HUMBOLDT-UNIVERSITÄT ZU BERLIN

Faculty of Life Sciences
Albrecht Daniel Thaer-Institute of Agricultural and Horticultural Sciences

MASTER'S THESIS

for the acquisition of the academic degree Master of Science

The Role of Relational and Cognitive Social Capital for Environmental Collective Action – A Multiple Case Study in Paros Island, Greece

Submitted by:	Gütte, Annelie Maja
Matriculation Number:	590224
Study Program:	Integrated Natural Resource Management
E-Mail:	annelie.guette@hu-berlin.de
Date and Place of Birth:	19.08.1990/ Oranienburg
Supervisor:	Dr., Roggero, Matteo
Examiner 1:	Prof. Dr, Eisenack, Klaus
Examiner 2:	see supervisor

Contents

Abbreviations

CSC – Cognitive Social Capital

IAD Framework – Institutional Analysis and Development Framework

RSC – Relational Social Capital

S – Subject

SSC – Structural Social Capital

Figures

1 Introduction

1.1 Background and Problem Statement

The exploitation of natural resources, increasing population, and cumulative pollution – air, light, noise, or waste pollution – push ecosystems to their limits and cause severe environmental problems. Those problems constitute collective action dilemmas as they result from habitual practices of many people and can thus only be resolved if the majority contributes. Regarding this, a new focus on sustainable development can be observed around the world in terms of international accords and national commitment, civil activism, and a myriad of private and community-based environmental initiatives.

However, short-term and individual profit orientation as well as the need to obtain stable political majorities and electoral votes shape the political agenda. This does not only exacerbate environmental problems but also triggers social conflicts by playing off individual and sector-specific economic interests against public welfare. Cooperative interaction is needed to resolve those conflicts.

Both the conflicts and interaction – cooperative or non-cooperative – are embedded in a social context, a complex of social relations, norms, and institutions referred to as social capital. Thus, social capital represents an important input factor for the provision of public goods, such as environmental quality, and the formation of viable institutions, providing a guiding framework which is supported by a broad majority (RUDD 2000, 132). Yet, social capital does not represent a constant, but a variable, context-specific configuration of different aspects and thus has diverging effects on community outcomes. Accordingly, the present analysis aims to advance the understanding of how different dimensions of social capital relate to each other in terms of their respective roles in enabling collective action to approach a resolution of environmental and social conflicts.

1.2 State of the Art

Social capital theory has been widely used in multiple disciplines addressing a multitude of questions. As standard scientific approaches reached their limits regarding economic and political problems, social capital literature experienced a boom. The reason for this is that the concept addresses those problems by accounting for intangible assets as important factors, such as trust and norms of reciprocity, social embeddedness, networks, as

well as formal and informal institutions (OSTROM and AHN 2009, 18; cf. SVENDSEN and SVENDSEN 2009, 1).

In that context, an important field of application has been pointed out by OSTROM (2000a; b), who calls for the employment of social capital research in the field of collective action. Since collective action theories proceeded into acknowledging multiple types of individuals with heterogeneous preferences and bounded rationality as modelling base, OSTROM and AHN (2009) stated that new questions arose that tackled, amongst others, social interactions and social motivations – questions that are central to social capital research.

To take account of different forms of social capital, NAHAPIET and GOSHAL (1998) depicted the three dimensions of structural (SSC), cognitive (CSC), and relational social capital (RSC). Given this, the concept of social capital coincides with important aspects of institutional analysis – a research field that has majorly informed research on collective action and the governance of environmental problems. Regarding this, SSC is largely captured by the analysis of governance arrangements, describing network configurations, hierarchies, and positions, while CSC incorporates the normative ground for collective action, comprising mental models and institutions (GÓRRIZ-MIFSUD et al. 2016, 26). Additionally, RSC, which comprises the characteristics of relations, has been referred to as the core link between social capital and collective action (i. a., OSTROM and AHN 2009, 19). Particularly in terms of trust, it allows actors to engage in interaction and collaboration even in situations which are characterised by uncertainties.

While SSC has been widely explored, RSC and CSC, particularly in the context of collective action, remain under-explored despite their widely acknowledged relevance in shaping collaborative efforts. Both dimensions have been found to be mutually reinforcing and are thus frequently seen as complements (cf. OSTROM and AHN 2009; MUNIADY et al. 2015; WARREN et al. 2015; RAMÓN-HIDALGO et al. 2018). In order to analytically disentangle cause and effect of this mutuality, isolated findings in the fields of business administration and business partnerships suggest an initial substitutional effect. As a result, in the absence of one dimension, the other dimension would be preliminarily sufficient to establish first collaborative relations and thus enable cooperation, while the other was built subsequently (LAVIE et al. 2012; ANDREWS 2010; STEINMO and RASMUSSEN 2018). RSC was thereby found to be a facilitator of cooperation and a transmitter of the effects held by CSC. In contrast, the latter was ultimately essential for collaboration regarding its capacity to convey goals and contexts as well as means for action (cf. CAREY et al. 2011; SUKOCO et al. 2018).

1.3 Research Question

By addressing the research question of how specific combinations and sequences of RSC and CSC affect the emergence of environmental collective action, this study contributes in two respects: (1) to address the general research gap regarding the role of RSC and CSC in the context of collective action and (2) to achieve an analytical differentiation regarding the reinforcing nature of both dimensions. This analysis thereby focuses on the initial stage of environmental collective action (1) to investigate the sequencing of social capital dimensions at this stage, (2) to assess the role of both dimensions within this path, and (3) to ultimately evaluate the respective effect of those sequences and combinations on the emergence of environmental collective action.

To approach those questions, I conducted a multiple case study analysis of environmental initiatives on the Cycladic island of Paros, Greece, to account for a variety of sequences of RSC and CSC representing different optional paths to environmental collective action.

1.4 Structure of the Thesis

The thesis begins with a section on the theoretical background (section 2) that provides the foundation for the case study analysis. This section outlines the associations of the three major scientific fields relevant for this analysis, namely research on environmental collective action, institutional analysis, and social capital theory. Moreover, the section answers important elementary questions regarding the conceptualisation, analysis and evaluation of environmental collective action, and social capital. It also provides key insights into scientific findings. The section is concluded with the formulation of four propositions derived from the theoretical framework, which lay the ground for the case study.

Section 3 outlines the research design by describing the applied methods, the operationalisation of the theoretical construct, data collection, and analytical strategy. This section is concluded with the formulation of concrete hypotheses based on the previously derived propositions, which are to be tested within the context of the case study analysis.

Section 4 introduces the study context and case description. Three exemplary cases, in which environmental collective action is evident, constitute the core of the analysis. They are embedded within the *Clean Blue Paros Initiative* that operates on the island. A variety of alternative environmental initiatives, which struggle to achieve environmental collective action, are used to inform a hypothetical counterposition, in which collective action

is impeded. A first subsection introduces the wider context of Paros Island to account for the variety of examples and their context. Subsequently, the focus is narrowed to environmental initiatives on the island and the conditions under which they operate. On this basis, the *Clean Blue Paros Initiative* is introduced as the overall context to the three main cases, which are themselves individually described subsequently.

Section 5 provides the analysis of all cases along the dimensions of RSC and CSC. Each case analysis is introduced with an evaluation of the respective action situation and the occurrence of environmental collective action. The section is concluded with a pattern matching evaluation of evidence, hypotheses, and an overall assessment of the role of both dimensions for environmental collective action.

For an overall assessment of the present study, section 6 discusses potential shortcomings and limits of the materials, methods and proposition, as well as respective corrective measures in order to ensure the validity and reliability of the results. Implications for further research and policy are outlined on this basis. The conclusion retraces initial rationales for and advances of the analysis, summarises major findings, and highlights important stages and implications.

2 Theoretical Framework

2.1 Objectives of this Chapter

This section provides the theoretical framework for the analysis. The research question is embedded thoroughly into the literature. Drawing on current scientific knowledge, this section explores which parts of the research question can already be answered.

Section 2.2 highlights the general framework of this analysis by providing an overview of how the three theoretical strands of collective action, social capital, and institutional analysis interlink. Subsequently, the concepts and scientific fields at stake are explored in depth. This includes major lines of debate as well as scientific findings relevant to the research question. Since it is the aim of this study to contribute to explanations for the emergence of environmental collective action, a first part (section 2.3) focuses on the concept of collective action by providing a definition and relevant theories and assumptions explaining its occurrence or non-occurrence. Section 2.4 introduces relevant aspects of institutional analysis and outlines how situations of collective action can be analysed and evaluated. This includes conceptual elements, such as institutions and governance, and the Institutional Analysis and Development (IAD) Framework as an analysis tool.

Section 2.5 introduces the concept of social capital as a distinct scientific field. Moreover, this subsection clarifies the link between collective action and social capital. Thereinafter, subsection 2.6 discusses most specifically the dimensions of social capital relevant for this analysis, namely RSC and CSC. Critical components of the dimensions are defined and outlined. The focus, however, lies upon current scientific knowledge of how those dimensions may matter for successful collective action. Thus, scientific insights outline differential effects of both dimensions on collaboration and illustrate their interrelation.

Subsection 2.7 presents key learnings from this section and formulates propositions based on this. The section is concluded with a short summary.

2.2 General Concepts

2.2.1 Governing Environmental Problems: Drawing on Institutional Analysis and Social Capital Theory

As shown in Fig. 1, the present analysis links the three research fields of environmental collective action, institutional analysis, and social capital theory.

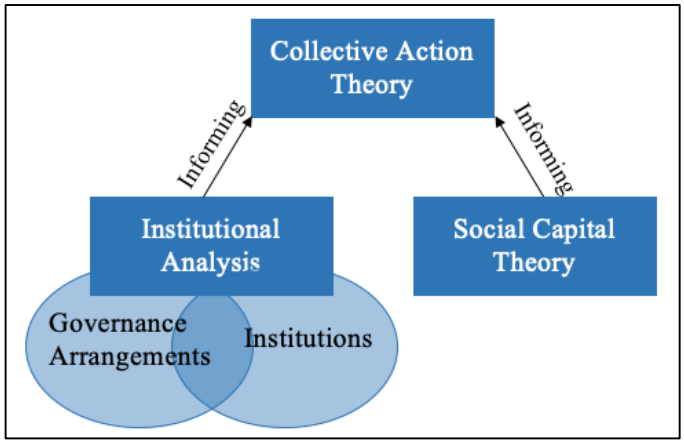

Fig. 1. The Relation of Collective Action Theory, Institutional Analysis and Social Capital Theory (own representation).

Research on natural resource management and the governance of environmental problems is majorly informed by new institutionalism and frequently discussed in the context of social dilemmas concerning the provision of public goods or the management of common pool resources (PAAVOLA 2007, 94; cf. OLSON 1965; OSTROM 1990). DUIT emphasised that environmental problems originated in habitual practices of a large number of people and resulted in large-scale environmental harm (DUIT 2010, 900). Resolving these problems needs to account for complex interactions across the domains of market, state, and civil society (IBID.; cf. GÓRRIZ-MIFSUD et al. 2016, 34). Thus, DUIT described environmental collective action as "efforts that involve a multitude of individual actors and that are directed towards joint production of environmental public goods" (DUIT 2010, 902).

Adducing a similar argument and notably regarding a high functional interdependence of processes and frequent socio-ecological interactions, HAGEDORN emphasised the particularity of institutional analysis in nature-related sectors, in which the physical world is as important as the social world (HAGEDORN 2008, 358). PAAVOLA pointed out that "new institutional analysis of environmental problems is based on the concept of interdependence rather than that of externality" (PAAVOLA 2007, 94). Interdependence, shaped by resource attributes and attributes of the community, arises because actions and transactions affect third parties regarding their opportunities to access and use resources (IBID.; HAGEDORN 2008, 361). Those interdependencies create conflict or – as complemented by HAGEDORN – provide opportunities for cooperation (PAAVOLA 2007, 94; HAGEDORN 2008, 363).

However, as DUIT comprehensibly argued using OLSON's *Zero Contribution Thesis*, "environmental collective action (…) will not rise automatically as a response to the necessity of environmental public goods" (DUIT 2010, 902; cf. OLSON 1965). This leads to a major research question addressed by many scholars: Under which conditions does collective action emerge to resolve those conflicts? The IAD Framework represents an adequate tool to characterise and analyse settings of collective action dilemmas accounting for large-scale environmental problems (OSTROM 2005; 2011; MCGINNIS 2011).

Institutional analysis thereby largely strived to resolve those conflicts by focusing on the design of governance arrangements and institutions (cf. DUIT 2007, 900f; see also, i. a., PAAVOLA 2007; OSTROM 1990; 2005). In this context, polycentric governance and self-governing systems based on multi-actor, multi-sector, and/ or multi-level actors' constellations represented viable modes of governance in the context of collective action (i. a., cf. GÓRRIS-MIFSUD 2016, 25; E. OSTROM 2014; V. OSTROM 2014).

However, research has identified another set of important factors that account for the emergence of successful collective action: high levels of social capital (DUIT 2007, 902). PUTNAM (1993a; 1995) outlined how social capital could contribute to solving collective action problems, such that networks of civic engagement foster robust norms of generalised reciprocity and encourage the emergence of social trust, thereby reducing uncertainties regarding the intention of others. Moreover, incentives for opportunism are reduced when economic and political negotiation are embedded in dense networks of social interaction (PUTNAM 1993a, 252; 1995, 66).

2.2.2 The Interrelation of Social Capital Theory and Institutional Analysis in the Field of Collective Action

Ever since, much research has been conducted regarding the question of how higher levels of social capital can lead to higher levels of collective action (cf. DUIT 2007, 903; OSTROM 2000b; OSTROM and AHN 2001; 2009). This research has noted that social capital does not represent a constant factor that can be present or absent. Rather, it comprises various entities, such as social networks, norms, and institutions. These take on the form of assets themselves, accumulating through social interaction on the one hand (GRANOVETTER 1973; COLEMAN 1988; PUTNAM 1995; BURT 2000; OSTROM 2000b; OSTROM and AHN 2009) and on the other hand, enable the access and mobilisation of resources embedded

in those entities, such as funding, information, or social support (BOURDIEU 1986; LIN 1999).

To account for the different forms of social capital, the concept has been analysed across its three dimensions of SSC, RSC, and CSC (cf. NAHAPIET and GOSHAL 1998). SSC comprises network structures and has been analysed depending on with whom strong or weak relations are established according to the three different types of bonding, bridging, and linking social capital (GÓRRIZ-MIFSUD et al. 2016, 27). CSC comprises shared values, visions, language, and institutions (cf. VILLALONGA-OLIVES and KAWACHI 2015; MUNIADY et al. 2015; DHAR and BOSE 2019). RSC focuses on the characteristics of relationships, including, i. a., trust and reciprocity (MUNIADY et al. 2015; DHAR and BOSE 2019).

Fig. 2 shows how social capital theory coincides with key aspects of institutional theory. Following GÓRRIZ-MIFSUD et al., institutional arrangements, particularly under modes of network governance, deal "with societal challenges entailing institutional changes by increasing agents' coordination, collaboration and participation in multiple facets (multi-actor, multi-sector, and multi-level), which constitute core SC elements" (GÓRRIZ-MIFSUD et al. 2016, 26). Thus, the analysis of governance arrangements captures a large part of SSC (IBID.). How this dimension of social capital serves as enabler and predictor of collective action has been widely explored in the literature (i. a., AGGER and JENSSEN 2015; BAYLIS et al. 2018; HARRISON et al. 2016; HAWKINS and MAURER 2010; KAWAMOTO and KIM 2019; KIM 2018; WARREN et al. 2015; YOU and HON 2019).

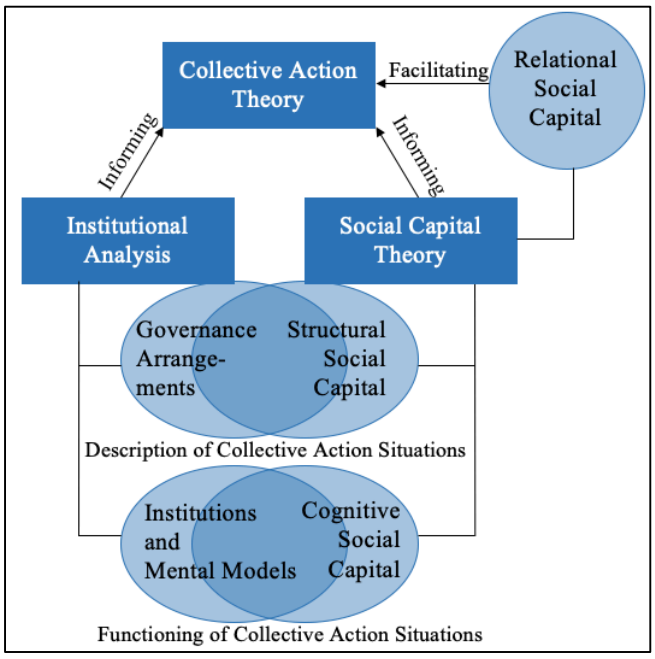

Fig. 2. The Interrelation of Institutional Analysis and Social Capital Theory in the Field of Collective Action Theory (own representation).

Institutions and mental models represent another set of core concepts of institutional theory that coincide with social capital theory (cf. GÓRRIZ-MIFSUD et al. 2016, 26). Network configurations represent the basis to describe governance arrangements. However, institutions, such as formal and informal rules and regulations regarding the distribution of costs and benefits, the type of cooperation, positions, and assigned actions, determine the functioning of those arrangements (IBID.; E. OSTROM 2014). Institutions, in turn, largely emerge from mental models held by the actors that craft and enact the institutions (NORTH 1993, 16). Both institutions and mental models are captured under CSC. In terms of RSC, OSTROM and AHN claimed that trust was the core link between social capital and collective action, since it allows actors to collaborate even under conditions of uncertainty and information asymmetry (OSTROM and AHN 2009, 23).

Thus far, I have argued that research on collective action is majorly informed by institutional analysis and social capital theory. Both strands are thereby highly interrelated and coincide with each other. Governance arrangements that describe collective action situations are largely captured by SSC, while institutions and mental models which determine the function of collective action situations are covered by CSC. Moreover, I have argued that RSC acts in a facilitating manner to overcome barriers to collective action. Subsequently, I elaborate in detail on the concepts involved, beginning with an introduction on environmental collective action.

2.3 Environmental Collective Action

2.3.1 Conceptualising Collective Action Dilemmas

Collective action refers to an action consciously taken by multiple actors for mutual benefit (cf. SCHMID 2004, 25). It frequently evolves in the context of social dilemmas concerning the provision of public goods or the management of common pool resources (PAAVOLA 2007, 94; cf. OLSON 1965; OSTROM 1990). In this sense, environmental collective action is meant to address an environmental problem which is caused by habitual practise of many people which results in large-scale environmental harm and which thus can only be resolved if all people – or at least a large majority – contribute (DUIT 2010).

Although all actors would be better off if they collaborated to provide environmental quality as a public good (cf. RUDD 2000), it has been frequently and diversely argued that collective action will not occur automatically (cf. Olson 1965; OSTROM 1990; SCHMID 2004). Referring to difficulties in achieving collective action apart from HARDIN's (1968)

tragedy of the commons, SCHMID describes the tragedy of isolated individualism as a failure of like-minded individuals:

> "It is hypothesized that in particular situations, individuals sharing a performance preference cannot get what they want acting as isolated individuals at the margin within existing opportunity sets. It is a tragedy when individuals make their most advantageous choice and wind up where they do not want to be because of the emergent aggregate effect of others doing the same thing" (SCHMID 2004, 25).

2.3.2 First- and Second-Generation Theories of Collective Action

How and under which conditions, then, is collective action achieved? Employing traditional non-cooperative game theory models, first-generation theories of collective action assumed atomised, homogenous, selfish, and fully rational individuals (OSTROM and AHN 2009, 21). Regarding this, OLSON stated in what has become known as the *Zero Contribution Thesis* that "unless the number of individuals in a group is quite small, or unless there is coercion or some other special device to make individuals act in their common interest, *rational self-interested individuals will not act to achieve their common or group interest*" (OLSON 1965, 2). Thus, under rational choice regimes, individuals would not contribute to the production of public goods even for mutual benefit because "an individual is always better off in the short-run by choosing not to cooperate" (OSTROM and AHN 2009, 21). They could not overcome collective action problems unless there are externally enforced rules (OSTROM 2000a, 137).

Regarding substantial evidence to the contrary, OSTROM (2000a) advocated a different understanding. While first generation theories show, in general, how "collective-action situations are structured and how individuals cope with them" (IBID.), they do not account for social contexts as a critical determinant of human choice (RUDD 2000, 132). Collective action problems do not arise in empty space but are embedded in a social structure (OSTROM and AHN 2009, 21). Thus, rules need not be enforced externally but can emerge in self-governing systems. Within this social structure, "well-functioning institutions – in terms of transparency, predictability, the rule of law and low levels of corruption – alleviate problems of collective action (…) lowering the risk of engaging in cooperation for all actors" (DUIT 2010, 902).

Beyond that, experimental studies as well as behavioural and evolutionary economics have shown that most individuals are subject to bounded rationality, have non-selfish

utility functions, and heterogeneous preferences (IBID.). Thus, to answer the question under which conditions collective action is enabled, second-generation theories consider new questions, thereby addressing, amongst others, social interactions and social motivations – questions that are central to social capital research. OSTROM and AHN called for further investigation and a consolidation of the linkage of social capital and collective action research, as this was "[…] at best, incomplete up to now" (OSTROM and AHN 2009, 19). Subsequently, I first outline major concepts of institutional analysis that are critical for collective action. Thereafter, I introduce the concept of social capital and evaluate on the link between collective action and social capital.

2.4 Institutional Analysis

2.4.1 Conceptualising Institutions

Collective action dilemmas have largely been assessed and discussed within the field of institutional analysis, which, in turn, have focused on the nature of governance arrangements and institutions and how these fit the challenge imposed by collective action problems (DUIT 2007, 900; cf. PAAVOLA 2007).

Institutions, lying at the heart of institutional analysis, have been conceptualised as social mechanisms governing human interactions (cf. COGGIA 2018; PAAVOLA 2007). Specifically, NORTH defined institutions as "…the rules of the game in a society or, more formally, [as] the humanly devised constraints that shape human interaction" (NORTH 1990, 3). They come into effect as formal or informal rules. Thus, those rules reduce uncertainty, since "… they structure incentives in human exchange, whether political, social, or economic" (IBID.). Equally, OSTROM stated that an institution "can be defined as the sets of working rules that are used to determine who is eligible to make decisions in some arena, what actions are allowed or constrained, what aggregation rules will be used, what procedures must be followed, what information must or must not be provided and what payoffs will be assigned to individuals dependent on their actions" (OSTROM 1990, 51).

As NORTH pointed out, enactment of institutions is linked to issues of credibility and commitment (NORTH 1993, 13). Referring to SHEPSLE (1991), he elaborated that commitment can be credible due to intrinsic motivation (motivational commitment) or due to coercion (imperative commitment) (IBID.). Either way, institutions are enforced by sanctions in the case of non-compliance and rewards in the case of compliance. They can be

formally enforced by authorities based on monitoring or informally enforced through social control and social sanctioning. Regarding this, OSTROM and AHN stressed the relevance of effective (informal) working rules for the stability and efficiency of self-governing systems even when they are invisible and unknown to externals:

> "[…] not because of any magical effects of grassroots participation itself but because of the social capital in the form of effective working rules those systems are more likely to develop and preserve, the networks that the participants have created, and the norms they have adopted" (OSTROM and AHN 2009, 29f.).

In that sense, DUIT stated that well-functioning institutions represent a major predictor of environmental collective action "by providing a structure of rules and sanctions within the institutional realm, thereby lowering the risk of engaging in cooperation for all actors" (DUIT 2010, 902). Thus, higher levels of institutional quality have been linked to beneficial socio-economic outcomes (see DUIT 2010, 902).

Meanwhile, the definitions above account for a narrow understanding of institutions that consist of formal (e.g. laws) and informal (e.g. habits) rules and constraints (COCCIA 2018, 337). Broader definitions describe institutions as patterns of social interaction that also comprise stable and shared belief systems as well as expectations about behaviour of others (cf. AOKI 2007; COCCIA 2018). Regarding this, NORTH took account of the fundamental role of language and mental models that help individuals to make sense of their world and that evolve from people's physical environments and experiences (NORTH 1993, 16). Thus, institutions evolve on the basis of mental models (IBID.). Commenting on NORTH's annotation of this, EGGERTSSON pointed out that "… mental models reflect the individual's perception of the natural and moral world. Both types of constructs have been used as exogenous variables in modern institutional analysis" (EGGERTSSON 1993, 26).

2.4.2 Governance Arrangements

Institutions are made effective through governance structures representing the organisational form, such as constituted by contractual agreements, networks, and partnerships, markets, or bureaucracy (HAGEDORN 2008, 360). In that sense, V. OSTROM pointed out that "systems of governance occur wherever complementary arrangements for formulating, using, monitoring, judging, and enforcing rules exist" (V. OSTROM 2014, 45).

Governance has been described as a means for social coordination between interdependent actors – public, private, or civil actors – based on institutionalised rule systems (cf.

TREIB et al. 2007, 3; SKELCHER 2008, 29). The concept of governance extends beyond the scope of markets and states as organisational forms (cf. E. OSTROM 2014). Much more institutional diversity and polycentric governance was needed (IBID.). V. OSTROM et al. (1961) introduced the concept of polycentricity as the structural basis of many self-governing systems (cf. V. OSTROM 2014). Following the authors, a polycentric governance system "would be composed of (1) many autonomous units formally independent of one another, (2) choosing to act in ways that take account of others, (3) through processes of cooperation, competition, conflict, and conflict resolution" (V. OSTROM 2014, p. 46, cf. OSTROM et al. 1961, 831f.).

Particularly in the context of natural resource management in rural and remote communities, governance modes have been changing across the three societal domains of state, market, and civil society. They have been taking on the form of self-governing systems and collaborative partnerships and "determining a shift from hierarchical-based to network-based governance modes" (GÓRRIZ-MIFSUD et al. 2016, 25). Those governance modes are thought to better address challenges and conflicts arising from governing complex environmental resources (PAAVOLA 2007).

In that sense, PAAVOLA noted that "the choice of governance institutions is a matter of social justice rather than of efficiency" (IBID., 96). He argued for a more nuanced treatment of motivations and values and the acknowledgement of pluralism in the sense of "the co-existence of incommensurable ethical premises of behaviour which can be informed by utilitarian, non-utilitarian consequential or deontological ethics" (IBID.). This pluralism does not impede the resolution of environmental conflicts per se. However, it attributes a higher weight to distributional and procedural justice within the governance system regarding whose interests and values are realised on which basis to achieve mutually beneficial outcomes (IBID.; cf. HAGEDORN 2008, 370).

PAAVOLA (2007, 96) argued that this can facilitate learning, enhance a shift and synchronisation of values and motivations, and provide legitimacy. This legitimacy, in turn, would account for voluntary compliance and commitment beyond imperative enforcement rules (IBID., 101; cf. NORTH 1993, 13). Thus, he defined environmental governance as "the establishment, reaffirmation or change of institutions to resolve conflicts over environmental resources" (PAAVOLA 2007, 93). This definition already indicates the link between environmental collective action and research on institutional change as another related research field. This, however, will not be addressed explicitly in this analysis (see section 6.5).

Thus far, I have argued that institutions are social mechanisms governing human interactions. They mainly comprise a system of formal and informal rules, which stem from mental models and are enforced formally or informally by rewarding compliance and sanctioning non-compliance. Institutions are made effective through the means of governance structures. It was argued that polycentric governance arrangements across the domains of markets, state, and civil society are most adequate to cope with problems arising from and within complex socio-ecological systems, since polycentric governance arrangements take account of actors' pluralism and diversity. Subsequently, I introduce the IAD Framework as a tool to analyse those institutional realms.

2.4.3 The IAD Framework as a Tool for Institutional Analysis

The IAD Framework is a reliable tool to analyse institutional arrangements (OSTROM 2005; 2011; MCGINNIS 2011). In the context of this study, the framework was used as a template rather than an analytical tool (1) to organise the overall case description in section 4 in terms of relevant biophysical conditions, attributes of the community, economic conditions, and rules-in-use and (2) to summarise the case-specific action situations prior to the in-depth analysis in section 5.

Institutional and governance arrangements become relevant in specific action arenas, when actors take actions in an action situation and thus jointly produce outcomes (cf. OSTROM 2005, 13; 32; HAGEDORN 2008; see Fig. 2). Thus, "action situations are the social space where individuals interact, exchange goods and services, solve problems, dominate one another, or fight" (OSTROM 2011, 11). Fig. 3 shows that the action situation is substantially influenced by contextual variables, such as biophysical conditions, attributes of the community, and rules-in-use.

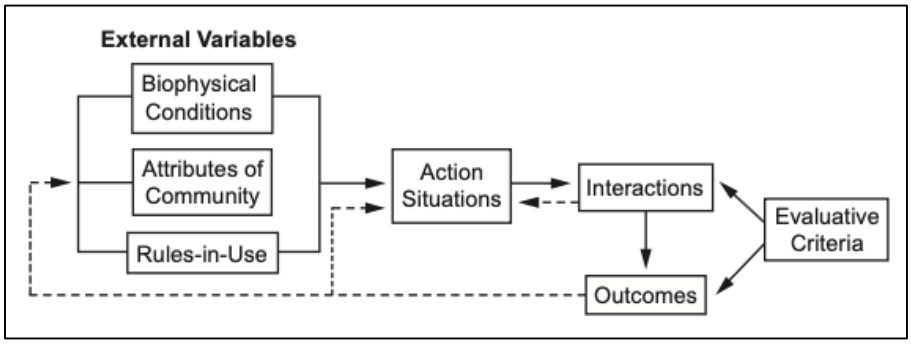

Fig. 3. A Framework for Institutional Analysis (Ostrom 2011, 10).

Biophysical conditions refer to the nature of the respective good at stake. Community attributes comprise, i. a., the history of prior interactions and key attributes of actors involved in or affected by the action situation, such as levels of social capital. Rules-in-use comprise all aspects of the institutional setting, such as formal rules and laws, strategies and norms, informal rules, and property rights.

As shown in Fig. 4, the internal structure of an action situation encompasses actors that are assigned to specific roles which are linked to a specific set of allowable actions they can take. Moreover, important elements consist of the extent to which actors can control the action situation and the amount of information that actors have on specific attributes. Those factors will largely influence potential outcomes that actors value as net costs and benefits (OSTROM 2011, 12).

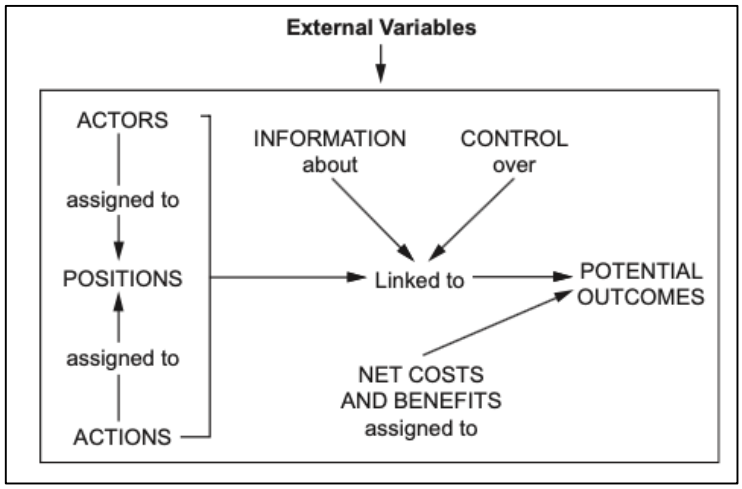

Fig. 4. The Internal Structure of an Action Situation (OSTROM 2011, 10).

Having outlined conceptual and institutional foundations of environmental collective action dilemmas, I subsequently introduce the concept of social capital, thereby clarifying the connection between social capital and collective action.

2.5 The Concept of Social Capital

2.5.1 Early Conceptualisations of Social Capital

2.5.1.1 Social Capital Theory in the Context of Social Network Analysis

Originally, the concept of social capital has been largely coined by the pioneering works of PIERRE BOURDIEU (1986), JAMES COLEMAN (1988, 1990), and ROBERT PUTNAM (1993). However, it has been applied in multiple contexts and from various perspectives. Amongst others, the concept of social capital has often been deployed in a narrow context

of social network analysis, referring to resources embedded within a social structure that connects individuals (OSTROM and AHN 2001, 6; cf. GRANOVETTER 1973; 1985; BOURDIEU 1986; COLEMAN 1988; BURT 1992). From this perspective, resources and connections obtained through network structures represent individual assets, which differ for different people and constitute competitive advantages.

In that sense, BOURDIEU defined social capital as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalised relationships of mutual acquaintance or recognition" (BOURDIEU 1986, 248). He argued profit – either material or symbolic profit – was the actors' main reason to engage in social relations and networks. However, he stressed the fact that the actors' potential to access and control resources from social relations was unequally distributed depending on the actors' positions within the social space (IBID., 249). In BOURDIEU's argument, disposing over social capital depends on power relations. It allows privileged actors to access resources to reproduce all forms of capital, including the consolidation of their positions. Social capital thus represents an unequally distributed, scarce resource reproducing class (cf. TZANAKIS 2013, 3).

2.5.1.2 The Public Good Nature of Social Capital

Other perspectives expanded on the definition of social capital as comprising various entities besides social networks, such as norms and institutions, that facilitate collective action for instrumental and collective benefit (i. a., GRANOVETTER 1973; COLEMAN 1988; BURT 2000; OSTROM 2000b; OSTROM and AHN 2009). Within this approach, research has frequently emphasised the public good nature of social capital (i. a., COLEMAN 1988; PUTNAM 1993a, 253).

Regarding this, COLEMAN argued that the formation of social capital benefits all members of a social network, while those who generate it capture only a part of it (COLEMAN 1988, S116). He adduced the example of parents' associations, which are frequently enlivened by individual active parents that dedicate much time and effort to shared activities. If those individuals were to abandon the activities for any reason, this would "constitute a loss to all these other parents whose associations and contacts were dependent on them" (IBID.). The public good nature of social capital, moreover, implies that it is frequently created as a by-product of other activities and potentially underprovided (COLEMAN 1988, S118; 1990, 317; PUTNAM 1993a, 253; OSTROM 2000b, 177).

2.5.1.3 The Capital Nature of Social Capital

Largely stemming from sociology, there has been much debate about the capital nature of the social capital concept. Famous economists, such as ARROW and SOLOW, have acknowledged the relevance of social relations for economic efficiency but questioned the capital nature and the concept's vagueness (cf. ARROW 2000; SOLOW 2000).

Addressing this concern, LIN (1999) defined social capital "as investment in social relations by individuals through which they gain access to embedded resources to enhance expected returns of instrumental or expressive actions" (LIN 1999, 39). Likewise, OSTROM and colleagues (2000; 2009), advocated the concept of social capital as a form of human-made capital next to physical and human capital. OSTROM defined it as "the shared knowledge, understandings, norms, rules, and expectations about patterns of interaction that groups of individuals bring to a recurrent activity" (OSTROM 2000b, 176). As other forms of capital, social assets are built over time and effort.

2.5.2 Investigating Social Capital

2.5.2.1 Benefitting from Social Capital

Benefits from social capital accrue both for individuals and for groups (cf. VILLALONGA-OLIVES and KAWACHI 2015, 63; CALL and JAGGER 2017, 857). Those benefits largely account for three broad categories: (1) the reproduction of social resources and social cohesion, (2) access to and circulation of other forms of capital and embedded resources, particularly information, influence and funds, and (3) the coordination of activities (cf. i. a., BOURDIEU 1986; COLEMAN 1988; LIN 1999; FALK and KILPATRICK 2000, RUDD 2000; GÓRRIZ-MIFSUD et al. 2016).

Individuals largely obtain benefits from strategic locations within networks which offer them access to privileged resources and allow them to exert influence on others (LIN 1999, 31; cf. BURT 1992). Moreover, they gain from building a reputation within a normative setting of repetitive interactions based on trust and reciprocity (RUDD 2000, 133). Thus, engaging in social interactions provides certification of an individual's social credentials and therefore also reinforces identity and recognition (LIN 1999, 31). This predisposition to continuous social exchange provides incentives even for selfish, short-term profit-oriented actors to comply to norms and institutions (RUDD 2000, 133).

On the community level, this incentive structure leads to a reduction of transaction costs, since information asymmetries are reduced or compensated through the enhancement of trust and habit, whereas the latter also reduces transaction costs from coordinating activities (cf. IBID., 133f.).

2.5.2.2 Particularities of Social Capital

However, social capital represents intangible and frequently normative forms of capital, such as trust, cooperative skills, or optimism (cf. SVENDSEN and SVENDSEN 2009, 1). This intangible and normative character accrues for difficulties in measuring and observing social capital. Regarding this, OSTROM (2000) pointed out that common understanding and norms might be difficult to articulate in an inquiry. People might not be willing to reveal or even be unconscious about norms and rules-in-use (OSTROM 2000b, 180).

Moreover, OSTROM stressed that social capital – unlike physical capital – does not wear out with use but with disuse (OSTROM 2000b, 179). Within existing social relationships, it dissipates without repetitive engagement in social interactions. But within substitutional dynamics of larger groups and networks, social capital also needs to be employed to be sustained, since individuals would frequently join or leave the group and thus alter the structure of social relations.

Adducing a similar argument, FALK and KILPATRICK described the formation of social capital as a learning process (FALK and KILPATRICK 2000, 91f.). Since this process occurs within social interactions, the provision of sufficient opportunities for meaningful interaction is a necessary condition for social capital to be created and accumulated. Those opportunities are, i. a., represented by social activities in clubs, voluntary associations, citizen meetings, or events. Thus, FALK and KILPATRICK pointed out a quantity and quality dimension to those opportunities. With the rapid growth of social media platforms ever since the early 2000s, online social networks have complemented and expanded opportunities of face-to-face interaction (cf. SAJURIA et al. 2015, 733; PHUA et al. 2017, 5).

Thus far, I have argued that social capital comprises various entities, such as social networks, norms, and institutions that provide benefits, such as the reproduction of social assets, access to resources embedded in those entities, and the coordination of activities. Taking account of the public good nature of social capital, benefits accrue for both individuals and groups. Meanwhile, social assets constituting a form of human-made capital are accumulated in social interaction over time. Unlike physical capital, it dissipates with

disuse, such that not only accumulation but also preservation of social assets depends upon sufficient opportunities of social interaction. However, social capital frequently represents intangible and normative forms of capital and thereby leading to difficulties in measuring and observing it. Thereinafter, I expand and apply the argument to clarify the link between social capital and collective action and subsequently address possible solutions to the dilemma of intangibility.

2.5.3 Linking Social Capital to Collective Action

Consistent with COLEMAN's notion of social capital as a public good and its function in coordinating and facilitating specific action, PUTNAM (1993a; 1995) outlined how social capital could contribute to solve collective action problems. As a result, networks of civic engagement foster sturdy norms of generalised reciprocity and encourage the emergence of social trust. These networks moreover facilitate coordination and communication, amplify reputations, and thus allow dilemmas of collective action to be resolved. When economic and political negotiation are embedded in dense networks of social interaction, incentives for opportunism are reduced (PUTNAM 1993a, 252; 1995, 66).

More so than BOURDIEU and COLEMAN, who focused on social networks, PUTNAM considered civic engagement and mental constructs, such as perceptions of trust and social cohesion, to explain economic and political performance (cf. OSTROM and AHN 2001, 7). He claimed that "social capital is elevated from a feature of *individuals* and small groups in local communities to a feature of large population *aggregates*" (TZANAKIS 2013, 6). Thus, representing a collective asset social capital can be measured and compared across large communities and countries. Using a similar argument, OSTROM and AHN considered social capital as "an attribute of individuals and of their relationships that enhance their ability to solve collective action problems" (OSTROM and AHN 2009, 20; see also DUIT 2010).

Recognising that social contexts and thus social capital matter for collective action indicates a major field of applying social capital theory. Taking into account social aspects makes it appropriate to link social capital to second-generation theories of collective action, assuming non-selfish individuals that are subject to bounded rationality and have heterogeneous preferences (OSTROM and AHN 2009, 22; cf. RUDD 2000, 132; OSTROM and AHN 2001, 8).

However, just as there are only few fully selfish individuals, there are only few true altruists (OSTROM and AHN 2009, 27). Rather, the interrelation of the social structure, values, trust, as well as norms and institutions create the basis for cooperation in collective action situations (cf. IBID.). Subsequently, I outline how those interrelated factors can be delineated.

2.5.4 The Three Dimensions of Social Capital

Scholars analysed the interrelation of those elements by classifying of social capital into three main dimensions as advocated by NAHAPIET and GOSHAL (1998) to achieve more specificity and clarity about the elements of social capital at stake – CSC, RSC, and SSC (see Fig. 5).

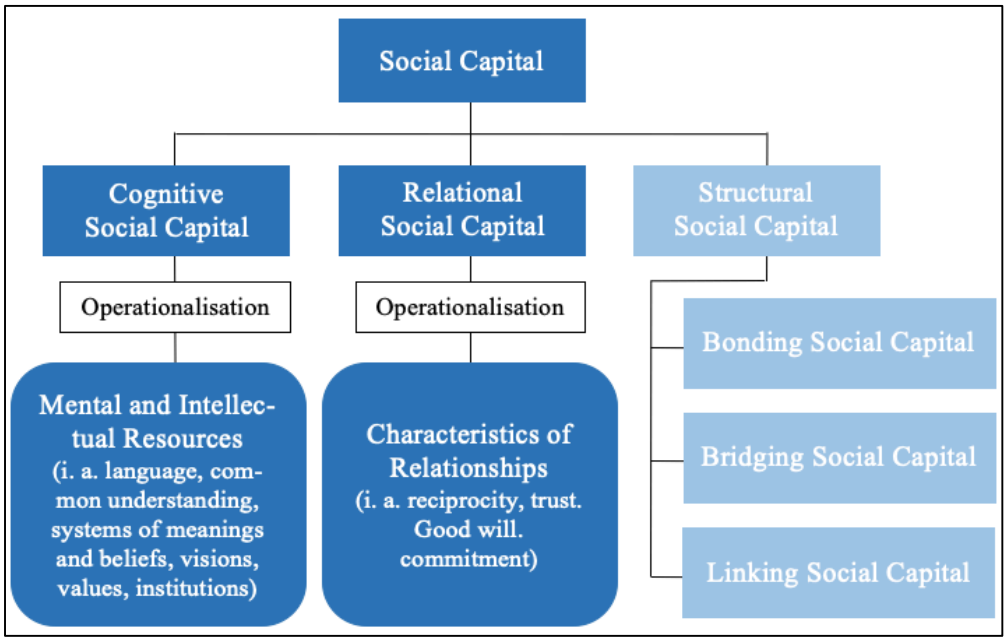

Fig. 5. The Three Dimensions of Social Capital (own representation).

CSC refers to mental and intellectual resources, such as language and expertise, and to those resources that provide the normative ground for collective action, such as common understandings, systems of meanings, visions, expectations and obligations. They are based on shared norms and values and enable the formation of a system of rules and sanctions (cf. VILLALONGA-OLIVES and KAWACHI 2015, 63; MUNIADY et al. 2015, 4; DHAR and BOSE 2019). RSC comprises the characteristics of personal relationships, such as social identity, commitment, reciprocity, trust, and goodwill (MUNIADY et al. 2015, 4; DHAR and BOSE 2019, 2). SSC refers to the broader social structure including ties and strength of ties, positions within a network, network closure, density and connectivity, as

well as formal and informal network configuration (VILLALONGA-OLIVES and KAWACHI 2015, 63; MUNIADY et al. 2015, 4; DHAR and BOSE 2019, 2). Referring to relationships between distinct types of actors, SSC is classified into bonding (links within the community), bridging (with other communities), and linking social capital (with higher level actors) (cf. GÓRRIZ-MIFSUD et al. 2016, 27; VILLALONGA-OLIVES and KAWACHI 2015, 63).

Although collective action draws on all three dimensions and much research has been done regarding their interrelation, there is a clear research gap regarding the relation and individual role of CSC and RSC on outcomes of institutional arrangements, while SSC is widely explored (cf. STEINMO and RASMUSSEN 2018, 1965). Moreover, research conducted in this field, and particularly regarding the role of RSC and CSC, largely focused on intra- and inter-organisational social capital in the context of business administration and business partnerships (LAVIE et al. 2012; PINHO 2013; STEINMO and RASMUSSEN 2018; ANDREWS 2010). Subsequently, CSC and RSC are explored in more detail by demonstrating how they contribute to enable environmental collective action, how they differ in their effects, and how they are interrelated.

2.6 CSC and RSC: Differential Effects and Interrelation

2.6.1 CSC

2.6.1.1 Shared Goals and Mental Models

A diverse pool of scientific studies has examined differential effects of RSC and CSC on performance and collaboration (see, i. a., GÓRRIZ-MIFSUD et al. 2016; LAVIE et al. 2012; MUNIADY et al. 2015; RAMÓN-HIDALGO et al. 2018; SUKOCO et al. 2018; ANDREWS 2010; KRAUSE et al. 2007; PINHO 2013). As has been stated above, CSC refers to mental models and intellectual resources providing the normative ground for collective action (cf. VILLALONGA-OLIVES and KAWACHI 2015, 63; MUNIADY et al. 2015, 4; DHAR and BOSE 2019). As shown in Fig. 6, it is subdivided into the categories of shared goals and shared culture (STEINMO and RASMUSSEN 2018, 1965). The former refers to general mind-sets, including aspects such as shared language and vision. The latter refers to patterns of behaviour and encompasses institutions and norms.

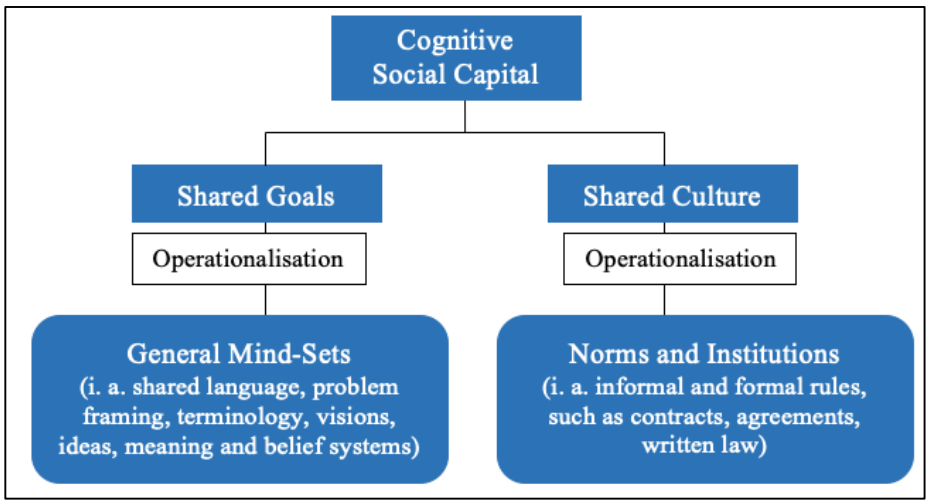

Fig. 6. Categories of CSC (own representation).

Shared language comprises framing and terminology in addition to the language itself, as well as underlying assumptions and interpretations, and thus represents a system of meanings (WARREN et al. 2015, 166; MUNIADY et al. 2015, 4). It has been shown in multiple contexts that it facilitates common understanding and enhances the efficiency of communication (PINHO 2013, 557). Likewise, shared visions are thought to create stronger bonding between different actors and thus facilitate a targeted and purposeful mobilisation of resources (cf., i. a., LIN 1999, 40).

Overall, shared goals stem from recurrent social interaction, in which common understanding is formed, and from traditional ecological knowledge held by a community, shaping people's perception of the state of socio-ecological systems (GÓRRIZ-MIFSUD et al. 2016, 28). Thus, this conception coincides with NORTH's notion of mental models which evolves from experiences on the one hand and the physical environment on the other hand (NORTH 1993, 16).

2.6.1.2 Shared Culture and Institutions

Institutions on their part shape behavioural patterns and relationships, as has been described above by specifying which actions are required, desired, undesired, allowed, or prohibited, and by establishing mechanisms of rewards and sanctions (OSTROM and AHN 2009, 28). They come into effect as formal or informal rules. Formal institutions appear in written form, such as laws or contractual regulations, and are enacted by respective authorities. They also encompass formalised institutional structures, such as governance arrangements and political systems (OSTROM and AHN 2009, 28).

OSTROM and AHN pointed out to the common argument of many scholars that "legal rules and formal institutions are an ineffective means to solve collective-action problems, and sometimes might even undermine the very basis of social cooperation" (IBID.). However, they counter-argued for the role of formal institutions, particularly in terms of formal laws and the political system, which "can encourage or discourage individual's efforts to voluntarily solve their collective-action problems. […] whether or not a regime explicitly allows and even encourages those activities makes a big difference for the fate of self-governance" (IBID., 28f). Thus, the rule of law and well-structured governance arrangements represent important assets of CSC, as they provide a guiding framework and concrete incentives for action.

However, formal rules frequently do not account for the whole variety of situations in day-to-day business. Therefore, actors need to craft and apply informal working rules, either because formal institutions do not cover the specific situation, or because they are deemed impractical (IBID., 29). Those informal rules shape patterns of relationships and originate largely in shared mental models, including common understanding, meanings, and values (IBID.; cf. NORTH 1993).

Generally, cooperative relationships that are based on high levels of CSC are expected to be stronger (cf. i. a., STEINMO and RASMUSSEN 2018, 1965). They were found to increase organisational performance in terms of shared goals and enactment which led to a greater overall synchronisation within organisational effort (ANDREWS 2010, 587). In that sense, knowledge transfer was found to be easier in networks of different actors that shared cultural linkages (INKPEN and TSANG 2005). Building on INKPEN and TSANG (2005), KRAUSE et al. emphasised that if goals and values between actors are incongruent, this can potentially lead to misunderstandings and conflicts resulting in dissatisfaction and mistrust, which in turn negatively affects performance by limiting commitment and cooperation (KRAUSE et al. 2007, 532). However, STEINMO and RASMUSSEN noticed that "too much similarity in the cognitive dimension […] may reduce the potential for innovation in inter-organizational learning […]" (STEINMO and RASMUSSEN 2018, 1965).

2.6.2 RSC

As stated above, RSC comprises the characteristics of personal relationships (PINHO 2013, 556; MUNIADY et al. 2015, 4; STEINMO and RASMUSSEN 2018, 1966; DHAR and BOSE 2019, 2). It is therefore associated with the qualities of relations. RSC represents a

critical component for collective action. This becomes evident, i. a., for mechanisms of trust (i. a., COLEMAN 1990; FUKUYAMA 1995; OSTROM and AHN 2009). OSTROM and AHN (2009) considered it to be the core link between social capital and collective action. Trust – or distrust – as a subjective belief becomes particularly relevant in situations characterised by complexity and uncertainty. Thereby, it – in the form of particularised trust between individuals – may be built in long-term relationships based on experience and information about a person's reputation and relying on the norm of reciprocity (cf. IBID., 24; USLANER 2002, 7). Where information about a potential trustee is lacking, trust can still be immanent, taking the form of generalised trust and being based upon shared norms and values, common expectations, and obligations within a group (cf. FALK and KILPATRICK 2000, 88; SVENDSEN and SVENDSEN 2009, 2; USLANER 2002, 7).

Regarding this, OSTROM and AHN stressed the relevance of existing norms of reciprocity and commitment as well as formal and informal institutions that reward trustworthiness and sanction malfeasance. The availability of trust largely determines whether collective action will be taken (cf. OSTROM 1998, 12). In the case of distrust, collective action is impeded. In the case of trust, it allows the trustor to collaborate at the risk of being cheated by the trustee (OSTROM and AHN 2009, 23).

To be sustained and enhanced, it needs to be verified that trust is appropriate in repeated interactions, building robust social relations based upon generalised forms of reciprocity, and providing individuals with the incentive of building a reputation of being trustworthy (IBID.). Thus, OSTROM developed a theory of behavioural rational choice, in which trust, reputation, and norms of reciprocity form a self-reinforcing triad that can increase levels of cooperation and net benefits (OSTROM 1998; cf. RUDD 2000, 140).

Regarding this, trust can offset the need for rule enforcement efforts, such as monitoring, "given that repetitive games reduce self-regarding, non-cooperative choices within the traditional prisoner's dilemma" (GÓRRIZ-MIFSUD et al. 2016, 29; cf. OSTROM and AHN 2009). Higher levels of trust are frequently positively related to performance and collaboration, since willingness to share information and knowledge is increased, enabling meaningful communication between actors (cf. ANDREWS 2010, 600; STEINMO and RASMUSSEN 2018, 1966). LIU et al. (2010) found that trust therefore reduces transaction costs and increases investments in relation-specific assets. KRAMER (1999) found that trust diminishes resistance to organisational change. THAU et al. (2007) observed that under high levels of trust, members of an organisation perceived a stronger support from leaders and had a stronger sense of self-obligation.

In the context of generalised forms of trust and reciprocity, OSTROM stated:

> "The norm of reciprocity implies some level of symmetry among those who engage in long-term reciprocal relationships. When individuals learn to trust one another so that they are able to make credible commitments and rely on generalized forms of reciprocity rather than on narrow sequences of specific *quid pro quo* relationships, they are able to achieve far more than when these forms of social capital are not present" (OSTROM 2000b, 177).

In the case of an intrinsic, non-selfish motivation, individuals will contribute to a collective good on the basis of trust if they perceive that others do so as well (KAHAN 2002, 1517). However, if "they perceive that others are not contributing their fair share, then resentment and pride move them to withhold their contribution as well" (IBID.). Particularly, first generation theories of collective action nonetheless emphasised the role of incentives that account for rational utility maximisers to contribute (IBID., 1516).

Thus far, I have argued that CSC and RSC differ in their effects. CSC in terms of mental models was found to facilitate common understanding and efficient communication, while shared institutions shape patterns of behavioural patterns and thus lead to efficient coordination and synchronisation in the context of collaborative efforts. Complementing this, RSC decreases barriers to collaboration, since trust offsets disadvantages from uncertainty, reduces the need for rule enforcement, and increases the willingness to share resources and invest in relation-specific assets (cf. ANDREWS 2010, 600; STEINMO and RASMUSSEN 2018, 1966). Subsequently, I outline how both dimensions relate to each other and work together to enable collective action.

2.6.3 The Interrelation of RSC and CSC

2.6.3.1 Mutual Reinforcement of RSC and CSC

Despite their differential effects on performance and collaboration, it has been largely claimed that RSC and CSC are mutually reinforcing and highly interrelated (see i. a., MUNIADY et al. 2015; WARREN et al. 2015). CAREY et al. indicated in their analysis of social capital configurations, legal bonds, and performance in buyer-supplier relations that CSC influences the level of RSC while the latter transmits the effect of CSC on performance (CAREY et al. 2011, 285). The authors based their analysis on the assumption that trust is associated with common goals and values. Thus, CSC is likely to enhance trust and represents an antecedent to RSC (cf. INKPEN and TSANG 2005; TSAI and GHOSHAL 1998; SUKOCO et al. 2018). CSC has frequently been linked to performance

improvement as independent factor (cf. CAREY et al. 2011, 279; MUNIADY et al. 2015, 5; WARREN et al. 2015, 171). However, CAREY et al. claimed that mere CSC, taking the form of shared understanding,

> "is not enough to materialize this aim. Instead, relational capital provides security and reciprocity within the relationship, where the supplier is more likely to provide new technologies or knowledge in the confidence that they will, in turn, share the benefits" (CAREY et al. 2011, 285).

This perception is supported by SUKOCO et al., who found in their analysis of the interrelation of social capital, relational learning and performance in buyer-supplier relationships that CSC and SSC enhance RSC, which in turn mediates the former and leads to improved relationship performance (SUKOCO et al. 2018, 430).

Similarly, PINHO (2013) found that both RSC and CSC have an impact on commitment and cooperation. He stated that RSC would majorly enhance commitment and cooperation. However, RSC would not be generated immediately but in the course of ongoing relationships. Thus, shared CSC would constitute an important first source of commitment and cooperation (PINHO 2013, 564).

In addition to the mutually reinforcing nature of RSC and CSC, some studies have shown that the two dimensions may also represent substitutes of each other in specific contexts and can thus account for distinct sequential paths and combinations of RSC and CSC. Findings in this field indicate three factors which make differential sequences and combinations essential for collaborative success: (1) differences between partners, (2) organisational principles, and (3) an experience barrier to collaboration. As those three factors greatly influence the studied cases analysed below, I outline key scientific insights regarding the effect of those factors on sequences and combinations of RSC and CSC.

2.6.3.2 Substitutional Effects of RSC and CSC I: Differences in Partnerships

LAVIE et al. (2012) examined how differences in partners' routines affected alliance performance. Those differences accounted largely for CSC that comprised the strategic fit and the cultural fit of alliance partners. Those dimensions correlate with the distinction between shared goals (strategic fit) and shared culture (cultural fit). The authors concluded that differences on partners' routines generally reduced relational mechanisms, such as commitment, and thus negatively affected alliance performance (IBID., 1469).

However, while a strategic fit was found to be critical for alliance performance, the authors found that a cultural fit was not necessary when partnerships "entail[ed] coordination rather than integration of the partners' activities" (IBID.). Thus, in a nutshell, if partners pursued the same goal and had a congruent underlying system of meaning and values, then it did not matter which routines they followed to achieve this goal. Moreover, the auhtors' analysis showed that acknowledgement of differences between partners could offset negative effects stemming from those differences.

The authors ascribed this phenomenon to mistrust arising from differences in decision-making and management, while transparency about differences and procedures could enhance mutual trust and "the expectation that the partner will behave appropriately and fulfil obligations" (IBID.). Those implications largely coincide with PAAVOLA's notion on pluralism amongst actors involved in environmental conflict resolution, although he referred to differences in values and motivations (PAAVOLA 2007, 96). However, he also argued that recognising and accounting for differences in governance arrangements can enhance the formation of viable institutions, a convergence of values, and long-term commitment (IBID., 101; cf. NORTH 1993, 13).

2.6.3.3 Substitutional Effects of RSC and CSC II: Organisational Principles

ANDREWS (2010) analysed to what extent organisational principles such as specialisation, decentralisation, and formalisation impact the relationship between the dimensions of social capital and organisational performance, given that CSC and RSC regularly have a positive influence on performance (i. a., ANDREWS 2010; LAVIE et al. 2012; PINHO 2013; STEINMO and RASMUSSEN 2018). He found that decentralisation strengthens the relationship between RSC and organisational performance, whereas it weakens the relationship between CSC and organisational performance (ANDREWS 2010, 600). The author explained those results with the implication that with decentralisation

> "senior managers have faith in the ability of middle managers to make key decisions, thereby increasing the positive effects of trusting relationships for organizational performance. However, it is possible that these benefits of decentralization for the organization will be gained at the expense of a strong sense of mission, since senior managers may have less direct control over the goal orientation of their subordinates" (ANDREWS 2010, 589).

In contrast, he found that formalisation had no effect on the relation between social capital and organisational performance (IBID., 600). Results suggest that costs and benefits of

formalisation neutralise each other, since formal rules can, i. a., clarify purpose and enhance focused commitment but constrain innovativeness (IBID.).

Thus, formalisation in this context accrues for what NORTH called imperative commitment, referring to the enforcement of specific actions on the basis of coercion, while motivational commitment is not necessarily present (NORTH 1993, 13). In this regard, ANDREWS referred to formalisation as a top-down process and did consider mutually agreed formalisation to bridge the gap between partners as a first step to overcome differences.

2.6.3.4 Substitutional Effects of RSC and CSC III: Experience Barrier

Other findings suggesting a substitutional effect of RSC and CSC in business partnerships were presented by STEINMO and RASMUSSEN, who analysed how the experience barrier in university-industry collaboration could be overcome, since new collaborative partnerships, particularly when lacking experience within the specific sector, first need to build up social capital (STEINMO and RASMUSSEN 2018, 1964). The authors found that firms with limited experience with university collaboration – and thus with limited shared CSC, both in terms of organisational logic regarding shared goals and shared culture – compensate by relying on RSC to establish relations in a first step and build CSC in a second step (IBID., 1972). Firms with more experience in university collaboration establish relations based on CSC, which are then enhanced through RSC (IBID.).

Thus far, it has been outlined how RSC and CSC differ in their effects. But moreover, scholars emphasised the interrelation of both dimensions. In particular, they were found to be mutually reinforcing. Therefore, both dimensions are frequently seen as complements. However, some studies ascribed them different roles in enabling collaboration. RSC was found to function as transmitter or mediator of the effects held by CSC, while the latter is ultimately essential to achieve desired outcomes. On this basis, some isolated findings suggest a substitutional effect between both dimensions in specific contexts.

However, they do not constitute perfect substitutes of each other, since results indicate that one dimension can only be a preliminary single factor and antecedent of the other in specific contexts, while the other is built later. This analysis strives to advance the understanding of how CSC and RSC need to be configured to enable environmental collective action in the first place by the means of a multiple case study. In preparation thereof, I subsequently formulate propositions based on the scientific insights presented above.

2.7 Towards a Formulation of Propositions

This analysis links the concepts of RSC and CSC to the emergence of environmental collective action. It is thereby guided by institutional theory. Environmental collective action refers to action consciously taken by multiple actors to address an environmental problem which is caused by habitual practices of many people resulting in large-scale environmental harm and which thus can only be resolved if many people contribute to the resolution of the conflict (SCHMID 2004; PAAVOLA 2007; OLSON 1965; OSTROM 1990; DUIT 2010). The particularity of environmental collective action is constituted by complex socio-ecological interactions that create interdependence across and within domains of market, state, and civil society (cf. HAGEDORN 2008; PAAVOLa 2007). Those interdependencies are a major source of conflict but equally represent the basis for cooperation.

Addressing the question under which conditions collective action is enabled, scholars have emphasised that polycentric governance modes, which are embedded in and take account of the social structure and that are shaped by well-functioning institutions and high levels of social capital, are predestined to bring about collective action (cf. OSTROM 1990; DUIT 2010). Thus, good institutions and social capital represent critical components for collective action to emerge.

Social capital comprises various entities, such as social networks, norms, and institutions that take on the form of social assets accumulating through social interaction (GRANOVETTER 1973; COLEMAN 1988; PUTNAM 1995; BURT 2000; OSTROM 2000b; OSTROM and AHN 2009). Regarding the variety of social capital forms, it has been categorised into the three dimensions of SSC, RSC, and CSC (cf. NAHAPIET and GOSHAL 1998). CSC refers to mental and intellectual resources that provide the normative ground for collective action (cf. VILLALONGA-OLIVES and KAWACHI 2015, 63; MUNIADY et al. 2015, 4; DHAR and BOSE 2019). It is subdivided into shared goals that refer to mental models, shared meanings, visions and values, and shared culture that refers to institutions and norms (cf. STEINMO and RASMUSSEN 2018). RSC comprises the characteristics of personal relationships, such as social identity, commitment, reciprocity, trust, and goodwill (MUNIADY et al. 2015, 4; DHAR and BOSE 2019, 2).

Many scholars have stressed the link between social capital and collective action (i. a., OSTROM 2000; RUDD 2000; OSTROM and AHN 2001; 2009; PUTNAM 1993a; 1995, DUIT 2010). Recognising that social contexts matter for collective action makes it appropriate

to link social capital to second-generation theories of collective action, assuming individuals who are subject to bounded rationality, have non-selfish utility functions and heterogeneous preferences (OSTROM and AHN 2009). Moreover, social capital theory coincides with key aspects of institutional theory (cf. GÓRRIZ-MIFSUD et al. 2016). Network configurations representing SSC constitute the basis to describe governance arrangements, while mental models and institutions representing CSC determine the functioning of those arrangements (GÓRRIZ-MIFSUD et al. 2016). RSC, particularly in terms of trust and reciprocity, complements the link by representing the key factor for actors to engage in collective action under conditions of uncertainty (cf. OSTROM and AHN 2009).

While the role of SSC is widely explored, it remains unclear how RSC and CSC relate to each other to effectively contribute to collective action. Scientific findings emphasised differential effects of both dimensions on collaboration on the one hand, and their interrelation on the other hand. Beyond this, RSC and CSC have been found to be mutually reinforcing and are therefore frequently seen as complements (i. a., OSTROM and AHN 2009; RAMÓN-HIDALGO et al. 2018). However, they differ in their roles concerning the emergence of collaboration: While RSC functions as transmitter of the effects held by CSC, the latter is ultimately essential for collaborative efforts (CAREY et al. 2011; SUKOCO et al. 2018). Regarding this, RSC between collaborating partners can compensate for a lack of CSC in initial stages to kick-start collaboration (STEINMO and RASMUSSEN 2018). Meanwhile, the need for CSC does not imply perfect congruence in shared goals and shared culture amongst collaborating partners, particularly if differences are acknowledged by all parties (cf. PAAVOLA 2007; STEINMO and RASMUSSEN 2018). Negative effects from differences can be addressed and offset by negotiating formal rules which provide distributive and procedural justice, clarify purposes, and enhance focused commitment (cf. PAAVOLA 2007, 97; ANDREWS 2010, 600).

Although those findings were observed in less complex settings, both regarding socio-ecological systems interactions and actors involved, the focus on collaboration and differences between actors make it appropriate to analyse similar mechanisms of RSC and CSC in the context of environmental collective action. Therefore, and based on the previous argumentation, I expect that *CSC is a sufficient condition for environmental collective action to be enabled*. I expect this to particularly hold for informal CSC. Therefore, I formulate the following propositions representing optional sequential paths of RSC and CSC leading to or impeding environmental collective action (Fig. 7):

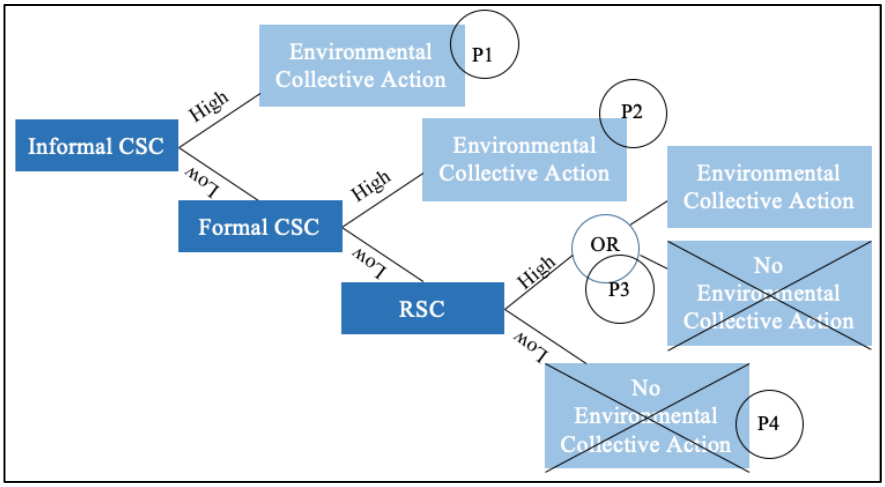

Fig. 7. Paths towards Environmental Collective Action (own representation).

- P1: If informal CSC is high, then environmental collective action is enabled.
- P2: If informal CSC is low, but formal CSC is high, then environmental collective action is enabled.

Analysing informal CSC before formal CSC intentionally follows the logic of second-generation theories of collective action, which take into account social motivations, and lead to the assumption that environmental collective action is best enabled based on intrinsic motivation rather than on imperative enforcement (cf. RUDD 2000, 132; OSTROM and AHN 2009, 29). However, scientific findings suggest that a lack in CSC – formal or informal – does not necessarily lead to impeded collective action if a leap of faith is given in the form of trusting relations (cf. STEINMO and RASMUSSEN 2018, 1972). In this regard, I further expect RSC to take the role of a facilitator and thus to constitute an insufficient but necessary condition in the absence of CSC. Therefore, I formulate a third proposition:

- P3: If levels of both informal and formal CSC are low, then high RSC can (but would not necessarily) serve as mediator to build formal CSC so that environmental collective action is enabled.

By implication, I further propose:

- P4: If all three informal and formal CSC as well as RSC are low, then environmental collective action is impeded.

2.8 Summary

I have argued that research on environmental collective action is informed to a great extent by institutional analysis and social capital research. Simultaneously, both strands of

research strongly coincide. Governance arrangements, as an important aspect of institutional analysis, describe collective action situations and are largely captured by SSC, while institutions and mental models, determine the function of collective action situations and are covered by CSC. Moreover, I have argued that RSC acts in a facilitating manner to overcome barriers to collective action.

Since SSC is widely explored, this analysis addresses the research gap regarding the other two dimensions by linking the emergence of environmental collective action to specific combinations and sequences of RSC and CSC. I have argued that CSC and RSC differ in their effects, but are nonetheless highly interrelated. While CSC constitutes the intellectual and normative ground for environmental collective action, RSC shapes the characteristics of relations. Therefore, it can be argued that RSC acts as a mediator of the effects held by CSC, while the latter is ultimately essential to achieve desired outcomes.

On this basis, I expect CSC to be a sufficient and necessary condition for environmental collective action to emerge, while I expect RSC to be an insufficient but necessary condition in the absence of CSC. Thus, it is proposed that environmental collective action would emerge whenever CSC is high. However, when it is absent, environmental collective action can still be enabled through RSC acting as facilitator to build CSC. If both dimensions are absent, I expect environmental collective action to be impeded. I test those expectations by conducting a multiple case study of environmental initiatives on the island of Paros, Greece. Subsequently, I outline the research design and rationales for it.

3 Materials and Methods

3.1 Objective of this Chapter

This section provides the methodological framework for the analysis, embedding the aim of this study thoroughly into the scientific process. Section 3.2 introduces the case study method which was chosen as the fundamental research design. It moreover outlines in how far this method is appropriate in the context of this study. Since it relies on other methods for data collection, section 3.3 explores basic features of qualitative interviewing, which was used as the main data collection method throughout the fieldwork period. Subsequently, I outline how the construct presented above will be operationalised. Section 3.4.1 evaluates the rationales for the case selections in the context of a multiple case study research design on the island of Paros, Greece. Section 3.4.2 draws on the theoretical concepts of informal and formal CSC, RSC, and environmental collective action and translates them into operational measures, which are relevant for the data collection and analysis. Section 3.5 then illustrates how the data was collected in the field and which rationales guided this process. Section 3.6 provides an overview on the analytical strategy that was used to analyse the data. Section 3.7 formulates explicit hypotheses which were derived from the propositions and the operational measures. A summary presents key elements from this section and thus highlights the methodological construct used to approach the research question.

3.2 The Case Study Method

The case study method is used to understand complex phenomena, which are not fully understood and need to be studied in their real-life context because "boundaries between phenomenon and context may not be clearly evident" (YIN 2014, 16; see also IBID., 2; 14). Since it has been argued that social capital is a highly context-specific concept, the case study method represents an appropriate methodology to capture the particularity and complexity of a case in that context (STAKE 1995, xi).

Moreover, case study research does not primarily aim to produce general propositions, but to achieve a valid modification of these as is explored in the field. The emphasis lies upon the uniqueness of the case rather than its statistical representativeness (IBID., 8; cf. YIN 2014, 22). The former is better achieved in comparative and correlational studies, which require a good understanding of the phenomenon, control over behavioural events, and a precisely identified population to reliably assess statistical representativeness

(STAKE 1995, 8; YIN 2014). Given the known but not yet fully understood interrelation of RSC and CSC, diverse effects originating from their interrelation and from difficulties in measuring social capital in direct inquiries due to its intangibility and often unconscious accumulation, those requirements are not fulfilled for the present study (cf. OSTROM 2000b, 180).

Thus, in the context of qualitative research, the case study method allows for more freedom in terms of control over events and puts emphasis on interpretation in the sense that researchers observe and record the workings of a case while they simultaneously "[examine] its meanings and [redirect] observation to refine and substantiate those meanings" (STAKE 1995, 8f.). In order to nonetheless ensure the quality of the research design and its result within the framework of the case study method, scientific discipline is needed (IBID., 15). This means that the approach needs to be strictly located in the context of the scientific process. Therefore, a constant awareness of the aim to support or validly modify a claim about a phenomenon, reasoning about data collection, precise measuring, including triangulation where it is necessary, and using logical interpretation schemes are central for construct, internal, and external validity (cf. STAKE 1995, 108; 112; YIN 2014, 45). Regarding this, the case study method relies on other methods, i. a., for data collection. To provide both evidence for the analysis and the context supporting the interpretation of this, data was frequently derived from secondary data sources, such as scientific publications, documentary sources, such as newspaper articles, observational methods, such as participant observation, and conversational techniques, such as qualitative interviewing (cf. YIN 2014, 106).

For this study, the main sources of evidence were represented by documents, direct observations, and qualitative interviews. Documents included articles in online and offline media, administrative documents, such as progress reports, and project strategies (IBID., 106). They were mainly used for triangulation and to corroborate or specify evidence (IBID., 107; 119). Direct observations took account for the fact that case study research is conducted in real-life settings. During the fieldwork, direct observation mainly reflected the interview contexts, interviewees' behaviour, and their immediate environment within the respective project (IBID., 113). Since it was the most important methodological tool used for this study, I touch upon qualitative interviewing in more depth subsequently.

3.3 Qualitative Interviewing

Qualitative interviewing represents the main data collection method for this study. Similar to the case study method, it follows a constructivist epistemology and relies upon contextualisation and meaning making (cf. YIN 2014, 110; BRINKMAN an KVALE 2015, 18). The method strives for analytical rather than statistical representativeness in the context of complex questions from the subject's own perspective for which an in-depth understanding is required (cf. YIN 2014, 110; BRINKMANN and KVALE 2015, 32f.). Data is generated through the interaction of researcher and interviewee (IBID., 35). The method allows respondents to think and elaborate upon the issue at hand and to contribute different and nuanced experiences and aspects, detailed descriptions of their-real life worlds and rich narratives (IBID., 33). The researcher addresses the meaning and implications of what has been said to ensure clarity, subsequently interprets this within the situational context of the interview, and is responsible to keep the interview focused in terms of the respective research questions (IBID., 32f.).

Since interviewees report on their subjective reality, and researchers interpret those articulations, the value of this data does not lie in its accuracy and self-evidence but in what the interviewees convey about their worlds, how they experience, understand, and navigate them (IBID., 33). Regarding this, it needs to be emphasised that the qualitative interview occurs in an interpersonal situation. Both researcher and interviewee are characterised by their values, knowledge, as well as their social or professional position (MIEG and NÄF 2005, 5; cf. BRINKMANN and KVALE 2015, 37). This constitutes a methodological problem: the qualitative interview cannot be held in a strictly objective context that produces stable and replicable results, but depends on individual personalities, situational contexts, and specific interactions (MIEG and NÄF 2005, 5). Therefore, the interview requires improvisation as well as both social skills and scientific discipline on the part of the researcher (cf. BRINKMANN and KVALE 2015, 194.). In this context, reliability is achieved if results consider circumstances in which the interview was held (cf. IBID., 281). Moreover, the focus on specific themes can be upheld through systematic and specific questioning that regulates the openness of the qualitative interview (MIEG and NÄF 2005, 15; cf. BRINKMANN and KVALE 2015, 34). In that regard, the method is also referred to as a semi-structured interview that comprises neither strictly structured, closed and, standardised questions, nor is it fully non-directive (cf. IBID., 19; 34).

Matching the premises of the case study method, qualitative interviewing is suitable to address underexplored issues. Initial assumptions and research questions may prove

wrong or not adequate. Thus, the overall research design of this study reflects a flexible, iterative, reflecting, and continuous concept that evolved with the fieldwork (cf. STAKE 1995, 29). Subsequently, I outline the rationales for how this construct was operationalised.

3.4 Operationalisation of the Construct

3.4.1 Case Selection

Since this analysis applies the case study method, the choice of Paros Island as study context needs clarification. Being a small island, Paros can be considered as an insular socio-ecological system (BANOS-GONZÁLES et al. 2015; BANOS-GONZÁLES et al. 2016). Several advantages have been identified regarding the analysis of those systems: (1) Due to their physical boundaries, resource flows are easily observable. (2) Physical limits and vulnerability regarding natural resources are clearly evident. (3) Due to the insularity and boundedness of the island, there are "narrow interaction[s] between ecological aspects and socioeconomic processes" (BANOS-GONZÁLES et al. 2015, 130; cf. BANOS-GONZÁLES et al. 2016, 10f.; SPILANIS et al. 2009).

Moreover, Paros represents one of the larger Cycladic islands that accounts for vivid socioeconomic processes and is representative for the Cyclades for the following reasons: it is highly depleted of natural resources, exhibits high seasonality regarding the large influx of tourists and seasonal residents during summer and associated economic activities, and it experienced an economic boom over the last years, mainly due to tourism and construction (cf. MARMARAS and WALLACE 2016; GAVALAS 2014; DELLADETSIMA 2011; SPILANIS et al. 2009). Regarding the research question, the island community hosts many individual environmental initiatives. However, they operate in a rather adverse political setting, making it interesting to analyse how environmental collective action is nonetheless achieved.

The case study method is overall operationalised in the form of a multiple case study design. Since it has been argued above that case studies do not aim for statistical representativeness, rationales for case selection followed a replication logic rather than a sampling logic (YIN 2014, 57). Thus, the aim for the case selection was to achieve an analytical representativeness, meaning that the analysed phenomenon of the availability of RSC and CSC leading to environmental collective action was well represented in the collected

data so that multiple cases "serve as replications, contrasts, and extensions to the emerging theory" (EISENHARDT and GRAEBNER 2007, 25; cf. YIN 2014, 145).

Nine potential cases were identified. It can be noted that all main interviewees referred to each other during the interviews in terms of their engagement in environmental projects and initiatives. Moreover, they were frequently mentioned in the scoping interviews. Although many more initiatives and business models exist on the island which pursue sustainable approaches, those nine project initiators can thus be considered key informants and core members of this part of the island community that advocates more environmental action and sustainable development.

As shown in Fig. 8, of those projects, *The Clean Blue Paros Initiative* was chosen as a paradigmatic case in theoretical sampling after the fieldwork (cf. IBID., 95).

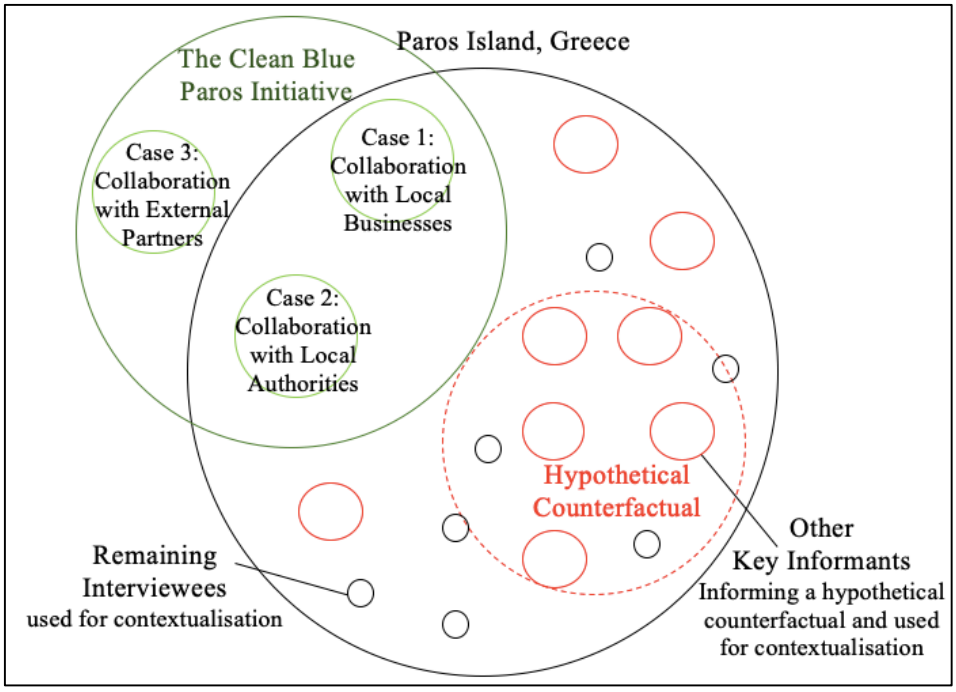

Fig. 8. Case Selection and Key Informants (own representation).

The initiative strives to reduce the amount of plastic waste on the island by the means of community involvement and integration. It is conducted by the NGO *Common Seas*. The initiative constitutes the most holistic and sophisticated case in terms of activities, the degree of community integration, and governance arrangements. Interview narratives and materials from other sources were richest for this project. Thus, they proved to be the best fit for the replication design of a multiple case study (cf. IBID.). The initiative was analysed along three subcases, namely the initiators' collaboration with (1) local businesses to reduce the amount of single-use plastics, (2) local authorities and public institutions to

install water filtration systems in Parian schools, and (3) external partners to frame the problem of waste pollution comprehensibly through the collection and processing of data. Although the cases were set within the same initiative, this should not to be confused with an embedded case study design, which addresses different subquestions for each case (IBID., 56). The *Clean Blue Paros Initiative* provided the overall context, while both the unit of analysis and observation were the subcases. These constituted cohesive subprojects, which exhibited unified combinations and sequences of social capital dimensions that aimed at a specified collective action outcome.

Those three cases illustrate the paths leading to environmental collective action as outlined within the propositions in section 2.7. For the remaining options, I used evidence from environmental initiatives which struggle to achieve collective action, to set up a hypothetical counterposition in which environmental collective action was impeded. Remaining interviews were used for contextualisation.

3.4.2 Operational Measures

Given the various forms of social capital, this analysis addressed informal and formal CSC as well as RSC. Fig. 9 provides an overview of operational measures.

<table>
<tr><td colspan="2"></td><td colspan="2">Cognitive Social Capital</td><td>Relational Social Capital</td></tr>
<tr><td colspan="2" rowspan="3">Operational-isation</td><td>Shared Goals</td><td>Shared Culture</td><td></td></tr>
<tr><td rowspan="2">Shared language (problem framing and terminology)</td><td rowspan="2">Institutions (coordination, communication and monitoring)</td><td>Trust</td></tr>
<tr><td>Incentive structure (intrinsic motivation and external incentives)</td></tr>
<tr><td rowspan="2">Source</td><td>Informal Cognitive Social Capital</td><td colspan="2">Common Understanding</td><td rowspan="2"></td></tr>
<tr><td>Formal Cognitive Social Capital</td><td colspan="2">Written Arrangements</td></tr>
<tr><td colspan="2" rowspan="4"></td><td colspan="3">Environmental Collective Action</td></tr>
<tr><td colspan="3">conscious and deliberate contribution</td></tr>
<tr><td colspan="2" rowspan="3">Exclu-sion Criteria</td><td colspan="3">no imperative commitment</td></tr>
<tr><td colspan="3">no inaction or passivity</td></tr>
<tr><td colspan="3">no unintended contributions</td></tr>
</table>

Fig. 9. Operational Measures and Criteria (own representation).

Both informal and formal CSC take account of aspects of shared goals and shared culture. In this study, shared goals were represented by shared language that comprised terminology and problem framing. Thus, it was analysed how actors framed problems and how they applied a specific terminology in the context of sustainability and environmental issues on the island. Shared culture was represented by institutions governing coordination, communication, and monitoring.

Those measures accounted for informal CSC if they were based on common understanding. If they were based on or declared in written form, then they were considered to represent formal CSC. Those written arrangements did not only comprise formal institutions that are enforced by a respective public authority, such as legislation (cf. OSTROM and AHN 2009, 28), but also accounted for agreements which have been negotiated and agreed upon by the actors as a guideline for joint action (cf. ANDREWS 2010, 600). This included contractual agreements, joint declarations and statements, strategies, and plans.

RSC is operationalised by trust and incentive structures. The latter can be based on intrinsic motivations and thus depend on generalised reciprocity and trust that others will contribute as well. Additionally, it can depend on strong external incentives and thus be subject to specific rewards and benefits (cf. OSTROM 2000b, 177; KAHAN 2002, 1516f.).

In accordance with the definition above, environmental collective action is considered evident if all partners in the specific case consciously and deliberately contribute to an environmental good (cf. SCHMID 2004; PAAVOLA 2007; OSTROM 1990; DUIT 2010). Activities are not considered collective action (1) if activities are enforced on actors so that they cannot act differently, (2) if actors remain largely passive, or (3) if activities taken in other contexts unintendedly contribute to an environmental good as a by-product.

3.5 Data Collection

Preliminary desk research was conducted prior to the fieldwork to identify projects as potential cases on the island that take the form of environmental collective action and are based on RSC and CSC. Other projects and key informants could be identified through snowballing during on-site interviews. Respondents were selected through purposeful sampling by paying attention to the respondents' competence to provide narratives about the issues at stake. Interviewees, thus, had to be knowledgeable and experienced about the project (cf. BRINKMANN and KVALE 2015, 113).

Interviews were conducted until the saturation point was reached, meaning that additional interviews would not add any new insights or provide new key informants (cf. YIN 2014, 111). Overall, 10 in-depth, open-ended interviews were conducted with project initiators and members. Six official scoping interviews with community members, including permanent and seasonal shop keepers, farmers, and other citizens provided contextual information about community life on the island (see Annexe 2). Follow-up phone interviews with representatives of selected cases complemented fieldwork interview narratives.

In the context of semi-structured interviews, an interview guideline was used to ensure that all relevant topics were covered (cf. BRINKMANN and KVALE 2015, 156; see Annexe 1). Generally, open and descriptive questions were posed to generate rich narratives. The interviews were structured as followed: Introductory questions focused on descriptions about the project, its aims, and its activities. This part already revealed problem framing and the use of language and terminology. The central part of the interviews focused on main questions regarding (1) descriptions of collaborative efforts and activities, (2) barriers and opportunities for collaboration, (3) descriptions and ratings of like-mindedness amongst actors, and (4) descriptions and ratings of the qualities of relationships and trust. Probing questions requested details and aimed to elucidate meaning, while follow-up questions revealed implications. After a short summary, interviewees were given the opportunity to add what they perceived as relevant but that had been missing during the interview (cf. IBID., 160f.).

All respondents for in-depth interviews were called or e-mailed beforehand and provided with a brief synopsis of the subject and the context of the interview (cf. BRINKMANN and KVALE 2015, 154). Since data collection in case study designs implies that the researcher adapts to the interviewees' schedules (cf. YIN 2014, 88), the choice of locations depended on respondents' preferences. Thus, interviews were held either in public places or at interviewees' workplaces, such as offices, restaurants or farming fields. Locations should encourage interviewees' willingness to talk (BRINKMANN and KVALE 2015, 154).

All interviews were recorded and transcribed for subsequent analysis. Scoping interviews lasted 5 to 15 minutes, and main interviews lasted 30 to 120 minutes. They were all conducted in English, with one interview that required a translator. Language but also intercultural aspects needed to be considered. Most interviewees and the interviewer were non-native speakers, while some interviewees' command of English was poor. Thus, meaning and validity of responses could be biased. Communicative validation, in which interviewees were asked to verify statements and abstractions, were thus specifically necessary (cf. FLICK 1995, 245). Intercultural and linguistic aspects may also comprise that questions and topics are misconceived and considered irrelevant (cf. SEIDLHOFER 2001). Scoping interviews, which already revealed basic mind-sets and insights into the functioning of the island community, were supposed to reduce those effects to a minimum.

Moreover, the language barrier had an impact on the group of potential respondents. Key informants largely represented a community which was characterised by urban lifestyles, cosmopolitism, and higher education. Since environmental problems and environmental

action constitute a highly controversial issue on the island, it is rather unfortunate that no respondents could be recruited who were sceptical and critical towards these issues to balance potential bias from key informant interview data. Therefore, the study also adduced other data sources to gain insights into alternative lines of argumentation, including newspaper articles and press releases.

3.6 Analytical Strategy

After data collection, the materials were related to the overall research question. To achieve this, this study overall pursued a pattern matching logic, in which patterns from empirical findings and predicted patterns are compared (YIN 2014, 143). Thereby, the study relied on theoretical propositions that constituted the predicted patterns (IBID., 136).

The tool of meaning condensation was used as the main analytical tool for the interviews to extract empirical findings (BRINKMAN and KVALE 2015, 231-235). Central themes were explicated from natural units, meaning that essential themes or statements were extracted from a response unit. Thus, all contextual details were removed such that the extracted central statement served to confirm or reject a hypothesis. Therefore, natural meaning units were determined in the interviews as a first step. The central theme of those units was then restated. Subsequently, all natural meaning units are revisited and assessed according to the purpose of the study and the research question. Central themes that were considered essential in those regards were then combined into a descriptive statement, which then had to match the construct and confirm or reject hypotheses. This analytical tool was chosen due to the often extensive and complex responses of interviewees. This extensiveness originated mainly in the respondents' eagerness to talk about their perceptions, projects, and experiences but was also caused by the limits imposed by speaking a foreign language. Regarding this, the method of meaning condensation penetrated to the core of what was said. Annexe 4 provides exemplary excerpts of meaning condensation.

3.7 Hypothesis Formulation

I formulated the four testable hypotheses to compare empirical findings to predicted patterns based on the propositions and operational measures presented above:

- H1: If the level of informally shared language and culture is high amongst actors, then environmental collective action is enabled.

- H2: If the level of informally shared language and/or culture is low, but the level of formal agreements is high amongst actors, then environmental collective action is enabled.
- H3: If both levels of informally shared language and culture as well as formal agreements are low, then high levels of trust or adequate beneficial incentive structures can enable environmental collective action.
- H4: If all forms of social capital – informally or formally shared language and culture as well as trust and incentives – show low levels, then environmental collective action is impeded.

3.8 Summary

The research question was addressed within the frame of a multiple case study research design following a constructivist epistemology. To achieve analytical representativeness, rationales for case selection followed a replication logic. In this context, the main cases, that illustrated the three sequences of social capital dimensions that lead to environmental collective action, were located on the Cycladic island of Paros and set within the overall context of the *Clean Blue Paros Initiative*. For reasons of complementation, a hypothetical counterposition, informed by various environmental initiatives, illustrated sequences and combinations of RSC and CSC, which impede collective action.

Data was mainly generated through the conduct of semi-structured in-depth interviews with key informants. Other data sources, such as documents, direct observations, as well as additional scoping interviews were used for contextualisation and triangulation. For analysis, a pattern matching logic was pursued to compare empirical findings and predicted patterns. In this context, the concepts of informal and formal CSC as well as RSC were operationalised into observable variables. Applying those means, the four propositions derived above were refined and transformed into testable hypotheses that represented the predicted patterns. To extract empirical findings, conducted interviews were analysed according to the logic of meaning condensation. Ideally, results from this method would exhibit coherence with the construct. Thus, reliability and validity were ensured by following this methodological framework. The next section provides a detailed description of the study context and the respective cases.

4 Study Context and Case Description

4.1 Objectives of this Chapter

This section provides the overall study context as well as an introductory overview on the studied cases to embed the data and results in the natural context from which they were generated. Sections 4.2 and 4.3 are organised along the IAD Framework in terms of external variables. Section 4.2 introduces socio-economic and socio-ecologic conditions on Paros Island, illustrating the wider context for environmental initiatives operating on the island. Section 4.2.1 provides an overview of the biophysical conditions to describe the island's environment and to provide insight into pressing environmental problems, namely water deficiency and land degradation, as well as their socio-ecological causes. Section 4.2.2 introduces the island communities and their interactions that majorly affect the island community life. Section 4.2.3 addresses economic conditions, which are dominated and shaped by tourism, and socio-economic interactions. Section 4.2.4 introduces important rules-in-use regarding the institutional framework and procedures since they strongly affect the environmental initiatives' capacity to act. Section 4.2.5 provides an interim summary.

Given this context, section 4.3 narrows the focus to environmental initiatives on the island and the conditions under which they operate. Thus, the section provides an overview of the landscape of environmental initiatives, prevalent mental models the initiatives face, and respective strategies they pursue. A focus was placed on obstacles to environmental collective action, as have been identified by environmental initiators, since those initiatives serve to inform a hypothetical counterposition, in which environmental collective action is impeded.

On this basis, Section 4.4 introduces the *Clean Blue Paros Initiative* as the overall context to the three exemplary cases in which environmental collective action is evident, thereby constituting the core of this study. The cases are themselves individually described subsequently in sections 4.4.2 to 4.4.4. A short summary concludes this section by highlighting the contextual framework in which the studied cases were embedded.

4.2 Overall Context: Conducting a Case Study on the Cycladic Island of Paros

4.2.1 Biophysical Conditions

4.2.1.1 Topography and Climate

Paros is situated at the centre of the Cyclades, a complex of 39 Greek islands in the Aegean Sea (see Fig. 10).

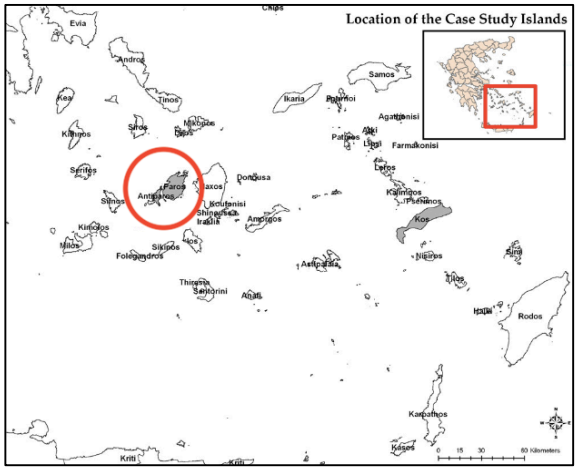

Fig. 10. Location of Paros in the Cyclades (Adapted from: SPILANIS et al. 2009, 181).

With a total area of 196 km^{2,} it can be considered a small island. However, with 13,700 permanent residents, it represents the second most populated Cycladic island after Naxos (HSA 2019, 11).

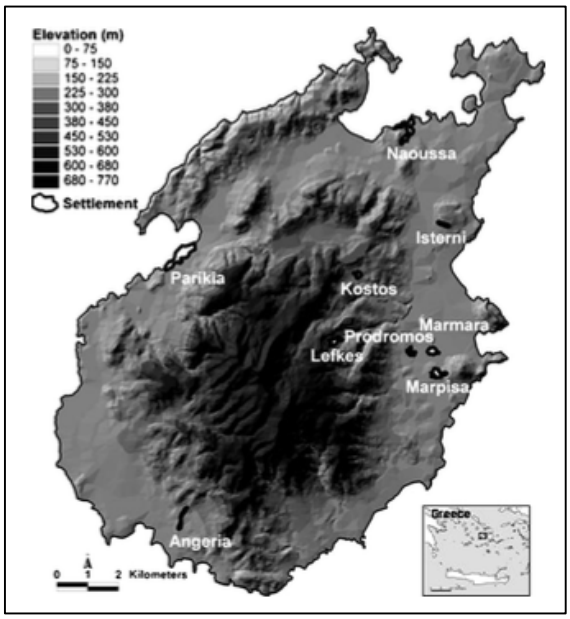

Fig. 11. The Island of Paros (Sevenant and Antrop 2007, 364).

As shown in Fig. 11, the island is characterised by a mountain range, coastal plains, and high plateaus. Two large bays that form natural harbours account for the development of the two main settlements: Parikia (the capital) in the west and Naoussa in the north.

Overall, the Cyclades are characterised by a Mediterranean climate with warm and dry summer months and a mild and rainy winter season. The *etesians* or *meltemia* constitute a specificity representing strong and dry north winds in the Aegean Sea. They affect Cycladic island life such that they frequently restrict the islands' accessibility via boat and account for wind erosion on the island. Since deforestation had been progressing to the final stage since ancient times, forests account for less than 0.1 % of the area, providing almost no wind breaking function (SPILANIS et al 2007, 185).

4.2.1.2 Land Degradation and the Decline of Agriculture

The colluvial and clayish soils in coastal areas account for a comparably high soil fertility in Paros, which have made agriculture the predominant economic sector for a long period of time (SEVENANT and ANTROP 2007, 363; Interview 3). Until today, Parian farmers mostly grow cereals such as barley, in the coastal areas to feed their livestock and keep vineyards and olive trees in mountainous areas for wine making and olive oil (Interview 5; 9; 10; SPILANIS et al. 2007). Moreover, farmers increasingly grow fruits and vegetables in greenhouses and cultivate herbs. However, small-scale, family agriculture serving home consumption prevails (IBID.). Due to water shortages and small land plot sizes, the production is not sufficient to meet the island's demand, particularly not during the summer season, so that the island increasingly depends on food imports (Interview 3; 5; 6; 9).

Although soils are still quite fertile, Paros suffers from progressing land degradation, which is largely caused by erosion and long-standing intensive agriculture (Interview 5; 9). However, land abandonment and land-use changes stimulate land degradation even further (Interview 5; 6; 7). Until the late 1970s, agriculture, stockbreeding, and seafaring largely constituted the island economy. However, since those activities could not sustain families, the island experienced a large emigration trend during the 1950s and 1960s (GAVALAS 2014, 148). The decreasing population trend has been reversed since the 1970s with the touristic development of the island, which rapidly expanded during the 1980s (ASSIMACOPOULOS 2006, 6). In this couse, the value of agricultural land increased rapidly, which was thus largely transformed into urbanised land with agricultural activities being abandoned in favour of a touristic use of the land (MARMARAS and WALLACE 2016; see also Interview 5; 6; 7; 10).

4.2.1.3 Water Deficiency and the Rise of Tourism

Besides land degradation, water deficiency represents another pressing environmental problem on the island and has frequently been addressed by researchers (i. a., ASSIMACOPOULOS 2006; GERASIDI et al. 2003; KARAVITIS et al. 2012; KONSTANTOPOULOU et al. 2011; VOIVONTAS et al. 2003; LIU et al. 2011). Water shortage mainly occurs during July and August, which coincides with a large seasonal influx of tourists (Interview 5; GERASIDI et al. 2003, 264). As a popular touristic destination, Paros' population increases to more than 400,000 residents and visitors during summer (VOIVONTAS et al. 2003, 129; Interview 5). This creates conflicts over water usage between agricultural and domestic demands (GERASIDI et al. 2003, 264; Interview 5; 6; 9; 12).

The water demand has long been met through the drilling of boreholes (ASSIMACOPOULOS 2006, 6). Although this procedure is today strictly regulated through licences, there is still a large degree of uncontrolled water extraction – also through the installation of illegal boreholes (Interview 5). The exploitation of ground water resources has led to a drying up of wells, which has further enhanced abandonment of agricultural land, and has had severe impacts on freshwater aquifers (Interview 5; 10; ASSIMACOPOULOS 2006, 6).

4.2.2 Attributes of the Community

4.2.2.1 Local Island Communities

According to interviewees, the island community is separated into clearly distinct communities (Interview 3; 4; 10): There is the local island community, which is characterised by strong family ties and "self-supporting dependencies" (Interview 10; cf. Interview 3; 7; 10). The local community is subdivided into the local Parian community, which lives in the main villages and operates shops or works in the administration sector, and the farming community (Interview 10). The local community has been often described as being rooted in the island community but not necessarily being close to nature (Interview 9). Awareness for environmental issues is rated rather low for the farming and local island community (Interview 3; 4; 6; 7; 9). An interviewee offers an explanation for this:

> "Most of the local people here are somehow rooted in it. And they don't … quite possibly don't always see the beauty of it because they never lived in the city. It's just taken for granted. I think that's common in farming communities, actually. I mean, people do love their place but they love it as kind of loyalty rather than … - Hmm. How would you say that? I don't know. But I think you know what I mean." (Interview 10)

4.2.2.2 Communities of Newcomers

On the other hand, there is the community of international and Greek newcomers on the island (Interview 1; 3; 5; 7; 9; 10; 11; 12). Particularly between 1981 and 2011, Paros attracted a growing international community as residential tourists or economic migrants (MARMARAS and WALLACE 2016, 1486). In 2011, the international community accounted for more than 17 % of the island's population (IBID.).

Local and newcomer communities rarely overlap. This separation is due to different lifestyles (Interview 4; 7; 10) and enhanced by a language barrier (Interview 1). Despite a strong touristic sector, a good command of English as lingua franca is not widespread amongst locals, which impedes a rapprochement (cf. Interview 1; 3; 4; 6; 7).

In addition to the newcomer community of permanent residents, several interviewees emphasised the seasonal influx of Athenians who operate seasonal hotels, shops, and restaurants (Interview 3; 4; 10). They do not get involved deeply with the island community (Interview 3; 4; 13). Instead, they would continuously work to generate their annual income and leave for their homes during the off-season (Interview 3; 4; 13; 14). This already indicates that community life on the island is largely marked by seasonality.

4.2.2.3 Seasonality

In his sociological analysis of seasonal patterns of Parian island life, GAVALAS (2014) found that seasonality has always shaped island life. Instead of religious and agricultural calendars, it is strictly ruled by touristic seasons today. This seasonality does not only account for economic fluctuation, but also impacts lifestyles. An interviewee formulated this pointedly by claiming "there is no life in winter" (Interview 4), referring to a low number of residents, low levels of economic activities, and a significant reduction in the provision of public services and cultural activities (Interview 2; 4; 6; 9; 11).

The fundamental need and orientation to generate an annual income from short-term seasonal economic activities leave almost no capacities for other activities (Interview 4; 5; 6; 9; 11; 12). This and the strong dependence on tourism in addition to environmental issues have paved the way for growing discontent with the current island development (cf. Interview 3; 4; 5; 9).

4.2.2.4 Socio-Political Dichotomy

Regarding this, many interviewees suggested a socio-political dichotomy of the island community: There were proponents of the current economic development and proponents of an alternative and sustainable development (Interview 1; 3; 5; 7; 9). The latter had found support within a growing share of the island community. The former group was spearheaded by the re-elected mayor and his administration, proclaiming benefits from more infrastructure, construction, and tourism (Interview 3; 5 see also TNH 2019).

The societal dichotomy seems to translate into political spheres since neither side can recruit stable and clear majorities. Several interviewees stressed the fact that election results were possibly close (Interview 1; 3; 9; 11). An interviewee elaborated on the elections to illustrate the scope:

> "But it was very tight elections. That means it was fifty-fifty. A difference of a hundred votes maybe between the one and the other. And the other was exactly the opposite. […] I'll give you a rough idea: The other guy is the head of the communist party on the island. Many people will never vote for a communist even though they are really nice people. […] He got 50 % of the votes. Doesn't mean that 50 % of the electors are communists, but it means that they are – they realise that there is something wrong with the other guy. – *laughing"* (Interview 3)[1]

Those groups – although by no means exhibiting perfect internal coherence – currently clash in a struggle over which form of economic development would be compatible for the island.

4.2.3 Economic Conditions: Potentials and Contestation of Tourism

4.2.3.1 Benefits: Profiting from Tourism

Following up on this argumentation, it must be recapitulated that the island economy is highly based on tourism and related sectors, such as construction as well as trade and services, and the hospitality sector. An interviewee suggested that most families "live off tourism somehow. I'm not really sure how that happens. But everybody lives off tourism" (Interview 10; cf. Interview 1; 5; 7; 12; SPILANIS et al. 2009, 182). Overall, the development of tourism from the 1960s onwards constitutes an important caesura for the island and has been deeply internalised by residents. Paros constitutes one of the most developed

[1] The re-elected mayor's challenger leads the People's Congress of Paros, a party which is close to communistic political tendencies. He served as municipal councillor for many years. (cf. Massaliotis 2010; FTP 2019)

islands in the Cyclades in terms of public infrastructure (cf. VOIVONTAS et al. 2003, 129; MARTINOS 2011; Interview 4). Tourism has brought prosperity to the island and partially prevented Paros' economy from being hit by the national effects of the financial crisis – a fact that is recognised and valued by all interviewees (cf. Interview 3; 7; 9).

Although many interviewees equally profit from tourism, the current economic development is highly contested. Reasons for this can be related to three main concerns: (1) issues of coordination, (2) issues of beneficiaries, and (3) missed opportunities.

4.2.3.2 Issues of Coordination: Uncontrolled Economic Development

Developmental paths are frequently perceived to occur uncontrolled, too fast, and without an overall intention, leading to uncalculated and frequently negative outcomes. Many interviewees stressed that they "have reached the point of saturation" (Interview 3) at which existing infrastructure and resources could not support more residents and visitors (Interview 9; 10; 11; 12): During high season, water availability for domestic consumption is no longer granted, which impacts both tourist and residents (Interview 12). Moreover, the island sees itself confronted with an unresolved waste management problem. The landfill has reached its capacities; waste collection and recycling has stagnated; open and overfilled bins have led to the distribution of waste through wind and animals, and private waste disposal in public areas have increased (Interview 1; 2; 3; 4; 5; 7; 11; 12).

This perception of uncontrolled island development leading to negative economic and environmental impacts has also been raised by researchers (ASSIMACOPULOS 2006, 6; MARMARAS and WALLACE 2016, 1487). However, despite those assessments and perceptions, the municipality of Paros proclaims to pursue a clear strategy – particularly regarding touristic development in combination with preservation measures. In an interview with *The National Herald*, Paros' mayor declared:

> "Given the success of the peak months, we are now seeking to extend the tourist season by promoting, above all, alternative activities for our future tourists. This is precisely the goal that reflects the strategy that has been drawn up for 2019: continue to highlight the cosmopolitan dimension of the island, which, unlike many other destinations, contains the elements of culture, including historical and religious monuments, along with gastronomy and all the other advantages it has at the level of tradition, such as the activities of the Cultural Associations, the festivals, etc. Our main concern, however is the Hellenic protection of our island and the preservation of its traditional Cycladic character." (TNH 2019)

4.2.3.3 Issues of Beneficiaries: Privatisation and Public Interest

Apart from issues of coordination, interviewees questioned the pool of potential beneficiaries of the current Parian development, since the focus is set on increasing privatisation and commercialisation of highly profitable business models: "There is a turn towards everything being more expensive, having very heavy nightlife" (Interview 9; see also Interview 3; 4; 5; 7).

SPILANIS et al. considered an economy based on tourism and services but also based on small-scale agriculture as characteristic for small Mediterranean islands (SPILANIS et al 2007, 180). However, they only considered it to be "'competitive' economic activities for the islands, as they bring incomes to the area from other areas, plus they cover local needs so that imports (and consequently economic leakage) are avoided" (IBID.). In Paros, it becomes evident that those assumptions do not hold due to the strict seasonality: Private investors, external seasonal shopkeepers, service providers, and landowners cause a severe financial drain by spending their annual incomes earned on the island elsewhere (Interview 4; 5; 9). Economic activities and island infrastructure, such as boat connections, public transport or the hospitality sector, majorly serve touristic interests (Interview 4; 6; 12; cf. MARTINIS 2011). This focus on tourist interests is indirectly confirmed by the Parian mayor stating in a magazine interview: "Our goal is primarily to extend the tourist season […] and immediately focusing on the upgrading of the infrastructure, with the main aim of establishing a viable tourist product" (TNH 2019). He further explained: "This means that we want to keep our tourists satisfied – which makes their happiness the focal point of our policy" (IBID.). Thus, locals only profit from those services during high season (cf. Interview 2; 4; 6).

4.2.3.4 Missed Opportunities: Unique Landscapes and Alternative Tourism

As a third concern, interviewees frequently perceived pre-existing potentials to be left unused (i. a., Interview 4). The island's unique landscape, including its natural and cultural heritage as well as its remoteness, is a unique selling point and provides it with a competitive advantage. This constituted a key factor that interviewees perceived as being neglected and threatened by the current socio-economic development (cf. Interview 3; 4; 7; 9; 11; 12): Plastic and waste pollution negatively affects landscapes (Interview 7; 12); the urban sprawl as well as beach bars and sunbeds disrupt the rural scenery (Interview

7); progressing land degradation, deforestation and, goat grazing transform green landscapes into barren rocks (Interview 9); intensive hunting activities decrease the island's wildlife (Interview 7; 8; 9).

Many interviewees argue for an economic diversification to become more independent from mass tourism and to enhance the local economy (Interview 1; 4). As a first implication for this, a growing number of people engages in alternative forms of tourism, which attract alternative types of tourists but also provide benefits to the local community in terms of preservation and recreational efforts (cf. Interview 4; 7; 9; 10; 12). A permanent resident pointedly characterised the reinforcing triad of touristic model, types of tourists, and the island's landscape character: "People expect a certain quality but they also expect a certain atmosphere and if it suddenly turns into the middle of Athens, it's not a Greek island anymore. And the people who come to a Greek island will stop coming" (Interview 12). The issues outlined thus far require a closer look at rules-in-use regarding the initiation of alternative concepts.

4.2.4 Rules-in-use: Bureaucratic Procedures

A first and widely evident notion regarding transformative efforts is represented by high bureaucratic barriers. Several interviewees referred to long and enduring administrative procedures (Interview 3; 4; 6; 7; 8; 9). They frequently contextualised this with Greece's effort to combat corruption, which is frequently suspected to occur in important economic areas, such as the construction or tourism sector, and which affects critical public infrastructure (Interview 3; 4; 7). Nonetheless, many interviewees perceived bureaucracy as a burden and questioned its effectiveness in reducing corruption (Interview 3; 4; 7; 8; 9).

A reason for the ineffectiveness of bureaucratic procedures and regulations is seen in a lack of monitoring and rule enforcement (Interview 3; 5; 7; 8): Data is lacking on environmental issues, such as on waste flows (Interview 1; 3); Illegal boreholes are used for groundwater extraction (Interview 5); Excessive sunbed renting at public beaches is tolerated by authorities (Interview 7; 9), the same as illegal hunting activities are (Interview 8).

Meanwhile bureaucratic regulations are perceived as highly ineffective, they are considered to complicate or even impede interviewees' project activities: A municipal company tendering for the operation of a beach bar received only one bid due to high restrictions and low profitability (Interview 3; 9). A project initiator complained about restrictions

and high efforts to employ volunteers (Interview 4). A hiking tour guide faced a dilemma since hiking escorts are not allowed to provide information on archaeological sites as this would be "the work of licenced tourist guides" (Interview 7). Also the operator of a wild-life hospital who started the initiative during the 1990s told the story of an Odyssey of 10 yearsto receive a licence, illustrating how enduring administrative procedures coincide with ineffectiveness and corruption:

> "That was the most difficult thing I have done in my life. – *laughing* – It took us 10 years to get a licence. That was crazy. And it's only a paper, which tells you that you are not illegal. And it took us 10 years. Because of the Greek bureaucracy. And because we didn't want to pay any money under the table, you know. We never did that. So, that was the problem. They would come here – they were not all horrible people. Some were very nice. But there were some sneaky people inside – among them. They would go and check from our side, who is the one that they could speak this language. Because they couldn't speak this language with me. You know, never. – *laughing* – […] And then, again and again: 'We lost your file. And please make me a new file. And there was a question from the Parliament from some members …' Why don't you give Paros a licence? Uff. When we got the licence I just closed it in a trunk and forgot about it. I hope that now things are different. If somebody wants to start a Wildlife Hospital, I believe things are… In a positive way. They wouldn't have all this mess." (Interview 8)

4.2.5 Preliminary Summary

Thus far, I have argued that the island of Paros, which lies at the heart of the Cyclades, has experienced a significant socio-economic transformation from an agricultural society to a tourism-based economy. During this transformation, land abandonment and changes in land use as well as a profound alteration of the island community have fundamentally changed the island's appearance. It increasingly suffers from land degradation and water deficiency and the intense influx of seasonal residents and visitors, wearing out local infrastructure and resources. This context already highlights interdependencies revealed through socio-ecological and socio-economic interactions, which create conflicts.

The island society is characterised by fragmented societies of long-established local inhabitants, external and international newcomers, as well as seasonal residents, who are all different with various perspectives on suitable island development. While benefits from tourism are not contested per se, a unilateral dependence on this economic sector spurs unresolved conflicts regarding issues of coordination, an exclusive group of private beneficiaries at the expense of public interests, and the overall orientation towards conventional and mass tourism, which further burdens the island's ecosystems.

Local public administration shows a tendency to act in favour of the current economic development, since ineffective regulations in combination with weak monitoring and enforcement allows private actors to freeride on community resources, while new concepts and projects face high bureaucratic barriers. Subsequently, I outline conditions for environmental action on the island in depth.

4.3 The Landscape of Environmental Initiatives on Paros

4.3.1 Community of Environmental Initiatives

As has been mentioned previously, a growing and "strong community of people – locals and non-locals" (Interview 9) stands up for sustainable development and opposes the current patterns of economic development on the island (cf. Interview 3; 4; 5; 9). Those residents would occasionally, and mainly during winter season, engage in common environmental activities, for instance for an event for tree planting or waste collection (Interview 4; 5). An interviewee described the scope of those efforts as follows:

> "So, there is a lot of people who are interested in these kinds of initiatives and there is some overlap and some sharing of ideas. But I wouldn't say that there is something very concrete yet that puts everyone together to do one specific thing. I think that is going to happen. Yeah." (Interview 5)

Apart from occasional joint environmental activities, there are a wide variety of individual projects and private business models on the island. These range from island-based sustainable and innovative agricultural practices, alternative and sustainable construction practices, alternative touristic activities such as hiking, environmentally friendly diving, or cultural activities, to tourist offers on wellness, health, and meditation.

In addition, an interviewee referred to previous cooperatively organised projects of the farming community aimed to establish structures of a circular economy (Interview 10). Occasionally, such approaches still come into effect, for instance with livestock farmers providing other farmers with manure. However, these efforts have declined with the agricultural sector such that those structures can be barely found any longer (Interview 3; 5; 6; 9; 10).

4.3.2 Parian Mental Models: Liberality and Environmentalism

Particularly regarding environmental action, many interviewees referred to a lack of a respective local culture (Interview 3; 5). Nonetheless, interviewees frequently stated that

everybody on the island was free to pursue and implement their ideas by taking a personal, private risk without being bothered by sceptics: “I always found that the Greek people were very – what is the word? – broad-minded in the sense of leaving you and letting you get on with what you want to do” (Interview 10; see also Interview 4; 6; 8). Although many initiators of alternative or sustainable projects experienced incomprehension and noticed that their ideas could not be appropriately conveyed to locals, they did not suffer open reluctance or aggressive resistance – as long as they did not force their ideas on others in return (Interview 3; 4; 7; 8). An interviewee who was offering yoga classes as a foreign newcomer to the island remembered having experienced “a lot of suspicion”, because locals at that time were unfamiliar with the concept and thought that the yoga centre was for religious ceremony (Interview 3). The operator of a wildlife hospital who was taking care of injured wildlife had been mistaken for an animal home for stray cats and dogs (Interview 8). A tour guide who offered hiking tours described how the idea of hiking could not be conveyed to locals, because they associate walking with past poverty and the agricultural society, which are still omnipresent in locals’ minds (Interview 7).

4.3.3 Strategies and Prospects of Environmental Initiatives

To account for those mental models, project initiators who aim to diffuse their practices frequently pursue strategies based on leading by example, awareness creation, and environmental education, thereby counting on self-reinforcing processes and pull-effects of success (Interview 1; 2; 4; 6; 7; 8; 9; 10). Interviewees highlighted the relevance of voluntary, individual, and gradual adoption (Interview 1; 2; 4). Mind-sets frequently comprise the idea of everybody contributing their part based on their capacities, while initiators perceive themselves as influencers (Interview 1; 2; 4; 10).

In this context, a major aspect of legitimacy and eligibility is a strong sense of belonging to the island. This has also been observed for the *Clean Blue Paros Initiative* with a project coordinator stressing her social embeddedness by affirming that “we haven’t just been sent here from a foreign NGO. You know, parachuted on the island to come and tell the locals in some sort of colonial way” (Interview 2). Another interviewee framed his rootedness on the island in contrast to eventual opportunistic behaviour of newcomers: “The reason for my coming here full-time was we have property here. So, it’s not like I am an alien. I’m not someone who moved here because he thought it would be a good idea to start like that” (Interview 7).

Regarding prospects of their efforts, most initiators believe that the time has come for integrated environmental action. They see themselves supported by a current global trend of environmental activism and diverse environmental movements, but also by progressing environmental legislation at the EU level (Interview 1; 2; 3; 4; 5; 9; 10).

However, some interviewees perceived prospects rather pessimistically: An interviewee described efforts for sustainable development across the island as "idle talk", since transformative efforts taken would be not sufficient (Interview 7). An interviewee who had successfully been operating a wildlife hospital for 24 years registered a decline in wildlife hospital networks and infrastructure due to succession problems. Regarding this, the interviewee remarked:

> "In some ways, it is logical that it is something very difficult for somebody to decide, you know. To change his life with something. It's - do not give anything back apart from emotions – not any money. But it's a sad thing, you know. All this job, and if in the next years nobody – […]. I suspect when we die the hospital will close because we died. *–laughing –* Because nobody wants to take over. And it's not just for our hospital. It's the general atmosphere in Greece." (Interview 8)

In the context of this "general atmosphere" and despite predominant optimism, project initiators identified multiple obstacles to environmental action and collaboration.

4.3.4 Obstacles to Environmental Collective Action

4.3.4.1 Economic Viability

Private environmental projects and business models are largely conducted by newcomers to the island, who are flexible and financially secured either by personal savings, family support, private property, or other income sources, allowing them to take a risk with their projects (Interview 2; 3; 5; 6; 8; 10). They do not primarily engage in their project ideas to make a living but out of interest and intrinsic motivation. Breaking even and generating household incomes does represent a targeted goal but is not immediately necessary (cf. Interview 1; 5; 6). This places initiators in a "privileged position" (Interview 1) since full-time occupation on the island generally first needs to sustain people's livelihood and thus be economically viable.

Consequentially, there are only few full-time projects and businesses on environmental sustainability conducted by locals (Interview 3). However, those undertakings would often be "trapped in the system" (Interview 6). A frequently adduced example was that of a young local farmer without financial back-up who had begun to produce organic food.

He successfully managed to dominate the wholesale market for fruits and even took part in export activities (Interview 16). Although many interviewees stressed that he dedicated much passion and effort into his business, they found that his need to make a living shifted his initial focus on sustainable agricultural practices towards expansion and efficiency such that it could no longer be considered sustainable (Interview 3; 5; 6).

Further stressing the high rating of the economic dimension of sustainability on the island, a local entrepreneur, who mainly operated holiday homes but was also known on the island for his unique greenhouse grown mangos, denied himself a sustainability label, because "this is just a hobby. I cannot make a living from it" (Interview 15). Thus, the difficulty to make a living from environmental action evidently constitutes a major obstacle to project initiation and diffusion of practices (Interview 1; 4; 6; 7; 8; 9; 10).

4.3.4.2 Opportunities for Social Interaction

Complementing the lack of economic viability, interviewees emphasised the lack of sufficient opportunities for cooperation and environmental engagement: People are occupied by their jobs, which leaves no time for other activities during summer season, while many residents leave the island during winter season (Interview 5; 6; 8; 9; 11; 13; 14).

Nonetheless, there is clearly no lack in ideas regarding collaborative activities, which are being vividly discussed (Interview 1; 3; 4; 5; 6; 7; 9). Communication channels are short and barriers to networking are low due to the island's small size (Interview 1; 3; 5; 6; 9; 10; 11; 12). Word-of-mouth is an efficient mean for information exchange: On those terms, islanders learn of newcomers, project ideas, and activities (Interview 3; 5; 6), search for potential advisors and collaborators (Interview 6; 10), and make business contacts (Interview 3; 5; 9; 15). In addition, social media channels and *Facebook,* in particular, have gained significant relevance for information sharing and communication (Interview 1; 3; 5; 7).

However, collaborative efforts often disperse beyond that in terms of organisation, coordination, and action (Interview 1; 5; 9). A newcomer to the island admitted that initial efforts for offline-activities were not very successful beyond assembling friends and family members: "I'm really having a hard time to create a community" (Interview 1).

4.3.4.3 Cooperative Culture

Particularly regarding the establishment of collective action, interviewees repeatedly stressed that the cooperative culture was under-developed on the island (Interview 3; 4; 6; 8; 9). This relates to a general lack of trust and social cohesion (Interview 4; 9). Referring to the Greek collective memory, interviewees stressed the internalisation of collective shock experiences such as the impacts of the Greco-Turkish War (1919-1922) (Interview 4); the Turkish invasion of Cyprus in 1974 (Interview 5), and the recent financial crisis (Interview 4; 7; 9; 10). The latter, in particular, revealed how "all the social fabric was undermined" and how "sustainability was put at the bottom of priorities" (Interview 9).

Regarding this, interviewees perceived social cohesion within families to be very strong, while it was considered rather weak within the wider community as a whole (Interview 4; 6; 7; 9; 10). In those terms, a farmer told the story of how people felt safer and more comfortable by establishing their individual private property rights instead of co-ownership: The interviewee referred to a neighbouring farmer having invested much money to buy four tractors, which he could not use on his small fields but nonetheless bought them – just in case (Interview 6). Several other interviewees referred to the existence of an ineffective agricultural cooperative and provided examples of failed efforts to establish alternative cooperative schemes on the island (Interview 3; 5; 6; 9; 10).

4.3.4.4 Coping with Local Authorities and Institutional Frameworks

In addition to the three previous obstacles, which mainly complicate self-governance of civil and private environmental initiatives, interviews also indicated that newcomers struggle to adopt to the wider institutional framework and formal procedures. Equivalently, many project initiators exhibited an ambivalent attitude towards working with local authorities (Interview 1; 4; 5; 6; 7; 8; 9; 11). Nonetheless, most interviewees ascribed authorities a high potential to increase the scope of initiatives by providing a guiding framework for the island's development (Interview 2; 4; 5; 7; 9).

Overall, authorities and institutional frameworks are perceived incapable of supporting and envisioning innovations and alternative approaches (Interview 4; 7). This was frequently referred to as "the winning of the old order" (Interview 4) or "business-as-usual mentality" regarding ineffective and excessive regulations as outlined above (Interview 5; 7; 10). Beyond issues of authorisation and licencing, local authorities are perceived as

passive and politically inactive as long as there is "no clear gain for the municipality or for the specific group of people working there at that time" (Interview 5; see also Interview 3; 4; 6; 7; 10). In the context of efforts in cooperation with local authorities, multiple initiators questioned the municipality's compliance, accountability, and assumption of responsibility, which would not meet expectations (Interview 1; 3; 4; 7; 9). An interviewee formulated this in exaggeration: "If you are tempted to do something in cooperation with the city hall, you go into the tunnel, and you don't go out" (Interview 4).

A prominent example of local authorities' involvement in environmental initiatives is represented by the *Environmental and Cultural Park of Paros*, a park in operation since 2009 as a municipal company on the peninsular of Aï Yannis Detis in the Naoussa area. It is based on volunteering and community engagement, while it is publicly accessible throughout the whole year providing environmental quality, public space, and leisure opportunities by offering hiking tours and cultural activities, such as theatres and concerts, and enhancing natural recreation and landscape preservation. Many of the occasional environmental activities are spearheaded by the park (Interview 1; 3; 4; 5; 6).

Nonetheless, the relationship between operators of the park and local authorities is highly ambivalent, which makes collaboration unpredictable – even in terms of clearly defined boundary conditions (Interview 3; 9). Referring to this, the park is at risk of being liquidated, despite a balanced budget and strong community support (Interview 3; 9). Although the administrative board, which is appointed by the current municipal board, does not interfere in daily operative business, the park's existence depends on municipal plans. And those plans largely depend on individuals, such as the mayor's intentions: Regarding this, an interviewee stated that the question was not how successful the park was but "who will be in the board" (Interview 9; cf. Interview 3).

4.3.5 Preliminary Summary

I argued that many environmental initiatives operate on the island of Paros. They are frequently conducted by newcomers to the island, who do not depend on immediate economic viability of the projects. In the context of island-specific mental models, many initiatives either focus on private business models and projects or struggle to build a community of contributors, and thus to establish environmental collective action. Therefore, initiatives remain small-scale. As main obstacles to up-scale and diffuse environmental

action, initiators identified (1) a lack of economic viability, (2) a lack of sufficient opportunities for environmental action, (3) an under-developed cooperative culture, as well as (4) an adverse political setting and strained relations with local authorities.

Subsequently, I introduce the *Clean Blue Paros Initiative* as an example of how those obstacles can be addressed successfully.

4.4 The *Clean Blue Paros Initiative*

4.4.1 Overall Context: The *Clean Blue Paros Initiative*

4.4.1.1 *Common Seas* and the *Clean Blue Alliance*

The *Clean Blue Paros Initiative* is a project conducted by the UK-based NGO *Common Seas*, which aims to reduce the amount of plastic waste, particularly the plastic pollution in water bodies (COMMON SEAS 2020). In four project areas, the organisation tackles problems such as the amount of single-use plastic, low rates of plastic recycling, and waste disposal. The *Clean Blue Alliance* represents one of those project areas. It is an island-focused collaborative change program for plastic-free seas, which combines top-down and bottom-up approaches by working with governments, councils, businesses, and local change makers (COMMON SEAS 2020). The intention of this project is to create a global network of plastic-free islands. Currently, the organisation works on island-specific projects in the Maldives and Greece, and leads negotiations in Indonesia and the Bahamas.

Taking an integrated and holistic system approach, the initiative aims at islands due to their close sea connection, distinct physical boundaries and resource streams (IBID.). Islands are perceived a "microcosm of larger human settlements" (IBID.) and thus predestined for testing and up-scaling of solutions. Moreover, *Common Seas* emphasises the relevance of tourism for many islands such that waste pollution constitutes not only an environmental but also an economic risk, since tourists would prefer clean beaches and oceans (IBID.). With this argumentation coupled to the perspective of creating a strong brand for plastic-free islands as high-quality touristic destination, *Common Seas* strives to incentivise local authorities to collaborate and reaches out to tourists as potential multipliers (cf. IBID.). Thereby, the NGO understands its role as mediator to empower Parians and visitors to contribute by establishing critical intra-community relations and equipping actors with resources, materials, and knowledge (COMMON SEAS 2020).

4.4.1.2 The Island of Paros as Project Pioneer

In 2018, Paros was selected based on several criteria, including community interest and local partners, accessibility, governance, finance, as well as waste infrastructure and waste streams (IBID.). As stated above, the highest waste occurrence in Paros coincides with the large influx of tourists and the population peak during summer (IBID.). The island operates a legal landfill – although capacities are almost exhausted (Interview 1; 3; 11). And although several interviewees attested Paros to be in a comparably better state than other islands, they nonetheless perceived official planning and engagement to be inadequate and insufficient (Interview 1; 3; 4; 5; 7; 11). Constituting a pressing problem, waste management has also served as present topic in election campaigns (cf. FTP 2019).

Another important criterion for the selection of Paros was constituted by the fact of pre-existing local engagement. The bases for the project were created by a local initiative led by a motivated newcomer to the island, who advocated a plastic-free life on Paros. The initiative merged into the *Clean Blue Paros Initiative* (Interview 1).

In 2019, the project officially began its operations. A local project team was developed that consisted of a native Parian project manager and the founder of the original local initiative (Interview 1; 2). The signing of an official agreement between *Common Seas*, the municipality of Paros, and several other founding partners, such as *W.A.T.T S.A.* waste management company, the *Hellenic Recover Recycling Corporation* (HERRCO), the *University of the Aegean, WWF Greece,* and the *Cycladic Preservation Fund*, constituted a fundamental baseline for the project (cf. COMMON SEAS 2020; Interview 2).

Subsequently, a descriptive overview on the three studied cases is provided, namely the initiators' collaboration with (1) local businesses to reduce the amount of single-use plastics, (2) local authorities and public institutions to install water filtration systems in Parian schools, and (3) external partners to frame the problem of waste pollution comprehensively through the collection and processing of initial data.

4.4.2 Case 1: Collaboration with Local Businesses

Efforts to collaborate with local businesses stemmed from the local *Plastic Free* initiative. The founder set up a website, designed a campaign poster, and scouted for alternative suppliers to subsequently approach café, bar, and restaurant owners (Interview 1). In return, businesses were to be promoted online on the website and on social media channels.

Having merged into the *Clean Blue Paros Initiative*, efforts could be scaled up (cf. Interview 1). The initiative comprises more than 50 certified businesses from the hospitality sector and aims to increase this number to 200 by the end of 2020 (COMMON SEAS 2020). Nonetheless, the overall process follows the same rationales as before – albeit on an advanced level: Business owners have been asked to reduce the amount of single-use plastics, such as plastic straws, coffee cups, and bottled water, and to recycle and separate waste (IBID.).

Meanwhile, the level of contribution and transitional steps taken by businesses has varied individually depending on businesses' potential and willingness (Interview 2). The business is assessed in an audit to gather information about the volume and type of plastics used to develop targeted proposals, which can be agreed upon by both sides (COMMON SEAS 2020). Owners are supported by the *Clean Blue Guidelines* which offer explanations of effects and mechanisms of plastic pollution and the lifecycle of different materials under current waste management regimes (IBID.). Moreover, the owners are provided with a sample of different alternatives, including remarks on characteristics and environmental consequences of the respective materials.

To further reduce barriers to change, *Clean Blue* members are offered product discounts (IBID.; cf. Interview 1). Regarding this, the project coordinator stressed the economic risk taken by business owners when joining the initiative:

> "You have to understand and realise that the changes that we are proposing to businesses are associated with a change of costs. So, whatever we are proposing, all the alternative products right now globally are more expensive than their plastic cousins. There is nothing that compares price-wise. So, if you are a business owner and I'm telling you: Oh, well, you should just stop using plastic straws in your cocktails. Even that – just straws, just on the cocktails – is increasing your costs. So, everything we are proposing is bringing extra costs to the people. That's one. Two: They have to trust us that eventually they will not lose customers by implementing the changes. And customers will go to the next businesses down the road that have not made these changes and is very happy to still serve Greek Cold Coffee with a plastic straw." (Interview 2; cf. Interview 4)

The overall transitional process has continuously been attended by *Common Seas* in iterative support cycles to gradually test and find the best individual solutions (cf. Interview 2). In return for compliance, *Clean Blue* members are promoted. However, no formal monitoring rules are in place (Interview 2). This accounts for the self-chosen level of compliance on the part of the businesses but also relies on social control and informal monitoring mechanisms becoming effective in a small island: Friends and supporters in-

form project coordinators about non-compliance of members, since communication channels are short on the island. Also referring to social pressures within a small community, the interviewee remarked that freeriding by refusing self-chosen contributions "looks ridiculous, actually" (Interview 2).

4.4.3 Case 2: Collaboration with Local Authorities and Public Institutions

As was outlined above, collaboration with local authorities in Paros – particularly in the field of environmental action – should not be taken for granted. In this context, a project coordinator of the *Clean Blue Paros Initiative* elaborated on the municipality's involvement in the project:

> "It's involved in this project in many ways and in many levels: Sometimes it's very superficial; sometimes it's in-depth; sometimes it's the ability that they have to pass through Greek bureaucracy, which we as a non-governmental organisation from abroad would have been – like extremely difficult to cut through a red tape; sometimes it's providing us with people in the municipality, who work for the municipality but can help us with different projects. […] But to have some of their time devoted towards our project, like for the installation of the filters a big number of municipal employees had to work in August and September towards this projects. And again because of Greek law: if they were not involved, we would have never been able to go into Greek schools and install filtering systems. Absolutely." (Interview 2)

Collaboration occurs based on the officially signed agreement between founding partners of the initiative, which governs, i. a., aspects of participation, contributions, expectations and responsibilities, appearances, and membership (Interview 2). Subsequently, the mentioned subproject of the *Clean Blue Paros Initiative* to install water filtration systems in all Parian schools served as an example for how the initiative collaborates with local authorities and public institutions.

The initiative planned to provide school children and staff with 3,000 reusable metal bottles and 16 safe water fountains (COMMON SEAS 2020). This way, the organisation aimed to reduce the amount of plastic water bottles by 783,000 per year (IBID.). To implement this measure, project coordinators had to adapt to official procedures of Greek administration with clearly designated responsibilities and strict communicative hierarchies:

> "There was a person, who has now left the municipality. And he was the chief of the environmental department. And he was asked to work closely with us. So, I presented first to him the idea of the filters. And then he presented the idea to the mayor. Then I had to go and talk to the mayor. He then directed me to the chief, who was responsible for the school buildings. Then he brought the

> idea to the [school] committee. Then I was officially asked to go and present the idea there." (Interview 2)

Thus, having taken a long road to address the targeted beneficiaries, schools were ultimately not approached individually to vote on the matter but in representation of the schools' committee, composed of municipality staff and elected heads of schools (Interview 2). In front of this committee, the idea could be presented to hopefully enter the official agenda:

> "And this committee in collaboration with the department of the municipality that is responsible for school buildings together – we had to apply so that this subject of the filters was part of the official agenda. I had to present to all of them what this project entitles, why we feel it should be approved, who will cover the costs, who will cover maintenance, all the benefits blablablablabla. And then, they had time to ask questions and an open vote. This is a procedure here that we had to follow here." (Interview 2)

Overall, the idea was welcomed (Interview 2). However, regarding the project's perspectives of success, the project coordinator added: "They had the choice to refuse. That has to be clear. And the municipality also had the choice to refuse. But none of them thought that this was something worth refusing" (Interview 2). Open questions mainly tackled issues of feasibility and practicability as well as regulative restrictions and technical particularities, whose solutions required close collaboration with respective local authorities in charge:

> "Because of Greek legislation, the bottles that are going to be gifted, they have a logo on them – the logo of *Clean Blue Paros* – which by Greek law is not allowed for elementary students. Nothing that entered schools should be branded. […] And then we had visits in all the schools with a company that eventually placed the filters. Because some of them had to have special covers made, some of them had some things built in house, outside in the courtyard. It was a complex installation, let's say. Also was – again the ministry of education does not allow for standard cooling water filtering devices for elementary schools. The water should be at normal temperature, not cooled. So, that was another particularity. So, again we worked closely with the technical department of the municipality." (Interview 2)

Regarding those potential obstacles and in the context of many interviewees' ambivalent experiences with collaborative efforts, including the municipality, it can be considered a remarkable success that the initiative "managed to have all filters installed before the new school year began" (Interview 2). Overall, the project was realised within only a few months. Referring back to the subsection's initial quote, the process of installing water filtration systems in schools thus represents an excellent example of how local authorities'

are able “to pass through Greek bureaucracy”, and their devotion of time towards the project was essential for its realisation (Interview 2).

4.4.4 Case 3: Collaboration with External Partners

The *Clean Blue Paros Initiative* cooperates on different levels with several external partners, such as various departments of the *University of the Aegean*, the *W.A.T.T. S.A.* waste management company, the *Cycladic Preservation Fund* and *WWF Greece*, contributing expertise, and securing funding (Interview 1; 2; 3; 5).

Two key projects, which are closely connected, serve as an example for how project coordinators of the *Clean Blue Paros Initiative* work with external partners: In collaboration with the *University of the Aegean*, social, marine litter, and waste audits were conducted on a scientific basis to generate fundamental data. In collaboration with *WWF Greece*, *Common Seas* developed an environmental educational program, including a toolkit of an adapted version of the marine litter audit encouraging especially children to engage in citizen science (Interview 2). Both projects served in interaction to frame the problem of waste pollution comprehensibly through the joint collection and processing of data, which had been lacking previously.

In an initial step, social scientists of the *University of the Aegean* conducted a social audit based on a questionnaire with 700 locals, foreign home-owners, and tourists, as well as on focus-group discussions separated by business members of the initiative, other businesses, local change makers, and the general public (COMMON SEAS 2020). Findings revealed great dissatisfaction with plastic pollution on the island with a simultaneous misinformation regarding waste management and tap water quality. Nonetheless, actors showed great willingness to change (IBID.).

For the waste audit, collection vehicles were investigated at the landfill site over a specified observation period. Findings showed that 207 tons of waste entered the landfill over a period of six days and revealed great differences between urban and rural regions (IBID.). For the marine litter audit, a standardised EU protocol “has been adopted slightly to fit the conditions of the island” by the *University of the Aegean Department of Marine Science* (Interview 2; cf. COMMON SEAS 2020). Audits were conducted by trained volunteers in two different seasons at four selected beaches “with different characteristics according to international common criteria” (IBID.). First findings showed that 79 % of all materials at audited sites were plastics (IBID.).

In the context of the educational program, which was developed in collaboration with *WWF Greece*, the marine litter audit was adapted to fit a citizen science approach. In 2020, the initiative intends to train locals to conduct their own audits and submit results to a database, such that "the scientists in Lesbos can have a constant flow of information about what's happening on the coastline of Paros" (Interview 2).

4.5 Summary

Once majorly shaped by an agricultural society, Paros Island experienced a profound transformation towards a tourism-based economy as well as an alteration and fragmentation of its population during the second half of the 20th century. Those developments have further depleted the natural resources and pushed the socio-ecological system to its limits. Nonetheless, a small island majority spear-headed by the current public administration continuous to pursue rapid economic development.

However, a growing community of environmental initiatives and proponents of alternative forms of island development has addressed pressing environmental problems. They face multiple obstacles by doing this. Operating in adverse political settings and in the context of island-specific mental models, most initiatives operate on a small scale within their respective communities. Major barriers to self-governance in terms of community building and coordination are represented by (1) insufficient economic viability of environmental initiatives and engagement, (2) a lack of opportunities for social interaction, and (3) an under-developed cooperative culture on the island. Operating within and thus depending on a wider institutional framework, initiatives frequently struggle to (4) cope with local authorities and regulative restrictions, which impedes a holistic community integration.

The *Clean Blue Paros Initiative* addresses those obstacles and thus serves as a paradigmatic example of how collective action can be achieved despite adverse political and institutional settings and fragmented societies. The next section analyses how differing combinations and sequences of CSC and RSC contribute to the emergence of environmental collective action along the three cases of *Common Seas*' collaboration with local businesses, local authorities, and external partners.

5 Results

5.1 Objectives of this Chapter

This section presents the analysis and respective findings of the studied cases in terms of the combinations and sequencing of CSC and RSC and their effect on enabling environmental collective action. Subsections 5.2 to 5.4 are arranged along the studied cases, concluding with a hypothetical counterposition, which is informed by the experiences of various environmental initiatives as are outlined in section 4.3.

Since combinations and sequencing of CSC and RSC are assessed regarding their significance in enabling environmental collective action, all cases including the hypothetical counterposition are introduced with a recap of the action situation and an evaluation of the occurrence of environmental collective action. The case-specific analysis of informal and formal CSC as well as RSC and its relevance is then arranged according to the case-specific sequencing. Each case analysis is closed with a preliminary conclusion.

Based on the case-specific findings, section 5.6 collates evidence with the hypotheses formulated above in a pattern-matching logic. A short summary recapitulates key findings of the analysis and rates in how far evidence matches hypotheses.

5.2 Case 1: Collaboration with Local Businesses

5.2.1 Environmental Collective Action and the Action Situation

It was shown that the large-scale environmental problem of plastic pollution majorly stems from the use of single-use plastic, particularly in the hospitality sector during high season. Therefore, the *Clean Blue Paros Initiative* deliberately approaches business owners of this sector. Thus, the set of actors comprise *Common Seas'* project coordinators wo are responsible for community building and local businesses, particularly those that operate in the hospitality sector, which are to be recruited as community members (Interview 1; 2). However, *Common Seas* understands its role as a mediator to empower business owners to contribute by equipping them with guidelines, alternatives, and knowledge.

Local businesses are asked to identify waste streams, reduce the amount of single-use plastic by substituting it with alternative products, and set up a waste management strategy in their shops (COMMON SEAS 2020). Allowable actions to achieve this comprise a multitude of options. It has to be noted that the actors' constellation is governed by a

system of polycentricity, in which all actors remain autonomous entities, which nonetheless act in cooperation and consider others (cf. OSTROM et al. 1961, 831f.). Regarding this, business owners choose their individual level of contribution in consultation with *Common Seas'* project coordinators regarding waste management and the use of alternative products (Interview 2). Thus, they are largely in control over their own choices.

To support desirable choices, *Common Seas* provides businesses with contextual and resource-specific information (cf. COMMON SEAS 2020). Formal monitoring and enforcement rules are not in place but ensured through social control (Interview 2). Iterative support cycles and gradually increasing contributions aim to narrow the set of allowable actions to those actions with the highest environmental impact in terms of waste avoidance, management, and disposal. However, it has to be noted that desirable actions are associated with disadvantageous cost structures and a higher risk of losing customers either due to higher consumer prices or product-related preferences (Interview 2; 4). To account for this, *Common Seas* provides exclusive benefits to contributors, such as discounts and promotion measures.

Overall, environmental collective action is evident for the collaboration with local businesses according to the criteria defined in section 3.4.2. A growing number of actors contributes to reduce the amount of single-use plastic even though they would be better off from a cost perspective by choosing not to cooperate. Nonetheless, they choose to contribute consciously and voluntarily. Thus, action is not enforced upon them. Subsequently, it is analysed how CSC and RSC shape the businesses' decision to participate in the initiative.

5.2.2 Informal CSC

The perception of shared language clearly shapes the project coordinators' recruiting strategy for local businesses: Referring to this strategy as "the lazy approach" both coordinators stressed that "we started with businesses we knew, we liked, and we frequented as customers" (Interview 2; 1). One coordinator pointed out a certain level of familiarity by adding that it was "easier to go to talk to people that you know, you are friendly with and you have some sort of level of intimacy and openness" (Interview 2). It was also stated that they approached potential pioneers, which they perceived as "open-minded" and "easy-to-convince" (Interview 1) as well as "more conscious", "more prone to

change", and having a "friendly, sensitive ear" for their concern, revealing a shared problem framing (Interview 2). Apart from prior acquaintance and shared language, those potential partners were identified based on a visible shared culture, represented by tangible action already taken by shops, which matched intended efforts of the initiative, such as the use and promotion of alternative products (Interview 2).

Informally shared language, particularly in terms of problem framing, and shared culture clearly has a large impact upon the members' contribution. Members with an intrinsic motivation to tackle the problems of plastic pollution and waste management are willing "to make the bigger changes, take the bigger risks, promote the most difficult products, make the biggest cuts" (Interview 2). Given this, both coordinators emphasised that they avoided "the bridging side" in an initial stage, referring to owners with whom they assumed not to share a similar problem framing and culture (Interview 1; 2).

Overall, it became evident that informal CSC based on common understanding in terms of like-mindedness, shared language, and shared culture constitutes the starting point for building a community of contributors. Businesses with strong cognitive coherence have been designated as the main drivers for both community building and the provision of environmental quality.

5.2.3 RSC

That does not mean that other businesses were excluded from taking part in the initiative because of diverging mental models. In contrast, they were targeted by relying on pull-effects through success and a snowballing strategy continuously building a community of members (Interview 1; 2). Thereby, the snowballing effect is enhanced by overlapping social relations in a small-island community:

> "Living on a small island, you know, it can have its difficulties but it can have its positive sides. But the fact that most people here know each other and if you do something that you think is good or worthwhile or making you famous or bringing you more customers and I'm just across the road, well, I might start just as well doing the same. In a big city it's not necessarily the same approach." (Interview 2)

Those other businesses would be more driven by the perspective of benefitting from a successful campaign:

> "There will be always people, who don't share necessarily the same goals and visions. But the timing is right: The trend is your friend! They don't want to be left out of a campaign that they can see is increasing in popularity, that is getting them free press." (Interview 2)

Thus, it becomes evident that the initiative's community building strategy relies on creating economic and social incentives to recruit new members (cf. NORTH 1990, 3). In this context, the ability to offer continuous support and to provide benefits, such as promotion and discounts, in return for contribution clearly follows a logic of establishing trustful mutual relations and encouraging incentive structures, while it also fosters the credibility of the project. The initiator of the *Plastic Free* campaign remembered initial rationales:

> "I said if I want to go to talk to people, I need to offer them something. You know, I mean it's all for them. I don't even manage to offer them a discount or nothing but at least to give them the contacts for paper straw, for reusable bottles." (Interview 1)

The necessity of building trust and providing benefits is moreover related to the disadvantageous change in businesses' cost structures and the risk to lose customers (Interview 2). Thus, businesses would need to trust in *Common Seas'* integrity and professionality regarding its ability to provide promised benefits (cf. Interview 2). This form of trust regarding advantageous estimations of incentive structures is clearly a critical component under regimes of low CSC. This becomes evident when comparing efforts of community building before and after the local *Plastic Free* campaign merged into the holistic *Clean Blue Paros Initiative*. The initiator elaborated on her exhausting efforts to convince business owners:

> "It wasn't easy. At the end of the season, I was like: Okay, I'm done. I don't want to do it anymore. […] There were some shops that I was there. I just asked them if they want to put the poster at least and they will look at me like they wouldn't be even answering …" (Interview 1)

Having merged into the *Clean Blue Paros Initiative*, efforts could be scaled and speed up significantly (Interview 1; 2).

Apart from the organisation's integrity and professionality in providing adequate economic incentive structures, interviewees stressed the relevance of project coordinators' reputation and embeddedness in the island community for building trust:

> "Trust is also in the fact that we live here. We haven't just been sent here from a foreign NGO. You know, parachuted on the island to come and tell the locals in some sort of colonial way […] The trust we have developed over years with the associations, being members of the associations, volunteering for the associations, being part of local society. I would say it's key." (Interview 2).

Changing perspectives, trust grains relevance in the context of a high degree of decentralisation, leaving fewer opportunities for formal control and monitoring mechanisms (cf. ANDREWS 2010, 589). Compliance is "based on trust and goodwill" (Interview 2) as well as on social control mechanisms. The initiator of the *Plastic Free* campaign remembered that "it was very interesting to see that the season after [recruitment], people already started buying alternative product without me being around" (Interview 1).

Overall, in this form of cooperation, RSC serves as an important mediator for community building, where self-evident benefits and incentive structure as well as cognitive fundaments of social capital are still lacking and governance structures are decentralised.

5.2.4 Formal CSC

Formal CSC takes a minor role in this form of cooperation – particularly in ensuring compliance and enabling collective action in the first place. This is also due to the fact that businesses choose their individual level of compliance according to their current capacities. They are not bound by formal contracts and agreements, nor are there any formal monitoring and enforcement rules in place.

However, means of formal CSC are applied to clarify internal routines. Preliminary audits and internal guidelines govern procedures of individual and iterative support cycles for businesses. Initial audits, which assess the business's status quo, provide the basis for further action (COMMON SEAS 2020). The *Clean Blue Guidelines*, which comprise explanations of effects and mechanisms of plastic pollution and the lifecycle of different materials, are thought to change traditional mind-sets and convey new ones (IBID.). But they also contribute much more: They provide the basis for recommendation and support by presenting a set of alternative options, including their consequences and impacts. Thus, this type of formal CSC is used to reduce transaction costs, and the economic risk taken by business owners by creating a shared culture, including assessment criteria, routines, and rationales for action.

Moreover, the differentiated approach reveals how *Common Seas* acknowledges the pluralism of values and motivations in a nuanced treatment, as was argued by PAAVOLA (2007, 96). Based on formal guidelines and audits, solutions are negotiated that take account of procedural justice, while the gradual approach to measures of higher impact as well as iterative support cycles enable an incremental synchronisation and shift of values (cf. IBID.; GÓRRIZ-MIFSUD et al. 2016; 28).

Overall, formal CSC in this case constitutes a viable support to the governance and efficiency of collective action rather than being a necessary condition to enable it.

5.2.5 Preliminary Conclusion

Fig. 12 outlines the sequencing and respective relevance of RSC and CSC in *Common Seas'* collaboration with local businesses to enable environmental collective action.

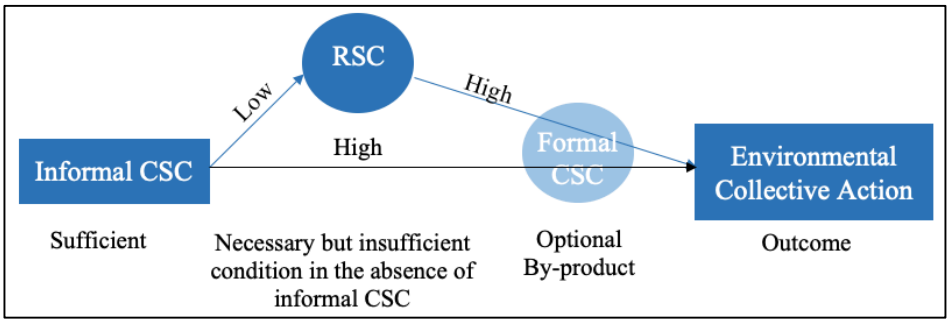

Fig. 12. Sequencing of CSC and RSC in *Common Seas'* Collaboration with Local Businesses (own representation).

It was shown that informal CSC constitutes the starting point for environmental collective action. Businesses that exhibit strong cognitive coherence have been designated as the main drivers. They act based on intrinsic motivation, thereby providing *Common Seas'* efforts with legitimacy such that voluntary compliance and commitment occur beyond imperative enforcement rules (cf. PAAVOLA 2007, 101).

RSC serves as a mediator for community building, where incentive structures are still intangible and obscure and levels of shared CSC are low. Under those regimes – particularly regarding a decentralised governance structure and business partners who do not share mental models – RSC is a necessary condition to establish initial relations in terms of recruiting contributors for collective action and trusting in their compliance in return.

Formal CSC that takes the form of audits and guidelines is neither sufficient nor necessary for environmental collective action to emerge but represents a viable means to govern collective action and thus an optional by-product.

5.3 Case 2: Collaboration with Local Authorities and Public Institutions

5.3.1 Environmental Collective Action and the Action Situation

Equally to the case above, the collaboration with local authorities and public institutions aims to resolve the environmental problem of plastic pollution which largely stems from

single-use plastic. In this context, the collaboration's goal is to provide all students and school staff with reusable bottles and publicly accessible, safe fresh water to reduce the use of 783,000 single-use plastic bottles per year (COMMON SEAS 2020). The set of actors comprise local authorities' members, namely the mayor of Paros as well as employees from specific units and departments, such as the environmental department and the department in charge for school buildings (Interview 2). Those employees are designated to collaborate with *Common Seas'* project coordinators as contact persons. Moreover, the set of actors is completed by the school committee which comprises representatives of Parian schools, such as teachers and headmasters, as well as representatives of the municipality's department for education (Interview 2).

To implement the project, local authorities are approached deliberately not only with regard to their power to shape and to provide respective institutional frameworks but also specifically for their ability to smoothly operate within highly bureaucratic public administration (Interview 2). Regarding this, it can be noted that the governance mode within this action situation is highly hierarchy-based and bureaucratically organised. Thus, to achieve the installation of water filtration systems in schools across the island, the set of allowable actions is restricted to official procedures. However, those procedures can be expedited by the actors' choice to grant the issue priority. This is mainly achieved with an agreement signed, i. a., by the municipality of Paros and *Common Seas*, which binds members to targeted collaboration to reduce the amount of plastic waste (cf. Interview 2).

In this context, contact persons of local authorities generally act as communicative gatekeepers. They choose to open communication channels and forward requests quickly to decision-makers. However, their level of control over this choice is restricted by the formal demand to collaborate with *Common Seas'* project coordinators (Interview 2). Likewise, experts from respective municipal departments act to find technical solutions for implementation because they are instructed to do so.

In contrast, a decision over approval or rejection of the request to install water filtration systems had to be taken in an open vote by local authorities and the school committee based on feasibility (Interview 2). To ensure a positive vote, *Common Seas* provided decision-makers with contextual and technical information, thereby stating that costs could be reduced to a minimum since a large share would be funded by *Common Seas* and other NGOs (Interview 2). However, municipal and school staff had to dedicate an increased amount of time and effort temporarily to implement the project (Interview 2).

Overall, environmental collective action is evident for the collaboration with public bodies according to the criteria defined in section 3.4.2. Key actors were not forced to contribute contribution but made a conscious choice out of a set of allowable actions, which also included the option not to participate. Environmental initiatives on the island operate in a rather adverse political setting, as was outlined above. Next, it will be analysed how CSC and RSC shaped public bodies' decision to nonetheless participate in the initiative.

5.3.2 Informal CSC

It can be noted that the current Parian municipality is not specifically inclined towards environmental action and thus, shared informal CSC has remained rather low. As was outlined above, problem framing and used language rather aim to secure economic growth and the need to satisfy touristic demands, while public waste management is perceived to be inadequate (Interview 1; 3; 4; 5; 7; 11; cf. TNH 2019; FTP 2019). However, several interviewees emphasised the current emergence of a trend towards more sustainable development and alternative forms of tourism (Interview 2; 5; 7; 9). This trend seems to have influenced authorities' framing in official statements, which – at least on a formal basis – includes terms such as the promotion of "alternative forms of tourism", "environmental protection", the "preservation of cultural and historical heritage", as well as the "traditional Cycladic character" (TNH 2019). Nonetheless, there are indications that many interviewees still harbour doubts about the truthfulness of this positioning (Interview 1; 3; 4; 5; 7; 9).

An interviewee stressed the municipality's lack in credibility due to prior political inactivity, while simultaneously showing understanding regarding a hen-and-egg-problem:

> "The thing is, people are very, very upset with the municipality right now. […] Because all summer we didn't have a waste collection nearly. And all the bins are open all the time. So, everything is flying around. […] So, people are really, really angry with the mayor. And, so I understand he's not going out to say people to stop using plastic bags. Because everybody will shout at him and will say: 'Okay, you know what? First, get all this mess done…'" (Interview 1)

Thus, it can be noted that the municipality of Paros lacks credible commitment in a sense of motivational commitment based on intrinsic motivation and informal CSC (cf. NORTH 1993, 13). Therefore, it can be assumed that the reason for participation and active engagement stem from other sources.

5.3.3 RSC

Although there are no direct statements or data available on this aspect, there is evidence which indicates that the municipality joined the initiative because of a growing trend and island community aspirations (Interview 2; 4; 5; 9), as well as prospects of benefitting from an overall promotion of the island as a sustainable tourist destination – which is a major aim of the municipality (cf. TNH 2019; Interview 2; 7). It is evident that the municipality could be recruited for the campaign due to successful development of the initiative on the island and the program's organisational integrity, professionality and thus trustworthiness: On the *Clean Blue Alliance* webpage, Paros' mayor stated:

> "Clean Blue Alliance is an exciting collaborative solution-led approach that engages top down and bottom up, combining research, policy, innovation and community action. The Municipality of Paros are proud partners on a journey with Common Seas to eliminate plastic waste from source to sea." (COMMON SEAS 2019a)

Furthermore, he acknowledged that "we are encouraged by the businesses' who have already committed to support Clean Blue Paros" (COMMON SEAS 2019b).

Having gained trust in the organisation's capacities to provide benefits and implement ideas, it seemed opportune for the municipality to join the campaign both to secure benefits for the island as a tourist destination and to improve its image. Credible commitment stems from the assumption of beneficial economic and political incentive structures (cf. NORTH 1990, 3; 1993, 13). Thus, RSC taking the form of trust and beneficial incentive structures does not yet enable collective action but facilitates mutual rapprochement.

5.3.4 Formal CSC

The ambivalent situation, which incorporates many uncertainties regarding credibility and compliance, makes it necessary to build common grounds in terms of shared goals and culture. In this context, the officially signed agreement between *Common Seas, W.A.T.T. S.A*. waste management company, the municipality of Paros, and other founding members constitutes a fundamental basis for collaboration by providing a basic formal cognitive framework for collective action. The agreement governs, i. a., aspects of participation, contributions, expectations and responsibilities, appearances, and membership (Interview 2).

In this sense, it establishes critical relations and routines representing aspects of a shared culture: Employees of the municipality are named as contact persons for project coordinators, which are "asked to work closely" with them (Interview 2). Thus, local authorities officially dedicate time and capacities to the project's progress by establishing a form of imperative commitment over civil servants (cf. NORTH 1993, 13). This becomes highly relevant for the installation of water filtration systems in schools since those contact persons act as gatekeepers in the administrative process. Also, project coordinators are dependent on permeable hierarchies to approach the school committee and present the project in a first step. This also relates to LAVIE et al.'s (2012) finding that differences in partners' routines (cultural fit) frequently reduce relational mechanisms such as trust, while acknowledgement of differences offsets those negative effects. It must be noted that project coordinators were conscious of bureaucratic procedures and successfully adopted to those conditions to achieve their goals.

Apart from procedural and relational specifications regarding the establishment of a shared culture, means of formal CSC are used to increase partnership credibility in terms of shared goals: A linguistic convergence implying internal cohesion is applied in the wider context of the agreement. In a commonly edited press release, Paros' mayor emphasised a vivid collaboration committed towards a reduction of plastic pollution:

> "We warmly welcome this important and vital collaboration with Common Seas and WATT, that will make Paros the first innovative Mediterranean island to become plastic waste-free. […] We will continue to support the growth of conservation and ecological awareness in Paros." (COMMON SEAS 2019b)

Common Seas' managing director stated:

> "We have found excellent partners in the leaders and citizens of Paros and know that the changes they will make, in eradicating plastic waste from their island, will contribute greatly to their transition towards a Circular Economy, inspire islands across the world, and contribute to Paros reaching the 'United Nations Sustainable Development Goals' and the EU's climate commitments" (COMMON SEAS 2019b)

Overall, the signed agreement between key partners of the initiative constitutes the critical basis for collective action. It fosters credible commitment as well as accountability and establishes relations in which partners mutually benefit from collaborating by providing strong incentives. Where informal CSC is lacking or being questioned, means of formal CSC increase coherence and secure focused commitment based on determined routines,

responsibilities, and concrete action. Particularly, the installation of water filtration systems in schools would not have been feasible without institutionalising procedures of collaboration with local authorities and project coordinators beforehand. This contradicts ANDREWS (2010, 600) findings that formalisation had no impact on performance. However, ANDREWS assumed top-down formalisation, while formal CSC in this case has been negotiated amongst equal partners, such that voluntary compliance is more likely, and enforcement costs are lower.

5.3.5 Preliminary Conclusion

Fig. 13 outlines the sequencing and respective relevance of RSC and CSC in *Common Seas'* collaboration with local authorities and public institutions to enable environmental collective action.

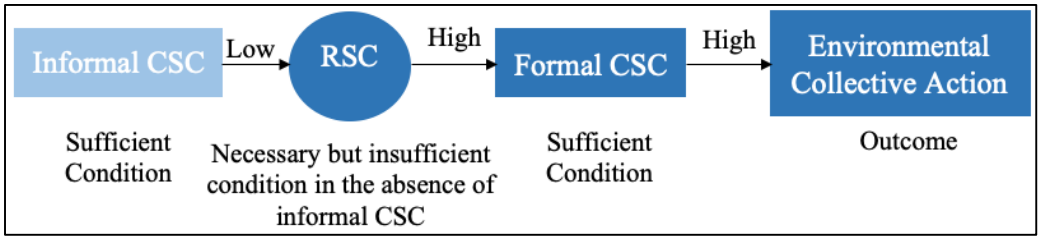

Fig. 13. Sequencing of CSC and RSC in *Common Seas'* Collaboration with Local Authorities and Public Institutions (own representation).

Collaboration did not occur based on an intrinsic motivation and common understanding in terms of shared language and problem framing, but on the basis of strong economic and political incentives. Therefore, initial rapprochement was highly linked to issues of credibility. Thus, RSC had to be built in a first stage between *Common Seas* and local authorities to verify that trust was appropriate both regarding local authorities' commitment and *Common Seas'* organisational capacities to provide promised benefits.

However, despite its function to facilitate initial rapprochement, RSC does not yet enable environmental collective action. The fundamental basis for this is clearly constituted by the signed agreement between key partners of the initiative. This agreement, which represents formal CSC, fosters credible commitment as well as accountability based on a formally established shared culture. Thus, in the absence of informal CSC, it serves as a sufficient condition to enable environmental collective action in the first place.

5.4 Case 3: Collaboration with External Partners

5.4.1 Environmental Collective Action and the Action Situation

Equally to the cases above, the collaboration with external partners aims to resolve the environmental problem of plastic pollution, which largely stems from single-use plastic. In the context of developing an educational program including environmental audits, which can be conducted by citizens, the set of actors comprise two environmental NGOs, *Common Seas* and *WWF Greece*, as well as the *University of the Aegean* (Interview 2). Those partners do not represent uninvolved third parties, such as mere service providers, but are embedded in the wider socio-ecological context of the Cyclades or the Aegean. All three organisations act as autonomous entities with each being responsible for subtasks and outcomes. Thus, the collaboration occurs within a polycentric governance system with highly different partners regarding organisational direction (cf. OSTROM et al. 1961).

The set of allowable actions to achieve the commonly targeted outcome differs amongst the organisations and is largely shaped by each organisation's individual routines and cultures (cf. STEINMO and RASMUSSEN 2018). To nonetheless ensure coherence, the actors' collaboration is governed and coordinated by the means of contracts which clarify roles, responsibilities, and overall actions to be taken (Interview 2). Coordination is, however, complicated through the remoteness of all three organisations, which are spread across the Aegean. Thus, information sharing and communication channels constitute key elements for successful collaboration, both in terms of coordination but also to create synergies from the organisations' respective fields of expertise. However, since they represent a first-time collaboration across scientific and civic organisations, high costs arise for the coordination of activities, which is time-consuming and demands a huge effort from actors (Interview 2; cf. STEINMO and RASMUSSEN 2018).

Nonetheless, environmental collective action is to be encountered between those partners. The development of environmental audits and an educational program can be applied beyond Paros by getting scaled up to be used throughout the Aegean islands, such that external partners also benefit from collaborative efforts on Paros (Interview 1; 2). Similar to the prior cases, actors choose deliberately and voluntarily to collaborate, such that action is not enforced on actors. Subsequently, it is analysed on which basis those external partners decided to participate.

5.4.2 Informal CSC

Regarding levels of social capital, a project coordinator clearly emphasised that collaborative efforts and relationships between external partners "started from zero. They didn't know us, and we didn't know them" (Interview 2). Since all three involved organisations are well established and have a known reputation and policy, this uncertainty rather refers to operative issues, such as organisational cultures and routines. The co-operators comprise two environmental NGOs and the University's Department of Marine Sciences, which self-certifies an orientation of "conducting applied sciences of economic relevance, and public awareness of the marine environment" (UNIVERSITY OF THE AEGEAN 2020). These co-operators surmise an overlapping mind-set regarding problem framing and the priority of combating plastic pollution in the Aegean.

However, since collective action between those partners represents a first-time collaboration, difficulties and divergence arise over procedural questions, which are enhanced by the remoteness of organisations that are spread across the Aegean. An interviewee referred to a time-consuming process of establishing a common culture and common routines: "It's a lot of calls and e-mails. Trust me. And like meetings and how to do this and how to do that" (Interview 2). This coincides with LAVIE et al.'s (2012) finding that a cultural fit of partners' routines needs to be coordinated. However, since the organisations act as autonomous entities that pursue individual subtargets, a holistic integration and convergence of common cultures and routines is not necessary as long as partners are in accord with their shared goals (LAVIE et al 2012, 1469).

Thus, it can be noted that informal CSC, in terms of shared goals, constitutes the basis for environmental collective action by ensuring credible commitment and voluntary compliance based on intrinsic motivation. However, due to an experience barrier and significant divergence regarding organisational form and a shared culture, other forms of social capital are needed for collective action to come into effect.

5.4.3 RSC

Despite the fact that commitment itself is not doubted, a leap of faith is necessary to offset levels of uncertainty regarding the output quality of partners' performance:

> "We had to start this relationship that we both trust each other in creating the best possible tailor-made educational program that is aligned with *Common Seas* and *Clean Blue Paros* and all the schools of Paros. The same with our relationship with scientists from the *University of the Aegean*

> in Lesbos. […] We had to collectively trust each other that what they are doing is the best that can be done. And they had to trust that when we are saying 'Look, do this location rather than that location' is because we live here. We know that this perhaps needs to be changed and that is better for the locals. So, this will be more popular with the volunteers." (Interview 2)

This valuation coincides with STEINMO and RASMUSSEN's (2018) finding that firms with limited experience with university collaboration compensate an initial lack of shared CSC by relying on RSC as a mediator to establish a common culture.

In this case, it becomes evident that RSC amongst partners is of great operative relevance in terms of trusting in an adequate contribution of expertise, information sharing, or knowledge transfer to achieve optimum results. Although it establishes professional relationships amongst unknown partners as a first step, it is nonetheless not sufficient to achieve environmental collective action due to a persisting lack of shared culture.

5.4.4 Formal CSC

Regarding this, uncertainties about the specific type of collaboration are not overcome by trust but governed by contracts (Interview 1; 2). Now, that "the relationship has evolved over time […] we are in the process of renewing all those contracts. And they are all very happy to renew and continue learning from each other and improving with each other" (Interview 2). Equally as above, this development is congruent with STEINMO and RASMUSSEN's (2018) finding that firms with experience with university collaboration did not need to draw on RSC but could cooperate on the basis of established shared CSC in terms of both shared goals and culture.

Overall, formal CSC reduces uncertainties by establishing and coordinating responsibilities, routines, and communication channels and thus allows environmental collective action to come into effect.

5.4.5 Preliminary Conclusion

Fig. 14 outlines the sequencing and respective relevance of RSC and CSC in *Common Seas'* collaboration with external partners to enable environmental collective action.

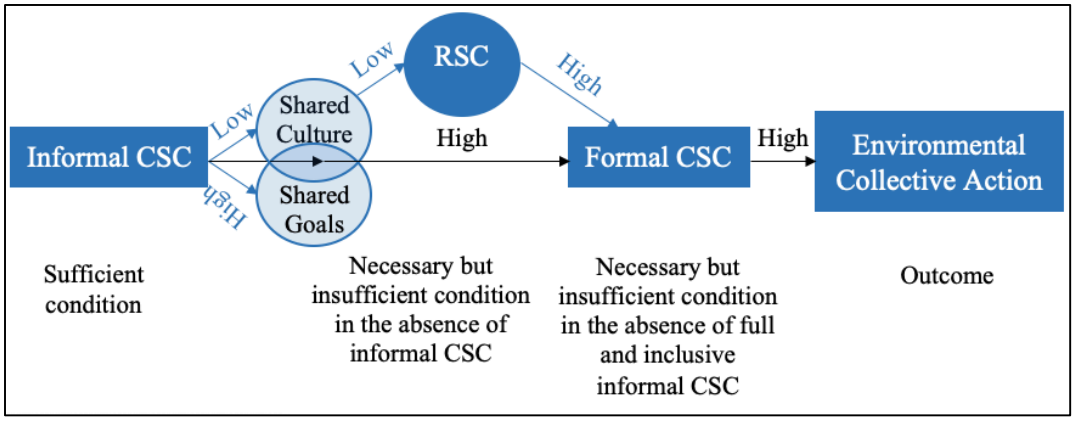

Fig. 14. Sequencing of CSC and RSC in *Common Seas'* Collaboration with External Partners (own representation).

Overall, this form of cooperation clearly emerges from shared informal CSC in terms of problem framing and shared goals. The organisations have to overcome an experience barrier in terms of cross-sectoral collaboration and thus cannot draw on existing levels of shared culture in terms of routines. That is why RSC gains relevance as a mediator to establish relations in a first step. However, it is not sufficient to enable environmental collective action, since it does not fill the cultural gap. This is fostered and secured by formal contracts and agreements, which represent formal CSC and govern responsibilities, routines, and communication such that formal CSC consequently accounts for environmental collective action to come into effect.

Thus, informal and formal CSC together are sufficient to enable environmental collective action amongst the external partners *Common Seas, WWF Greece,* and the *University of the Aegean* in the context of a first-time collaboration. Meanwhile, follow-up cooperation occurs under high levels of established, shared informal CSC in terms of both shared goals and culture and thus does not need to rely on RSC as a mediator.

5.5 Hypothetical Counterposition

5.5.1 Environmental Collective Action and the Action Situation

Regarding a hypothetical counterposition to the cases of environmental collective action outlined above, it can be noted that – with some exceptions – most environmental initiatives on the island of Paros comprise small sets of rather homogenous civil actors. They take actions as individuals on their own initiative and are not connected to other actors via formal associations but based on good acquaintance (cf. Interview 1; 4; 5; 6; 9; 12). Actions are taken occasionally rather than regularly (Interview 1; 4; 5; 9).

Therefore, the set of allowable actions is largely prescribed and fixed beforehand by coordinators of the activities (cf. Interview 1; 4; 5; 9). Where this coordination had been lacking – particularly regarding regular activities – outcomes were frequently characterised by no action or slowly dissipating action (cf. Interview 1; 5; 9). Thus, it can be noted that actors in their position as autonomous individuals dispose of full control over the choice to participate or not.

However, within the wider institutional framework and island community context, potential actors are highly restricted in their choice to engage in environmental initiatives. Those restrictions are primarily constituted by a full-time occupation to make a living, resulting in a lack of time, a lack of sufficient opportunities to engage in environmental initiatives, and a lack of financial resources to fund those initiatives (Interview 1; 4; 5; 6; 7; 8; 9; 10; 11; 12). Thus, although engagement has the potential to account for higher environmental quality, it is attributed with high opportunity costs.

Therefore, environmental initiatives frequently exhibit low impact, which is limited to a small group of private actors. In those terms, it can be noted that although many environmental initiatives operate on the island of Paros, only few approaches can be considered environmental collective action according to the criteria determined in section 3.4.2. Most projects are purely private undertakings, which do not aim at a wider diffusion and application of practices (cf. Interview 3; 5; 6; 7; 10; 15). Other initiatives, such as the formation of an organic community garden or circular economy approaches, did not survive (Interview 5; 6; 9; 10). Rudimental structures of this, such as livestock farmers providing other farmers with manure, occur only occasionally, while they provide environmental benefits merely as an unintended by-product (cf. Interview 5; 6; 9; 10).

In contrast, the *Environmental and Cultural Park of Paros*, which represents a current lighthouse environmental project on the island, can be considered an approach of collective action, since it is based on volunteering and community engagement, while it is publicly accessible throughout the year and provides environmental quality, public space, and leisure opportunities. However, it suffers from internal conflict. The municipality as a main shareholder remains passive and threatens the park's continuity by acting arbitrarily and non-transparently (Interview 3; 9). Thus, the decision for survival or abandonment lies in the hand of only a single actor.

Subsequently, levels of CSC and RSC are analysed regarding their relevance level it is to impede environmental collective action.

5.5.2 Informal CSC

A major obstacle to community-wide environmental collective action on Paros is imposed by local mental models, which are not necessarily inclined towards an environmental or cooperative culture (Interview 3; 4; 5; 6; 8; 9). Collective experiences have consolidated a collective memory of poverty and the agricultural society in contrast to the rise of tourism and economic development bringing about prosperity (Interview 3; 5; 7; 9, 10). Thus, environmental issues are given low priority, making community building for environmental collective action difficult (Interview 1; 5; 6; 7; 8; 9). This indicates that environmental collective action is frequently impeded due to a lack of shared informal CSC – either in terms of environmental engagement and problem framing or in terms of lacking a cooperative culture (see Fig. 15).

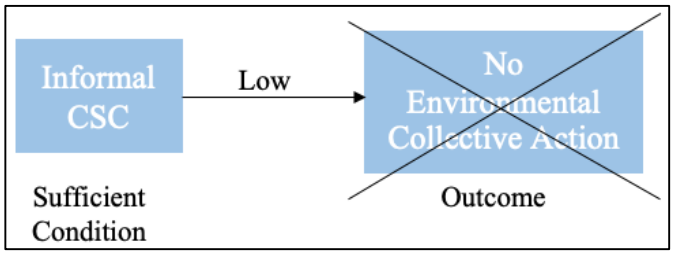

Fig. 15. Environmental Collective Action Impeded by a Lack of Informal CSC (own representation).

In this context, it must be noted that environmental initiatives are largely started by newcomers to the island who do not share those collective experiences. Since they have been socialised in another environment, they bring new ideas and mental models to the island but find it difficult to reach out to locals (Interview 1; 4; 6; 7; 8; 9; 10). Regarding this, island communities are strongly distinct. Some individuals keep a personal distance to other communities with which they do not share overlapping interests (Interview 7; 10). Many other initiators do strive to reach out to local communities, but perceive common understanding as a barrier: International newcomers struggle with a language barrier (Interview 1; 4; 10), but also Greek native speakers struggle to convey their ideas and problem framing comprehensibly (Interview 1; 2; 4; 6; 7; 8; 9; 10).

This divergence in mental models and problem framing does not only account for impeded community building but also for lacking support from local authorities, since it was outlined above that the municipality of Paros pursues a different strategy for island development (cf. Interview 1; 3; 4; 5; 6; 7; 8; 9; TNH 2019). Thus, environmental initiatives remain on a small scale and occasional. They are frequently not embedded in the island community in terms of public support and operate in rather adverse political settings.

5.5.3 Formal CSC

Within the core group of environmental initiatives, initiators have stressed a lack of coordination (Interview 1; 5; 9). Although many ideas are shared and discussed, most initiatives are dropped after the initial stage, since actors have not yet established shared CSC in terms of shared cultures and routines. Collective action becomes particularly difficult regarding focused commitment and concrete action when heterogeneous target groups are addressed that may not share the same mental models, experiences, and language. Initiators reported that they "struggle a lot to keep the group focused on just practical solutions" (Interview 1; cf. Interview 9). This coincides with KRAUSE et al.'s (2007, 532) finding that if goals and values between actors are incongruent, this potentially leads to misunderstanding and conflicts resulting in dissatisfaction and mistrust, which in turn limits commitment and cooperation.

Formalised clear responsibilities and coordination would be needed for initial cooperation to ensure focused commitment and targeted action (cf. Interview 1; 9). Regarding an organic community garden that petered out, the initiator recapitulated:

> "How do you manage to ensure that everybody is looking at the same direction? I'm not choosing direction but at least I want to know that a team of people is looking at the same direction. […] Well, I was thinking before with the group that maybe the solution would have been to make a very clear statement and create regulation so that everybody knows. Maybe this is not the silver bullet. Maybe it's good to have it but it's probably not necessary. […] Because they are strong in their commitment and they want the same thing and it works." (Interview 9)

This indicates that shared goals as an aspect of informal CSC are insufficient to enable environmental collective action, if there is no common understanding on shared culture. To establish this, formalised CSC that clarifies purposes, responsibilities, and procedures complements pre-existing levels of informal CSC sufficiently. However, since there is no formalisation, environmental collective action is impeded (see Fig. 16).

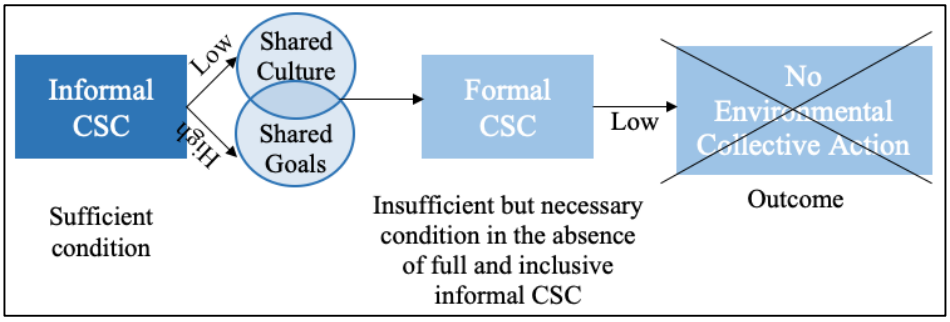

Fig. 16. Environmental Collective Action Impeded by a Lack of Formal CSC (own representation).

Apart from a lack of internal formalised CSC, interviewees also indicated that externally given formalised CSC, such as legislation and regulations as well as institutional frameworks, constrain and frequently impede environmental collective action. Regarding this, authorities and institutional frameworks are considered incapable of supporting and envisioning innovations and alternative approaches (Interview 1; 3; 4; 7). An interviewee stated that the current institutional framework would be "stuck-up in the 20th century" and be "hostile towards sustainable development" (Interview 7; cf. Interview 5; 9; 10). Thus, existing regimes of formal CSC being given as external variables impede or at least restrict environmental collective action even if informal CSC was high (see Fig. 17).

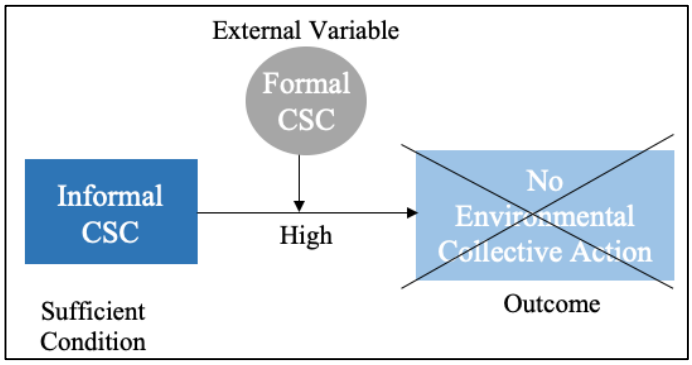

Fig. 17. Environmental Collective Action Impeded by Externally Given Formal CSC (own representation).

The uncertainties regarding a continuation of the *Environmental and Cultural Park of Paros* as an example highlight the consequences of efforts, which are weakly anchored in the wider institutional framework and can thus easily be decommissioned and replaced. The fact that the park has not been revised to this point may find its cause in its community embeddedness. The park's operative manager emphasised: "That's the way to go and of course strong public support. Like you can be a public institution that is not supported by anybody and then we will disappear. If you have strong public support again it's harder to be swayed" (Interview 9). In this sense, the interviewee added:

> "You really have to work with the people and create cohesion and coherence and, you know, make things – because inspiration alone is not enough or the enthusiasm is not enough. After very short time you … People need to feel responsible themselves for the project." (Interview 9)

This indicates that very high levels of shared informal CSC could offset negative effects from adverse institutional frameworks. However, as was stated above, most initiatives have struggled to achieve this embeddedness by involving the community, holding it accountable for success and failure itself (Interview 1; 8; 9).

5.5.4 RSC

It became evident from the description above that project initiators are well connected and engage in mutual and supportive relations based on prior and good acquaintance (Interview 1; 2; 4; 9; 10). They do so based on an intrinsic motivation with shared goals and similar life experiences. However, it was stated that many environmental projects on the island are conducted by privileged people who are financially secured either by personal savings, family support, private property, or other income sources, allowing them to take a risk with their projects (Interview 2; 3; 5; 6; 8; 10). In those terms, the operator of a wildlife hospital, who volunteers 7 days a week for the hospital without pay while having a full-time paid job, stated that this engagement did not "give anything back apart from emotions – not any money" (Interview 8). Likewise, the initiator of the *Plastic Free* campaign elaborated on disadvantageous economic and social incentive structures due to high opportunity costs:

> "It's not easy to put a community together here. […] But I think it's an economical thing. Because like I get people that are very interested in helping me. But at the end of the day they have their jobs, they have their lives." (Interview 1)

Beyond unfavourable incentive structures, it was stated several times that, generally, there is a lack of trust amongst community members, and thus people prefer to engage in private projects (Interview 4; 6; 7; 9; 10). Based on negative experience, people become uncertain and assume information asymmetries, and thus show a great risk aversion regarding cooperation. This does not only hold true for the local community but is also highlighted by the relationship between environmental initiatives and local authorities. Attempts to improve relationships frequently failed and led to mistrust (cf. Interview 4; 7; 8; 9).

Often a lack of commitment and trust is related to a (hidden) agenda by collaborating partners, which diverge from the cooperation's goal. Regarding uncertainties over the persistence of *Paros Park,* an interviewee noted: "We'll see – because the mayor, since ever, this mayor especially, since ever he wants to take back the park to rent it and to make money" (Interview 3). However, this mechanism also applies amongst equal partners: An interviewee elaborated on an experience of failed cooperation:

> "There are people – […] They have an agenda. And so, it becomes very easy, actually, to convince other people because they are very – They believe very strongly in themselves and in their own agenda. This is a power in itself. […] That's how initiatives can break down because they're dependent upon people's will to cooperate. And there is a certain amount of trust, you invest in that.

> You know, if that trust is broken, it not only breaks the idea of that particular situation, but it makes you think about the future. Do you want to cooperate with anybody?" (Interview 10)

Overall, this indicates that an initial level of RSC that takes the form of trust in other actors' commitment and goodwill is necessary where informal CSC is lacking or still uncertain. Nonetheless, it needs to be verified that trust is appropriate (OSTROM and AHN 2009, 23). If commitment is low, then trust is disproved to be appropriate (see Fig. 18).

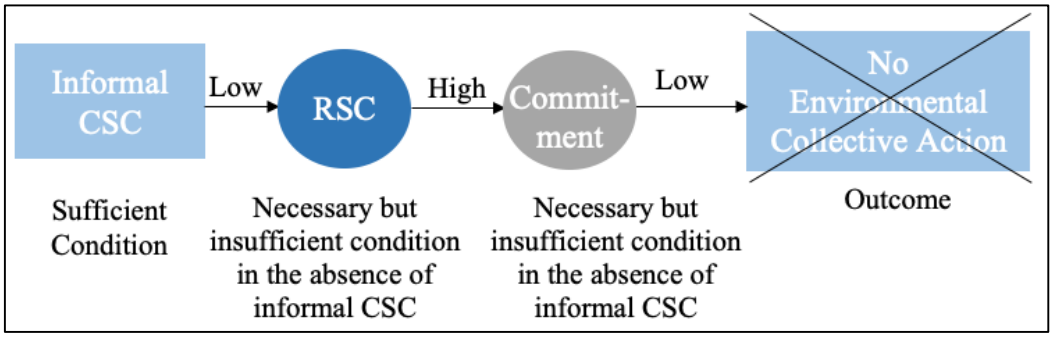

Fig. 18. Environmental Collective Action Impeded by Breach of RSC (own representation).

Moreover, the quote above reveals that for some initiators, those experiences led to the conclusion to shut oneself off from any future cooperation due to destroyed levels of RSC and trust. An interviewee outlined how he organised a seed festival with public funding promised by local authorities (Interview 4). Ultimately, this seed festival had to be cancelled due to inactive and irresponsive local authorities. The interviewee drew a personal consequence from this failure: "But I learned from this not to work with them anymore, you know" (Interview 4). This concurs with KAHAN's (2002) argumentation that in the case of an intrinsic, non-selfish motivation, individuals would contribute to a collective good on the basis of trust if they perceive that others do so as well. However, if "they perceive that others are not contributing their fair share, then resentment and pride move them to withhold their contribution as well" (IBID., 1517). Thus, the destruction of trust and other forms of RSC can disrupt any further approaches to establish environmental collective action – either on a formal or on an informal basis (see Fig. 19).

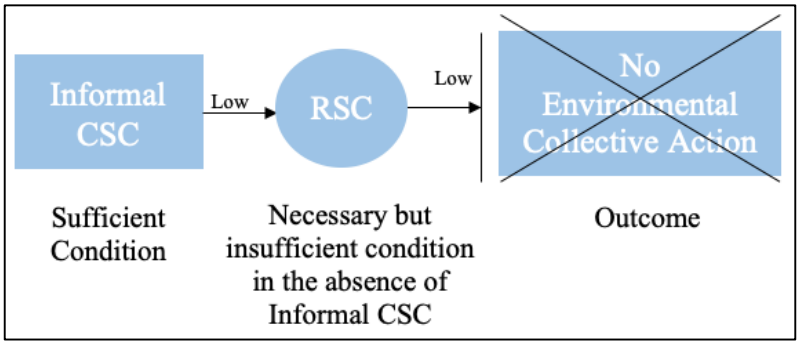

Fig. 19. Environmental Collective Action Impeded by a Lack of RSC (own representation).

5.5.5 Preliminary Conclusion

Analysing approaches of environmental initiatives on the island of Paros has revealed that informal CSC constitutes the major basis for environmental collective action. A growing community of active citizens and initiatives could be identified that exhibited higher levels of shared informal CSC in terms of shared goals. Regarding this, Fig. 20 shows how environmental collective action is nonetheless impeded.

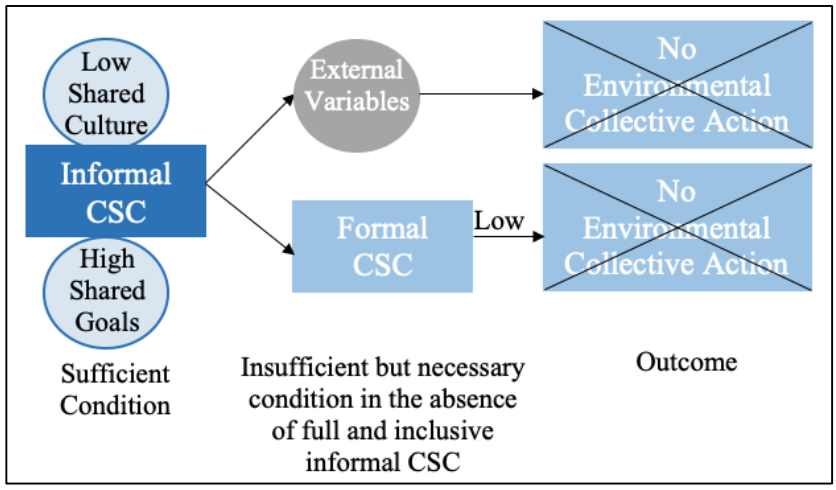

Fig. 20. Impeded Environmental Collective Action in Spite of Informal CSC (own representation).

Most notably, efforts are highly restricted by external variables, such as community attributes, institutional frameworks, and political settings, thus shaping actors' opportunity sets. Initiators and potential contributors face huge opportunity costs when they engage in environmental initiatives on a regular basis. Thus, it can be noted that environmental actors on the island of Paros find themselves in a situation of isolated individualism leading to those like-minded actors failing to establish viable forms of environmental collective action even though they show high levels of shared informal CSC (cf. SCHMID 2004, 25).

A reason for this may be the fact that, although initiators show high levels of shared goals, they nonetheless lack a shared culture of establishing joint efforts on the island. It was outlined how formalisation can lift aspirations to a level of higher tangibility and ensure commitment such that actors can be held accountable for their actions. However, initiatives frequently fail to establish adequate institutions through formalisation such that environmental collective action either does not come in to effect at all or disperses after it was initiated.

Regarding the wider island community, environmental collective action has the potential to emerge even in heterogeneous communities with incongruent informal CSC. In this

context, a leap of faith and adequate incentive structures are necessary to establish cooperative relations based on only a least common denominator – be it a common goal, problem, or perceived benefit – which stems from mental models having evolved from common experiences and boundary conditions of island life (cf. NORTH 1993, 16). However, this trust has recurrently been proved as inadequate through non-compliance and low levels of commitment. Fig. 21 visualises how the destruction of RSC leads to a deadlock, in which neither CSC nor RSC is available to establish environmental collective action.

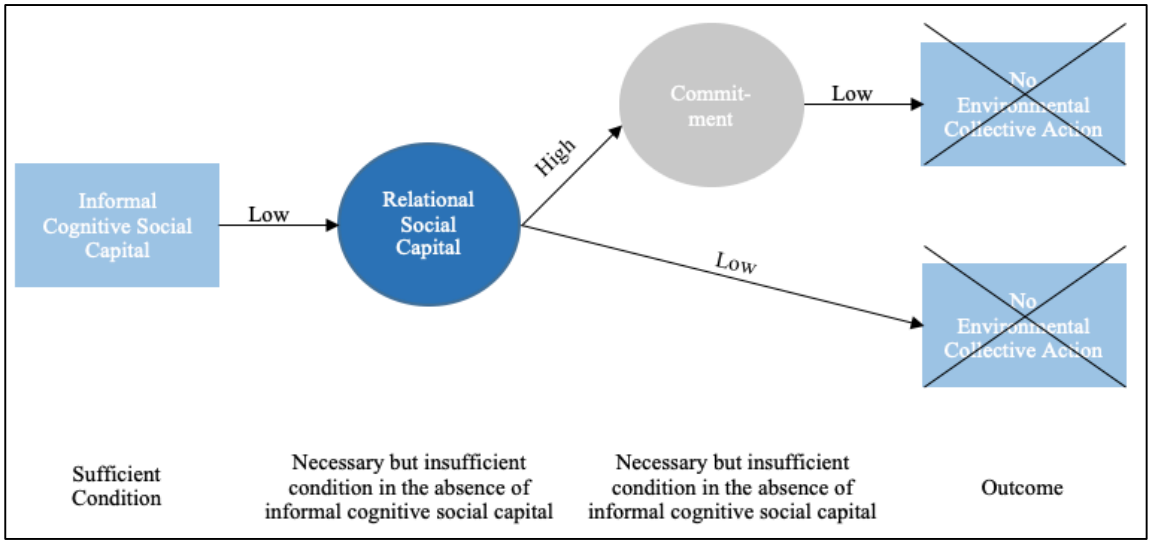

Fig. 21. Impeded Environmental Collective Action due to Low Levels of RSC (own representation).

5.6 Pattern Matching of Evidence and Hypotheses: The Role of RSC and CSC in Environmental Collective Action

5.6.1 Hypothesis 1

To ultimately evaluate on the hypotheses formulated in section 3.7, Fig. 22 shows an overview of the main sequences and combinations of RSC and CSC that lead to or impede environmental collective action, as was observed above.

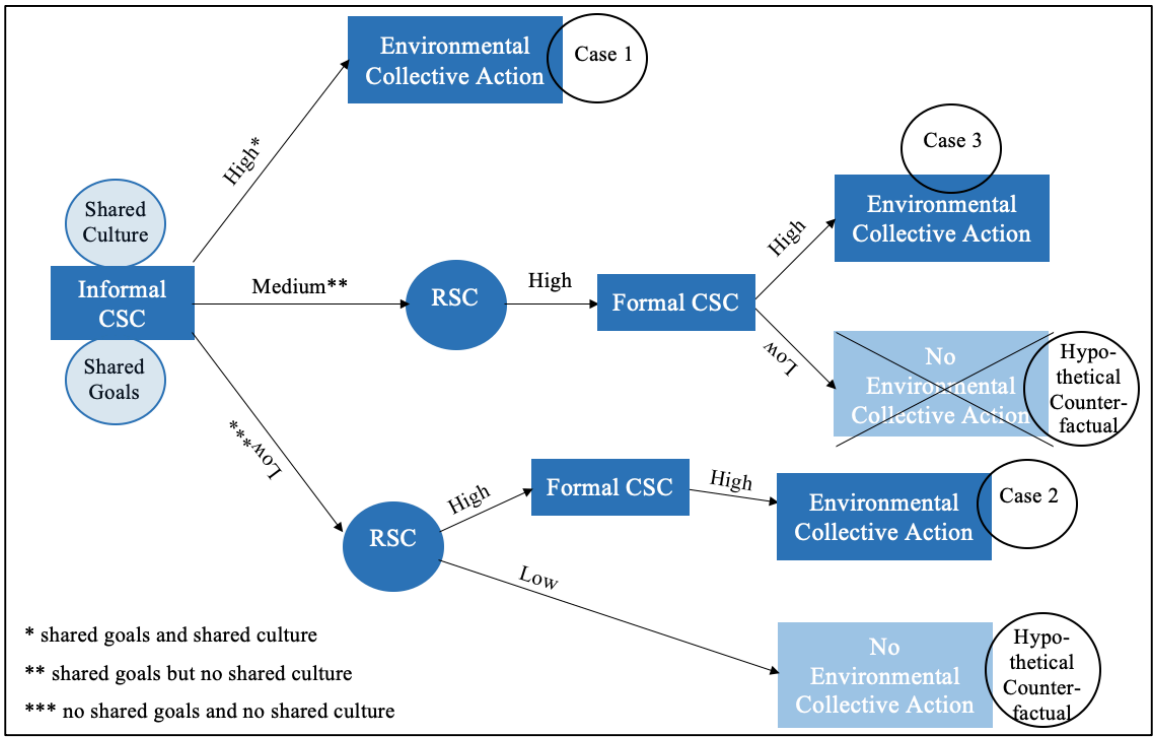

Fig. 22. Abstract of Observed Sequences of RSC and CSC (own representation).

H1: If the level of informally shared language and culture is high amongst actors, then environmental collective action is enabled.

This analysis showed that if levels of informal CSC comprising both shared goals and shared culture was high, then environmental collective action was enabled. This was demonstrated in case 1, in which local businesses exhibited high convergence with the *Clean Blue Paros Initiative'*s aspirations regarding shared goals and culture. They thereby constituted the driving force for *Common Seas'* business collaboration by implementing significant changes and by taking high risks. Moreover, an analysis of the island's environmental initiatives showed that a core group of active citizens who shared ideas and problem framing engaged in recurrent activities, such as tree planting, seeding, or waste collection. They thereby represented an established culture of occasional collective action. Thus, informal CSC constitutes the main basis for environmental collective action

with full and inclusive informal CSC in terms of shared goals and shared culture being sufficient to enable collective action.

However, it was also shown that levels of informal CSC were generally low regarding environmental action among the wider island community. Equally, full and inclusive informal CSC regarding both shared goals and culture was rarely found even amongst like-minded actors.

5.6.2 Hypothesis 2

H2: If the level of informally shared language and/or culture is low, but the level of formal agreements is high amongst actors, then environmental collective action is enabled.

This initial situation was clearly identified for *Common Seas'* collaboration with public institutions, in which large uncertainties prevailed regarding informally shared CSC, in terms of both shared goals and shared culture (case 2). The project idea to install water filtration systems in Parian schools could only be initiated and pursued in front of the school committee due to the formal agreement signed with the municipality to ensure close collaboration. In this context, formal CSC substituted informal CSC as a sufficient condition to enable environmental collective action in the first stage.

Moreover, this sequencing was also evident for *Common Seas'* collaboration with external partners (case 3) and for collaborative efforts of environmental initiatives on the island, in which shared goals were largely congruent but a shared culture was not yet established. Where paralysing effects from a lack of shared culture could be offset through formalisation in terms of contracts, written statements, and strategies governing responsibilities, procedures, focused commitment, and concrete action, environmental collective action was nonetheless enabled. In this context, formal CSC comes into effect as necessary condition that complements pre-existing levels of shared informal CSC.

5.6.3 Hypothesis 3

H3: If both levels of informally shared language and culture as well as formal agreements are low, then high levels of trust or adequate beneficial incentive structures can enable environmental collective action

It can be noted that RSC, particularly in taking the form of trust, is evident and relevant throughout all forms of collective action and collaboration analysed in this study. Especially since informal CSC is highly intangible, people trust in others not to pursue a hidden agenda even when informal CSC is perceived high amongst actors. Meanwhile, this trust is verified as appropriate with ongoing collaboration and fostered through binding formalisation. This coincides with scientific findings that CSC positively influences the level of RSC in an ongoing interaction (cf. CAREY et al. 2011 285; SUKOCO et al. 2018, 430; PINHO 2013, 564).

However, regarding its significance to enable environmental collective action in the first place, RSC gains most relevance under regimes of low CSC – either formal or informal. Results from the cases above indicate that the lower CSC, the more necessary and relevant becomes RSC as an enabler of environmental collective action. If only levels of shared cultures are low due to a lack of experience, as is the case for *Common Seas'* collaboration with external partners (case 3), then co-operators nonetheless rely and trust in partners' goodwill and intrinsic motivation in pursuing shared goals. Apart from procedural issues, uncertainties remain low, i. a., in terms of incentive structures. This concurs with STEINMO and RASMUSSEN's (2018) finding that collaborative partners with limited experience rely on RSC to compensate for an initial lack of shared CSC in terms of culture.

However, if levels of CSC are generally low, then RSC taking the form of trust is a necessary condition to establish initial relations and achieve a rapprochement by demonstrating incentive structures, credibility, and integrity. Having established first loose relations, jointly negotiated formalisation can further reduce uncertainties and provide the ground for collaboration. This mechanism has been shown for *Common Seas'* collaboration with hesitating businesses (case 1) but much more for its collaboration with local authorities (case 2). Thus, it becomes clear that, despite its function to facilitate initial rapprochement, RSC does not yet enable environmental collective action but only accounts for an initial level of trust, which is nonetheless highly relevant but has to be verified through commitment, which is in turn ensured by either informal or formal CSC.

5.6.4 Hypothesis 4

H4: If all forms of social capital – informally or formally shared language and culture as well as trust and incentives – show low levels, then environmental collective action is impeded.

By adducing counterposition narratives and experiences of environmental initiators on the of island of Paros, the results showed that several unfavourable combinations of social capital dimensions have the potential to impede environmental collective action. However, this does not constitute an inevitable consequence under those regimes. This accounts for insufficient levels of social capital, such as low levels of shared culture, or an insufficient complementation of specific types of social capital, such as a lack of formal CSC to complement informally shared goals.

However, the results also revealed that in the absence of all three dimensions, environmental action was still observable, but rather in terms of individual environmental action, while efforts to achieve collective action resulted in a deadlock. In this context, RSC obtains a most significant position due to its great potential to mediate the formation of informal and formal CSC under regimes of uncertainty, while it is simultaneously highly fragile. Various evidences from environmental initiatives have shown that levels of trust were easily destroyed by denied commitment, hidden agendas, and non-compliance. Interviewees were more likely to be reluctant towards cooperation when they had experienced a breach of trust than under regimes of diverging mental models, problem framing, and ideas. This coincides with scientific findings that revealed a collaborative potential even in the context of large differences between partners regarding shared goals and culture, particularly if differences were acknowledged (LAVIE et al. 2012; PAAVOLA 2007; NORTH 1993).

5.6.5 Evaluation of Sufficiency and Necessity

Based on the prior analysis, it can be stated that CSC is a sufficient and necessary condition to initiate environmental collective action. This can be further refined to the statement that it requires either sufficient levels of informal or formal CSC, such that both informal and formal CSC constitute a sufficient but unnecessary condition. In contrast, RSC constitutes an insufficient but necessary condition under low levels of CSC. Although it is highly relevant to establish initial relations, those relations themselves do not yet account for collective action, since trust in itself neither conveys pursued goals and contexts of action nor does it provide the means for goal achievement and action. This leads to the conclusion that CSC constitutes the critical enabler of environmental collective action, while RSC represents a mediator of CSC. This concurs with CAREY et al.'s (2011, 285)

and SUKOCO et al.'s (2018, 430) finding that RSC transmits the effect of CSC on outcomes.

5.7 Summary

It was shown that environmental collective action according to the criteria determined in section 3.4.2 is evident for cases 1 to 3. Targeted outcomes of collaboration were reached or were positively developing. In contrast, for a hypothetical counterposition, which was informed by multiple environmental initiatives, no environmental collective action was assumed. Overall, case analysis and subsequent pattern-matching resulted in the conclusion that empirical evidence is congruent with the construct.

CSC represents a sufficient and necessary condition to initiate environmental collective action. Thereby, informal CSC represents the main basis for environmental collective action. However, it was shown that levels of informally shared CSC were generally low across the wider island community. In this context, formal CSC bridged the gap by complementing low levels of informal CSC to enable environmental collective action. Overall, CSC constitutes the critical enabler of environmental collective action regarding its function to convey goals and contexts of action as well as its means.

RSC does not enable environmental collective action per se but mediates effects from CSC and serves for the initial rapprochement. Regarding its ability to establish first-time relations based on generalised trust, it gains most relevance under regimes of low CSC – either formal or informal. Destroyed levels of RSC disrupt or impede collaborative efforts, particularly if all forms, informal and formal CSC, as well as RSC, show low levels.

6 Discussion

6.1 Objectives of this Chapter

Given the results above, this section critically addresses major issues that might have biased the findings and how those problems were attempted to be resolved. Regarding this, section 6.2 discusses limits of the materials, section 6.3 discusses limits of the method, and section 6.4 discusses limits of the proposition.

Taking this into account, sections 6.5 and 6.6 point out implications of this study's findings for further research and future policy. A short summary concludes this section.

6.2 Limits of the Materials

Evidence of this analysis stemmed largely from semi-structured in-depth interviews. Section 3.3 already hinted at potential limitations of data derived from this method due to the fact that qualitative interviews occur in interpersonal situations and cannot be held in strictly objective contexts that produce stable and replicable results. Regarding this, interviews frequently comprised an extensive initial phase for interviewees' worries and resentments. Some respondents observed and articulated that they took on a pessimistic and even cynical perspective during the interview but affirmed they were, in fact, rather optimistic about island development (Interview 4; 7; 9). This reveals that the interview situation encouraged respondents to open themselves to the interviewer, reaching a point of self-observation (GLINKA 2016, 96). However, it also highlights that interviewees' narratives themselves represented not only subjective perspectives but a constructed rather than subjective reality. Interviewees are in a difficult position to frame and present a self-contained and coherent narrative on the spur of the moment (cf. IBID., 93f.). Thus, there may be a bias of what they conveyed in their responses and what they intended to convey. Therefore, the analysis took into account that interview data represented a snapshot in time that reflected a situation in which people used the rare opportunity to express their all-encompassing opinions, which might not yet have been fully developed for articulation.

Several methods were applied to minimise effects of those limitations: Scoping interviews facilitated the formulation of appropriate questions on which respondents could elaborate; Methods of communicative validation were used to verify statements and

meaning; And interviews were held until a saturation point was reached to account for a wide range of experiences and perspectives (cf. FLICK 1995; SEIDLHOFER 2001).

The major limitation, however, was constituted by the fact that the language barrier had a great impact on the group of potential respondents. Local island communities and their perspectives were barely represented by the materials. Likewise, no interviews could be conducted with proponents of the current economic development. This includes perspectives of local authorities' representatives, who were unavailable for interviews. Although methods of triangulation and other data sources were used in an attempt to account for this gap, it has to be noted that the database of materials represents perspectives of environmental initiatives which only made up a small share of the island community.

6.3 Limits of the Method

Many concerns prevail regarding issues of validity and reliability of the case study method (YIN 2014). A frequent concern addresses the subjectivity of the method. Case studies, particularly those based primarily on qualitative interviewing, are a construct of meaning derived from the researcher's interpretation of the respondents' subjective narratives and perceptions of their real-life worlds (cf. STAKE 1995, 8f.; BRINKMANN and KVALE 2015, 33). Although construct validity can be achieved via adequate definitions of concepts and operational measures, the sufficient use of multiple sources and triangulation, as well as communicative validation techniques, the method will never account for full objectivity (cf. MIEG and NÄF 2005, 5; YIN 2014, 47).

Therefore, scientific discipline is needed (STAKE 1995, 15): Drawing inferences based on interviews and documentary data needs to follow logic models and reflect what has been observed to achieve internal validity (YIN 2014, 47f.). This also includes an evaluation of evidences' convergence and rival explanations. Regarding this, it has been outlined that data predominantly represents perspectives of environmental initiatives and environmentally engaged citizens. This gap was intended to be partly compensated through the use of documentary data.

Regarding external validity, it can be noted that cases "are generalizable to theoretical propositions and not to populations" (YIN 2014, 21). Thus, they aim at analytical generalisation to expand on theories, while they cannot account for statistical generalisation (IBID., 48). Reliability is achieved through the use of case study protocols and databases to minimise errors and biases as well as enhance transparency about the scientific process

and rationales, such that the case study could be repeated and deliver the same results (IBID., 49). However, this is limited since the case study is highly context-specific. Interviews are conducted in an interpersonal situation. Thus, results and narratives may differ regarding the (perceived) role of the interviewer, (perceived) power relations, and social dynamics (STAKE 1995, 135; MIEG and NÄF 2005, 5; cf. BRINKMANN and KVALE 2015, 37).

6.4 Limits of the Proposition

Taking up the argument that case studies are generalisable to theoretical propositions (YIN 2014, 21), those theoretical fundaments and propositions themselves have underlying limitations. Propositions for this analysis were derived from scientific insights largely stemming from research in the field of organisational theory and business administration, which constitutes a significantly different setting than collective action situations – from a governance perspective alone. Scientific insights were frequently gained in the context of less complex systems with clear structures and hierarchies, while collective action occurs frequently in the context of multi-actor, multi-sector, and multi-level polycentric governance systems (cf. i. a., E. OSTROM 2014; GÓRRIZ-MIFSUD 2016; STEINMO and RASMUSSEN 2018). Thus, it is not clear yet whether those propositions are adequate to address collective action situations. In this context, this analysis contributes to the fact that more research is needed in this field.

Apart from this, LITTLE pointed out the limits of generalisations in the social sciences and argued that "a common source of failures of prediction in the social sciences stems from the fact that causal hypotheses and models are generally subject to *ceteris paribus* conditions" (LITTLE 1993, 198), which assume that no other exogenous causal factors intervene. In reality, those conditions are frequently not satisfied, such that "predictions based on such analysis must be understood as representing *tendencies* rather than probable outcomes" (IBID., 199). The same applies for the fact that propositions are frequently subject to simplification and idealisation and take account of incomplete causal fields (IBID.).

Regarding this, propositions incorporate specific definitions and concepts. In the context of this analysis, the diverse and wide range of social capital definitions and applications may have imposed a methodological problem (cf. WOOLCOCK 1998; LIN 1999; FELDMAN and ASSAF 1999; OSTROM and AHN 2009; SVENDSEN and SVENDSEN 2009; for a counter-

argument cf. SERAGELDIN and GROOTAERT 2000). The degree of differentiation of different forms and dimensions of social capital affects the number of potential paths that lead to environmental collective action. Regarding this, the diverse field of social capital research has shown that many aspects of the social world can be adjusted to fit into social capital categories, leaving much freedom and thus reducing validity (cf. SVENDSEN and SVENDSEN 2009). The use of diverging definitions and categorisations of social capital have yielded partially inconsistent scientific results regarding the relevance and effects of social capital, such that results are only of limited comparability (cf. IBID.; SERAGELDIN and GROOTAERT 2000). Therefore, it is all the more essential to be transparent about adduced definitions and operationalisation.

A final limitation of this analysis' propositions to be named here accounts for the applicability in the field of collective action research. The combinations and sequences of social capital dimensions in this analysis display only the initial stage of environmental collective action, which accounts for an investigation whether or not environmental collective action is enabled. It neither evaluates the necessity and sufficiency of combinations and sequencing of social capital dimensions for later stages of environmental collective action nor its success or failure. However, by analysing those stages separately, this analysis strived to achieve a differentiation regarding the mutuality and reinforcing nature of RSC and CSC at a specific point of the process to address potential logical fallacies in which social capital equally represents cause and effect (IBID., LIN 1999) and "seems to exist only if and when it is positively evident" (TZANAKIS 2013, 5).

6.5 Implications for Research

It was stated several times that more research is needed regarding the effects and the role of social capital dimensions, particularly of CSC and RSC, in the context of collective action. In this analysis, it became evident that CSC is of formidable significance to enable collective action, while RSC acts as a mediator. Those results need to be further verified and tested. However, those results only apply to the initial stage of environmental collective action and do not provide information on the long-term success or failure of environmental collective action. Regarding this and in contrast to frequent assumptions, GÄCHTER et al. (2017) suggested that upholding cooperation during maintenance of a public good is more difficult than enabling it for initial provision.

Thus, related questions may tackle the combinations and significance of social capital dimensions in later stages of environmental collective action. Regarding this, interviews and cases indicated that combinations of social capital dimensions develop over time and shift prioritisation to other dimensions. Particularly in terms of CSC, data suggested that actors prefer to engage in environmental collective action based on informally shared language and culture rather than on formalisation. Despite its potential to substitute informal CSC as sufficient condition to enable environmental collective action, it has become evident that formal CSC as a basis for collective action serves as transitional solution only, while it aims to build shared informal CSC.

Moreover, the results indicated that levels and composition of RSC and CSC vary over time regarding an accumulation of social capital assets. This includes the building of a shared culture and language, a decrease of social capital through disuse or violation, and substitutional dynamics of groups and networks accounting for new actors or a loss of key actors.

Therefore, a major implication for research emerges from the transformative character of environmental efforts in all cases, particularly the *Clean Blue Paros Initiative*, which aimed to change mind-sets, reprogram habits, and revise institutional frameworks. All those goals account for a wide-ranging institutional change to ensure the adoption and internalisation of principles beyond narrow project boundaries.

In those regards, PAAVOLA (2007) considered integrated institutional change as a joint learning process, which may enhance a shift and a synchronisation of values ad motivations. Likewise, EGGERTSSON emphasised that a "theory of institutional change requires a theory of the formation of value systems" (EGGERTSSON 1993, 27). This indicates that institutional arrangements are only sustainable if they consider underlying mental models. Thus, further research needs to address how levels of social capital, particularly of CSC, can be accumulated and sustained to account for institutional change.

6.6 Implications for Policy

This analysis has shown that environmental collective action across the domains of markets, public administration, and civil society can be enabled even under unfavourable conditions regarding low levels of CSC and RSC. This is of critical relevance since individual efforts of environmental action are fragile and of limited scope and impact. Thus, under regimes of low CSC and RSC, acknowledgement of similarities and differences

represents the first and critical step to evaluate how collective action can be achieved. Thereby, identified similarities – shared ideas, shared goals, interests, incentives, or common threats – represent the initial basis on which collective action can be built. Identified differences have the potential to reduce conflict, uncertainties, and mistrust by making transparent why commitment and compliance cannot be secured (cf. KRAUSE et al. 2007; LAVIE et al. 2012). This includes the availability of resources as well as specific procedural logics to which actors are bound. On this basis, a leap of faith can be granted, assuming goodwill instead of malicious unwillingness.

However, environmental initiatives on the island of Paros – although partially successful in their own respect – frequently struggle to achieve collective action. Nonetheless, those initiatives provide key insights into obstacles to environmental collective action which can be repeatedly observed: (1) lacking economic viability; (2) lacking opportunities for engagement; (3) lacking cooperative culture; (4) an adverse institutional framework and strained relations with local authorities. The *Clean Blue Paros Initiative* within its holistic collaborative change approach successfully takes up those problems. By implementing a mode of self-governance across the three societal domains of public administration, market, and civil society, it stimulates a "shift from hierarchical-based to network-based governance" (GÓRRIZ-MIFSUD et al. 2016, 25). By training and equipping the island community with resources and facilities for social interaction and establishing structures of community co-ownership, the initiative aims at community integration to embed project principles and aims into island community life. It thus holds the community accountable for success or failure. Moreover, the initiative strives for a diversification and an enhancement of the local economy to create economic viability and local job opportunities. Finally, it establishes viable relations with public administrative bodies to facilitate a rapprochement between local authorities and civil society.

The collaborative structures within the *Clean Blue Paros Initiative* have shown that environmental collective action can be enabled in adverse settings, if viable two-way communication channels between key actors are established to provide the basis to negotiate common grounds and terms. Binding agreements additionally serve to establish a shared culture in first-time collaborations. But moreover, flexibility is needed to account for diverging initial conditions of heterogeneous actors, which can be offered through iterative and gradual approaches. However, it has to be noted that the initiation and success of the *Clean Blue Paros Initiative* stem from *Common Seas'* performance as a mediator in balancing power relations and resources between island community actors and its ability to

provide viable incentives for actors to collaborate. Thus, to ensure future success of the initiative beyond narrow project time horizons, social capital amongst community actors needs to be fostered to avoid a dissipation of social capital and a relapse into old habits after *Common Seas'* withdrawal from the island.

6.7 Summary

Results from this analysis account for the initial emergence of environmental collective action. They considered and were based on actors' perceptions of conditions, opportunities, and obstacles. Subjective valuation, validity, and reliability were nonetheless ensured by adequate definitions of concepts and operational measures, sufficient use of multiple sources and triangulation, as well as communicative validation techniques. Thus, assuming that the results are valid and reliable, it can be noted that CSC is of formidable significance to enable collective action, while RSC acts as a mediator.

However, this analysis detects respective roles of CSC and RSC at a specific time such that results only apply to the initial stage of environmental collective action and do not provide information on its long-term success or failure. Regarding the transformative character of environmental initiatives, particularly within adverse political and societal settings, further research needs to address combinations and the relevance of CSC and RSC over time to account for institutional change.

Nonetheless, this case study has shown that community-wide environmental collective action can be enabled even under unfavourable conditions. Particularly when accounting for a highly heterogeneous group of actors, strategies for this should consider flexible, iterative, and supportive processes to build a common ground of positive experiences and preferences. This initial process can be enforced through formalisation and binding commitment. To facilitate the formation of common grounds regarding prioritisation of shared goals, interests, common threats, and a sense of belonging, initiatives need to ensure economic viability and community integration. Moreover, viable relations between civil society, local economy, and local authorities need to be established.

However, under regimes of fragmented and heterogeneous communities and unresolved political and societal queries, it needs a strong mediator who is capable of overcoming those barriers and who can pave the way for environmental collective action in an initial stage.

7 Conclusion

This study's argumentation started from the fact that the exploitation of natural resources, a growing population, and increasing pollution pushes ecosystems around the world to their limits, thereby causing severe environmental problems. These constitute collective action dilemmas, since they are caused by habitual practices of many people and can thus only be resolved if a large majority contributes. However, short-term and individual profit orientation as well as the need to obtain stable political majorities shape the political agenda. This does not only exacerbate environmental problems but also triggers social conflicts by playing off individual and sector-specific economic interests against public welfare.

Research on collective action and the governance of environmental problems provides key insights into how those conflicts can be resolved. It is informed by institutional analysis, focusing on the design of governance arrangements and viable institutions. However, collective action is moreover embedded in a social context, a complex of social relations, norms, and institutions referred to as social capital. Thus, social capital represents an important input factor for the formation of collective action and the provision of public goods such as environmental quality. It was argued that the concept of social capital coincides with important aspects of institutional theory: Being analysed along the three dimensions of SSC, CSC and RSC, SSC is largely captured by the analysis of governance arrangements that describe network configurations, hierarchies, and positions. In contrast to the other two dimensions, this dimension has been widely explored.

Nonetheless, the other two dimensions are equally important. CSC incorporates the normative ground for collective action to occur and comprises mental models, including problem framing (shared goals) and institutions (shared culture). RSC, which comprises the characteristics of relationships, allows actors to interact and collaborate even in situations characterised by uncertainty and information asymmetry. Thus, it was suggested that RSC acts as a facilitator of cooperation and transmitter of the effects held by CSC, while the other was ultimately essential for collaboration regarding its capacity to convey contexts and means of action. On this basis, I proposed that CSC is a sufficient and necessary condition for environmental collective action to emerge, while RSC constitutes an insufficient but necessary component in the absence of CSC.

Despite their widely acknowledged relevance in shaping collaborative efforts, RSC and CSC remain underexplored, particularly in the context of collective action. Apart from

their differential effects in determining the functioning of interaction (CSC) and the facilitation of interaction by compensating for uncertainties (RSC), both dimensions have been found to be mutually reinforcing. However, those considerations can be criticised in that they tend to be circular and tautological if cause and effect remain unclear.

This study contributes in two ways: (1) to address the general research gap regarding the role of RSC and CSC in the context of collective action and (2) to achieve an analytical differentiation regarding the reinforcing nature of both dimensions. In this context, the analysis focused on the initial stage of environmental collective action (1) to investigate the sequencing of social capital dimensions at this stage, (2) to assess the specific role of both dimensions within this path, and (3) to ultimately evaluate on the respective effect of those sequences of social capital dimensions on the emergence of environmental collective action. To approach those questions, I conducted a multiple case study analysis of environmental initiatives on the island of Paros.

Matching the problematic conditions representing the starting point of this thesis, the Cycladic island is experiencing a severe depletion of natural resources and is facing various environmental problems due to an increasing population, particularly characterised by a large seasonal influx of tourists, and associated intensive socio-economic processes. In this context and despite potentially huge private benefits, which could be obtained in the tourism and construction sectors, the current economic development proclaimed by public administration is increasingly contested. This reveals social and political tensions over issues of political participation and coordination, privatisation and commercialisation, as well as public welfare.

A growing community of environmental initiatives and proponents of alternative forms of island development address pressing environmental problems. However, operating in adverse socio-political settings, many initiatives struggle to successfully establish collective action. Major barriers to this were observed in terms of (1) insufficient economic viability of environmental engagement, (2) a lack of opportunities for social interaction, (3) an under-developed cooperative culture, and (4) strained relations with local authorities.

The *Clean Blue Paros Initiative* addresses those obstacles and thus serves as a paradigmatic example of how collective action can be achieved despite adverse socio-political and institutional settings. The initiative is conducted by the international NGO *Common Seas* and pursues an integrated system approach to reduce plastic waste pollution on the

island. Three cooperative subprojects, namely the collaboration with (1) local businesses, (2) local authorities, and (3) external partners, which represent exemplary cases of successful environmental collective action, constituted the core of this study. They were analysed along the dimensions of RSC and CSC in terms of their sequencing and respective role. Moreover, an analogous analysis of various environmental initiatives, which struggle to achieve environmental collective action, built the groundwork for a hypothetical counterposition, in which collective action is impeded due to unfavourable levels and sequences of RSC and CSC.

Results of the analysis confirm prior expectations of CSC representing a sufficient and necessary condition and thus being the critical enabler for environmental collective action to emerge in the initial stage. At the same time, it must be noted that levels of CSC can be equally constituted by informally shared language and cultures on the basis of common understanding or by formalisation. Regarding this, formalisation was found to be particularly essential when levels of informal CSC were low.

RSC – although evident and relevant throughout all forms of collaboration – was found to mediate and facilitate initial rapprochement rather than directly enabling environmental collective action. Thus, it represents an insufficient but necessary condition for environmental collective action to emerge, which is particularly relevant in the absence of CSC. If both dimensions of RSC and CSC – informal or formal – showed low levels, environmental collective action was very likely to be impeded due to a deadlock caused by diverging interests and mistrust originating from uncertainties and negative experiences.

Despite this last implication, the quintessence of this study is that environmental collective action can be enabled even within a highly heterogeneous and fragmented community and under unfavourable conditions. The key to success lies in establishing mutual relations to implement a flexible and gradual transformative process, which takes account of a pluralism of values and interests. This approach constitutes a learning process and may account for a long-term shift and a synchronisation of values and motivations.

However, to achieve this within an adequate time frame to resolve environmental collective action dilemmas, it needs a mediator who is knowledgeable about context-specific barriers to collective action and capable of overcoming those barriers. Moreover, the transformative character points out a need for further research which addresses how combinations and relevance of CSC and RSC change over time and thus account for institutional change to secure long-term success of environmental collective action.

References

AGGER, A., and JENSEN, J.O. 2015. Area-based Initiatives – And their Work in Bonding, Bridging and Linking Social Capital. *European Planning Studies 23*(10): 2045-2061.

ANDREWS, R. 2010. Organizational Social Capital, Structure and Performance. *Human Relations 63*(5): 583-608.

AOKI, M. 2007. Endogenizing Institutions and Institutional Changes. *Journal of Institutional Economics 3*(1): 1-31.

ARROW, K.J. 2000. Observations on Social Capital. In P. Dasgupta and I. Serageldin (Eds.), *Social Capital. A Multifaceted Perspective* (pp. 3-5). Washington, D.C.: The World Bank.

ASSIMACOPOULOS, D. 2006. *Allocation of Water Resources and Cost Under Scarcity: A Case Study*. Proceedings of the International Workshop on Hydro-Economic Modelling and Tools for Implementation of the European Water Framework Directive, Valencia, Spain. Retrieved from http://environ.chemeng.ntua.gr/en/UserFiles/File/Allocation%20of%20water%20resources%20and%20cost%20under%20scarcity%20-%20A%20case%20study.pdf

BANOS-GONZÁLEZ, I., MARTÍNEZ-FERNÁNDEZ, J., and ESTEVE-SELMA, M.A. 2015. Dynamic integration of sustainability indicators in insular socio-ecological systems. *Ecological Modelling 306*: 130-144.

BANOS-GONZÁLEZ, I., MARTÍNEZ-FERNÁNDEZ, J., and ESTEVE, M.A. 2016. Tools for Sustainability Assessment in Island Socio-Ecological Systems: An Application to the Canary Islands. *Islands Studies Journal 11*(1): 9-34.

BAYLIS, K., GONG, Y., and WANG, S. 2018. Bridging versus Bonding Social Capital and the Management of Common Pool Resources. *Land Economics 94*(4): 614-631.

BOURDIEU, P. 1986. The Forms of Capital. In J.G. Richardson (Ed.), *Handbook of Theory and Research for the Sociology of Education* (pp. 241-258). New York: Greenwood Press.

BRINKMANN, S., and KVALE, S. 2015. *InterViews. Learning the Craft of Qualitative Research Interviewing* (3rd ed.). Los Angeles et al.: SAGE Publications.

BURT, R.S. 1992. *Structural Holes: The Social Structure of Competition*. Harvard University Press.

BURT, R.S. 2000. The Network Structure of Social Capital. *Research in Organizational Behaviour 22*: 345-423.

CALL, M., and JAGGER, P. 2017. Social Capital, Collective Action, and Communal Grazing Lands in Uganda. *International Journal of the Commons 11*(2): 854-876.

CAREY, S., LAWSON, B., and KRAUSE, D.R. 2011. Social Capital Configuration, Legal Bonds and Performance in Buyer-Supplier Relationships. *Journal of Operations Management 29*: 277-288.

COCCIA, M. 2018. An Introduction to the Theories of Institutional Change. *Journal of Economics Library 5*(4): 337-344.

COLEMAN, J. 1988. Social Capital in the Creation of Human Capital. *The American Journal of Sociology 94:* S95-S120.

COLEMAN, J.S. 1990. *Foundations of Social Theory*. Cambridge, MA: Belknap Press of Harvard University Press.

COMMON SEAS. 2019a. *Clean Blue Alliance* [Webpage]. Retrieved from https://commonseas.com/projects/clean-blue-alliance

COMMON SEAS. 2019b. *Common Seas, Paros Municipality and WATT, Welcome Pioneering Agreement to Support Paros in Becoming the First Plastic Waste-Free Island* [Press Release]. Retrieved from https://commonseas.com/uploads/Common-Seas-Clean-Blue-Paros-Press-Release-ENG.pdf

COMMON SEAS. 2020. *Charting a Course on Healthy Seas* [Unpublished Pdf slides].

DELLADETSIMA, P.-M. A. 2011. Planning for Knowledge Infrastructure and Capacity Building in a Distinct Insular Regional Context (Cyclades-Southern Aegean): The Role of Higher Education Institutions' Research Actions. *Innovation: The European Journal of Social Science Research 24*(1-2): 107-131.

DHAR, S., and BOSE, I. 2019. *Empirical Study of Social Capital Factors Formed through Digital Social Networking.* Paper presented at the Fortieth International Conference on Information Systems, Munich, Germany. Retrieved from https://aisel.aisnet.org/icis2019/crowds_social/crowds_social/29/

DUIT, A. 2010. Patterns of Environmental Collective Action: Some Cross-National Findings. *Political Studies 59*: 900-920.

EGGERTSSON, T. 1993. Mental Models and Social Values: North's Institutions and Credible Commitment: Comment. *Journal of Institutional and Theoretical Economics 149*(1): 24-28.

EISENHARDT, K.M., and GRAEBNER, M.E. 2007. Theory Building from Cases: Opportunities and Challenges. *Academy of Management Journal 50*(1): 25-32.

FALK, I., and KILPATRICK, S. 2000. What *is* Social Capital? A Study of Interaction in a Rural Community. *Sociologica Ruralis 40*(1): 87-110.

FELDMAN, T. ROSSING and ASSAF, S. 1999. *Social Capital: Conceptual Frameworks and Empirical Evidence. An Annotated Bibliography* (The World Bank Social Capital Initiative Working Paper No. 5). Retrieved from The World Bank website…..

FLICK, U. 1995. *Qualitative Forschung. Theorie, Methoden, Anwendung in Psychologie und Sozialwissenschaften.* Hamburg: Rowohlt.

FONI TIS PAROU (FTP). 2019. K. Rokonidas: "Making the Change for Paros and our Needs". *Foni Tis Parou.* Retrieved from https://www.fonitisparou.gr/201-aftodioikisi/19042-i-synentefksi-tou-k-rokonida-sta-agglika

FUKUYAMA, F. 1995. *Trust: The Social Virtues and the Creation of Prosperity*. New York: Free Press.

GÄCHTER, S., KÖLLE, F., and QUERCIA, S. 2017. Reciprocity and the Tragedies of Maintaining and Providing the Commons. *Nature Human Behaviour 1*(9): 650-656.

GAVALAS, V.S. 2014. The History of Family and Community Life through the Study of Civil Registers: Paros in the 20th century. *The History of the Family 19*(2): 145-164.

GERASIDI, A., KATSIARDI, P., PAPAEFSTATHIOU, N., MANOLI, E., and ASSIMACOPOULOS, D. 2003. *Cost-effectiveness Analysis for Water Management in the Island of Paros, Greece.* Paper presented at the 8th International Conference on Environmental Science and Technology, Lemnos Island, Greece. Retrieved from http://environ.chemeng.ntua.gr/wsm/Uploads/Publications/Cost-effectiveness%20for%20water%20management%20in%20the%20island%20of%20Paros,%20Greece.pdf

GLINKA, H.-J. 2016. *Das narrative Interview- Eine Einführung für Sozialpädagogen.* (4th ed.). Weinheim/ Basel: BeltzJuventa.

GÓRRIZ-MIFSUD, E., SECCO, L., and PISANI, E. 2016. Exploring the Interlinkages between Governance and Social Capital: A Dynamic Model for Forestry. *Forest Policy and Economics 65*:25-36.

GRANOVETTER, M. 1973. The Strength of Weak Ties. *American Journal of Sociology 78*(6): 1360-1380.

GRANOVETTER, M. 1985. Economic Action and Social Structure: The Problem of Embeddedness. *The American Journal of Sociology 91*(3): 481-519.

HAGEDORN, K. 2008. Particular Requirements for Institutional Analysis in Nature-Related Sectors. *European Review of Agricultural Economics 35*(3): 357-384.

HARDIN, G. 1968. The Tragedy of the Commons. *Science 162*: 1243-1248.

HARRISON, J.L., MONTGOMERY, C.A., and BLISS, J.C. 2016. Beyond the Monolith: The Role of Bonding, Bridging, and Linking Social Capital in the Cycle of Adaptive Capacity. *Society & Natural Resources 29*(5): 525-539.

HAWKINS, R.L., and MAURER, K. 2010. Bonding, Bridging and Linking: How Social Capital Operated in New Orleans following Hurricane Katrina. *British Journal of Social Work 40*: 1777-1793.

HELLENIC STATISTICAL AUTHORITY (ED.) (HSA). 2019. Greece in Figures. April-June 2019. Retrieved from https://www.statistics.gr/documents/20181/1515741/GreeceInFigures_2019Q2_EN.pdf/91b4306d-f9a8-1319-8dfb-8a4e2dc5d065

INKPEN, A.C., and TSANG, E.W.K. 2005. Social Capital, Networks, and Knowledge Transfer. *The Academy of Management Review 30*(1): 146-165.

KAHAN, D.M. 2002. Reciprocity, Collective Action, and Community Policing. *California Law Review 90*(5): 1513-1539.

KARAVITIS, C.A., SKONDRAS, N.A., MANOLI, E., and ASSIMACOPOULOS, D. 2012. Assessing Alternative Water Resources Management Scenarios in Islands of the Aegean Archipelago, Greece. *Global NEST Journal 14*(3): 264-275.

KAWAMOTO, K., and KIM, K. 2019. Efficiencies of Bonding, Bridging and Linking Social Capital: Cleaning up after Disasters in Japan. *International Journal of Disaster Risk Reduction 33*: 64-73.

KIM, H.-Y. 2018. Effects of Social Capital on Collective Action for Community Development. *Social Behaviour and Personality 46*(6): 1011-1028.

KONSTANTOPOULOU, F., LIU, S., PAPAGEORGIOU, L.G., and GIKAS, P. 2011. Water Resources Management for Paros Island, Greece. *International Journal of Sustainable Water and Environmental System 2*(1): 1-6.

KRAMER, R.M. 1999. Trust and Distrust in Organizations. Emerging Perspectives, Enduring Questions. *Annual Review of Psychology 50*: 569-598.

KRAUSE, D.R., HANDFIELD, R.B., and TYLER, B.B. 2007. The Relationship between Supplier Development, Commitment, Social Capital Accumulation and Performance Improvement. *Journal of Operations Management 25*: 528-545.

LAVIE, D., HAUNSCHILD, P.R., and KHANNA, P. 2012. Organizational Differences, Relational Mechanisms, and Alliance Performance. *Strategic Management Journal 33*: 1453-1479.

LIN, N. 1999. Building a Network Theory of Social Capital. *Connections 22*(1): 28-51.

LITTLE, D. 1993. On the Scope and Limits of Generalizations in the Social Sciences. *Synthese 97*: 183-207.

LIU, C.-L. E., GHAURI, P.N., and SINKOVICS, R.R. 2010. Understanding the Impact of Relational Capital and Organizational Learning on Alliance Outcomes. *Journal of World Business 45*(3): 237-249.

LIU, S., KONSTANTOPOULOU, F., GIKAS, P., and PAPAGEORGIOU, L.G. 2011. A Mixed Integer Optimisation Approach for Integrated Water Resources Management. *Computers and Chemical Engineering 35*: 858-875.

MARMARAS, E.V. and WALLACE, A. 2016. Residential Tourism and Economic Migration: Both Sides of the Same Population Movement on the Greek Islands of Cyclades in the Turn of the Twenty-First Century. *Journal of the Knowledge Economy 9*: 1477-1488.

MARTINOS, H. 2011. Paros 2020. A Vision for the Future [Web Blog Comment]. Retrieved from http://paroslife.parosweb.com/story.html?story=3035&issue=147

MASSALIOTIS. 2010. Elections 2010. Interview with Kostas Rokonidas [Web Blog Interview]. Retrieved from http://paroslife.parosweb.com/story.html?story=2838&issue=141

MCGINNIS, M.D. 2011. An Introduction to IAD and the Language of the Ostrom Workshop: A Simple Guide to a Complex Framework. *The Policy Studies Journal 39*(1): 169-183.

MIEG, H., and NÄF, M. 2005. *Experteninterviews in den Umwelt- und Planungswissenschaften. Eine Einführung und Anleitung* (2. ed). Institut für Mensch-Umwelt-Systeme (HES), ETH Zürich.

MUNIADY, R., AL MAMUN, A., MOHAMAD, M.R., PERMARUPAN, Y., and ZAINOL, N.R.B. 2015. The Effect of Cognitive and Structural Social Capital and Micro-Enterprise Performance. *Sage Open 5*(4): 2158244015611187.

NAHAPIET, J., and GHOSHAL, S. 1998. Social Capital, Intellectual Capital, and the Organizational Advantage. *Academy of Management Review 23*(2): 242-266.

NORTH, D.C. 1990. *Institutions, Institutional Change and Economic Performance.* New York: Cambridge University Press.

NORTH, D.C. 1993. Institutions and Credible Commitment. *Journal of Institutional and Theoretical Economics 149*(1): 11-23.

OLSON, M. 1965. The Logic of Collective Action. Public Goods and the Theory of Groups. Cambridge, USA: Harvard University Press.

OSTROM, E. 1990. *Governing the Commons. The Evolution of Institutions for Collective Action*. Cambridge, UK: Cambridge University Press.

OSTROM, E. 1998. A Behavioural Approach to the Rational Choice Theory of Collective Action. *The American Political Science Review 92*(1): 1-22.

OSTROM, E. 2000a. Collective Action and the Evolution of Social Norms. *Journal of Economic Perspectives 14*(3): 137-158.

OSTROM, E. 2000b. Social Capital: A Fad or Fundamental Concept? In P. Dasgupta, and I. Serageldin (eds.), *Social Capital. A Multifaceted Perspective,* 172-214.

OSTROM, E. and AHN , T.K. 2001. *A Social Science Perspective on Social Capital: Social Capital and Collective Action.* Paper presented at the European Research Conference on "Social Capital: Interdisciplinary Perspectives," Exeter, United Kingdom. Retrieved from https://www.researchgate.net/publication/242569787_A_Social_Science_Perspective_on_Social_Capital_Social_Capital_and_Collective_Action

OSTROM, E. 2005. *Understanding Institutional Diversity*. Princeton, USA: Princeton University Press.

OSTROM, E., and AHN, T.K. 2009. The Meaning of Social Capital and Its Link to Collective Action. In G. Tinggaard Svendsen, and G.L. Haase Svendsen (Eds.), *Handbook*

of Social Capital. The Troika of Sociology, Political Science and Economics (pp. 17-35). Cheltenham, UK/ Northampton, MA: Edward Elgar.

OSTROM, E. 2011. Background on the Institutional Analysis and Development Framework. *The Policy Studies Journal 39*(1): 7-27.

OSTROM, E. 2014. Beyond Markets and States. Polycentric Governance of Complex Economic Systems. In F. Sabetti, and P.D. Aligica (eds.), *Choice, Rules and Collective Action. The Ostroms on the Study of Institutions and Governance* (pp. 167-209). Colchester: ECPR Press.

OSTROM, V., TIEBOUT, C.M., and WARREN, R. 1961. The Organization of Government in Metropolitan Areas: A Theoretical Inquiry. *American Political Science Review 55*: 831-42.

OSTROM, V. 2014. Polycentricity: The Structural Basis of Self-Governing Systems. In F. Sabetti, and P.D. Aligica (eds.), *Choice, Rules and Collective Action. The Ostroms on the Study of Institutions and Governance* (pp. 45-60). Colchester: ECPR Press.

PAAVOLA, J. 2007. Institutions and Environmental Governance: A Reconceptualization. *Ecological Economics 63*: 93-103.

PHUA, J., JIN, S.V., and KIM, J.J. 2017. Uses and Gratifications of Social Networking Sites for Bridging and Bonding Social Capital: A Comparison of Facebook, Twitter, Instagram, and Snapchat. *Computers in Human Behaviour 72*: 115-122.

PINHO, J.C.M.R. 2013. The Role of Relational Social Capital in Examining Exporter-Intermediary Relationships. *European Business Review 25*(6): 553-570.

PUTNAM, R.D. 1993a. The Prosperous Community. Social Capital and Public Life. *The American Prospect 13*(4): 249-258.

PUTNAM, R.D. 1993b. What Makes Democracy Work? *National Civic Review 82*(2): 101-107.

PUTNAM, R.D. 1995. Bowling Alone: America's Declining Social Capital. *Journal of Democracy 6*(1): 65-78.

RAMÓN-HIDALGO, A.-E., KOZAK, R.A., HARSHAW, H.W., and TINDALL, D.B. 2018. Differential Effects of Cognitive and Structural Social Capital on Empowerment in Two Community Ecotourism Projects in Ghana. *Society & Natural Resources 31*(1):57-73.

RUDD, M. A. 2000. Live long and prosper: Collective Action, Social Capital and Social Vision. *Ecological Economics 34*(234): 131-144.

SAJURIA, J., HEERDE-HUDSON, J. VAN, HUDSON, D., DASANDI, N., and THEOCHARIS, Y. 2015. Tweeting Alone? An Analysis of Bridging and Bonding Social Capital in Online Networks. *American Politics Research 43*(4): 708-738.

SCHMID, A.A. 2004. Conflict and Cooperation. Institutional and Behavioural Economics. Oxford, UK: Blackwell.

SEIDLHOFER, B. 2001. Closing a Conceptual Gap. The Case for a Description of English as a Lingua Franca. *International Journal of Applied Linguistics 11*(22): 133-158.

SERAGELDIN, I., and GROOTAERT, C. 2000. Defining Social Capital: An Integrative View. In P. Dasgupta, and I. Serageldin (Eds.), *Social Capital. A Multifaceted Perspective* (pp. 40-58). Washington, D.C.: The World Bank.

SEVENANT, M., and ANTROP, M. 2007. Settlement Models, Land Use and Visibility in Rural Landscapes: Two Case Studies in Greece. *Landscape and Urban Planning 80*: 362-374.

SHEPSLE, K.A. 1991. Discretion, Institutions and Commitment: The Evolution of Institutions and the Problem of Government Commitment. In P. Bourdieu, and J. Bourdieu (Eds.), *Social Theory for a Changing Society* (). Boulder: Western Press.

SKELCHER, C. 2008. Does Governance Perform? Concepts, Evidence, Cuasalities and Research Strategies. In J. Hartley, C. Donaldson, C. Skelcher, and M. Wallace (Eds.), *Managing to Improve Public Services* (27-45). Cambridge, UK: Cambridge University Press.

SOLOW, R.M. 2000. Notes on Social Capital and Economic Performance. In P. Dasgupta, and I. Serageldin (Eds.), *Social Capital. A Multifaceted Perspective* (pp. 6-10). Washington, D.C.: The World Bank.

SPILANIS, I., KIZOS, T., KOULOURI, M., KONDYLI, J., VAKOUFARIS, H., and GATSIS, I. 2009. Monitoring Sustainability in Insular Areas. *Ecological Indicators 9*: 179-187.

STAKE, R.E. 1995. *The Art of Case Study Research.* Thousand Oaks/ London/ New Delhi: SAGE Publications.

STEINMO, M., and RASMUSSEN, E. 2018. The Interplay of Cognitive and Relational Social Capital Dimensions in University-Industry Collaboration: Overcoming the Experience Barrier. *Research Policy 47*: 1964-1974.

SUKOCO, B.M., HARDI, H., and QOMARIYAH, A. 2018. Social Capital, Relational Learning, and Performance of Suppliers. *Asia Pacific Journal of Marketing and Logistics 30*(2): 417-437.

SVENDSEN, G. TINGGAARD and SVENDSEN, G.L. HAASE 2009. The Troika of Sociology, Political Science and Economics. In G. Tinggaard Svendsen, and G.L. Haase Svendsen (Eds.), *Handbook of Social Capital. The Troika of Sociology, Political Science and Economics* (pp. 1-13). Cheltenham, UK/ Northampton, MA: Edward Elgar.

THAU, S., CROSSLEY, C., BENNETT, R.J., and SCZESNY, S. 2007. The Relationship between Trust, Attachment, and Antisocial Work Behaviours. *Human Relations 60*(8): 1155-1179.

THE NATIONAL HEROLD STAFF N.N. (TNH). 2019, April 23. Mayor of Paros Markos Koveos Talks to TNH. *The National Herold*. Retrieved from https://www.thenationalherald.com/240759/interview-with-the-mayor-of-paros-markos-koveos/

TREIB, O., BÄHR, H., and FALKNER, G. 2007. Modes of Governance: Towards a Conceptual Clarification. *Journal of European Public Policy 14*(1): 1-20.

TSAI, W., and GHOSHAL, S. 1998. Social Capital and Value Creation: The Role of Intrafirm Networks. *The Academy of Management Journal 41*(4): 464-476.

TZANAKIS, M. 2013. Social Capital in Bourdieu's, Coleman's and Putnam's Theory: Empirical Evidence and Emergent Measurement Issues. *Educate 13*(2): 2-23.

UNIVERSITY OF THE AEGEAN. 2020. *Welcome to the Department of Marine Science* [Webpage]. Retrieved from https://www.mar.aegean.gr/index.php?pg=0&lang=en

USLANER, E.M. 2002. *The Moral Foundations of Trust*. Paper presented at the Symposium Trust in the Knowledge Society, Jyvaskala, Finland. Retrieved 28.01.2020 from https://www.researchgate.net/publication/228191342_The_Moral_Foundation_of_Trust

VILLALONGA-OLIVES, E., and KAWACHI, I. 2015. The Measurement of Social Capital. *Gaceta Sanitaria 29*(1): 62-64.

VOIVONTAS, D., ARAMPATZIS, G., MANOLI, E. KARAVITIS, C., and ASSIMACOPOULOS, D. 2003. Water Supply Modelling Towards Sustainable Environmental Management in Small Islands: The Case of Paros, Greece. *Desalination 156*: 127-135.

WARREN, A.M., SULAIMAN, A., and JAAFAR, N.I. 2015. Understanding Civic Engagement Behaviour on Facebook from a Social Capital Theory Perspective. *Behaviour & Information Technology 34*(2): 163-175.

WOOLCOCK, M. 1998. Social Capital and Economic Development: Toward a Theoretical Synthesis and Policy Framework. *Theory and Society 27*: 151-209.

YIN, R.K. 2014. *Case Study Research. Design and Methods* (5th ed.). Thousand Oaks/ London/ New Delhi: SAGE Publications.

YOU, L., and HON, L. 2019. How Special Ties Contribute to Collective Action on Social Media: A Social Capital Approach. *Public Relations Review 45*(4): 101771.

Annexe

Annexe 1: Interview Guidelines

Interview Guideline Key Informants			
Overall Guiding Questions	**What does it mean to initiate an environmental project on the island of Paros?**		
	Which role do RSC and CSC play in this process?		
	How does cooperation work on the island?		
Interview Section	**Question Type**	**Question Subject**	**Aim**
Introduction	Introductory Questions	1. Project descriptions	Problem framing and use of terminology
		2. Project aims	
		3. Activities	
Main Topics	Main Questions	1. Descriptions of collaborative efforts and activities	Assessment of evident collaboration and governance
		2. Barriers and opportunities for collaboration	Assessment of barriers and opportunities
		3. Descriptions and ratings of like-mindedness amongst actors	Assessment of CSC
		4. Descriptions and ratings of relationship qualities and trust	Assessment of RSC
	Probing Questions		for detail and clarification
	Follow-up Questions		for implications
	Communicative Validation		verification of statements and abstractions
Summary			for overall communicative validation
Additions			to account for unexpected/ uncalculated relevant aspects

Interview Guideline Scoping Interviews				
Overall Guiding Questions	**1. What does it mean to live on a small island?**			
	2. What does it mean to live with sharp touristic seasons?			
Interview Section	**Question Type**	**Question Subject**	**Aim**	**Annotation**
Introduction	Introductory Questions (personal questions)	1. Type of Employment	Community-specific attributes and community-specific involvement	
		2. Residence and Domicile		
		3. Community Involvement		
Main Topics	Main Questions (general questions)	1. Community Life	Daily and public life, activities, island agenda, seasonality etc.	questions/ focus variable depending on interviewee
		2. Rules-in-use and communication	procedures, behavioural patterns, social mechanisms	
		3. Island-specific opportunities	positively rated aspects of the island	
		4. Island-specific obstacles and conflicts	relevant and current conflicts/ issues	
	Probing Questions		for detail and clarification	
	Follow-up Questions		for implications	
	Communicative Validation		verification of statements and abstractions	
Summary			for overall communicative validation	
Additions			to account for unexpected/ uncalculated relevant aspects	

Annexe 2: Table of Interviews

Interview Number	Type of Interview	Case of Reference	Type of Respondent	Community	Time spend on Paros	Duration
1	Key Informant Interview	Clean Blue Paros Initiative/ Environmental Initiatives	Project Initiator/ Project Manager	International Newcomer	> 5 years	00:36:40
2	Key Informant Interview	Clean Blue Paros Initiative	Project Manager	Local		00:50:36
3	Key Informant Interview	Environmental Initiatives/ Contextual Information	Project Initiator/ Entrepreneur	International Newcomer	< 30 years	00:51:30
4	Key Informant Interview	Environmental Initiatives/ Contextual Information	Project Initiator/ Entrepreneur	International Newcomer	< 10 years	01:20:25
5	Key Informant Interview	Environmental Initiatives/ Contextual Information	Project Initiator/ Farmer	Local Returnee	< 5 years	00:47:37
6	Key Informant Interview	Environmental Initiatives/ Contextual Information	Project Initiator/ Farmer	Greek Newcomer	< 5 years	01:24:47
7	Key Informant Interview	Environmental Initiatives/ Contextual Information	Project Initiator/ Entrepreneur	Local Returnee	> 5 years	00:50:42
8	Key Informant Interview	Environmental Initiatives/ Contextual Information	Project Initiator	Local		00:30:15
9	Key Informant Interview	Environmental Initiatives/ Contextual Information	Project Initiator/ Project Manager	Greek Newcomer	< 10 years (with interruptions)	01:00:07
10	Key Informant Interview	Environmental Initiatives/ Contextual Information	Project Initiator/ Artist	International Newcomer	< 40 years (with interruptions)	01:14:29
11	Scoping Interview	Contextual Information	Entrepreneur	International Newcomer	< 5 years	00:08:10
12	Scoping Interview	Contextual Information	Citizen	International Newcomer	< 20 years	00:13:04
13	Scoping Interview	Contextual Information	Shop Keeper	Greek Seasonal Resident	1 year	00:05:00
14	Scoping Interview	Contextual Information	Restaurant Owner	Greek Seasonal Resident	> 5 years	00:05:00
15	Scoping Interview	Contextual Information	Hotel Owner	Local		00:05:00
16	Scoping Interview	Contextual Information	Farmer/ Entrepreneur	Local		00:15:00

Annexe 3: Interview Abstracts

Interview 1: Abstract
The interview was structured around S' (subject) personal engagement and motivations in a first part and S' engagement in the *Clean Blue Paros Initiative* in a second part. As newcomer to the island, S notes that language, a lack of time, and a lack of economic viability proved to be main barriers to reach out to locals for environmental action. S perceives an active community building as very tough on Paros. S believes intrinsic motivation is a key factor for environmental engagement. Moreover, S believes that alternative projects need to be economically viable in order to achieve an independence from conventional economic business models, such as tourism. S approaches the community-building amongst business owners on the basis of like-mindedness and openness. Nonetheless, S perceive mutual relations in terms of contact and information sharing and promotion for compliance as necessary to build partnerships. Pioneering business partners complied voluntarily and without specific monitoring and enforcing activities. More business owners were to be on-boarded through a snowballing effect. S perceives this effect as a natural by-product of open and public engagement. S' initiative merged into the *Clean Blue Paros Initiative*. The structures and resources of *Common Seas* make the initiative effective and decouple success from individual engagement. T*he Clean Blue Paros Initiative* strives to create a prototype and template for other islands. Thereby, subprojects need to be embedded closely into the island community such that Parians identify with it.
Interview 2: Abstract
The interview focused on the *Clean Blue Paros Initiative's* collaboration with business partners, the installation of water filtration systems in cooperation with local authorities, *Common Seas* role within the project and specific ratings of trust and shared ideas within collaboration. Business collaboration started with like-minded businesses. Others were to be recruited via snowball and pull-effects from success of the campaign, which would be particular effective on a small island with overlapping social relations. Members choose their individual levels of contribution. Compliance is not formally monitored but based on mutual trust and good will as well as on social control in a dense island community. Business partners' compliance goes along with a significant and disadvantageous change of cost structures. Regarding this, S rates trust building higher for implementing changes than initial congruence in ideas and visions. Trust largely stems from project coordinators' expertise and professionalism and project's local embeddedness.

Common Seas cooperates closely with the municipality. Specific involvement depends on the respective context. Necessity and relevance of the collaboration stems from municipality's unique ability to pass through Greek bureaucracy and enable transformative projects that wouldn't have been possible without coordination with public administration. Cooperation of diverse partners (NGOs, public companies, scientific institutions, local authorities) is clarified and regulated in an official agreement designating partners' responsibilities, entitlements, contributions and project-related expenditures. The installation of water filters and reusable bottles in all schools on the island serves as example for their collaboration with public institutions. S had to take the bureaucratic path of public administration to approach the school committee. However, due to the municipality's support, the bureaucratic procedure represented a technical question rather than an obstacle to the successful implementation. In spite of complex Greek legislation and dense regulation, the systems could be installed swiftly before the new school year.

S perceives a potential recidivism after the official end of the project as major threat. This risk is, however, limited by a progressing EU legislation and the number of participants. Providing individuals or groups with the opportunity to lead by example and the early and active involvement of citizens and children in particular represent major facilitators for the project's success.

Interview 3: Abstract

The interview focused on environmental initiatives and activities on the island. S states that the general mentality on the island was rather based on competition stemming from an uncontrolled economic boom, particularly related to tourism, which threatens the island's livelihoods. Moreover, the island is trapped in a dependency from tourism, which is currently declining. S refers to a societal dichotomy of the island community represented by proponents of the current economic development and proponents of sustainable development. S points out that environmental care would not only depend on consciousness but also on cultural habits, which are differently developed across the Cycladic islands. S further describes the island community to be characterised by a large international community. Additionally, Athenians would engage in seasonal economic activities related to tourism.

S perceives the current environmental activities of NGO's as a chance for the island, since they engage in data generation and tailored action. Generally, S perceives sustainable projects to be run by people who are financially independent. In terms of sustainable agriculture, there are only few proper projects. Moreover, there are no sustainable infrastructures and local value chains in place to support those models. S refers to *Paros Park* as lighthouse project in environmental activities, which nonetheless suffers from unresolved conflicts amongst actors and interest groups.

Interview 4: Abstract

The interview focused on S perceptions of sustainable development on the island. S perceives Paros as a model community with many sustainable initiatives and engaged citizens. The island exhibits favourable conditions for a positive development, such as infrastructure. S names awareness and the availability of alternatives as prerequisite for change. Although S expects from local authorities to provide a legal framework for sustainable development, S perceives bureaucratic procedures as not capable of managing transformation. Efforts to cooperate with the municipality failed because local authorities did not fulfil their promised contributions. Broken trust led to the conclusion that one could never rely on the support of the municipality. Thus, S concludes that sustainable development needs to be proclaimed by active citizens. S emphasises the need for flexibility and practicability. Everybody should contribute what he/she can and a natural development will follow. As another obstacle S names a lack of cooperative culture in Greece, although S recognises the engagement of the younger generation.

According to S, a positive island development would be represented by becoming largely independent of imports, enhancing and diversifying the local economy and impeding financial drain from seasonal tourism and external service providers. To achieve this, S emphasises the need of a common vision for the island's development. S advocates community involvement, particularly the involvement of children in environmental action to achieve a reconnection of people and nature. S perceives seasonality as a problem leading to severe economic fluctuations and complicating team-building.

Interview 5: Abstract

The interview focused on the development of the agricultural sector and the socio-economic transformation of the island. S notes that nowadays few people owning farm land are engaged in farming but are more inclined towards a touristic use. S noticed a decline of the agricultural sector but perceives it still to be relevant to the island. Although land degradation is progressing, Paros still exhibits good conditions compared to other Cycladic islands. However, a major problem is represented by the low water quality and water availability in some areas, which would be mostly needed during summer time when water availability was lowest. Due to this problem, there are strict regulations on the availability of licences for boreholes. Nonetheless, there are many illegal water extractions. Moreover, S attributes a decline of the agricultural sector to the trend of land abandonment in remote areas and the conversion of agricultural land to serve more profitable sectors, such as tourism.

In terms of environmental initiatives, S states that there are occasional voluntary events and that the island registers a growing community of environmentally engaged initiatives and individuals, which were often spearheaded by newcomers to the island. S explains that Paros lacks a specifically developed culture of environmental care as other islands have developed. Paros' municipality was rather passive and inclined towards rapid economic development. Nonetheless, with the environmental community there is much coherence in ideas and mental models but no clear vision and coordination yet.
Interview 6: Abstract
The interview focused on alternative approaches to agriculture on the island. S multiply stresses the need to adapt to island conditions, such as water deficiency and strong winds. S recognises a current reverse trend of a new farmer generation. Nonetheless, there are only very few holistic alternatives to conventional agriculture on the island. S relates this to a lack of economic viability. Other local farmers would be trapped in the system. Regarding this, S emphasises that there is no cooperative culture on the island. People would overly invest in private property to account for any eventualities. However, neighbouring farmers recognise S' approaches and imitate those. S stresses that agricultural change takes time and patience.
Interview 7: Abstract
The interview focused on environmental initiatives and activities on the island. S perceives sustainable approaches to be not evident on the island. Institutional frameworks and local authorities would impede sustainable development. Only very few proper environmental initiatives would exist on the island. Cooperation is under-developed and many environmental initiatives would rather account for a green washing of the islands image as touristic destination. Tourism and economic development have destroyed the island's landscape. The local community has internalised the prosperity, which came along with the touristic development of the island, superseding the poverty of the prior agricultural society. Thus, sustainable approaches could not be conveyed to locals.
Interview 8: Abstract
Operating a long-term environmental project, the interview focused on the change of conditions for environmental initiatives. S emphasises a current trend of environmentalism and a partial rehabilitation of nature. Moreover, S assumes that socio-political conditions have positively changed in terms of lower levels of corruption. However, opportunity costs to get involved in environmental practice are very high, such that regular supporters and successors are barely to be recruited. Bureaucratic barriers are still high and sustainable approaches could not be conveyed to most residents. Thus, S

assumes that collective environmental initiatives based on volunteering and funding will dissipate over time.

Interview 9: Abstract

The interview focused on S personal engagement in many environmental initiatives in a first part and on the specific project of *Paros Park* in a second part. S perceives the park to be a lighthouse project of collective action and cooperation, despite still unresolved conflicts. As barriers to environmental initiatives S identifies a lack of financial and natural resources, a lack of time and a lack of coordination. The park managed to overcome those problems with the help of public and private funding and volunteering work, providing huge benefits for locals and visitors. The park takes on an important environmental and social function on the island. However, bureaucratic procedures impose difficulties. Collaboration with authorities remains unclear and unpredictable, endangering the existence of the park.

Interview 10: Abstract

The interview focused on the socio-economic transformation on the island ever since the 1960s. S evaluates on the different island communities of local, farming and international community, which would barely overlap. Particularly the international community expanded rapidly through a snowballing mechanism. With the transformation from an agricultural society into a tourism based economy the population was altered significantly. Environmental and alternative initiatives have always been prevalent on the island both within the farming community and the international community. Nonetheless, approaches remain small-scale or private and dispersed with the alteration of the communities, particularly with the decline of the agricultural sector.

Interview 11: Abstract

The interview focused on environmental awareness and business cooperation on the island. S wishes to preserve the specific characteristics of the island, while fast economic development changes the island's landscapes noticeably. S wishes for more collaborative and coordinated effort amongst businesses on the island to enhance environmental care. However, barriers to this are represented by business operators' occupation during high season and their absence during low season. Municipality's engagement for their claims is perceived passive.

Interview 12: Abstract

The interview focused on socio-economic development on the island and island life. S emphasises the

negative impact of over- tourism on the island. S perceives mass tourism as a threat to local livelihoods leading to a lack of affordable accommodation. Water deficiency is increased by touristic demand. The specific island characteristic serving as a competitive advantage is destroyed. S hopes for the enhancement of alternative forms of tourism.
Interview 13: Abstract
The interview focused on seasonal economic activities in the trade sector. As seasonal resident, S is occupied with work leaving no time for social activities. Community involvement is thus impeded. After the season, S leaves the island until the next season.
Interview 14: Abstract
The interview focused on seasonal economic activities in the hospitality sector. S states that Greek liked to be self-employed to be flexible in terms of work and time. S points out that the tavern was dependent upon food imports because local food products could not be obtained reliably in terms of quantitative supply.
Interview 15: Abstract
The interview focused on differing understandings of sustainability. S perceives activities only to be sustainable if they are economically viable otherwise they would be a hobby.
Interview 16: Abstract
The interview focused on S agricultural activities and S' understanding of how sustainability approaches fit aspirations to expand production. S perceives no conflict between sustainable agricultural practices and expansion. S farm is certified bio and employs modern and industrialised agricultural techniques and technologies. S supplies the wholesale market and the hospitality sector and aim is to further expand production and farm additional rented land.

Annexe 4: Exemplary Excerpts of Meaning Condensation

Excerpt Interview 5 **Q 4: Are there also common activities with other farms and environmental initiatives?**	
Natural Meaning Unit (Step 1)	**Central Theme (Step 2)**
Yeah, we, yeah, we touch. Ahm, we see each other once in a while. Usually, ahm, like volunteer events for like tree plantings and reforestation plantings and like some of the islands, in the Paros Park here, for example. Ahm…	Occasional environmental volunteering events across community
PQ 1: How are those initiatives being organised?	
So, there is a lot of people who are interested in these kinds of initiatives and there is some overlap and some sharing of ideas, but I wouldn't say that there is something very concrete yet, that puts everyone together do one specific thing. But there is these volunteer initiatives like let's plant, ah, every winter, like let's plant trees here in the Paros Park, ah, for example. Ahm. I think that's going to happen. Yeah. I think that it's just about the connections being made the funding with all the money …	Overlap of shared ideas but no formed common vision and strategy yet
A lot of them are new people, but then there is also locals that are interested also. Ahm, but it's like everyone is very busy with their own thing and then finding time or creating the time to do something else besides, I think that's the main issue. Ahm, but there are environmental initiatives taking place.	Initiatives often led by newcomers to the island; locals interested but busy
Descriptive Statement (Step 3)	
There are occasional environmental volunteering events across the island community, which are often spear-headed by newcomers. Locals are interested but lack the time to become engaged. Although environmental initiatives take place on the island and although there is an overlap of shared ideas, there is no overall coordination and strategy yet to enable targeted action.	

Excerpt Interview 9 **Q 3: What did you perceive as obstacles?**	
Natural Meaning Unit (Step 1)	**Central Theme (Step 2)**
Ah, it was, ahm, what I said before, people, people in the Cyclades, not only the people of the Cyclades but people when they look at the Cyclades, they don't believe that this can be reversed, that the damage can be reversed. You can even hear things like, well, we like it like this – the rocks, you know, everybody likes us for this, so, why would you want to green it all. I mean, why bring a forest here. Okay, that was extreme and I haven't heard it many times to be honest. Ah, so, it was the – the main obstacle was that sincerely that people just don't believe it that it can be, that they can do something other than, you know, sustain a few, ah, sad plants somewhere, you know, with a lot of resources, a lot of water. They don't see it. That's the biggest obstacle	Lack of believe that land degradation in the Cyclades can be reversed
PQ 1: You experienced that projects failed. Where do you see the reasons for that?	
Yes, yes. And we did that, did that community vegetable garden for some time and technically it was totally, it was very feasible. And I think it would go very well. The obstacle is, ah, cooperation with people. All the time I – Nature comes back. You give nature just a tiny bit and it gives back 10 fold, 15 fold, 20 fold, 100 fold, I mean. It's the cooperation with people that this is the, the obstacle.	Lack of cooperation
How you manage to make sure that everybody is looking at the same direction. I'm not choosing direction but at least I want to know that, you know, a team of people is looking at the same direction. So, we assure about what, where we are heading. And of course the way to go there. Ah, so, and, yeah. This is, time and time again this comes back and I see also that it's the common problem of all projects. Ah, this is why I believe that these things have to be cleared way before you, you know, you put one plant in the ground or you do anything.	Ensuring and clarifying shared goals and targeted action

PQ 2: What do you perceive as reasons for the lack of cooperation?	
Like it really, it varies because, ah, lack of resources is also very often a problem and it was it still is. Ahm, but yes. Especially here ah, the, the land plots are, like the classic land plots that is one acre, which is like 4,000 m^2, which is nothing.	lack of resources I: small land plots
And, ahm, I couldn't imagine Paros being able to support wholesale like, you know, big farming. Because also not only of the land use and of the, ah, how to say, land distribution, but because of lack of water. So, there is, like there is a real problem when it comes water, when it comes to resources. We would be, we would be great if we could even support, I don't know, a third of the production that the island needs during the summer. But we are nowhere near that, nowhere near that. There is simply not enough water.	Lack of resources II: Water deficiency
[…]	
Also, I mean, there is a lot of distrust in Greece, like we don't trust, ah, institutions, and, yeah, we don't trust each other very often also. So, one has to be, ahm, very persistent. And, ah, one proof of it is that, you know, I started looking at the park 10 years ago and it's 10 years – I didn't pursue a job or something in the park all the previous years but 10 years later I'm in a position to continue the work we started 10 years ago because, because they had other priorities because they were not persuaded that, you know, the natural farming method would work. So, we stopped abruptly. So, yeah. It's –	Distrust in Greece: in institutions and in individuals; persistency needed to proof trustworthy
Descriptive Statement (Step 3)	
A major obstacle to environmental action is seen in residents' belief that environmental damage cannot be reversed. Moreover, cooperation is lacking. It is necessary but likewise difficult to ensure and clarify shared goals and targeted action beforehand. The lack of cooperation is related back to lacking natural resources, such as water or arable land. Much more, S states that distrust in institutions and individuals prevails in Greece, such that for environmental initiatives to emerge personal persistency is needed to proof trustworthy.	

Declaration on the Availability of Materials and Data

I hereby confirm that I will keep the interview transcripts in my own records for future reference. Upon request I can make them available.

Date: Berlin, 30.04.2020

Signature 

(Annélie Gütte)

Declaration of Authorship

I hereby declare that the present thesis has not been submitted as a part of any other examination procedure and has been independently written. All passages, including those from the internet, which were used directly or in modified form, especially those sources using text, graphs, charts or pictures, are indicated as such. I realize that an infringement of these principles which would amount to either an attempt of deception or deceit will lead to the institution of proceedings against myself.

Date: Berlin, 30.04.2020

Signature 

(Annelie Gütte)