gleicher, D., & Kaul, I. (2013). New Diplomacy for Health: a Public Goods Perspective. In: Kickbusch, I., Lister, G., Told, M., et al. (eds) *Global Health Diplomacy. Concepts, Issues, Actors, Instruments, Fora and Cases*. (pp. 107-124). New York: Springer
- Hollis, S. (2010). The Necessity of Protection: Transgovernmental Networks and EU Security Governance. *Cooperation and Conflict*, 45(3): 312-330
- Hooghe, L., & Marks, G. (2001). *Multi-level governance and European integration*. Lanham, MD: Rowman & Littlefield
- Hutter, B. M., & Lloyd-Bostock, S. (2017). *Regulatory Crisis: Negotiating the Consequences of Risk, Disasters and Crises*. Cambridge: Cambridge University Press
- Jordana, J., & Sancho, D. (2005). Policy Networks and Market Opening: Telecommunications Liberalization in Spain. *European Journal of Political Research*, 44: 519-546
- Kenis, P., & Knoke, D. (2002). How Organizational Field Networks Shape Interorganizational Tie-Formation Rates. *Academy of Management Review*, 27(2): 275-293
- Kilduff, M., & Tsai, W. (2003). *Social Networks and Organizations*. Thousand Oaks: Sage Publications
- Kim, R. E. (2020). Is Global Governance Fragmented, Polycentric, or Complex? The State of the Art of the Network Approach. *International Studies Review*, 22: 903-931
- Kingah, S., Schmidt, V., & Yong, W. (2015). Setting the Scene: the European Union's Engagement with Transnational Policy Networks. *Contemporary Politics*, 21(3): 231-244
- Kohler-Koch, B., & Eising, R. (1999). *The Transformation of Governance in the European Union*. London: Routledge
- Lee, Y., Lee, I. W., & Feiock, R. C. (2012). Interorganizational Collaboration Networks in Economic Development Policy: An Exponential Random Graph Model Analysis*. *Policy Studies Journal*, 40(3): 547-573
- Moynihan, D. P. (2009). The Network Governance of Crisis Response: Case Studies of Incident Command Systems. *Journal of Public Administration Research and Theory*, 19(4): 895-915
- Olsson, E-K. (2015). Transboundary Crisis Networks: the Challenge of Coordination in the Face of Global Threats. *Risk Management*, 17(2): 91-108

- Pouliot, V., & Thérien, J. (2018). Global Governance in Practice. *Global Policy*, 9(2): 163-172
- Provan, K. G., Fish, A., & Sydow, J. (2007). Interorganizational Networks at the Network Level: A Review of the Empirical Literature on Whole Networks. *Journal of Management*, 33: 479-516
- Raab, J., & Kenis, P. (2006). Taking Stock of Policy Networks: Do They Matter? In: Fischer, F., Miller, G. J., and Sidney, M. S. (Eds.) *Handbook of Public Policy Analysis. Theory, Politics, and Methods*. Boca Raton: CRC Press
- Rhinard, M. (2019). The Crisisification of Policy-making in the European Union. *Journal of Common Market Studies*, 57(3): 616-633
- Rhodes, R. A. W., & Marsh, D. (1992). New Directions in the Study of Policy Networks. *European Journal of Political Research*, 21: 181-205
- Robins, G. (2015). *Doing Social Network Research: Network-Based Research Design for Social Scientists*. London: Sage
- Rosenthal, U., Boin, A., & Comfort, L. K. (2001). *Managing Crises. Threats, Dilemmas, Opportunities*. Springfield: Charles C Thomas
- Rosenthal, U., Charles, M. T., & 't Hart, P. (1989). *Coping with Crises: The Management of Riots, Disasters and Terrorism*. Springfield: Charles C Thomas
- Schomaker, R. M., Hack, M., & Mandry, A. (2021). The EU's Reaction in the First Wave of the COVID-19 Pandemic Between Centralisation and Decentralisation, Formality and Informality. *Journal of European Public Policy*, 28(8): 1278-1288
- Siciliano, M. D., Wang, W., & Medina, A. (2020). Mechanisms of Network Formation in the Public Sector: A Systematic Review of the Literature. *Perspectives on Public Management and Governance*: 1-19
- Slaughter, A.-M. (2004). *A New World Order*. Princeton, NJ: Princeton University Press.
- Smith, D. (1990). *Beyond Contingency Planning: Towards a Model of Crisis Management*. *Organization & Environment*, 4(4): 263-275
- Smith, M. (2011). The European Union, the United States, and Global Public Goods: Competing Models or Two Sides of the Same Coin? In: Whitman, R. G. (Ed.) *Normative Power Europe: Empirical and Theoretical Perspectives*. Basingstoke: Palgrave Macmillan
- Stone, D. (2020). *Making Global Policy*. Cambridge: Cambridge University Press
- Tortola, P. D. (2017). Clarifying Multi-Level Governance. *European Journal of Political Research*, 56: 234-250

Bravo-Laguna, C. [Transboundary Crisis Management Under the Volcano: The Case of the Icelandic Ash Cloud](#). *Journal of Contingencies and Crisis Management*. 2021;29(2):77-88.

2. TRANSBOUNDARY CRISIS MANAGEMENT UNDER THE VOLCANO: THE CASE OF THE ICELANDIC ASH CLOUD

Abstract

This paper discusses the intricacies of external transboundary crises, namely those cross-border threats whose management requires coordination among EU and non-EU countries. Specifically, it explores the extent to which European integration theories shed light on the coordination of external transboundary crisis responses by assessing the weight and role of the actor constellations involved in the civil aviation response to the 2010 Icelandic ash cloud crisis. The use of social network analysis as a methodological tool generates novel empirical evidence on the configuration of crisis management structures. The analysis shows that many EU Member States led decision-making, whereas supranational organizations were instrumental in the coordination of the ash cloud crisis response. The centrality of these bodies contrasts with the peripheral position of most interest groups. This paper also suggests that external transboundary crises present complex management dynamics that distinguish them from generic transboundary threats. For example, the response to the ash cloud crisis was not commanded by the European Economic Area / European Free Trade Association (EEA-EFTA) countries where its epicentre was located. The empirical analysis was based on information extracted from a survey to experts involved in the management of this episode, as well as from ten semi-structured elite interviews.

Keywords: Networks, crisis management, Eyjafjallajökull, European Integration

2.1. Introduction

Crisis management has become an important challenge for the European project, considering the growing complexity of governance dynamics as well as the high permeability of the internal EU borders. External transboundary crises —incidents with the ability to shake the EU despite their distant origin— have recently captured media attention and begun to concentrate the efforts of European policymakers. Scholars such as Liberatore (1999) or Quaglio et al. (2016) have examined external transboundary crises in the past. However, not enough scientific emphasis has explicitly been placed on the study of coordination between the European Union and non-EU countries for crisis management purposes. Specific research on external transboundary crises is worth undertaking, considering the complexity and increasing recurrence of these events.

This paper reflects on the particularities of external transboundary crises. In particular, it explores the extent to which European integration theories shed light on the process through which EU and non-EU actors coordinate responses to such incidents. It achieves

this goal by assessing the weight and role of the actor constellations involved in the civil aviation response to the 2010 Icelandic ash cloud crisis. The geographical location of its epicentre, the amount and diversity of sectors affected, the participation of EU and non-EU countries, as well as its impact on the EU institutions made this case fit into the category of external transboundary crises, and thereby eligible for this study. The use of social network analysis as the methodological basis of this article generated novel empirical evidence on the configuration of crisis management structures and the integration of European Economic Area / European Free Trade Association (EEA-EFTA) countries into the EU fabric. Hence, this paper picks up calls for dialogue between European integration and crisis management studies (Blondin and Boin, 2018).

This essay is organized as follows. Firstly, it introduces some conceptual distinctions concerning crisis management and discusses the particularities of external transboundary crises. Secondly, this article assesses the extent to which theories of European integration are applicable to the study of external transboundary crisis management. The following sections describe the methodology and case selection of this study before summarizing the chronology of events after the eruption of Eyjafjallajökull. Afterwards, this paper analyses the network of organizations that cooperated to overcome the crisis. It concludes by reviewing its main findings and discussing some methodological limitations.

2.2. The Rise of Transboundary Crises

This section introduces some concepts produced by crisis management scholars that are used in this paper. Crises are defined as unexpected acute threats against the core values or life-sustaining areas of particular systems that leave deep imprints in such structures. Crisis management requires an immediate assumption of political risks under conditions of deep uncertainty (Boin and Rhinard, 2008; Rosenthal et al., 1989). Crises must be distinguished from disasters, which require a pre-existing crisis to go wrong, and catastrophes —disasters that cause damages of unusually high magnitude or that last extremely long (Boin and Rhinard, 2008). Given the need for quick decision-making and the scarcity of accurate information at the initial stages of crises, oftentimes heuristics become necessary tools for their management (Hutter and Lloyd-Bostock, 2017). Chances of improvised behaviour during crises are higher when emergency planning in the affected sector is lacking or insufficient.

When a domestic crisis becomes transboundary, the critical elements or infrastructures of at least two states are threatened during an undetermined period of time (Ansell et al., 2010). Transboundary crises may also affect multiple governmental levels and policy domains (Ansell et al., 2010; Boin and Rhinard, 2008). For example, the effects of the Bovine Spongiform Encephalopathy (BSE) outbreak in Europe —commonly known as the mad-cow crisis— were perceived in the public health and food safety realms. The increasing integration and interdependence that characterize the globalized world have greatly exacerbated its vulnerability to incidents of this nature (Boin and Rhinard, 2008; Boin et al., 2014): some authors (for instance, Missiroli, 2006) have even argued that the growth of the European project might have increased the likelihood of crises spreading across the continent¹.

Transboundary crises pose considerable challenges to policymakers. Firstly, they alter ordinary policy-making dynamics: their managers often override existing formal regulations at the supranational or national levels for efficiency purposes. Secondly, transboundary crisis managers frequently make decisions under high levels of uncertainty. Access to information becomes central in such a context. While effective inter-organizational coordination facilitates this purpose, political authorities often find difficulties to make sense of transboundary crises. Oftentimes, they need to delegate problem-solving capacities to networks formed by structures that are frequently subject to different jurisdictions and have never worked together (Boin et al., 2014). Transboundary crisis responses are also particularly problematic when it comes to establishing ownership (Boin, 2019).

Transboundary crises that affect the EU collapse the capacities designed by the Member States in order to manage these events single-handedly. Hence, a series of protocols, tools and strategies have been created to deal with these scenarios at the supranational level². This article does not offer an extensive account of the existing crisis management capacities in Europe. Instead, recent studies provide detailed reviews of these structures

¹ For his part, Schimmelfennig (2017) concluded that recent transboundary crises might be endogenous to the European integration process itself

² Parker et al. (2019) and Windmalm et al. (2019) analyze factors that affect the effectiveness of such capacities

within (Backman and Rhinard, 2018; Boin and Rhinard, 2008; Boin et al., 2013, 2014) and beyond (Blondin and Boin, 2018; Boin et al., 2013) the EU borders.

This study examines an incident that belongs to a specific sub-category of transboundary crises, which will henceforth be labelled as ‘external transboundary crises’. These incidents consist of initially external threats³ that cross the EU borders and spread within the European Union. Thus, their management requires coordination between non-EU and EU countries. Table 2.1 summarizes the differences between domestic, external, transboundary, and external transboundary crises.

Type of Crisis	Origin	Able to Cross Countries	Countries Affected
Domestic Crises	Within the EU borders	No	Single countries
Transboundary crises	Either within or outside the EU borders	Yes	Multiple countries
External Transboundary crises	Outside the EU borders	Yes	Multiple EU and non-EU countries
External crises	Far from the EU borders	Not specified	At least one non-EU country

Table 2.1: Differences between domestic, external, transboundary and external transboundary crises. Source: own elaboration

Several reasons explain the extremely high levels of uncertainty that accompany external transboundary crises, as well as the enormous complexity of external transboundary crisis responses —particularly when it comes to inter-organizational coordination and ownership. Firstly, joint decision-making between EU and non-EU countries requires exchanges of information across multiple political jurisdictions and crisis management cultures (Blondin and Boin, 2018). Secondly, the rarity of emergency action protocols to

³ The concept of external crisis (Boin et al., 2013) includes episodes that ‘happen far away (in a geographical sense) but are perceived to have relevance, now or in the future, for the European continent’ (Blondin and Boin, 2018: 463). External crises do not necessarily have a transboundary character nor require the involvement of EU countries

manage external transboundary crises increases the likelihood of improvised responses: it was precisely this circumstance that jeopardized a quick reaction to the West African Ebola outbreak in 2014 (Quaglio et al., 2016). Thirdly, the affected non-EU countries do not always view the EU as legitimate enough to command coordinated responses to external transboundary crises (Blondin and Boin, 2018; Boin et al., 2013) as a result of their low levels of socialization with the EU institutions. Hence, their governments may refuse to delegate sovereignty to Brussels if such a move is bound to feed discontent among their citizens. Fourthly, sometimes the EU lacks access to essential information or resources to make sense of an external threat. For instance, the impossibility to collect reliable data concerning the explosion of a nuclear plant in Chernobyl during the first days after the accident frustrated a timely and efficient EU response to this disaster (Liberatore, 1999).

2.3. Transboundary Crisis Management through the Lens of European Integration Theories

Within the crisis management literature, Parker et al. (2019) established a theoretical distinction between organizational structure and organizational culture. The organizational structure perspective highlights the importance of formal structures, organizational design choices and legal frameworks in crisis management. In contrast, the organizational culture approach places greater emphasis on aspects such as the prevailing bureaucratic culture or the degree of alignment between crisis respondents regarding norms, values, or professional ethos (Parker et al., 2019). This paper contributes to both perspectives by shedding light on under-researched systemic and relational characteristics of crisis networks.

Concerning organizational culture, the application of two European integration theories—neofunctionalism and intergovernmentalism—to the study of crisis management generates a series of expectations regarding the coordination of external transboundary crisis responses. Unlike perspectives linked to the constructivist school or the postfunctionalist approach⁴, neofunctionalism and intergovernmentalism provide

⁴ Indeed, constructivist scholars of European integration do not consider any specific actor as the primary driver of this process (Leuffen et al., 2013: 92). For its part, postfunctionalism highlights the influence of

theoretical tools for understanding the role and weight of particular actors in the response to the ash cloud crisis. Furthermore, both neofunctionalism and intergovernmentalism grant interdependence a prominent explanatory role in the process (Ioannou et al., 2015).

Neofunctionalism (Haas, 1958; Schmitter, 1969) contends that path dependencies constrain decision-making in the EU over time, given that the dynamic nature of European integration generates spill-over effects that increase the cost of reversing this process. In other words, as the degree of Member State integration into the EU structures grows, policymakers become more reluctant to adopt plans that entail a decrease in supranational integration. Supranational organizations benefit from these dynamics and gain weight over time in the policy-making process. Along with other non-state actors and transnational elites interested in deeper integration, they actively lobby European leaders on this matter to increase their political leverage.

Hence, the expectation that supranational bodies are central actors in the management of external transboundary crises that affect policy sectors with high levels of supranational integration —such as the aviation sector in 2010⁵— is derived from this logic. Consequently, non-EU countries are expected to interact with supranational organizations in such circumstances. For their part, certain non-governmental interest groups are expected to develop close ties with Member State governments and supranational organizations alike for lobbying purposes.

On the other hand, the stagnation of European integration during the 1970s and 1980s invoked concerns that neofunctionalism had underplayed the role of Member State governments in EU policy-making. Embedded in this trend, early intergovernmentalist scholars (Hoffmann, 1966, 1982; Milward, 1992) pointed at the technocratic bias of neofunctionalism and developed a theory that understood European integration as a result of cooperation and competition among sovereign states. Some years later, liberal intergovernmentalism contended that incentives to enhance the credibility of

mass politics and national identities on European integration in politicized contexts (Hooghe and Marks, 2009); such elements were not mobilized in the civil aviation response to the Icelandic ash cloud crisis

⁵ The fact that specialized supranational (European Aviation Safety Agency, henceforth EASA) and pan-European (EUROCONTROL) bodies had been regulating aviation in Europe for years —decades, in the case of EUROCONTROL— supports this claim

governments, bargaining power and —above all— economic interests are the real drivers of European integration (Moravcsik, 1998).

According to intergovernmentalists, crises are managed through negotiations among national governments, whose preferences are shaped by interest groups in formal and informal meetings; the role of supranational organizations would in turn be limited to the execution of policy goals in accordance with Member State preferences. Crisis management scholars (Boin and t'Hart, 2007; Rosenthal et al., 1989) agree that governments tend to seize control of decision-making during crisis responses, thereby relegating other actors to a less prominent position. These premises lead to the expectations that non-governmental interest groups and governmental agencies interact closely with one another during external transboundary crises, and that the latter lead the responses to such incidents. When it comes to the participation of non-EU countries in external transboundary crisis responses, the EU Member States would under this logic be expected to become their primary interlocutors. The substantial weight of political considerations in the response to the ash cloud crisis —an otherwise uncommon phenomenon in the pre-eminently technical air transportation sector— and the absence of EU bodies specialized in crisis management (Hollis, 2010) could function as enabling factors of these dynamics.

Given that external transboundary crises require coordination between EU and non-EU countries, this paper assesses the weight of the latter in the management of the Icelandic ash cloud crisis. Although in 2010 their resources and scope of action were no match for those of the EU, Iceland and Norway stood out as non-EU countries with particularly high investments in crisis management capacities. Additionally, their 'single market minus' status (Pelkmans and Böhler, 2013) positioned the three EEA-EFTA countries (Norway, Iceland, Liechtenstein) as the non-EU countries with the highest level of formal integration into the EU institutions⁶. These circumstances make the Norwegian and Icelandic governments more likely to view an EU-led response to a crisis affecting their

⁶ The EEA Agreement enables EEA-EFTA countries to participate in large sections of the EU internal market. For example, in 2010 Norway, Iceland and Liechtenstein were (together with Switzerland) the only non-EU countries allowed to attend the management board meetings of EASA as fully-fledged members without voting rights (European Aviation Safety Agency, 2010). Lacking formal access to the EU central policy-making bodies and decision-making powers concerning EU single market legislation, EEA-EFTA countries have promoted their interests in Brussels through informal strategies, such as lobbying EU Member States (see Gullberg, 2015) and building alliances with 'like-minded' governments (Lavenex et al., 2009: 818)

territory as relatively legitimate —and therefore less likely to take the lead themselves— than other non-EU countries hit by a similar episode.

2.4. Methodology

This paper uses social network analysis (SNA) in order to shed light on relational and systemic features of external transboundary crisis management. SNA achieves this goal by generating empirical data on the weight and role of the actor constellations engaged in the response to an external transboundary crisis. This methodology assumes that observations are not independent of each other (Robins, 2015); its outputs consist of graphs that show the connections (ties) between a series of actors (nodes).

SNA is a valuable tool for analysing the process through which EU and non-EU actors coordinate transboundary crisis responses for two reasons. Firstly, its analytical focus is more concerned with relational ties than with characteristics of individual actors. Secondly, SNA captures interdependencies between decision-making players at the formal and *de facto* levels (González and Verhoest, 2018)⁷. These features are not trivial for the purpose of this paper, since crisis responses demand quick coordination and frequent overriding of formal regulations for the sake of rapid and effective reactions. After all, systemic risks are ‘complex, relational, interconnected and therefore extremely difficult to predict and regulate’ (Goldin and Vogel, 2010: 6).

Considering these circumstances, the existence of valuable contributions to the crisis management literature that used SNA to study crisis responses is unsurprising. For example, Kapucu (2006) illustrated the importance of setting up well-connected crisis management structures for disaster prevention purposes. On the other hand, Comfort et al. (2011: 2) found that certain crisis network features, such as low efficiency — understood as the ‘rate at which information flows’ in a network— appear to be correlated with unsuccessful crisis responses. Efficient networks are characterized by short paths between nodes, high connectivity and a centralized structure (Comfort et al., 2011).

⁷ Informal exchanges are distinguished by their voluntary nature and the absence (or rarity) of binding behavioural guidelines regulating them (Hollis, 2010)

The network that constitutes the empirical backbone of this article was built on the basis of a survey distributed among high-rank officials of organizations that participated in the civil aviation response to the ash cloud crisis⁸. The sample includes twenty-four organizations that fit into different sub-categories, namely national regulatory agencies, supranational bodies, expertise providers and interest groups. Answers were collected from all of these (one per organization). Semi-structured elite interviews were conducted as well with ten survey respondents between February and June 2019. Annex 2.1 shows the detailed list of interviewees.

Boundary definition is a key stage for the construction of a network⁹. Clarity in this regard is essential for justifying the inclusion¹⁰ and exclusion¹¹ of specific nodes (Laumann et al., 1983). A realist approach, where network boundaries are defined according to the self-perceptions of its members (Laumann et al., 1983), was adopted for this purpose. The network was created by following a particular sequence in order to minimize measurement error. Firstly, a preliminary list of bodies was elaborated by looking at press articles and academic studies that covered the ash cloud crisis. Following advice from Marsden (2011), it was later shared with several experts in this episode: one of these indicated that two key actors were missing, whereas a second one validated the updated list. As the survey was being distributed, the list was left open to the incorporation (and exclusion) of additional players: each respondent was asked whether it omitted any relevant organizations, up to nine missing bodies. Aside from this indication, no limit was set concerning the maximum number of ties that each participant could report.

The number of questions in the survey was kept at a minimum in order to meet the demanding response rate requirements of whole network designs (Robins, 2015). After

⁸ Thus, the network includes the organizations whose coordination through meetings and information exchanges since the outbreak of the crisis was essential for the establishment by the Council of differentiated flying zones on 19 April

⁹ Moynihan (2009) acknowledges that boundary definition is particularly problematic in crisis networks, which are subject to the sudden incorporation of several private and non-profit players whose presence had not been recorded by the network members prior to the outbreak of the crisis

¹⁰ Even though the mandate of ICAO is not restricted to Europe, it appears in the network due to its perceived relevance in the crisis response

¹¹ Individual ANSPs were excluded for two reasons: a) their interests were represented by the national civil aviation authorities and CANSO; b) their heterogeneous nature (some of them are privatized firms, others are state-owned companies, and a third group is integrated into national governments). The European Parliament was also excluded: having contributed to the debate surrounding the crisis (Nohrstedt, 2013), it barely interacted with other actors

identifying the organizations with whom they had interacted during the crisis, respondents were enquired about their perceptions regarding how influential these had been in its management. All respondents were also asked how frequently they had monitored the actions of such bodies during the crisis response. Node sizes were calculated by adding the mean values of the aggregated responses to the latter two questions (see Annex 2.2). At the end of the survey, the informants could leave their own comments. On the other hand, the extent to which a given body played a leading role in the response was determined by considering: a) centrality indicators such as degree, closeness, or betweenness¹² —the higher these scores, the more central the node in question; b) the abovementioned survey indicators used to calculate node sizes.

Previous research has noted that respondents might not recall precise information about their information exchanges during specific events, as opposed to more stable relationships (Freeman et al., 1987). This study might be vulnerable to objections of this nature, as the ash cloud crisis occurred a decade before the survey was distributed. However, the high salience of this episode in an environment where these kinds of incidents are otherwise infrequent might have allowed the respondents to keep fresh memories of general features, such as the actors with whom they interacted throughout the crisis and their importance for the resolution of this incident. Self-assessments may in turn introduce biases related to the subjectivity of the answers (Newman, 2010), such as an over- or underestimation of influence (González and Verhoest, 2018). Additionally, perceptions might vary according to the role of each respondent within their employing organization. Finally, since the survey was based on responses from individual staff members, some ties whose existence was ignored by the respondents might have been omitted.

A series of actions were taken in order to counter these objections. Firstly, the survey was distributed among the individuals with the highest executive responsibilities in each organization —in limited cases, their immediate subordinates were contacted too. Secondly, minutes of meetings related to the crisis were checked against the survey results —as most exchanges took place via telephone conference calls, not much documented

¹² The concept degree centrality refers to the sum of inbound (in-degree) and outbound (out-degree) ties for each node, while closeness indicates the (geodesic) distance between a given node and others in the network. Finally, the idea of betweenness centrality captures the extent to which a node lies in the shortest path between two other nodes

evidence was readily available, though. In this regard, a report of proceedings produced by the British Civil Aviation Authority (CAA) shows that this body was in touch with at least nine organizations (UK Civil Aviation Authority, 2010). The existence of all these ties was confirmed in the survey: in five cases both ends confirmed this point, whereas in the remaining four only one did so. For their part, internal reports stressed the central role of EUROCONTROL (European Commission, 2010a) and the Commission (European Commission, 2010b) in the crisis response: this information is also aligned with the survey results. Moreover, the network of this study is consistent with findings from previous research, for example, concerning the leadership of the British CAA (Alexander, 2013; Christensen et al., 2013) as well as the rather peripheral role of airlines and airports (Kuipers and Boin, 2015; Nohrstedt, 2013). Another useful indicator to assess validity is the ratio of reciprocated ties relative to the total amount of pairs with a tie. This figure amounts to 45.5% in this network: the remaining unreciprocated ties might stem from the higher hierarchical level of certain bodies (e.g. the Council) versus others (Borgatti et al., 2013).

2.5. The 2010 Icelandic ash cloud crisis

This paper does neither seek to offer detailed descriptions of the Icelandic ash cloud crisis, nor is it aimed to narrate its consequences for European airspace regulation (Alemanno, 2011; Alexander, 2013; and Christensen et al., 2013 have already achieved these goals). However, it is necessary to summarize the main events of the crisis and briefly describe the role of its managers before engaging with the analysis as such.

The ash cloud crisis was triggered by the eruption of the Icelandic volcano Eyjafjallajökull, which paralyzed air traffic in Europe in April 2010. This natural phenomenon became a crisis that demanded an immediate political reaction when the implementation of the strict recommendations in place for handling ash clouds caused heavy financial losses all over Europe. This incident shared all the features of external transboundary crises. Firstly, the ash cloud crisis had a quick impact on the European airspace and left little time for the unprepared decision-makers¹³ to respond. Secondly, it

¹³ For example, the guidelines developed by EUROCONTROL to handle air traffic incidents lacked response protocols for airlines or airport operators (Brannigan, 2010). This circumstance, combined with

affected sectors as diverse as international trade, air transportation, or tourism. Thirdly, Eyjafjallajökull is located in the south of Iceland, namely beyond the confines of the EU. While Iceland was well connected with the European air traffic authorities, the truth is that European airspace integration was incomplete by April 2010. Despite early efforts towards the creation of a common regulation for the European skies, air traffic control was still closely associated with sovereignty (Alemanno, 2010; O'Regan, 2011): although aircraft operators could refuse to fly on safety grounds, national government authorities were responsible for opening/closing airspaces (Nohrstedt, 2013). Therefore, a response to this crisis required coordination between the EU Member States and two non-EU countries, namely Norway and Iceland. Having said that, the ash cloud crisis generated no serious splits within the EU; its managers were rather driven by a common interest to resume flights (Windmalm et al., 2019).

A phreatomagmatic eruption of the volcano Eyjafjallajökull in April 2010 delivered millions of ash particles with high silica concentrations that reached the Northern and Central European skies with the help of southbound winds¹⁴. The dangers of ash for airplane engines were well documented after many aircrafts had experienced severe engine problems while flying through ash clouds in the 1980s—for further information, see Alexander (2013). Accordingly, the contingency plan designed by the International Civil Aviation Organization (ICAO)—the UN agency in charge of airspace regulation since 1947—for volcanic eruptions was clear about flying over ash clouds: “AVOID, AVOID, AVOID”. It recommended the closure of airspaces where ash concentrations had been detected, regardless of whether the entire area was affected or not. As the lightness of ash particles had allowed for the cloud to spread out and remain for days in a wide area that planes were unable to circumvent, this approach prevented airplanes from taking off for several days, generating a crisis of unprecedented magnitude in the European air traffic sector.

On 15 April, individual countries followed these instructions and began closing their airspaces. Hours later, the crisis had transcended the technical level: mounting financial losses led airlines to start questioning the scientific evidence behind these

the absence of a binding general protocol of action, aggravated confusion during the initial stages of the crisis and opened the door for external lobbying

¹⁴ Phreatomagmatic eruptions are characterized by the interaction between magma and groundwater (White, 1996)

recommendations. Airlines started running their own test flights and voicing their concerns through bodies such as the International Air Transport Association (IATA), Airports Council International (ACI), the Civil Air Navigation Services Organization (CANSO) and the Association of European Airlines (AEA) in order to pressure governments into adopting a more flexible approach (Nohrstedt, 2013)¹⁵.

With 75 percent of the European airspace closed, a series of actors gathered by the Commission agreed on a plan originally designed by the British CAA that included the creation of differentiated flying zones according to the density of ash (Christensen et al., 2013). It also allowed countries to open those parts of their airspace with safe ash concentrations. At that time, the exact mechanism that made airplane engines fail after coming into contact with volcanic ash was unknown. Moreover, technical consensus concerning the maximum level of ash concentration that engines could tolerate was lacking—engine manufacturers were very reluctant to propose a specific figure. While scientific data were essential for agreeing on this threshold, this decision had a markedly political nature. Flights resumed in Europe four days after the first airspace closures. Estimates concerning economic losses pointed to a range between \$1.7 and €3.35 billion (Alexander, 2013; Mazzocchi et al., 2010).

As mentioned above, in 2010 governments were the final decision-makers concerning airspace openings and closures. Civil Aviation Authorities were the most relevant national regulatory bodies; other organizations operating at the national level included Air Navigation Space Providers (ANSPs) and Ministries of Transport. Air traffic management in Europe was coordinated by EUROCONTROL through the Single European Sky (SES) initiative, which also involved EASA, the Commission, and ANSPs. For its part, EASA has since its creation cooperated with the Commission in order to implement and make ICAO regulations more restrictive in Europe, as well as to adapt national legislation to the European standards (Christensen et al., 2013). Unlike EUROCONTROL¹⁶, EASA is an EU organization.

¹⁵ Not all airlines reacted equally to the crisis: for example, low-cost airlines feared that an accident in one of their airplanes could lead to bankruptcy, and seemed less eager to resume flights (Hutter and Lloyd-Bostock, 2017)

¹⁶ EUROCONTROL is an intergovernmental organization with 38 European member states in 2010. Then, Iceland was among the few European countries that had not acquired membership in EUROCONTROL

Different levels can also be identified among the suppliers of scientific evidence. Firstly, the UK Met Office and Météo France collected and provided data concerning the location and concentration of volcanic ash to help inform the new volcanic ash contingency plan. These bodies are also home to the two Volcanic Ash Advisory Centres (VAACs) located in Europe. Icelandic bodies, such as the Icelandic Meteorological Office (IMO) and the Institute of Earth Sciences at the University of Iceland, also provided important expertise and scientific data. For its part, the Icelandic Department of Civil Protection and Emergency Management (DCPEM) ran communication between the above-mentioned Icelandic organizations, the Icelandic government and the public (Bird et al., 2018). Other relevant actors included the pilots, represented by the European Cockpit Association (ECA): their views needed to be considered, as pilots could refuse to fly if they deemed the atmospheric conditions unsafe to do so. Finally, input from engine manufacturers (i.e. Pratt & Whitney, Rolls Royce and General Electric) was necessary to circumvent scientific differences concerning safe ash concentration levels.

2.6. Analysis and Results

This section presents the results of the empirical analysis. Firstly, Figure 2.1 shows evidence in line with neofunctionalist expectations on the centrality (location in the network) and perceived importance (node sizes) of supranational organizations in the crisis. This impression is confirmed by examining Table 2.2, where bodies such as EUROCONTROL, EASA or the Commission perform the highest concerning in-degree, closeness, and betweenness centrality. While EASA adopted a rather secondary role, the interviewees revealed that EUROCONTROL and the Commission were key players for the coordination of the crisis response.

For their part, the centrality of the British CAA, the large node sizes of the governmental agencies and the Council, as well as the peripheral location of most interest groups and expertise providers (except for IATA and Rolls Royce) are consistent with the liberal intergovernmentalist expectation that national governments exerted greater influence than interest groups on the management of the crisis. Evidence from interviews supports the idea that state authorities guided decision-making throughout the crisis response: for example, the approval of the Dutch Minister of Transport was necessary for launching

test flights. Additionally, the delay to produce a crisis response emanated from the unwillingness of national governments to be blamed for a hypothetical crash within their airspace: their early reaction prioritized safety over economic interests. Finally, the decision by state authorities to close their airspaces partly stemmed from their mistrust of the ability of the Commission to exercise effectively its newly acquired regulatory competences in the sector.

Other aspects are less aligned with intergovernmentalist thinking. Firstly, governmental agencies do not occupy the most central positions in the network, since their role was less related to response coordination. Secondly, one interviewee revealed that the management board of the British CAA—the most remarkable exception to this trend—enjoyed high autonomy from its principal, as its staff members held independent views from their government. Thirdly, the interviewees gave no evidence of intergovernmental bargaining throughout the crisis. Fourthly, the Council appears in a corner of the network, far from its centre; still, its node size evidences that the Council was considered as a key actor for the resolution of the crisis¹⁷ (see Annex 2.2). Several interviewees confirmed this point. Table 2.2 shows that the peripheral location of the Council is partly explained by its low in- and out-degree. Fifthly, few connections between interest groups and Member State governments were found in the network: rather, the former were better connected with supranational organizations.

Table 2.2 also reveals an abnormally large difference between the reported interactions of some actors and their inbound ties; among these, the European Cockpit Association (ECA), the Danish CAA and the DCPEM reported way more outbound than inbound ties. This suggests that these three actors played an active lobbying role during the crisis. Information in Annex 2.2 helps distinguish whether this imbalance stems from a relatively low position in the network hierarchy (ECA and the DCPEM had high own and low external perceptions of influence) or respondent bias (probably the case of the more influential Danish CAA). The opposite phenomenon affected EUROCONTROL: the high self- and external perceptions regarding its influence hint at its position at the higher end of the network hierarchy. The interviewees also confirmed the relevance of EUROCONTROL throughout the crisis response.

¹⁷ Furthermore, its approval was necessary for the implementation of the plan that ended the crisis

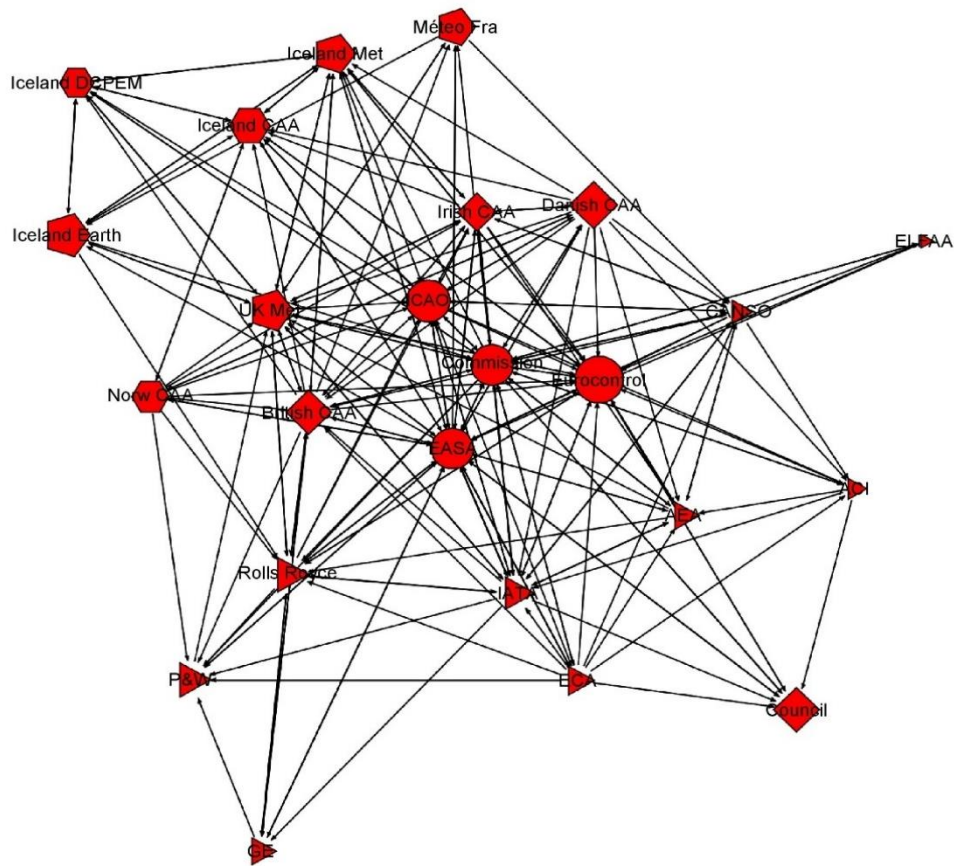


Figure 2.1: Icelandic ash cloud crisis management network. Source: Own elaboration. The ties correspond to information exchanges between the nodes. The shape of the nodes indicates the nature of organizations as follows: supranational bodies (circles), interest groups (triangles), EU Member States (squares), expert organizations (pentagons), non-EU countries (hexagons)

Names of the organizations: ACI = Airports Council International; AEA = Association of European Airlines; British CAA = British Civil Aviation Authority; CANSO = Civil Air Navigation Services Organization; Danish CAA = Civil Aviation Administration Denmark; EUROCONTROL = EUROCONTROL; EASA = European Aviation Safety Agency; ECA = European Cockpit Association; Commission = European Commission; ELFAA = European Low Fares Airline Association; Council = Council of the European Union; GE = General Electric; Iceland DCPEM = Icelandic Department of Civil Protection and Emergency Management; Iceland Met = Icelandic Meteorological Office; Iceland CAA = Civil Aviation Administration Iceland; Icelandic Earth = Institute of Earth Sciences, University of Iceland; IATA = International Air Transport Association; ICAO = International Civil Aviation Organization; Irish CAA = Irish Aviation Authority; Norw CAA = Civil Aviation Authority of Norway; Météo Fra = Météo France; P&W = Pratt & Whitney; Rolls Royce = Rolls Royce; UK Met = Met Office

Agency	In-Degree	Out-Degree	All-Degree	Closeness	Betweenness
ACI	5	5	10	0.027	0.87
AEA	8	7	15	0.029	2.426
EUROCONTROL	18	7	25	0.036	16.265
Commission	16	20	36	0.040	92.329
Council	6	3	9	0.025	0.619
IATA	12	12	24	0.033	16.633
CANSO	8	10	18	0.030	15.150
EASA	18	19	37	0.040	98.660
Rolls Royce	11	9	20	0.031	10.562
UK Met	15	12	27	0.033	32.226
British CAA	12	13	25	0.036	18.211
ELFAA	2	3	5	0.024	0
GE	4	4	8	0.024	0
Iceland DCPEM	7	5	12	0.026	3.026
Iceland Met	10	9	19	0.029	7.95
Iceland CAA	11	5	16	0.029	8.03
Iceland Earth	6	6	12	0.026	4.98
ICAO	12	9	21	0.033	14.368
Irish CAA	9	12	21	0.031	8.332
Norw CAA	3	10	13	0.028	3.268
Météo France	4	3	7	0.025	1.408
P&W	8	2	10	0.027	0.375
Danish CAA	5	14	19	0.031	5.313
ECA	2	12	14	0.029	1.002

Network Density	0.382
Degree Centralization	0.437

Table 2.2: Centrality scores in the ash cloud crisis management network. Source: own elaboration

The interpretation of the role played by the Icelandic and Norwegian actors is less straightforward. Most centrality indicators situate the two EEA-EFTA countries in a more peripheral position than the Member States, in a somewhat middle ground between the centre and the periphery of the network. Moreover, the Norwegian and Icelandic regulatory authorities were perceived as less influential than their Member State counterparts —the case of the Icelandic CAA is remarkable, since the epicentre of the crisis was located within its territory. These circumstances seem to back the reasoning concerning the secondary role of the non-EU countries affected by an external transboundary crisis. Additionally, all interviewees agreed that the geographical location of the epicentre made little difference in the management of the crisis: although Iceland

was not a fully-fledged member of EUROCONTROL, the Icelandic organizations were relatively well integrated into the European air traffic regulatory network. For instance, Iceland was incorporated into the ICAO Contingency Plan for the North Atlantic region. On the other hand, supranational organizations such as EASA, the Commission and EUROCONTROL became the primary interlocutors of the Icelandic bodies in the network¹⁸. For its part, the Norwegian CAA approached EASA, EUROCONTROL, as well as its counterparts in Iceland and the Member States throughout the response.

2.7. Conclusions

This paper has discussed the intricacies of external transboundary crises. The results of the empirical analysis suggest that external transboundary crises present particular management dynamics that distinguish them from generic transboundary incidents. Particularly interesting in this regard is the finding that the response to the ash cloud crisis was not commanded by the participant non-EU countries. This idea might seem counterintuitive if their proximity to the epicentre of the crisis is considered. Considering that the Norwegian and Icelandic crisis management structures were highly developed by 2010, the evidence suggests that the EU leads those external transboundary crisis responses which involve non-EU countries that are highly integrated into its fabric. However, it might lack sufficient legitimacy to do so in non-EU countries with whom it has weaker ties.

Additionally, this paper has used European integration theories in order to shed light on the process through which EU and non-EU countries coordinate external transboundary crisis responses. The empirical evidence on the weight and role of the actor constellations that participated in the response to the Icelandic ash cloud crisis suggests that neofunctionalism and intergovernmentalism might not be mutually exclusive perspectives, as each of these illuminates different aspects of external transboundary crisis management (Börzel and Risse, 2018). In this regard, supranational organizations and EU Member States were found to be central in the crisis network, whereas interest

¹⁸ The Icelandic Meteorological Office was the only Icelandic body in the network that reported having been in touch with an EU Member State governmental agency. In contrast, every Icelandic organization acknowledged ties to supranational bodies (e.g. EASA, the Commission)

groups played a relatively marginal role in the management of this incident. These findings are consistent with the argument that both powerful EU Member States and supranational organizations tend to become heavily involved in the management of crises that affect internal market-related policy areas —such as air transportation (Degner, 2019; Genschel and Jachtenfuchs, 2016). More specifically, the empirical analysis shows that the Member States led decision-making during the ash cloud crisis. However, it also reveals that the non-governmental interest groups and the Icelandic bodies that managed this incident interacted more closely with supranational bodies than with EU Member State governmental agencies throughout the response. This finding highlights that supranational organizations can be instrumental in the coordination of external transboundary crisis responses.

This study has shown that SNA provides useful and replicable empirical evidence concerning *de facto* interorganizational coordination during crises in a cost-efficient manner (Ingold et al., 2013). However, its methodological limitations suggest that these results should be considered as the basis of ‘suggestive rather than definitive’ conclusions (Marsden, 2011: 381). Examining further external transboundary crisis networks would help test the validity of the above-mentioned claims; a warning is nevertheless needed before attempting such an extrapolation, given that a particular managerial logic might govern each of these responses.

Bibliography

Alemanno, A. (2010). The European Regulatory Response to the Volcanic Ash Crisis between Fragmentation and Integration. *European Journal of Risk Regulation*, 1(2): 101-106

Alemanno, A. (2011). *Governing Disasters: The Challenges of Emerging Risk Regulation*. Cheltenham: Edward Elgar Publications

Alexander, D. (2013). Volcanic Ash in the Atmosphere and Risks for Civil Aviation: A Study in European Crisis Management. *International Journal of Disaster Risk Science*, 4(1): 9-19

- Ansell, C., Boin, A., & Keller, A. (2010). Managing Transboundary Crises: Identifying the Building Blocks of an Effective Response System. *Journal of Contingencies and Crisis Management*, 18(4): 195-207
- Backman, S., & Rhinard, M. (2018). The European Union's Capacities for Managing Crises. *Journal of Contingencies and Crisis Management*, 26: 261-271
- Bird, D. K., Jóhannesdóttir, G., Reynisson, V., Karlsdóttir, S., Gudmundsson, M., & Gísladóttir, G. (2018). Crisis Coordination and Communication during the 2010 Eyjafjallajökull Eruption. In C. J. Fearnley, D. K. Bird, K. Haynes, W. J. McGuire, & G. Jolly (Eds.), *Observing the Volcano World: Volcano Crisis Communication* (pp. 271-288). Cham: Springer.
- Blondin, D., & Boin, A. (2018). Managing Crises in Europe: a Public Management Perspective. In E. Ongaro, & S. Van der Thiel (Eds.), *The Palgrave Handbook of Public Administration and Management in Europe* (pp. 459-474). London: Palgrave Macmillan.
- Boin, A. (2019). The Transboundary Crisis: Why We Are Unprepared and the Road Ahead. *Journal of Contingencies and Crisis Management*, 27(1): 94-99
- Boin, A., Busuioac, M., & Groenleer, M. (2014). Building European Union Capacity to Manage Transboundary Crises: Network or Lead Agency Model? *Regulation & Governance*, 8: 418-436
- Boin, A., Ekengren, M., and Rhinard, M. (2013). *The EU as a Crisis Manager: Patterns and Prospects*. Cambridge: Cambridge University Press
- Boin, A., & Rhinard, M. (2008). Managing Transboundary Crises: What Role for the European Union? *International Studies Review*, 10: 1-26
- Boin, A., & t'Hart, P. (2007). The Crisis Approach. In H. Rodríguez, E. L. Quarantelli & R. R. Dynes (Eds.), *Handbook of Disaster Research* (pp. 42-54). New York: Springer
- Borgatti, S. P., Everett, M. G., & Johnson, J. C. (2013). *Analyzing Social Networks*. London: Sage
- Börzel, T. A., & Risse, T. (2018). From the Euro to the Schengen Crises: European Integration Theories, Politicization and Identity Politics. *Journal of European Public Policy*, 25(1): 83-108
- Brannigan, V. M. (2010). Alice's Adventures in Volcano Land: The Use and Abuse of Expert Knowledge in Safety Regulation. *European Journal of Risk Regulation*, 1(2): 107-113
- Christensen, T., Johannessen, M., & Lægveid, P. (2013). A System under Stress: the Icelandic Volcano Ash Cloud Crisis. *Journal of Contingencies and Crisis Management*, 21(2): 71-81
- Comfort, L. K., Siciliano, M. D. & Okada, A. (2011). Resilience, Entropy, and Efficiency in Crisis Management: The January 12, 2010 Haiti Earthquake. *Risk, Hazards & Crisis in Public Policy*, 2(3): 1-25

Degner, H. (2019). Public Attention, Governmental Bargaining, and Supranational Activism: Explaining European Integration in Response to Crises. *Journal of Common Market Studies*, 57(2): 242-259

European Aviation Safety Agency (2010). *EASA 2010 Annual Report*. Retrieved from https://www.easa.europa.eu/sites/default/files/dfu/EAS_AnnualReport_2010.pdf.

European Commission (2010a). *Minutes of the 1914th Meeting of the Commission Held in Strasbourg (Winston Churchill Building) on Tuesday 20 April 2010 (Afternoon)*. Retrieved from <http://ec.europa.eu/transparency/regdoc/rep/10061/2010/EN/10061-2010-1914-EN-F-0.Pdf>.

European Commission (2010b). *Minutes of the 1915th Meeting of the Commission Held in Brussels (Berlaymont) on Tuesday 27 April 2010 (Morning)*. Retrieved from <https://ec.europa.eu/transparency/regdoc/rep/10061/2010/EN/10061-2010-1915-EN-F1-1.Pdf>.

Freeman, L. C., Romney, A. K., & Freeman, S. C. (1987). Cognitive Structure and Informant Accuracy. *American Anthropology*, 89: 310-325

Genschel, P. & Jachtenfuchs, M. (2016). More Integration, Less Federation: the European Integration of Core State Powers. *Journal of European Public Policy*, 23(1): 42-59

Goldin, I., & Vogel, T. (2010). Global Governance and Systemic Risk in the 21st Century: Lessons from the Financial Crisis. *Global Policy*, 1(1): 4-15

González, C. I., & Verhoest, K. (2018). De Facto Regulatory Decision-Making Process in Telecommunications Regulation: Explaining Influence Relationships with Exponential Random Graph Models. *Journal of Public Policy*, doi:10.1017/S0143814X18000272.

Gullberg, A. T. (2015). Lobbying in Oslo or in Brussels? The Case of an European Economic Area Country. *Journal of European Public Policy*, 22(10): 1531-1550

Haas, E. B. (1958). *The Uniting of Europe: Political, Social and Economic Forces, 1950-1957*. Stanford: Stanford University Press

Hooghe, L., & Marks, G. (2009). A Postfunctionalist Theory of European Integration: From Permissive Consensus to Constraining Dissensus. *British Journal of Political Science*, 39: 1-23

Hollis, S. (2010). The Necessity of Protection: Transgovernmental Networks and EU Security Governance. *Cooperation and Conflict*, 45(3): 312-330

Hoffmann, S. (1966). Obstinate or Obsolete? The Fate of the Nation-State and the Case of Western Europe. *Daedalus*, 95(3): 862-915

Hoffmann, S. (1982). Reflections on the Nation State in Western Europe Today. *Journal of Common Market Studies*, 21(1): 21-37

Hutter, B. M., & Lloyd-Bostock, S. (2017). *Regulatory Crisis: Negotiating the Consequences of Risk, Disasters and Crises*. Cambridge: Cambridge University Press.

Ingold, K., Varone, F., & Stokman, F. (2013). A Social Network-Based Approach to Assess De Facto Independence of Regulatory Agencies. *Journal of European Public Policy*, 20(10): 1464-1481

Ioannou, D., Leblond, P., & Niemann, A. (2015). European Integration and the Crisis: Practice and Theory. *Journal of European Public Policy*, 22(2): 155-176

Kapucu, N. (2006). Interagency Communication Networks During Emergencies. *American Review of Public Administration*, 36(2): 207-225

Kuipers, S., & Boin, A. (2015). Exploring the EU's Role as Transboundary Crisis Manager: the Facilitation of Sense-Making during the Ash Crisis. In R. Bossong and H. Hegemann (Eds.), *European Civil Security Governance: Diversity and Cooperation in Crisis and Disaster Management* (pp. 191-210). Basingstoke: Palgrave Macmillan

Laumann, E. O., Marsden, P. V., & Prensky, D. (1983). The Boundary Specification Problem in Network Analysis. In R. S. Burt and M. J. Minor (Eds.), *Applied Network Analysis: A Methodological Introduction* (pp. 18-34). Beverly Hills: Sage Publications Ltd.

Lavenex, S., Lehmkuhl, D., & Wichmann, N. (2009). Modes of External Governance: a Cross-National and Cross-Sectoral Comparison. *Journal of European Public Policy*, 16(6): 813-833

Leuffen, D., Rittberger, B., & Schimmelfennig, F. (2013). *Differentiated Integration. Explaining Variation in the European Union*. Basingstoke: Palgrave Macmillan

Liberatore, A. (1999). *The Management of Uncertainty: Learning from Chernobyl*. New York: Routledge

Marsden, P. V. (2011). Survey Methods for Network Data. In Scott, J., & Carrington, P.J. (Ed.), *The SAGE Handbook of Social Network Analysis* (pp. 370-388). London: SAGE Publications Ltd.

Mazzocchi, M., Hansstein, F., & Ragona, M. (2010). The 2010 Volcanic Ash Cloud and its Financial Impact on the European Airline Industry. *CESifo Forum*, 11(2): 92-100.

Milward, A. (1992). *The European Rescue of the Nation State*. London: Routledge

Missiroli, A. (2006). Disasters Past and Present: Challenges for the EU. *Journal of European Integration*, 28(5): 423-436

Moravcsik, A. (1998). *The Choice for Europe. Social Purpose and State Power from Messina to Maastricht*. Ithaca: Cornell University Press.

Moynihan, D. P. (2009). The Network Governance of Crisis Response: Case Studies of Incident Command Systems. *Journal of Public Administration Research and Theory*, 19(4): 895-915

Newman, M. E. J. (2010). *Networks: An Introduction*. New York: Oxford University Press

- Nohrstedt, D. (2013). Advocacy Coalitions in Crisis Resolution: Understanding Policy Dispute in the European Volcanic Ash Cloud Crisis. *Public Administration*, 91(4): 964-979
- O'Regan, M. (2011). On the Edge of Chaos: European Aviation and Disrupted Mobilities. *Mobilities*, 6(1): 21-30
- Parker, C. F., Persson, T., & Widmalm, S. (2019). The Effectiveness of National and EU-Level Civil Protection Systems: Evidence from 17 Member States. *Journal of European Public Policy*, 26(9): 1312-1334
- Pelkmans, J., & Böhler, P. (2013). *The EEA Review and Liechtenstein's Integration Strategy*. Brussels: CEPS
- Quaglio, G., Goerens, C., Putoto, G., Rübige, P., Lafaye, P., & Karapiperis, T. (2016). Ebola: Lessons Learned and Future Challenges for Europe. *Lancet Infectious Diseases*, 16: 259-263
- Robins, G. (2015). *Doing Social Network Research: Network-Based Research Design for Social Scientists*. London: Sage.
- Rosenthal, U., Charles, M. T., & 't Hart, P. (1989). *Coping with Crises: The Management of Riots, Disasters and Terrorism*. Springfield: Charles C Thomas
- Schimmelfennig, F. (2017). Theorizing Crisis in European Integration. In D. Dinan, N. Nugent, & W. Paterson (Eds.), *The European Union in Crisis* (pp. 316-336). Basingstoke: Palgrave Macmillan
- Schmitter, P. C. (1969). Three Neo-Functional Hypotheses about European Integration. *International Organization*, 23(1): 161-166
- UK Civil Aviation Authority (2010). *Volcanic Ash International Teleconferences. 17-23 April 2010*. Retrieved from <https://www.caa.co.uk/WorkArea/DownloadAsset.aspx?id=4294970974>
- Windmalm, S., Parker, C.F., and Persson, T. (2019). *Civil Protection Cooperation in the European Union: How Trust and Administrative Culture Matter for Crisis Management*. Cham: Palgrave Macmillan
- White, J.D.L. (1996). Impure Coolants and Interaction Dynamics of Phreatomagmatic Eruptions. *Journal of Volcanology and Geothermal Research*, 74(3-4): 155-170.

ANNEX 2.1. LIST OF INTERVIEWS

Number	Institutional Affiliation	Position	Date	Method
1	European Cockpit Association	High-Rank Officer	26 February 2019	Telephone Call
2	International Civil Aviation Organization	High-Rank Officer	11 March 2019	Telephone Call
3	Rolls Royce	Engineer	12 March 2019	Telephone Call
4	Eurocontrol	High-Rank Officer	10 April 2019	Telephone Call
5	Institute of Earth Sciences at the University of Iceland	Professor	17 April 2019	Skype videoconference
6	Civil Air Navigation Service Organization (CANSO)	High-Rank Officer	24 April 2019	Telephone Call
7	Icelandic Civil Aviation Authority	High-Rank Officer	9 May 2019	Telephone Call
8	UK Met Office	High-Rank Officer	16 May 2019	Telephone Call
9	British Civil Aviation Authority	High-Rank Officer	21 May 2019	Telephone Call
10	European Commission	High-Rank Officer	7 June 2019	Telephone Call

ANNEX 2.2. INDICATORS USED FOR THE CALCULATION OF NODE SIZES

Institution	Importance role (own perception)	Frequency of monitoring	Importance role (external perception)	Average importance role (external perception) and frequency of monitoring
ACI	6	6.4	4.4	5.4
AEA	10	7.1	6.1	6.6
British CAA	9	8.4	8.6	8.5
CANSO	7	6	5.6	5.8
Danish CAA	10	8.6	9	8.8
Eurocontrol	10	8.5	9.4	8.95
EASA	10	7.9	8.1	8.0
ECA	8	7	6.5	6.75
Commission	10	8.0	7.8	7.9
ELFAA	5	5	5	5
Council	3	9	8.2	8.6
GE	7	5.5	7.5	6.5
DCPEM	10	7.8	5.8	6.8
Iceland Met	10	7.7	8.5	8.1
Iceland CAA	10	7.8	7.5	7.65
Ins Earth	10	10	7.5	8.75
IATA	6	7.5	7.1	7.3
ICAO	9	8.2	8.4	8.3
Irish CAA	8	7.1	8	7.55
Norw CAA	10	7.7	6.7	7.2
Météo France	9	8.25	8	8.1
P&W	10	7.1	8.5	7.8
Rolls Royce	10	7.7	8	7.85
UK Met	10	8.1	8.7	8.4

3. READY TO MANAGE A GLOBAL PANDEMIC? EXAMINING THE EU RESPONSE TO THE 2013-2016 EBOLA OUTBREAK

Abstract

This paper discusses the role and weight of the European Union in the provision of a global public good, namely communicable disease control. A virulent outbreak of Ebola Virus Disease killed thousands of individuals between December 2013 and March 2016; particularly devastating were its effects in Guinea, Liberia, and Sierra Leone. The risk of contagion among EU citizens increased the salience of the crisis to unprecedented levels for an outbreak with an overseas origin that primarily affected a largely neglected region. By examining the coordination of this incident from a relational perspective through the use of social network analysis, this study provides relevant and original insights into the fields of EU crisis management and global public goods. The analysis of this novel empirical evidence partially supports expectations regarding the non-centrality of the EU institutions and Member States within the crisis network. Moreover, it suggests that the EU response was not well coordinated. These data were extracted from a survey distributed among individuals involved in the response effort and from semi-structured interviews with 14 crisis managers.

Keywords: Ebola, Crisis Management, Networks, Europe

3.1. Introduction

The Ebola Virus Disease (EVD) outbreak that devastated Liberia, Guinea, and Sierra Leone between 2013 and 2016 became the deadliest incident involving this disease since 1976, when the earliest records of Ebola were written. More people got infected during this particular episode than throughout all previous outbreaks of the disease combined. This was also the first EVD outbreak to spread across multiple countries and capital cities (Piot et al., 2014). The first diagnoses of EVD were confirmed in March 2014, three months after several individuals in Eastern Guinea fell sick (Wilkinson and Leach, 2015: 137). However, the response by the international community only gained momentum after infected Western citizens brought the virus to their countries of origin. The virus credibly threatened the security of the global north, which had shown little interest in the management of the outbreak when it was still confined to the neglected Sub-Saharan region (Wilkinson and Leach, 2015). Hence, months of inaction that had allowed for the disease to spread across Liberia and Sierra Leone ended in September 2014 with the UN

Security Council Resolution 2177, which declared EVD a threat to international security. Afterwards, the UN Mission for Ebola Emergency Response (UNMEER) was created to coordinate the reaction. The World Health Organization (WHO) declared that Ebola was no longer a Public Health Emergency of International Concern (PHEIC) in March 2016, more than two years after the first cases were detected. It left over 11,000 confirmed casualties.¹⁹

Research on the management of pandemics has proliferated recently for various reasons. For example, small-world considerations (Haldane, 2009) and the higher connectivity brought by technological advances in transportation have increased the risk of diseases emerging in areas far from those where they originally appeared (Ingram, 2005: 522). The high person-to-person transmission rate of certain deadly pathogens also makes incidents such as the EVD outbreak or the COVID-19 pandemic likely to appear in the future (Piot et al., 2014). Within this context, much has been written about the governance failures that turned the 2013-2016 EVD outbreak into a humanitarian crisis (for example, see Kamradt-Scott, 2016; Van der Pas and Van Belle, 2015). However, less research has analyzed the collective EU involvement in this episode.²⁰ Moreover, not enough studies have examined coordination between EU and non-EU countries for crisis management purposes. Finally, few scholarly pieces have analyzed the performance of the EU concerning the delivery of global public goods (GPGs) such as communicable disease control, despite the fact that such kinds of exchanges are becoming increasingly common in the ‘crisisified’ European policy-making process (Rhinard, 2019).

The EVD outbreak acquired an unprecedented global salience for an epidemic with an overseas origin that primarily affected developing countries. Therefore, it provided an opportunity to assess the ability of the European Union public health structures to provide a GPG by coordinating an effective reaction against a global health emergency. This paper does so by providing answers to two research questions, namely: What was the role and weight of the EU supranational and Member State bodies involved in the network that responded to the EVD outbreak? To what extent was the EU response to the EVD outbreak efficiently coordinated?

¹⁹ See <https://www.who.int/news-room/fact-sheets/detail/ebola-virus-disease>

²⁰ For an exception, see Quaglio et al. (2016).

Two central aims of this study are the identification of structural deficiencies in the management of external outbreaks and the extraction of lessons that help the European Union combat pandemics in the post-COVID era. The need for studies with such an analytical emphasis appears evident after considering that effective international cooperation is an essential prerequisite for the provision of GPGs (Kaul, 2019). In this regard, systems of interacting agencies and jurisdictions have shown their competitive advantage at handling threats vis-à-vis independent agencies carrying out separate, uncoordinated efforts (Comfort and Kapucu, 2006).

This paper fulfils these aspirations by combining semi-structured interviews with social network analysis. This methodological choice allows for the production of novel and rich empirical evidence on the configuration of crisis management structures. In particular, social network analysis provides useful insights into structural deficiencies in the crisis network, whereas semi-structured interviews with crisis managers throw in-depth qualitative insights into the management of the outbreak that help identify potential areas for improvement in future responses. The data used to build the networks were extracted from a survey distributed among individuals involved in the response effort.

The analysis of this novel empirical evidence partially supports expectations regarding the non-centrality of the EU institutions and Member States within the crisis network: while the EU has recently set in motion a series of structures devoted to communicable disease control, it did not initially consider an external outbreak in West Africa as a high-risk threat that demanded immediate action. Moreover, this paper shows that the slow EU reaction was not efficiently coordinated.

The paper is organized as follows: Section 2 describes the capabilities and structures that have been designed by the European Union to fight disease outbreaks, as well as how they come into play in the management of global health emergencies. Section 3 discusses the engagement of the EU with the provision of a GPG, namely communicable disease control. Section 4 presents some methodological considerations related to the use of social network analysis in this study. Later, the findings of the analysis are presented. This study concludes by discussing these and suggesting avenues for further research.

3.2. The EU Communicable Disease Control System

This section describes the capabilities and structures that have been designed by the European Union for communicable disease control purposes, as well as how these come into play in the management of global health emergencies. The European Union took some steps towards the development of a supranational communicable disease control system prior to the EVD outbreak. In 2009, the Lisbon Treaty acknowledged that supranational and Member State bodies shared public health competences, namely that either level “may adopt legally binding acts” in this area (Battams et al., 2014: 544). In contrast, Article 6 specified that the European Union shall “support, coordinate, or supplement the actions of the Member States” in order to protect and improve human health (Council of the European Union, 2008: 6). While this framing preserved the primacy of the Member States regarding decision-making, it arguably resulted in a slightly incoherent approach to EU public health management (Battams et al., 2014). Since then, research (Battams et al., 2014; McKee et al., 2010; Steurs et al., 2018) has highlighted the tensions between the ‘federalizing’ ambitions of an increasingly powerful European Commission, the reluctance of the Member States to losing their competences, and the European External Action Service (EEAS).

By 2014, the European Union had set in motion a series of structures designed to combat communicable diseases, such as a disease surveillance system, a Civil Protection Mechanism, and an Early Warning and Response System. Likewise, the European Centre for Disease Prevention and Control (ECDC) was created in 2005. This agency was since its inception entrusted with a handful of competences, including the provision of scientific data and technical assistance on epidemiology to the EU Member States for monitoring, surveillance, risk assessment, and preparedness purposes (Bengtsson, 2019; Liverani and Coker, 2012; Rhinard, 2009). For its part, the European Commission coordinated “Member States’ operations in the event of a public health threat on the basis of ECDC surveillance and risk assessment” (Liverani and Coker, 2012: 923). By virtue of its mandate to protect civil security, the Directorate-General for Humanitarian Aid and Civil Protection (DG-ECHO) is involved in the reaction to crises all over the world through its Emergency Response Coordination Centre. Additionally, the Directorate General for International Cooperation and Development (DG-DEVCO) assists the former in the response to emergencies in developing countries (Glassman et al., 2019). Finally, the

European External Action Service (EEAS) had a dedicated Crisis Response System to combat incidents with an origin beyond the EU borders.

These efforts were coupled with increased cooperation with non-EU actors to monitor diseases around the world. For instance, in 2014 the EU participated —along with countries such as Japan, Mexico, Canada, or the US— in the Global Health Initiative. This project seeks to “strengthen global health preparedness and response to threats of bioterrorism and pandemic influenza” (Liverani and Coker, 2012: 926). Within this context, the Commission increased its funding of projects aimed at preventing the spread of communicable diseases in South and Southeast Asia after the emergence of several H5N1 avian influenza outbreaks in these regions (Liverani and Coker, 2012). Recent research (Battams et al., 2014) has also acknowledged the growing leadership of the EU in the negotiation of international public health agreements. However, Liverani and Coker (2012) have highlighted the recurrent difficulties that the Member States face in order to report consistent information and coordinate effectively with supranational public health bodies and WHO Europe.

At the global level, the WHO requires states to report any potential risks for human health identified within its territory. This is a response to calls for multilateralism as a means to prevent transmittable diseases and strengthen global health security (Van der Pas and Van Belle, 2015). Its proponents defend that multilateralism enhances the effectiveness and legitimacy of decision-making in the politicized field of global health (Zacher and Keefe, 2008). Management failures in pandemics such as the 2002-2004 Severe Acute Respiratory Syndrome (SARS) outbreak empowered the WHO with competences to declare public health emergencies and issue travel bans or trade restrictions for the first time in history (Rhinard, 2009). This encouraged international health organizations to coordinate efforts with state, private, and non-governmental bodies in unprecedented forms (Ingram, 2005).

Various types of actors currently play relevant roles in the containment of pandemics (Zacher and Keefe, 2008): these include the WHO —which coordinates responses after receiving permission to operate from the government of an affected country—, research laboratories,²¹ medical NGOs such as Médecins Sans Frontières (MSF), state

²¹ Research laboratories such as the Pasteur Institute or the US Centers for Disease Prevention (CDCs) have provided technical knowledge and resources to determine the nature of the pathogens that cause newly detected diseases, such as the Ebola virus (Zacher and Keefe, 2008).

governments, and other UN bodies —e.g., the United Nations Children’s Emergency Fund (UNICEF) or the United Nations Population Fund (UNFPA). Most of these are present in the Global Outbreak Alert and Response Network (GOARN). Created in 2000, GOARN is a conglomerate of 250 technical institutions led by the WHO that coordinates reactions to pandemics such as the EVD outbreak.²² Other prominent bodies in the field include development banks, such as the World Bank or the African Development Bank, private firms, and philanthropic foundations —e.g., the Bill and Melinda Gates Foundation.

3.3. The Role and Weight of the EU in the Provision of Communicable Disease Control

This section discusses the role and weight of the European Union in the provision of a particular global public good (GPG), namely communicable disease control. GPGs are characterized by a series of distinct properties. For example, GPGs are non-rival and non-excludable, since they are available to any citizen in the world without exception. Consumption of GPGs does not prevent other individuals from gaining access to them and is associated with positive (negative if the GPG in question is not produced) effects that last for a long time (Kaul, 2019). For example, COVID-19 has taught the world about the negative consequences of inadequate disease control policies. All these circumstances make efforts to provide GPGs vulnerable to collective action problems such as free-riding (Stone, 2020: 14). This is a problematic issue, given that the difficulties of individual actors to deliver GPGs single-handedly render international cooperation necessary for this enterprise (Stone, 2020: 14).

GPGs such as disease control are frequently delivered by global partnerships that include state governments, private firms, international organizations, and non-governmental organizations. Among other advantages, these structures possess enough legitimacy to overcome collective action problems (Agerskov, 2005). At the same time, the diversity of arenas for deliberation as well as the multiplicity of preferences and values within GPG partnerships can jeopardize cooperation among their members, which often ends up being slow and incomplete (Stone, 2020: 1). When economic pressures are intense, private

²² See <https://extranet.who.int/goarn/>

actors are likely to participate in such collaborative projects. Public-private partnerships are indeed strong instruments to deliver GPGs (Stone, 2020: 14). However, the non-rival and non-excludable nature of GPGs such as disease control reduces the chances that private firms profit from GPG production —hence disincentivizing their involvement in the process (Agerskov, 2005). In such scenarios, non-governmental and international organizations might mobilize their considerable budget and expertise on public health in order to fill this gap (Šehović, 2017).

Many GPGs suffer from a ‘weakest link’ logic, whereby the amount of goods produced is directly related to the output of the least committed supplier. This is certainly the case of disease control, a sector where free-riding practices are particularly common (Gleicher and Kaul, 2013). This circumstance makes a case for the commitment of state governments —spurred by ‘enlightened self-interest’ and cost-benefit logics— to ensuring that every area in the world is sufficiently protected by reinforcing the disease control capacities of the least developed countries (Agerskov, 2005; Gleicher and Kaul, 2013). While public spending devoted to GPGs has traditionally fallen short of desirable levels (Agerskov, 2005), decision-making at the national level remains key for disaster management (Gavas, 2013; Jenks, 2012; Kaul, 2019). On the other hand, the provision of GPGs frequently entails concessions concerning sovereignty aspects such as the inviolability of state borders. Nevertheless, the intergovernmental arenas where decisions with regard to GPGs are made often fail to include developing countries, even when the outcome of the negotiations directly affects them (Gavas, 2013).

The abovementioned circumstances and the old aspiration of the European Union to work towards a ‘global common good’ (Solana, 2005) have positioned this entity as a potential leading supplier of GPGs since the early 21st century (Gavas, 2013). Deeply committed to multilateralism, its self-conception as a normative power has driven the participation of the EU in the provision of GPGs: for example, it accounts for 55% of the total spending on Official Development Aid. That being said, in 2014 the EU lacked a common strategy to facilitate the provision of GPGs (Gavas, 2013). By then, it had been accused of orienting its cooperation with external partners towards an increase of influence worldwide, while failing to provide solutions to pressing regional and global problems (Gavas, 2013). Before being appointed as High Representative of the Union for Foreign Affairs and Security Policy, Borrell (2012: 32) had indeed acknowledged that self-interest

and insufficient political willpower had hampered the EU's promotion of effective multilateralism.

Despite the recent development of structures within the EU that are devoted to communicable disease control, other considerations than those mentioned above suggest that the European Union did not initially consider an outbreak in West Africa as a high-risk threat that demanded immediate action. In 2010, the Council published its conclusions regarding the EU role in public health. This document (Council of the European Union, 2010) highlighted the roles of the Member States and the Commission in external actions pertaining to public health and included an explicit commitment to protecting developing countries against potential threats to global health. That being said, before 2014 EU public health structures were primarily designed to protect EU citizens from internal threats; for example, bodies such as the ECDC had never been extensively involved in the response to an outbreak overseas.

This logic does not only apply to public health or the provision of GPGs. Indeed, EU protocols on how to manage threats overseas are much less common than those prepared for crises that exclusively affect the EU territory. On the other hand, preventable man-made incidents with high death tolls and an epicenter near the EU borders are more likely to attract the attention of the European Council (Alexandrova, 2015) than an episode with the characteristics of the EVD outbreak. At the same time, limitations inherent to its multi-level system —e.g., the demanding agreement thresholds required to advance decisions in Brussels— often constrain the ability of the EU to produce rapid, extensive, and efficient reactions to external incidents (Christiansen, 2017). With these circumstances in mind, the following hypotheses are proposed:

H₁: The EU Member State governments that participated in the management of the 2013-2016 EVD outbreak were not central in the network of actors that reacted to this episode.

H₂: The EU supranational bodies that participated in the management of the 2013-2016 EVD outbreak were not central in the network of actors that reacted to this episode.

H₃: The EU supranational and Member State bodies that participated in the management of the 2013-2016 EVD outbreak failed to coordinate effectively for this purpose.

3.4. Methodology

This paper tests the abovementioned hypotheses by examining the EU response to the EVD outbreak from a network perspective. This approach does not focus as much on attributes pertaining to specific actors as on the relational ties that link these nodes together (Borgatti and Foster, 2003). Analytical emphasis is thus placed on the systemic—and not necessarily on the nodal—level, which according to Haldane (2009) is a good basis for effective crisis prevention strategies. In particular, this paper centers its attention around the interorganizational coordination of the response effort at the *de facto* level. Hence, it is not primarily concerned with formal relationships tying network actors that did not coordinate throughout the crisis response itself (e.g., government membership or regular financial contributions to international organizations).

Some scholarly contributions to crisis management have adopted a relational approach so as to examine crises—the studies of Goldin and Vogel (2010), Haldane (2009), or Sheng (2010) on the 2008 financial crisis constitute examples of this kind. A relational perspective can provide interesting insights into the study of global public goods, considering their complex and multidimensional nature (Kaul, 2019). For example, the extent to which “things work as intended” in EU public health appears to depend heavily on the relations between bodies such as the ECDC and its “potential allies and enemies”, or more specifically, on the ability of this agency to become a central hub (Greer, 2012: 1022).

This paper will provide answers to this research puzzle by using social network analysis (SNA). SNA produces graph representations of systems constituted by a set of actors (nodes), as well as by the formal and informal links (ties) between them. Thus, SNA transforms “a merely metaphorical understanding of the embeddedness of actors in networks of social relationships into a more precise and usable tool for social analysis” (Emirbayer and Goodwin, 1994: 1446). SNA is particularly useful to interpret interdependencies at the informal level within complex governance structures (Vantaggiato, 2019). This feature makes it interesting to examine crisis management systems, since many relevant decisions in such contexts are made in rather informal settings (Rhinard, 2019).

For example, cliques —subgraphs formed by at least three nodes that are connected to all other members of the structure (Wasserman and Faust, 1994)— convey information about the coordination of crisis management efforts (Comfort and Haase, 2006).²³ When examining cliques, this study assumes that an effectively coordinated reaction requires smooth communication across the crisis network, regardless of how specialized the functions performed by network actors are (Kapucu, 2005). In particular, the identification of several EU actors in some of the largest cliques in the network and the existence of large cliques formed (almost) exclusively by EU actors would indicate that the EU response was well coordinated. Along with the frequent presence of ties between such EU actors or the detection of structural similarity among these bodies, such evidence would strongly support H₃. Conversely, the absence of EU actors in the largest cliques of the network, the inability of these bodies to form large cliques and ties among themselves, or their structural dissimilarity would hint that the EU response was not well coordinated (and therefore help refute H₃).

This study relies on two data sources to test the hypotheses that were discussed in the previous section. Firstly, the network data presented in this study were collected from 42 answers to a survey that had been distributed among individuals involved in the management of the EVD outbreak. Secondly, the qualitative information in the analysis section was extracted from semi-structured interviews with 14 of these crisis managers. These interviewees provided insights into the social dynamics underlying the response effort. They were asked to provide information on different aspects, such as the role of their organizations in the response or the effectiveness of the overall reaction. Due to their prominence, the citations in the analysis lack references to particular interviewees in order to preserve their anonymity. For this reason, their detailed affiliations are not fully disclosed either (see Annex 3.1).

While the universe of potential network members included hundreds of organizations that participated in the response, the study defined a boundary that left the least relevant bodies outside of the network. This action made the database more manageable and facilitated the interpretation of the network data. For this purpose, an initial list of actors was elaborated by examining press articles and academic papers pertaining to the crisis. As indicated by Marsden (2011), it was later distributed among a selection of experts who

²³ For the full list of cliques in the network, see Annex 3.3.

had published academic work on the EVD outbreak. These could either validate the list or point at some missing actors. After receiving their reports, the list was reduced to 50 organizations.

Following a procedure used in previous studies (Lai et al., 2019), the survey was sent via email between January and July 2020 to crisis managers who occupied senior positions throughout the period 2013-2016 in 50 organizations involved in the response effort. All these individuals had senior executive responsibilities in the management of the EVD outbreak.²⁴ The survey respondents could also indicate whether they had interacted with any institution that did not appear on the list. After adopting a relational approach (Nowell et al., 2018), this study excluded two actors that did not meet a minimum threshold of five mentions by other members of the network, namely the Innovative Medicines Initiative and the Australian Department of Health. Hence, the final sample included 48 organizations; 42 individuals serving in 42 (87.5%) of these bodies answered the survey (one response per organization).²⁵ This sample of actors is larger than that used for the elaboration of the crisis network in Kapucu (2005). The language used in the questionnaire was English.

Different measures were also taken in order to preserve visual clarity. Firstly, the three countries that registered the highest number of EVD cases (Guinea, Liberia, Sierra Leone) are the only West African states that appear in the network. In other words, other countries in the region where only a few isolated cases were identified, such as Senegal, Nigeria, or Mali, were excluded from the network.²⁶ Secondly, actors that could have been broken down in greater detail —such as most national governments, the European Commission, MSF, the International Red Cross and Red Crescent Movement, or the WHO— were

²⁴ Even though the maximum number of valid answers per organization was limited to one, this sampling technique allowed for distributing the survey among several crisis managers with varying degrees of seniority for each body. Each survey respondent received an individual access code. No further measures were adopted to prevent the individuals who received the survey from forwarding this code to a third person.

²⁵ The six remaining nodes (the Chinese and Cuban governments, the Institut Pasteur, the mining company Rio Tinto, the Bill and Melinda Gates Foundation, and the US Ebola Coordinator) do not appear in the network, as no response was collected from them. However, Table 3.1 includes data reported by other members of the network concerning their in-degree and importance in the resolution of the crisis.

²⁶ Even though the Ghanese government hosted UNMEER and was instrumental in the organization of a conference in Accra where the central guidelines for the response were agreed, only two actors reported being in touch with it. For this reason, this node does not appear in the final network.

added as single nodes.²⁷ This simplification was more problematic in the cases of the US government—several prominent figures and departments from this administration played key roles in the outbreak response—, the EU, or the United Nations (UN). For this reason, the network includes several nodes corresponding to the latter three actors.

Survey respondents had to name the organizations with whom they had interacted throughout the crisis, indicate their importance for its resolution, and declare how often they monitored the activities of such bodies during the outbreak. The mean aggregated scores of the responses to the latter two questions (measured on a scale from 0 to 10) were used for calculating node sizes (see Table 3.2). At the end of the survey, a space was left for respondents to add any comments that they considered relevant. Besides the influence of each actor in the response (i.e., the larger the node size, the greater the influence of the actor in question), such data helped determine their primary contacts throughout the effort.²⁸

Actor influence was also estimated by looking at degree, betweenness, and closeness centrality scores. In-degree centrality values indicate the ‘popularity’ of a given node, namely how many actors reported being in touch with it. For its part, ‘out-degree’ centrality measures the level of activity of each actor (i.e., the number of outgoing ties from each node). ‘Out-degree’ values depend exclusively on the report of single individuals (and are therefore more prone to measurement error), whereas ‘in-degree’ reflects the perceptions of the remaining actors of the network; thus, the latter indicator is more accurate—in the sense of being less likely to suffer from respondent bias.

On the other hand, closeness centrality represents how easily an actor can ‘reach’ other nodes in the network (i.e., its geodesic distance to them). Actors with high closeness centrality scores tend to be able to communicate quickly and efficiently with their network peers, and do not need to rely on other organizations to receive information (Wasserman and Faust, 1994: 184-185). This paper used a normalized index between 0 and 1 (1 meaning that the node in question is adjacent to the remaining organizations in the network). This index results from the division of the number of nodes in the network (N)

²⁷ This simplified presentation safeguards the network against edge omission errors. In other words, it reduces the likelihood that survey respondents fail to identify ties to specific departments with whom they had interacted due to a lack of familiarity with their names. Under this logic, specific nodes such as DG-ECHO or DG-DEVCO were instead merged into a single node (‘European Commission’).

²⁸ The full questionnaire is available in Annex 3.2.

minus 1 by the addition of the distances between the node in question and all remaining nodes in the network:

$$c'_c(n_i) = \frac{1}{\sum_i g(n_i, n_j)} * (N - 1)$$

Finally, betweenness centrality shows how likely it is for a particular node to be located in the shortest path that connects two of its network peers. Actors with high betweenness centrality scores have strategic advantages over their peers, as they can potentially control and influence the information that flows through such paths (Wasserman and Faust, 1994: 189-190). This index results from dividing the number of shortest paths between two nodes in the network that go through a given node by the total number of shortest paths between any pair of nodes in the graph:

$$c_b(n_i) = \frac{\sum g_{jk}(n_i)}{g_{jk}}$$

As mentioned above, node sizes provide useful information regarding how influential actors are. In particular, the presence of large nodes corresponding to EU Member State governmental actors with high centrality values and small nodes pertaining to supranational EU institutions with low centrality scores contradict H₁ and support H₂, respectively. Conversely, the presence of small nodes corresponding to EU Member State governmental actors with low centrality values and large nodes pertaining to supranational EU institutions with high centrality scores would support H₁ and contradict H₂.

Instead of simply reflecting whether two nodes are connected, this paper presents a directed network. In this structure, arcs (i.e., directed ties) have a ‘direction’ from the sender to the receiving nodes, which is represented with arrows next to the latter. For example, if an organization “A” reported an interaction with another actor “B” in the survey, “A” would be ‘sending’ an outgoing tie to “B”. This information helps identify hierarchical dynamics in the network, which are evidenced by the presence of nodes with high differences between their in- and out-degree values. In other words, those nodes with a much higher in- than out-degree would be located in higher hierarchical echelons; the opposite would be said of nodes with many more outgoing than incoming ties.

This study captures perceptions concerning the influence exercised by the actors responsible for the management of the EVD outbreak. With the aim to minimize objections related to the subjectivity of the answers, such as claims that the position of individuals within their organizations might bias their responses—for example, by omitting ties whose existence is unknown to them—the survey targeted those individuals with senior executive responsibilities in the management of the EVD outbreak.²⁹ Other circumstances surrounding the study reduce the risk of subjectivity bias: for instance, Kenis and Knoke (2002: 291) claimed that respondents are better able to recall “information exchanges occurring within a [specific] dated interval” —such as a particular crisis— than their regular communication exchanges. Moreover, evidence from previous research (Freeman and Romney, 1987; Freeman et al., 1987) suggests that asking informants about longer-term patterns of behavior (the outbreak lasted over two years) is a better strategy than demanding information about interactions during a shorter period of time. The validity of the survey results was further checked by examining 68 documents corresponding to reports and minutes of meetings convened to tackle the crisis.³⁰ In these, 175 ties were identified: 160 of them (91.4%) had been reported in the survey by at least one of the actors involved, whereas 71 (40.6%) were identified by both ends. This speaks positively about the validity of the results and suggests the presence of hierarchical dynamics in the network.³¹

3.5. Analysis

This section examines the EU response to the 2013-2016 EVD outbreak. Incidents of this kind provide excellent opportunities to ‘take pictures’ (see Figure 3.1) whose analysis may reveal the actual weight of certain actors in their responses, relational dynamics among them, or their ability to act in a coordinated manner. In this sense, Table 3.1, Table 3.2, and Figure 3.1 reveal that the three West African governments, some NGOs (e.g., MSF, or the International Red Cross and Red Crescent Movement), and many

²⁹ In limited cases, their immediate subordinates were contacted too.

³⁰ This figure is broken down as follows: 55 minutes of meetings organized by the Global Ebola Response Coalition, 9 statements regarding meetings of the IHR Ebola Emergency Committee, as well as 4 documents pertaining to the Declaration of the Mano River Union, the United Nations Security Council Resolution 2177, and the Special Ministerial meeting celebrated in Accra on 2-3 July 2014 (2 documents), respectively.

³¹ This impression is reinforced after looking at the overall reciprocity rate of the network (35%).

International Medical Corps, Rescue = International Rescue Committee, IOM = International Organization for Migration, Liberia = Liberian government, MSF = Doctors without Borders, OCHA = United Nations Office for the Coordination of Humanitarian Affairs, Oxfam = Oxfam, Phoenix = Phoenix Air, PiH = Partners in Health, Plan = Plan International, Red Cross = International Red Cross and Red Crescent Movement, Samaritan = Samaritan's Purse, Save Child = Save the Children, SL = Sierra Leonean government, Spain = Government of Spain, UN SG = United Nations Secretary General, UNDP = United Nations Development Program, UNFPA = United Nations Population Fund, UNICEF = United Nations International Children's Fund, UNMEER = United Nations Mission for Ebola Emergency Response, UNMIL = United Nations Mission in Liberia, US CDC = United States Centres for Disease Control and Prevention, USAID = United States Agency for International Development, WFP = United Nations World Food Programme, WHO = World Health Organization, World Bank = World Bank.

Many interviewees agreed that the response was organized according to former colonial ties. Indeed, the French, the British, and the US governments deployed their own teams in Guinea, Sierra Leone, and Liberia, respectively: hence, a core task of UNMEER involved establishing coordination mechanisms that merged these efforts into a single crisis management strategy. Interviewees also acknowledged that the US and the UK were the foreign countries with the heaviest weight in Liberia and Sierra Leone, respectively. Table 3.2 shows that British and US governmental bodies received high scores concerning their relevance in the effort: in this sense, former Liberian President Ellen Johnson-Sirleaf even requested the US to intervene militarily in its territory (Moran, 2015: 181). British and US nodes were also among the most connected and frequently monitored actors in the network; the same could not be said about the Agence Française de Développement (AFD). While the active role of the French Embassy in Guinea suggests that caution is needed before extrapolating these counterintuitively modest scores to the entire French response, an interviewee reported that French officers were absent from operations on the ground in Guinea —according to this individual, their role in the country was limited to the provision of input during regular planning meetings.

In line with H₁, Figure 3.1 also shows that the governments of Spain and Germany did not occupy central positions in the network. The lack of a post-colonial relationship between these countries and the three West African country governments affected by the epidemic might explain this circumstance. Staff working for the German Corporation for International Cooperation (GIZ) actually worked remotely between July 2014 and April 2015, after being evacuated from West Africa.³² Since the early stages of the pandemic, the German government had provided financial support to national and international

³² The GIZ workers stationed in Liberia returned to this country in January 2015, whereas those working in Sierra Leone did so from April 2015 onwards.

NGOs that were working on the ground. For its part, the Spanish government protected the Spanish nationals living in the affected areas, contributed financially to the response effort, and helped raise awareness among locals about the nature of the pandemic, according to an interviewee. Table 3.2 shows that the DFID was the only EU Member State actor that appeared among the most frequently monitored and relevant nodes in the network. In sum, the non-centrality and relatively low relevance of the EU Member State nodes in the network —with the exception of the United Kingdom Department for International Development (DFID)— suffices to support H₁.

In contrast, the Commission or the EU Ebola Coordinator appear among the organizations with the highest betweenness and closeness centrality scores in the network (see Table 3.1).³³ Moreover, the European Commission is the only EU body that is present in some of the largest cliques in the network —more specifically, in the four cliques formed by seven actors and in two of the nine 6-actor cliques. Indeed, some interviewees agreed that Commission officials attended and were quite influential in high-level steering meetings. Having said that, others reported that the presence of Commission experts on the ground was rather weak; its engagement included the delivery of epidemiologists and the setup of mobile laboratories since the early stages of the outbreak.³⁴ In any case, none of the nodes corresponding to these supranational bodies were among the most relevant and frequently monitored actors in the network, as H₂ expected (see Table 3.2).

³³ In other words, many of the best-connected nodes in the network had ties to the Commission and the EU Ebola Coordinator, which were in turn geodesically ‘close’ to (and therefore able to easily reach) other actors.

³⁴ See https://eeas.europa.eu/archives/delegations/guinea/documents/projects/pin/fiches_secteur/economie_sante/fs_ebola.pdf

Institution	In-Degree	Out-Degree	Closeness	Betweenness
Africa Governance Initiative	8	10	0.569	1.268
African Development Bank	13	21	0.672	14.944
African Union	20	5	0.513	9.008
AFD	7	9	0.562	0.813
Aspen Medical	10	7	0.526	0.678
Care International	14	7	0.512	3.756
Chinese Government	13	-	-	-
Concern Worldwide	11	17	0.630	10.35
GIZ	12	4	0.506	0.595
ECOWAS	14	22	0.683	15.983
EU Ebola Coordinator	15	37	0.911	46.890
ECDC	9	3	0.5	0.202
European Commission	22	34	0.854	100.43
EEAS	10	23	0.695	15.487
European Parliament	6	6	0.532	0.599
Cuban Government	8	-	-	-
Spanish Government	5	20	0.661	1.4
Guinean Government	14	30	0.788	43.61
Institut Pasteur	9	-	-	-
International Medical Corps	18	26	0.732	21.443
IOM	17	32	0.82	21.728
International Red Cross and Red Crescent Movement	23	4	0.512	4.112
International Rescue Committee	20	28	0.759	33.764
Liberian Government	29	3	0.445	15.824
Médecins Sans Frontières (MSF)	31	13	0.594	61.347
Oxfam	13	5	0.506	0.379
Partners in Health	18	9	0.539	3.623
Phoenix Air	5	2	0.353	0.697
Plan International	11	10	0.532	2.663
Rio Tinto	5	-	-	-
Samaritan's Purse	11	7	0.512	29.411
Save the Children	19	8	0.547	4.942
Sierra Leonean Government	25	31	0.804	110.1
The Bill and Melinda Gates Foundation	10	-	-	-
UNICEF	27	25	0.719	68.252
DFID	24	25	0.719	64.62
UNDP	18	27	0.745	28.03
UNMEER	29	26	0.732	77.506
UNMIL	16	35	0.872	32.065
UN-OCHA	21	11	0.554	5.652
UNFPA	15	14	0.603	4.971
UN Secretary General	10	38	0.932	40.235
USAID	24	23	0.694	41.41
US CDC	28	23	0.694	64.771
US Ebola Coordinator	13	-	-	-
World Bank	24	21	0.672	30.201
World Food Programme	22	6	0.506	1.867
World Health Organization	34	15	0.612	59.339
Network Density	0.419			

Table

3.1. Centrality scores in the network that managed the EVD outbreak. Source: own elaboration. Note: Out-degree values do not reflect ties to the 6 nodes that did not respond to the survey

Institution	Importance role (own perception)	Frequency of monitoring	Importance role (external perception)	Importance role (external perception) + frequency of monitoring
Africa Governance Initiative	4	5.67	6.5	12.17
African Development Bank	10	5.5	6.45	11.95
African Union	9	5.5	6.06	11.56
AFD	4	5,5	6.83	12.33
Aspen Medical	10	3.38	7	10.38
Care International	6	4.42	6.75	11.17
Chinese Government	-	4.85	6.8	11.65
Concern Worldwide	9	3.8	6.8	10.6
GIZ	5	6.89	6.9	13.79
ECOWAS	9	7	7.92	14.92
EU Ebola Coordinator	10	6.23	7.15	13.38
ECDC	3	6.63	6.75	13.38
European Commission	9	6.61	7.06	13.67
EEAS	8	5.86	6.88	12.74
European Parliament	8	7.6	7.4	15
Cuban Government	-	4.5	7.63	12.13
Spanish Government	8	7.2	7.6	14.8
Guinean Government	9	8.64	9.07	17.71
Institut Pasteur	-	7	7.75	14.75
International Medical Corps	8	6.21	8.56	14.77
IOM	10	6.93	8.14	15.07
International Red Cross and Red Crescent Movement	10	6.89	9.05	15.94
International Rescue Committee	10	6	8.53	14.53
Liberian Government	10	8.23	9	17.23
Médicins Sans Frontières (MSF)	9	8.36	9.3	17.66
Oxfam	2	6.56	7.73	14.29
Partners in Health	5	7.5	7.47	14.97
Phoenix Air	9	3.75	7.4	11.15
Plan International	10	4.67	7.4	12.07
Rio Tinto	-	3.75	6.25	10
Samaritan's Purse	10	6.9	7.45	14.35
Save the Children	7	7.19	7.57	14.76
Sierra Leonean Government	10	8	8.57	16.57
The Bill and Melinda Gates Foundation	-	7	6.44	13.44
UNICEF	9	7.39	8.6	15.99
DFID	10	7.39	8.35	15.74
UNDP	10	7.15	7.6	14.75
UNMEER	10	8.2	8.04	16.24
UNMIL	10	7.47	7.79	15.26
UN-OCHA	10	7.37	7.32	14.69
UNFPA	10	7.46	7.31	14.77
UN Secretary General	9	6.78	7.44	14.22
USAID	10	7.1	8.5	15.6
US CDC	10	7.96	9	16.96
US Ebola Coordinator	-	9	8.83	17.83
World Bank	10	7.41	7.57	14.98
World Food Programme	10	7.35	8.24	15.59
World Health Organization	9	8.97	8.5	17.47

Table 3.2. Indicators used for the calculation of node sizes. Source: own elaboration

The EU response³⁵ was boosted in October 2014 with the appointment as EU Ebola Coordinator of the then-MEP Christos Stylianides, who would soon after become European Commissioner for Humanitarian Aid and Crisis Management. Two months earlier, the Spanish priest Miguel Pajares had become the first individual evacuated to Europe in order to receive treatment for the disease. The connectedness and perceived influence of the EU Ebola Coordinator reveal his effective leadership of the EU reaction. Among the first foreign leaders that visited the affected countries, Mr. Stylianides was instrumental in the organization of a high-level conference in Brussels whereby over 150 delegations and 700 participants “established a strong consensus about a way forward”. This event bound “everyone together around a set of shared objective [sic]” and provided “space for the Presidents of the affected countries to demonstrate leadership” (Global Ebola Response Coalition, 2015: 4). That being said, Table 3.2 shows that his perceived importance in the response effort did not match that of the US Ebola Coordinator, whose actions were monitored much more frequently. This evidence also supports H₂. The EU Ebola Coordinator also reported many more interactions with other actors than the number of ties sent back to him.

The relevance of the remaining EU supranational bodies was much lower, though. For example, the EEAS was among the only EU actors with a presence on the ground in the first months of the pandemic: it liaised with national as well as local authorities, monitored the situation, and coordinated the early EU response. Nevertheless, the EEAS was not perceived as a relevant node in the network, especially by the Member State organizations that reported a tie to it. Moreover, only four of the fifteen non-EU nodes with whom the EEAS respondent reported interactions during the outbreak did acknowledge reciprocal ties to this body. This hint at a position at the lower end of the network hierarchy is common among most EU actors —the European Centre for Disease Prevention and Control (ECDC) and GIZ were the only EU nodes with more incoming than outgoing ties.³⁶ This information is consistent with H₂ as well.

³⁵ According to an interviewee, the EU response in Guinea was partly influenced by the extreme care that EU officials took not to raise political tensions with the Guinean government. Indeed, full EU cooperation with Guinea had just been restored after its recognition of the 2013 Guinean legislative election results.

³⁶ However, these exceptions do not stem as much from a high number of incoming ties (9 for the ECDC and 12 in the case of GIZ) as from a lack of reported interactions (3 and 4, respectively).

The ECDC also occupied a rather peripheral position in the network, with a much more limited role and weight than its counterpart in the US. Having been criticized for being a ‘hollow’ organization instead of the EU health governance ‘hub’ that some individuals demanded it to be (Greer, 2012), the ECDC had during the EVD outbreak its first opportunity to project its mandate beyond the EU borders (Jordana and Triviño-Salazar, 2019: 181). However, it failed to display its modest capacities in a timely manner due to the lack of interest by the Member States in funding a costly intervention overseas. Moreover, the ECDC lacked resources to manage external operations (Jordana and Triviño-Salazar, 2020: 523); hence, its role in the early stages of the crisis was limited to assessing the risk of Ebola reaching Europe and providing recommendations to the Commission and the Member States. It was only months after the outbreak was declared a PHEIC when the ECDC sent roughly 100 staff members³⁷ to work on the ground via GOARN. After all, its priorities were less linked to the universalistic ambitions of WHO than to a commitment to the safety of EU citizens (Liverani and Coker, 2012: 929). Even then, its actions on the ground were affected by the unclear nature of its responsibilities (Jordana and Triviño-Salazar, 2020: 523). In sum, despite the high centrality scores of the EU Ebola Coordinator and the Commission, the overall picture appears to be relatively consistent with H₂.

An analysis of the cliques within the network hints that the EU reaction was not the result of coordinated collective action, as H₃ expected. While the DFID appears in several 5-actor cliques, the largest structures of this kind were formed almost exclusively by non-EU actors. With the exception of the proximity between the Commission and the EU Ebola Coordinator (which are found together in five different 5-actor cliques), subgraphs with several EU bodies are rare. Indeed, the largest clique that is exclusively formed by EU supranational and Member State organizations only includes four actors, namely the EEAS, the Commission, the EU Ebola Coordinator, and the Spanish government. Moreover, the GIZ and the ECDC are not part of any cliques —a circumstance that confirms the marginal role of these bodies in the response.

Other network indicators reinforce the impression that communication not only between the supranational and Member State levels but also among the Member States themselves was far from smooth (H₃). For instance, none of the three Member State development

³⁷ This figure was around fifteen times lower than that corresponding to the US CDC (Dahl et al., 2016).

agencies included in the study (the French AFD, the British DFID, and the German GIZ) declared ties among themselves (except for a connection between the GIZ and the DFID). Furthermore, no Member State agency reported ties to the Commission. Finally, the Commission, the EU Ebola Coordinator, and the Spanish government were the only supranational/member state organizations that acknowledged being in touch with the European Parliament.³⁸

These ideas were further tested through a hierarchical clustering analysis, which confirmed the expectation that there was room for improvement in the coordination of the EU (indeed, of the overall) reaction (H₃). This dendrogram (Figure 3.2) divides the different actors into clusters according to their structural similarity. The height of the graph shows how (dis-)similar a given pair of clusters is: the higher two clusters of actors merge, the less similar they are. Thus, two clusters of actors that merge at a Euclidean distance of 0 are structurally equivalent, meaning that they would have ties to and from identical actors in the network (Wasserman and Faust, 1994). For example, nodes such as the ECDC and the European Parliament merge at relatively low Euclidean distances and therefore occupy similar positions in the network; however, their distance (and dissimilarity) with most of the remaining EU nodes is much higher (the same could be said for other EU actors). The absence of structurally equivalent pairs of clusters in the system gives a clear hint of the relational dissimilarity across its members.

Although the perceived prominence of the EU in the response did not match that of the US, the former appeared to be as relevant as China. Indeed, financial donations from the European Commission surpassed those from China, India, Canada, or Japan (Huang, 2017). Having said that, some interviewees claimed that medical equipment and trained staff from China arrived in certain regions at an earlier stage than the first deliveries from the EU. Remarkably —considering its precarious financial situation—, Cuba sent hundreds of doctors to work on-site: hence, survey respondents considered this country as more influential in the response than most EU bodies.

³⁸ While the European Parliament does not appear as a popular (i.e., with a high ‘in-degree’) node in the network, it was perceived as a relevant actor in the response effort. This body drew public attention to the outbreak among the EU citizenship; this was necessary to set up an evacuation system, activate the Civil Protection Mechanism, and create a coordination network to fight against the pandemic.

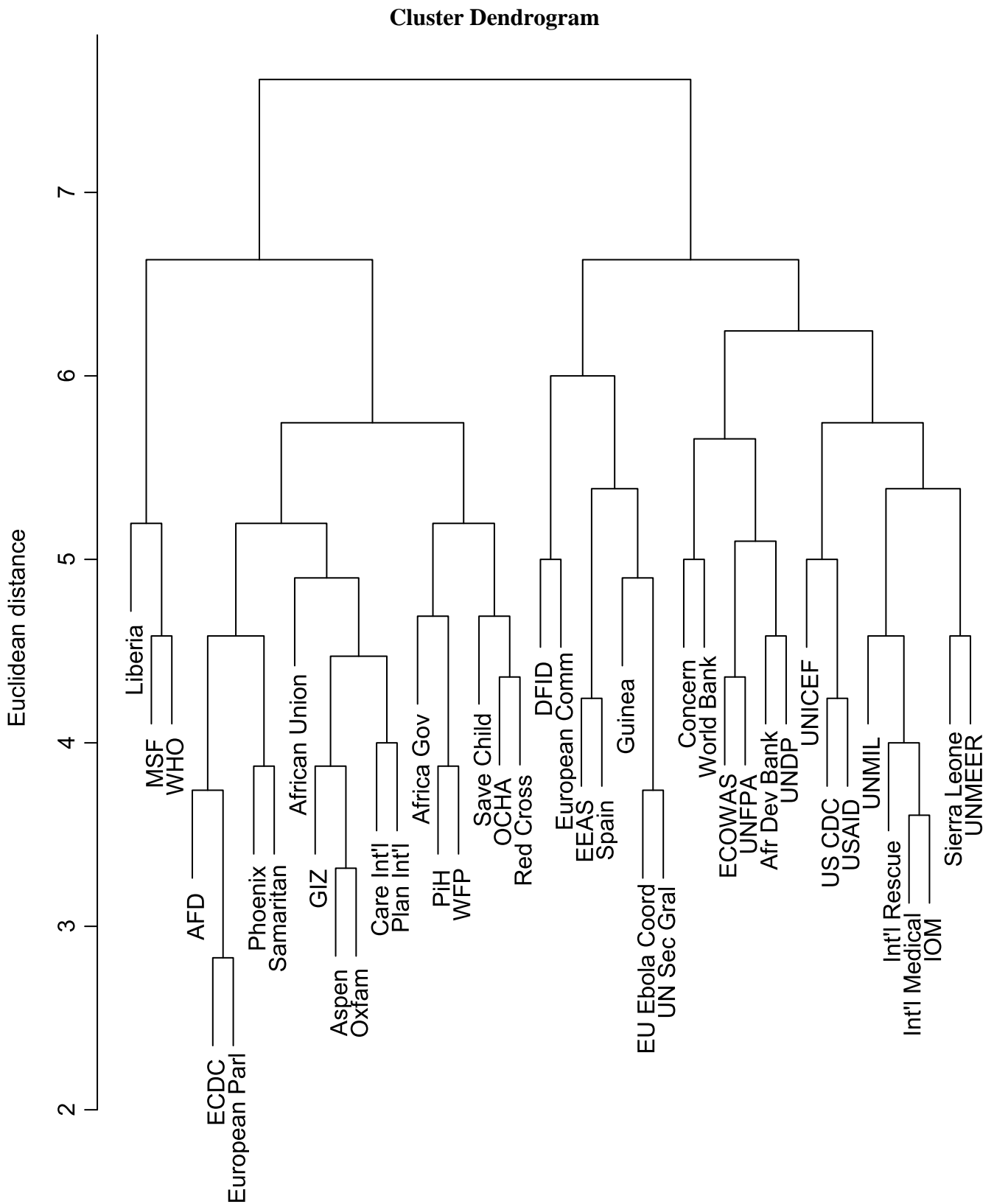


Figure 3.2: Dendrogram corresponding to the hierarchical clustering analysis of the EVD outbreak network

3.6. Discussion

Consistent with the findings of previous research on GPGs, this study shows that a global partnership including state governments, international organizations, and NGOs managed the response to the EVD outbreak. However, very few nodes corresponding to EU supranational or Member State bodies scored the highest concerning their centrality in the response effort. At the same time, the European Commission and the EU Ebola Coordinator were relatively well connected to other actors. The relatively marginal role of the EU Member States (with the exception of the UK) —as well as the high relevance of the Guinean, Sierra Leonean, and Liberian governments in the response effort— contradict claims that Western country governments are the most prominent decision-makers in matters related to the provision of GPGs (Gavas, 2013). In particular, the EU Member States found difficulties to justify the commitment of enough resources to tackle the EVD outbreak before the risk of spread to their territory became clear.

Despite the recent development of EU structures devoted to communicable disease control, the EU failed to coordinate a swift and effective response to the EVD outbreak. The high structural dissimilarity across EU actors, the absence of large cliques exclusively formed by Member State or supranational bodies, and the low ratio of direct ties among such organizations support this claim. A series of circumstances allow for concluding that the location of the epicenter of the outbreak conditioned the EU response to this incident. On the one hand, the affected local citizens did not grant foreign actors enough legitimacy to operate in their homeland, as they perceived their intervention as an external interference in their domestic affairs. According to some interviewees, the reduced number of financial, cultural, and human exchanges with the most heavily hit countries could be behind the relatively uncoordinated response. Besides hindering the delivery of disaster assistance (Nohrstedt and Baekkeskov, 2018), geographical distance complicated the task of scheduling regular on-site meetings involving crisis managers. These issues jeopardized communication (Provan and Kenis, 2007) and facilitated information asymmetries among these individuals, thus reducing the likelihood of successful crisis responses (Comfort and Haase, 2006).

The secondary role of the EU in the response effort contrasts with the dynamics that guide the management of crises whose epicenter is located in a non-EU region near its borders. This suggests that the EU faces fewer obstacles to become central in the reactions to

incidents in its neighborhood, where non-EU powers show less inclination to intervene and the European Union enjoys higher acceptance as a security actor (Christiansen, 2017).

While the economic and health safety of non-EU citizens did not appear in a high position in their list of priorities before 2014, European governments will likely pay greater attention to these aspects in the post-COVID-19 era. Increasing the weight of the EU in global health might hence prove necessary to avert future global pandemics, considering the ‘weakest link’ logic that guides communicable disease control. For this purpose, there needs to be a clearer division of public health competences between the supranational and Member State levels.

As a concluding note, it must be noted that further research on global health crises from a network perspective is needed before producing broad generalizations regarding the relational dynamics underlying the management of such incidents. Similarly, GPG scholarship could benefit from the production of studies with an explicit emphasis on the systemic level. Such pending research includes an in-depth analysis of the performance of non-EU governmental and non-governmental bodies in the network that responded to the EVD outbreak, which this paper does not include due to space constraints.

Bibliography

Agerskov, A. H. (2005). Global Public Goods and Development — a Guide for Policy Makers. *Seminar Number 6: World Bank Seminar Series at Kobe and Hiroshima Universities. Global Development Challenges Facing Humanity*. Washington, DC: World Bank. Retrieved from: <http://siteresources.worldbank.org/EXTABOUTUS/Resources/PublicGoods.pdf>

Alexandrova, P. (2015). Upsetting the Agenda: The Clout of External Focusing Events in the European Council. *Journal of Public Policy*, 35(3): 505-530

Battams, S., van Schaik, L., & van der Pas, R. (2014). The EU as a Global Health Actor: Policy Coherence, Health Diplomacy, and WHO Reform. *European Foreign Affairs Review*, 19(4): 539-562

Bengtsson, L. (2019). Which Crisis? The Promise of Standardized Risk Ranking in the Field of EU Infectious Disease Control. In: Olsen, E. O., Juhl K. V., Lindøe P. H., & Engen O. A. (Eds.) *Standardization and Risk Governance: a Multi-Disciplinary Approach*. (pp. 97-115). London: Routledge

- Borgatti, S. P., & Foster P. C. (2003). The Network Paradigm in Organizational Research: a Review and Typology. *Journal of Management*, 29(6): 991-1013
- Borrell, J. (2012). The EU and the European Parliament in International Trade and Climate Change Negotiations. In: Petersmann, E. (Ed.) *Multilevel Governance of Interdependent Public Goods: Theories, Rules, and Institutions for the Central Policy Challenge in the 21st Century*. (pp. 31-39). Florence: European University Institute, Working Paper RSCAS 2012/23
- Christiansen, T. (2017). The European Union and Global Governance. In: Triandafyllidou, A. (Ed.) *Global Governance from Regional Perspectives: a Critical View*. Oxford: Oxford University Press, 209-232
- Comfort, L. K., & Haase, T. W. (2006). Communication, Coherence, and Collective Action. The Impact of Hurricane Katrina on Communications Infrastructure. *Public Works Management and Policy*, 10(4): 328-343
- Comfort, L. K., & Kapucu, N. (2006). Inter-organizational Coordination in Extreme Events: The World Trade Center Attacks, September 11, 2001. *Natural Hazards*, 39: 309-327
- Council of the European Union (2008). *Consolidated Versions of the Treaty on European Union and the Treaty on the Functioning of the European Union*. Retrieved from: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A12012E%2FTXT>
- Council of the European Union (2010). *Council Conclusions on the EU Role in Global Health*. Retrieved from: https://www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/EN/foraff/114352.pdf
- Dahl, B. A., Kinzer, M. H., Raghunathan, P. L., et al. (2016). CDC's response to the 2014-2016 Ebola Epidemic — Guinea, Liberia, and Sierra Leone. *Morbidity and Mortality Weekly Report Suppl 2016*, 65 (Suppl:3): 12-20
- Emirbayer, M. & Goodwin, J. (1994). Network Analysis, Culture, and the Problem of Agency. *American Journal of Sociology*, 99: 1411-1454
- Freeman, L. C., & Romney, A. K. (1987). Words, Deeds, and Social Structure: a Preliminary Study of the Reliability of Informants. *Human Organization*, 46(4): 330-334
- Freeman, L. C., Romney, A. K., & Freeman, S. C. (1987). Cognitive Structure and Informant Accuracy. *American Anthropologist*, 89: 310-325
- Gavas, M. (2013). The EU and Global Public Goods: Challenges and Opportunities. *Danish Institute for International Studies*, 5: 1-36
- Glassman, A., Konyndyk, J., Schnabel, L., et al. (2019). Strengthening European Leadership on Global Health Security. *Center for Global Development*. Retrieved from: <https://www.cgdev.org/publication/strengthening-european-leadership-global-health-security>

Gleicher, D., & Kaul, I. (2013). New Diplomacy for Health: a Public Goods Perspective. In: Kickbusch, I., Lister, G., Told, M., et al. (Eds.) *Global Health Diplomacy. Concepts, Issues, Actors, Instruments, Fora and Cases*. (pp. 107-124). New York: Springer

Global Ebola Response Coalition (2015). *Global Ebola Response Coalition Meeting 6th March 2015: Issues Discussed and Next Steps*. Retrieved from: <https://ebolaresponse.un.org/sites/default/files/6mar.2015.pdf>

Goldin, I., & Vogel, T. (2010). Global Governance and Systemic Risk in the 21st century: Lessons From the Financial Crisis. *Global Policy*, 1(1): 4-15

Greer, S. L. (2012). The European Centre for Disease Prevention and Control: Hub or Hollow Core? *Journal of Health Politics, Policy and Law*, 37(6): 1001-1030

Haldane, A. G. (2009). Rethinking the Financial Network. Financial Student Association. Speech delivered at the Financial Student Association, Amsterdam

Huang, Y. (2017). China's Response to the 2014 Ebola Outbreak in West Africa. *Global Challenges*, doi: /10.1002/gch2.20160001

Ingram, A. (2005). The New Geopolitics of Disease: between Global Health and Global Security. *Geopolitics*, 10(3): 522-545

Jenks, B. (2012). The United Nations and Global Public Goods: Historical Contributions and Future Challenges. In: Carbonnier, G. (Ed.) *International Development Policy. Aid, Emerging Economies, and Global Policies*. (pp. 31-47). Geneva: Palgrave Macmillan

Jordana, J., & Triviño-Salazar, J. C. (2019). European Union Agencies: a Global Governance Perspective. *Revista de Estudios Políticos*, 185: 169-189

Jordana, J., & Triviño-Salazar, J. C. (2020). EU Agencies' Involvement in Transboundary Crisis Response: Supporting Efforts or Leading Coordination? *Public Administration*, 98: 515-529

Kamradt-Scott, A. (2016). WHO's to Blame? The World Health Organization and the 2014 Ebola Outbreak in West Africa. *Third World Quarterly*, 37(3): 401-418

Kapucu, N. (2005). Interorganizational Coordination in Dynamic Context: Networks in Emergency Response Management. *Connections*, 26(2): 33-48

Kaul, I. (2019). Conceptualizing Global Public Policy: a Public Good Perspective. In: Stone, D., & Moloney, K. (Eds.). *The Oxford Handbook of Global Policy and Transnational Administration* (pp. 2-22). Oxford: Oxford University Press

Kenis, P., & Knoke, D. (2002). How Organizational Field Networks Shape Interorganizational Tie-formation Rates. *Academy of Management Review*, 27(2): 275-293

Lai, C., She, B., & Ye, X. (2019). Unpacking the Network Processes and Outcomes of Online and Offline Humanitarian Collaboration. *Communication Research*, 46(1): 88-116

- Liverani, M., & Coker, R. (2012). Protecting Europe from Diseases: from the International Sanitary Conferences to the ECDC. *Journal of Health Politics, Policy, and Law*, 37(6): 915-934
- Marsden, P. V. (2011). Survey Methods for Network Data. In: Scott, J. and Carrington, P. J. (Eds.) *The SAGE Handbook of Social Network Analysis*. (pp. 370-388). London: SAGE Publications Ltd.
- McKee, M., Hervey, T., & Gilmore, A. (2010). Public Health Policies. In: Mossialos, E., Permanand, G., Baeten, R., & Hervey, T. (Eds.) *Health Systems Governance in Europe. The Role of European Union Law and Policy*. Cambridge: Cambridge University Press, 231-281
- Moran, M. H. (2015). Surviving Ebola: the Epidemic and Political Legitimacy in Liberia. *Current History*, 114(772): 177-182
- Nohrstedt, D., & Baekkeskov, E. (2018). Political Drivers of Epidemic Response: Foreign Healthcare Workers and the 2014 Ebola Outbreak. *Disasters*, 42(1): 41-61
- Nowell, B. L., Velez, A. K., Hano, M. C., et al. (2018). Studying Networks in Complex Problem Domains: Advancing Methods in Boundary Specification. *Perspectives on Public Management and Governance*, 1(4): 273-282
- Piot, P., Muyembe, J., & Edmunds, W. J. (2014). Ebola in West Africa: from Disease Outbreak to Humanitarian Crisis. *The Lancet Infectious Diseases*, 14(11): 1034-1035
- Provan, K. G., & Kenis, P. (2007). Modes of Network Governance: Structure, Management, and Effectiveness. *Journal of Public Administration Research and Theory*, 18: 229-252
- Quaglio, G., Goerens, C., Putoto, G., et al. (2016). Ebola: Lessons Learned and Future Challenges for Europe. *Lancet Infectious Diseases*, 16: 259-263
- Rhinard, M. (2009). European Cooperation on Future Crises: Toward a Public Good? *Review of Policy Research*, 26(4): 439-455
- Rhinard, M. (2019). The Crisisification of Policy-making in the European Union. *Journal of Common Market Studies*, 57(3): 616-633
- Šehović, A. B. (2017). *Coordinating Global Health Policy Responses: From HIV/AIDS to Ebola and Beyond*. Berlin: Springer.
- Steurs, L., Van de Pas, R., Delputte, S., et al. (2018). The Global Health Policies of the EU and its Member States: A Common Vision? *International Journal of Health Policy and Management*, 7(5): 433-442
- Sheng, A. (2010). Financial Crisis and Global Governance: a Network Analysis. In: Spence, M., & Leipziger, D. (Eds.) *Globalization and Growth: Implications for a Post-Crisis World* (pp. 69-94). New York: Commission on Growth and Development, the World Bank

Solana, J. (2005). *Shaping an Effective EU Foreign Policy*, speech at the Konrad Adenauer Foundation, Brussels, 24 January 2005

Stone, D. (2020). *Making Global Policy*. Cambridge: Cambridge University Press

Van der Pas, R., & Van Belle, S. (2015). Ebola, the Epidemic that Should Never Have Happened. *Global Affairs*, 1(1): 95-100

Vantaggiato, F. P. (2019). The Drivers of Regulatory Networking: Policy Learning between Homophily and Convergence. *Journal of Public Policy*, 39(3): 443-464.

Wasserman, S., & Faust, K. (1994). *Social Network Analysis: Methods and Applications*. Cambridge: Cambridge University Press.

Wilkinson, A., & Leach, M. (2015). Briefing: Ebola — Myths, Realities, and Structural Violence. *African Affairs*, 114(454): 136-148.

Zacher, M. W., & Keefe, T. J. (2008). *The Politics of Global Health Governance. United by Contagion*. Basingstoke: Palgrave Macmillan.

ANNEX 3.1. LIST OF INTERVIEWS

Number	Institutional Affiliation	Position	Date	Method
1	NGO	High-rank officer	11 December 2019	Telephone Call
2	UN Mission for Ebola Emergency Response (UNMEER)	High-rank officer	24 February 2020	Telephone Call
3	African Union	Political advisor	11 March 2020	Telephone Call
4	Agence Française de Développement (AFD)	High-rank officer	26 March 2020	Telephone Call
5	European External Action Service (EEAS)	Executive officer	3 April 2020	Telephone Call
6	Office of the UN Secretary General	High-rank officer	10 April 2020	Telephone Call
7	UK Government	Confidentiality requested	23 April 2020	Telephone Call
8	Spanish Government	Diplomat	1 May 2020	Telephone Call
9	International Medical Corps	High-rank officer	6 May 2020	Telephone Call
10	European Centre for Disease Prevention and Control (ECDC)	High-rank officer	13 June 2020	Telephone Call
11	GIZ	High-rank officer (stationed in West Africa)	24 June 2020	Telephone Call
12	CARE International	Senior officer	25 June 2020	Telephone Call
13	European Commission	Confidentiality requested	2 July 2020	Telephone Call
14	Guinean government	Government official	22 July 2020	Telephone Call

ANNEX 3.2. QUESTIONNAIRE

The survey referred to in this paper included the following questions:

1. Could you please indicate the name of the institution that you were affiliated with throughout the response to the West African Ebola Virus Disease outbreak (2013-2016)?

- Africa Governance Initiative
- African Development Bank
- African Union (AU)
- Agence Française de Développement (AFD)
- Aspen Medical
- Australian Department of Health
- Care International
- Chinese Government
- Concern
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
- Economic Community of West African States (ECOWAS)
- EU Ebola Coordinator
- European Centre for Disease Prevention and Control (ECDC)
- European Commission
- European External Action Service (EEAS)
- European Parliament
- Gobierno de Cuba / Cuban Government
- Gobierno de España / Spanish Government
- Gouvernement Guinée / Guinean Government
- Innovative Medicines Initiative
- Institut Pasteur
- International Medical Corps
- International Organization for Migration (IOM)
- International Red Cross and Red Crescent Movement
- International Rescue Committee
- Liberian Government
- Médecins Sans Frontières (MSF)

- Oxfam
- Partners in Health
- Phoenix Air
- Plan International
- Rio Tinto
- Samaritans Purse
- Save the Children
- Sierra Leonean Government
- The Bill and Melinda Gates Foundation
- UNICEF
- United Kingdom Department for International Development (DFID)
- United Nations Development Programme (UNDP)
- United Nations Mission for Ebola Emergency Response (UNMEER)
- United Nations Mission in Liberia (UNMIL)
- United Nations Office for the Coordination of Humanitarian Affairs (UN OCHA)
- United Nations Population Fund (UNFPA)
- United Nations Secretary General
- United States Agency for International Development (USAID)
- United States Centres for Disease Control and Prevention (CDC)
- United States Ebola Response Coordinator
- World Bank
- World Food Programme
- World Health Organization (WHO)

2. Could you please assess the contribution of your institution to the management of the West African Ebola Virus Disease outbreak? Scale: a number between 0 and 10, 0 meaning “extremely irrelevant player”, 5 “moderately relevant player”, and 10 “extremely relevant player”.

3. Were you in touch with any of the following organizations throughout the response to the West African Ebola Virus Disease outbreak? Please check all that apply.

(The list of response options is the same as in the case of question 1)

4. Were you in touch with any organization throughout the response to the West African Ebola Virus Disease outbreak that was not included in the previous list? Click an option if this was the case AND write the name(s) of the institution(s). Please do not write the name of more than one institution per box. Please note that it is not mandatory to answer this question.

5. How often did you monitor the actions and public statements of each of these organizations throughout the response to the West African Ebola Virus Disease outbreak? Scale: a number between 0 and 10, 0 meaning “never monitored”, 5 “average monitoring” and 10 “monitored at all times”.

(The available response options were those organizations selected by the respondent in question 3)

6. Could you please assess the contribution of the following organizations to the response to the West African Ebola Virus Disease outbreak? Scale: a number between 0 and 10, 0 meaning “extremely irrelevant player”, 5 “moderately relevant player”, and 10 “extremely relevant player”.

(The available response options were those organizations selected by the respondent in question 3)

7. This is the end of the survey on the response to the West Ebola Virus Disease outbreak (2013-2016). Would you like to add any comments?

ANNEX 3.3. LIST OF CLIQUES IN THE NETWORK

3-actor cliques (11 in total):

1. AFD, Guinea, UN SG
2. Samaritan, US CDC, USAID
3. Conc, EC, Red Cross
4. Care, DFID, Rescue
5. Care, Conc, Rescue
6. DFID, Oxfam, SL
7. Aspen, DFID, SL
8. Liberia, UNMEER, WHO
9. ADB, Guinea, UNDP
10. ADB, AU, Guinea
11. AFD, EEAS, Guinea

4-actor cliques (28 in total):

1. Guinea, Save Child, US CDC, USAID
2. Conc, Medical, Rescue, UNMIL
3. Medical, Save Child, US CDC, USAID
4. OCHA, UNICEF, UNMEER, WHO
5. OCHA, UNMEER, US CDC, WHO
6. DFID, Rescue, Plan, UNICEF
7. EU Eb, Rescue, UNMEER, UNMIL
8. EU Eb, EC, Guinea, UNMEER
9. EEAS, EU Eb, EC, UNICEF
10. EEAS, EC, UNDP, UNICEF
11. EEAS, EC, Guinea, UNDP

12. Guinea, UNMEER, US CDC, USAID
13. Guinea, UN SG, UNMEER, US CDC
14. EU Eb, Guinea, UN SG, UNMEER
15. EEAS, EC, Spain, UNDP
16. EEAS, EU Eb, EC, Spain
17. EU Eb, Rescue, IOM, UNMIL
18. EU Eb, EC, EP, MSF
19. EEAS, EU Eb, EC, Guinea
20. DFID, EEAS, EU Eb, UNICEF
21. AGI, SL, UNMEER, UNMIL
22. ADB, SL, UNMIL, WHO
23. ADB, ECOWAS, SL, UNMIL
24. ADB, SL, UNICEF, WHO
25. ADB, UNDP, UNICEF, WB
26. UNDP, UNFPA, UNMEER, UNMIL
27. UNDP, UNFPA, UNICEF, UNMEER
28. ADB, AU, ECOWAS, SL

5-actor cliques (35 in total):

1. Medical, IOM, UNDP, UNMIL, WB
2. Medical, UNDP, UNMEER, UNMIL, WB
3. Medical, IOM, SL, US CDC, USAID
4. Medical, IOM, SL, UNMIL, US CDC
5. Medical, SL, UNMEER, UNMIL, US CDC
6. Medical, Rescue, IOM, OCHA, US CDC

7. Medical, Rescue, OCHA, UNMEER, US CDC
8. Medical, Rescue, OCHA, UNICEF, UNMEER
9. Medical, Rescue, IOM, OCHA, UNICEF
10. Conc, EC, Medical, Rescue, UNICEF
11. SL, UNICEF, UNMEER, USAID, WHO
12. DFID, SL, UNICEF, UNMEER, USAID
13. SL, UNMEER, US CDC, USAID, WHO
14. SL, UNMEER, US CDC, WFP, WHO
15. DFID, SL, UNMEER, US CDC, USAID
16. SL, UN SG, UNICEF, UNMEER, WHO
17. EU Eb, SL, UN SG, UNMEER, UNMIL
18. EU Eb, SL, UN SG, UNICEF, UNMEER
19. DFID, EU Eb, SL, UNICEF, UNMEER
20. DFID, Rescue, UNICEF, UNMEER, USAID
21. DFID, Rescue, UNMEER, US CDC, USAID
22. DFID, EU Eb, Rescue, UNICEF, UNMEER
23. EC, Guinea, UNDP, UNMEER, USAID
24. EU Eb, EC, Rescue, UNICEF, UNMEER
25. EU Eb, EC, SL, UNICEF, UNMEER
26. EU Eb, EC, IOM, SL, UNICEF
27. EU Eb, EC, Rescue, IOM, UNICEF
28. MSF, SL, UNMEER, WFP, WHO
29. EU Eb, EC, MSF, SL, UNMEER
30. AGI, Rescue, UNMEER, UNMIL, WB
31. ECOWAS, UNDP, UNMEER, UNMIL, WB

32. ADB, ECOWAS UNDP, UNMIL, WB
33. ECOWAS, EU Eb, SL, UNMEER, UNMIL
34. ECOWAS, IOM, UNDP, UNMIL, WB
35. ECOWAS, EU Eb, IOM, SL, UNMIL

6-actor cliques (9 in total):

1. Medical, Rescue, UNMEER, UNMIL, US CDC, WB
2. Medical, PIH, UNMEER, US CDC, USAID, WB
3. Medical, PIH, SL, UNMEER, US CDC, USAID
4. Medical, Rescue, IOM, UNMIL, US CDC, WB
5. EC, Medical, SL, UNICEF, UNMEER, USAID
6. EC, Medical, IOM, SL, UNICEF, USAID
7. Medical, Rescue, IOM, US CDC, USAID, WB
8. Medical, Rescue, UNMEER, US CDC, USAID, WB
9. SL, UN SG, UNMEER, UNMIL, US CDC, WHO

7-actor cliques (4 in total)

1. EC, Medical, Rescue, UNICEF, UNMEER, USAID, WB
2. EC, Medical, UNDP, UNICEF, UNMEER, USAID, WB
3. EC, Medical, IOM, UNDP, UNICEF, USAID, WB
4. EC, Medical, Rescue, IOM, UNICEF, USAID, WB

Names of the organizations: AFD = French Development Agency, ADB = African Development Bank, AGI = The Tony Blair Africa Governance Initiative, AU = African Union, Aspen = Aspen Medical, Care = Care International, Conc = Concern Worldwide, DFID = United Kingdom Department for International Development, ECDC = European Centre for Disease Prevention and Control, ECOWAS = Economic Community of West African States, EEAS = European External Action Service, EU Eb = EU Ebola Response Coordinator, EC = European Commission, EP = European Parliament, GIZ = German

Corporation for International Cooperation, Medical = International Medical Corps, Rescue = International Rescue Committee, IOM = International Organization for Migration, Liberia = Liberian government, MSF = Doctors without Borders, OCHA = United Nations Office for the Coordination of Humanitarian Affairs, Oxfam = Oxfam, Phoenix = Phoenix Air, PiH = Partners in Health, Plan = Plan International, Red Cross = International Red Cross and Red Crescent Movement, Samaritan = Samaritan's Purse, Save Child = Save the Children, SL = Sierra Leonean government, Spain = Government of Spain, UN SG = United Nations Secretary General, UNDP = United Nations Development Program, UNFPA = United Nations Population Fund, UNICEF = United Nations International Children's Fund, UNMEER = United Nations Mission for Ebola Emergency Response, UNMIL = United Nations Mission in Liberia, US CDC = United States Centres for Disease Control and Prevention, USAID = United States Agency for International Development, WFP = United Nations World Food Programme, WHO = World Health Organization, World Bank = World Bank.

4. EXAMINING THE REACTION TO A HUMANITARIAN EMERGENCY FROM A NETWORK PERSPECTIVE: THE RESPONSE TO CYCLONES IDAI AND KENNETH

Abstract

This paper examines the logic that guided the involvement of the European Union and its coordination with other actors throughout the response to a humanitarian emergency with a distant epicentre from the EU borders. In particular, this article will examine the reaction to Cyclones Idai and Kenneth. By combining an Exponential Random Graph Model (ERGM) with semi-structured interviews, this paper will also apply resource dependence theory in order to identify actor characteristics that conditioned exchanges within the network that responded to this incident. Hence, it provides novel empirical evidence regarding *de facto* responses to humanitarian emergencies that increases understanding of social dynamics among the actors involved in these efforts. The findings of this study show that the EU response had a marked multilateral nature. For their part, donors tended to show less activity within the network than financial aid recipients.

Keywords: Idai, European Union, Humanitarian Crises, Networks

4.1. Introduction

Cyclones Idai and Kenneth killed over 1,300 people and left more than 2 million individuals in need of humanitarian assistance in South-East Africa between March and April 2019. Their effects were not circumscribed to a single country: indeed, floods and landslides affected parts of Zimbabwe, Malawi, Mozambique, and the Comoros Islands. Massive migration flows originated in the region as a result of the cyclones (Chapungu, 2020). Only in Mozambique, both cyclones destroyed over 400,000 houses (Cowan and Infante, 2019) and damaged ‘over 700,000 hectares of cultivated lands’ (HELP, 2019: 118). The subsequent humanitarian response entailed the reconstruction of infrastructure, as well as the provision of livelihood and shelter to affected individuals (DEC, 2019). A spokesperson of the UN World Meteorological Organization (WMO) referred to Idai and Kenneth as perhaps ‘one of the worst weather-related disasters in the Southern Hemisphere’ (UN News, 2019). Estimates of financial losses derived from Cyclones Idai and Kenneth amounted to roughly USD 2 billion (HELP, 2019).

Despite these circumstances, Idai and Kenneth were not salient events in European media. Images of flooded cities did neither hit newspaper headlines nor become a matter of

public debate in Europe: certainly, they did not reach the prominence levels of the 2013-16 Ebola outbreak. For instance, the amount of money that the international community donated to the humanitarian response only amounted to \$195.1 million, or 43.3% of the required funding for the emergency operation (OCHA, n.d.a). This figure fell short of the \$1.56 million (68.9% of its intended target) reached by the appeal for the 2013-16 Ebola outbreak (OCHA, n.d.b). The absence of a direct security threat to Europe might explain the low levels of attention devoted to an episode that affected a rather distant area. That being said, previous EU humanitarian interventions in Sub-Saharan Africa have been able to reduce the amount of EU resources invested in reconstruction efforts. They have also mitigated the risks that potential refugee flows and other transboundary manifestations of political instability in the region pose to the economic interests of the EU (Joseph, 2014).

Bearing this context in mind, these episodes provide an excellent opportunity to address important literature gaps. For example, existing research has already paid attention to the legal competences that define the *de jure* EU humanitarian aid system (for detailed information on this subject, see Broberg, 2014; Orbie et al., 2014). At the time of writing, we also have information regarding the principles that have shaped strategic planning of past EU humanitarian interventions in sub-Saharan Africa (Joseph, 2014). However, there is a lack of theory-based studies that provide empirical information concerning the *de facto* involvement of EU Member State and supranational actors in humanitarian emergency responses overseas (Prakash et al., 2020). Moreover, studying the response to Cyclones Idai and Kenneth would serve as a basis for assessing whether EU humanitarian operations are consistent with aspects such as the self-perceived EU role as a global actor (Sjursen, 2006).

At the same time, a handful of studies have found that resource dependence theory is a promising theoretical approach to understand inter-organizational coordination throughout humanitarian operations (for example, see Prasad et al., 2018). They hint that certain actor characteristics, such as their nature as a financial aid donor or recipient, matter for this purpose. Other studies have examined inter-organizational coordination throughout humanitarian responses from a relational perspective (Lai et al., 2019; Moore et al., 2003; Prasad et al., 2018; Tacheva and Simpson, 2019). However, further pieces paying attention to the relational dimension of humanitarian emergency responses are needed to make sense of social dynamics such as donor-recipient homophily among the actors involved in humanitarian responses (Prakash et al., 2020).

Hence, this article has a twofold purpose. More specifically, it provides answers to the following two research questions: Which logic guides the EU involvement and coordination with other actors throughout humanitarian emergency responses overseas? Which actor characteristics condition exchanges within humanitarian crisis networks? In so doing, it embraces the conceptual shift from examining what the EU ‘is’ to what this entity ‘does’ (Aggestam, 2008)—thus following the ‘practice turn’ in EU studies (Adler-Nissen, 2016)—by exploring the tensions and synergies between EU and non-EU actors throughout humanitarian emergency responses. Additionally, this paper will test the applicability of resource dependence theory to humanitarian emergency responses so as to identify actor characteristics that conditioned exchanges within the network that responded to Cyclones Idai and Kenneth. The findings of this study show that the EU response had a marked multilateral nature. For their part, donors tended to show less activity within the network than financial aid recipients.

This paper fulfils these aspirations by combining semi-structured interviews with social network analysis (SNA). SNA is a powerful methodology to study the *de facto* involvement of different actors in humanitarian emergency responses owing to its ability to produce rich empirical evidence regarding formal and informal exchanges (Schomaker et al., 2021).³⁹ Thus, the presence of SNA in EU studies has significantly grown in recent years (for example, see Malang and Leifeld, 2021). For their part, semi-structured interviews provide in-depth qualitative insights into the coordination of the response and the logic underlying the involvement of EU and non-EU actors in this effort.

The structure of the paper goes as follows. The article will first analyse the EU involvement in the responses to humanitarian emergencies overseas. Later, it will pay attention to the extent to which resource dependencies affect social dynamics among the actors involved in humanitarian crisis networks. Afterwards, it will provide the reader with an overview of the methodology used in this study, whereas the following section will describe the results of the analysis. The paper will conclude by discussing its main findings and suggesting areas for further research related to the object of study.

³⁹ As opposed to formal interactions, exchanges in informal arenas are characterized by the absence of codified and enforced rules, restricted participation, and scarce transparency. Unlike formal negotiations, informal interactions cannot lead to binding decisions (Reh et al., 2011; Schomaker et al., 2021)

4.2. The EU and the Management of Humanitarian Emergencies Overseas

This section analyses the EU involvement in humanitarian responses overseas. The EU has a specific legal framework and tools to handle such operations. In this regard, Art. 214 TFEU states that ‘operations in the field of humanitarian aid shall be conducted within the framework of the principles and objectives of the external action of the Union’. These ‘shall be intended to provide *ad hoc* assistance and relief and protection for people in third countries who are victims of natural or man-made disasters’. This legal basis distinguishes external humanitarian disasters from domestic emergencies, which fall under the scope of the solidarity clause in Art. 222 TFEU. It also establishes a clear separation between *ad hoc* humanitarian interventions and longer-term cooperation, which is managed according to Art. 208 TFEU and Art. 212 TFEU (van Elsuwege et al., 2016). For its part, the European Consensus on Humanitarian Aid —signed in 2007 by the Council, the Commission, and the Parliament— explicitly claims that humanitarian aid ‘cannot be used as a crisis management tool’ (European Union, 2008: 2). Moreover, it clarifies that humanitarian actions promoted by the EU shall be based on the principles of neutrality, impartiality, humanity, and independence. Since the adoption of the Lisbon Treaty, Art. 214 TFEU has indeed granted formal independence ‘from political, economic, military, and other objectives’ to humanitarian aid policy.

EU legislation defines humanitarian aid as a shared competence. Hence, the EU has a mandate ‘to conduct a common [humanitarian aid] policy’. Having said that, ‘the exercise of that competence shall not result in the Member States being prevented from exercising theirs’.⁴⁰ Additionally, the Union and the Member States shall account for each other’s actions in this area. This framework poses the risk that overlapping roles of the EU institutions and the Member States jeopardize the efficiency of humanitarian actions overseas: the principle of complementarity included in the TFEU is explicitly aimed at reducing this risk (Broberg, 2014). However, the need for coherence in the EU humanitarian aid strategy poses an additional challenge for effective action (Orbie et al., 2014).

⁴⁰ See Art. 4(4) TFEU

At the supranational level, the EU possesses bodies and tools to manage natural disasters within and beyond its borders. In this regard, responsibilities for humanitarian policy implementation are divided among the current European Commission Directorate General for International Partnerships (DG-INTPA, formerly known as DG-DEVCO), the European Commission Directorate General for European Civil Protection and Humanitarian Aid Operations (DG-ECHO), and the European External Action Service (EEAS) (Cihangir-Tetik and Müftüleri-Baç, 2021). DG-ECHO is the main decision-making body and coordinator of EU reactions to humanitarian operations overseas (van Elsuwege et al., 2016): it received competences to handle internal humanitarian crises a few years after the establishment of its original mandate, which empowered this body to respond to emergencies overseas. Placed under the authority of DG-ECHO, the Civil Protection Mechanism can be activated to assist any EU or non-EU country that asks for its deployment (Morsut, 2020). In 2019, contributors to the Civil Protection Mechanism included the 27 EU Member States plus the United Kingdom—which left in February 2020—, Norway, Iceland, Montenegro, North Macedonia, Serbia, and Turkey. The Civil Protection Mechanism was upgraded in 2019 through the creation of rescEU, which consists of a stockpile of resources (e.g., helicopters, medical equipment) that can be deployed in the event of an emergency.

The effectiveness of EU humanitarian assistance is closely tied to its successful integration into an array of policy instruments. This circumstance partly stems from the ‘close connection between the origin and consequences of a humanitarian crisis, and the Lisbon Treaty’s emphasis on enhanced coherence of the EU’s external assistance policies’ (Cihangir-Tetik and Müftüleri-Baç, 2021: 442). In this sense, Art. 43 TEU acknowledges that both civilian and military resources may be employed to tackle humanitarian operations (Orbie et al., 2014). While conceived as a ‘last resort’ (European Union, 2008: 7), the possibility to use military means leaves open the door to the controversial politicization of humanitarian interventions (Orbie et al., 2014).

Besides the abovementioned capacities, the EU relies on its coordination with transnational policy networks where a series of actors exchange information and resources in order to manage humanitarian emergencies. These include country governments, individual citizens, NGOs, private firms, or supranational and international organizations (Morsut, 2020). Following a decentralized, horizontal approach to humanitarian assistance, the United Nations adopted in 2005 a cluster scheme to facilitate

coordination of humanitarian disasters. This system divides the actors involved in humanitarian actions into eleven clusters; each of them focuses on a specific sector and is led by a different agency. Lead agencies are in turn held accountable by the UN Emergency Relief Coordinator, who heads the UN Office for the Coordination of Humanitarian Affairs (OCHA). While smooth coordination among these clusters is key for the success of humanitarian operations, the model has overall performed satisfactorily since its creation (Tacheva and Simpson, 2019).

Along with the protection of democratic values and human rights, the promotion of multilateralism is a core element of EU humanitarian policy since the 2003 European Security Strategy included it as a strategic aspiration (Kissack, 2010). Under this logic, the EU is expected to promote international agreements, law, and institutions created in multilateral fora through formal and informal actions (Christiansen, 2017; Kissack, 2010). This commitment to multilateralism remained a core element of the 2016 EU Global Strategy, which introduced a more pragmatic, less normative approach (Barbé and Morillas, 2019). For its part, the EU Strategy for Disaster Risk Reduction in Developing Countries shows the EU self-perception as an actor bridging local, national, and international organizations in disaster responses: this strategic plan explicitly mentions the EU willingness to cooperate with the UN system, the World Bank, or international and community NGOs (European Commission, 2009).

In contrast to this rhetoric, Christensen (2017) has argued that the EU often faces difficulties to put its commitment to multilateralism into practice effectively. For example, shifts in the balance of power in the international system or conflicts with domestic interests might jeopardize the pursuit of such a goal (Hyde-Price, 2008). Besides, Sjørusen (2006) noted that the promotion of multilateralism is not exclusive to the EU, which is not particularly ambitious in this regard: in fact, the EU does not pursue legally binding multilateral arrangements with the possibility of sanctioning non-compliant parties. For these reasons, it is worth testing the extent to which EU actions on the ground are consistent with its rhetorical commitment to multilateralism. Hence, the following expectation is developed:

H1: Throughout the humanitarian response to Cyclones Idai and Kenneth, the EU institutions and the Member States had a higher likelihood than non-EU governments to interact with international and non-profit organizations.

4.3. Explaining the Coordination of Humanitarian Emergency Responses

This section examines the extent to which resource dependence theory helps explain the coordination of humanitarian emergency responses. Resource dependence theory suggests that organizations are embedded in interdependent networks where different goods are exchanged (Pfeffer and Salancik, 2003). Amid the uncertainty of humanitarian operations, actors oftentimes compete with one another for the same goods (Prakash et al., 2020). Thus, a variable need for these goods across network members generates power asymmetries that might condition organizational decisions and incentivize actors to interact with one another (Pfeffer and Salancik, 2003). For example, the need for guaranteeing organizational survival leads actors to establish connections with other bodies. Consequently, nodes (in this case, organizations) that are perceived as powerful tend to attract the attention of other bodies in the network (Galaskiewicz, 1985). This growing attention increases their perceived power and ends up generating preferential attachment, namely a tendency for nodes with high activity and popularity to become even more active and popular. Throughout humanitarian responses, actors such as the EU possess the necessary financial resources to orchestrate an effective reaction. Hence, those organizations that specialize in the implementation of humanitarian actions might have an incentive to interact with resource-rich bodies. In order to test whether these dynamics were present in the network examined in this study, the following hypothesis is proposed:

H₂: The EU actors, the non-EU governments, and the international organizations that donated money for the response to Cyclones Idai and Kenneth have significantly higher popularity (i.e., higher in-degree values)⁴¹ than financial aid recipients in the crisis network.

Resource dependence theory also suggests that the uncertainty that accompanies humanitarian operations may lead organizations to cooperate with one another in order to make up for possible resource gaps or information asymmetries. Other advantages of interorganizational cooperation include increased economic efficiency, enhanced response effectiveness to collective problems, higher chances that all actors agree on a

⁴¹ In other words, other actors in the network report a significantly higher number of connections to them than to their network counterparts

common roadmap, and greater access to resources (Berardo and Scholz, 2010; Galaskiewicz, 1985). This impulse for actors to exchange information and other resources with their peers is coupled with a determination to preserve organizational autonomy. In this regard, the existence of various suppliers of a scarce resource reduces the dependence of actors in need of such a good on single providers (Pfeffer and Salancik, 2003). Within this context, the focal NGOs that offer direct humanitarian assistance are frequently held accountable by those stakeholders —e.g., governments— who provide them with the necessary resources to carry out their activities. Hence, financial aid recipients would tend to establish different alliances to maximize their chances of receiving enough funding to achieve their goals without compromising their decision-making independence. Based on this reasoning, the following hypothesis is drawn:

H3: The EU actors, the non-EU governments, and the international organizations that donated money for the response to Cyclones Idai and Kenneth have a significantly lower activity (i.e, lower out-degree values)⁴² than financial aid recipients in the crisis network.

Finally, resource dependence theory puts analytical emphasis on the weight of certain social dynamics in the likelihood that actors interact with one another within humanitarian networks. All actors involved in humanitarian networks seek to reduce human suffering through an efficient use of the resources at their disposal (Prakash et al., 2020). Hence, interdependencies between financial aid donors and recipients may appear in such structures: while donors such as the EU depend on the expertise of fund-seeking organizations, the latter need the money granted by the former to achieve their goals. Consequently, fund-seeking organizations have a higher incentive to interact with resource-rich bodies than with other potential financial aid recipients throughout humanitarian operations, and vice versa. If this logic truly guided exchanges in the episode examined in this paper, one would expect that:

H4: There is a significantly higher likelihood of observing exchanges between one donor and one financial aid recipient than between two donors or two financial aid recipients in the network that responded to Cyclones Idai and Kenneth.

⁴² In other words, donors report a significantly lower number of connections to their network counterparts than other actors in the network

4.4. Methodology

This article uses social network analysis (SNA) to test the abovementioned hypotheses. SNA is a relational perspective, given its emphasis on the dynamics underlying a system of actors and the interactions among them. As in the case of resource dependence theory, SNA pays close attention to the way in which social environments condition how interactions are conducted (Pfeffer and Salancik, 2003). Its ability to determine the extent to which a system is effectively coordinated by examining formal and *de facto* interactions makes SNA particularly useful for studying humanitarian responses, considering that emergency managers frequently override formal protocols to produce quick and effective responses.

Networks are displayed visually in graphs showing the actors of a network (nodes) and the exchanges (ties) between them, as well as in tables containing quantitative indicators that provide information on aspects such as the centrality of each node in the network. This study refers to three measures of centrality, namely degree, closeness, and betweenness. There are two different degree indicators: in-degree and out-degree. In-degree reflects the popularity of a node, or the number of ties that each actor receives from other network members. For its part, out-degree measures the ties reported by each node to their network counterparts. On the other hand, closeness centrality shows the geodesical distance between a node and other network actors, or how easy it is for a given node to reach its partners. Finally, betweenness centrality depicts the likelihood that a given node lies in the closest path between two other actors. The higher these indicators, the more central the node in question is.

For clarity of interpretation, this study presents a directed network. Hence, each tie between two nodes contains information about the existence and direction of the tie in question. More specifically, an arrow next to the receiving node shows who reported a tie to whom in Figure 4.1.

This paper will test whether particular features make actors more likely to interact with one another within humanitarian networks by using Exponential Random Graph Models (ERGMs). ERGMs are statistical models that identify patterns behind the creation of ties in a given network. An important theoretical assumption behind their use entails that previous dependencies across network actors and a series of exogenous factors (e.g.,

certain node attributes) influence tie formation in networks (Lusher et al., 2013). The existence of such dependencies makes it impossible to use conventional statistical techniques (e.g., regression analysis) to study these phenomena.

In particular, ERGMs carry out stochastic processes that estimate the likelihood of observing structures with the same number of nodes and ties as the analysed network. In other words, ERGMs assess whether certain patterns are present in a network more frequently or intensely than what would be expected by chance alone (Lai et al., 2019). By doing so, ERGMs provide clues to understand ‘how and why social network ties arise’ (Lusher et al., 2013: 3). Possible explanatory endogenous factors may include reciprocity (or whether nodes that receive a tie X from another node tend to send back a tie Y to such a node) or preferential attachment. These kinds of models also admit the inclusion of exogenous terms, such as the likelihood that actors with specific attributes (e.g., financial aid donor or recipient) develop (homophily) or fail to develop (heterophily) ties among themselves. Figures and tables were obtained by using the R packages ‘sna’ (Butts, 2020) and ‘statnet’ (Handcock et al., 2019). Annex 4.2 includes goodness-of-fit tests, which assess whether the models accurately depict both the observed network and other network dimensions that had not been incorporated into the models (Lai et al., 2019).

Such network data were extracted from a survey that had been sent to staff members of bodies involved in the reaction to Cyclones Idai and Kenneth. These individuals were selected according to two criteria: on the one hand, all of them occupied prominent positions in their organizations (i.e., the European Commission, or the EU and non-EU country governments, international organizations, and NGOs included in Table 4.1); on the other hand, all these individuals had executive responsibilities in the humanitarian response to Cyclones Idai and Kenneth. Most officials were not knowledgeable of the response efforts in all affected countries; therefore, the analysis focuses on the response in Mozambique, where the cyclones caused the greatest destruction. Respondents were asked to identify the organizations with whom they had interacted throughout the effort in a predefined node list: network ties in Figure 4.1 represent the presence (or absence) of interactions between the organizations (nodes) in the network. They also had to indicate the relevance of such bodies in the humanitarian response and how frequently their own institutions had monitored the actions of these organizations throughout the operation: node sizes were computed by adding the mean aggregated scores (measured on a scale 0-10) corresponding to the answers to these two questions (see Table 4.2).

Finally, respondents could identify missing actors in the node list and leave additional comments.

This paragraph discusses boundary definition, namely the criteria behind the inclusion of nodes in the network. An initial list of 23 actors was crafted by selecting the Mozambican government, the 11 organizations (9 foreign governments, the European Commission, and the World Bank) that had provided at least \$1.5 million to fight this natural disaster, and the 11 NGOs and UN agencies that had received at least \$1.03 million during the response effort, according to the UN-OCHA website (OCHA, n.d.a). Only paid contributions were considered for this purpose; hence, pledged or committed donations were disregarded. Placing such financial thresholds ensured a balance between the number of financial aid donor and recipient organizations in the network. For the sake of consistency, governmental actors were not disaggregated into smaller agencies. The European Commission was not disaggregated into two nodes (i.e., DG-ECHO and the EU Delegation in Mozambique) either to minimize chances that respondents failed to identify ties to this actor due to a lack of familiarity with its organigram. After merging the nodes corresponding to the United Arab Emirates (UAE) government and International Humanitarian City⁴³, and incorporating UN-OCHA (a missing influential node according to most respondents), the final list included 23 actors: responses (1 per organization) have been collected from all of them.

Additionally, 12 semi-structured interviews were conducted between January and August 2021 to gather qualitative information regarding social dynamics among the network actors. Interviews provided in-depth qualitative insights into the logic underlying the EU involvement in the humanitarian response and its coordination with other actors throughout this effort. As in the case of the survey respondents, all interviewees occupied prominent positions within their organizations and had executive responsibilities in the response to Cyclones Idai and Kenneth: they include officials serving in EU and non-EU country governments, the European Commission, international organizations, as well as local and international NGOs. The names and detailed positions of the interviewees were

⁴³ The humanitarian organization ‘International Humanitarian City’ and the UAE government were merged into a single node after a high-ranking officer approached for this study disclosed his affiliation with both actors

removed in order to preserve their anonymity (see Annex 4.1 for short descriptions of their affiliation).

This section will finish by discussing two methodological limitations of the study. Firstly, it takes individual organizations —as opposed to broader platforms of actors— as units of analysis. This picture might therefore not show interactions within or across the humanitarian clusters where such actors worked together. Secondly, survey results present subjective perceptions of a sample of managers involved in the response. To minimize the likelihood that respondents fail to identify existing ties within the network, the survey targeted individuals with high executive responsibilities in the response effort, following a logic used in previous studies (Lai et al., 2019). The validity of the network data was tested further by checking 76 documents elaborated by different institutions⁴⁴ and information on the OCHA website regarding financial transfers related to the emergency in Mozambique. 190 network ties were identified by looking at these sources, 65 less than in the network shown in the following section. The identification of a lower number of ties in formal sources is unsurprising, as the network in Figure 4.1 captures both formal and informal interactions. 88.4% of these ties were recognized by at least one of the actors involved, whereas 71.6% of them were identified by both bodies. Together with the high reciprocity rate of this network (47%), these values allow for being confident about the validity of the network data.

4.5. Analysis and Results

This section will first summarize the humanitarian response to Cyclones Idai and Kenneth. This effort could be subdivided into three different stages. After prioritizing the prevention of ‘immediate threats of drowning, physical injuries, hypothermia, and electrocution, attention quickly turned to the diseases that can be spread’. ‘Concerns about food security, nutrition, maternal health, and psychological impacts such as post-traumatic stress disorder rapidly followed’ (Hope, 2019: 338). At the beginning of the response, WFP and the NGO consortium COSACA —comprising CARE International,

⁴⁴ This figure is broken down as follows: 3 situation reports authored by the Food and Agriculture Organization (FAO), 22 documents of this kind elaborated by UN-OCHA, 13 fact sheets published by the International Organization for Migration (IOM), 9 pieces written by the UN High Commissioner for Refugees (UNHCR), 13 reports released by UNICEF, 9 fact sheets drafted by USAID, and 7 operations updates issued by the IFRC

Save the Children, and Oxfam—assumed leading roles. Once the airspace was reopened, OCHA took over and donors such as USAID, DFID, and the EU arrived in Beira.⁴⁵ Although the unforeseen intensity and scale of the cyclones hindered early action after basic infrastructure and telecommunications stopped being operational (Institute for Social and Environmental Transition, 2020), the presence of respondents on the ground when the cyclones hit facilitated a quick reaction.⁴⁶

While insufficiently funded, the coordination of the response was smooth and efficient.⁴⁷ The Mozambican government played an active role in this effort.⁴⁸ Partially responsible for this success was the 2018-2019 Mozambique Humanitarian Response Plan, which resulted from previous investments in sanitation and hygiene programming, disaster management, social mobilization campaigns, and weather forecasts (Cambaza et al., 2019). The existence of infrastructure and protocols to handle natural disasters also helped contain subsequent cholera outbreaks (Chen and Azman, 2019; Institute for Social and Environmental Transition, 2020). Moreover, the direct presence of young, dynamic Mozambican ministers on the ground brought the necessary political leverage for effective coordination.⁴⁹ Finally, the UN cluster system was activated quickly and worked well throughout the response:⁵⁰ its unprecedentedly close cooperation with bodies such as the IFRC was cited as an additional explanatory factor of the successful reaction.⁵¹

Having said that, coordination efforts were hampered by technical gaps of the Mozambican government in areas such as gender-based violence, a weak institutional capacity at the subnational level, poorly maintained emergency management equipment, and the demanding bureaucratic requirements for customs checks or visa applications.⁵² During the first week, tensions emerged between the Mozambican government—which

⁴⁵ Interviews 8 and 12

⁴⁶ Interview 8

⁴⁷ Interviews 5, 6, 9, and 12

⁴⁸ Interviews 2, 6, 9, and 12

⁴⁹ Interviews 8 and 12

⁵⁰ Interview 7

⁵¹ Interview 12

⁵² Interviews 1, 2, 3, and 8

sought to control all procedures⁵³— and the foreign agencies that attempted to bypass the action protocols set by the former.⁵⁴ The massive arrival of foreign donations that did not meet minimum standards of quality posed further difficulties to humanitarian response managers.⁵⁵ Besides, many foreign governments (including some EU Member States) used airplanes to deliver goods that were available in Mozambique at lower prices.⁵⁶

For their part, local organizations could have become more deeply involved in the response, especially after international actors began operating on the ground:⁵⁷ the latter tended to impose their strategic vision even when their suggestions were less efficient than those offered by local bodies.⁵⁸ Moreover, a language barrier between English-speaking foreign experts and Portuguese-speaking locals hindered cooperation throughout the response.⁵⁹ A final challenge involved political tensions that dated back to the participation of Mr. Daviz Simango —mayor of Beira at the time— and Ms. Augusta Maita, who headed the National Disaster Management Institute (INGC), in the 2018 local election in Beira under opposing political parties.⁶⁰ Despite this circumstance, the response in Mozambique was not excessively politicized.⁶¹

Bearing this context in mind, this paper will examine the graph in Figure 4.1 and the network descriptive indicators in Tables 4.1-4.2. These reveal a positive correlation between centrality scores and node sizes. In particular, the Mozambican government, Save the Children, and some UN bodies (i.e., WFP, OCHA, IOM, UNFPA) have the highest centrality scores. The opposite applies to non-EU governments such as the UAE, Norway, or Japan; to a lesser extent, this is also true of some EU Member State

⁵³ Interview 9

⁵⁴ Interview 10

⁵⁵ Interview 7

⁵⁶ Interview 8

⁵⁷ Interview 12

⁵⁸ Interview 5

⁵⁹ Interviews 1, 7, and 12

⁶⁰ Interviews 7 and 12

⁶¹ Interview 12

between the nodes. The shape of the nodes indicates the nature of organizations as follows: EU supranational and Member State bodies (circles), Government of Mozambique (triangle), non-governmental organizations (squares), non-EU governmental bodies (pentagons), international organizations (hexagons)

Names of the organizations: Canada = Government of Canada, Commission = European Commission, FAO = Food and Agriculture Organization, UAE = International Humanitarian City / Government of the United Arab Emirates, IOM = International Organization for Migration, Red Cross = International Red Cross and Red Crescent Movement, Italy = Government of Italy, Japan = Government of Japan, Mozambique = Government of Mozambique, Norway = Government of Norway, OCHA = UN Office for the Coordination of Humanitarian Affairs, Oxfam = Oxfam, Portugal = Government of Portugal, Save Child = Save the Children, Sweden = Government of Sweden, UNICEF = UN International Children's Fund, UK = Government of the United Kingdom, UNFPA = UN Population Fund, USA = Government of the United States, World Bank = World Bank, WFP = UN World Food Programme, WHO = World Health Organization, WVI = World Vision International

In contrast, the European Commission is much better positioned: this body coordinated the EU response and kept in touch with all Member State governments in the network. Ties between Member State governments themselves were much rarer —perhaps with the exception of the UK, which was connected with the Swedish and Portuguese governments. The UK was actually the only (at the time) Member State with high centrality scores. This humanitarian intervention provided British authorities with an opportunity to show their potential as a humanitarian power vis-à-vis the EU amidst Brexit negotiations.⁶³

The European Commission DGs DEVCO and ECHO were among the first bodies that reacted to the catastrophe.⁶⁴ After a request from the Mozambican government, the EU deployed its Civil Protection Mechanism for the first time in Southern Africa on March 23rd.⁶⁵ This happened less than ten days after the cyclones made landfall on Mozambique. Nine Member States (Austria, Denmark, France, Germany, Italy, Luxembourg, Portugal, Spain, and the UK) coordinated their response through the mechanism. Additionally, 11 experts from Germany, Finland, the Netherlands, Portugal, Romania, Sweden, and Slovenia were deployed on the ground.⁶⁶ The Commission and the Member States provided emergency medical teams, field hospitals, water purification tanks, rescue boats,

⁶³ Interview 7

⁶⁴ Interviews 3, 4, and 8

⁶⁵ Interview 3

⁶⁶ See https://ec.europa.eu/echo/news/cyclone-idai-12-million-eu-assistance-mozambique-zimbabwe-and-malawi_en

and satellite communication modules, among other assets.⁶⁷ While the EU reaction was generally assessed as rapid and efficient,⁶⁸ the messy integration of the European Civil Protection Team into the overall response dynamics led to avoidable inefficiencies and became a source of friction with some UN agencies.⁶⁹

Institution	In-Degree	Out-Degree	Closeness	Betweenness
Canadian Government	8	12	0.688	4.258
European Commission	10	20	0.917	13.984
Food and Agriculture Organization (FAO)	12	12	0.688	5.669
International Organization for Migration (IOM)	15	21	0.957	45.253
International Red Cross and Red Crescent Movement	13	10	0.629	9.226
Italian Government	5	9	0.611	0.954
Japanese Government	6	1	0.407	0
Mozambican Government	20	12	0.667	45.401
Norwegian Government	4	7	0.564	0.125
UN Office for the Coordination of Humanitarian Affairs (OCHA)	19	12	0.687	18.704
Oxfam	9	8	0.595	3.038
Portuguese Government	7	3	0.524	0.111
Save the Children	11	20	0.917	34.933
Swedish Government	8	5	0.537	1.033
UNICEF	15	17	0.815	23.135
UAE Government / International Humanitarian City	1	4	0.537	0
United Kingdom Government	13	17	0.815	12.412
UN Population Fund (UNFPA)	12	21	0.957	18.615
United States Government	14	4	0.537	2.888
World Bank	11	9	0.611	2.55
World Food Programme (WFP)	18	10	0.629	12.115
World Health Organization (WHO)	15	10	0.647	15.653
World Vision International (WVI)	9	11	0.667	5.481
Network Density	0.504			

⁶⁷ Interviews 3 and 4

⁶⁸ Interviews 6, 9, 10, and 12

⁶⁹ Interview 12

Institution	Frequency of monitoring	Importance role	Importance role + frequency of monitoring
Canadian Government	6.83	6.67	13.5
European Commission	7.63	7.5	15.13
Food and Agriculture Organization (FAO)	6.36	7.73	14.09
International Organization for Migration (IOM)	7.5	8.83	16.33
International Red Cross and Red Crescent Movement	6.22	8.9	15.12
Italian Government	8	8.75	16.75
Japanese Government	6	6.25	12.25
Mozambican Government	9.59	9.26	18.85
Norwegian Government	7.5	7.25	14.75
UN Office for the Coordination of Humanitarian Affairs (OCHA)	9.06	9.38	18.44
Oxfam	5	8.13	13.13
Portuguese Government	6.25	7.6	13.85
Save the Children	6.89	8.44	15.33
Swedish Government	6	7	13
UNICEF	8	8.67	16.67
UAE Government / International Humanitarian City	0	1	1
United Kingdom Government	7.7	8.75	16.45
UN Population Fund (UNFPA)	7.63	8	15.63
United States Government	6.8	8.91	15.71
World Bank	6.56	7	13.56
World Food Programme (WFP)	8.62	9.27	17.89
World Health Organization (WHO)	8.44	8.58	17.02
World Vision International (WVI)	7	7.88	14.88

Table 4.1: Centrality scores in the network that managed the response to Cyclones Idai and Kenneth. Source: own elaboration

Table 4.2: Indicators used for the calculation of node sizes. Source: own elaboration

All hypotheses were tested with the help of the ERGM data in Table 4.3. The three models show a positive and significant tendency for network actors to reciprocate ties. This image is consistent with the high reciprocity rate of the network (47%). Also, the network density score—namely the ratio of existing edges to the number of possible edges in the network—was rather high (0.504). Models I and II tested whether the network showed a tendency towards preferential attachment, as resource dependence theory expects. They did so through the inclusion of the variables ‘gwidegree’ and ‘gwodegree’, which stand

for geometrically weighted in-degree and geometrically weighted out-degree, respectively. The presence of negative and significant coefficients reveals a tendency for the network to be populated with actors with high and low degree values (thus, it does not include many actors with medium degree values). In other words, preferential attachment did indeed shape dynamics within the network. This supports the expectations derived from resource dependence theory.

	Model I	Model II	Model III
Network Density	-1.57 * (0.64)	0.73 ** (0.27)	-1.46 *** (0.20)
Reciprocity	0.66 * (0.28)	0.66 * (0.28)	0.74 * (0.30)
Geometrically Weighted In-Degree (0.5)	-3.90 ** (1.45)	-4.40 *** (1.28)	
Geometrically Weighted Out-Degree (0.5)	-3.43 * (1.53)	-3.64 ** (1.37)	
Tie EU Actor – Non-EU Govern	0.25 (0.82)		
Tie IO, Moz & NGOs – Non-EU Govern	1.01 (0.68)		
Tie Non-EU Govern – EU Actor	-0.86 (0.99)		
Tie EU Actor – EU Actor	1.09 (0.76)		
Tie IO, Moz & NGOs – EU Actor	1.14 (0.67)		
Tie Non-EU Govern – IO, Moz & NGOs	0.91 (0.70)		
Tie EU Actor – IO, Moz & NGOs	1.73 * (0.70)		
Tie IO, Moz & NGOs – IO, Moz & NGOs	2.16 ** (0.66)		
In-degree Non-EU Government		-1.13 *** (0.25)	
In-degree EU Actor		-1.07 *** (0.24)	
Out-degree Non-EU Government		-1.32 *** (0.26)	
Out-degree EU Actor		-0.50 * (0.25)	
Homophily Donor / Recipient		-0.002 (0.19)	0.04 (0.19)
Degree Recipient			1.05 *** (0.15)

Significance codes: ***p < 0.001 **p < 0.01 *p < 0.05

Table 4.3: Exponential Random Graph Models of the network that managed the response to Cyclones Idai and Kenneth. Source: own elaboration

For its part, Model I examined the likelihood that two actors form ties with one another according to their membership in three different categories: the first one includes the EU actors in the network, the second comprises non-EU governmental actors (except for the Mozambican government), whereas a third category encompasses international organizations, NGOs, and the Mozambican government⁷⁰. The model throws support for H₁, as it shows that —unlike the non-EU donor governments in the network— EU bodies were significantly likely to interact with actors belonging to the latter category. While actors belonging to this heterogeneous group tended to develop ties among themselves during this episode, neither Model II nor Model III show significant tendencies towards homophily or heterophily in the donor-recipient axis. For example, EU actors did not tend to interact with each other. This evidence contradicts resource dependence theory: H₄ is therefore rejected.

Finally, Model III shows that donors were significantly less active than financial aid recipients throughout the response, as expected by resource dependence theory. Among the latter, local NGOs contributed to this effort in various ways, including risk and need assessments, project design, and the execution of particular capacity-building enterprises (e.g., the rehabilitation of water systems).⁷¹ Some received funds from international organizations and other NGOs: their transfer was however subject to the fulfilment of certain conditions, such as the provision of reports detailing how money would be spent and the creation of accountability mechanisms.⁷² In contrast, no strict conditionality (beyond certain performance indicators) was linked to the funds and resources delivered by the EU for humanitarian purposes.⁷³ For example, humanitarian donations from ECHO were guided by the principle of unconditional cash transfer.⁷⁴ Model II disaggregates the tendency for financial aid recipients to be more active than donors by showing that both

⁷⁰ Although the distinct characteristics of the Mozambican government suggest placing it in a distinct category, including single-actor categories would have made the model collapse. For this reason, this actor was placed in the category that does neither include the EU nor the non-EU donor country governments in the network; after all, the model was designed to compare the behavior of the former two groups of actors

⁷¹ Interview 5

⁷² Interview 5

⁷³ Interviews 3 and 4

⁷⁴ Interview 3

EU and non-EU donors are significantly less likely than financial aid recipients to receive ties from other network actors. Somewhat surprisingly, this evidence contradicts resource dependence theory and helps reject H₂. Likewise, the non-EU and EU donors included in this study were significantly less likely to send ties to other network actors. This information supports H₃.

4.6. Conclusion

This paper suggests that the nature of the EU response to Cyclones Idai and Kenneth was largely multilateral. At least, this appears to be the case after comparing it with those of non-EU governments such as the UAE and Japan, which tended to channel their donations through bilateral exchanges. Moreover, this paper shows that the EU is able to mobilize its humanitarian response tools quickly and efficiently, even in response to incidents that do not pose direct threats to its security and whose epicentres are located far from its territory.

Additionally, this paper reveals that the European Commission was more relevant and central in the response effort than the Member States. This finding is consistent with the observation that the political and financial weight of the Commission in EU humanitarian aid has increased in recent years (Irrera, 2018). More specifically, the Commission led the EU response and was in contact with all Member State governments in the network. Ties among the latter nodes were less frequent. Hence, coordination of future EU responses to humanitarian emergencies overseas might be improved by increasing cooperation among the Member States. At the same time, it suggests that the European Civil Protection Team—whose growing weight is a by-product of the gradual strengthening of EU external humanitarian assistance bodies—needs to be better integrated into the networks that respond to humanitarian operations overseas; this might reduce friction with other organizations in future responses.

On the other hand, this paper has found that the empowerment of local organizations was not a central priority in the response to Cyclones Idai and Kenneth. This might appear surprising, as the EU humanitarian strategy lays great emphasis on this aspect (European Commission, 2009; Joseph, 2014). Coordination with local organizations could have been fostered by involving foreign experts that are fluent in the official languages of the

affected countries. A greater focus on the promotion of local ownership might indeed increase the sustainability and cost-effectiveness of humanitarian networks and help these continue operating after foreign assistance and donations decrease.

This study also hints that resource dependence theory helps explain the coordination of the humanitarian response to Cyclones Idai and Kenneth. Indeed, this paper identified a tendency towards preferential attachment within the network that responded to these disasters. In other words, a reduced number of actors tended to concentrate the attention of their peers. This pattern might explain the success of the intervention, considering that centralized structures are very efficient when it comes to information transmission (Feiock et al., 2012).

Besides, this paper shows that particular actor characteristics conditioned exchanges within the network that responded to Cyclones Idai and Kenneth. In particular, donors tended to be both less active and popular than the organizations that received funds to tackle these natural disasters. Their higher activity and popularity allow financial aid recipients to reduce their dependence on specific financial donors and maximizes the likelihood that humanitarian responses are effectively coordinated. However, the findings of the study were not consistent with the expectation derived from resource dependence theory that donor-recipient homophily and heterophily would condition exchanges within the humanitarian network.

Idai and Kenneth have revealed the high vulnerability of Mozambique to draughts and cyclones: indeed, the country experienced 11 floods and 16 draughts in the period 1970-1998 (Moore et al., 2003). The evident role of climate change in the increasing recurrence of natural disasters makes it necessary to incorporate longer-term development and conflict-sensitive management perspectives to address the vulnerability of the stricken regions. In this sense, institutions such as the World Bank have started programs in Mozambique in order to increase its long-term resilience against natural disasters.⁷⁵

This article will end by adding a brief note regarding its methodological shortcomings. Besides some limitations inherent to the subjective nature of survey and interview-based studies, it must be mentioned that the sample of organizations used for this paper is rather small. Hence, the dynamics described in this paper might not hold for the entire network

⁷⁵ Interview 6

of actors that intervened in the response. Further research might also shed light on the role of non-governmental and non-EU actors in humanitarian networks.

Bibliography

Adler-Nissen, R. (2016). Towards a Practice Turn in EU Studies: The Everyday of European Integration. *Journal of Common Market Studies*, 54(1): 87-103

Aggestam, L. (2008). Introduction: Ethical Power Europe? *International Affairs*, 84: 1-11

Barbé, E., & Morillas, P. (2019). The EU Global Strategy: The Dynamics of a More Politicized and Politically Integrated Foreign Policy. *Cambridge Review of International Affairs*, 32(6): 753-770

Berardo, R., & Scholz, J. T. (2010). Self-Organizing Policy Networks: Risk, Partner Selection and Cooperation in Estuaries. *American Journal of Political Science*, Vol. 54(3): 632–649

Broberg, M. (2014). EU Humanitarian Aid after the Lisbon Treaty. *Journal of Contingencies and Crisis Management*, 22(3): 166-173

Butts, C. T. (2020). Package 'sna'. Retrieved from: <https://cran.r-project.org/web/packages/sna/sna.pdf>

Cambaza, E., Mongo, E., Anapakala, E., Nhambire, R., Singo, J., & Machava, E. (2019). Outbreak of Cholera Due to Cyclone Kenneth in Northern Mozambique, 2019. *International Journal of Environmental Research and Public Health*, 16(16): 2925

Chapungu, L. (2020). Mitigating the Impact of Cyclone Disasters: Lessons from Cyclone Idai. *Policy Brief: Climate Change and Migration* (May 2020)

Chen, W. H., & Azman, A. S. (2019). Mitigating Cholera in the Aftermath of Cyclone Idai. *American Journal of Tropical Medicine and Hygiene*, 101(5): 960-962

Christiansen, T (2017) The European Union and Global Governance. In: Triandafyllidou, A. (Ed.) *Global Governance from Regional Perspectives: A Critical View* (pp. 209-232). Oxford: Oxford University Press)

Cihangir-Tetik, D., & Müftüler-Baç, M. (2021). A Comparison of Development Assistance Policies: Turkey and the European Union in Sectoral and Humanitarian Aid. *Journal of European Integration*, 43(4): 439-457

Cowan, S., & Infante, V. (2019). From Cyclone to Food Crisis. Ensuring the Needs of Women and Girls Are Prioritized in the Cyclone Idai and Kenneth Responses. *Cosaca Joint Agency Briefing Note*. Available at

<https://oxfamlibrary.openrepository.com/bitstream/handle/10546/620840/bn-cyclone-food-crisis-gender-mozambique-120719-en.pdf>

DEC (2019). Real-Time Response Review – DEC Programme for Cyclone Idai Mozambique Country Report (August). Available at <https://reliefweb.int/report/mozambique/real-time-response-review-dec-programme-cyclone-idai-mozambique-country-report>

European Commission (2009). Communication from the Commission to the Council and the European Parliament on EU Strategy for Supporting Disaster Risk Reduction in Developing Countries. *COM(2009) 84 final*.

European Union (2008). European Consensus on Humanitarian Aid, Joint Statement by the Council and the Representatives of the Governments of the Member States meeting within the Council, the European Parliament and the European Commission, *Official Journal of the European Union*, 2008/C 25, 20.1.2008. Available at [https://eur-lex.europa.eu/legal-content/HR/TXT/?uri=CELEX:42008X0130\(01\)](https://eur-lex.europa.eu/legal-content/HR/TXT/?uri=CELEX:42008X0130(01))

Feiock, R. C., Lee, W., & Park, H. J. (2012). Administrators' and Elected Officials' Collaboration Networks: Selecting Partners to Reduce Risk in Economic Development. *Public Administration Review*, 72(1): 558-568

Galaskiewicz, J. (1985). Interorganizational Relations. *Annual Review of Sociology*, 11: 281-304

Handcock, M. S., Hunter, D. R., Butts, C. T., Goodreau, S. M., Krivitsky, P. N., Bender-deMoll, S., & Morris, M. (2019). Package 'statnet'. Available at <https://cran.r-project.org/web/packages/statnet/statnet.pdf>

HELP (2019). Global Report on Water and Disasters 2019. *High Level Expert and Leaders Panel on Water and Disasters*: 6–8

Hope, M. (2019). Cyclones in Mozambique May Reveal Humanitarian Challenges of Responding to a New Climate Reality. *Lancet Planet Health*, 3(8): 338-339

Hyde-Price, A. (2008). A 'Tragic Actor'? A Realist Perspective on 'Ethical Power Europe'. *International Affairs*, 84(1): 29-44

Institute for Social and Environmental Tradition (2020). Executive Summary: Learning from 2019 Cyclone Idai and Cyclone Kenneth. Malawi, Mozambique and Zimbabwe. Available at <https://www.preventionweb.net/publications/view/70868>

Irrera, D. (2018). *EU Emergency Response Policies and NGOs. Trends and Innovations*. Basingstoke: Palgrave Macmillan

Joseph, J. (2014). The EU in the Horn of Africa: Building Resilience as a Distant Form of Governance. *Journal of Common Market Studies*, 52(2): 285-301

Kissack, R. (2010). *Pursuing Effective Multilateralism. The European Union, International Organizations and the Policies of Decision Making*. Basingstoke: Palgrave Macmillan

- Lai, C., She, B., & Ye, X. (2019). Unpacking the Network Processes and Outcomes of Online and Offline Humanitarian Collaboration. *Communication Research*, 46(1): 88-116
- Lusher, D., Koskinen, J., & Robins, G. (2013). *Exponential Random Graph Models for Social Networks: Theory, Methods, and Applications*. Cambridge: Cambridge University Press
- Malang, T., & Leifeld, P. (2021). The Latent Diffusion Network among National Parliaments in the Early Warning System of the European Union. *Journal of Common Market Studies*, 59(4): 873-890
- Moore, S., Eng, E., & Daniel, M. (2003). International NGOs and the Role of Network Centrality in Humanitarian Aid Operations: A Case Study of the Coordination during the 2000 Mozambique Floods. *Disasters*, 27(4): 305-318
- Morsut, C. (2020). Towards a Standardization of EU Disaster Risk Management? In: Olsen, O.E., Juhl, K., Lindøe, P.H., & Engen, O.A. (Eds.). *Standardization and Risk Governance: A Multi-Disciplinary Approach*. London and New York: Routledge
- OCHA (n.d.a). *Financial Tracking Service. Tropical Cyclone Idai – Mar 2019 and Kenneth – Apr 2019*. Available at <https://fts.unocha.org/emergencies/808/summary/2019>
- OCHA (n.d.b). *Ebola Virus Outbreak – Overview of Needs and Requirements (Inter-Agency Plan for Guinea, Liberia, Sierra Leone, Region) – October 2014 – June 2015*. Available at <https://fts.unocha.org/appeals/453/summary>
- Orbie, J. van Elsuwege, P., & Bossuyt, F. (2014). Humanitarian Aid as an Integral Part of European External Action: The Challenge of Reconciling Coherence and Independence. *Journal of Contingencies and Crisis Management*, 22(3): 158-165
- Pfeffer, J., & Salancik, G. R. (2003). *The External Control of Organizations: A Resource Dependence Perspective*. Stanford: Stanford University Press
- Prakash, C., Besiou, M., Charan, P., & Gupta, S. (2020). Organization Theory in Humanitarian Operations: A Review and Suggested Research Agenda. *Journal of Humanitarian Logistics and Supply Chain Management*, 10(2): 261-284
- Prasad, S., Zakaria, R., & Altay, N. (2018). Big Data in Humanitarian Supply Chain Networks: a Resource Dependence Perspective. *Annals of Operations Research*, 270: 383-413
- Reh, C., Héritier, A., Bressanelli, E., & Koop, C. (2011). The Informal Politics of Legislation: Explaining Secluded Decision Making in the European Union. *Comparative Political Studies*, 46(9): 1112-1142
- Schomaker, R.M., Hack, M., & Mandry, A. (2021). The EU's Reaction in the First Wave of the COVID-19 Pandemic Between Centralisation and Decentralisation, Formality and Informality. *Journal of European Public Policy*, 28(8): 1278-1288
- Sjursen, H. (2006). The EU as a Normative Power: How Can This Be? *Journal of European Public Policy*, 13(2): 235-251

Tacheva, Z., & Simpson, N. (2019). Social Network Analysis in Humanitarian Logistics Research. *Journal of Humanitarian Logistics and Supply Chain Management*, 9(3): 492-514

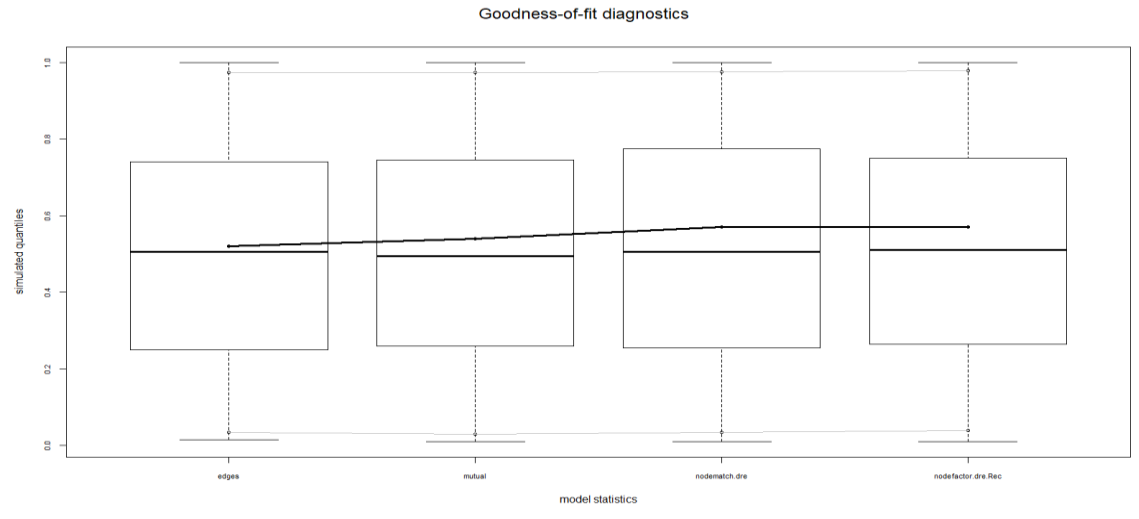
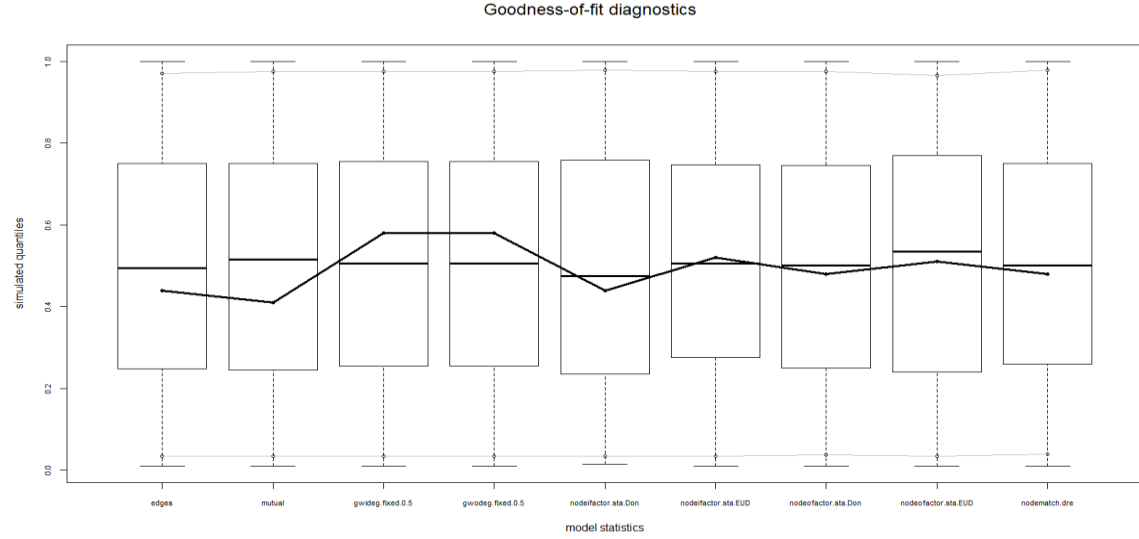
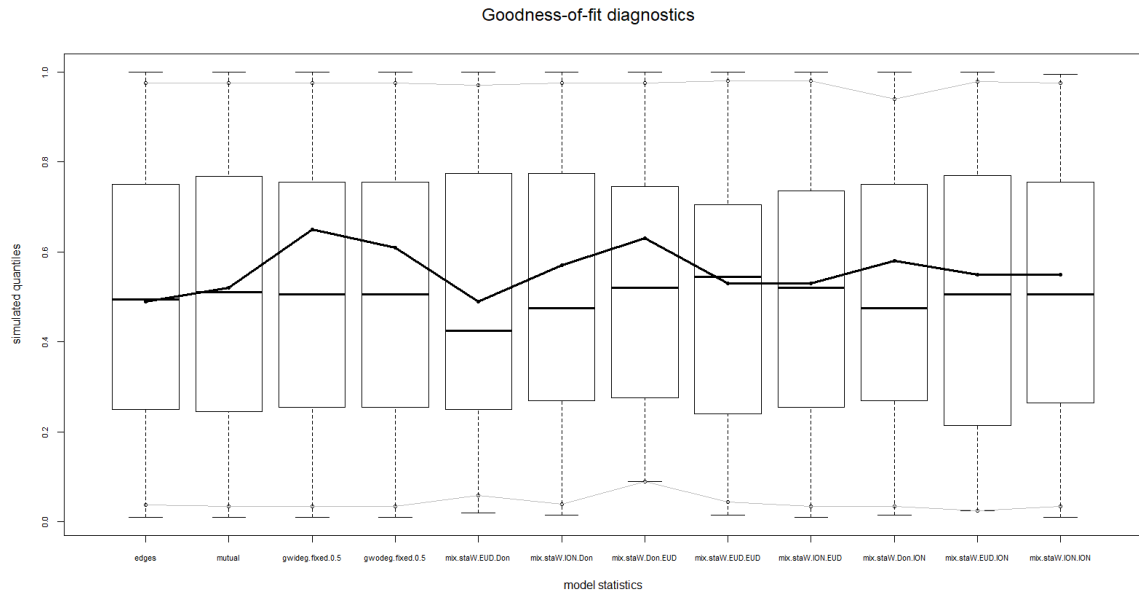
UN News (2019). Cyclone Idai: Emergency Getting 'Bigger by the Hour', Warns UN Agency. *UN News*, 19 March. Available at <https://news.un.org/en/story/2019/03/1034951>

Van Elsuwege, P., Orbie, J., and Bossuyt, F. (2016). Humanitarian Aid Policy in the EU's External relations. The Post-Lisbon Framework. Available at http://www.sieps.se/sites/default/files/2016_3_rapp_en.pdf

ANNEX 4.1. LIST OF INTERVIEWS

Number	Institutional Affiliation	Position	Date	Method
1	United Nations Population Fund (UNFPA)	Senior official	25 th January 2021	Telephone call
2	International Red Cross and Red Crescent Movement	Senior official	12 th February 2021	Telephone call
3	EU Delegation in Mozambique	Official	17 th March 2021	Telephone call
4	European Commission (DG-ECHO)	Two senior officials	23 th March 2021	Telephone call
5	Local NGO	Senior official	11 th May 2021	Telephone call
6	World Bank	Senior official	3 rd June 2021	Telephone call
7	United Kingdom government	Staff member	4 th June 2021	Telephone call
8	World Food Programme (WFP)	Senior official	23 rd June 2021	Telephone call
9	Portuguese government	Senior official	16 th July 2021	Telephone call
10	Mozambican government	High-ranking official	26 th July 2021	Telephone call
11	Swedish government	Official	5 th August 2021	Telephone call
12	OCHA	Senior official	19 th August 2021	Telephone call

ANNEX 4.2. GOODNESS OF FIT DIAGNOSTICS FOR MODEL I, MODEL II, AND MODEL III



5. CONCLUSION

5.1. Main Findings of the Thesis

This research has identified the role and weight of the EU institutions and Member States in the face of three external crises. While their nature as external crises is common across the three cases, they also show variation in several dimensions that are relevant to the purpose of this research. Hence, these cases portray different types of crises that affect a diverse range of policy sectors and have their roots in geographical regions with diverging levels of integration into the EU fabric. More specifically, this thesis has examined a transboundary crisis that posed a direct threat to the European Union, an incident with a global dimension, as well as a localized crisis that did not threaten the EU directly from a network perspective.

The first of these crises is the 2010 Icelandic ash cloud crisis, whose epicenter lied at a close distance to the European Union borders. In a matter of hours, the eruption of the Icelandic volcano Eyjafjallajökull brought air traffic in the European continent to a halt. During the coming days, different actors held discussions that led to the modification of the threshold of ash concentration deemed safe for airplane engines. Such a decision was instrumental for the resumption of flights and helped the air traffic industry escape bankruptcy.

In all, the first research paper of this thesis evidences the applicability of theories of European integration to the study of coordination among EU and non-EU countries for external crisis management purposes. Indeed, neofunctionalism and intergovernmentalism shed light on different elements of the Icelandic ash cloud crisis response. As neofunctionalism would expect, supranational bodies occupied central positions in the crisis network. They were also the primary interlocutors of the non-EU countries that participated in the response effort. In line with intergovernmentalism, the Member States were the ultimate responsible parties for the most important decisions that put an end to the emergency. For their part, private interest groups had a marginal weight in the crisis network. Perhaps surprisingly, the participant non-EU countries —namely, Iceland and Norway— occupied rather peripheral positions in the network. These findings suggest that the levels of European integration of the non-EU countries located

closest to the epicentre of the crisis might indeed affect the degree of involvement of EU actors in external crisis responses: in this regard, higher integration might result in greater legitimacy to conduct more extensive EU interventions in non-EU countries. This paper has been published in the *Journal of Contingencies and Crisis Management*.

These findings were further probed in the second paper, which pays attention to the response to the 2013-2016 Ebola Virus Disease (EVD) Outbreak. This crisis acquired a global dimension despite being initially circumscribed to three West African countries, namely Guinea, Liberia and Sierra Leone. In contrast to the Icelandic ash cloud crisis, the more widespread effects of the EVD outbreak triggered the intervention of a large partnership formed by state governments, non-governmental actors, and international organizations from all over the world. This circumstance reduced the centrality of the European Union in the provision of a global public good (i.e., communicable disease control). In fact, only a few supranational (the European Commission and the EU Ebola Coordinator) and Member State actors (namely, the UK government) had a significant weight in the crisis network and were well connected to other network actors. Finally, two pieces of evidence showed the deficient coordination of the EU response: on the one hand, the EU Member States did not develop many ties among themselves; on the other hand, a hierarchical clustering analysis revealed the lack of structurally equivalent pairs of EU actors in the crisis network.

The imperfect, slowly coordinated response to this incident shows that the European Union did not initially consider the EVD outbreak as a high-risk threat that required an immediate reaction. Moreover, it lacked the necessary capacities and protocols to lead effective responses to pandemics with an external origin. This seems counterintuitive, given that a series of supranational bodies devoted to communicable disease control had been set up in previous years. In any case, the low levels of European integration of the countries where the outbreak caused the highest numbers of deaths seem to partly explain the EU failure to produce a rapid reaction before the disease reached the European continent. Besides, the relatively high distance between the epicentre of the outbreak and the European continent did not help Brussels policymakers frame this incident as a priority for EU action. In this regard, protocols to handle external incidents were very rare, whilst European agencies such as the European Centre for Disease Control (ECDC) lacked the mandate to intervene beyond the EU borders. Furthermore, EU actors faced problems of legitimacy that hampered their effective involvement in the field. In fact,

local citizens in some of these West African countries even reacted aggressively on some occasions against what they perceived as an external intervention in their domestic affairs. This paper was submitted for publication to *International Studies Review*, and is currently under review.

Finally, the third article reviewed the humanitarian response to Cyclones Idai and Kenneth in Mozambique, where the European Union became involved even though this localized crisis did not pose an immediate threat to its integrity. This episode shows that the European Union is able to mobilize its resources quickly and efficiently to respond to external crises that are not perceived as direct security threats. On the other hand, the EU reaction to these natural disasters was much more influenced by multilateral considerations than those of the non-EU country governments involved in the response effort. More specifically, EU actors were significantly more likely than non-EU governments to interact with the non-state actors and international organizations that participated in the crisis network. In an otherwise rapid and efficient EU reaction, the European Commission was more central and relevant than most Member States. Again, the analysis suggested that there was room for improvement in the coordination among the latter. For its part, the quick deployment of the Civil Protection Mechanism stands in stark contrast with its failure to coordinate effectively with the network of actors involved in the response; in fact, tensions between this body and other actors in the network were registered throughout this episode. It is also worth mentioning that local organizations were not central bodies in the response effort. This might appear surprising, given that their empowerment is a central element of the EU humanitarian strategy.

This paper applied resource dependence theory in order to identify social dynamics underlying crisis responses. By dividing network actors into financial aid donors and recipients, it shows that the latter tended to be much more active: motivated by a desire to reduce their dependence on specific donors, the higher activity of financial aid recipients improved the coordination of the response. That being said, patterns of tie formation related to financial aid donor-recipient homophily or heterophily were not found in the crisis network. Besides, the use of an Exponential Random Graph Model (ERGM) revealed that preferential attachment did indeed influence tie formation in the network of actors that responded to Cyclones Idai and Kenneth; in other words, a few actors concentrated the attention of most partners in the network. This paper was

submitted for publication to the *Journal of Common Market Studies*, and is currently under review.

In sum, this doctoral thesis has provided valuable insights into the role and weight of the European Union in the responses to three external crises. More specifically, it shows that institutions such as the Commission are central bodies in the management of such kinds of episodes. Additionally, all three case studies reveal that there is still room for improvement in the coordination among EU actors for external crisis management purposes. This is evidenced for example by the low ratio of ties among Member State actors in the three crises.

This thesis also hints that EU Member State and supranational actors seem to play more relevant roles in the responses to localized external crises whose epicentre is relatively close to the EU borders. That was the case in the 2010 Icelandic ash cloud crisis, as opposed to the other two incidents examined. A comparison between the Icelandic ash cloud crisis and the EVD outbreak also shows that the EU faces fewer difficulties to be recognized as a legitimate actor in countries that have greater levels of integration into its fabric; it also appears to be easier for Brussels policymakers to make a case internally for intervening overseas when an external crisis has a clear potential to affect the EU territory directly. On the other hand, the fast and efficient EU response to Cyclones Idai and Kenneth hints that the European Union might have learned from its mistakes in the 2013-2016 EVD outbreak. In this sense, the EU Civil Protection Mechanism was activated successfully for the first time in Southern Africa to combat the emergency in Mozambique. That being said, each of these crises affected very different policy sectors, and had diverging levels of saliency. These circumstances may have influenced the degree to which actors from all over the world were mobilized in response to these incidents.

On the other hand, the evidence collected is generally in line with previous findings regarding self-perceptions, such as the claim that actors tend to assign higher values regarding their centrality in the network in comparison to those reported by their network peers (Kumbasar, Rooney & Batchelder, 1994; Johnson & Orbach, 2002; Borgatti and Foster, 2003). Given that many of these studies measured friendship or work relations (Johnson & Orbach, 2002), this research has provided a valuable contribution to policy network studies by showing that individual biases also come into play in interorganizational relations.

5.2. Towards a General Interpretation of EU External Crisis Management?

The analysis of three case studies in this doctoral thesis allows for the identification of commonalities across crisis networks. The presence of elements that are common to the three crises examined in this thesis facilitates this task: examples of these are the external location of their epicentre, or the involvement of transnational networks including EU and non-EU governmental as well as non-governmental actors in the three incidents. At the same time, the existence of considerable contextual differences between the case studies demanded that each crisis was firstly addressed in a separate paper before attempting to identify shared patterns across these incidents. By adopting this approach, this doctoral thesis has shifted its attention “away from individualist, essentialist and atomistic” accounts of crisis management towards a “more relational, contextual, and systemic” understanding (Borgatti and Foster, 2003: 991). Its conclusions could thus be placed in “a middle ground between a universalizing tendency, which is inattentive to contextual differences, and a particularizing approach, which is sceptical about the feasibility of constructing measures that transcend specific contexts” (Adcock and Collier, 2001: 530).

While this research design has limited the generalizability of the findings, the data included in this doctoral thesis constitute an excellent basis for comparative academic studies that facilitate a more ambitious approach (Siciliano, 2020). Thus, the use of a comparative perspective to study the three crises examined here would to some extent prevent contextual specificities from trumping valid comparison (Adcock and Collier, 2001). In other words, comparing these case studies would help overcome the rather issue-specific nature that characterizes each of the papers in this doctoral thesis in order to identify common organizational logics across policy sectors (Stone, 2020). In this regard, it must be noted that the same methodology has been used for collecting the data used in each article.

A comparative study would also provide key evidence for the improvement of existing conceptualizations of the idea of crisis network (Ansell et al., 2010; Boin et al., 2014). More specifically, it would allow for determining whether a distinct type of network is

formed in order to manage crises, as well as its specific features. In this sense, the use of ERGMs to study the networks involved in the responses to the Icelandic ash cloud crisis and the Ebola Virus Disease outbreak would help confirm the existence of particular social dynamics underlying crisis networks. For instance, this technique might help elucidate whether the tendency towards preferential attachment that was present in the network of actors that responded to Cyclones Idai and Kenneth is a common feature of crisis networks. If that was the case, actors in crisis networks would tend to develop connections with popular nodes acting as ‘central coordinators’ in order to access information and resources as a means to reduce uncertainty (Lee et al., 2012). Such a study would also help confirm that crisis networks are not prone to the appearance of homophilous ties. Thus, it could shed light on potential weaknesses of crisis networks, given that homophily tends to facilitate the establishment of trust, reduce risks (Siciliano, 2020), and simplify coordination by reducing transaction costs (Borgatti and Foster, 2003; Lee et al., 2012). Examples of independent variables to be applied for this purpose include the policy sector that the crisis affects or the geographical location of its epicentre. For the purpose of conceptualizing the idea of crisis network, the distinction between policy communities and issue networks might provide a relevant theoretical foundation: while issue networks are characterized by unstable memberships, relative permeability and weak resource dependencies, policy communities stand at the opposite end in these three dimensions (Rhodes and Marsh, 1992; Peterson, 1995).

Additional research would also link crisis network characteristics to policy outcomes: for instance, it would help determine the extent to which certain structural features facilitate the production of rapid and effective crisis responses. This would help illustrate how networks matter for crisis management, thereby reducing scepticism towards the existence of an actual network theory (Raab and Kenis, 2006). For example, existing literature predicts centralized networks to be more efficient at sharing information (Feiock et al., 2012). However, more empirical studies are required for the confirmation of this finding. In this regard, the combination of SNA with qualitative comparative analysis (QCA) might help identify a series of network variables that would make sense of the varying nature of external crisis responses, thus strengthening the explanatory potential of this research agenda (Fischer, 2011). The inclusion of position analysis might shed further light on the ability of the EU to exert influence in different external crisis networks (Borgatti and Foster, 2003).

The incorporation of further external crisis networks would help test and refine the tentative findings of this doctoral thesis. In this regard, this research could result in valuable contributions to the study of European integration: for instance, it suggests that EU actors tend to be less central when facing external crises with an epicentre located in countries that display low levels of integration into its fabric. However, the extent to which the nature of an external crisis or the degree of European integration of the most affected non-EU countries do indeed affect the behaviour and role of different EU actors in the responses to these incidents is still unclear. Hence, extending this line of research would strengthen bridges between the literature of European integration and EU crisis management studies (for a paper with a similar aim, see Degner, 2019) by bringing novel insights into the study of both fields at the formal and the *de facto* levels. For example, additional evidence would help confirm whether the European Commission tends to be the primary EU interlocutor with the non-EU governments that are involved in external crisis management.

Particularly interesting for the purpose of amplifying the diverse case selection logic followed in this doctoral thesis (Gerring, 2007) would be the addition of an external crisis whose epicentre was located in a European Neighbourhood Policy (ENP) country. Indeed, this doctoral thesis only includes case studies whose epicentres are either located in highly-integrated EEA-EFTA countries (i.e., the Icelandic ash cloud crisis) or in countries that do not have formal partnerships with the European Union (namely, the 2013-2016 EVD outbreak as well as Cyclones Idai and Kenneth). The difficulties to collect data related to recent external crises with an origin in non-EU countries with intermediate levels of European integration explains the failure to add case studies that fit into this profile. In turn, this circumstance stems from the highly securitized nature of the limited number of incidents with such characteristics: for instance, that is the case of the 2011 NATO-led military intervention in Libya, the 2014 Russo-Ukrainian War, or the frequent clashes between Armenia and Azerbaijan over the control of Nagorno-Karabakh. In any case, a future research project would benefit from the integration of man-made crises into the evidence presented in this doctoral thesis: in view of the natural origin of the three case studies included in this doctoral thesis, adding a new man-made case would allow for registering additional variation concerning the nature of the examined incidents (Christensen et al., 2016).

On the other hand, more research is needed in order to shed light onto the manner in which the nature of the responses to external crises and the role of the EU in these efforts are influenced by the policy sector that such incidents affect. In this sense, an interesting way forward would entail the addition of a second external crisis pertaining to one of the sectors that this doctoral thesis covers. For example, it might be worth having a look at a second disease outbreak with an overseas origin and the potential to threaten the security of the European Union. Such a study would lay emphasis on the evolution of the EU external public health policy from a longitudinal perspective. This approach would also produce relevant insights into the effects of the COVID-19 pandemic on the EU external public health governance regime, and particularly on the ability of EU actors to provide global public goods (e.g., communicable disease control). It would additionally increase the (low) number of longitudinal network studies that discuss institutional complexity (Kim, 2020).

Before finishing, a word is needed concerning the limitations of this doctoral thesis.. The subjective nature of the survey and interview responses that constituted the basis for data collection is a relevant caveat in this regard. Other potential weaknesses include the imperfect information that respondents possess regarding crisis responses, or the possibility that relevant organizations may have been left out of the designed networks due to the need for establishing network boundaries. To minimize such constraints, triangulation of a diverse range of sources was applied (Campbell and Fiske, 1959): examples of these include validity tests via document analysis, consultations with experts on each of the analysed fields, or the possibility that respondents themselves identified missing actors.

Finally, it must be mentioned that this doctoral thesis is mainly centred around the role and weight of the European Union in external crisis responses. Hence, this approach might have bypassed relevant aspects of the examined response efforts, such as the roles of non-EU and non-state actors in such incidents. All these reasons advise for caution and for conducting further research before advancing more ambitious conclusions (Marsden, 2011).

Bibliography

- Adcock, R., & Collier, D. (2001). Measurement Validity: A Shared Standard for Qualitative and Quantitative Research. *American Political Science Review*, 95(3): 529-546
- Ansell, C., Boin, A., & Keller, A. (2010). Managing Transboundary Crises: Identifying the Building Blocks of an Effective Response System. *Journal of Contingencies and Crisis Management*, 18(4): 195-207
- Boin, A., Busuioc, M., & Groenleer, M. (2014). Building European Union Capacity to Manage Transboundary Crises: Network or Lead Agency Model? *Regulation & Governance*, 8: 418-436
- Borgatti, S. P. & Foster, P. C. (2003). The Network Paradigm in Organizational Research: A Review and Typology. *Journal of Management*, 29(6): 991-1013
- Campbell, D. T., & Fiske, D. W. (1959). Convergent and Discriminant Validation by the Multitrait-Multimethod Matrix. *Psychological Bulletin*, 56(2): 81-105
- Christensen, T., Danielsen, O. A., Lægred, P., & Rykkja, L. H. (2016). Comparing Coordination Structures for Crisis Management in Six Countries. *Public Administration*, 94(2): 316-332
- Degner, H. (2019). Public Attention, Governmental Bargaining, and Supranational Activism: Explaining European Integration in Response to Crises. *Journal of Common Market Studies*, 57(2): 242-259
- Feiock, R. C., Lee, W., & Park, H. J. (2012). Administrators' and Elected Officials' Collaboration Networks: Selecting Partners to Reduce Risk in Economic Development. *Public Administration Review*, 72(1): 558-568
- Fischer, M. (2011). Social Network Analysis and Qualitative Comparative Analysis: Their Mutual Benefit for the Explanation of Policy Network Structures. *Methodological Innovations Online*, 6(2): 27-51
- Gerring, J. (2007). *Case Study Research: Principles and Practice*. Cambridge: Cambridge University Press
- Johnson, J. C. & Orbach, M. K. (2002). Perceiving the Political Landscape: Ego Biases in Cognitive Political Networks. *Social Networks*, 24: 291-310
- Kim, R. E. (2020). Is Global Governance Fragmented, Polycentric, or Complex? The State of the Art of the Network Approach. *International Studies Review*, 22: 903-931
- Kumbasar, E., Rooney, K. A., & Batchelder, W. H. (1994). Systematic Biases in Social Perception. *American Journal of Sociology*, 100(2): 477-505

- Lee, Y., Lee, I. W., & Feiock, R. C. (2012). Interorganizational Collaboration Networks in Economic Development Policy: An Exponential Random Graph Model Analysis*. *Policy Studies Journal*, 40 (3): 547–573
- Marsden, P. V. (2011). Survey Methods for Network Data. In: Scott, J., & Carrington, P. J. (Eds.). *The SAGE Handbook of Social Network Analysis*. London: SAGE Publications Ltd.
- Peterson, J. (1995). Policy Networks and European Union Policy Making: a Reply to Kassim. *West European Politics*, 18(2): 389-407
- Raab, J., & Kenis, P. (2006). Taking Stock of Policy Networks: Do They Matter? In: Fischer, F., Miller, G. J., & Sidney, M. S. (Eds.). *Handbook of Public Policy Analysis: Theory, Politics, and Methods*. Boca Raton: Taylor & Francis Group
- Rhodes, R. A. W., & Marsh, D. (1992). New Directions in the Study of Policy Networks. *European Journal of Political Research*, 21: 181-205
- Siciliano, M. D., Wang, W., & Medina, A. (2020). Mechanisms of Network Formation in the Public Sector: A Systematic Review of the Literature. *Perspectives on Public Management and Governance*: 1-19
- Stone, D. (2020). *Making Global Policy*. Cambridge: Cambridge University Press