ENVIRONMENTAL INEQUALITY PATTERN ON ISLAND

ALGODOAL-MAIANDEUA.

A Q METHODOLOGICAL CASE STUDY

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Abstract

Regulations to protect Brazil's rainforest have moved in recent years from broad global development strategies to certain consideration of local specifics. One expression for this change is the upcoming term of environmental justice as new paradigm in politics and social sciences. In opposite to the sustainable development concept, environmental justice emerged on the basement of municipality and therefore highlights social and cultural questions more than sustainable development does. In the present case study, existing discourses on an environmental protected island in Brazil's Amazon has been used as an example to discover discourses of environmental inequality pattern. Due to the fact, that environmental legislature on the island still fails to answer this problem set and pressing social problems remain, main discourse differences are assumed to have it in it to reveal most pressing unresolved issues as perceived by the involved stakeholders. Q Methodology and free unstructured participant observation have been used within the frame of Elvers's process related research paradigm to survey traceable and comparable data of environmental problem perception. This tool could provide evidence for three main problems that could be outlined as main causes of environmental inequality in the field: Instead of waste problems, power inequality of migrants versus native population on the island and distance related knowledge divide emerging in the shape of cultural and educational differences, both framed by a landownership pattern created by illegal land purchase. As consequence, misdirection of institutional agents, failure of a development plan and low activity of local (native) civil society lead to failure of well-intended environmental legislature.

Introduction

The undertaken field research assumed that if underlying environmental concepts in environmental legislature and discussion (Kameri-Mbote/Cullet 1996), namely Environmental Justice[1] and Sustainable Development[2], are subjectively understood so much different, that environmental regulations are incapacitated to succeed. As a matter of fact, governmental regulation in general bases on the acceptance of the people. So, if a majority, not just in quantity but in relation to their power in a given area too, rejects to follow the rules, laws erode or at least don't succeed to function as intended, in particular in regards to the environmental regime in Brazil's Amazon. Beside the

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1   In brief, this paper assumes the more critical conception of EJ, which is defined as the question of social distribution of environmental burdens (environmental bads) in consideration of possible institutional racist influence (environmental racism) on this as well as the volume of access to information, governmental services and growing well-being (environmental goods). The EJ concept bases on grassroots protests.

2   Basically, SD is seen as coming from institutional regime, so from governmental initiative, with a concept made to match a broader consensus opinion at a prize of an unclear definition.

general problem of acceptance, the Amazon area is too big to be totally controlled by executive order (police, military), regions in the Legal Amazon are occasionally far away from governmental power epicentrum, infrastructure doesn't provide fast access to some fields, and power capacity of legal penetration struggles with cultural heritage of traditional populations which live in their way since ages. This environmental regime, on the other hand, doesn't stand alone, but implies too, what can be called the cultural, territorial, and development regime in Brazil's Amazon due to long term (post)colonial history and coloniality, which are mirrored in the environmental regime. This is why researching how involved stakeholders speak of the two named concepts altogether reveals objective circumstances for different behavior, such as distance to the field where environmental law is applied. This distance is not just a geographical one, but also influenced by culture and social status.

Theoretically, the two named concepts can be understood within their origins' context, which establishes their value for the present research. Whilst sustainable development was an institutional construction from above, developed in in line of UN conferences by governmental stakeholders, environmental justice emerged on the basement, in practical struggles of (mainly black) communities in the US, practically suffering from industrial pollution. The two concepts stand for very concrete differences of problem perception, top-down versus bottom-up. Discovering existing discourses in a certain, outlined field will give reliable information about the problems faced by the inhabitants, assuming, that circumstances, which aren't recognized as problems by those living there, be artificial, not existing or alike.

In the field, two separate sets of data have been surveyed, which together show both the differences in quality and quantity between the assembled stakeholders. Using Q Methodology (Barry and Proops 1999, Previte and Pini and Haslam-McKenzie 2007, Dryzek 1997) and qualitative data collection[3] (Girtler 2001) to disclose the discourses within the EJ and SD in consideration of

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3   Unfortunately, in this article is no space to profoundly discuss Girtler's particular approach. Nevertheless, the whole research on Algodoal had been impossible without, due to cultural barriers. First of all, access to the field to gather inside information on an island, inhabited by indigenous people among others, is difficult, since the research seeks to get information of crucial problems in the field. In particular when criticizing contemporary circumstances not just a few people expressed fear to receive disfavours by doing so. Therefore, *trust* is the central concept of so-doing. In short, what distinguishes Girtler's approach from other qualitative participant observations is his clear definition of the research frame, in which moral standards are crucial (to see gathering information as an exchange of both researcher and participant from the field, to tell what you are doing in the field, for what purpose, to not pay people for conversations since they rather tell you what they think you want to here than what they really think, among others). First of all, his advice is to not conduct interviews. As Girtler outlines, the interview finally treats the interviewed person as a 'fool'. So, the interviewing person is the expert who asks the 'important' questions and the participant is about to deliver. Girtler's free, unstructured participant observation bases on the assumption that an open and honest conversations by exchanging information (both sides) is best to get deeper understanding of a foreign environment, most notably, it creates trust in each other, trust that the other one will treat the information with respect and never against those who have shared their individual insides. The required set of participants (P-set) for the quantitative analysis of Q methodology will be the difficult aspect of this combining tool and therefore discussed at the end. Nevertheless, the research, underlying this article, bases to some extent on a research in 2003, conducted by the author in appliance of Girtler's 'pure' free participant observation (Kaufmann 2003). Without this research, and this inside knowledge, gathered by doing so, the present research couldn't have been conducted, since a high level trust gave quick access and good record at all level.

Elvers's >process related research paradigm<[4] (Elvers 2007: 21), picture could be drawn of either whence environmental inequality in this specific case is caused and what crucial points could be in the context. Furthermore, appliance of Q methodology in in addition to ethnographic methods bares the potential of this method for future usage, not just in the Brazilian context, but in other fields, where subjectivity matters, too.

The field >APA Algodoal-Maiandeua<

The field of research is an island sibling called Algodoal-Maiandeua, which, inhabited by both indigenous people and immigrants, faced growing threats from outside (industrial fishing, tourism) since the 1970s. In reaction to increasing tourism which caused growing environmental threats to nature and people (Figueiredo/Santana 2010), the island, located in municipality Maracanã, federal state Pará, within Brazil's >Amazônia Legal< [Legal Amazon], was declared area of environmental protection [área de proteção ambiental] (APA) by Law No 5,621 at November 27, 1990. The intention to create APA Algodoal was to reconcile human activities and the conservation of the wildlife and natural resources by bettering the well-being of the people, always looking for "o desenvolvimento baseado, principalmente, no ecoturismo" [development, principally based on ecotourism] (SEMA 2010: 1).

Map 1: Location of the APA

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4   For the purpose of this article Elvers's paradigm can simply defined by a circled process from analysis to transformation, to interpretation to implementation. Since conflict is seen as tool for solution, Elvers assumes that the circulation continues until a solution is found to which (most of) all stakeholders can agree. Within this paradigm, the tool combination is applied to discourses, analysis and interpretation, whilst transformation describes the process of creating the concourse and the Q sample, imaging reality by discovering the range of existing discourses.

APA is defined by law as a conservation unit of sustainable use, so ground can be used by certain groups sustainably but remains property of the federal state. Private land ownership, selling and buying, is forbidden by environmental law which just allows sustainable usage by certain people: The traditional population on island Algodoal-Maiandeua.

The area has 19 km2 or 2,378 hectare (SEMA 2011): Island Algodoal represents just 385 ha of the whole APA whilst island Maiandeua has 1993 ha in size (Kaufmann 2003: 50, Souza 1999: 13). It is located between the 00° 35´ 03" and the 00° 38´29" southerly latitude and the 47° 27´ 42" and the 47° 34´ 57" northerly longitude (Bastos 1996: 11). The next and closest island is Marudá, about five km to the West, with about 20,000 inhabitants according to Cunha (1998: 10). On the two islands are living approximately 2000 people in four villages: Algodoal (on island Algodoal), Mocooca, Fortalezinha, and Camboinha (on island Maiandeua).

Map 2: Area of field research on detailed perspective II
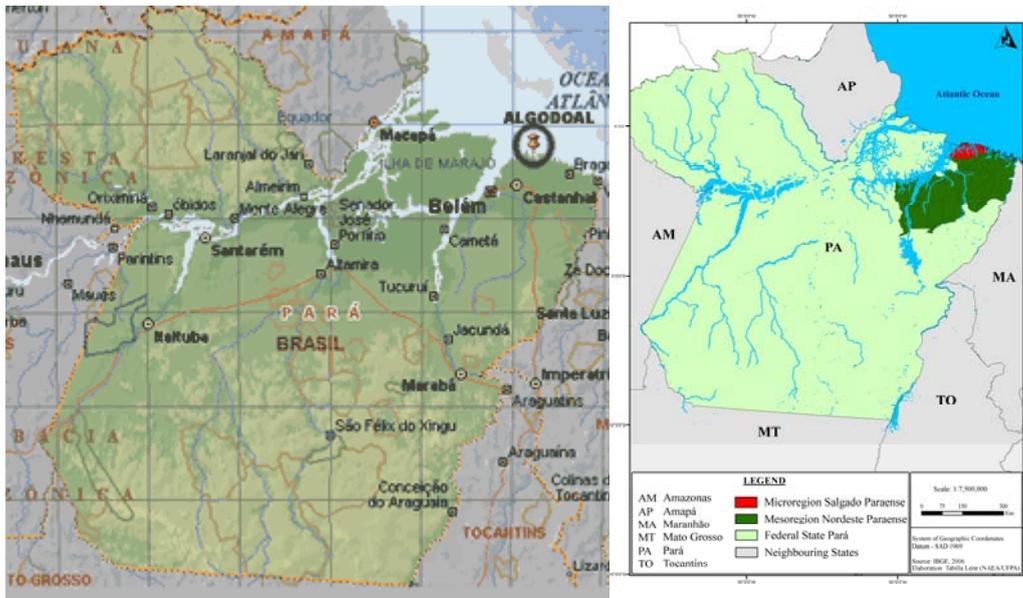
The two islands are separated by the channel Igarapé das Lanchas. Huge ecological diversity is remarkable, such as centuries old trees, dunes, freshwater lakes, beaches, mangrove woods and areas that feed a broad variety of animal wildlife species. (SEMA 2010: 1) Algodoal-Maiandeua is bordered by the Atlantic in the north and by a river alike channel called 'Furo do Mocooca' (Quaresma 2000: 150, figure 30) at village Mocooca in the South. The islands are located between two bays[5], the bay of Marapanim in the West and the bay of Maracanã in the East. The most famous beach on the island sibling is the one called >praia da princesa< [beach of the princess], which is also filled with indigenous legends of a creature half a beautiful blond women with green eyes and half a cobra, possessing amazing and terrifying power (Nascimento 1993: 59-63)

In 2000 AC federal law 9,985/2000 set requirement of participation of residents in certain UCs, one of them APAs, (§2) to create a >Plano de Manejo< [management plan] within 5 years after creation. This participation was regulated at July 30, 2007 in Law 7,026, the law that created the >Secretaria do Meio Ambiente< (SEMA) in changing dispositions of Law No 5,752, created on July 26, 1993 AC. Most importantly are Art. 2 and 4 in this context: The latter defined the conditions of the creation of a "Conselho Estadual de Meio Ambiente" [state run council of the environment] in incentive A, with goal to assemble all relevant stakeholder groups in the field (associations, NGOs, governmental institutions, traditional population, newcomers), considering participation management structures in the Amazon (McGrath 2008) as upcoming direction in Brazil's environmental regime. The former gave direction over environmental police forces to the SEMA in

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5   As Cardoso stresses, the „forma atual da ilha [Algodoal] vem surgir com uma diputa política entre os municípios de Maracanã e Marapanim pela posse da ilha." [contemporary shape of the island [Algodoal] is accompanied by a political dispute between Maracanã and Marapanim about the ownership of the island.] (1997: 13)

incentive VI.

The mentioned council is meant to discuss problems and questions on the island, assembling all institutional agents, such as the >Secretaria do Meio Ambiente< (SEMA) [state's secretary of the environment], >O Projeto de Gestão Integrada da Orla Marítima< (ORLA) [the project of integrated management of maritime margin] as part of the >Superintendência de Patrimônio da União no Estado do Pará< (SPU/PA) [superintendency of the patrimony of the union in the state of Pará], an agent from the >Delegacia Especializada em Crimes contra o Meio Ambiente< (DEMA) [specialized delegacy on crimes against the environment], the >Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais<'s (IBAMA) [Brazilian Institute of Environment and Renewable Natural Resources], the >Secretaria de Estado e Saúde Pública< (SESPA) [secretary of state and public health], prefecture's ambassadors of Maracanã and Marapanim, the mayor [>vereador<] of Algodoal-Maiandeua, who also represents the whole countryside of municipality Maracanã[6], and the official tourism organ in the state Pará, called PARATUR. Furthermore, in the panel are two scientific research institutes, the >Museu Paraense Emílio Goeldi< (MPEG) [Museum of Pará Emílio Goeldi] and the >Universidade Federal do Pará< (UFPA) [Federal University of Pará]. As well, 9 non-governmental associations have been assembled: The >Associação Comunitária do DESenvolvimento e Preservacao da Ilha de Maiandeua-algodoal< (ACDESPIM) [Common Association of Development and Preservation of Island Maiandeua-Algodoal], the >Associação dos Barcheiros< [Association of Skippers], the >Associação dos Canoeiros< [Association of Canoeists], the >Associação dos Carroceiros< [Association of Coachmen], the >Associação de Empreendedores de Turismo de Algodoal< (AETA) [Association of Entrepreneurs of Tourism on Algodoal], the >Associação dos Moradores de Fortalezinha< [Association of Inhabitants of Fortalezinha], the >Associação dos Moradores de Camboinha< [Association of Inhabitants of Camboinha], the >Associaçâo Comunitária Pescadores Artesanais da Vila de Algodoal< (ACPAVA) [Common Artesan Fishermen Association of village Algodoal], and the >Cooperativa dos Lancheiros da ilha de Algodoal – Marudá< (CLIMAM) [Cooperative of food sellers on island Marudá-Algodoal][7]. Worth mentioning are at the end three non-governmental organizations (NGOs), such as >Grupo Ambiental de Fortalezinha< (GAF) [Environmental Group in Fortalezinha], the >Associação Pró-Ilha de Algodoal-Maiandeua< (SUATÁ) [Association Pro-Island of Algodoal-Maiandeua], and the >Grupo Ecológico Maiandeua< (GEMA) [Ecological Group Maiandeua].

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6   According to the mayor, municipality Maracanã has 9 mayors, 8 are coming from the cities and one represents the countryside, which is him. Therefore he is not always in his house in village Algodoal, but travelling to the other communities he represents.
7   Formerly known as >Associação dos Lancheiros Marudá-Algodoal< (ALMA), but then transformed into the above named cooperantive.

The SEMA agent is the most powerful and therefore most relevant stakeholder in the council. Also powerful is NGO SUATÁ, based like SEMA in Belém, and led by an argumentative advocate, who already has changed conditions on the island regarding pressing waste concern by legal action against the municipality government. Whilst SUATÁ focuses in its activity mainly on village Algodoal, important to mention is NGO GAF as the oldest[8] existing NGO nowadays, based and focused on Maiandeua, in particular on village Fortalezinha. Last but not least, importance and responsibility, due to executive power, has the police on Algodoal-Maiandeua. The named DEMA could be found on papers, but not on the islands. Just two police men are in the field, which defined themselves as members of the military police. For purpose of Q sorting, they have been taken as police agents, named 'police', even though they are changing all two weeks and the one with whom I have spoken has not been to the meeting of the management council. Nevertheless, they are sent to Algodoal with purpose and what they are seeing as their legal concern by purpose influences, as would seem natural, the local problem set as much as the intention of both the legislative body SEMA and the local inhabitants. Consequentially, special focus will be on these three stakeholders loading for later on interpretation of Q analysis.

The problem set on island Algodoal-Maiandeua

General problem on APA Algodoal is the structure of the council itself. Seeing the council as main tool to resolve the local environmental problem set by participation procedure of the inhabitants, as a matter of fact, the council hasn't any financial and political decision making power by itself. Decisions, made by council members' majority, have to be further discussed and decided on a higher institutional level of SEMA's institutional frame. So, only the superior level has decision making power in financial issues to bring resolutions into force. No member of the Council, even not the SEMA's agent herself, is in funds of this institutional body. But this only describes the institutional frame as such, stickiness of council members to the council, the constitution of stakeholder groups and support by participation, is important as well. To the former issue one must state, that indigenous inhabitants are under-represented in the council in quantity (number) and quality (influence).

First, just two representatives are native born inhabitants. One of them, the agent of the Association of Inhabitants of Camboinha told, that discussions are too abstract and other members of the council don't to understand the points, he wanted to make. This has been confirmed by the Association of Canoeists' agent who also pointed out, that it was difficult to understand the Indians due to cultural

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8   Founded in 1997 (Kaufmann 2003: 82)

and education differences. SEMA told in qualitative conversations, goal of the meetings has been to discuss where to place ecological zones and to classify the island's surface. According to the SEMA this worked out fine, inclusively interest by participating people. The Indian president of the Association of Inhabitants of Camboinha, on the opposite said, he rather came for discussing opportunity to get a dance festival for their traditional dance Carimbó[9] funded, but was told to apply for the funding which was difficult for him to accomplish due to structure and formal requirements. He stated in conversations that many people have denied participation, since the council is not able to accomplish any decisions, and if yes no further processing happens. To proof his saying he showed a declaration signed by >Gabinete Deputado< [cabinet deputy] Anaice of the PMDB (Partido do Movimento Democrático Brasileiro [party of Brazilian democratic movement]) at >Assembléia Legislativa do Estado do Pará< [legislative assembly of federal state Pará]. Proposal No /2.005. was signed at September 22, 2005 and claimed "implementação do Projeto de Micro-Usina de Compostagem de lixo (Algodoal)" [implementation of the project of micro-using of waste composting]. This has been one of six points in the proposal, calculated by cost of R$ 5,000 (about 2,200 €). Others have been finalizing of water supply (2), construction of a retaining wall (3), construction and structuring of an agency of Banpará (Bank) (4), of mail service (5) and of DEMA (6). As he told, also observable in the field, none of this has been accomplished in the last six years. In his viewpoint, the council hasn't accomplished to realize these decisions.

To measure the second, qualitative aspect of indigenous under-representation, a deeper look on the real makeup of council members is necessary. As SEMA confirms, very few natives are organized in associations assembled in the council. So, in consideration of this information, not only majority of associations' spokesmen isn't indigenous, association members aren't a representative sample of Algodoal inhabitants by representing the indigenous population. Furthermore is to say, that not all registered members are still existing or conducting activity as in the past. One example is Ecological Group Maiandeua (GEMA) which disappeared without replacement, but still appears on paper. Another is GAF. In opposite to activities in the past, such as practical campaigns against waste at beaches and talks to, courses, presentations, seminars, and cultural activities for inhabitants with purpose of environmental education[10] (Kaufmann 2003: 82) as well as creating a structure of environmental NGOs in each village of island Algodoal-Maiandeua, the group now is only taking

9   Beside Pássaros and Boi Bumbá, Carimbó is dance and rhythm, and one of the most important popular culture manifestations in municipality Maracanã (Loureiro 1987: 12). Three distinguishing parts are characteristic: Dance, music and vocals. (for further reading: Kaufmann 2003: 62-63, Nascimento 1989: 77-79, Loureiro 1987: 12 et seq.)
10   In the past has been the >Campanhas contra o lixo< [Campaigns against waste] and environmental education of the community by NGO GAF, founded in 1997, and formerly active in the field. (Kaufmann 2003: 82) These campaigns contained the collection waste and conversations with the other inhabitants as well as a yearly event called >Aniversário do GAF< [annual meeting of GAF], "der mit einem großen Fest von großen Teilen des Dorfes begangen wird." [which is commemorated by a huge festival with large part of the village's population.] (Ibid: 83)

part in the institutional structure. Side effect of the institutional weakness and the retreat of local grassroots activities are the incapability to defend by the (economic and political) weakest parts of the community.[11] This can be seen in the local process of institutionalization, in which local groups and communities reduce local activity in favour of legal action. Or right claims are overtaken by lawyers to solve the problem. Nevertheless, even this this must be recognized as evidence for local resistance[12] against the existing frame, in which civil society protest is neglected in favour of putting all hope in institutional patterns, or withdrawal.

Evidence for this resistance appears not only by structural neglect of indigenous population, but from inside institutional structure too. One example is ACDESPIM. As its president told, further participation in the council is refused since comprehensible reasoning results of hours, spent in the council's meetings, with what she had done before creation, clearly favoured non-participation. Analysis of council meeting protocols showed, that participation of agents wasn't only not stable, but partly fails totally: Representative stakeholders, as named by the monitoring organ SEMA, such as the ones from Maracanã and Marapanim[13], have not participated regularly (SUATÁ 2006). Another very active stakeholder in the field isn't even represented in the management council: The project, run by the national government, called >Luz para Tudos< [Light for All], which installs electric connections to all houses, regardless their location. As SEMA criticized, the project installs electric connections even in declared ecological zones, even if the built houses are illegally.

Another non-considered stakeholder is the >Direitoria do Meio Ambiente do Município< [directory of the environment of the municipality], which has been established two years ago in city Maracanã. As its spokesman told, the directory has never been invited to the meetings of the council on Algodoal.

Practical and documented result of the situation appeared when looking up the regularity of council meetings. By definition, the council should meet four times in a year in the SEMA office in village Algodoal, but in fact not even one meeting was achieved in 2010 when the research was conducted. This again shows evidence to pattern deficits and faulty demand of local civil society. Confirming statements to that entity come from the vice-coordinator of GAF, who stressed in the conversation

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11 On the other hand, GAF and SUATÁ have elaborated the >Projeto Cultura Ambiental< [project environmental culture], promoted and patronized by the >Fundação de Telecomunicações do Pará< (FUNTELPA) [foundation of telecommunication of Pará], with capacity to teach up to 80 „agentes ambientais" [environmental actors] of the four (4) villages in environmental topics such as environmental education. (Figueiredo et al. 2010: 220) We must rather speak of a shift than of a retreat.

12 This refers to Jason Sharman's statement of global governmental approaches that are powerless against the 'weapons of the weak' as used by NGOs, small island states or mediaeval 'hold-overs' (2003: 2). There is not much one can do against this way of resistance or reluctant participation, beside recognition that attempts will not satisfy – as intended – local requirements and needs without all local stakeholders, in particular the less powerful.

13 As Cardoso points out, the „forma atual da ilha [Algodoal] vem surgir com uma diputa política entre os municípios de Maracanã e Marapanim pela posse da ilha." [contemporary form of island [Algodoal] created a political dispute about the land title, between the municipality of Maracanã and Marapanim.] (1997: 13) Arguments probably point back to inhabitants origins from areas close, as Vista Alegre and Camará (Marudá and Marapanim) (Quaresma 2000: 182).

that the "problemas existem com a falta de estrutura, e porque só tem reuniões[14] e nada é resolvido, e ainda trouxe a proibição de varias coisas" [problems exist due to structural failure, and therefore the council only accomplishes meetings and nothing is resolved, and still forbids various things] (Barros 2010: 65).

Consequentially, since the council itself is questioned, its constitution and pattern must be challenged. Even if a development plan is accomplished by the environmental state council, it won't be accepted by all stakeholders in the field, which is intended.

Analysis & conclusion of the problem set

Open questions remain. Where should resistance (in Sharman's words) or neglecting come from? What lies behind the outlined facts? Looking at the provided example of proposal No /2.005., a general problem seems to be the failure of communication in two ways: First, a broad ray of institutional stakeholders is working in field APA Algodoal without having regular communicative connection to each other's. In regards to the provided example, further research showed that no present governmental representative in the council (SEMA, SPU/PA-ORLA) had ever heard of this paper. The SPU/PA declared not to be in charge of this matter, but SEMA. The SEMA agent on Algodoal could finally find out, that the micro-using waste composting (1) was refused due to cost accounting. Consequentially, one can see a communication decline not just between the institutions and organizations, which move in a typical manner responsibility from one to the other, but within the SEMA too. Why has the agent of SEMA not been informed about this paper by its superiors? This fact must be considered, but couldn't be finally analysed. Also open remains the question, why even the president of the association didn't remind the SEMA agent personally during the meetings? In this regards can just be guessed that the answer might be in the communication problem in between as mentioned above. Second, even though SEMA is aware, that stakeholders from outside (such as Belém based SUATÁ) tell very little about local community, no efficient communication line to the population has been established, even more, the SEMA agent mainly remains in Belém due to administrative duties[15]. Thinking about the explanation, given by the president of Camboinha's inhabitants, one can see by example parts of the inequality pattern, this research is looking for. He obviously wasn't aware of the fact that the council wasn't responsible for this decision, and that the environmental state council is a complete other institutional buddy and

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14 of the environmental state council
15 This 'distance' problem also applies to the sole native-indigenous NGO GAF with formal settlement on Fortalezinha/Maiandeua. Already in 2003 decision making meetings have been held more than 200 km away from the area they want to protect, since more members lived in Belém than on Algodoal. (Kaufmann 2003: 84)

probably not aware of this decision. Furthermore, no one explained to him that the paper, he had, was only a proposal, and no one informed the people about the progress. This is it what mainly constructs the inequality pattern in the given field: Access to information. As more distant you are to the source of information, here the SEMA in Belém, as less chance you have to get information. SUATÀ for example knew about the proposal for some reason. Considering the distance between the villages on Maiandeua and village Algodoal on island Algodoal, this may further increased difficulties to access information. Then, reciprocal understanding certainly is influenced by cultural (Indian/'white'), geographic (urban/littoral), and social (regular educated/fisherman) differences. Basing on the level of information the president had, most obvious conclusion was, that existing institutions, the council in particular, are not willing or capable to do as decided.

The failure in communication and coordination between different institutions on the one hand, and within the people-institution relationship on the other hand, must be seen as a crucial point, which disappoints expectations of one and the other. In this regards is assumed, that the difference in perception doesn't happen randomly, but as result of a differently perceived inequality pattern on APA Algodoal. In addition to the revealed, questions are: What are the disappointed expectations? What is the problem view of the stakeholders in the field? What is it, which the stakeholders think that should be done? In short, what are the existing discourses in the field generally? Amazon based literature and researches about the field as well as qualitative conversations bared six environmental aspects as viewpoints: Pollution by waste, peopling in ecological zones, illegal land taking, environmental protection, environmental education, and better monitoring.

All relevant researches have shown or even mentioned waste destination as a major concern, caused by both tourists and inhabitants. (Quaresma 2000, Kaufmann 2003, Bastos (1996), Bastos et al. (1995, 1997, 2001), Cunha (1998), Furtado/Quaresma (2002), Endres (1996)) The president of the canoeists association expressed this concern as follows: The "cuidado melhor de Algodoal evitando jogar lixo na rua, fazendo mutirão para a retirada do lixo, na área em que trabalhamos e nos arredores, se todos ajudassem e fizessem a sua parte seria melhor" [better care for Algodoal be to prevent throwing waste in the streets by taking responsibility to take away the waste in your own hands, at places where we work and in the environment. If all would help and contribute their part, situation would be better]. As Barros points out, the majority expressed the problem of waste, which has to be resolved for <u>each involved actor in the village</u>. (Barros 2010: 62) This is supported by the representative of CLIMA, who sees a "grande potencial do turismo, mas esse turismo trás problemas como a presença de drogas no interior da ilha, o lixo que fica depois dos feriados e, principalmente, a água encanada" [great potential of tourism, but this tourism comes along with

problems such as drugs in the interior of the island, the waste that emerges after the holidays, and, basically, running water] (Barros 2010: 58), therefore "nenhum beneficio para algodoal, pois o lixo continua a ser deixado no mangal" [no benefit for Algodoal, but the waste continues to be thrown into the mangrove forests,] by the contemporary approach (Barros 2010: 64). Inherently, another point was expressed beside the waste problem, which is the drug problem, an aspect which has been named as anti-social families that not just consume cannabis but also a cannabis-cocaine mixed drug called 'pasta' (Kaufmann 2003: 79-80). The director of the infant school in Algodoal concludes, Algodoal has various necessities, "mas o que tem dado mais trabalho é a questão do lixo: coleta seletiva que não é feita corretamente e, principalmente o acúmulo nas altas temporadas" [but on top is the waste question: selective collection that isn't made correctly, in particular accumulated in the peak seasons]. (Barros 2010: 62)

As a matter of fact, efforts have been undertaken to better manage the problem, namely by the two remaining NGOs. Whilst GAF tried in the past to remove the trash by manually collecting tourists (and inhabitants) waste in anti-waste campaigns [campanhas contra o lixo) (Kaufmann 2003: 82), SUATÁ took successfully legal action. It succeeded to the extent of cleaning service for the beaches after the seasons, executed and paid by municipality prefecture Maracanã. This doesn't finally resolve the mentioned problem due to migration of people into the mangrove, which are intrinsically declared protected areas, forests and tourist enterprises, such as hotels, hostels, and restaurants, at the beaches. Pollution, produced in the mangrove forests by inhabitants or at the beaches off the peak seasons, is not covered by the verdict.

Consequentially, there are two sources of migration, enterprises that settle at beaches and inhabitants which move to the environmental protected areas. Reasons for the first are obvious, unique selling proposition by location close to the beach in a quite beautiful environment. The question is: Why do people move to the mangrove areas? The reason is a very practical one: illegal territorial extraction. As Quaresma stated already in 2000: "Hoje, tais padrões de habitação são difíceis de serem encontrados, as poucas que ainda existem estão localizadas em áreas consideradas marginais (áreas de mangie), geralmente pertencentes a nativos que venderam suas casas para veranistas ou a pescadores migrantes oriundos de outras localidades, principalmente de Bragança." [Today, such housing standards are difficult to find. The few, which still are, live in areas considered as marginal (mangrove areas). Generally, these natives have sold their houses to tourists or to migrating fishermen from other locations, mainly from Bragança.] (Quaresma 2000: 182) The process continued and increased during the last decades. This can already been observed, when approaching village Algodoal. Nowadays, the way from the pier to the village is lined with a slum

alike area on the right hand side, inhabited mainly by indigenous people. Constructions can be found in the mangrove zones at princess beach and on the way (per pedes) from Camboinha to village Camboinha, some show signs of willingness to sell land and housing. Illegal change of land ownership, selling and buying of land can be found right in front of both the SEMA office and the police office in village Algodoal. Remembering mentioned environmental legislature of restrictions in land usage (see above), this direct violation of existing law gives reasons to question. Migration and land extraction, which is co-responsible for the unresolved waste problem on the island, is neither done secretly nor oppressively. Rather, indigenous people with right to use the land, but without ownership, are selling it to people from outside. Tourist guides offer instantly some places to construct simple holiday housings for the prize of less than 10,000 R$ incl. land possession, located inside the mangrove forest. In awareness of a society which is shifting from a subsistence economy more and more into a money-driven economy like the former fisherman communities on Algodoal, the undeniable fact of existing demand and supply can be stated. Also, as an obvious truth, neglect or ignorance of existing law must be assumed.

Confronting the responsible legal body for the landownership problem in Belém (SPU/PA) incapability to take action without a management plan was the answer. Furthermore, when asked for 're-socialization' of illegally bought land, the agent expressed opinion, that people, which sell their land for a couple of thousand Reals and waste them the year after totally in a bar, cannot be helped. On the other hand, compensation claims of those losing their land then, was also mentioned as barrier.

Another side effect of this process is deforestation. Accomplished first by those moving to the mangrove areas, cutting down the trees to get space for their housing, the named project 'Light for All' follows immediately (after appliance) by laying cables to that place, accompanied by further deforestation and environmental damage. As president of ACDESPIM stresses, conservation unit's obligation shouldn't be limited to natural resources preservation, but by local environmental training and sensitization of the community. This outlines a difference in focus of environmental law and execution: nature focused or focused on sociality. The president finally concludes, that "nenhum benfício" have been accomplished "e inclusive o desmatamento vem aumentando no interior da APA" [not any benefit has been acccomplished and deforestation increases in the interior of the APA] (Barros 2010: 64).

As Barros points out in quoting the representative of the association 'inhabitants of island

Maiandeua'[16], that environmental education as principle requirement to take care for the island should be realized by both associations and schools. (Barros 2010: 63) The director of the school in village Algodoal disagrees, stressing, that school has done its part since working on environmental conscience in school (Ibid: 62). Barros concludes that the obligation for a more of environmental education is now up to the public authority and local associations to do the same. (Ibid: 64) Representative of village Camboinha, secluded from both influence and tourism (which each are afflicted with both environmental goods and bad[17], indigenous fishermen and living in Camboinha ever since, shares critique on institutional insufficiency, but has a different interest for the community he represents: Strengthening preservation of cultural heritage (reducing environmental bad), such as Carimbó. In his opinion, environmental education has been successfully implemented, but very few benefits have been transferred by APA creation. (Barros 2010: 65) As conclusion, Barros emphasizes, that inhabitants from different villages told about no benefit and positive changes on Algodoal-Maiandeua, but all inhabitants expressed the following aspects to conserve Algodoal-Maiandeua: (a) no extraction of sand and stones at the beach, (b) investment in infrastructure, (c) stop of deforestation, (d) no processing of great constructions in the villages, and (e) preservation of the environment. (Barros 2010: 62) "Erroneamente" opposing views state "ou até por falta de informações, é comum ouvir de alguns moradores o seguinte: se aqui não fosse APA íamos ter a melhoria no transporte" [Erroneously or due to failure of information, it is common to hear from some inhabitants as follows: If here wouldn't be an APA, we would have a better transport system] (Barros 2010: 65), as the director of the children's school in village Algodoal said. One solution to the problem set is offered by the directory of the environment in Maracanã and the GAF agent. "Primeiro", the latter's vice-president pointed out, "temos que ter o apoio da Delegacia do Meio Ambiente, IBAMA, Secretaria Estadual do Meio Ambiente e, principalmente fiscalização desses órgãos, au sim podemos caminhar em frente." [First, we must have support by DEMA, IBAMA, SEMA, and there must be a monitoring by these institutions in order to go ahead.] (Barros 2010: 63)

In consideration to the outlined perspectives on the problem set, Q application will be examined.

Methodological approach

Basically, Q Methodology seeks to look for differences between opinions in the field to reveal the most distinguishing ones. Here, the results show, what the most different opinions about the

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16 Unknown in accordance to analysed official papers.
17 Basically the two terms define positive, such as access to information and funding, increasing well-being, or alike (environmental goods) and negative impacts, as pollution, growing pressure etc., on society.

concepts are. Consequentially, Q methodology cannot give proper evidence or significant output of what the majority or some group of the researched people think.

Advantage of this method is that non-predefined opinions can be collected from future participants using qualitative methods, categorized by the participants and then measured by factor analysis. This "method for the scientific study of human behaviour" (McKeown/Thomas 1988: 12) doesn't link persons over statements, as common factor analysis[18] does, but does it the other way around, linking statements over the participants of the study. As Previte states, "Q methodology (...) neither tests its participants nor imposes meaning a priori" (et al. 2007: 137), but generated ideal discourses are "attributed a posteriori through interpretation" (Brown 1980, p. 54).

Step-by-step application of Q Methodology

Application of Q Methodology runs through five steps, from identification of the discourse, to creation of the concourse, to development of the Q sample, to processing the Q sorting to running the statistics based analysis. After these steps, interpretation of the data in the context of research concludes the appliance (some call this the sixth step).

In detail, first concern consists in identifying a specific discourse, which is to be investigated, and evaluation of relevant population. Explicitly, this does not mean starting to develop a hypothesis, but identifying the domain in which the researched discourse takes place. Discourses are, for example, attitudes towards food and nutrition, animal experimentation or sustainability. Consequentially, Q research technique bases on posteriori imposition of meaning by interpretation (Brown 1980: 54) and rather expresses a discourse environment than testing participant.

The second step is to come from 'discourse' to 'concourse'. What are the subjects of struggle? What is the range of issues relevant to the identified domain? Interview techniques (Kitzinger 1999) are common, as well as naturalistic or ready-made texts (McKeown/Thomas 1988), often in combination with literature, media reports (Dell/Korotana 2000), and photographs (Swaffield/Fairweather 2000), but even unusual stimuli such as a set of bottled fragrances are known (Stephenson 1953).

At third stage comes the development of the 'Q sample' or 'Q statement set'. Usually, the 'Q set' of statements is in a broader sense, representative for the opinion ranges of the 'concourse', which was set up during the 'concourse' development. According to Previte et al. this process "assists researchers in refining and setting the research question". (2007: 137) After this, the research

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18 For established factor analysis, participants of studies are subjects and questions or statements are variables. The researcher then looks for patterns in responses across the variables for each person if valuations one and another variable of a certain participant are related. (cf. Webler et al. 2009: 7)

question must have been finally defined in order to commence the data collection. The 'Q sample' is of towering importance during the process since it further acts as condition of instruction for the participants, giving them possibility to add individual experiences to their responses. According to Stainton Rogers, the triggered 'concourse' set is usually reduced by two-thirds. (1995: 185) The compass of a Q sample is typically between 30 to 60 statements, constrained by time and practicability. Piloting is recommended in order to ensure the essence of opinions or themes discovered and sample duplication, under- or over-sampling is avoided. Some Q sample design techniques are discussed in literature to come to a logic reduction of data. Some include more qualitative elements, named as 'unstructured', which may, according to McKeown and Thomas, reduce the risk of misunderstandings and misinterpretation (1988) in order to identify themes in which the statements can be categorized and balanced (e.g. the study about national forest management, cf. Steelman/Maguire 1999).

As fourth step, the 'Q sorting' follows as main process of data collection. During this process, subjects model "his or her point of view by rank-ordering Q-sample stimuli along a continuum defined by a condition of instruction." (McKeown/Thomas 1988: 30) The condition of instruction is a pyramid, furthermore called 'Q pyramid'. In the middle, you find '0', while 'distribution marks' are spread out to the left (disagree with most strongly) and right (agree with most strongly). Typical Q studies use an 11 or 13 point scale. (Previte et al. 2007: 139) Depending on the amount of statements in the Q set, this may encompass from -6 to +6 (Ibid: 138), -5 to +5 as recommended by McKeown and Thomas (1988: 31) or -4 to +4 in the graphic (Barry/Proops 1999: 341). This scale score (or distribution marks) includes one further restriction: The number of statements. The total number of statements is defined by the 'Q set', but differentiated by the Q sort ranking. Centering a high amount of statements in the middle (position '0') and close by (-/+1; -/+2), usually, the 'extreme positions' (-/+3; -/+4) are limited by two (2) or three (3) statements. This isn't necessarily understood as a ranking from positive to negative, but rather as a ranking within the statements, such as >I like rather this than that<. Therefore, determination of a certain number of statements does not essentially force the participant to show his absolute agreements and disagreements with certain statements, but within the given frame they have to choose which statement of all given statements they rather or rather not agree with. Another requirement is the number of participants, the 'Q sorters'. Since stressing individual subjectivity, large sample sizes aren't relevant and the Q sorting process has more characteristics of a qualitative research than of a qualitative one. As Skinner puts it, there is more information to study one subject for 1,000 hours than 1,000 subjects for one hour (1969: 112). The selection finally bases on pragmatic as well as theoretical

considerations. Sorters may be theoretically selected according to their relevance and to the goal(s) of the study, such as membership to an organization like LETS (cf. Barry/Proops 1999), or pragmatically as if "anyone will suffice" (McKeown/Thomas 1988: 36). A small number of 'sorters' is not of disadvantage, "especially if they seem likely to express a particularly interesting or pivotal viewpoint". (Watts/Stenner 2005: 79) Statistically meaningful results can be generated by as few as 12 participants (Barry/Proops 1999: 344). As Previte states, in the study of Goldman and Emke only eight (8) individuals have been used, but more common are studies with 30 to 40 Q sorters. (Previte et al. 2007: 139)

After this processing, statistical analysis takes place at the fifth stage, in order to capture the quintessence of the different sorts. Usually, this is achieved by factor means of analyzed patterns across individuals measuring the most different, distinguishing statements. Thus, individuals which have sorted the statements in a similar way will consequentially most likely share a similar discourse position. As consequence, Q methods create ideal types which can be grouped according to positions and then assigned to the individuals. Q researches can draw a distinct picture for each factor array. Even free sources for different operating systems and distributions are provided at the beginning of this chapter, and may as well be used. Brown (1980) recommends, that Q methodological scientists run the collected statistical data from a seven-factor to a two-factor solution before accepting a final solution. This process already assists the (in some studies mentioned) sixth stage of step-by-step Q Methodology appliance, which consists in verbally interpreting "the social discourses uncovered by the statistical analysis." (Barry/Proops 1999: 339) Data analysis is carried out with the inter-correlation of the N Q sorts[19] as variables and >factor analysis< of an N x N correlation matrix. Resulting factors represent different viewpoints, thus, the association of a single participant is indicated by their preferences for a specific factor, given by the correlation result of factor analyzed answers to different statements. Finally, this step consists in calculation of normalized factor scores, whereby each statement is scored for each factor.

The analysis can be done most easily by statistical measurement using software like PCA (proprietary) or PQMethod (free to download on: http://www.lrz.de/~schmolck/qmethod/downpqx.htm). Furthermore, helpful is the basic text of Stephenson (1953) and the Q Methodology mailing-list at Kent university (register at http://www.lsoft.com/scripts/wl.exe?SL1=Q-METHOD&H=LISTSERV.KENT.EDU).

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19   Accordingly, persons, not traits or Q sample items, are correlated.

<u>Application on APA Algodoal-Maiandeua</u>

In accordance to the above named steps, the concepts of 'Environmental Justice' (EJ) and 'Sustainable Development' (SD) have been chosen as the discourses in the field. So, two Q analyses have been accomplished in the field with goal to compare them.

As P-set, all members of the environmental state council have been chosen. Then, thoughts about composition of the participants and significance of the research came up: What significance can be found in a conducted research based on a widely 'white' P-set[20]? To reduce this bias, some representatives from native-indigenous population have been added to both collecting relevant statements and the P-set. From this group (22 in total), 12 experts have been chosen to qualitatively collect representative statements of different views on the two concepts, SD and EJ. The statement collection has been done by asking the question of how they do understand the concept of either SD or EJ in the context of APA Algodoal-Maiandeua. An unstructured conversation technique was used to let the chosen experts express their behavior as free as possible. This was accomplished in consideration of Girtler's ero-epic conversation approach[21], which basically bases on reciprocal information exchange about day by day life experience in regards to the topic. Six of the experts (SEMA agent, director of the municipality's environmental office, president of SUATÁ, representative of the Museu Paraense Emílio Goeldi (MPEG), and a poet, expert for the surrounding and secretary of culture in Maracanã, Elizel Nascimento, among others) have been asked. Furthermore five native born Indians, most of them indigenous fisherman, from village Algodoal and Fortalezinha have been questioned. Using relevant literature too, ninety-eight statements could be found in total: twenty-five from English literature (mainly Gosine et al. 2008; Clapp/Dauvergne 2005), 4 from German literature (Kaufmann 2003), and 41 statements based on Brazilian literature (mainly Romeiro 1999, Nobre 2002, Santana/Figueiredo 2010 among others). Beside these seventy statements (from literature), further twenty-eight statements came from qualitative data collection.

Table 1: Concourse Matrix

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20 The set of participants (P-set) considers 'white' not just in terms of skin colour and appearance, such as Caucasian, but also in regards to their social status, access to education, risk of discrimination etc. In the field of Algodoal-Maiandeua, the 'whiteness' concept must be understood in reference to geographic inequality too: This means that geographic inequality patterns classify particular people, for example those coming from the metropolitan, as 'white', even they might have indigenous physical appearance, and others as 'non-white' people due to the fact that they are native born on the islands. Self-designation of people is central to this distinction. Interestingly, Maiandeua's and Algodoal's indigenous people can make the difference without any problem, which is – for an outsider with an outside view – quite impossible.

21 Girtler's coinage results from two ancient Greek words: >Erotema< and >Epos<. The substantive >Erotema< means >question<, the related verb >eromai< describes – more clearly than the substantive here - >to interrogate, to enquire<. >Epos< on the other hand implies >narrative, news, and lore< but also >Götterspruch< [gods instruction] and the related verb >eipon< means >to report something<. (2001: 150-151) As Girtler points out: „Ein >ero-episches Gespräch< ist demnach ein sehr eingehendes Gespräch, bei dem beide sich öffnen, der Forscher und sein Gesprächspartner, um in die wahren Tiefen einer Kultur (Randkultur) vorzudringen." [Thus, an ero-epic conversation is a much inbound conversation, in which both become talk active, the researcher and his or her partner, to reach the true depths of culture (transculture).] (Ibid: 153)

Total (SD/EJ)	Definitive	Designitive	Evaluative	Advocative	SUM
Market Liberals	3 (2/1)	4 (3/1)	2 (1/1)	2 (1/1)	**11 (7/4)**
Institutionalists	2 (1/1)	3 (1/2)	3 (3/0)	2 (0/2)	**10 (5/5)**
Social Greens	3 (1/2)	4 (2/2)	3 (1/2)	3 (1/2)	**13 (5/8)**
Bioevolutionarists	1 (1/0)	1 (0/1)	1 (1/0)	1 (0/1)	**4 (2/2)**
SUM	**9 (5/4)**	**12 (6/6)**	**9 (6/3)**	**8 (2/6)**	**38**

After reducing the statements in a proper concourse matrix, as developed from Dryzek (1997) and Clapp/Dauvergne (2005), to a measurable amount of twice nineteen statements, the members of the environmental council plus three native born Indians have been asked to do the sorting of the two Q samples according to the following Q pyramid:

Table 2: Q pyramid

Scale score	-4	-3	-2	-1	0	+1	+2	+3	+4
No of statements	1	2	2	3	3	3	2	2	1

Finally, the surveyed data have been analysed by the PQMethod program (see above) using both principle component analysis (PCA) as well as Centroid method with Varimax procedure and automatic flagging[22] applied to both sets. At the end, four factors[23] could be extracted for each discourse.

The concourse contribution by qualitative conversation was realized in September 2010, the following data survey was conducted from October to December of the same year.

Results of the field research

Before beginning the interpretation, the results of Q analysis are displayed first: Two tables show the ideal typed discourses as they have been found in the field for both EJ and SD. The tables show the same range of rating in the normalized factor score (from +4 to -4 in accordance to the Q pyramid) as well as rounded Z-scores. The latter is a more detailed value and added for comparison purposes, from which the normalized factor score emerges.

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22 PQMethod generally does flagging of a sort anytime its factor loading is $>2.58 \div \sqrt{N}$.
23 PCA has been run to either test the significance of the used statement sample and to pre-decide how many discourses might be most fertile. PCA showed that in both cases 6 unrotated factors showed an eigenvalue of more than 1.0, representing 78.5% (SD) and 80.65% (EJ) of all statements in each set. After further manual rotation, four factors have been found in both sets (SD and EJ) as most useful to demonstrate relevant discourses in the field. The 4 factors of SD and EJ represent 2/3 of all statements (SD: 65.87%; EJ: 65.69%), but in case of SD 36.96% (eigenvalue 8.13) is represented just in the first factor, so, more than one-third of all SD statements are displayed in the first factor. EJ's first factor, on the contrary, represents just 28% (eigenvalue 5.33), so the division of the statements in the four (4) factors is more regular than in the SD set.

Table 3: Sustainable Development: Rank Statement Totals and Normalized Factor Scores

Statements / Discourses	A	B	C	D
Result of the sustainable development process is a community focused on consumption.	-1	+1	-1	+1
Necessary be a type of institutional innovation to replace economical rationality by a new and distinct cultural rationality.	-1	+2	+2	-1
Economic growth is a positive force, which eliminates social disparities for irrelevant ecological costs.	-3	0	-4	+2
The environment is the absolute limit to economic growth. Therefore, mankind is close to catastrophe.	0	+2	0	-2
Technical progress effectively relativizes the environmental limits.	-2	0	-1	+1
The environmental problem could be resolved by enduring intervention of public authority, with instruments of control and command.	0	+3	+3	0
Due to the existence of absolute limits, economic growth must stop at some point.	+2	-1	-2	-3
Anthropocentrism increased in the last years, representing a negative change in the mentality.	+2	-1	-3	-1
Development (economic growth) on island Algodoal-Maiandeua is accompanied by an increasing felicity of the persons.	+1	-1	+1	0
Sustainable Development is the equilibrium (without priorities) of economical (tourism) and environmental development.	0	+4	-3	0
Major goal to better the process of sustainable development and the status quo of environmental justice is environmental education for the traditional population, which be much more effective when all governmental projects would work together.	+4	+3	0	+2
Contemporary tourism is the solution to develop island Algodoal-Maiandeua.	-3	-2	+1	-1
Drug abuse on Algodoal is an impact of human development.	+1	-3	+3	+3
Prostitution is an impact of present sustainable development on Algodoal-Maiandeua.	-2	-3	+2	-2
The development problem is that the natives don't accept persons from outside that come to Algodoal-Maiandeua, even though these people are living there since more than 20 (twenty) years.	+1	-2	0	-3
Sustainable Development means to return to production (fishing for example) and culture of the Indians.	+3	+1	+1	+4
The development plan must be created by the inhabitants not by superior government.	+3	0	-2	+3
Because of Sustainable Development I have more options, more liberty and a better well-being [in my socio-economical life].	-1	+1	+4	+1
The only things that I am missing on Algodoal-Maiandeua are cars.	-4	-4	-1	-4

Table 4: Environmental Justice: Rank Statement Totals and Normalized Factor Scores

Statements / Discourses	A	B	C	D
It's not the nature of humans to want more and more money.	-1	-2	+1	-4
The government has to take more responsibility to create a better environmental legislation than actual are.	+3	0	-1	+2
The poor are both victims and causers of environmental damage.	-2	+2	-3	-1
Sustainable Development is defined by satisfying the necessities of the presence, without sacrificing the needs of future generations.	+1	+1	-2	+3
Institutions cannot solve the environmental question.	-3	-3	+1	+2
Solution for the environmental question be protests of civil society.	0	+1	0	-2
The costs of development are paid by the poor or non-white people or by future generations.	-2	+2	-1	-1
The biggest problem isn't the depletability of resources but the consequences of their usage.	0	0	+2	+1
To understand sustainable development it is necessary to consider regional specifics, ideas of human respect, deep knowledge and love to nature.	+3	+1	+4	-2
In the past, work relations and relationship to the natural resources based on communitarian rights. Environmental Justice means to re-consider the antique understanding.	+1	-2	+3	+4
Development on island Algodoal-Maiandeua is efficient and produces environmental justice.	-4	-4	-1	-3
The failure of environmental justice and sustainable development on Algodoal is significant due to cases of malaria and yellow fever.	-1	+3	0	-3
There are many cases of illegal buying, selling, and ownership of land. Environmental Justice means to finish this illegal possession.	+1	-1	0	-1
Environmental Justice means monitoring of enterprises to provide better environmental services.	+2	-1	-2	+1
The problem lies in under-representation of the Indians in the participation organs, which are culturally marginalized.	-1	+3	+1	+3
The institutions of the government don't know the needs of the traditional population on island Algodoal-Maiandeua.	0	-3	-3	0
The influence of the different stakeholders on island Algodoal-Maiandeua differs in accordance to their economic power, this fair since it is the salary of success.	-3	-1	+3	0
The majority of people don't have the opportunity to partake the environmental goods and suffer overproportionally. The conflict emerging from this situation must not be ignored (anymore).	+2	+4	+2	+1
Waste is the major problem in the APA Algodoal-Maiandeua.	+4	0	-4	0

In the above listed overview, ideal typed discourses have been developed from the four extracted factors. For the sake of clearness, one has to distinguish between the discourses itself (such as SD and EJ) and the 4 discourses A to D within the two different discourses. The normalized factor scores display the whole ideal typed opinion, but by revealing the most distinguishing statements between the O sorts, discourses are created, which will narratively described in the following, for both sets, EJ and SD. Finally, the outcome can be compared to draw a proper picture of all relevant discourses that could be found in the environmental problem set, within the given frame.

Sustainable Development concept

Discourse A: institutional eco-preservationist, market-sceptical, pro 'zero growth', evaluative

The most distinctive argument (7; +2/1.09) of this discourse and in opposite to all others (B -1/-0.75, C -2/-0.72, D -3/-1.37) is its emphasis for the absolute limits to economic growth, which is why growth must stop at a certain point, since technical progress cannot relativize the environmental limits (5; -2/-0.98). This opinion sees increasing anthropocentrism in the community of inhabitants as one of the most defining negative impacts of Sustainable Development on Algodoal-Maiandeua (8; +2/0.68) and does not follow any of the market liberal arguments that see positive impacts of the economic development on an individual (18; -1/-0.57) and for no means on the societal level (3; -3/-1.36). The latter is of special importance as it is, like the first argument, the most distinguishing statement in the field and the only one which is declared significant for all four discourses. In other words, all four discourses have labelled this statement as important to defining their opinion, but with a different loading (3; B: 0/-0.08, C: -4/-2.44, D: +2/0.86). The strong decline locates this discourse close to discourse C, who refuses the 'limits to growth' (C: -2/-0.72) and anthropocentrism (C: -3/-1.29) argumentation uncompromisingly.

Discourse B: environmental admonisher, institutionalist

This viewpoint favours at the first place the understanding that SD is defined by an equilibrium of human and environmental development without giving priority to one or the other (10; +4/1.58), but also warns that humanity is close to catastrophe due to economy's growth since not considering the environment's absolute limits (4; +2/1.35). Very strong too, this perspective refuses the claim of drugs abuse on the islands as caused by human development (13; -3/-1.27). Opinion in between is in regards to the statement, that economic growth is accompanied by felicity on Algodoal-Maiandeua (9; -1/-0.53)[24].

As the only one discourse of the four, this view on Sustainable Development assumes no agreement to the statements that claim creation of the >Plano de Manejo< [management plan] rather by the inhabitants than governmental institutions (17; +0/0.09) and the to the argument, that economic growth is positive force able to eliminate social disparities to the extent of acceptable environmental

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24 Since this statement appears in the >consensus statement's> section too, assumption is that significance of this statement is due to an error of P < .05 and so the 5% error chance applied here. In the next section when the six (6) descending arrays of differences between factors are outlined, this possibility will be taken in consideration to find final answer. If significance applies, statement 9 would appear significantly in factor comparisons that include discourse B.

costs, but no disagreement too (3; +0/-0.08). In regards to the latter, all other perspectives show a clear opinion to either agree or disagree (3; A: 3/-1.36, C: -4/-2.44, +2/0.86).

Strong agreement can just be found in regards to statements that deliver a very 'technical' definition of the concept, whilst distinguishing arguments in regards to rather 'political' questions, or rather concrete than abstract considerations, are not refused but avoided in commitment.

This 'technical' approach less considers very local, specific, non-generizable opinions in favour of a more abstract and scientific understanding of the problem. Nevertheless, this view has inside knowledge to the field problem too. Drugs aren't a phenomenon coming from contemporary human development, but from tradition, at least in Fortalezinha[25] (Kaufmann 2003: 64-65), but whether the <u>abuse</u> of drugs is a consequence of human development might be questioned. The case of Fortalezinha showed increasing conflicts regarding alcohol and THC consumption (Ibid. 79-80). One can assume that the distant perspective on the SD concept in this discourse didn't consider this difference (existence of drugs vs. abuse of drugs) or did not assumed this fact as important for defining the term.

Discourse C: anti-capitalist, social-liberal, practitioner

Basically, this opinion is framed by the two strongest possible statements on each end of the scale, on the one hand it refuses positive impacts of economic growth to eliminate existing social disparities by acceptable ecological costs (3; -4 compared to D: +2, B: 0, A: -3), the negative Z-score loading is also the most radical position within the extracted discourses (3; C: -2.44 vs. D: +0.86, B: -0.08, A: -1.36), not just in regards to the named statement, that is defined as distinguishing for all 4 (four) discourses, but compared to all other statements recognized as significant (ranging from +1.58 [discourse B] to -1.36 [discourse A]) and non-significant (ranging from +1.894 [discourse D] to -1.881 [discourse D]) for defining discourses in the field. The disbelief in free market forces is accompanied by strongest support (18; +4/1.50) for (assumed or real) practical experience of more options, liberty and a better well-being [in the socio-economical life]. None of the other discourses would disagree to this fact, but none would agree too, and the one discourse (A) that considers this statement as relevant for its opinion would rather disagree (A: 18; -1/-0.57) than agree. Furthermore, the discourse fairly agrees that prostitution is an impact of present Sustainable Development on Algodoal-Maiandeua (14; +2/0.66) and agrees a bit to the viewpoint that nowadays (mass) tourism on the islands is the solution to develop the islands, especially because fishing isn't a source of revenue all periods of the year (12; +1/0.59).

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25   and there is no argument why it should be different in the other villages

Interestingly, the discourse favours an opinion taken from qualitative interview with a tourist couple that visited Algodoal the first time, stating that the only thing they miss would be cars on the conservation unit (19; -1/-0.28). On the other hand, the discourse doesn't agree to the idea that inhabitants of the islands themselves should create the management plan for development (17; -2/-1.09). Sustainable Development is definitely not an equilibrium without priorities (10; -3/-1.10) and therefore this discourse opposes discourse B, that most strongly agrees to this argument (B: 10; +4/1.58).

Discourse D: market-liberal

The importance of this discourse results from obvious one-sidedness in defining Sustainable Development, or rather, the expectations to it. In this understanding, the term stands for economic development without limits to growth in order to resolve the environmental as well as social inequality problem set. (2; +2/+0.86) The predominance of the argument in this discourse bares agreement to resolving social inequality claim by acceptable, since inevitable, dis-recognition of the environmental challenge due to obtained benefits.

Consensus in the field

Finally, the Q analysis provides two consensus statements[26]. The first statement, for which differences have been too small to be relevant – and therefore couldn't be distinguished –, states that the result of the Sustainable Development process is a community focused on consumption (1; A: -1/-0.18; B: +1/0.19; C: -1/-0.51; D: +1/0.31). The second one recognizes development, or economic growth, as accompanied by increasing felicity of the people (9; A: +1/0.30; B: -1/-0.53; C: +1/0.38; D: 0/0.21).

Correlation between its most distinctive parts

To outline the conflict line in the field at its best, all discourses have been correlated with each other. The outcome of this correlation will now be analysed in consideration to the above described narratives. Correlations between all factors show, inasmuch the 4 evaluated discourses are similar or not. Lowest rate of all, quasi 'no-agreement' between the two, is found in correlation of discourse C and D which reveals congruency of just 0.0017 in a range from -1.0000 to +1.0000. As has been shown in the above narrative of discourse D, just one statement has been significant for the

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26 When looking on the single correlations between discourses one cannot find evidence for significance. Differences of statement 9 in all arrays have been below the defined paradigm of relevance, Z score difference of 0.831 in discourse A-B, -0.908 in B-C, and 0.738 in B-D. In consideration of this, delineated significance of statement 9 for discourse B remains in question.

discourse in correlation to all other discourses. The correlation of the two discourses which have the least in common, will give opportunity to better understand the conflict line about the SD concept. In correlation of the two most different opinions, arguments for the strength of the dispute may be reasonable.

Statement 3, significant to all discourses in the field, is not just 'strong' (+2 or -2 and more) loaded by both discourses (C: -4 and D: +2), it shows the overall highest difference of all in the Z-score (-3.306). Whilst discourse C and his anti-capitalist and social-liberal praxis orientation disagrees totally (-4/-2.443) to positive force of economic growth towards social justice and ecological thoughts discourse D agrees (+2/0.863) from its market-liberal and institution-sceptical viewpoint. Consequentially, prostitution as an impact of Sustainable Development is seen as right by C (14; +2/0.657) and wrong (14; -2/-1.007) according to D. Participation of the local inhabitants by creating the development plan (statement 17) – on the other hand – is demanded by D (+3/1.337) and rejected by the other (C: -2/-1.087). Further five (5) statements define the distinctive positions in terms of 'strong' statement loading by one and 'moderate' (from -1 to +1) loading by the other discourse. Three are 'strongly' loaded by discourse D, which are agreement to a return to native production and culture (16; +4/1.894) but in addition the rejection to the claim, that the development problem be non-acceptance of people from outside by natives, even though they are living on Algodoal-Maiandeua more than 20 years (15; -3/-1.549). Finally, total disagreement to the statement that the only thing missing on island Algodoal-Maiandeua be cars (19; -4/-1.881). To all three statements, discourse C behaves 'moderately'[27], as discourse D does in regards to the remaining two. First, having more options, liberty and well-being in the socio-economic life because of contemporary SD than before (18; +1/0.248) and, second, definition of SD as an equilibrium of tourism and environmental protection without priorities (10; 0/0.182). For sake of classification, discourse C agrees most strongly possible to the former (18; +4/1.495) and disagrees to statement 10 (-3/-1.098).

Environmental Justice concept

Discourse A: institutionalist, communitarian

This discourse favours the waste problem as the major Environmental Justice problem on APA Algodoal (19; +4/2.29), but doesn't see the paupers as responsible and victim of this damage to the environment (3; -2/-1.06). Even though it is not just that stakeholder's influence is strongly linked to

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27   (16; +1/0.506) (15; 0/0.366) (19; -1/-0.280)

their economic power (17; -3/-1.45), this perspective disagrees that institutions aren't able to resolve the environmental question in this regards (5; -3/-1.07). Communitarian resources use rights have to be considered but don't play a very central role (10; +1/0.44). The latter is also true for the representation of natives in the management council and their cultural marginalization to which is rather disagreed (15; -1/-0.27). Even more, this discourse assumes that it is rather in nature of humans to want more and more money (1; -1/-0.25).

Discourse B: institutionalist, environmental racism awareness, eco-analytical

This opinion frames within typical, analytical terms, first of all, on unequal shared costs and benefits, but health issues too. Strong argument is the comprehension, that the majority of the population on the islands is excluded from environmental goods whilst suffering more from environmental bads, and that these impacts create struggles which cannot be ignored (18; +4/1.60). Evidence for Environmental Justice failure on Algodoal-Maiandeua is seen by cases of malaria and yellow fever (12; +3/1.18). Both responsible and victim of environmental damages are the poor people (3; +2/0.93), but the costs are carried by non-white people and future generations (7; +2/0.76). Obviously the understanding of how to achieve Environmental Justice on Algodoal requires – according to this opinion – a Sustainable Development strategy, able to establish specific regional obligations in respect to the North, the South, the East and the West of Brazil, the coastline, the countryside, urban areas, to create a new concept of modernity by inventing a new civilization basing on the ideas of respect, knowledge and love to nature (9; +1/0.31). On the contrary to discourse A (A: 10; +1/0.44), this viewpoint rejects reconsideration of antique understandings in modern society. The statement argued that ancient relations of work and natural resources usage based on communitarian resources usage and was substituted by private property rights characterized by rationality strictly economically. (10; -2/-0.90) In consideration of human's to always want more and more money by nature (1; -2/-1.17), institutions are certainly able to answer the environmental question (5; -3/-1.72).

Discourse C: economical individualism, subjection of environmental concern

Strongest statements of this discourse is the refuse of waste as the major problem on islands Algodoal-Maiandeua (19; -4/-1.95) and the belief that stakeholders with more economical power have and should have more influence than those without (17; +3/0.98). As this opinion further assumes (on a Z-score difference of just 0.21) that to want more and more money is not naturally given to mankind (1; +1/0.77), the former argument creates the belief that those who accomplish

economic success can and should take higher responsibility. Furthermore, Environmental Justice on Algodoal cannot be defined in terms of satisfying the needs of today without sacrificing the needs of future generations (4; -2/-0.90). Last but not least, and as consequence of the individualistic perspective on this view, the understanding of paupers as causers and victims of environmental damage is neglected (3; -3/-1.85).

Discourse D: SD based environmentalist, Environmental Justice incorporating

To not sacrifice the needs of future generations by fulfilling present needs, is superior (4; +3/1.24). This view sees basically no principle difference between SD and EJ concept. Even though it is not human's nature to want more and more money (1; -4/-2.11), no new concept of modernity (and therefore development) to invent a new form of civilization basing on deep respect to humans, subaltern knowledge (consideration of specifics of regions in Brazil) and nature is required either (9; -2/-0.87). Cases of malaria and yellow fever aren't the failure for Environmental Justice on Algodoal-Maiandeua (12; -3/-1.10).

Consensus in the field

There has been no consensus statement between the discourses.

Correlation between its most distinctive parts

Discourses A and C are the two positions on both ends of the discourses range. This can be defined by using the terms of communitarian versus individualistic. In Durkheim's terms, mechanic solidarity faces organic solidarity. Organic individualism of such a solidarity is best represented in statement 17, which has been marked as significant to both discourse (C: 17; +3/0.98 and A: 17; -3/-1.45). This statement points out that it is just if the economically more powerful have more influence. In the Q analytical result of the descending array of differences between factors one and three this statement is, consequentially, located at the bottom showing the most negative difference in this array (-2.432). On the top, we find the most distinguishing perception in the whole field[28] regarding statement 19 (difference 4.243). The argument assumes that waste is the major problem on the island, which is totally and fully agreed in discourse A (+4/2.29) and just as strong disagreed by discourse C (-4/-1.95). Not significant for discourse A and C in their relation to the extracted discourses in the field, second strong distinction on the 'positive' end (meaning with a positive result in difference) is found in statement fourteen that Environmental Justice would mean controlling and

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28   Meaning all factor differences existing in the set of Environmental Justice

monitoring enterprises on Algodoal-Maiandeua to better governmental capacity for environmental services. Individual perspective from discourse C certainly disagrees (14; -2/-0.81) whilst the communitarian discourse agrees (A: 14; +2/0.76). Strong in difference but not distinguishable in agreement and disagreement applies for the third and, nor a bit less, the fourth statement in line top down from its positive end. When statement 2 asks for more governmental responsibility regarding environmental legislature than actually does, discourse A favours this argument (2; +3/1.303) strongly non-comfort with contemporary Environmental Justice situation on Algodoal-Maiandeua, whilst its opponent cannot agree to this priority (2; -1/-0.080). Again, communitarian perspective faces the individualistic[29] one which is related to origin and economical position of those close to this perspective on Environmental Justice. The forth most differing statement goes in the same direction, but is just labelled significant to discourse C's disagreement (4; -2/-0.90), but is opposed by discourse A (4; +1/0.16) in creating a difference of 1.056 in regards to the question whether Environmental Justice can be defined basically by satisfaction of actual needs without sacrificing the capability to satisfy the needs of the future.

Huge difference can be found in the question of whether institutions are able to resolve the environmental question on APA Algodoal (difference -1.348), where discourse A says >no< (5; -3/-1.07) and discourse B don't agree with tendency towards >yes< (5; +1/0.28). Discourse C rather favours problems regarding resources usage than availability of natural resources or their finiteness as defining term for Environmental Justice (8; +2/0.840), a statement, to which discourse A (8; 0/-0.200) just cannot agree (difference -1.040). Confusing on the first look, but much more than reasonable in consideration of an individualistic perspective are the factor differences to statement 11 (eleven) (difference: -1.191), which creates the third strongest negative difference between the two factors, even though none of the two would agree to that statement. The development on Algodoal-Maiandeua is efficient and produces Environmental Justice which is absolutely neglected by discourse A (11; -4/-1.745), since from a communitarian perspective, the participation on development benefits such as tourism in the high season or just access to Internet would require resources (financial, equipment) and capital (knowledge, skills, planning ability) which not all have equally. From C's individualistic viewpoint, justice bases on a non-communitarian assumption, considering more the economic output than social impacts of inequality (cf. statement 17). Therefore, the development on the islands might be efficient although it doesn't produce

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29 One may think about using the 'egoistic' instead of 'individualistic', but egoism seems to me more a moral and evaluative classification which judges without sufficiently considering reasonable rationality, constraints and constellation of customs. Therefore 'individualism' in an occidental rationalism way is used in consideration of Girtler's 9th Commandment: "Du bist kein Richter, sondern lediglich Zeuge!" [You aren't the judge, but only witness of a process!] (Girtler 2001: 184/185, cf. appendix 21)

Environmental Justice now, or rather, what is produced now, is just because of paying its rightful salary to those successful. In this range of interpretation the non-agreement of discourse C must be understood (C: 11; -1/-0.554).

Interpretation and final comparison of the concept's discourses

In the following, the resulting aspects will be observed within three steps: Looking at the construction of the four discourses in each area first, then looking for the differing statements in detail and then the two outlined decent factor arrays of most distinguishing discourses in each field will be compared. Final thoughts will consider the whole data set for finishing conclusion.

First observation on the discourses construction reveals strong position in favour of institutional solutions for the environmental problem set on APA Algodoal-Maiandeua. In both areas, SD and EJ, the first two discourses, as extracted from the factors, include an institutionalist viewpoint. In both sets, the first discourse (A) expresses environmental concern and scepticism towards procedures of a 'free' market or social structures of economic inequality produced by it. Similarities can be seen in comparing the discourses B of the sets. Strongest statements in both are favouring either institutional, technical definitions of the concepts in question. Whilst discourse C of the SD concept is anti-capitalist and social-liberal, the same in the EJ set supports individualism. The both have in common that they aren't really concerned about the waste problem, but concentrate on their own forthcoming. Even anti-capitalist perspective rather emerges from social-liberal arguments of individualism and sense of justice than critique on the fundamentals of capitalism. Discourses D of both EJ and SD, at the end, are also related. Theoretically, the approach to incorporate the EJ concept into the existing SD concept is accompanied by the usage of SD concept's definition of the Brundtland report for the EJ concept. This argument is only one, which is positively highlighted, whilst the other defining statements in the EJ discourse set are characterized by disagreements. This would rather speak for no difference between the two discourses sets.

On the contrary, strongest difference is found between an 'anti-capitalist' viewpoint (discourse C) and a 'pure' market liberal opinion in the SD set (discourse D). The differences appear mainly in the assessment of the role of economic growth (-4 vs. +2), of the proposed participation of local population in creation of the development plan (+3 vs. -2), and whether prostitution is an impact of SD (+2 versus -2). As well three statements with 'strong' positioning in both discourses are also found in the most distinguishing discourse correlation of the EJ set, the 'communitarian' versus 'individualistic' viewpoint. Here, as in the SD set, we find five statements which are 'strongly' loaded by one partner and 'moderately' by the other. For analysing the strength of the struggle

within the two sets, these five are considered as expressing subjective emphases of particular discourses but can tell less about how intensity of the difference. The discourse who loaded just 'moderately' on a particular statement could have done this – in consideration to the Q pyramid pattern – for many reasons. Consequentially, focus will be the three statements, 'strongly' loaded by both discourses. And here one can see that what discourse A finds important, is same as strong disagreed by the discourse C. Be it to see waste as major environmental concern on the island (+4 vs. -4), judgement of rightfulness of more influence by those economically more successful (+3 vs. -3) and priority to of monitoring enterprises by governmental bodies in order to perform better environmental service (+2 vs. -2). Last but not least, the SD set shows two statements recognized as consensus statements but the EJ set has none.

As could be shown, main concern of APA law to promote ecological preservation and eco-tourism faces structural critique from communitarian, local perspective. Prostitution as impact of SD is a controversial statement, revealing different insight view to the topic. By no means, prostitution of infants, what Eurocentric viewpoint may assume. As far as I was told, this happens within local population, not with strangers like tourists, so the girls knew the older people they are with ever since (Kaufmann 2003: 80). There is no >street-walkers' patch< and no bordel, but you see some very young girls pregnant. A mother told me, that this is due to education failure, something known in societies we know too, but there expressed as a major concern. Failure of environmental education in particular, in a frame of weakly funded and structured education system on the island, gives reasons to put this topic on an agenda for further discussion.

Beside this, the field contains antagonistic opinions as well as unequally shared influence. With goal to satisfy the needs of all people on Algodoal-Maiandeua, these opinions must be considered and equal power in decision making is required. Differences in seeing the role of present economic development as positive or negative must be deeper analysed and understood in order to proceed. Waste as major concern is to be selectively observed to outline which stakeholder group is touched to what extent by the pollution. Decisions of participation of local population leads to questions of inasmuch native people are considered by now. As a requirement for successful implementation of a management plan, the fact of under-representation of an important part of the population (basically the only one which have legal right to use the land there) should be framed in an institutional debate about the usefulness of contemporary structure (like environmental state council) to fulfil its purpose. Contemporary, the institutional structures are obvious environmental inequality pattern, in which those have more say that are anyway advantaged: Majority of the associations is led by people living on the island due to land law abuse. To discuss the pressing problem of illegal land

taking, the constitution of this council will hardly create a management plan that damages their interest. Institutions on the other side haven't enough insight knowledge, and also no right, to represent indigenous opinions in the field. In this context, one must see the difference towards a more of monitoring by governmental bodies in order to perform a better environmental service than today. As a matter of fact, both indigenous people and newcomers expressed no interest in more monitoring by the government. Indeed, society has moved forwards to a society with focus on consumption accompanied by happiness and a more of options (the two consensus statements). And consumption, they seek, struggling for more participation in the benefits provided.

As final conclusion, APA law has never been constructed to give answer to these questions. This is why APA law must fail to achieve success. In my opinion, for APA Algodoal-Maiandeua exist, mainly, two options to proceed: Readjustment of APA law and institutional pattern in consideration of expressed needs by the people, even against resistance of those benefiting from contemporary inequality pattern or stopping the project. In the present situation, APA is not just unable to achieve what it was made for, but also damages governmental authority as such if law is abused in face of authorities. On the other hand, native, disadvantaged part of Algodoal's civil society must get further involved. Believe in capability of institutions is not enough to become considered as faction. Therefore, most of the newcomers are doing a good job by lobbying their interests within existing organizations. Blaming SEMA, first of all, for all inadequacies simplifies the problem set. Governmental institutions rather are motivated and enabled to invest more resources if there is an obvious need.

Based on the qualitative conversations and the results of Q analyses, the point is, that all governmental institutions, in particular the project >Light for all< and the SEMA among others, must be organized in a structure, in which they work complementary. Furthermore, the goal of activity must be brought in line with the local needs as expressed. Illegal land taking should be undone, if possible, to restore order and credibility of institutions. Institutional pattern should consider the cultural background of native people when constituted and environmental costs of preservation should be paid by tourists (visitors) and enterprises, performed by state authorities. Executive must be enacted to charge crimes against the environment and against those who have land use rights. If this is possible, or, inasmuch a solution based on a desirable compromise is achievable, rests with the stakeholders.

In consideration of Elvers' research paradigm I believe further Q analyses should be executed by both science and political decision makers in order to accompany the process of law implementation, to uncover existing differences and consequentially possible problems in advance.

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Abbreviations

ACDESPIM: >Associação Comunitária do DESenvolvimento e Preservação da Ilha de Maiandeua-algodoal< [Common Association of Development and Preservation of Island Maiandeua-Algodoal]

ACPAVA: >Associaçâo Comunitária Pescadores Artesanais da Vila de Algodoal< [Common Artesan Fishermen Association of village Algodoal]

AETA: >Associação de Empreendedores de Turismo de Algodoal< [Association of Entrepreneurs of Tourism on Algodoal]

ALMA: >Associação dos Lancheiros Marudá-Algodoal< [Association of food sellers Marudá-Algodoal]

APA: Área de Proteção Ambiental [environmental protection area]

Ass: Associação [Association]

CLIMAM: >Cooperativa dos Lancheiros da ilha de Algodoal – Marudá< [Cooperative of food sellers on island Marudá-Algodoal]

DEMA: >Delegacia Especializada em Crimes contra o Meio Ambiente< [specialized delegacy on crimes against the environment]

EJ: Environmental Justice

GAF: >Grupo Ambiental de Fortalezinha< [Environmental Group in Fortalezinha]

GEMA: >Grupo Ecológico Maiandeua< [Ecological Group Maiandeua]

IBAMA: >Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais< [Brazilian Institute of Environment and Renewable Natural Resources]

MPEG: >Museu Paraense Emílio Goeldi< [Museum of Pará Emílio Goeldi]

NGO: Non-Governmental Organization

OMA: Overall Midpoint Average

ORLA: >O Projeto de Gestão Integrada da Orla Marítima< [the project of integrated management of maritime margin]

PARATUR: official tourism organ in the state Pará

PCA: Principle Component Analysis

PMDB: Partido do Movimento Democrático Brasileiro [party of Brazilian democratic movement]

PT: >População Tradicional< [Traditional Population]

SD: Sustainable Development

SEMA: >Secretaria do Meio Ambiente< [state's secretary of the environment]

SESPA: >Secretaria de Estado e Saúde Pública< [secretary of state and public health]

SPU/PA: >Superintendência de Patrimônio da União no Estado do Pará< [Superintendent of Heritage Union in the State of Pará]

SUATÁ: >Associação Pró-Ilha de Algodoal-Maiandeua< [Association Pro-Island of Algodoal-Maiandeua]

UFPA: >Universidade Federal do Pará< [Federal University of Pará]

Vereador: mayor