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Study Report
Mangroves and Meaning-Making: A mutual relationship over time? Ethnographic Data

Leibniz Centre for Tropical Marine Research (Leibniz-Zentrum für marine Tropenforschung, ZMT)
Research Project Mangroves and Meaning-Making: A mutual relationship over time?
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Abstract

The objective of this research was to understand the co-dependent relationship of mangrove ecosystems, public mangrove discourses and the human use of mangrove areas. Research questions were: How have mangroves been made sense of around the Gulf of Guayaquil from the 19th century until today, and how does this guide the use of mangrove areas today? Mangroves were studied from the perspective of Social and Discursive Constructivism, arguing that mangroves are being made sense of by humans by relating to them socially and discursively. The Sociology of Knowledge Approach to Discourse (SKAD) by Reiner Keller (2001, 2005, 2011a, 2011b) served as methodological framework: Methods were interdisciplinary, and span from ethnographic methods (participant observation, interviews) to participatory mapping and archival research.

The outcomes of the research show that some cultural groups living in the research area were historically highly underrepresented in political knowledge production and in the governance of mangroves. With the advent of a shrimp industry in the mangroves in the late 1980s globalized discourses of commodification, conservation and development entered intensively into the area, producing hybrid zones of knowledge invasion and negotiation resulting in a very visible Mangrove Culture today: Structural underrepresentation and socio-economic conditions caused severe marginalization of historically already marginalized and excluded groups on the one hand. On the other hand, innovative adaption strategies submerged, showing how people can make a living in and can make innovative meanings of mangroves close to the city. Understanding the impact of intensive knowledge influx in an area and the result it has for natural resource governance helps decision-makers and stakeholders to analyse, guide and soften discourses and knowledge. It leads actions for a more sustainable co-living of mangroves and humans, at the same time increasing visibility of and thus empower underrepresented groups.
1 Technical Data

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Link: https://www.leibniz-zmt.de/en/research/research-projects/meaning-of-mangroves.html

Data: Qualitative data, own field research, qualitative interviews with experts and members of the local mangrove communities, archival research

Software: The data has been coded with ATLAS.ti.

Country: Ecuador
2 Concept of the Study

2.1 Context

This PhD research was part of the project “Mangroves and Meaning-Making: A mutual relationship over time?” developed by Anna-Katharina Hornidge, María José Barragán-Paladines et al. (2017), core-funded for two years by the Leibniz Centre for Tropical Marine Research (in the following ZMT) in Bremen, Germany. As the project funds did not cover the whole duration of the PhD program, the researcher applied for and gratefully received a short-term research grant by the DAAD, the German Academic Exchange Service, for a part of the fieldwork between 1 August 2019 and 31 January 2020.

The project results can be integrated and further analysed in conjunction with existing natural science data on mangroves, which will further help to understand interrelations between knowledge, changing species availability and valuation of resources. This interdisciplinary project of ZMT aims to achieve basic data to elaborate a bigger research project on the nature-human-relationship in mangrove systems. The generated data are being analysed using the method of qualitative content analysis (Mayring 1983).

This project also was a pilot project in cooperation with the research data centre Qualiservice in Bremen, Germany, to adapt approaches to data archiving to ethnographic data.

2.2 Research Question and Aims

The aim of this research was to understand the co-dependent relationship of mangrove ecosystems, public mangrove discourses and the human use of mangrove areas. Research questions were:

*How are mangroves being made sense of around the Golf of Guayaquil during the 19th century until today, and how does this influence the use of mangrove areas today?*

This can help to support better and more sustainable ways of using mangrove forests and its resources with fair access rights.

Besides unfolding empirically how meaning is attached to mangroves around the Gulf of Guayaquil and how discourses have shaped these meanings, the research aims to contribute to the ongoing discussions about the methodological frameworks for conducting discourse analysis.

While one angle of the research shows how mangroves are being represented in globalized discourse, in a second angle it aims to show these discourses have affected mangrove realities in Southern Ecuador over the last two hundred years, and especially mangrove governance today.

every-day-knowledge, practices and discourses, a “focused discourse and dispositif ethnography” (Keller 2019) within the framework embedding the empirical research. Arjun Appadurai (1996) has elaborated the concept of –scapes, underlining the rising importance of global information and knowledge exchange, subjective constructions and transnationality, especially in the modernity of today (Appadurai 1996:33ff). On this premise, this project elaborated a hybrid definition of culture as the unifying knowledge of social groups, additionally drawing from social and communicative constructivism.

2.3 Theoretical and Methodological Framework

The communicative and discursive constructivism, represented especially by Reiner Keller, Hubert Knoblauch und Jo Reichertz (cf. Keller, Knoblauch et al. 2013), draws from social constructivism, but developing the concept further. Berger and Luckmann (1966) explain in their well-known book “The social construction of reality” how social actors construct their world socially as a system of symbolic order based on communication processes of externalization, objectification and internalization. The communicative constructivism draws from this concept and additionally puts an emphasis on the role of communication as symbolic interaction and social action (Reichertz 2013:50).

On this premise the Sociology of Knowledge Approach to Discourse (SKAD) is a methodological framework drawing from social and communicative constructivism, as well as Michel Foucault’s work on discourses. Stuart Hall defines discourses (Keller also refers to his definition (Keller 2005:7)) as “ways of referring to or constructing knowledge about a particular topic of practice: a cluster (or formation) of ideas, images and practices, which provide ways of talking about, forms of knowledge and conduct associated with a particular topic, social activity or institutional site in society” (Hall 1997:4). Keller summarizes discourses on these grounds as “identifiable ensembles of cognitive and normative devices” (Keller 2005:7f) and “structured processes of sign/knowledge production and reproduction in society” (Keller 2005:8).

According to Keller, practices and dispositifs are the main elements of discourse. Practices are “conventionalised patterns of action, based on collective stocks of knowledge about the ‘proper’ way of acting” (Keller 2011: 55). Discourses are embedded in an infrastructure, the dispositif or apparatus– a term coined by Foucault in 1977 (Foucault 1980 [1977]:194). Keller defines dispositif based on Foucault’s elaboration as the “bundle of measures, regulations, artefacts, by means of which a discourse is (re)produced and achieves effect (e. g. laws, codes of behaviour, buildings, measuring devices)” (Keller 2013:73). Instead of only looking at communication, this approach includes the analysis of the surroundings, the practices, materials or institutions necessary for or as a result of the discourse within its historical setting.

The discursive constructivism therefore considers power as important variable in knowledge-creation influenced by Foucault’s “power-knowledge” concept (Foucault 1978, Foucault 1995 [1975]). Foucault understood power and knowledge as a dynamic couple, that directly implies one another (Foucault 1995 [1975]:27).
In this project it is argued that also the way mangroves were represented in the science discourses over the past two hundred years has influenced every-day sense-making of mangroves in Southern Ecuador and vice-versa. Sanjay Seth outlines along Bhaba’s mimicry concept (Bhaba 1994), that science functioned in colonial times as a “knowledge supremacy” and justified colonialism in itself. On the other hand, it kept the colonial system going because of a dubious hope of the colonized to gain the presumably powerful knowledge, too, one day (Seth 2009:377). As this example shows, science and scientific power has been reviewed critically, for example in the postcolonial (Macleod 2000, Raj 2007, Seth 2009) or in the development discourse (Hornidge 2007, Hornidge 2014). Hornidge (2007, 2014) shows how the two Western science/technology knowledge concepts “knowledge society” and “knowledge for development” developed into normative, factual and hegemonic discourses with local consequences for development in non-Western-countries.

It is furthermore argued in this project that the discursive attributions of meaning to mangroves in Ecuador are part of a globalized construction of knowledge. The different users of the mangroves are characterized by historically grown, unequal access to communicative means and legitimation strategies in order to participate in these attributions of meaning. Especially powerful on a global level are the discourses of commodification, conservation and development, but also the scientific discourse on mangroves over time.

3 Research Process

3.1 Sampling Strategy

Guayaquil with its surrounding mangroves was chosen as the best option for doing field research. Scientific reasons include the good access to the Historical Archive of Guayas / Archivo Histórico del Guayas (Guayaquil) promising the finding of historical data from the area, as well as the promising cultural entanglements between the city and the rural mangroves.

The sample frame are the social actors involved in discourse on mangroves in the Golf of Guayaquil in the last two hundred years who use resources from mangroves. With a base in Guayaquil, the sampling is guided by Marcus' “multi-sited ethnography“ (Marcus 1995) concept, following the actors related to mangrove discourse in the Golf of Guayaquil and around. Additionally, interviews were conducted with actors indirectly involved in mangrove use, for example governmental institutions and NGOs.

3.2 Field Access

The long standing cooperation between the ZMT and the Charles Darwin Foundation made the Galapagos based organization the main cooperation partner of ZMT in the project “Mangroves and Meaning-Making: A mutual relationship over time?” also for mainland Ecuador. The Scientific Director María José Barragán-Paladines had elaborated the project together with Anna-Katharina Hornidge and Martin Zimmer and was the main point of contact and likewise member of the ZMT PhD Supervisors Panel. María José Barragán-Paladines helped establishing contact with cooperation partner organizations in Guayaquil. Furthermore,
there was a cooperation with the Marine Science Faculty of the ESPOL (Polytechnical College of the Littoral - Escuela Superior Politécnica del Litoral), one of the most renowned universities in Ecuador.

The extremely valuable support made it possible to define, access and interact with inhabitants of the remote communities in the surrounding mangroves of Guayaquil. Support was substantially coming from the triple joint partner organizations of (a) the Participatory Community Management Board Don Goyo Mangroves, JUMAPACOM (Junta de Manejo Participativo Comunitario Manglares Don Goyo), (b) the Foundation Cerro Verde, and (c) the organization Schutzwald e.V. JUMAPACOM is the institutionalized community of mangrove users. Fundación Cerro Verde is the official technical advisor for the community-based management zone of the inner estuary of the Gulf of Guayaquil and is supported technically and financially by their German cooperation partner Schutzwald e.V.

The representatives and colleagues of these Ecuadorian organizations already helped during the planning process and the proposal preparation of the research and continued doing so during and after the field research. They not only helped organizing field trips to the mangrove communities in the RAMSAR site Mangroves in the South of Guayaquil, they helped to get to know and understand the context, the history and the challenges the people face living in the communities. Above all, many of them allowed to discuss and understand their lives in Guayaquil or in the surrounding mangrove communities as much as possible. The objective of these organizations is the conservation of mangroves and the sustainable management of its resources, but also the empowerment of the communities.

A kick-off-workshop in July 2019 at ESPOL with key stakeholders and cooperation partners marked the beginning of the research project. During the research stay preliminary results were presented at two events at the University ESPOL with cooperation partners, research participants and experts invited. They took place in September 2019 (8 participants) and January 2020 (28 participants).

3.3 Informed Consent

Informed Consent is seen as a necessary ethical condition for doing qualitative research. Therefore, an ethical clearance for this study was obtained from the Leibniz ZMT Ethics Committee. General aspects of the proposed research were presented in an eight pages document based on the Ethics guidelines of the institution. Precautions in relation to the "subjects" of study and data protection were discussed by the Committee that was composed of four senior researchers coming from different disciplines at ZMT.

During the field research the PhD student was enrolled as an International PhD candidate at ESPOL University, Guayaquil. Permission for ethnographic research in the mangrove areas was granted by JUMAPACOM in compliance with the allowed activities of the legal Agreement of Sustainable Use and Custody (ASUC) as given to them by the Ecuadorian Ministry of the Environment (MEA).
However, the understanding of scientific work and knowledge about the rights to one's own data varied strongly between individual participants in this research. The intention of research and participants’ rights were explained the best way possible. The information about the informed consent form and the research itself was read in public meetings and before interviews to the participants. Participants received a copy for further study. The informed consent process was additionally discussed and evaluated on a regular basis with participants, cooperation partners, other researchers and Qualiservice.

4 Data Generation

4.1 Methodological Approach

The research process included the collection and generation of three types of research materials:

a) scientific publications about mangroves
b) archived documents and newspaper articles from Guayaquil on the meanings of mangroves and the cultural settings related to mangroves
c) ethnographic research materials of everyday-life mangrove meanings in the Guayaquil area focusing especially on including mangrove users not actively visible in the mainstream mangrove discourse.

The scientific publications about mangroves were put together before the actual field research in Ecuador whereas the archived documents and newspaper articles were researched mainly in the Archivo Histórico de Guayas, the Biblioteca Municipal de Guayquil and the Archivo Histórico Nacional. Although the analysis of all three types of data is essential for the research question of the project, this chapter will focus on the ethnographic data generated in the field as they are the only data archived at Qualiservice.

The lack of female voices as experts or workshop participants is not only coincidental but symptomatic for the scientific and everyday-life (mangrove) discourse (cf. Merchant 1989 [1980], Haraway 1991, Harding 1991, Beard 2015, Cormier-Salem 2017). However, it was aimed to give voices to women engaged in mangrove practices therefore specifically interviewing and listening during participant observation to female voices in urban and rural settings reaching nearly gender parity within the group of interviewees in the mangrove communities.

Of course, the participation in this research was entirely voluntary. Research partners from the communities received a small monetary compensation equal to expected income loss at the end of the stay, when supporting the research, but interviewees were not compensated. Therefore, it was pondered based on the empirical research material what benefits the participants would have hoped for when participating from interviews and informal talks. The answers, of course, vary. For example, residents of the communities in the mangroves would like to have more insights into their own history as residents who live from fishing and logging in the mangroves. At the same time throughout history they have been overlooked by the state
authorities, therefore maybe hoping for better civil rights and an improved implementation of land rights. Politicians would like to make others understand how political decisions were made in Ecuador and what the limitations are that they encounter. Shrimp farmers aim to present themselves as economic actors who bring benefits and tax revenues to the Ecuadorian state. The researchers at the universities wished for more insights into cultural aspects of community life so that the science projects would be more successful. At the same time there was a wish for a general increase of attention and acknowledgement to Ecuadorian academics, often enough facing the challenge to find sufficient funding. In the end, every actor had its own story and aimed for understanding and acknowledgment. This realization proofed for this research at least the justification to archive and make interview transcripts available in the future. As the interviews show different perspectives on one object and were including opinions that cannot be found in the mainstream discourses, the interviews can help to add perspectives also on other research endeavours in the area.

One major challenge in data collection was to collect and analyse ethnographic data that could later be integrated into the methodological framework SKAD, as discussed earlier in Chapter 2, for an inclusive discourse analysis. For a practical approach to a mangrove meanings' typology in every-day life in the Gulf of Guayaquil the cultural domain approach (Borgatti 1994, Bernard 2006:266ff., Schnegg and Lang 2008) proofed useful. A cultural domain can broadly be understood as a cluster of items that members of a specific group believe belong together, or as Bernard puts it “lists of things that somehow go together” (Bernard 2006:299). Therefore, I used open questions and free listings (Borgatti 1994:274ff., Schnegg and Lang 2008:21ff.) in the semi-structured interviews, as well as during a workshop on cultural domains to gather as many mangrove meanings as possible especially from less visible mangrove users in the mainstream mangrove discourse in Ecuador. Questions with the free listing technique included for example:

- What do you use mangroves for?
- Which animals live in the mangroves on land?
- Which diseases exist in the mangroves?
- What fish species live in the mangroves?

In the first 1,5 months the questionnaire for the semi-structured interview and for the cultural domain analysis workshop based first on grand tour questions (Spradley 1979:86) were developed. It was an ongoing process that was kept on refining during the interview process over the first three months. The first eight interviews had a strong focus on grand tour questions in the beginning of field work. Grand tour questions can be understood as open questions asked to a research participant to describe something typical in their everyday life related to mangrove meanings, but also describing the cultural setting of the mangrove user. One question foreseen in the questionnaire for all semi-structured interviews was for example: Could you describe to me a typical day in your life?

Based on the results three different types of questionnaires were developed (see archived context material): questions for experts, community members and city inhabitants, additionally for some experts interviews specific questions were developed based on the three
questionnaires. In total 48 in-depth interviews were held and recorded with 1-3 hours’ duration (average about 1-1.5 hours), thereof 28 expert interviews (6 women, 22 men) and 20 ethnographic interviews (9 women, 11 men). 46 of these interviews were held in person during the research stay, 2 expert interviews were conducted via Skype, one in August 2019, one in July 2020.

Additionally, the researcher did 5 transect walks in the mangrove communities and one at a Scientific Research center for Aquaculture named CENAIM of the ESPOL university located near Manglaralto, Santa Elena Province.

For a group perspective on mangrove meanings in the communities of the mangroves there were organized and held a workshop in one of the communities on 4th August 2019, in which 28 inhabitants of the village participated, all members of the fishing association. The workshop guideline is also archived in the context material. Firstly, the name of the community and its localization within the estuary was discussed. Secondly some of the major cognitive domains related to mangroves in the area, which resulted from the grand tour question and interview results up to that date were worked on in small groups. Each group could choose from a question pool, which question they preferred to work on. Questions were similar to questions of the semi-structured interview questionnaire, as the interest was to get a group consensus on certain topics, for example:

- What parts of the mangroves have you ever used and what for?
- What spirits have you heard of in and around the mangroves?
- What medicinal plants are used in the mangroves?

The workshop participants visualized their discussion on big paper sheets and/or small cards.

4.2 Data Protection and Anonymization

Data protection and security includes the safe storage and handling of all data on the one hand, and decisive means of confidentiality and anonymity for the interviewees on the other hand. Therefore, the measures that have been taken to protect the data will be explained in this chapter.

The original voice recordings were recorded with a cell phone and as soon as possible transferred to a password-protected computer and then deleted from the cell phone. To avoid the loss of the data due to technical problems the voice recordings were also saved on external hard disks to which only the PhD-candidate had access to.

The transcription of the interviews was conducted by the PhD-candidate herself.

To archive the data, the original transcripts were transferred in two different ways: 1) on an USB flash drive and b) through the encrypted Upload-Space of Qualiservice.

Anonymization of the transcripts took place at Qualiservice. A student assistant developed proposals for anonymizing the data according to the Qualiservice anonymization concept (Kretzer 2013). Proposals were then discussed and implemented in the “safe center” of Qualiservice at the University of Bremen. Anonymization took place at a password-protected computer without a connection to the Internet.
Anonymization requirements do also result from specific circumstances during field research. Whereas the relationships between communities and mangrove user groups in the sample mangrove zones in the South of Guayaquil vary from good relationships to healthy competition, some of them also have entered into conflict. To prevent further conflicts and to protect research partners and their communities, the anonymization had to be taken very carefully.

The data were anonymized with QualiAnon (Nicolai et al. 2021), a tool for anonymizing qualitative data that was developed by Qualiservice. All personal data, e.g. names, ages, locations, professions or other data that may allow the identification of research participants, were replaced with pseudonyms.

However, some of the personal data could not be anonymized without losing their analytic value. The decision was taken to split the data collection into different security levels with different security measures. This means that only the completely anonymized transcripts can be used externally whereas the partly anonymized transcripts only can be given access to at the Qualiservice safe room.

4.3 Selection of Research Data for Archiving

The main decision for archiving data was based on the data’s potential for complementing mangrove discourses in the area and worldwide. The cultural practices related to mangroves in the area were especially prominent in language. Therefore, special focus was given to spoken language, in this case recorded interviews and transcripts. Photographs were only archived as contextual material without people or objects that could help identifying interviewees and communities. Considering the conflicts in the area in the recent past and the increasing conflict level due to resource scarcity increasing, the importance of protecting research participants was deemed at all time higher than potential of Secondary Analysis.

5 Potentials for Secondary Analysis

Results have already been included in Management Plans of the area and various sessions of knowledge exchange during fieldwork with relevant stakeholders were held. Additionally, virtual presentations of findings took place.

The data collected in this study can be understood as an oral, non-hegemonic discourse which has not been recorded in a written way yet. Archiving them aims to provide a greater access to this marginalized discourse.

As such, the data have the potential for secondary analysis dealing with for example some of the following research topics:

- Gender studies
- Socio-ecological practices
- Ancient knowledge
- Rural Ecuador
- Resource management
Another possibility for re-using the data lies in its linguistic potential as the Spanish spoken in the mangrove communities is unique.

6 References


About Qualiservice.

The Research Data Center Qualiservice archives and provides qualitative research data from the social sciences for scientific reuse. Our services include personalized and study-specific advice, and curation and processing of your data for reuse and long-term archiving. We also provide research data and relevant context information for scientific reuses in research and teaching. Internationally interoperable metadata ensure that all data sets are searchable and findable. Persistent identifiers (DOI) ensure that data and study contexts are permanently citable.

Qualiservice was accredited by the RatSWD in 2019 and is based on its quality assurance criteria. Qualiservice is committed to the DFG Guidelines for Safeguarding Good Scientific Practice and takes into account the FAIR Guiding Principles for scientific data management and stewardship as well as the OECD Principles and Guidelines for Access to Research Data from Public Funding.

Qualiservice Consortium:

- PANGAEA – certified World Data Center
- SOCIUM – Research Center on Inequality and Social Policy
- Staats- und Universitätsbibliothek Bremen
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- Specialised Information Service for Social and Cultural Anthropology
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