

# **Environmental Conflicts and Conservation Justice (CJC) in Marine Protection: A CJC-Analysis.**

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**(December 2018)**

Von der Fakultät Rechts- und Wirtschaftswissenschaften<sup>1</sup> der Carl von  
Ossietzky Universität Oldenburg zur Erlangung des Grades und  
Titels einer Dr. rer. pol.  
genehmigte Dissertation

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Tag der Disputation: 27.06.2018

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Further Contributions:

Andrea Finck, archeologist and artist from Hamburg (Germany); cover picture<sup>2</sup>, (title: "Sansibar") from 2011; inspired by the ancient civilization of Zanzibar and its lively coastal culture of today (applied materials: 90 x 90 canvas, color pigments, egg tempera, dammar resin and oil).

Andrés de la Casa, Spanish-German artist with roots to the indigenous people of La Palma; chapter illustrations (title: "Dissertation I.-IV.") from 2018; motivated by conservation justice aspects in support of indigenous awareness; primary exhibitions in Canada (applied materials: scriptol, pencil, Japanese ink).

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<sup>2</sup> On the reverse side of the book you will find the original picture "Sansibar" by Andrea Finck.

## Executive Summary:

Worldwide, all humans' well-being, depend on ecosystem services, no matter whether for food, clean air, drinking water, income, recreation, etc., whose safeguarding is thus vital. Environmental problems, -degradation and resource scarcity in the light of a growing global population bear therefore quite some conflict potentials, notably if several stakeholders feel unjustly or unfairly treated. This is particularly relevant for societies in low developed countries with a high dependency on nature's resources, and insufficient capacities to cope with and adapt to environmental and climatic changes. Many studies, assessments, reports and expertise verify this phenomenon. In addition to terrestrial environmental challenges, evermore marine and aquatic ecosystems and its services are threatened by a wide amplitude of anthropogenic burdens, including population growth, pollution, climate change etc. (Adger et al. 2014, Pomeroy et al. 2016, McClanahan et al. 2013). The resulting decline of ecosystems and resources, in turn, exacerbate the already growing demand of the latter, further reinforcing the degradation of ecosystems and habitat (Pomeroy et al. 2016, Bennett et al. 2017). To protect the environment is consequently an inevitable, but a challenging endeavour, regarding the complex ecological, social and economic interdependencies. This is particularly true in the light of a globally growing population, accompanying environmental stresses and the increasing competition for the remaining natural resources (*ibid.*). These challenges and the unequal distribution of environmental benefits and burdens in addition to the dwindling (marine) resources are a main source of so-called socio-environmental conflicts. To avoid emergent conflicts that could threaten conservation outcome, practitioners need to understand and consider inherent social justice implications, including food- and human security aspects (Adger et al. 2014, McClanahan et al. 2013), in relation to resource dependencies of the local subsistence and artisanal "resource appropriators" (Ostrom 1990, p. 30). Guided by the UN Sustainability Development Goals (SDGs) (UN 2016), this study's motivation and aim is to offer a supplementary framework and tool to enhance social and environmental impact assessments of marine protection through a "Conservation Justice"<sup>3</sup> perspective that is applicable to focus on conflict potentials and conflicts, prioritizing direct impacts on small-scale and local levels. This extension of perspective enables a deeper understanding of the complex conflict situations on-site, the correlation between conservation justice aspects and an advanced understanding of socio-

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<sup>3</sup> See Chp.2.3

environmental implications, are elicited and analysed on the basis of the “Conservation Justice and Conflict Model” (CJC Model). Grounded on various justice theories and sustainable resource management approaches, the model considers of existing theoretical and practical approaches as it strikes a balance between theory and practical planning and offers a qualitative, yet feasible model and tool. The CJC model’s analysis factors passed the first proof of concept in the form of five different cases studies of resource dependent fisheries communities in Zanzibar, Tanzania. Thereby, the CJC analysis unearthed unanticipated insights, concrete problematic conservation issues and unexpected commonalities of justice factor ratings by different local fishing communities, and other stakeholder groups. In this context, the local experts of all considered fisheries communities rated e.g. the CJC-Factor “Climate and Conservation Adaptation” as a severe conflict potential. Another unanticipated outcome is the expert’s positive evaluation of the conservation management, despite the difficulty to implement environmental protection activities in light of pronounced poverty and lack of development prospects of the study area. The model’s deductive – inductive (viz. adaptable) categorization units have demonstrated to be useful for the analyzation of different aspects and notions of “justice” phenomena in conservation areas inter-, respectively transdisciplinary and hence provide several benchmarks, to transfer the theoretical macro-level into a micro-level of the “real life challenges”. The research has led to a comparative model for an improved Environmental and Social (Impact) Assessments, Planning and Management, to enhance “[...] peace, justice and stable institutions” (SDG 16) with regard to marine and coastal environment (SDG 14: Life below Water) and Food Security (SDG 2) (UNDP 2018; UN 2016). Thereby the model transfers some of the UN’s Sustainability Development Goals and Targets (SDGs) into action.

#### German Summary (Zusammenfassung)

Weltweit hängt das menschliche Wohlbefinden von funktionierenden Ökosystemdienstleistungen ab, ob hinsichtlich Ernährung, reiner Luft, Trinkwasser, Einkommen etc., dessen Erhalt überlebenswichtig ist. Umweltprobleme, Ressourcenknappheit, und Verteilungsangelegenheiten können daher einiges an Konfliktpotential in sich tragen, insbesondere, wenn sich Akteure ungerecht behandelt- oder benachteiligt fühlen. Das ist im besonderen Maße relevant für Gesellschaften in weniger entwickelten Ländern, die eine hohe Abhängigkeit von natürlichen Ressourcen (inklusive Mariner Ressourcen) aufweisen sowie

unzureichende Umwelt- und Klimaanpassungskapazitäten besitzen. Eine Vielzahl von Studien, Untersuchungen, Reports, Begutachtungen und Fachexpertisen belegen diese Phänomene. Neben terrestrischen Umweltherausforderungen sind zunehmend auch aquatische- und marine Ökosysteme durch mannigfaltige anthropogene Belastungen bedroht. Dies beinhaltet, neben dem globalen Bevölkerungswachstum, auch Umweltverschmutzung, Ressourcenabbau, Klimawandel, etc. (Adger et al. 2014, Pomeroy et al. 2016, McClanahan et al. 2013). Die resultierende Degradierung dieser übergreifenden Ökosysteme und ihrer Dienstleistungen verschärft die bereits angespannte Nachfrage nach (marinen) Ressourcen. Das hat wiederum weitere Stressfaktoren zufolge, welche eine Ressourcenverknappung und Verschlechterung der Meeresökosysteme nach sich ziehen (Pomeroy et al. 2016, Bennett et al. 2017). Der Schutz der bedrohten Meeresumwelt ist daher unvermeidlich, aber eine herausfordernde Aufgabe, besonders in Anbetracht der komplexen ökologischen, sozialen und ökonomischen Interdependenzen. Gerade mit Blick auf die stetig wachsende globale Bevölkerung, die begleitende Umweltbelastung und der wachsende Wettbewerb um die verbliebenden (marinen) Ressourcen (ebenda). Diese Herausforderungen und die ungleiche Verteilung von Umweltvorzügen bzw. Umweltbelastungen in Kombination mit den schwindenden Meeresressourcen sind einer der Hauptgründe für sogenannte Umweltkonflikte. Um auftauchende Konflikte dieser Art zu vermeiden und einen effektiven Meeresschutz betreiben zu können, gilt es für Umweltschutzakteure, Fachleute und Praktizierende die inhärenten sozialen Gerechtigkeitsauswirkungen<sup>4</sup> zu verstehen, welche, in besonderer Weise in Verbindung mit der Ressourcenabhängigkeit lokaler Subsistenz- und traditioneller Küstenfischerei<sup>5</sup>, Aspekte der Sicherheit bzw. Ernährungssicherheit miteinbeziehen (Adger et al. 2014, McClanahan et al. 2013). Daher röhrt die Motivation für diese Studie in dem Anliegen und Ziel, ein ergänzenden Referenzrahmen zu Verfügung zu stellen, um soziale Folgenabschätzung und Umweltverträglichkeitsprüfungen von Meeresschutzzonen durch die Perspektive von „Conservation Justice“<sup>6</sup> zu ergänzen. Diese Erweiterung ermöglicht eine anwendbare Fokussierung auf Konflikte und Konfliktpotentiale, welche die direkten Auswirkungen von Umweltschutzmaßnahmen auf lokaler- bzw. – kleinmaßstäbiger Ebene priorisiert. Das hierfür entwickelte „Conservation Justice and Conflict

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<sup>4</sup> Gerechtigkeit ist hier im Sinne des englischsprachigen „Justice“ Begriffs zu verstehen und nicht mit dem deutschsprachigen Gebrauch und Definition von „Sozialer- bzw. Umweltgerechtigkeit“ zu verstehen.

<sup>5</sup> Hier: „Resource Appropriator“ genannt nach Ostrom (1990, p. 30).

<sup>6</sup> Am ehesten zu übersetzen mit „Umweltschutzzonengerechtigkeit“

Modell“ (CJC Modell) basiert auf einschlägige „Justice“ Theorien sowie Ansätzen des nachhaltigen Ressourcen Managements und Governance und ermöglicht dabei die Eruierung und Analyse sozial-ökologischer<sup>7</sup> Auswirkungen von Schutzzonen in Korrelation zur „Umweltschutzgerechtigkeit“. Dadurch wird ein tieferes Verständnis der komplexen und dynamischen Konfliktsituation vor Ort ermöglicht, welche eine Balance zwischen theoretischer- und praktischer Planung fördert und ein qualitatives und dennoch anwendbares Begutachtungswerkzeug und Modell offeriert. Die Analysefaktoren des „CJC“ Modells haben dabei erste Nachweise des Wirkungskonzepts in Form von fünf unterschiedlichen Fallstudien von ressourcenabhängigen Fischereigemeinschaften (fisheries communities) in Sansibar (Tansania) erbracht. In diesem Zusammenhang förderte die „CJC“ Analyse beispielsweise unvorhergesehene Einsichten und konkrete Umweltschutz-problemlagen zutage sowie unerwartete Gemeinsamkeiten der fallspezifischen „CJC“ Faktor Bewertungen durch die verschiedenen lokalen Akteursgruppen. In diesem Zusammenhang ist z.B. die fallübergreifende, hohe Priorisierung des CJC Faktors „Klimaanpassung“ als Konfliktpotential durch die einheimischen Akteure aufgefallen, aber auch die relativ positive Bewertung der lokalen Meeresschutzbemühungen, trotz ausgeprägter Armut und Perspektivlosigkeit. Der deduktiv-induktive (d.h. anpassungsfähige) Forschungs-ansatz hat sich für die Multidisziplinarität von Schutzzonen-angelegenheiten als nützlich erwiesen und stellt einige Indikatoren und Bezugsgrößen zur Verfügung, die theoretische Makroebenen auf „real existierende“ Mikroebenen der spezifischen Herausforderungen übertragen können. Die Forschung und Forschungsergebnisse resultierten in einem komparativen Modell für eine verbesserte Schutzzonenplanung und Begutachtung von Umweltverträglichkeit sowie sozialen Folgenabschätzung, um friedvolle, gerechte und nachhaltige Institutionen zu unterstützen (SDG 16) zu unterstützen, insbesondere mit Bezug auf Meeres- und Küstenzonen (SDG 14) (UNDP 2018; UN 2016).

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<sup>7</sup> socio-environmental

## Acknowledgements

Finally, my long and sometimes rocky PhD “research travel” on the path of international marine conservation and social/environmental justice has come to an end. Looking back on several field trips to Zanzibar, Tanzania, and Brazil, and many international conferences and exchanges, but also blows and hardships lie behind me, and I am very grateful for all the support, and various sustenance I have gotten. Therefore, I like to thank all people who have supported me.

To Prof. Dr. Bernd Siebenhüner, my main supervisor, mentor and initiator of this PhD project; thank you very much for your long-term support, generosity, knowledge and understanding. Thanks to you I could pursue my PhD track, and gain work experience. You have made it possible for me to travel to the research areas of my choice and supported me despite of the devastating time of my parents and aunt premature and unexpected deaths. I will never forget what you have done for me during this time and I am grateful to have been able to gather experience in scientific work and university teaching, and participation in the DEVSUS project.

To Prof. Dr. Ulrich Scheele, my second examiner, thank you for stepping in to examine my PhD thesis on such a short notice.

To Prof. Dr. Narriman Jiddawi, my guest-supervisor during my research travels and field trips in Zanzibar, thank you so very much for your support, insights and discussions, without you, my husband and I would had never gotten access to the fisheries communities and the local authorities. Thank you especially for your help to us naïve Europeans to better understand the situation and people in Zanzibar, for your knowledge and expertise.

To Prof. Dr. Peter May, my guest- supervisor in Brazil, also a very special thank you to you giving me access to your office in Rio de Janeiro and to having supported my field trip as well as for your advice, I hope this acknowledgement finds you well. As well as to Dr. Milenko Gudic, the Director of CEEMAN's IMTA-International Management Teachers Academy and network partner of the UN PRME (Principles for Responsible Management Education), who was willing to constructively discuss my research questions during the breaks of the PRME conference in New York. Thank you for helping me to refine my research and to bring me closer to the SDGs in action.

To the DEVSUS Team, thank you for the interesting discussions, ideas and insights into your various disciplines, and a special thanks to Prof. Dr. Elena Regla Rosa Dominguez who widened my knowledge about natural science and about cross-disciplinary research from a natural scientist prospective, and for your support of my application to go to Cuba. Another special thanks goes to Prof. Dr. Vincent Kakembo, for his open-mindedness in discussing interdisciplinary research topics, the insights on conservation and invasive species, and for the support to better understand African cultural and environmental idiosyncrasies. Furthermore, I thank you for the support of our self-designed lecture (Development Studies) of several times, which has enriched the whole teaching experience, thank you for your valuable insights and knowledge.

To my dear colleagues Dr. Leena Karrasch, Dr. Maik Winges, Dr. Kevin Grecksch, David Sichert, Birgit Schelenz, Charlotte Schaeffer and all the others, you have been always there, motivating me, and being open minded to discuss even the craziest aspects of my research ideas, and yes, thanks for all the chocolate and cookies, and good times, and, of course, Brigit's great home-made cakes, and her organizational talent.

To the MBCA Management and Fisheries Department Zanzibar, especially Mr. Othman, as well as, the DeepSea Fisheries Authority, I am grateful to you for your open-mindedness in granting me several interview appointments, to widen my knowledge and giving me some insights that I would never have gotten without you. Furthermore, I am especially grateful to my interview partners, the local scientific experts, the local NGO (FUPECO (Zanzibar), Zanzibar's fisheries communities, and local experts of the Menai Bay Conservation Area and Stone Town. I wish to thank you all for your time, local knowledge, open-mindedness, insights and patience. Thank you also for your support, your friendly welcome and warm hearted treatment, without you, it would have been not possible to overcome my European centric view, and understanding, I will never forget this. A special thanks to Ali, Mohammed, Okala (family), Yussuf, Sukaina, and many more.

To my dear friend Caroline A. Newman, South African expert travel tenderer and Cambridge-CELTA-instructor, thank you for being the best language trainer, mentor and Africa travel expert I can imagine. I do not know how to thank you for all your support over the years, and the brilliant and sophisticated- and intercultural teaching and mentoring and proofreading of all my scientific work throughout my whole PhD time, you are my heroine, without you I would had never reached this

level of English knowledge. Thank you too for being there for me as a friend in good and bad times, you are a special person.

To my dear friends, Mira Krause for your availability to discuss my scientific work, motivation, and Matthias Humm for your clever down to earth approach that inspired me to recommend practice orientated fisheries ideas, and to Kurt Bendisch for his insights on intercultural spirituality. Moreover, I like to send my special thanks to Isabelle D'Ambrosio for your support, thoughtful and intelligent discussions, and for accompanying me to my public doctoral disputation, and to Jörg Mittelstaedt for fruitful discussions on intercultural studies, your intellectual knowledge on Antonio Gramsci further inspired my work. Likewise, I thank my dear friends, "Jezzi" Jewert, Gerda Trüper, Heli Janßen and Martina and Frieda Brockmann for their emotional support and patience, for motivating me to hang on as well as Andrés de las Casas for the illustration of my work.

To my remaining family, especially to my aunt and uncle, Gerda and Peter Parge, thank you for your long-term support, help and open ears, and well you know, for everything you have done, especially in time of crisis. A special thanks, to my cousin Dr. Martina Parge, thanks for your enlightening wing wave sessions.

To my dear family in-law and friends Andrea Finck, Benno Schilke, a special thanks to you for all the support, help and dear friendship, and for never giving up on me. Andrea, your academic and archaeologist perspectives enriches my thinking more than you are aware, thank you so much for your open-mindedness in discussing my scientific work, and for the cover picture. Another thanks goes to my parents-in-law Irmgard and Herbert Schilke, who tried to support us as well as they could.

And last, but not least to my beloved husband Nils Schilke. Thank you for all your backing and help, patience and long-term endurance, for accompanying me on my research trips, sociological expertise, discussions, listening, comforting and understanding. A special thanks to you for the joint visual design of the CJC-Model. This doctoral thesis is for both of us.

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## Acronyms

CJC- Factors	Conservation Justice and Conflict Factors
CJC Model	Conservation and Conflict Model
CPR	Common Pool Resources
CPUA	Catch per unit Area
CPUE	Catch per unit effort
EAMFRO	East African Marine Fisheries Research Organization
EbA	Ecosystem-based Adaptation
ESA	Environmental and Social Assessment
FAO	Food and Agriculture Organization of the United Nations
GRT	Gross registered tonnage
IAD	Institutional Analysis and Development Framework
IMS	Institute of Marine Science (Tanzania (Zanzibar))
IOTC	Indian Ocean Tuna Commission
IUU	Illegal, unreported and unregulated fishing practices
MACEMP	Marine and Coastal Environment Management Project
MBCA	Menai Bay Conservation Area
MLFD	Ministry of Livestock Development and Fisheries (Tanzania)
MNRT	Ministry of Natural Resource and Tourism (Tanzania, Zanzibar)
MOP	Mwananchi Ocean Product
MSY	Maximum Sustainable Yield
MSY	Maximum sustainable yield
RGoZ	Revolutionary Government of Zanzibar
SES	Social Ecological Systems
SIDS	Small Island Developing States
SOP	Series of Projects

SWIO	South Western Indian Ocean
SWIOFC	South West Indian Ocean Fisheries Commission
SWIOFish	South West Indian Ocean Fisheries Governance and Shared Growth (Program/Project)
VMS	Vessel Monitoring System
WIOMSA	West Indian Ocean Marine Science Association



"The sea, the great unifier, is man's only hope. Now, as never before, the old phrase has a literal meaning: we are all in the same boat." Jacques Yves Cousteau (Westra et al. 2014, p. 101).

## 1. Introduction

All humans' wellbeing relies, last but not least, on ecosystem services, no matter if for food, clean air, income, recreation etc., particularly with regard to the increasing needs of the growing global population (DESA 2016, OECD 2017, OECD/FAO2016). Marine ecosystems and resources play a vital role in meeting these needs, supporting food security and economic livelihoods (OECD 2017), especially for resource-dependent populations without any alternatives to make a living (Pomeroy et al.2016). In this vein, it seems all the more surprising that marine environments are increasingly put under pressure by the wide amplitude of anthropogenic burdens, like pollution and overuse, including climatic and intoxicating implications which in turn lead to biodiversity loss, degradation of ecosystems and its services (e.g. depleted fish stocks), or even habitat loss, (Pomeroy 2016, DESA 2016). Specifically, coastal areas in developing countries are prone to these threats (Bennett et al. 2014, McClanahan et al. 2013, McClanahan interview by Burroughs 2017). Nearshore fisheries are highly overfished due to fishing overcapacity caused by free accessibility and a lack of alternatives to generate food and livelihood (*ibid.*). "Consequently, Earth's coastal

waters are now experiencing increased levels of conflict and social unrest, affecting both regional security and environmental sustainability" (Pomeroy et al 2016, p. 94). Conservation activities are hence vital and inevitable, yet any measures need to consider the increasing needs of-, and growing competition for the declining marine resources etc., particularly in the light of a growing population, low economic opportunities and other socio-economic impacts. Competitions over resources take place on all levels, from local to trans-, international and can comprise of very unequal competitors, e.g. between industries, governments, regional- and local communities; highly industrialized countries versus low industrialized counties etc. (*ibid.*). Whereas powerful stakeholder parties have a disproportionately powerful position due to their financial, military and technical advantages and mostly neglect the interest of those most vulnerable people and ecosystems (WWF 2014, Belhabib et al. 2017). The resulting unequal distribution of the global burdens and remaining resources exacerbate these tensions and social-environmental conflicts (Pomeroy et al. 2016). Many international scholars of Marine Conservation recognize thus a desperate need of quality standards in managing and governing of conservation measures making them more socially and environmentally just to reduce and to avoid devastating situations, and thus conflicts (Madden et al. 2014, Pomeroy et al. 2016, Salomon et al. 2011, Bennett et al. 2017a and 2017b).

Supporting an understanding of the dynamic and very complex interactions of social-environmental scope, "cross-disciplinary research and scientific evidence are indispensable" (Redpath et al. 2015, p. 2). This is necessary to understand and evaluate tensions of environmental conflict potentials and thereby promoting a peaceful and sustainable conservation (*ibid*, Pomeroy et al. 2016). The main objective of this study is hence to support this sentiment and to generate further insights of conflict or problematic situation over marine environments and resources with the emphasis on conservation justice and conflict factors. This can be applied to identify drivers of conflicts in marine conservation on the local level as well as on the international level. Despite the various justice theories and theoretical ideas of social and environmental concern (Rawls 1971, 1999; Roemer 1996; Sen 2009a; Schlossberg 2007; Adger 2014, Walker 2004, 2009; Martinez Alier 2012, et al.) and sustainable resource management approaches (Ostrom 1994, 2009, 2011; Abunge 2011, Agrawal 2001, 2006 etc.). So far there has not been any applicable analysis- and evaluation tools for environmental conflict implications in the field of conservation justice which identifies and transfers the most relevant justice factors in order to gain a deeper understanding of a conflict

(prone) situation on site. Therefore, the present study develops a supplementary framework and tool to advance social and environmental impact assessments of marine protection through a conservation justice perspective, the Conservation Justice and Conflict Model (CJC). This model proves to be applicable to focus on conflict potentials and conflicts prioritizing direct impacts on the small- scale and local level. The present research design is built upon a qualitative research strategy and a “hybrid” form of scientific approach: a theory-driven, deductive coding design with the additional options to inductively adapt, or, adjust factors and indicators (Palmberger et al. 2014; Mayring 2000b) according to the gathered evidence on conservation sites. The deductively and inductively derived categories or factors of conservation justice are tested through five case studies, (i.e. qualitative data collection, expert interviews, qualitative content analysis), in order to identify the most relevant conflict potential and correlated issues of each factor, eliciting unanticipated conservation justice implications and a deeper understanding of the problematic situations on the micro-level.

In this vein, the hypotheses were generated that reflect on the following research questions: I. In how far do **conservation justice factors** help to gain a deeper understanding of **socio-environmental problems and conflicts** with local communities in protected areas? II. In what way do the criteria reflect the problematic situation, and give new insights, a) on the **situations on site**, b) on **institutional performance**?

For the examination and analysis of the research questions and testing of the CJC Model, the conservation area of Menai Bay, Zanzibar, Tanzania (MBCA), was chosen to provide case study evidence, empirically data, documents, official reports and assessments. The case study area was selected as it represents a Marine Protected Area that comprises a high level of local nearshore fisheries and resource gathering activities while facing a decline of the coastal habitats, ecosystems and resources. Although governed and managed through large-scale projects, e.g. SwioFish1 (World Bank 2014, Souto et al. 2014) including integrative community co-management approaches, the effectiveness of the conservation management faces some severe challenges, also in regard to dealing with dwelling conflicts over the declining remaining resources, a growing population and high dependency on marine resources for food and income.

A thorough understanding of the conflicts, the potential of, as well as, the drivers of conflict are inevitable for peaceful and thus effective conservation management. Particularly, since cooperation and collective actions are key parts of successful

conservation or sustainable resource management (*inter alia* Ostrom 1990). The overall motivation and ambition of the present research is to support conservation practitioners, finding out more about the challenging situation leading to conservation conflicts, to reduce, or prevent conflicts, through recognition of conflict potentials and identification of concrete problems within conservation projects. Yet, before these relevant research questions can be discussed appropriately, it is important to get an overview of the problem and the most notably selected definitions and theoretical backgrounds and research as a reference frame.

## 1.2 Statement of the General Problem of CJC in Marine Conservation

As briefly mentioned in the introduction, marine ecosystems are, as any other ecosystems, put under peril by anthropogenic stresses, like climate change and environmental sinks, the continuous rise of the global population and thus, their corresponding growing demand for resources (DESA 2016, UNEP 2009, UNEP 2017b, UNEP 2017a; OECD 2017, WWF 2009, Stern 2008b, et al.). Globally, marine resources and their appropriation, particularly fishing and fisheries products, represent the largest extractive use and trade of wildlife (Pomeroy 2016) which “commerce [is] dominated by the developing countries” (Pomeroy 2016, p. 94) and hence serve as an example to depict the mentioned development. Recent estimations of fisheries’ catches highlight the increased demand and pressure of the marine ecosystem and can be seen as an example of the drivers of resource scarcity today (Pomeroy 2016, Belhabib et al. 2017, AfDB 2018). The latest report of the OECD and FAO estimate that the captured fisheries production has risen to roughly 160 million tons in 2012, producing over US\$ 129 billion in exports and feeding billions of people (OECD 2017, OECD/FAO 2015). The FAO and World Bank report on prospects for fisheries and aquaculture (Fish to 2030), state in this vein that the captured fish production has risen from 69 million tons to 93 million tons, and the production of the world’s aquaculture grew from 5 million tons to 63 million tons in recent decades (FAO 2013, p. Xiii). 57 per cent of the fish stocks are estimated of being fully exploited, and another 30 per cent even overexploited, depleted or recovering, in consideration of these statistics/data, the mentioned challenges and competitions over the remaining resources are not surprising (OECD 2017, OECD/FAO 2015, 2016).

Conservation efforts need to be taken, to protect the fragile ecosystems, their biodiversity, and the vital resources for man from man themselves. As a result

marine conservation efforts, such as marine protected areas (MPAs) are expanding, but they only cover around 5.7% of the global ocean area and about 7.9% of the continental shelf and equivalent areas (Palmer (CBD) Executive Secretary 2017, Harary, 2016). The urgent need of conservation and recent success in conservation efforts have led to the prevailing opinion promoted by leading conservation organizations and institutions that (marine) conservation and protected areas like parks are a self-evident success story that should be extended (World Park Congress, 2014, UNEP 2017a, UNEP 2017b). Based on these statements, it seems very likely that the goal of 10 % of the ocean designated as marine conservation areas by 2020, which have been set by the UN Sustainable Development Goals<sup>8</sup> (UN 2016) agreed by the Parties of the Convention on Biodiversity 2010 and the Aichi Targets can be met and even be exceeded (UNEP-CBD 2017). On the other hand, there is a dependency between conservation including marine resources and the SDG No. 2, which means “to end hunger, achieve food security and improved nutrition and to promote sustainable agriculture” (DESA 2016) that challenges the development of protected areas (DESA 2016, FAO 2015, OECD 2017). To serve both SDGs the creation of protected areas needs general standards for how this ocean protection should be executed, socially and acceptably (Bennett et al. 2017a, 2017b). Fisheries based production and commerce offers not only a source of food but also valuable livelihoods, income and business, particularly for local economies (Pomeroy et al. 2016). In this light, nearshore fisheries in developing countries are especially threatened through fishing overcapacities, mostly due to a lack of alternatives in food and/or income generation (*ibid.*). The undoubtedly needed conservation efforts, such as the creation of MPAs, are most closely connected to local fishing and other resource activities and hence linked to the local people who are highly dependent on these resources and the ecosystems (Bennett 2014, OECD 2017).

Unfortunately, in many cases the poor quality of governance processes (Pomeroy et al. 2016, Murshed-e-Jahan et al. 2016), devastating social consequences as well as human rights violation jeopardizes conservation legitimacy, and the needed local support, thus in the long-term protection effectiveness (Bennett, Teh, et al. 2017). Although the evidence of negative social impacts of (mostly, but not only) state-managed conservation continues to pile up, leading to a continuous increase of conflict potential, most conservationists keep to the celebration of the present conservation measures even without any ethical rules or regulations (Orozco-

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<sup>8</sup> SDG 14, Target 5

Quintero et al. 2015). To react to the negative social impacts of marine conservation and protected areas (MPAs), a global Group of marine scientists and practitioners promote a social code of conduct for Marine Conservation (Bennett et al. 2017), providing explicit guidance for environmental justice and accountable actions without neglecting the achievement of ecological objectives (*ibid.* 2017). Scientists start understanding that [...] “the impact of marine protected areas can undermine people’s rights or stop them doing their livelihoods” (Bennett 2017a). Subsequently, these scholars warn about the dangers of “pushing further for marine conservation” without considering any social impacts. This would only result in the further promotion of displacement, socially unjust or inappropriate actions which are likely to lead to violence, marginalization and poverty in turn (Bennett 2017a, Bennett 2012). These issues are particularly relevant for coastal communities in so-called developing and least developed countries (LDCs) in context of poverty and limited livelihood options, leaving them strongly dependent on e.g. fish and other marine resources as their primary source of protein and income. It is estimated that up to 3 billion people rely on fish for at least 20 per cent of their daily protein (Pomeroy et al. 2016), and the OECD (2017) states that fish is even the primary source of animal protein for over one billion people, of whom the majority are poor and vulnerable and live in low developed countries. These mostly tropical or subtropical regions are particularly vulnerable when it comes to ecosystems and people. The World Resource Institute as well as the UN Food and Agriculture Organization (FAO) report that more than a billion people (mostly) in developing countries suffer from a degradation of their marine and coastal environment (FAO, 2011, OECD/FAO 2015, OECD/FAO 2017). Therefore, an ecological yet socially compatible conservation is desperately needed to prevent more harm to these most susceptible areas. Especially with regard to climate adaptation (Adger et al. 2014), there is an increasing threat to “human security”(i.e. including food security, peace and possibilities to develop, generate income, etc.), a term with many interpretations throughout the academic and institutional literature. These sentiments also apply for marine resource management as they support human security needs. In this study the reference to “human security” is closely linked to the idea of people’s right to live in freedom, dignity and free from poverty and despair” (UN General Assembly 2005), but also inspired by Adger’s et al. (2014) interpretation of this term “[...] in the context of climate change, as a condition that exists when the vital core of human lives is protected, and when people have the freedom and capacity to live with dignity” (p.759). For this study, this includes “conservation conflicts” (Redpath et al. 2015), food security, and

equally, yet suitable socio-environmental justice opportunities to overcome vulnerabilities, “to fully develop human potentials” (UN General Assembly 2005). The urgent need for action has been acknowledged by the UNEP and UNDP who have incorporated the significance of natural resources already in their UN peacebuilding intervention plans 2007. Back then, the UN already predicted that these conflicts are likely to intensify over the next decades (UN Security Council 2007), which is still an issue in their follow-up reports (UNEP 2015, UNEP 2017b). The UN, as well as different recent research studies, reveal that over the last sixty years at least forty per cent of all intrastate conflicts have a link to natural resources; and name civil wars as in Liberia, Angola, Somalia, Democratic Republic of Congo, Sudan, including Darfur and the Middle East, Sudan, etc. (Conca, K., Dabelko, G. 2002; UNEP 2007a, UNEP 2015, UNEP 2015; Kameri-Mbote 2007; IUCN and UNEP 2007b, DESA 2016). All have been centred on control of scarce resources such as fertile land, water, food or “high –value” resources (timber, diamonds, minerals, oil, gas etc.) (UNEP-IUCN 2007, UNEP, 2009, UNEP 2017a). Although the situation seems to have not yet improved over the last ten years, the UN General Secretary Guterres still states in the latest Environment Report: “Many conflicts are triggered, exacerbated or prolonged by competition over scarce natural resources; climatic change will only make the situation worse” (UNEP 2017b, p. 3). The importance and severity of the described environmental conflicts can also be drawn from the fact that the UN introduces in their Agenda 2030 the SDG 16 (Sustainability Development Goal), on peaceful societies, access to justice and inclusive institutions to strengthen transparent natural resource governance, inclusive decision making etc. (UNEP 2015, p.4). In concordance with the scientific literature, the UN understands the prevention and the resolving of conflicts over natural resources as one of the key peace and security challenges of the 21<sup>st</sup> century, driven by a growing demand in combination with an increasing environmental degradation and climate change. In this context, the UNEP predicts these pressures to intensify the competition between countries, as well as communities “over resource access, ownership and use” (UNEP 2015, p. 4). The acknowledgement of justice related issues in this context is also a vital part of this study and includes several conservation justice and conflict factors of the model (CJC Model), which has been designed to investigate the correlations of socio-environmental problems and conflicts and “justice” relevance. In accordance to the published research literature on environmental conflicts in conservation, the present author focuses also on case study related conflicts, conflict potentials, including dwelling conflicts over declining marine resources, e.g.

competition over food, fishing sites, land use etc. These kinds of environmental conflicts take often place on local levels, and do not necessarily lead to warlike situations (Ostrom 1990, Adger et al. 2014, Bennett et al. 2014, Jacobsen et al. 2016, Mclean et al. 2003, etc.). Mostly smaller, local disputes and/or conflicts arise, but these can have also a severe impact on conservation outcome, and have a direct impact on the local populations (Redpath et al. 2015, Bennett et al. 2014, Leal 2013, Rudolph 2015, Murshed-e-Jahan et al. 2016)

### 1.3 State of Research (Literature and Terminologies)

Various scholars from different disciplines, like Pomeroy and Parks (2016, 2017; Bueger 2015, Pomeroy et al. 2016, Bennett et al. 2017a, McClanahan et al. 2013a), repeatedly link marine resource scarcity with marine security respectively insecurity aspects. Already in 2007 Crawford et al. delivered research evidence that the well-known linkage between natural resources (like oil, diamonds, timber, minerals, etc.) and conflict needs to be enhanced by agricultural and fisheries issues as a driver of resource conflicts (Crawford et al. 2007). In the same year, Caballero-Anthony (2007) stays abreast of changes in recent evidence gathered and offers an advanced definition of security of the oceans and seas, viz. the term “maritime security”, which has become a kind of “buzzword” (Bueger 2015) in international relations. Although there are many definitions of maritime security, several overarching aspects can be found: the policies, regulations and operations “designed to secure the governance and management of a nation’s maritime jurisdiction (e.g. exclusive economic zones or territorial waters)” (Pomeroy et al. 2017, p. 1). Advancing this reference to this relatively new term, scholars promote a definition that understands maritime security as non-traditional security threat, which Caballero-Anthony describes as “challenges to the survival and well-being of peoples and states, that arise primarily out of non-military sources, such as climate change, environmental degradation and resource depletion, infectious diseases, natural disasters, food shortages [...] etc. (Pomeroy et al. 2017, p. 1). Hereinafter the academic literature depicts a rising understanding of the correlation between fisheries scarcity, competition, and the increase of conflict potentials as well as rates of illegal, unreported and unregulated (IUU) fishing practices, which in turn further challenges the tense situation, eroding maritime peace and security on local, national, and international levels (Pomeroy et al. 2016, Pomeroy et al. 2017). These developments threaten conservation efforts and undermine sustainable management (Caballero-Anthony 2010,

Pomeroy et al. 2017). To avoid or ease these kinds of conflicts, just conservation management is needed to execute the moral standards required of conservation governance while taking into account not only the preservation of ecosystems, and biological diversity, but also the cultural ones as well as a fair distribution of environmental resources and burdens (Bennett et al. 2017b, Bennett 2017a). These issues need to be addressed with a focus on a balance between social and economic issues, and the management of fragile ecosystems and their resources. The matter of inclusion of environmental and social justice criteria may support a conflict resilient and peaceful conservation management.

## 2. Marine Conservation, Conflicts and Resource Management

In general, marine conservation focuses on the protection of marine environments as vulnerable marine species, ecosystems and habitats in oceans and seas. Furthermore, marine conservation serves to safeguard vital resources (mainly open access or common pool resources) as well as limiting and restoring anthropogenic damage to marine environments. Yet, most conservation measures, in one way or the other, affect the interests of “local residents”, and can even lead to conflicts between the different stakeholders. Hence, a smart and thoughtful resource management is needed, that also meets the requirements of the conservation area’s jointly used resource with open access (Common Pool Resources). The following explanations correlate with the circumstances of the case study area, the Menai Bay Conservation Area (MBCA). The MBCA is a form of MPA that faces an increasing competition over a declining ecosystem. The conservation area is highly populated, and its residents are highly resource dependent, and is therefore managed with integrative management approaches, like community-based management in cooperation with a form of co-management. This chapter gives thus an introduction to the different relevant parameters of this conservation area, from the differences of the MPAs to prevalent management approaches, and management ideas that can supplement Menai Bay’s conservation management.

### 2.1 Marine Conservation and MPAs

To alleviate anthropogenic pressures (marine) conservation is indispensable; for this purpose, special marine protected areas (MPAs) have been established as a favourite management approach (IUCN 2010). Although this marine conservation tool is a reasonable and desirable measure, yet it can’t be successful in creating sustainable resource use without considering the coastal inhabitants residing previously in the area now under some form of marine protection. The term MPA includes different areas of marine environments, ecosystems, landscapes and biodiversity and can hence be called an “umbrella term”. Synoptically reviewed a marine protected areas (MPAs) can be viewed as areas that are especially dedicated to the conservation and maintenance of marine habitats, -ecosystems, -biodiversity and of natural and cultural resources managed through legal or other effective means (*ibid.*). The umbrella term comprises of, marine parks, marine and coastal monuments, marine sanctuaries, no-take areas, multiple use areas, locally, state or even internationally managed. MPA characteristics can vary, they include small and vast areas, many different habitats and ecosystems including reefs, seagrass beds, shipwrecks, archaeological sites, tidal lagoons, mudflats,

saltmarshes, mangroves, rock platforms, underwater areas on the coast and the seabed in deep water, as well as open water (the water column) etc. (National Ocean Service/NOAA 2017).

It is a concept applied diversely around the world, encompassing many names for quite similar policies. The defining rules and ideas concomitant in use for MPAs vary globally not only by context and geographic characteristics but by definitions, names and interpretation. The term “Marine Protected Areas” is used inconsistently around the globe and can have totally different meanings. “A ‘reserve’ in one country may prohibit fishing, while a ‘reserve’ in another country may allow non-destructive fishing” (FAO 2011). Therefore, this study refers to the following definitions of MPAs by the International Organizations such as the International Union for Conservation of Nature (IUCN) and the UNEP’s Convention on Biological Diversity (CBD):

“Any defined area within or adjacent to the marine environment, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by legislation or other effective means, including custom, with the effect that its marine and/or coastal biodiversity enjoys a higher level of protection than its surroundings” (UNEP–WCMC 2014).

“Any area of the intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment” (IUCN. 2010).

In 1988 the IUCN already called upon governments, international organizations and institutions (including NGOs) to take “protective actions” in order to conserve and restore marine environments according to the principles of the World Conservation Strategy for human activities regarding the various use of marine environments by the implementation of the Global Marine Protected Area System and Networks (*ibid.*). The FAO’s technical guidelines for responsible fisheries explain that the definition of MPAs goes typically with a categorization scheme which is attached to the established definitions. They further suggest the IUCN categories for MPAs since these are most widely accepted according to the FAO (2011). Following the FAO’s suggestion, there are six different categories of MPAs identified by the IUCN in relation to their objectives. They range from fully protected areas such like no-take zones or areas (where any extraction is forbidden) to areas for multiple-use (allowing different actions and resource appropriations as well as a range of resource appropriators).

## IUCN Protected Area Management Categories:

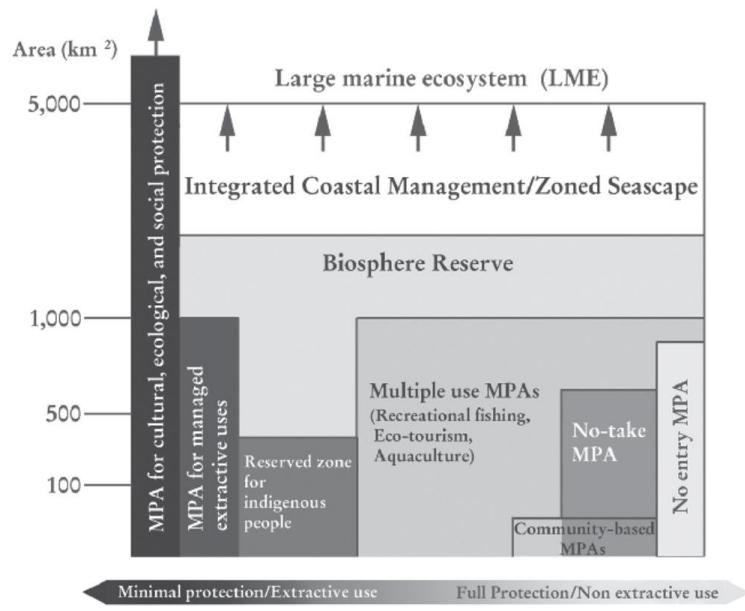
TABLE 1  
**IUCN categories of protected areas**

<b>Category</b>	<b>Description</b>
I	Protected area managed mainly for science or wilderness protection (Strict Nature Reserve/Wilderness Area)
II	Protected area managed mainly for ecosystem protection and recreation (National Park)
III	Protected area managed mainly for conservation of specific natural features (Natural Monument or Feature)
IV	Protected area managed mainly for conservation through management intervention (Habitat/Species Management Area)
V	Protected area managed mainly for landscape/seascape conservation and recreation (Protected Landscape/Seascape)
VI	Protected area managed mainly for the sustainable use of natural ecosystems (Managed Resource Protection Area)

Sources: IUCN, 1994, and Dudley, 2008.

The IUCN guidelines offer only a broad characterization of definitions, covering a wide range of spatial management actions with some relevance to fishery management. Together with the visual scheme of the World Bank which offers the most prevailing forms of MPA coverage and degree of protection, in concordance with the IUCN. Therefore, the MPAs defining guidelines by the IUCN and the World Bank have been the selection for this present document. They include all different geographical and spatial areas from very large (such as international MPA Networks) to very small, some only designated to protect a particular ecosystem or endangered species. The World Bank graphic below offers an overview of two important entities that effect MPA outcomes: The size and degree of fisheries and environmental conservation. This helps to characterize and identify the dimension and protection of MPAs.

**FIGURE 1**  
**World Bank MPA classification scheme**



Source: Based on World Bank, 2006.

Since any creation of MPAs has intended or unintended consequences on fisheries, on fishery resources, coastal communities, as well as on natural conservation, this characterization is especially important for the present thesis with a focus on small-scale artisanal “resource appropriators” (Ostrom 1990, p. 30). It is quite reasonable to design MPAs including both biodiversity conservation and fishery management purposes, according to IUCN’s EAF (Ecosystem Approach towards Fisheries Guide, 2003). To deal with the challenges and the multi-level dimensions of ecosystem conservation, smaller MPAs or a network of MPAs could help to facilitate the need of flexible and adaptive management interventions<sup>9</sup>.

### MPA Networks

Considering the dynamics and variability of the biological, social-ecological and economic processes inherent to marine conservation, together with the site-specific differences of ecosystems with very diverse features, the idea of an MPA Network creation can be beneficial. Especially, due to the different needs of actions for the protection of different habitats and species. A coral reef, for instance, needs different ways or levels of protection than swampy areas; spawning grounds and

<sup>9</sup> For the sake of completeness, it may be mentioned that the range of protected areas also involves other areas apart from special fisheries or conservation meanings, e.g. archaeological grounds, military zones or energy production sides (FAO 2003, 2011; WB 2006).

nursery areas need special protection related to other less vulnerable areas. Moreover, there are residential and/or non-residential or sedentary fish populations in different stages of development from e.g. fish et al. eggs, larvae to the adult. Therefore, creating an MPA Network instead of a single big MPA can be advantageous with regard to a conservation management need's orientation. In addition, a network of different MPAs with different degrees of protection can support each other synergistically (FAO 2011, IUCN 2010). This network scheme opens up the possibility of creating Marine Conservation Areas that can be managed more flexibly concerning activities allowed while nevertheless pursue the same conservation and fishery management goals (FAO, 2011, FAO 2012).

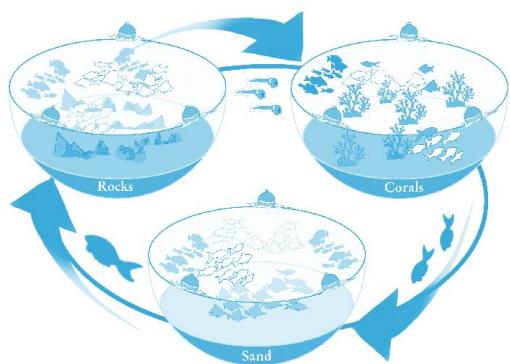


Figure 2, MPA-Networks Synergy, FAO, 2011, p. 19

Besides the protective advantages of MPA Networks as e.g. (re) growing fish population there are also distributional ones if it comes to share the burdens, costs and benefits among coastal communities which occur through limitations and outcomes. In tropical developing countries, like Tanzania, this form of cost and benefit sharing might be particularly relevant, since entire coastal landscapes are inhabited and exploited, thus whole coastal areas are highly dependable and vulnerable to conservation measures (ecologically and socio-economically) (World Bank 2014). Thus, the integration and support of local residences is inevitable, because this is keeping transaction costs manageable, may reduce socio-economic impacts, bears preventive characteristic values with regard to conflicts, but may also provide precious indigenous ecosystem knowledge. In order to sustain local support, it is important to realize the value of these scarce marine resources to these communities, and enhance community capacity development focusing on understanding the obstacles that inhibit conservation management while enhancing the abilities that will allow them to benefit from their ancestral right to vital local resources, mostly referred to as common pool resources.

## 2.2 Commonly Used Resources

The definition for Common Pool Resources (CPR) in this study is inspired by Elinor Ostrom, who defines them as resources that are non -or hardly-excludable. That means they are large enough to make the exclusion of users or beneficiaries costly or problematic (but not impossible) (Ostrom, 2011, 30 pp.). In contrast to mere Public Goods that are less exposed to rivalry in consumption, CPRs are characterized by excludability which makes them prone to congestion or overuse. CPRs mostly consist of a main or core resource (in the present study: fish) which describes the **flow variable** (Ostrom, 1990 p. 30, Ostrom 2009). In this study this core resource, also called **flow variable**, (ibid.) is analysed in the context of their whole marine ecosystem, and not as a single resource to be protected with fringe units or other variables that can be harvested, as the study deals predominantly with CPRs in Marine Protected Areas or Conservation Areas. For the present analysis of environmental justice criteria in conservation management which include CPRs, it is important to distinguish “**resource systems**” (the **resources available**) and the flow of “**resource units**” which are withdrawn by the user (Ostrom, 1990, p. 30). The resource systems describe the stocks variables that are possible under favourable conditions; viz. if sustainable conditions prevailing guarantee the production of a maximum quantity of the resource without harming the stock of resource system itself. This system can encompass for instance fishing grounds, groundwater basins, grazing areas, irrigation canals or even bridges etc. According to Ostrom's design principles, **resource units** are the amount of what users withdraw or “**appropriate**” from the **resource system** (ibid.). Therefore, they are often referred to as “**appropriators**” instead of **resources users**, yet both terms will be used equally in this study. The resource units can be typified by tons of fish, the acre feed or cubic meters of water withdrawn. In this research, it is seen as useful to distinguish the resource as a stock and the harvested resource units as flow. This is useful when it comes to renewable resources because of the possibility to define a sustainable use- or a replenishment rate. As long as the withdrawal rate does not exceed the average rate of re-growing, the resource can renew and thus be used sustainably. Although a CPR can be limited to a single person or Group or a company, the CPRs in this study are used by multiple individuals or Groups.

The common pool resources are further classified by the fact that their usage or withdrawal by one user or “beneficiary” decreases the resource benefits for the other users. This deductible feature of the CPRs therefore, impairs the ability of someone else receiving the same amount of resources (Hackett et al. 2011). The

difficulty of exclusion bears yet another problem, viz. individuals might benefit without contributing to the protection or management of the CPR, or beneficiaries take no considerations about the other resource users curtailing their withdrawal of resource units as the costs are shared by all users. If the appropriators do not limit their resource use or contribute to the CPR conservation it can lead to habitat degradation or total depletion of resource stocks. This is what Hardin called “tragedy of the commons”; an economic theory which symbolizes the degradation of the environment he expected whenever many individuals use a scarce resource in common acting independently according to their own self – interest (Hardin 1975). Hardin used the prisoner’s dilemma game model from Dawes, and supposedly thought of the players as herders using common grazing meadows, always leading to the seemingly inevitable effect of overuse, and finally the depletion of resources through their collective action, which can only be solved through either privatization (Sinn 1984; Smith 1981, cited by Ostrom 2011, p. 12) or an external Leviathan (Ostrom 2011, p. 9) for instance external regulation by public agencies, centralized governmental control, or international authorities. Elinor Ostrom on the contrary, had a different message. Her findings have shown that Groups of “resource appropriators” (Ostrom 1990, p. 30) can avoid the tragedy of the commons without a top-down regulation or privatization, at least if certain (institutional) conditions are met (Ostrom 1990, Ostrom 2009)<sup>10</sup>. However, the relevance of such “tragedies” are still evident in many examples, from the deforestation of tropical rainforests, overgrazing leading to desertification to the depletion of local and regional fish stocks, or the ignorance of climate protection agreements to limit the impacts of climate change and the unequal distribution of its impacts. On the other hand, there are also many positive examples supporting Ostrom’s findings that individuals or Groups of individuals are capable of sustaining CPRs. On the institutional level, there are many ways of possible responses including resource management by the government, privatization or private property rights and community management through collective action, among others (Ostrom 1990, Libecap 2009).

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<sup>10</sup> Further information, Chapter 2.5

### 2.3 Conservation and Conservation Conflicts

Overuse and overexploitation, leading to a “tragedy of the commons” (Hardin 1968), and other threats to the marine ecosystem, especially in coastal areas are likely to increase tensions and competition over the dwindling remaining fisheries resources and are viewed as drivers of conflicts (Pomeroy et al. 2016). Conflicts that are inherent to human interactions, especially if tangent to vital, but limited jointly used resources and take place in broad varieties and occasions. They all bear an underlying disagreement over certain issues of two or more parties (*ibid.*). Yet, there is no consistent definition of conservation conflicts as such. The terminology of “conservation conflict” used here leans broadly on Madden et al. (2014) and (Redpath et al. 2015), it is understood as a form of verbal and physical confrontation, and even fight of different severity/intensity over opposing opinions and/or mutual exclusive interests that make a constructive discussion impossible, expressed by two or more stakeholders over conservation issues<sup>11</sup>.

Yet, the success of conservation-, and sustainable management of jointly used, free accessible resources depends on “collective actions”, and thus on the cooperation between resource users and respective institutions and other stakeholders (Ostrom 1990, Agrawal 2001). It is hence the challenge to soothe or prevent harmful and destructive confrontations to enable a constructive exchange of opposing positions and by these collective actions and cooperation needed for a successful conservation outcome (Madden et al. 2014). The allocation of the resulting environmental benefits and burdens among different groups and individuals are in this regard tangent to social and environmental justice issues (Eckhoff 1974, Bullard 2008, Bullard 2005). Particularly, since inequality has a negative impact on environmental sustainability outcome (DESA 2015), as it is bearing the risk of environmental disputes and/or conflicts (Bennett et al. 2014). In their essay “Managing Tragedies: Understanding conflict over common pool resources”, Adams et al. (2003) discusses the nature, shortfalls and approaches of resource conflict management adding new ideas and point of views to Ostrom’s design principles. In concordance with the present thesis an increasing number of researchers share the idea that conflicts over conservation issues such as the use or access to CPRs have more than just a materialistic side, but indeed also depend strongly on the (justice) perceptions of the protagonists (Adams et al. 2003). A thorough and careful reflection of stakeholder’s perceptions and understanding of management problems is vital to any constructive dialogues and effective joint action (Adams et al. 2003; Ostrom 2009, Wilson 2016, et al.). Typically problems

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<sup>11</sup> Further description see Chapter 3.2

of collective action are analysed in terms of institutional development, cost and benefits of cooperation, monitoring, which imply variables such as resource systematic characteristics, size and composition of the stakeholder group(s) as well as relations of this Group, internally and externally. Adams and his co-authors (2003) explain why the management of (common pool) resources still produce flawed outcomes or debates as managers et al. often refuse to realize, that involved actors do not share an understanding of the discussed problems. To support their hypothesis the researchers refer to a number of policy or management outcomes and unexpected consequences of former missed CPR decisions; like the assumed “acute fuelwood crisis” in the 1980s in Asia and Sub-Saharan-Africa. During this time many governments assumed that problems and solutions are self- evident and took from an aggregation of assessments that there is an acute crisis, thus they set up social forestry projects to persuade smallholders to reforest trees on their land (Adams et al. 2003). These initiatives did not have the intended effect, on the contrary, just a little minority of households planted trees on their farmland, the majority instead responded to the scarcity by taking different measures, for instance sharing the cooking arrangement, increased their effort in wood collection or substituting between fuels, enhanced nomadism or even migration. Those small farmers who planted the trees didn't use or sell them as subsistence commodity for firewood, but as cash- crop (Arnold 1997, Adams et al. 2003). Instead of considering the different perspective of the subsistence farmers who basically wanted to secure access to livelihood options by improving their land use, governmental planners and donors assumed they would know better what people want and need.

Problems or even conflicts are a quite regular phenomenon in CPR management, particularly in conservation areas which are dominated by the assumption that common pool resource conflicts or problems depict only differences in materialistic interest between stakeholders/beneficiaries which may be managed by trading off different objectives or reconciling the multiples, falls too short (Delibes-Mateos 2015; Redpath et al. 2013; Redpath et al. 2015). CPR scholars recommend looking beyond material incompatibilities in order to get a deeper explanation of the problem and consider the cognitive level of how stakeholders' understanding is based on their perception, current knowledge, depending also strongly on their cultural background, living situation, preconceptions and priorities. Policy debates can be more successful if, besides the key issues, the different stakeholder interpretations are also taken into consideration (Brown et al. 2001, Adams et al. 2003). Thus, the knowledge and perceptions of stakeholders are of importance if

it comes to defining problems of resource appropriation, these can be divided into the following categories: the knowledge of laws, institution and empirical contexts as well as the beliefs, myths, ideas, education level and different perspectives (Adams et al. 2003, Madden et al. 2014). The problem perception hence is influenced by the stakeholder's knowledge of the above-mentioned categories and may be derived from different levels. From a local level (e.g. direct personal experiences) to a larger level (from observed changes, theoretical or empirical research, surveys, remote sensing etc.) both with regard of the capacity to understand and interpret the information as well as to get access to further knowledge. Furthermore, different ideas, beliefs, moral convention and others are likely to influence the problem perceptions of all stakeholders (locals, planners as well as scientists etc.) (Schlossberg 2007). In conclusion, environmental conflicts in conservation may arise due to the difference in knowledge and understanding framing stakeholder's perceptions of the problems and possible solutions at the same time. Resource conflicts or problems go therefore beyond the mere economic interests and can bear cognitive conflicts which need to be structured to reveal the different forms and levels of knowledge, understanding etc. (Mackinson et al. 2011, Madden et al. 2014). Mackinson et al. and Wilson even argue that without including the different stakeholder's perceptions and knowledge levels as well as their inherent uncertainties and even ignorance, it won't be possible to establish collective learning experience, which can enable a further development of the groups of resource beneficiaries which is in turn necessary to sustainably manage CPR in complex ecosystems (Wilson, 2016).

The incorporation of local and/or indigenous communities in international conservation agreements and settings like MPA makes it yet difficult for external conservationists who are mostly alien to the local circumstances and customs to identify local needs and to ascertain the rights of the local coastal residents. Normative conservation instruments are often planned from remote perspectives focusing rather on the (global) worries of (marine) degradation (Jonas et al. 2014). As a result, human rights are often neglected for the benefits of ecosystem and biodiversity protection. An increasing number of studies as well as local/indigenous representatives and even organizations warn that the conservation goals should not justify the means, since this attitude results all too frequently in ineffective unilateral management which in turn is likely to lead to disastrous impacts for local inhabitants of areas selected for conservation, like e.g. illegal displacements, loss of livelihood, culture, and home (Orozco-Quintero 2015; Coetzee et al. 2014). Unequivocally, there is a friction between conservation achievements and the

humanoid presence, especially if an inhabited area has been appointed as a protection area. The objectives of conservation management embedded in the classification schemes of MPAs fronting their implementation and application within a populated area (Agrawal and Redford 2009). There is just very limited scientific research based on the correlation of (marine) conservation (e.g. MPAs) and human rights violations, except for some single empirical studies conducted in India, South and East Africa and Northern America (Redpath et al. 2015; Agrawal et al. 2009; Rangarajan, Shahabuddin 2006; Redford et al. 2015, Sanderson 2006; Goodall 2006; Brockington, Igoe 2006). The conservation and justice literature agree yet on the fact that any form of force or violence is a critical issue for human rights violations and injustices that are likely to lead to impoverishment, disempowerment, and even displacement (Agrawal et al. 2009; Redpath et al. 2015; McLean 2012, Bennett et al. 2017, Bennett 2017a, Straede 2003). However, since much of this violence against locals has been-, and still is-, executed under the name of conservation by the authority of law through legal force, violations remain often unreported and not brought to justice. Which is not surprising as the conservation area jurisdiction falls into the responsibility of the respective state which is free to apply and interpret its conservation management. What was formally known from economic priority zones (oil- , gas fields, touristic areas etc.) does now happen under the name of conservation; i.e. people are being kept away from their ancestral livelihood rights while their lands are being assimilated to create protected areas (e.g. Hammil et al. 2006 (Albertine Rift, Kenya); Jacobsen et al. 2016 (Norway), UNEP 2015 (various destinations); Rangarajan et al. 2006 (various destinations), Bennett et al. 2012 (*ibid.*), Mclean et al. 2003 (Nepal), Rangarajan et al. 2006 (various destinations); Agrawal et al. 2009 (*ibid.*); Bennett et al. 2014 (Thailand), Brockington et al. 2006 (global overview); Goodall 2006 (Australia, Southeast Asia) etc.). The need for action towards local and indigenous people finally goes more and more through to the international organizations and institutions (e.g. UNDP, UNEP, IUCN et al.) expressed *inter alia* at the Rio+20 (Earth Summit) as well as environmental scientists (Bennett et al. 2017b) who have acknowledged the hardships and problems of the local and indigenous people regarding conservation policies in the past, and announced their strong ambition to overcome these injustices in the future (IUCN 2010, UNEP/Nairobi Convention Secretariat 2009, et al.).

“Indigenous and traditional peoples have often been unfairly affected by conservation policies and practices” (IUCN 2010)<sup>12</sup>. Nevertheless, the literature also clearly states that this ambition requires a mutual agreement. Indigenous respectively local people need to be open too, to emulsify their knowledge with modern ecology, this entails the willingness for collaborative work with externals e.g. (inter)national conservationists (Cox et al. 2010). In conclusion, the acknowledgement of the interdependence of biodiversity and cultural conservation is likely to improve conservation efforts (*ibid.*). Thus, alternative management approaches towards directing more resources to support and capacity building of community and management to engage local organizations, indigenous and local communities in conservation through gain grounds (Sheil et al. 2015, Roe 2015b). These approaches would also address the often-overlooked initiatives of local conservation efforts. Alternative managements especially approach the co-management ideas/attempts to create the ability to facilitate more equal partnerships by assisting communities and cooperative work with governments, organizations on equal footing for an improvement in conservation.

#### 2.4 Conservation Conflicts, Problem Statement of the Case Study Area

The conservation Area of Menai Bay is located on the tropical semi-autonomous islands of Zanzibar, the United Republic of Tanzania in the South East Indian Ocean. Tanzania (including Zanzibar) is one of the least developed countries in the world, with high poverty rates and increasing population growth, and a nearshore artisanal fishery providing the main food and protein supply and source of income. As most nearshore fisheries, Zanzibar’s coastline is showing evidence of overcapacity and overuse due to missing alternatives, and traces of coastal pollution also caused by insufficient infrastructure. Yet, Zanzibar is rich in species, habitats biodiversity, fish population, and coral reefs; unfortunately, this natural, but most vulnerable richness is in danger. On one hand, a rising number of people are becoming dependent on marine resources in East Africa due to the population growth and slow development, which do not often offer enough alternative sources of income or food supply; on the other hand, there is a huge demand for fish products by more industrialized countries. The many sources of pressure are already declining the resource systems (fish stocks) and hence decreasing resource units to withdraw with a significant decline of the flow variable (core resource) (Ostrom 1990, Ostrom 2007). In addition to this development the

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<sup>12</sup> No page given, Factsheet

extreme dependency on the marine environment of the mostly poor local population, changing climatic conditions exacerbate the situation. Population growth and a lack of alternative sources for food and income generation ever increase the pressure on the fragile and already weakened marine and coastal environment and increase the competition for the remaining accessible nearshore marine resources, leading to a growing conflict potential. To ease the situation and conserve the remaining resources and whilst including at the same time the needs of the local population, as well as become able to harvest the abundant marine resources off the coast, large areas of the coast and nearshore waters have been put under protection through a conservation area network (MPA-Network). These areas are designed to include different zones, no-take areas, multiuse-, and sustainable fishery zones. Therefore, the government of Tanzania (incl. the Revolutionary Government Zanzibar (RGoZ) participates/ed in two international large-scale World Bank projects (MACEMP 2005 – 2013; SWIOFish1 2014 – 2023) (World Bank Data Base 2018; Word Bank Online Data Base 2012). The project participation objectives are the support of the creation, and management of: a) an Exclusive Economic Zone to sell fishing rights to international industrial fishery fleets in lack of an own fleet or other big economic or industrial development and b) conservation areas to preserve the fragile nearshore ecosystems, habitats and biodiversity, and resources, e.g. Menai Bay Conservation Area (MBCA). Despite the many efforts taken to include the local community through the implementation of integrative conservation management approaches, like co-management and community management systems, reports about conflicts and dwelling conflicts of unsatisfied local resource users (mainly small-scale, artisanal purposes) are still evident. In this vein, the latest environmental and social assessment report of the Swiofish1 (World Bank 2014, World Bank et al. 2016) reveals still some imponderables with regard to social and environmental development, which are also tangent to the MBCA (Menai Bay Conservation Area).

## 2.5 Integrative Marine Conservation and Management Approaches

The ideas of environmental justice, equity and integrative management styles (Bullard 2007) with tools like e.g. community-based management or co-management aim to reduce the burden of conservation for the marginalized and most vulnerable resource users. Since the management approaches of community integration and co-management are relevant for the present case studies this subchapter takes a closer look at these management approaches. Recently,

managers of marine conservation areas, especially with regard to common pool resources like fish et al., shift towards a more community-based or co- adaptive management orientation, viz. integrating resource stakeholders, community-capacity building, planning and implementing conservation area networks with multiple-use areas instead of simply restricting areas, using a top-down managed approach (Du et al. 2015, World Bank 2014). According to conservation and CPR experts a bottom-up management approach reduces the likeliness of resource conflicts, if the access rights are distributed equitably (Pomeroy 1995) and if the management as the resource governance follows certain rules of justice (Adger et al. 2006, Ostrom 2007, Samarakoon et al. 2011). Yet, the integration of local stakeholders in conservation areas like the Menai Bay Conservation Area in Zanzibar (MBCA, case study) can just become effective if these local resource stakeholders become empowered regarding legal-, administration-, and institutional rights (Pomeroy 1995) and with regard to knowledge transfer and capacity building. Thus, some governmental commitment is inevitable in order to guarantee these requirements supplementing the current structures (economically, social, culturally) as well as enhancing existing small-scale pre-existing ones (ibid, Pomeroy et al. 2016).

### **Community-Based Management (CBM)/Conservation (CBC)**

Already in the 1970s and 1980s, driven by the protests of affected local communities suffering under the international top-down approach of nature conservation, the idea of community-based conservation (Brockington 2002), and CBM gained attention. Until then, rather classical or colonial conservation methods prevailed which were neglecting the demands and the interests of local residents (ibid.). Often quoted examples of old classical conservation methods are the case of Yosemite (1864) or the Yellowstone National Park (1872). In both cases, indigenous residents had been forcibly removed, and displaced and resettled in the name of conservation with often disastrous socio-economic effects (Pomeroy et al. 1995, Veit, Benson 2004; Cholchester 2004, et al.). To change this, community-based management proposed a tool for governments and other (inter)national conservation organizations to a more decentralized working structure. The decentralization of management and authorities was meant to improve local stakeholders' conditions by (re)distribution of resources, access rights and the empowerment of communities, providing "a greater level of community organization" (Fallon, Chua, 1990; Pomeroy 1995). However, as a bottom-up approach for conservation CBM needs to be integrated into

governmental or organizational patterns (viz. World Bank, UNO, NGOs). Another advantage of the decentralized nature of CBM flexibility to adapt and react to specific (problematic) situations has been occurring (Senyk 2012). The challenges for CBM lay within the dynamic complexities it covers, in addition to the already complex systems of natural conservation there are social- and cultural dimensions to consider. Therefore, CBM systems cover many areas, administration levels, diverse policies, dynamic processes, situations, ecosystems or habitat changes and variable community situations. Despite the notable success of integrative managed approaches, the varieties of case studies, including the cases of Menai Bay (MBCA, Zanzibar), suggest broad variations of challenges to consider (Plummer et al. 2006, Armitage et al. 2012). In order to be effective, potential difficulties between the communities of stakeholders living within the conservation should be recognized, like competitions or cultural differences and of course, proper planning and resourcing of communities (including capacity building etc.). Yet, another problem might be caused by the reluctant agreement and implementation of conveyance by administrations. The decentralized nature of any form of community-based management bears some further challenges as it is entrenched in a wider system of laws, policies and even international agreements as well as in administrative procedures which need to be adapted to community empowerment (Armitage et al. 2012). Only governments can provide and enable legislation, jurisdiction, enforcement (Berkes 2009), monitoring, as legally binding restrictions and sanctions in case of any violation; especially by external international threats, e.g. control of Exclusive Economic Zones (EEZ) (see also Chapter 4 Case Study: MBCA). To conclude, effective CBM relies on the ability, willingness of teamwork from all sides, mutual respect and the empowerment of local communities and organizations assuming a separation of powers (*ibid.*), integration in institutional processes as well as good leadership qualities of community and local conservation organization (See Chapter 4).

All these challenges require the willingness, and effort to apply at least some kind of organizational change and learning processes, on all levels (institutional, governmental and administrative). This bears one of the weak points of CBM, as well as the problem of power shifts to local leaders or administrators who already belong to a local elite, often lacking knowledge or serving rather their own interests. Besides, the difficulties with the power shifting process as such; there are more threats to effective CBM (Berkes 2009). As many scholars point out, also verified by the present case studies, the dynamics of evolution- viz. the ever-changing environmental and human settlements demand for more, a learning process, a

knowledge transfer, including indigenous knowledge; hence capacity building on all levels of management, from science, to state (government), to communities. However, according to Andrachuk et al. (2015), the “social-ecological transformations can result in either positive or negative outcomes [...] we need to direct our thinking away from drawing tidy conclusions about if and when social-ecological transformations take place” (Andrachuk et al. 2015, p.26). In any case, these imponderables call for additional conservation management approaches like co-management, adaptive co-management (Berkes 2003 and 2009; Ostrom 2007; Hahn 2006; Mackinson et al. 2011) or community-based integrated coastal management (Samarakoon et al. 2011).

### **(Adaptive) Co-Management**

Conservation management regardless of whether terrestrial or marine is a knowledge-intensive endeavour. It assumes complex information processing and a deep understanding of ecosystems, habitats, “socio-ecologic”, socioeconomic interdependences and dynamics on different levels (nationally as internationally) of governance, organization, management and administration (Berkes et al. 2003, Berkes 2009; Samarakoon et al. 2011; Brow 2013). Due to this complexity, it is nearly impossible to be managed by single entities, groups, organizations etc. (Hahn et al. 2006). Hence a form of cooperative management, or co-management, is needed that supports “the joint management of the commons” (Carlsson et al. 2005, p.1). It is “[...] often formulated in terms of some arrangement of power sharing between the State and a community of resource users. In reality, there often are multiple local interests and multiple government agencies at play” (*ibid.*). Co-management of fishery management in conservation areas opens many possibilities of partnership arrangements throughout all relevant Groups and between State, local fishery communities, conservation organizations, researchers and all other relevant stakeholders and external agents (Pomeroy 1995; Fallon et al. 1990). This form of cooperative management seeks to build joint responsibilities, creating a different form of authorities through the collaboration of government and local resource appropriators as well as conservationists. There is no consistent definition of co-management as well. The way and the extent of authority allocation and -sharing vary according to governmental and political decisions, site specifications from country to country (*ibid.*).

The management of cooperation (Co-management) thus encompasses different [...] degrees of the delegation of management responsibilities and authorities between the local level [resource users/communities] and the state level [national provincial/ state, municipal]" (Berkes 2009, p. 1693). Berkes (1994) explains the hierarchy inherent of co-management arrangements descriptively in the graphic below.

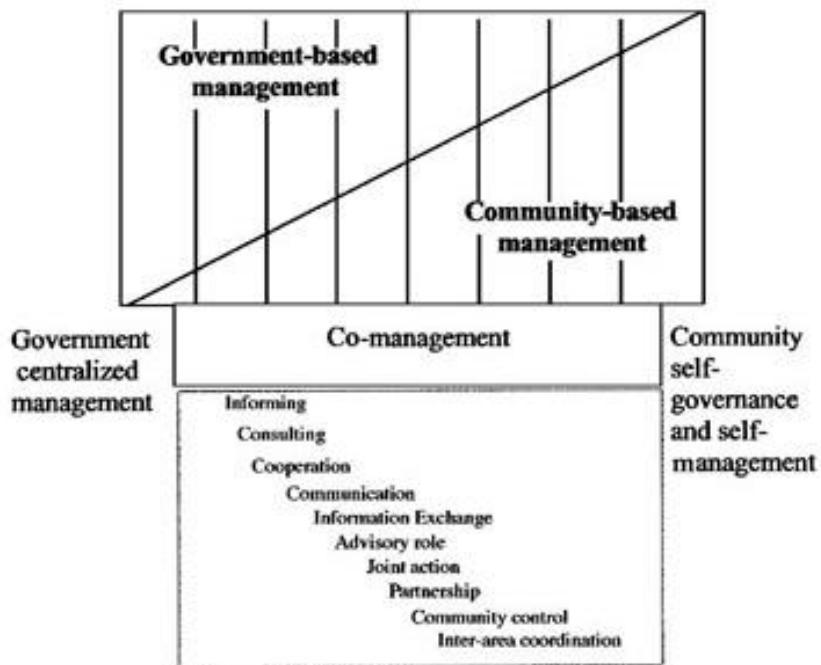


Figure 3; Berkes et al. 2001, p. 35.

Berkes (2009) clarifies the many different forms of the co-management concept pointing out the shift of interest from mere legal aspects of cooperative arrangements to a more process- and learning orientated view covering the above mentioned dimensions of the complex adaptive system conservation management effects, including "issues of scale, multiple perspectives and epistemologies, path dependence", and uncertainty (Berkes 2007, in Berkes 2009, p.1693). Synoptically, it can be noted that co-management balances between decentralization and centralization of conservation authority, local and governmental level, management and administration and policies, as well as between conservation and local development. At the same time co-management deals with relationships, whereat the integrated participation of resource users and communities is especially relevant to problem and conflict solving processes (Eamer 2006). One of the greatest shortfalls of co-management though is its weakness with regard to poverty reduction and empowerment of the most vulnerable stakeholders. Again, experts warn that co-management with its

decentralization effects might reinforce local elites or fostering state control. As fishery cases in South East Asia: emphasis the poorest (fishing) community members might be further marginalized and impoverished (Bennett et al. 2014, Jentoft 2000; Mikalsen et al. 2007, Neiland 2004, Agrawal 2001, Berkes 2009). Therefore, the need to improve integrative conservation management concepts like co-management or community-based management et al. is evident and can be only dealt with in collaboration, by identifying a common denominator and guidelines to generate sustainable conservation areas- comprising of environmental justice components, and ecological, economic and social dimensions in management. In this light, another conservation management approach is worth considering although of rather secondary relevance for this present study.

The idea of an **adaptive management** approach for co-management, viz. a management approach which includes learning and adaptation capabilities, should be also mentioned (Plummer et al. 2007). Extended by these two further dimensions useful and necessary for an effective integrative conservation management, adaptive co-management internalizes the learning aspect of adaptive management and co-management. The further development of the co-management approach may be a useful tool to enhance integrative conservation management. It is especially promising with regards to conflicts concerning multiple interests, situations, rights, worries, demands etc. thus demands a multi-situation and stakeholder strategy. To become effective and useful, however, the discussed management concepts inherent criteria of environmental justice (including equity, compliance and capacity building); the integration and empowerment (Natcher et al. 2005, Berkes 2009) of affected people (cultural and procedural justice) as well as just resource distribution (distributional Justice). According to the nominated analysis criteria of a wide range of **Environmental Justice** ideas and their proximity to integrative **Co-Management**, the selected conservation area is governed, administered and managed based on the premise of co-management within the large-scale multi-dimensional and multi-level marine project (SWIOFish) (Garnaud et al. 2017, IOTC 2015, Souto 2014)

## **Ecosystem-Based Adaption**

The management of environmental systems and their conservation always includes the dimensions of ecosystems and its services, which is especially intricate with regards integrating the factor Climate Change. In this context it is vital for a successful conservation management to find solutions to, on one hand, pursue the mission of conservation, while taking care of the local residents (particularly if the population is heavily dependent on the ecosystem services (including resources) for subsistence and livelihood generation (McClanahan et al. 2013a). According to Adger (2014) and others like McClanahan (2013), Burroughs (2017) many research findings support the volatility and multidimensionality of this issue, especially with regards to societies and hence, for the socio-environmental conflict potentials: “climate change poses significant risks in all these areas and all conclude that material aspects of life and livelihood such as food, water, and shelter are closely coupled to weather and climate, but also to multiple factors in the economy and society” (Adger et al. 2014, p. 761). To address these challenges and to reduce the impacts posed by environmental degradation, in addition, climate change, institutional responses are vital (Adger et al. 2014), whereas “inappropriate climate policy responses may accelerate and amplify human insecurity including conflict” (Adger et al. 2014, p. 779). In this context, an understandable, and suitable management approach is needed, which on one side supports local residents’ understanding of climatic impacts to find appropriate adaptation strategies and enhance resilience, but also stay abreast of the mission to protect the environment.

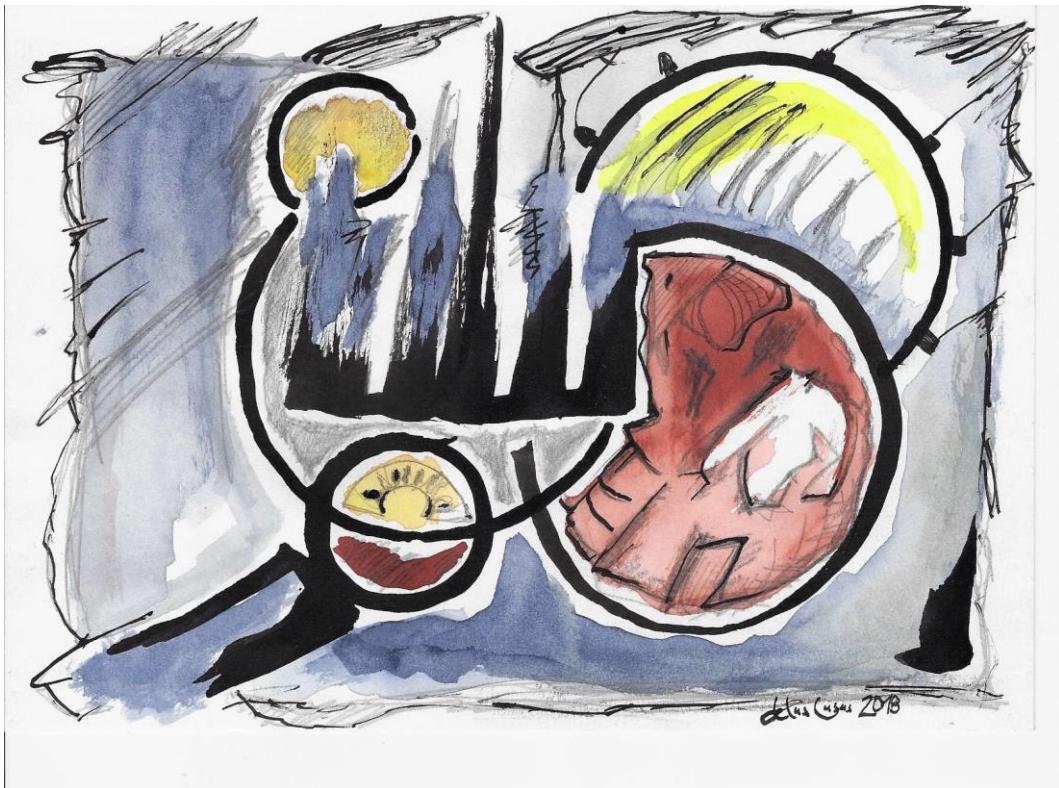
Yet, the interpretations of the terminologies of concepts like “resilience”, and related terminologies of “adaptation” etc. are manifold (Scarano 2017, Winges et al. 2009) furthermore used diversely and “barely distinguishable” in the climate change debate (Winges, Siebenhüner 2010, p. 195). Therefore the aforesaid researchers use the definition of “resilience” in a context, broader than the mere focus on ecological system stability, as the ecosystems ability to withstand stress, while still providing ecosystem services (*ibid.* p. 3), including the idea of an interrelated connection of socio-economic-, socio-technical (Scarano 2017, p. 61) and ecological-systems, which is also coherent with regards to the severe risks both systems pose on each other (Adger et al. 2014, Detges 2017). Since conservation also deals with the human dependency of ecosystem services, especially in developing countries; and climate change as a major distributor of changes and deterioration in ecosystems impacts, the approach of an ecosystem-based adaptation (EbA) can be useful across different sectors (GiZ 2012). The

CBD (2009) defines Ecosystem-based adaptation as the “use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change” (CBD 2009, in GiZ 2012, p. 1). In this sense, the (EbA) approach aims to reduce the resilience of vulnerable societies through facilitating green infrastructural actions (like mangrove reforestation) and ecosystem service (coastal protection etc.) (*ibid.*). Thereby, EbA comprises measures of conservation, sustainable management of adaptation efforts; and natural resources to complement and/or adjust the further generation of valuable co-benefits from natural, often cost-effective solutions, such as food production, biodiversity conservation, carbon sequestration etc. (GiZ 2012). The conception and planning of conservation areas thus need to integrate an approach which enables transitions of adaptation and sustainability through a policy mix; yet, the literature on Ecosystem-based-adaptation (EbA) falls short to directly address social and environmental justice implications. Unfortunately, the literature on EbA lacks a concrete reference in addressing the possibility to target socio-economic issues, like the generation of alternative income possibilities, since often the mere desperation drives local people to unsustainable actions (McClanahan interview by Burroughs 2017, Pomeroy et al. 2017) (like overharvesting or, deforestation of mangroves in order to generate firewood for cooking etc.). However, the EbA’s approach is too promising for the case study area of Menai Bay, as for the whole international program the case study area is integrated, aiming to enhance economic growth and (sustainable) fisheries governance, to be dismissed. In this context, the EbA could provide useful approaches to be integrated, and adjusted to the needs and purposes of climate change adaptation in conservation projects.

## 2.6 Further Objectives and Significance of the Study

Bennett’s et al. (2017b) appeal for a code of conduct, the growing reports of conflicts and conservation management problems, the “paper parks” as well as the necessity to preserve vulnerable and unique, but declining ecosystems, shows the need for action, more precisely for creative, yet sound ideas to support integrative and just conservation management. Although there are many promising approaches (*inter alia* Ostrom 2007, Bennett et al. 2017b, Pomeroy 1995, et al.), the high dynamic and complexity of conservation management, including the wide range of dimensions of ecological and social-ecological, social-economic and conservational nature, requires a dynamic and adaptive development of conservation management approaches, procedures and actions. This study tries to support this development, based on the sublimation of different justice ideas,

findings and theories and experiences, supplemented by inter- and even transdisciplinary conservation and resource management ideas. The aim is to develop a supplementary tool for a qualitative evaluation and assessment of marine conservation management and governance processes on small-scale as well as on a local level towards their capabilities to deal with environmental conflicts. Still, the multiple nature of conflict, conservation and justice research is very cross-disciplinary with a vast diversity of disciplines including transdisciplinary aspects that contribute to it including *inter alia*, economics, international relations, security research, fisheries economics, ecological economics, anthropology, agriculture, biology, ecology, engineering, law, political science, public administration, rural sociology, and sociology etc. Therefore, an all-encompassing coverage is impossible and would go way beyond the scope of this doctoral thesis.



### 3. Theoretical Approaches

The previous chapter focusses on the statement of the problem on Conflict and Justice in Marine Conservation, on several selected definitions of “integrative” marine conservation management approaches and the multilevel conservation tool “MPA”. Further, the significance and objectives of the present research topic are explained by means of the increasing problem of conflicts in conservation areas and the need of action with regard to environmental and social justice implications in protected area management and governance. The underlying theoretical ideas and philosophies of justice and its implications on CPR conservation management and (resource) conflicts are the subjects of this chapter. Due to the inter- and even transdisciplinary field of conservation the development of the analytical tool (“Conservation Justice Model”) for this present study is tangent to multiple justice notions from different fields and scholars as well as to accompanying approaches of adaptive environmental governance. Yet, it would go beyond the scope of this thesis to address all the different justice findings and literature debates thoroughly. Therefore, the following can only give a broad overview without seeking completeness. The above-mentioned justice theories and the accompanying descriptive side terms used in this study can be broadly divided into two main generic justice areas:

- Social Justice concerns the fair and equal distribution of social, environmental and economic resources, chances and capabilities of people

(groups or individuals) regardless of any attributes like gender, race, status or backgrounds) (Schlossberg 2007, Miller 2003).

- Environmental Justice focuses on the distribution of environmental advantages and benefits as well as burdens and disadvantages (e.g. hazards, clean water, pollution, sinks, greenspace, natural resources etc.) (ibid, Bullard 2008).

The two terms sharing the sensitiveness towards power issues, focusing on groups rather than individual, the preference to use integrally or holistic notion of justice to deal with challenges and problems as well as solutions. Though social justice notions are included in environmental justice ones they often need to cope with conflicting objectives or interests as both directions interact reciprocally, which means justice for one cannot be without the other without risking threatening positive outcomes on both sides (Bullard 2005, Schlossberg 2007, et al.).

### 3.1 Introduction to the Justice Debate –Philosophies and Theories of Justice

There are basically three selected directions of theories of justice which will be briefly introduced in this chapter: “Distributive Justice” (allocation), “Procedural Justice” (processes and participation) and “Recognition” (acknowledgement of distinct backgrounds, cultures etc.). This distinction is beneficial for the criteria chosen for the present analysis and development of the Conservation Justice Model. Thus, to narrow down the justice terminology towards more practical respectively applicable environmental and social justice approaches, usable for (marine) conservation. Additionally, they are a vital source of inspiration for the present research, as it seeks to bridge parts of different schools of thoughts and extend ecological, economic and business administration considerations of conservation management. Any reduction is due to the confined scope of this study. As well as any application of the “lex parsimoniae” (Occam razor - The Law of Parsimony) is owed to this. The theories are seen as mere foundations not so much as a subject for a discussion and will hence remain relatively unrated. Furthermore, this chapter gives an overview of other influential thoughts dealing with justice and justice-related ideas. Starting with a brief overview of the general philosophical ideas of justice; leading over to “Environmental Justice and Ostrom’s Design Principles”; coming thereafter to the specific issue of “Fairness in Adaptation in Times of Climate Change”. In order to understand the different approaches of justice it is useful to clarify the different connotations the justice debate comprises of; the terms: justice, fairness and equity.

## Descriptive Terms of Justice

The matter of **Justice** is deeply interwoven in the tradition of Western civilization, it goes back to Ancient Greece (Aristoteles et al.); e.g. the principle that "equals should be treated equally and unequals unequally" (Aristoteles, translated by Ostwald 1969). Aristoteles *inter alia* identified already two basic dimensions the "justice in distribution and retribution" (Roemer et al. 1996). Despite their omnipresent use and vital role in everybody's lives, these terms are difficult to define. Particularly, as they deeply depend on an individual perception which is in turn, dependant on the respective social- and reference system as well as fields these words are viewed in. Meaning, what is perceived as justice or fairness may vary contingent on societal and personal backgrounds (Sen 1993), or even research fields and topics and may differ sometimes dramatically. As this present study unfolds it becomes clear how much the feeling or perception of being treated fairly, justly, and equally influences the determination of whether conflicts will emerge (Redpath et al. 2015, Jacobsen et al. 2016). Besides the difficulty of the manifold interpretations of justice (whether scientifically or personally) the definitions of the terms: justice, fairness, equity and equality refer and relate to each other. Many famous scholars like Rawls (1971) e.g. use words like fair and equal to describe their theories. Moreover, there are different approaches diversifying these terms and notions even further (e.g. fairness model, the theory of justice and equity etc.). All of this makes it nearly impossible to find an overall definition since not even experts agree on an overall connotation of (justice) terms. However the following gives some attempt to do so as it is necessary to understand the wider theories and concepts. If it comes to the use of justice related terms like fair, just, equal the study avails itself of these synonymously, if adequate.

Generally, there is only one consensus regarding these terms within the justice debate that is the widely accepted belief that these ground on the consensus of particular standards within a society (community or group) in relation to satisfying treatment and integration, in accordance to their social norms and preferences (Walzer 1983, Sen et al. 1989, Hirsch 2011). Provided that the individuals of a group or society do not react/act irrationally, viz. in contrast to their agreed positions as it is inherent to the unpredictable human nature. In the literature, Justice is mostly referred to as 'giving a person what this individual deserves' (Buttram et al. 1995). Although justice, fairness, equity and equality are narrowly linked and therefore often used synonymously, they do not have the same meanings. With regards to the practicability, they refer to different levels of understanding. The concept of justice refers to a more objective point of view like

universal principles (Sen 1992) timeless, general valid to all humans or societies. The concept of fairness, however, is more subjective as it brings up more concrete personal perceptions in relation to the circumstances (Velasquez et al. 1990). Both bear different connotations, viz. justice refers rather to a standard of rightness while fairness encompasses the ability to make concrete or specific judgements. However, the “notion of desert”<sup>13</sup> is vital for both terms, which does not really contribute to an appropriate characterization since it raises the question of the definition of what people deserve? As mentioned above the ideas and beliefs vary greatly of what a deserved share of benefits or burdens is – as well as the deserved participation in decision-making processes, raising in turn fractions, questions and different perspective. Thus, an overall accepted consensual and respected set of guiding principles is needed that can hitherto be adapted to different situations and circumstances. Most theoretical approaches of justice issues encompass the notion of “fairness” to describe their ideas, trying to develop criteria to define justice principles (Pierik et al. 2007). In any case, justice is an essential part of ethics, allowing moral considerations and the evaluation of decisions, not only ethical ones (ibid.; Velasquez et al. 1990). In order to reduce dissatisfaction, leading to fewer conflicts and injustices all four terms need to be mutually considered. Coming to the term **Equity** which is not only often used for theoretical approaches to justice concerning equal rights or equal access or distribution of resources (Roemer 1996), but also for the characterization of an overall insurance to give everybody the individually needed access to the resources, freedom, rights, access, opportunities, and powers as well as responsibilities etc. to cultivate their potential (Sen 2009a, Roemer 1996, Pierik et al. 2007). In this, equity is seen as a cornerstone to sustainable development with the duty to address and adjust “unfair” inequalities, including issues of intergenerational inequity (Beder 1996; WCED<sup>14</sup> 1987).

Equality is seen as a generator to promote fairness and justice for all humans equally as the [...]

“Recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world. Whereas disregard and contempt for human rights

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<sup>13</sup> “Notion of desert” is here used in correlation to the philosophical concepts of desert with regard to the Deserter Theories of Justice (Rawls 1971, Sterba 1974, Lamont 1994, Skow 2012, Skow 2014). Briefly summarized the concept of desert means that the idea of justice is obtained when goods and bads are distributed according to desert (Arrhenius 2003, Cummiskey 1987, Rawls 1971, Lamont 1994). These different ideas about what people deserve can be subsumed and found under the different theoretical approaches of the Deserter Theories of Justice (Cupit 1996, Arrhenius 2003, Sterba 1974, Sterba 1976, McLeod 1995, Lamont 1994, Skow 2012).

<sup>14</sup> So called “Brundtland Report”

have resulted in barbarous acts which have outraged the conscience of mankind, and the advent of a world in which human beings shall enjoy freedom of speech and belief and freedom from fear and want has been proclaimed as the highest aspiration of the common people [...]” (The Universal Declaration of Human Rights UDHR 1948 Preamble, Weiss 1990, p. 9).

Following the UDHR’s declaration John Stacy Adams (1965) developed the Equity Theory (belonging to the justice theory family) to determine a fair distribution between interactive parties (partners) by comparing the relation of contributions and benefits for each person involved. According to him, fair treatment is highly valued by e.g. partners, workers, employees, et al., resulting in a higher motivation and less dissatisfaction for both sides. Anyhow, in summary, the literature agrees upon the notion of equity approaches as addressing not only the greatest quantity of people but especially those most deprived and marginalized (World Bank, UNICEF, UN etc.). This sentiment is widely promoted by big international organizations like the World Bank et al. The equity concept as aforesaid deals with the distribution of wealth, its assessment and recognition, shifting from the mere aggregation of poverty measures like income poverty (poverty levels) to horizontal inequalities like access to social and other needed resources. Which makes sense as the focus on monetary insufficiencies on a national level does not prevent an increase in disparities (e.g. Brazil and other emerging countries with an increasing economic wealth, but growing inequalities of its ratio). Determinant variables/categories can be any discrimination against issues which should be rather viewed unbiased as gender, religion, location etc. (see above). As Sen (1992, 2009a, 2009b), Arneson et al. (2013) explains, equalities of opportunities or capabilities stress the concept of equity which might result into equality and in turn to (distributive) justice outcome (Sen 1992, Cohen 1989, Velasquez 1990, Arneson et al. 2013). Synoptically summarized the terms **equality** and **equity** sound similar but represent different concepts. While equality refers mostly to equal opportunities, chances and support on/for all levels and segments of society, equity promotes the more adaptive approach of varying levels of support and opportunities which depends upon the need and capabilities of the society.

### 3.1.1 Theories of Distributive Justice

Distributive Justice deals with the concept of socially just respectively fair goods and resource allocation in a society, including the available quantity of goods and

resource systems, their subsequent distribution and of course the process leading to the outcome. According to Roemer (1996), economists are rather unfamiliar with contemporary philosophical ideas of distributive justice but rather familiar with areas of social choice theory, welfare economics and the idea of utilitarianism. Since then a lot has changed in the wide field of economics, meanwhile, whole fields of environmental and ecological economics have emerged that deal with the integration of justice ideas and notions of “fair” distribution et al., but still the topic of social “justice” beyond distributive outcomes is relatively marginal (Rawls 1996). Traditionally economics are deductively assuming individual and organizational behaviours in markets as rational utility maximizing which raises the question of probability of rational behaviour of individuals or societies. The distributive nature of justice is subsequently juxtaposed with the notions of procedural justice which focuses on administration, law and processes, but the latter will follow a little later.

Principles of Distributive Justice encompass diverse dimensions, levels and approaches, often seen as a moral guide for the distribution of economic benefits (Lamont et al. 2013). Basically, these theories of distributional justice can be subsumed under Utilitarianism (Mill et al.), Egalitarianism (Rawls et al.) and Libertarianism (Nozick) (Roemer 1996). They vary in what is considered relevant to distributive justice (income, wealth, opportunities, jobs, welfare, utility, etc.); in the nature of the recipients of the distribution (individual persons, groups of persons, reference classes, etc.); and on what basis the distribution should be made: equality, maximization, according to individual characteristics, according to free transactions, etc. (Lamont et al. 2013). One of the oldest philosophical backgrounds of distributive justice is grounded on “Utilitarianism”, although being recognized, by some scholars not belonging to “Distributive Justice Theories” (Roemer 1996). Anyhow, utilitarianism offers theoretical views on distributive matters which is, in turn, are a vital part of the “Justice Theories” - and is seen as ‘a moral theory’ based on goods (Schroth 2008) and welfare; a re-distribution intensive approach. One of the first scholars writing about the moral obligation to maximize the total quantity of “happiness” was James and later Stuart Mill (1806 – 1873). Their idea is fundamentally unspecific though “redistribution of indefinite duties, income or goods” to those most indigently and/or in need (*ibid.*). The only condition seems to be ‘the most happiness generation’- by redistribution of wealth etc. by whatever means leaves ample room for interpretation. Redistribution of wealth relating to the phenomenon referred to as “diminishing marginal utility” of e.g. money, which basically means that the more money (utility units) an individual

processes, the less happiness each additional unit of utility (e.g. money) appeals (Roemer 1996). The thought of redistribution of wealth could lead to the scenario: a reduction in salary of the upper management in order to raise the income of the ordinary worker.

The philosopher John Rawls (1971) advanced the theories of distributive justice by a liberal egalitarian point of view, conceiving the idea of arbitrary inequalities of life circumstances through no fault of their (the affected person) own, imposed by the organization of social institutions. Therefore, these inequalities need justification, but this needs to be accomplished to the benefit of all, yet to the maximal advantage of the neediest respectively poorest people. In contrast to the utilitarian theory, the liberal part of Rawls' theory includes the denial of society's responsibility for the quality of life of individuals (Schroth 2008; Little 2002). Society is responsible for fair shares of resources (general purpose), morally acceptable framework for individual interaction, but individuals are self-responsible for their own lives and proportion of goods to be expected (*ibid.*). The statement of an arbitrary "wheel of life fortune", especially with respect to the institutions and processes, contradicts Rawls statement of the personal responsibility of expected goods according to the life plan chosen. As it is neglecting the possibility that life plans cannot be put into practice by personal responsibility alone because it might be succumbing to the circumstances of discriminating social and institutional structures.

However, his idea of selection of principles of justice behind a "veil of ignorance" is tempting, as it bears some logical thought. Rawls (1971) believes two justice principles will be the likeliest outcome if chosen from behind this veil. Assuming a group of people decide about justices and injustices of /in a society but being unaware where themselves might be placed; unable to pick their place, race, gender, religion, education, social status etc.; the only thing they are assumed to know is the arbitrariness of these circumstances. According to Rawls there would be an agreement on the following:

- I. Equality of Freedom (regarding speech, gender, religion etc.) and,
- II. That all (in) equalities of society have to generate inequalities which are benefitting every society member (the Difference Principle), resulting from equal opportunities and chances (viz. accessible to all individuals within the society) (Rawls 1971).

Consequentially he concludes with the statement that [...] 'the application of fair rules leads to just outcome' (Rawls quoted by Sikor 2013, p 7).

With regards to the difference principle, it anyhow raises the question of how can inequalities lead to an advantage of all member of society? Rawls imagined the idea that a group deciding according to the veil of ignorance could decide for an unequal pay raise for qualified experts if the expert's knowledge adds to an overall benefit to society, e.g. by improved medical treatment, higher quality of infrastructure etc. (Rawls 1971, Roemer, 1996). Contrasting the two directions of distributive theories the following graphics might be useful.

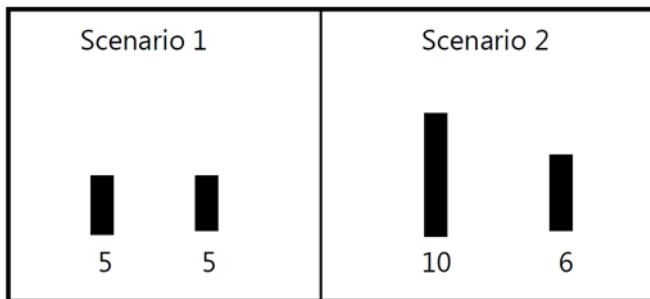


Figure 4, source unknown

The little graphic depicting two scenarios numerically, which is inspired by a seminar script, elucidates the difference of the different approaches. Either dealing with the probable decision whether to pay everybody equally the same, or according to the benefit maximization of society. The latter would refer to Rawls' 'Difference Principle' respectively the "Maximin Strategy" (Rawls 1971, Roemer 1996). Both scenarios represent the distribution of units of "happiness" or "basic goods" within a society. Thus, if all units of "wellbeing et al." are equally allocated everybody has the same number of units, but all have equally little amounts of units. As for the second scenario, there is an unequal ratio of distributed units, but the number of units, even of those worst off, are higher than in the first scenario. The interesting thing about the second scenario is it reaches an inequality in salary an increase of the overall units e.g. due to an improved healthcare or other well-being factors, which Rawls calls choices that are based on the Maximin Strategy. Rawls strategy assumes the idea that the selection will be in favour of the maximization of the worst outcome possible because there will be an increase in "units" for everybody (Roemer 1996). There are several scholars introducing alternative approaches to Rawls' theoretical assumptions for example the Nobel Prize-Winning Economist Sen who proposes an interesting angle and criticism to Rawls, his old mentor (Sen 2009). Sen indicates that Rawls' ideal notion of justice – that he calls "transcendental institutionalism" – is rather insufficient when it comes

to advance justice in a practical sense of the real world since the idealistic approach is incongruous of reality's circumstances. Although he acknowledges Rawls work and initialization of his justice theories as supportive of the justice theories construction, Sen favours a more "realistic" approach and "comparative" interpretation of the justice idea. Rawls' justice findings are essentially tangent to institutions and the particular process and distribution of goods. For Rawls, just institutions lead to just outcomes. Sen, on the contrary, construes that the justice theory essentially with regards to individual's conditions depend on their capabilities. Up to now, the latter implies subjacent requirements that may differ essentially with social conditions according to variable cultural norms of different societies (Wells 2009). It can be deduced, what happens to people must be of concern for a theory of justice. Rawls interpretation of primary goods also opposes to Michael Walzer's (1983) concept of "complex equality", in which social goods are not to be subsumed as primary goods to avoid the invasion of inequalities in the different "spheres" of society (Walzer 1983). In the Stanford Encyclopaedia, Arneson (2013) explains Walzer's idea of a democratic egalitarianism as a requirement of justice in modern societies based on the element of shared values and cultural understanding (Arneson 2013, Walzer 1983). Walzer's explanation of a just society that is only just if its practices and institutions are in accord with the shared values and cultural understandings of its people (Walzer 1983, Arneson 2013) meets to some extent the interpretation of the present study though; despite the awareness of the difficulties irrational human behaviour and unpredictable of reactions put on agreed social norms and actions. Walzer's (1983), Rawls' (1971) and Sen's (1993/2009) ideas as applicable as they maybe postulated assume in one way or the other as a kind of ideal setting though, whether as an ideal of institutions, or adherence to agreed rules, ideas or agreements. Ronald Dworkin (1981) has yet another idea of justice theory; he is in favour for the idea that justice requires a fair allocation of resources to all individuals within a fair framework which he calls "equality of resources". Everything that goes beyond this fair distribution is tangent to personal responsibility (Dworkin and Rawls) though. Sen justly criticizes this sentiment as one can only be responsible to the extent that is within one's range of control (Hirsch 2011, Sen 2009b).

The last theory direction in this synopsis on theories of distributional justice (in which procedural justice notions are mostly being imminent but will be referred to a little later) is Nozick's Libertarianism (Van der Veen 2008). He promotes the libertarian view of justice in which he postulates "negative rights", especially concerning properties in favour of a free market assuming liberty will promote

happiness and goodness. Still, he understands the utilitarian approach (which also favours happiness and goods) as irrelevant to justice as he understands the right to property as an absolute and not to be violated right (the only exception, if more rights are violated otherwise). For him, property rights even stand prior to any political institution which induces him to understand even any form of taxation as a form of theft which would violate property rights. He disregards the public services provision tax money enables, such as healthcare, security or schooling, water supply or infrastructure. Thus, all public service is to him illegitimate and should be a matter of profit- or for free (carried out voluntarily or with donations). Nozick's attitude towards global resources reflects this too by understanding resources as 'free to take', viz. becoming the property of anyone who takes them (Van der Veen 2008, Sen 2009b, Hinsch 2011). Therefore, Nozick's ideas are rather contrary to the chosen CPR management approaches (private vs. common property rights etc.) by Ostrom or Adger, but reflect rather the neo capitalistic attitude which is still prevalent in most common shared resource systems (e.g. the majority of global oceans especially outside the jurisdiction zones).

### 3.1.2 Environmental Justice

The notions and theories of Environmental- and Social Justice need to go beyond the idea of mere distributional justice though. Despite some scholars like Sen 2007, Dobson 1998, Low and Gleeson 1998, et al. already enhance the debate by the attempt to narrow down social justice definitions by transferring them into environmental justice ideas. According to Schlossberg's regrets, they mostly refer to distributive concerns (Schlossberg 2007). Still, there is further development in advancing theories of justice beyond the distributive ideas of theories towards more practical approaches (Sikor 2013, Schlossberg 2007, Young 1990, Fraser 1997). In this regard, Sikor (2013) identifies a lucid dichotomy of the prevailing definition forming directions of Environmental Justice, a) political philosophic approaches and b) multiple notions approaches (Sikor 2013, p. 6, p. 7). Whereas the first direction attempts to develop universal principles, a moral guide based on social norm to be tested on real situations based on Rawls' motto of 'fair rules leads to just distributive outcomes' (Rawls 1997), the other tries to imply different levels and ways of justice conceptions, e.g. participation etc. (Sikor 2013).

The shift of theoretical justice ideas to multiple notions of (environmental) justice definitions indicates a rethinking of the old theoretical ideas of distribution; including the integration of the "environmentalism of the poor" as subject of discussion (especially with regard to the global South) (Martinez-Alier 2002,

Martinez-Alier 2012, Schlossberg 2007, Lucas 2004). These scholars avoid deducting universal principles of justice but prefer to include a variety of justice notions including activists, scholars and affected people. Consequently, the ideas of universally shared concepts and notions of justice are challenged. Multiple-notions approaches include questions of “what is important to people” in order to raise support or opposition; how and by what are actions, processes and decisions influenced or hindered. The alteration towards a more multivalence of justice (Walker 2009, Sikor 2013) offers the possibility to include the difference justice notions owed to dynamic, variable and diverse situations, settings, interests, issues and foci etc. This direction of justice reflects not only the diverse scientific debates but also complies with debates within the environmental justice movements (Sen 2009a, et al.). This attempt bears some difficulties though, as it gets quite diverse as every individual encompasses several notions, views or interpretations of justice at the same time, depending on the specific situation and interest. However applicable, according to Sikor (2013), this is a kind question of plurality and a major characteristic of Environmental Justice. In the context of the diverse and challenging management and governance of environmental concerns, new forms of approaches are needed. Dobson (1989) established the term “communities of justice” to form focus groups and to include the future generation. The intergenerational notion of justice is typically for “environmental justice”<sup>15</sup> (IUCN-WCPA 1987) and stands in contrast to “social justice”. Whereas ecological justice addresses non-human organisms as subjects to justice and should not be mixed up with social or environmental justice; and is thus of subordinate interest for this study. The theory of Environmental Justice is successively separating from the mere philosophical justice approaches as its pluralistic justice interpretations calling for attention to particular justice assertions as well as legitimization through society. These sentiments fit into Sen’s pragmatic “Idea of Justice” (2009a), which pleads for more than an overall broad concept or notion of justice, but for approaches considered legitimate and justifiable. He finds it difficult to find a one-fits-all notion of justice. Therefore, Schlossberg’s empirical approach to justice emphasizes on the “[...] significance of differences in wealth, power, identities etc.” (Sikor 2013, 7 pp.). All in all, environmental justice analysis is shifting towards an understanding of different abilities to assert justice entitlements. The incentives to improve environmental management practices with regards to justice, respectively concerns of injustices like displacements etc. (Bennett et al. 2014, Adger et al. 2014, Rangarajan et al. 2006, Agrawal et al. 2009) have led to an increasing effort

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<sup>15</sup> Sustainable Justice Paradigm, (Brundtland Report)

in the environmental justice theories development to more inclusive and more flexible and adaptable approaches. Until now, most conservation organizations have set guidelines or declarations of human rights claiming to protect “people’s rights” and calling for recognition of affected persons, e.g. like stated in the Nagoya Protocol (CBD) or Conservation Initiative on Human Rights (WWF) (Burningham 2001, Roe et al. 2015, Roe et al. 2015a). The academic notions and understanding of the environmental justice theories therefore successively approximate the justice definitions of environmental justice movements. Schlossberg (2007) reflects on this in his empirical approach to justice and advances the justice approaches through a triple characterization of justice (useful for both directions of justice, socially and environmentally). For this he combines theoretical perspectives and demands of environmental-social movements, transferring definitions of social justice and includes participation (often referred to as Procedural Justice) as well as recognition (Schlossberg 2007, p. 10; see also Young 1990, Fraser 1997). Acknowledging the differences of environmental justice notions occurring within environmental issues between humans also includes ecological justice, which is rather concerned with justice for nature. Difficulties in crossing the lines of different approaches of social justice and environmental sustainability are of concern for Dobsen (1999), especially between the academic versions of justice and those of the social and environmental movements (Schlossberg 2007). Anyhow, this does not keep Schlossberg from transferring social justice criteria into both approaches (social- and environmental justice) (*ibid.*). Schlossberg tries to bridge the human-grounded and the nature-based ideas and claims for environmental justice, especially as he explains that both “[...] first and foremost [are] issues of justice, not environment” (Schlossberg 2007, p. 2). This sentiment and his findings *inter alia* inspire this thesis to attempt and enhance his efforts by interconnecting academic and local dependent stakeholders’ notions of justice with regards to interpretation and ideas of a possible conservation justice inclusion in the governance and management of Marine Protected Areas.

### 3.2 Theoretical Framework

The multidimensional approaches (Schlossberg, 2007, Sikor 2013; Ostrom 1990, Ostrom 2011) with the emphasis on three relevant dimensions of justice: distribution, procedure (including participation), and recognition. These three distinctions of Environmental Justice play a key role in the theoretical framework of this present study and serve as guidance and foundation for the development of the analysis framework, the “**Conservation Justice and Conflict Model**”.

Generally, the literature on distributive justice is overrepresented in relation to other vital aspects of justice, especially with regards to environmental challenges, yet dealing with environmental justice requires more than solely focusing on distribution (Bullard 2005, Schlossberg 2007, Sikor 2013; Jacobsen et al. 2016). In order to establish desired “fair” outcomes, there is a need for insights of the diverse processes, structures, the power-relations, and acknowledgements of all affected people (Hallowes ad Butler 1998, Schlossberg 2007, Sikor 2013). With regards to these requirements, the ideas of participation and procedural justice are supportive as they deal with the fairness of processes and implementation of decision-making, including equal inclusion of stakeholders (*ibid.*). These additional factors increase the chances of “fair” distribution through inclusion and reasonable participation of all parties involved, regardless of any inalterable factors such as gender, ethnicity et al. Procedural Justice Notions are throughout the literature accepted as the processes relevant to impacting the accomplishments of environmental justice outcomes (Sambo 2012, Dworkin 1977, Rawls 1997, Schlossberg 2007, Sikor 2013, etc.). Pursuant to Dworkin, Schlossberg et al. equality, respect and recognition play a vital role in the political decision-making process for rights-, benefits- and resource allocation, but also for the distribution of environmental burdens. In light of the below-average proportions of marginalized members of a society participating in the decision-making process, the call for equal and meaningful participation opportunities is evident. However, it remains to be seen if these theoretical inclusive justice approaches and notions are useful to empower underrepresented and underprivileged groups. Particularly social and environmental justice movements draw attention to unequal treatment and injustices calling for “environmental democracy” (Schlossberg 2007) which refer to processes and “equal rights or equal concerns” of environmental matters (Hayward 2005). Complementary to Rawls’ phrase of what (environmental) just outcomes demand: Equal participatory decision-making processes and recognition are likely, though not a guarantee, to lead to “just institutions” (Rawls, p. 199, pp. 280 – 282) that would in turn “[...] lead to just [...] (Rawls 1997, p.99) outcomes.

Implementing procedural justice is a challenging task particularly when all the various factors named in the literature are considered, e.g. socioeconomic, power relations, needs, capacity building, supervision, the definition of the adequate degree of participation and of course, acknowledgement of the cultural and other identities and status. Although many factors can be deduced from the literature review, there is no thorough literature on analyses of procedural justice implementations and real outcomes itself. The question remains of what if procedural justice does not lead to the desired distributive outcomes? In this case, scholars and experts suggest a corrective form of justice that to some extent share the notions and desire of equality with the “distributive justice” approaches (Malin 1992). This “corrective” form of justice is often also referred to as “retributive or compensatory” justice (Greenwalt 1983; Nickel 1976). Although sharing the desire for “equality”, the interpretation of equality within the corrective justice notions differ from those of the other justice ideas. Whereas Malin (1992) as one representative of the “compensatory or retributive” form of justice explains, equality with “[...] a “just” person who treats all people equally regardless of their merit” (p. 119), other scholars prefer treating all people adjusted to their needs and capabilities, in correlation to their cultural backgrounds or socially agreed norms (Sen 2009b, Schlossberg 2007, et al.). In this light, it is assumed that some people could be offended or otherwise overstrained by the same treatment another person perceives as just and equal. Equality, with regards to distributive justice, however, looks towards a relational kind of equality; meaning that each person has a part in the distribution of goods and burdens in relation to their merit aligned to certain criteria which should be the same for every person with regards to the deserved share. “Corrective justice” otherwise rather follows the Aristotelian definition of “arithmetic equality” (Malin 1992, p 119 et seq.) that includes an equal treatment of equals without taking into account the individual merit, viz. a more utilitarian approach than egalitarian. Some scholars understand the corrective aspect of environmental justice as a way of fair punishment of wrongdoing according to the assumptions that some form of injustice has occurred and that there is a kind of compensation or reparation necessary and deserved (Kuehn 2000, p.10694). Malin points out, that corrective justice is often seen as well as “correct moral wrongs which upset, an otherwise just distribution” (Malin 1992, p.119). In this case, the Polluter Pays Principle may be a morally justifiable example of a form of corrective justice for environmental issues (Ikeme 2003). If it comes to climate change issues it is argued that corrective environmental justice needs to include past actions. For example, industrialized countries’ former pollution which has led

to current global environmental problems and thus leaves these countries responsible to find ways to alleviate the damage they have caused (*ibid.*). The question remains if corrective environmental justice includes a mere “compensatory justice”, as the latter could be suggestive of the position that as long as compensation is granted, unjust or environmental damaging behaviour is tolerable (Greenwalt, 1983).

### 3.3 Conservation Justice Factors

Inspired by the aforesaid scholars the conception of the Conservation Justice Model in this study inherently entails social and environmental justice approaches including “Recognition and Perception” of environmental justice as it combines issues from different notions and ideas. One of the few who gives these diverse factors of justice environmentally some empirical foundation as well as some derived guiding principles is Ostrom (1990). When it comes to collective choice actions and common pool resource management her work has shown that the believed inevitable “tragedy of the commons” by Hardin (1968) is not a mandatory outcome. According to this conventional theory, it was assumed that the resource users are trapped in the cycle of exploit and resource overuse out of maximization of short-term individual benefits which can only be resolved externally through a top-down approach (state-controlled) or by private ownership (Ostrom 2009, see also p. 44). Hardin (1968) *inter alia* postulates that common resource problems cannot be solved by those who are involved, but only by external aid; as the social dilemma includes a controversy between the sustainable yield for a group and the egoistic rationality of the individual (Wilson 2016, Ostrom 1994, Alchian and Demsetz 1972; Schelling 1978). Resource users, where assumed as unlikely to cooperate, but instead only free ride on the accomplishments of few who cooperate (*ibid.*).

To prove that these assumptions are mistaken; and to find out about the conditions of successful sustainable CPR management, a diverse literature has evolved (Feeny 1990, Gardner 1990, Ostrom 1990). Their studies exemplify that resource appropriators are indeed capable of resolving the formally assumed tragic pattern of collective-action, despite presumed individual selfish irrationality. For instance through self-organizing and the creation (design) of some kind of (informal) institutions (Ostrom et al. 1990). Therefore, she coalesces her findings, and extend conventional theories and models of commons by the variable of “sustainable self-governed common property regimes” (Ostrom 1990, p. 29). These regimes are successful if certain conditions are taken into account, which

she summarizes in form of eight core design principles: 1) Clearly defined boundaries; 2) The appropriation and provision of common resources that are adapted to local conditions; 3) Collective-choice arrangements; 4) Monitoring; 5) Graduated sanctions; 6) Fast and fair conflict resolution; 7) Local autonomy; 8) Appropriate relations with other levels of legislative authority (Ostrom 1990), viz. polycentric governance (Wilson 2016). Some of her principals find further relevance in the analysis frame of the present study, which have been adapted and adjusted to the “social/environmental justice relevance” as well as to the prevailing situations of the case studies. Ostrom’s principles are tangent to several justice attributes, e.g. fair and sustainable distribution of jointly used resources, fair conflict resolution, equal legitimacy, procedural justice in participation etc.).

Ostrom incorporates these attributes in her interdisciplinary research of CPR dilemma and triangulates different theoretical approaches, e.g. game theoretical ideas, common pool management and governance thoughts etc. In addition, Ostrom’s international research and extensive fieldwork which focus on the interaction of humans in commonly shared ecosystems preserving a sustainable eco-, and resource system, qualified her to discover robust patterns of community self-organization; a kind of institution designing. These patterns are grounded on the amalgamation of observed characteristics on resource governance and management like; mutual trust, informal norms, and self-controlled rules (e.g. using already graduated sanctions and own monitoring systems) (*ibid.*). Instead of relying on the formal governmental institutions, infrastructure and mechanisms quite a few resources sustainable communities were/are not following the presumed top-down or private ownership approaches in order to manage their CPR. Through these insights, her own field research and the synthesis of hundreds of case studies worldwide on self-organizing governance (from land use, agriculture, fisheries to irrigation systems etc.) the behaviour of resource users could be identified and classified. Ostrom’s work is of vital importance for the analytical categories of the Conservation Justice Model as some are founded on and adapted according to Ostrom’s et al. developed “taxonomy” for property rights and resource access. The five identified hierarchical levels of the present analysis are: a) access; the right to enter (authorized viewer), b) withdrawal; right to harvest (authorized user), c) management; right to regulate and transformation (claimant), d) exclusion; access granting and withdrawal rights (proprietor), e. alienation “[...] right to lease or sell any aforesaid rights” (owner) (Ostrom 2009, p. 28). In this vein she developed the theoretical framework; her eight “design principles” (Ostrom 1990, 2011) as mentioned above and in the following chapter (Chapter 1.3, and

3.4). Ostrom and her team worked truly interdisciplinary and were able to link social and environmental sciences and contribute to experimental economics (Janssen et al. 2012).

The **willingness to cooperate** was a key factor in Ostrom's findings, as well as the characterization of sound CPR management institutions. Meanwhile, her design principles have been tested and evaluated in several hundreds of case studies. Ostrom's et al. evaluation of scientific study articles analysing cases of common pool resource management with regards to the relevance of her 'design principles reveal the following:

#### Design Principles Evaluation

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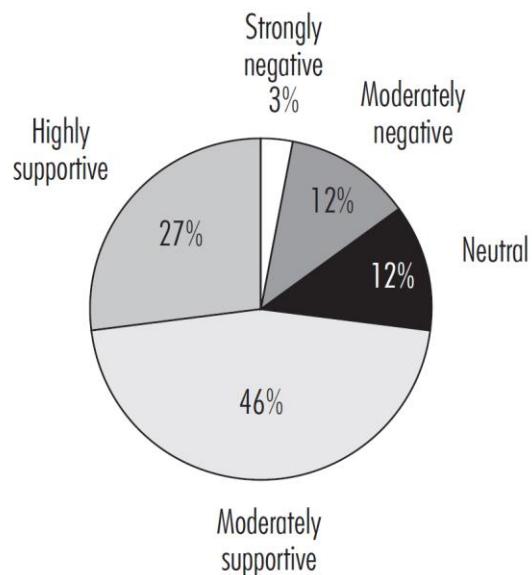


Figure 5, Ostrom 2009, p.37.

This evaluation of scientific cases that tested Ostrom's principles shows an overwhelmingly moderate to highly supportive of her principles, with altogether 70% approval rate; compared to 30 % neutral to strongly negative tests. Ostrom's approach can hence be viewed as empirically proven and her characteristics of robust institutions are understood as well-founded. Offering a critical approach to institutionalism she was quite aware of the challenge to deal with complexities in multi-complex systems and what challenges still lay ahead. Together with Van Laerhoven they explain in a workshop article: "Regarding the future, we think that scholars must embrace the challenge of finding ways to deal more explicitly with complexity, uncertainty and institutional dynamics" (Van Laerhoven and Ostrom 2007, p. 5), an approach applicable for dynamic systems to analyse social-

ecological systems (SESSs). As a result, they published in 2009 the Institutional Analysis and Development Framework (IAD) and the extended version of a more general SES Framework which are methods for comparative case study analysis e.g. by creation of interaction subsystems; the resource system, resource units, governance system and resource users respectively appropriators, enabling second level variables. As the development of the Conservation Justice Analysis Model in this present stage for this study focuses rather on Ostrom's institutional design approach, the SES Framework will not be further discussed.

Going beyond the mere focus on commonly shared resources, another important part for the conservation justice criteria is a "Fair Adaptation to Climate Change" (Adger et al. 2006) since some climate change challenges and unaware adaptation reactions to these challenges are relevant for the selected cases. For this purpose the research of Paavola and Adger 2006, Adger et al. 2014, Grothmann et al. 2017 and others have also become an inspiration for the CJC Model. Paavola and Adger (2006) realize that the present weather extremes and climate change impacts, burden the poor and already vulnerable parts of society disproportionately (Gupta 2002, O'Brien et al. 2004, Adger et al. 2006, Adger et al. 2014, Martinez-Alier 2012, Ikeme 2003, Detges 2017). Particularly, developing countries with low means to protect their citizens are prone to weather and climate-related problems like disasters, flooding, famines, etc. Numerous studies on the differential impacts of weather and climate change make this clear (Adger et al. 2014, Bennett et al. 2014, Pomeroy et al. 2016, GTZ 2008, DESA 2016). Guranko (2003), Kunreuther et al. (2007) explaining and assessing the impact of present climate shift-related disasters and catastrophes on developing and developed countries which can affect up to a quarter of GDP, and is likely to increase death rates (Guranko 2003, Kunreuther and Michel-Kerjan 2009). Uninsured economic losses fall especially on the poor, those most dependent to risky agriculture and natural resources (Adger et al. 2006). These findings show that this is also true for highly developed countries, but to another extent. The vulnerability raises the question of justice for collective adaptation action to climate change, especially since there is no autonomous individual adaptation. Climate concerns all people living within the affected area, naturally individual choice sets relate to-, are altered by- and even often originate from- collective action (*ibid.* Adger et al. 2006, Adger et al. 2003). Thus, according to Adger and Paavola (2006), adaptive responses imply significant justice effects as they create peculiar situations of burdens (including costs) and benefits in addition, determine the distribution as well as the extent of impacts of

site-specific climate change (*ibid.*). Adaptive responses do not only contain distributive justice implications but by using specific decision-making procedures, also implications of procedural justice (*ibid.*). These justice implications lead Paavola and Adger to think about following four challenges to justice dilemma that they estimate to be relevant for climate change impacts: 1. Estimation of responsibility of developed countries through emission of greenhouse gas; 2. Definition of the magnitude and burden sharing for assistance industrialized nations offer developing countries; 3. Finding means of distribution of assistance for adaptive measures between countries; 4. Discovery of multi-level adaptive planning processes and decisions (*ibid.* p. 597). Paavola's and Adger's typology (see below) of adaptive responses depict different levels of adaptive actions, from uncoordinated individual actions, collective actions on the local scale, to national wide- or even international adaptive actions. Due to the mere extent of any climatic change event, these different levels cannot be seen separately. The following table aims to support the understanding of what areas are to be tangent to adaptive measures.

A typology of adaptive responses

Response	Proactive	Reactive	Inaction
International	Guidelines for national adaptation strategies, development of new crops	Food aid measures	No responses are taken to instigate context-specific behavioural responses
National	Grain storage; agricultural policies to change crops and practices	Changes in tariffs and spending to augment food imports and disaster relief	No small infrastructure investments that would confer local benefits
Local	Investment in rainwater harvesting, irrigation and flood protection; local seed banks; local coordination	Mutual help	Migration ignored as an adaptive response
Individual	Livelihood diversification, investment in human and physical capital; alteration of agricultural practices	Migration	Adjustment to increased vulnerability and/or reduced welfare

Examples from food production and security.

Figure 6, Adger et al. (2006), p. 596.

The researchers categorize the way of adaptive responses according to the level they take place and identify proactive responses (anticipative actions and planning), reactive responses (rebuild, e.g. infrastructure), inactive responses (observant, postponing). Both warn that even the best adaptive response cannot avert, or reverse residual impacts thoroughly, thus some irreversible impacts might be unavoidable (*ibid.*), furthermore Adger et al. (2014) links the challenges climate-related changes pose on adaptation process with "human security", whereas Adger et al. (2014) describes this broad defined term in the context of climate change.

According to Adger et al. (2014) “human security” prevails if the people can live free, self-determined and in dignity, which in turn correlates with the satisfaction of the universal human basic needs (like food, water, shelter etc.), including cultural, material and non-material needs (Adger et al. 2014). Due to the challenges of climate change’s devastating and destructive impacts, which are of a local, regional, trans- and international nature, multi-level governance approaches (Ronderos 2016) with regard to climate adaptation are operated and incorporated in the international environmental law like the UN Framework Convention for Climate Change (UNFCCC) or the Kyoto- Protocol etc. (Verheyen 2002). There are different forms of institutional performances enable to establish a kind of climate change regime (complex), or climate governance regime (complex) (Pattberg et al. 2017, Pattberg et al. 2016), e.g. scientific boards (International Panel for Climate Change et al.), multilateral negotiations opportunities (UNFCCC et al.), meetings (Conference of the Parties (COP) et al.), or bilateral initiatives (Gupta 2002, Keohane et al. 2010). Pattberg et al. (2017) summarizes the climate change regime as the “UNFCCC and its related legal instruments” (Pattberg et al. 2017<sup>16</sup>), whereas the climate regime complex, is described as [...]” the broader architecture of subnational, regional, transnational, and international institutions and organizations governing climate change” (*ibid.*). As always when dealing with highly complex and dynamic natural or social systems, finding a procedural and legal equilibrium is essential for dealing with a vast diversity of values, information, circumstances and interests (Paavola 2005 in Adger and Paavola 2006, Ager et al. 2014), particularly with sight on the “human security” aspect and all the different features of basic human needs or as Adger et al. expresses it, “core of human lives” (Adger et al. 2014, p. 759). Finding a morally consistency and satisfactory compromise between all parties and stakeholders involved while keeping the “human security” in mind needs a moral theoretical foundation in the adaptation management, planning and governance (Müller, 2001), particularly with regards to conservation activities in developing countries and a vulnerable population (Adger et al. 2014).

### 3.4 Environmental Governance and Institutional Design

This kind of justice and moral implications in times of environmental degradation and climate change, including many different stakeholder needs, interests and perceptions, calls for new approaches in the environmental field, in which

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<sup>16</sup> No page given/indicated -

government is becoming less significant in the decision-making. Alternatively, new actors becoming more apparent to influence policy outcomes like regulations with cooperative activities or by markets (Armitage et al. 2012). To support governments, offering a wider range of knowledge, insights and ideas new environmental governing approaches require a more inclusive conception, including different views, knowledge et al. (see Chapter 1; *ibid.*). Furthermore, the call for the inclusion of public participation in environmental issues and governance processes grounded in the recent loss of confidence or faith of institutions and processes (Levi et al. 2000, Tyler et al. 2002bf, Rudolph et al. 2015). To reverse those affected integrative approaches can be supportive. Therefore, the environmental governance idea (Lemos et al 2006) is worth taking a closer look at. In order to define this approach of governance it is useful to consider the term "governance" as such, that is integrated in social- and political science, international affairs, often connected to international agencies (e.g. World Bank, UNDP, Assistance Committee (DAC) etc.), but also in administration and management of public sectors, as well as in corporate matters (e.g. Corporate Governance) (UNESCO 2017, Van Waarden et al 2004). Generally, the term governance refers to power relationships and formal or informal structures and processes policy-makings and recourse distribution as well as decision-making-, and mechanisms for holding governments accountable (UNESCO 2017). Governance structures and processes which are designed to referring to "Good Governance" need to involve certain benchmarks: ensuring "[...] accountability, transparency, responsiveness, rule of law, stability, equity and inclusiveness, empowerment, and broad-based participation. Governance also represents the norms, values and rules of the game through which public affairs are managed in a manner that is transparent, participatory, inclusive and responsive" (UNESCO 2017, p. 1) (see also Lemos et al. 2006, Armitage et al. 2012, Bennett et al. 2014). Environmental governance (Paavola 2015, Armitage et al 2012, Flannery et al. 2016) combines these broad and infinite social descriptions of "governance" by "environmental" variables, tangent to environmental issues including natural and renewable rescores, biodiversity, climate change etc. The governance approaches to environmental issues have essential effects on any administrative and managing issue relevant for the ecosystem and its services as well as its distribution, and therefore also to conservation (Armitage et al. 2012, Paavola 2005, Paavola 2007). "Environmental Governance" approaches are gaining ever more momentum, extending the governance field, offering ideas, terminologies and concepts (Lemos et al. 2006, Bennett et al. 2014, Flanery et al. 2016).

Although often used synonymously the terms (environmental) governance and (environmental) management have quite different meanings, even though they are reciprocal dependent, and non-exclusive. Whereas management is about putting decisions into practice working on an operational level, for instance, to reach certain conservation outcomes, governance is concerned with the broader processes and institutions as society's highest decision-making level, especially with regards to environmental issues (Oakerson 1992, Paavola 2007). This distinction is essential if it comes to face highly dynamic and complex issues like conservation and other nature-related challenges (e.g. Global Climate Change, as it is necessary to understand dissimilarities and similarities of (environmental) management and (environmental) governance (Rockström et al. 2009, Chapin et al. 2010, Adger, Paavola 2006, Armitage et al. 2012, Stern 2008b, Ansell et al. 2008, Armitage et al. 2012, Ronderos 2016, Bennett et al. 2014, Flannery et al. 2016, Jentoft 2007, Paavola 2015).

There are many definitions of environmental governance, which have been cut to synopses below:

- I. For Biermann and colleagues (2009) environmental governance is an “[...] interrelated and increasingly integrated system of formal and informal rules, rule-making systems, and actors-networks at all levels of human society (from local to global) that are set up to steer societies toward preventing, mitigating, and adapting to global and local environmental change and, in particular, earth system transformation, within the normative context of sustainable development” (p. 3).
- II. Lemos and Agrawal (2006) offer a broad definition of the term environmental governance, a [...] ‘set of regulatory processes, mechanisms and organizations through which political actors influence environmental actions and outcomes’ (p. 298). Agrawal previously argues that by the change of environmental governance institutions environmental governance is best understood as the resolution of environmental conflicts (Adger et al. 1998, Paavola 2005).
- III. Paavola (2007) pleads for a broad understanding of Environmental Justice “[...] so as to include all institutional solutions for resolving conflicts over environmental resources” (p. 98).

These definitions include renewable and non-renewable resources and do not limit (size) measure or scope to be inspected. However, as mentioned in the first chapter of this study the conventional “top-down” approach in environmental management has quite often been successful especially with regards to the maintenance of ecosystem service supply, but at devastating environmental and social costs (see also Paavola 2005, Paavola 2015). Social and environmental costs, Paavola (2007) explains, are either related to “compliance, enforcement, and conflict” (*ibid*), but also “inactive endurance” of suffering due to ecosystem degradation (loss of food, shelter, livelihood, even lives). A shift in the decision-making process is therefore of transdisciplinary interest: from legislative agents (all governmental levels), (environmental) managers, affected communities and groups, to interdisciplinary scientists, researchers and scholars (Paavola 2005, Holling 1996, et al.). However, the shift to environmental governance and a more integrative and adaptive approach bears many obstacles – it not only faces an increasing and highly dynamic environmental- and climate degradation but also goes along with social problems, e.g. population growth and ever-increasing demand for diminishing environmental –and ecosystem resources. Furthermore, not all public stakeholders (locals, communities etc.) have the interest to be included (see Chapter 1), or actors lack the capability or/and capacity to become included (Sen 2009b, Sen 2009a) and need assistance or some form of higher authority they can rely upon (Chapter 1, co-management)). Yet on the other hand government institutions or agencies also often lack capacity and knowledge to deal with difficult environmental problems and its social implications (Ludwig, 2001) therefore this need seems to be mutual (Hahn et al. 2006). Even though environmental governance is a part of the umbrella term governance, it especially highlights the protection of the environment and ecosystems. On the contrary, when it comes to environmental problem solving that calls for collective action, environmental governance is open to hybrid forms, including institutions and incentives in different ways (Paavola 2005, Paavola 2015). In any case, the call for an involvement of more perspectives and knowledge that lead to a greater part in decision making of the citizens is evident (Armitage et al. 2012). Along with this inclusion are the expected benefits of relatively low transaction costs, leading to shifts in governance processes of environmental issues. To transfer these notions to a restructuring of governance processes and hence its executive institutions is inevitable (Andrachuk et al. 2015).

Ostrom (2009, 2011) reminds that governance of environment and common pool resources need flexible institutional designs that are capable of dealing with

multilevel arrangements operating intersectionally on different jurisdictional levels creating multiple centres. Environmental governance concepts thus offer support for conservation managers and scientists for enhanced participation in environmental governance processes. Still, it can be(come) advantageous to deal with environmental problems through hybrid environmental governance arrangements that offer robust links, horizontally and vertically between scientists, managers, resource appropriators, industry, civil society etc. (Armitage et al. 2012, Paavola 2005). The literature research and literature review research on environmental governance approaches that are significant to conservation governance and management agree upon the importance of hybrid and network governance concepts (e.g. MPA Networks, Co-management etc.), which includes: a) institutional appropriate handling, b) flexibility, c) adaptiveness, d) capacity building (inter alia mutual or reciprocal knowledge transfer from multiple sources), e) multilevel actors integration, f) shifting/variating expectations (accountability and legitimacy) (Ostrom 2011, Ostrom 1990, Paavola 2005, Biermann et al 2009, Lemos et al. 2006, Lubell et al. 2012). The different environmental and social justice notions, their significance for conservation governance and in turn, for conservation management, especially with regards to hybrid forms of governance (e.g. co-management in MBCA), are vital for this current study, and find also reflection in the Conservation Justice and Conflict Model (CJC Model). The graphic put together by Armitage and his colleagues (2012) below depicts ideas and approaches of hybrid forms of governance that have been deduced from idealized assumptions and models, including the key concepts in relation to their concerns in governing issues:

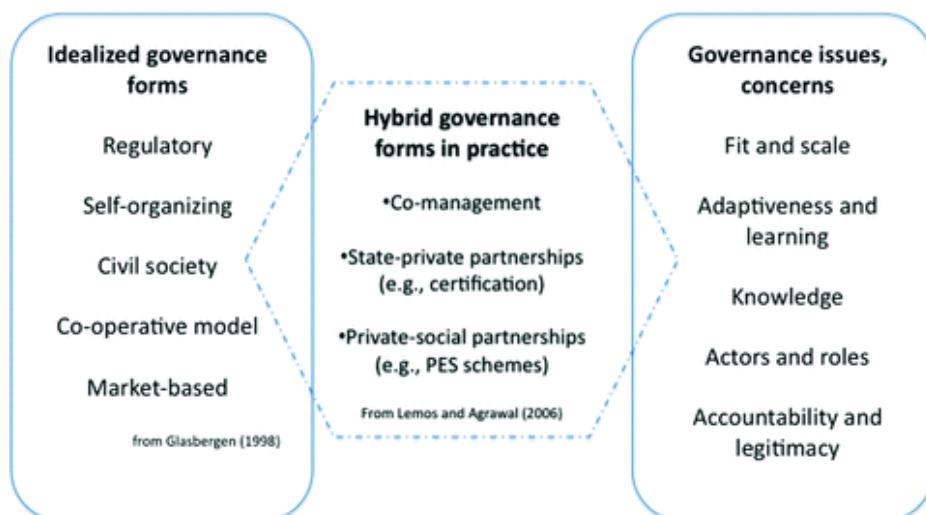


Figure 7 ; Armitage et al. 2012, p. 248.

The literature on governance and governance models highlight the fact that over the last decades, the power shift away from mere state or governmental responsibilities to hybridization and to the privatization of resources does not necessarily result in more thorough and participative processes (Armitage et al. 2012, Bäckstrand et al 2010). According to Meadowcroft (1998), the aforementioned interest in environmental governance models that emphasis on cooperation, is unlikely to substitute “existing regulatory” concepts. Consequently, integrative and cooperative models, as well as concepts, are open to integrate and work within governmental procedures, norms and even adapt to different mechanisms related to governance, like market incitements, and NGOs, public-private-partnerships (Lemos et al. 2006). Paavola (2005) suggests a change of perspective of environmental governance, suspecting conflict resolution for environmental issues will lift social and procedural justice issues (Ostrom 1990) higher on the agenda of environmental decision-making.

The fundamentals of research on environmental governance correlates with institutional economics and critical discussions within the latter discipline. To understand this, it is useful to note that new institutional economics as one of the sources of environmental governance (Paavola et al. 2006) is thought of as advancing on conventional economics, and also as criticism, especially of “welfare economics and environmental economics” (Paavola 2005, Paavola et al. 2006). Paavola, Ostrom et al. identify two main differences between those two contradicting economic influences, for one thing, unlike conventional economics, new institutional economics, recognizes transaction costs and its effect on environmental and ecological economic outcomes (Paavola 2005). Although analyses of transaction costs are underrepresented in the exploration of environmental governance, they are relevant for the understanding of effects of institutional designs for environmental governance outcomes (see also Paavola 2015, Paavola and Adger 2005, 2006). Secondly, new institutional approaches focus rather on the idea of interdependence than on the concept of externalities (Ostrom 1990, Keohane et al. 1995). This is particularly relevant for this study as interdependence shows some correlation in conflicts creation over resources (Agrawal 2001). Additionally, Paavola explains that “the conceptualization of environmental problems as the conflict between different groups interested in environmental resources emphasizes that the choice of governance institutions is a matter of social justice rather than efficiency” (Paavola 2005, p. 5). This also means that the directions of justice theories chosen would determine the choice of governance institutions depend on the economic viewpoint and governance

directions, either perceiving agents as mere profit- utility- or welfare maximizer, or acknowledging alternative incentives of human motivations (inter alia, Rawls 1971, Roemer 1996, Sen 2009b, Schlossberg, Ostrom 2010, North 1990, Paavola 2005). Armitage et al. (2010) as well as Ostrom et al. elicit the idea of a development of environmental governance's interests adjusted to systems with adaptive capacities through the design of institutions and governance structures, and their analyses. Adaptive capacities can be understood as the skill of a system responding to disturbances of change in a way that preserves the desired status quo and can be hence called robust, or resilient (Ostrom 2009). Robustly designed institutions are assumed to cope with uncertainties and deliver efficacious reactions to environmental challenges and problems. Increasing the familiarity with diverse perspectives and different kinds of information, the ever-changing and altering situations, collaboration and mutual learning increases the possibility to overcome inflexible and obsolete structures, sets of regulations and power relations (Berkes, 2009, Pomeroy 1995, Guranko, 2003).

The idea of institutional design and network structures, therefore, are interesting approaches, as they attempt to change previous power allocations and focus on interactions and choices (Klijn 2006). Altogether these approaches may increase the possibility of adaptive responses to strategic uncertainties and even lower transaction cost, but on the other hand, if this institutionalization does not take place neutrally, but to take advantage of prevalent distribution ratios (e.g. by excluding some stakeholders and their interests, or certain topics) is most likely to have even negative impacts on a "just" interaction, and desired outcome, free of conflicts. In addition network creation and alternative forms of institutions and governance approaches, like Ostrom (2009) postulates, bears the difficulties of non-decision making and postponing, and thus even increasing conflict potentials, particularly if not grounded on stable cooperative community work and a sense of community, viz. if parties cannot work jointly together (e.g. rival fishing communities, or even worse being in competition with a big industry). In short, if there is no ground for collective choice possibilities to build a robust form of (in) formal institution it can result in reverse effects or non-actions, hence is dysfunctional (*ibid.*). In this consideration, institutions can have positive and negative impacts (see Klijn et al. 2006). Therefore, the still increasing interest in "institutional design" providing desired sustainable outcomes is understandable and leads to "[...] emergence of the institutionalist approach [...]" (Alexander 2005, p. 213) in many disciplines. The definition of Institutional Design compiled for this study incorporates thus many different definitions from various scientific fields

derived from different definitions from the literature review (see also Cinner et al. 2012b, Klijn et al. 2006, Ostrom 1990). Institutional design, or as mentioned above, the designing of institutions (Alexander 2005) refers to the planning, conceptualization and implementing of institutional processes, rules, structures to conceptualization, with the selected values and guiding principles and goals which in turn are supposed to influence behaviour and activities according to the desired goals and objectives (*ibid.*). Unfortunately, there are not many (empirical) studies on institutional design, most significant for this present study are Ostrom's creation of common pool resource associations (Ostroms, 1990), and the designing principal-agent relations (Weimer 1995), with regards to conservation networks (see Chapter 4, MACEMP, SWIOFish). Anyhow it is necessary to be aware of the institutional nature of development, the so-called question of "evolution" of institutions (Sharpf 2010).

Alexander et al. (2005) as well as Scharpf (2010) assumptions coincide on the facts that on one hand sudden and informal "evolution" and transformation of institutions through institutional design is unlikely, since any adjustments, reshaping or new forming of institutions needs to permeate through multilayers of processes, policy-making and governance (like regulations, organizations, programs, plans, laws, negotiations, stakeholder management etc.), and bears hence some inertia. On the other hand, in contrast to, "involuntary biological evolution" (Alexander 2005) any form of evolutionary transformation, even if seemingly spontaneous and informal, implies some kind of deliberate action and previous experiences that lead to institutional design. Analytical distinctions of institutional design are significant for this present research as the case study area includes different forms of institutional design levels through the creation of the Marine Protected Area Networks which is tangent to international, national, local and community implications (including the institutional decision to implement (adaptive) co-management approaches). Alexander (2005) offers three characterizing levels: 1<sup>st</sup> the highest level that concerns whole societies, addresses institutions and societal processes, for example constitution writing (Putnam 1998). The creation of the European Union as an institution is an example of the classical institutional design of national and supranational constitutions (Alexander 2005, p. 6). 2<sup>nd</sup> the middle level, or as Alexander calls it the "Meso-level", encompasses the design of planning and implementation structures as well as their processes, the creation and transformation of inter-organizational networks, regulations, distribution of resources, implementing policies programs or projects, different forms of development, economic, ecological, physical planning, housing, land and

infrastructure etc. (*ibid.*). 3<sup>rd</sup> the bottom level of institutional design, or lowest level deals with more narrow issues of organization, e.g. intra-organizational, sub-units, semi-formal and informal social units, processes and interactions (e.g. (fishermen) committees), task forces, working groups etc. (*ibid.*). The table below offers a sound overview, depicting different types and roles of institutional-agent interactions (Alexander 2005), which are elements of institutional design, in relation to their formal and informal impacts.

TABLE 1 *Institutional-agent interactions – elements of institutional design*

Type <sup>a</sup>	<i>Public/formal</i>	<i>Tacit/informal</i>
Performative	<u>Transactions</u> <sup>1</sup>	Episodes <u>Events</u>
Structural	'Cultural' institutions <i>Laws</i>	'Ontological' institutions <u>Norms</u>
[Agency, process]	<i>Rules/regulations</i> <i>Standards</i>	<u>Habits</u> <u>Practices</u>
[Structure]	<i>Governments</i> Markets: <i>'hybrid' markets</i> <sup>2</sup> <i>artificial/quasi-markets</i> <sup>3</sup> <i>Interorganizational networks</i> <sup>4</sup> <i>Organizations</i>	<u>Knowledge/world-views</u> Languages 'Games' Informal social networks Associational/kinship networks

Notes: <sup>a</sup> Elements of institutional design in the table (e.g. *Laws*, *Governments*) are shown in italics. Impacts, or interactions intended to be affected by ID, in the table (e.g. Transactions, Practices) are underlined.

1. As defined in Alexander (2001a: 50–1).
2. See Alexander (2001a: 55) and Williamson (1985).
3. See Alexander (1995: 227–35).
4. See Alexander (1995: 199–266).

Source: After Table 2 (A map of institutional/agent interaction) (Bolan, 2000: 29, after Low, 1997).

Figure 8, Alexander 2005, p. 9

Recapitulatory it can be noted that any implication of governance solutions are tangent to at least some form of distributive, procedural, and social justice implications, that affect legitimacy and outcomes as well as transaction costs (Pomeroy et al. 2016, Murshed-e-Jahan et al. 2016, Cinner et al. 2012b, Alexander 2005, Adger et al. 2014, Ostrom 2009, Ostrom 1990). Endeavouring and practicing adaptive responses an institutional (re)structuring or design influences the rules, structure, organization and function and processes of governance (Ostrom 2009, Alexander 2005, Lemos et al. 2006, Ansell et al. 2008, Armitage et al. 2012, Bennett et al. 2014, Bennet et al. 2017, Flannery et al. 2016, Jentoft 2007, Bullard 2007) . This chapter identifies especially governance ideas towards (environmental) justice and in turn to a more adaptive environmental governance approach especially concerning the reactions to resource degradation and scarcity as well as to climate change challenges. The aim was to approach inter- and transdisciplinary sound theoretical fundament and deduce possible support for solutions or recommendations with the notion of justice adequate for adaptation, particularly in conservation areas (Adger et al. 2014, Christie et al. 2007, Redpath et al. 2015, Scarano et al. 2017, UNFCCC 2012). As a result, the focus of this chapter is on significant different justice approaches and definitions of relevant concepts of environmental justice which are composed of the previous different justice approaches. The epistemological awareness that environmental justice issues grounded on social justice issues (including distributive-, procedural-, and other justice theories). Broad characters of definition were selected as useful for understanding and summarizing the various and complex approaches of (environmental) justice. The conservation management and governance features mentioned are supposed to address challenges beyond theoretical notions but adapt to deal with an even more complex reality of environmental justice implications and challenges. Environmental justice is to be understood here as a kind of amalgamation of multiple characteristics social, distributive and procedural, and even, corrective or compensative. Other important parts of the analytical setup in this study tangent to environmental justice notions are environmental governance and institutional design, especially with regards to common pool resource management and adaptation (including (adaptive) co-management), for the purpose to analyse the connection between environmental justice and environmental conflicts in conservation areas. With regards to “environmental governance”, it can be synopsized that the shifts of governments as the only prevailing authority of environmental decision making is decreasing. Environmental governance approaches need to incorporate different ideas, shared learning

possibilities, multiple views, various stakeholder networks and even hybrid forms of cooperation (on different levels intra-and intergovernmental as well as non-governmental) (Bullard 2005, Kuehn 2000, Schlossberg 2007). Particularly since conventional governance structures and processes do not often meet the requirement for a more decentralized response to dynamic and highly uncertain challenges. The change in governance understanding and application, which are often implemented through any form of institutional designing, reflect the adjustments to a more hybrid-networking way of governance. Recognizing the transition from central government to hybrid governance networks highlights important changes in how conservation is governed, the role of the "state" relative to other actors, and the mechanisms that societies have to achieve conservation outcomes.

#### 4. Conservation Justice and Conflict Analysis Framework

The awareness that environmental problems, resource scarcity and ecosystem degradation bear quite some conflict potentials is a well-known fact, especially if one/more stakeholder (groups) are treated “unfairly”, “unjustly”, or “unequally”, or feels disadvantaged in this context. Numerous publications (scientific and non-scientific), verify this (Bennett et al. 2017, Redpath et al. 2015; Burroughs 2017; Hammil et al. 2006; IUCN 2011; UNEP 2007b, UNEP 2007a; UNDP 2018; UN 2016; etc.). One of the consequences of this global problem awareness is the creation of the Sustainable Developing Goals (SDGs) that inter alia call for “Peace, Justice and strong Institutions” (SDG 16), “Zero Hunger” (SDG 2), “No poverty” (SDG 1) (UNDP 2018). To transfer these calls into action it is vital to recollect academic justice approaches that have been pursuing socio-environmental justice phenomena for quite some time, and offer essential reference points to detect, and define “socio-environmental justice factors”. In addition, interdisciplinary researchers like Ostrom, Adger, Paavola, and Schlossberg et al. identified relevant criteria for an effective and sustainable environmental and resource governance/management (for institutions). During the study, it became clear that there was no framework for “justice factors” that would combine the different influences of academic justice approaches and reflect all justice factors relevant for conflict potentials in conservation. Thus, the need of an analysis framework for conservation justice and conflicts has led to the creation of the Conservation Justice and Conflict-Model. The CJC-Model triangulates different justice theories (including fairness in climate change), environmental conflict research, and successful CPR management. It is tested upon its feasibility through the investigation of a conservation area’s (case study) conflict potentials in the light of dynamics of real-life phenomena of today. This model is meant to serve as an analytical conservation impact assessment that evaluates certain areas with regards to its “justice” related conflict potentials, and institutional performance. In this sense, it offers a model for the coding-frame of the justice-conflict analysis. The categorization of “conservation” justice relevant factors that can be analysed through further defined categories and indicators can be adapted or added inductively according to the dynamics of the situation. For the analysis of the research questions the following hypotheses, variables and justice categories have been identified, derived out of the different approaches of environmental, social and/or distributive justice. The main research questions of the present study relate to an improved understanding (detection, explanation) of socio-environmental conflicts in protected areas through conservation justice factors; and in what way

this kind of analysis gives new insights (spatially and institutionally). These considerations and interests lead to the following hypotheses:

**I. Main hypothesis:**

If conservation justice factors are considered in the assessment of conservation areas, socio-environmental conflicts and problems can be better detected and deeper understood.

I. Explanandum: Socio-environmental problems and conflicts in conservation areas

I. Explanans: Conservation Justice Criteria/Factors

**II. Main Hypothesis:**

If conservation justice factors are considered in the evaluation of Institutional Performance, conservation management and governance problems and successes can be identified and assessed according to each identified socio-environmental challenge.

II. Explanandum: Identification and assessment of management and governance problems and successes.

II. Explanans: Evaluations of institutional performance along each conservation justice criterion.

**4.1 Conservation Justice Criteria (CJC-Factors and SDGs)**

The CJC- Model is based on five "Justice Factors", consisting of the overall justice determinants (dimensions), categories, indicators etc. which allow a closer examination of socio-environmental problems and conflict (potentials), also with regards to institutional justice performance. By this the research is motivated to enhance just, peaceful and stable institutions (SDG 16) especially regarding sustainable coastal and marine environments (SDG 14 life below water) and therefore correlates with several other UN Sustainability Development Goals and targets (SDGs) (UN 2012, UNDP 2018). The CJC-Analysis can be understood as an advanced "Environmental and Social Impact Assessment "(ESA/ESIA) that supports a direct and practical approach to put "justice issues" and SDGs into action and to facilitate its implementation, e.g. SDG 13 "climate action", SDG 2 "zero hunger" or SDG 10 "reduced inequalities" (UN 2012, UN 2016).

The social and environmental justice issues and the correlating SDGs have a multidimensional meaning; they bear multiple dimensions which are

interdependent in one way or the other, and thus demand a complex and flexible approach. The procedural justice factors and indicators for example influence other factors, such as ‘participative decision-making’ processes that have an impact on “fair” or “equitable” distribution outcomes and vice versa (Sikor, 2013; Schlossberg 2007; Adger et al. 2006; Ostrom et al., 2007). The latter can in turn, empower vulnerable, disadvantaged parts of society to become a part of the procedural decision-making (Rawls 1971, Sen 2009b, Schlossberg 2007, Fraser 1996, Miller et al. 2003a, Murphy 2005, Towela Sambo 2012). While the recognition of district, social, cultural and indigenous differences, including different capabilities, can enhance the integration of previously marginalized groups in the decision-making, increasing then again the trust in the legitimacy of conservation regulations, rules and laws (Martin et al. 2016, Fraser 1996, Fraser 1998). As far as it comes to legitimacy it is inevitable for conservation areas to rely on voluntary compliance of the local residents, which can otherwise lead to opposition or even destructive behaviour and put the conservation outcome in total at stake (inter alia Bennett et al. 2014, Jentoft 2000, Murphy 2005, Hegtvedt 2004, Sikor 2013). Perceptions of just treatment and/or institutional justice performance highly dependent on the other factors, and vice versa (Andrachuk et al. 2015, Bennett et al. 2014, Jacobsen et al. 2016). The following conservation justice criteria and indicators imply further coding according to the site-specific phenomena and requirements during the process of evidence gathering. Thus, further codes orientate and react to the qualitative empirical findings and district problem or conflict issues on-site.

### *I. Distribution (distributive justice)*

The justice factor “Distribution” in conservation areas refers to the equitable/fair distribution of resources, environmental goods, and -services as well as hazards between different groups or individuals. In correlation to Murphy (2005), Gezelius (2002), and Tyler (1990) distributive justice is understood as the “equitable” treatment of all parties involved. Yet, with regard to the justice factor of distribution the individual’s condition which is dependent on their capabilities is taken into account (Sen 2009b, Sen 1993, Pierik et al. 2007), i.e. interpreted here as “fair” and needs-orientated resource distribution. Therefore, distributive justice notions of this conservation justice factors orientate along the influential theories of social and environmental justice (inter alia Rawls (1971), Sen (2009), Schlossberg (2007), Adger (2006), Ostrom (2007), Sikor (2013), Roemer (1996). As for the further analysis coding, the indicators chosen to capture relevant aspects of distribution in Menai Bay were adapted to the background research, the empirical

evidence gathered and observed justice and conflict issues. The most prevalent concerns of local stakeholder in this regard is the “access to resources”, including to land, to beach, to alternative income, to training that is subsumed under the term Distribution. The “access” terminology is relevant with regards to local stakeholder preferences, as the empirical data acquisition unearthed that the distribution of resources is tangent to “free decision” and “respect” for a person’s-, or group’s individual choice to build capacity, and/or satisfy the needs; “[...] we do not want alms, but access to resources needed and useful” (interview Stakeholder Group A (local fishermen and seaweed gatherer), Fumba 2012). The free choice of resource which is there to be distributed is hence referred to as “access” (i.e. a self-determined resource acquisition). The term “resources” included here: space (beaches, landing shores), ecosystem services (like fish, water, food, mangroves, coral reefs etc.), but also resources of knowledge (training, information etc.), instruments (tools, fishing gear), or options to generate a livelihood.

The CJC-Factor “Distribution” and its indicators align with the following SDGs:

SDG 1: no poverty/poverty reduction, SDG 2: zero hunger/food security, SDG 4: quality education, SDG 8: decent work and economic growth, SDG 10: reduced inequalities, SDG 15: life and land (UN 2016).

SDG 14: life below water/for oceans; targets: 6 (against overfishing and IUU),8 (knowledge generation and transfer),9 (access for small scale artisanal fisheries to resources and markets)<sup>17</sup>

SDG 16: Sustainable Development Goal for Justice, Peace and strong Institutions; targets: 10 (access to information) and 11 (“Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime” (<https://www.un.org/sustainabledevelopment/peace-justice/>)).

#### I. Distributive Indicators:

- A. Access to resources (water, food, fish, gear, finance etc.)
- B. Access to an area/location (beach/land/ fishing ground et al.)
- C. Access to alternative income (market and finance)
- D. Access to capacity building measures (training, info, knowledge transfer, group development)

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#### X. Institutional performance

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<sup>17</sup> Please see further information on source: <https://www.un.org/sustainabledevelopment/oceans/>

## ***II. Participation (Procedural Justice)***

Participation means here the inclusion of local stakeholders in the processes of decision-making, including perceptions and actual “roles of different people” (like representation, responsiveness, consistency etc.) (Tyler 1990). Hence, procedural justice in this study deals with the fairness of procedural processes and participative options for local stakeholders. The further indicators are partly derived out of Ostrom’s et al. “design principles” for a sustainable resource management and Adger’s et al. ideas to “fair adaptation to climate change”, yet facilitated to investigate conservation conflicts (potentials) and institutional performance. In this vein, the procedural justice, i.e. participation in decision making accounts for all parties involved – regardless of immutable factors (e.g. gender, ethnicity etc.) (Dworkin 1977, Rawls 1971, Sikor 2013 et al Schlossberg 2007, Towela Sambo 2012), and can have different characteristics e.g. different ways, but also if there is the willingness, capability and capacity to take part in the decision-making (why/why not). In the light of the evidence gathered on-site the other important indicators for procedural justice are arrangements of collective decision-making, and mechanisms of communication and conflict solving (e.g. mediator, workshops, other). The term “Participation” is in the conservation justice and conflict factor analysis only focused on participation in procedural matters, viz. the decision making and implementation processes of the conservation area, and not to be mixed up with the participative features of distribution.

The CJC-Factor “Procedural/Participation” and its indicators align with the following SDGs:

SDG 10: reduced inequalities.

SDG 16: Sustainable Development Goal for Justice, Peace and strong Institutions; targets: 3 (access to justice for all), 6 (accountable and transparent institutions at all levels), 7 (“Ensure responsive, inclusive, participatory and representative decision-making at all levels” (<https://www.un.org/sustainabledevelopment/peace-justice/>).

### **II. Procedural/Participation Indicators:**

- A. Participation in decision making
  - B. Arrangements of collective decision-making
  - C. Conflict solving mechanisms and communication strategies
- 
- X. Institutional performance

### **III. Legitimacy**

The factor Legitimacy relates to trust, or general agreement in the conservation institutions (rules, laws and its application), which in turn correlate with the “willingness to cooperate” (Ostrom 1990, 2009). Although the concept of legitimacy lacks an overall definition (Hegtvedt, 2004), it is here interpreted according to Brechin’s et al. attempt of a definition, who understands legitimacy as “any behaviour or set of circumstances that society defines as just, correct, or appropriate” (2002, p. 46). In this way, legitimacy represents the belief and notion of a generally accepted legal power relation, whereat authorities execute power to which all stakeholder feel obliged to voluntarily obey, i.e. without threatening or force through the authorities (see Tyler 2006). Since legitimacy (especially perceived one) is defining trust (Rudolph 2015, Tyler 2002a, Tyler et al. 200b), trust in turn, is seen as a vital reason for voluntary cooperation of the local populations (Tyler and Huo 2002b, Hegtvedt, 2004).

Whereas measures that are perceived illegitimate may lead to a reverse effect, non-compliance, and even to severe and violent conflicts (Paloniemi et al. 2011). That is especially true in low developed counties, with a population dependent on the environment and its resources (*ibid.*). The findings of quite a number of studies substantiate a correlation of an increased willingness for voluntary compliance (Stern 2008a, Tyler et al. 2002), and a satisfied “legitimacy” perception (Tyler 1990, Paloniemi et al. 2011, Gezelius 2002, Ostrom 2009, Ostrom 1990, et al.). Thus the matter of cooperation is inevitable with regards to successful conservation outcomes; opposition, boycotts, or even fights may undermine the whole conservation project. Therefore, “trust in institutions” and “voluntary compliance” (Stern 2008a) are relevant and interdependent outcomes, the first can only be reached under conditions of transparency and reliability of the conservation laws, rules, and processes, the adequacy of defined boundaries as well as measures of enforcement like functioning monitoring system and differentiated means of sanctions (see also Ostrom et al. 2011).

The CJC-Factor “Legitimacy” and its indicators align with the following SDGs:

SDG 14: life below water/global oceans; target: 10 (“legal framework for the conservation and sustainable use of oceans and their resources” (UN 2016)

SDG 16: Sustainable Development Goal for Justice, Peace and strong Institutions; targets: 3 (access to justice for all), 6 (accountable and transparent institutions at

all levels), 12 (“promote and enforce non-discriminatory laws and policies for sustainable development” (<https://www.un.org/sustainabledevelopment/peace-justice/>).

### III. Indicators of Legitimacy

- A. Reliable and transparent rules and decision-making procedures
- B. Clearly defined boundaries
- C. Monitoring and graduated sanctions

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### X. Institutional Performance

## IV. Recognition

The conservation justice factor “Recognition” is about the acknowledgement of people’s district identities (socially, culturally, indigenous etc.), backgrounds (Sikor 2013, Schlossberg 2007, Martin et al. 2016), and resulting capabilities and notions of justice. This acknowledgement is tangent to all factors of conservation justice. The respect within conservation governance and management for social and cultural differences in an antidiscriminative way is the desired outcome concerning conservation efforts. Furthermore, is there a growing demand for respect by social-, environmental- and indigenous movements who try to defend indigenous/local communities, collective identities, or cultures (Schlossberg 2007, Fraser 1996). Yet, these movements are too diverse to find a sovereign voice, for instance among indigenous people (ibid, Cholchester 2004, Barfuß et al. 2014). The call for recognition is widely accepted by institutions and is gaining momentum, not only on a local level but also on national-, trans- or international levels (cf. United Nations Permanent Forum on Indigenous Issues (UNPFII)).

The CJC-Factor “Recognition/Perception” align with the following SDGs:

SDG 5 (gender equality), SDG 10 (reduced inequalities) (UN 2016).

SDG 16: Sustainable Development Goal for Justice, Peace and strong Institutions; targets: 3 (access to justice for all), 7 (responsive participation) (<https://www.un.org/sustainabledevelopment/peace-justice/>).

#### IV. Indicators of Recognition:

- A. Cultural
  - B. Social (socio-economic)
  - C. Indigenous (including knowledge)
  - D. Gender
- 
- X. Institutional Performance

The factors “recognition” and “perception” are here cumulated seen as mutually dependent / interdependent, as “recognition” is tangent to all conservation justice factors, and “perceptions” are seen with regards to an “overall perception of institutional justice performance”. The distinct identity of the local stakeholders (culturally, socially indigenous, including the recognition of indigenous knowledge), their different backgrounds, beliefs, justice notions determine the perceptions of a just treatment regarding the conservation institutions (Tyler 1990, Ajzen 2001).

#### **IV b. Perceptions of Justice**

Perceptions, as a conservation justice relevant factor describes the different “notions of justice” in correlation to the multiple interpretations of even the same values etc., and resulting reference frames of stakeholders, often lead to very different perceptions and lack a joint base for communication, and may even lead to severe conflicts (see Chapter 2, *inter alia* Jacobsen et al. 2016, Sen, 2009, Bennett et al. 2014). Therefore, it is necessary to consider issues of perceived “just” treatment, as well as the varying notions (understanding) of justice for investigations on “perceptions of justice performance” which offer insights of agreement-, and approval rate for the conservation project, its decisions, rules, and measures (Andrachuk et al. 2015). The subjectivity of the perceived “just” treatment supports the detection of individual attitudes derived out of rational evaluations of advantages and disadvantages regarding relevant indicators of conservation justice and is hence been taken into account.

IV b. Indicators of Perception:

- A. Notions of Conservation Justice/Values/Ideas of Justice
  - B. Perceived “just” treatment of each CJC-Factor (low, mediocre or high)
  - C. Perceived justice performance overall
- 
- X. Institutional Performance

**V. Fairness in Climate and Conservation adaptation**

Adaptation to environmental impacts and climate change in a “fair” and “just” manner, i.e. in balance with the above-mentioned conservation justice factors determines this criterion: Fair Adaptation to Climate Change and Conservation matters. Since the differences of climate-related adaptation (with an overall shift of the official fishing season), and conservation-related adaptation (e.g. to reforest mangroves against the increased storm surge) was a recurring subject of confusion, the factor has included the aspects of “conservation adaptation” to include the adaptation, and coping strategies to conservation problems. Adger and Paavola (2006) already explain that adaptive responses imply significant justice effects as they create peculiar situations of burdens (including costs) and benefits, and determine the distribution as well as the extent of impacts of site-specific climate change, including implications concerning “human security” (*ibid.*, Adger et al. 2014). Adaptive responses are therefore relevant to all justice factors, not only for distributive, and/or procedural implications (*ibid.*).

Important indicators for the case study (MBCA) have been evolved or tested and bear a certain relevance. For example, is the understanding and awareness about climate change, and the differentiation of conservation- and climate adaptive measures a vital condition for local residents to understand and estimate climate change impacts, and to initiate or participate in joint actions (Adger et al. 2006, p. 55).

The CJC-Factor “Fairness in Climate and Conservation Adaptation” align with the following SDGs:

SDG 13 (climate action), SDG 10 (reduced inequalities) (UN 2016).  
SDG 14: Life below water/global ocean, targets 2 (marine and coastal ecosystem protection), 3 (minimizing impacts of acidification etc.), 5 (conserve 10% of the coastal and marine areas), 9 (“provide access for small-scale artisanal fishers to

marine resources and markets" (<https://www.un.org/sustainabledevelopment/oceans/>).

SDG 16: Sustainable Development Goal for Justice, Peace and strong Institutions; targets: 8 (“broaden and strengthen the participation of developing countries in the institutions of global governance” (<https://www.un.org/sustainabledevelopment/peace-justice/>) 10 (access to information), 11 (strengthening the relevant institutions, capacity building against violence etc.).

V. Indicators of Fairness in Climate Adaptation:

- A. Awareness
- B. Perceived impacts
- C. Collective choice arrangements

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X. Institutional Performance

## 4.2 Conservation Justice and Conflict Model

Depicting and transforming factors of conservation justice, and approaches of conservation conflict (management, and assessment), as well as to derive dynamic and modifiable indicators, the “Conservation Justice and Conflict Model” serves as analysis frame for an Environmental and Social Impact Assessment of Protected Areas. The model describes the analysis procedure along the relevant justice factors, lead to the identification, and assessment of “issues of conservation conflict potentials/institutional performance”.

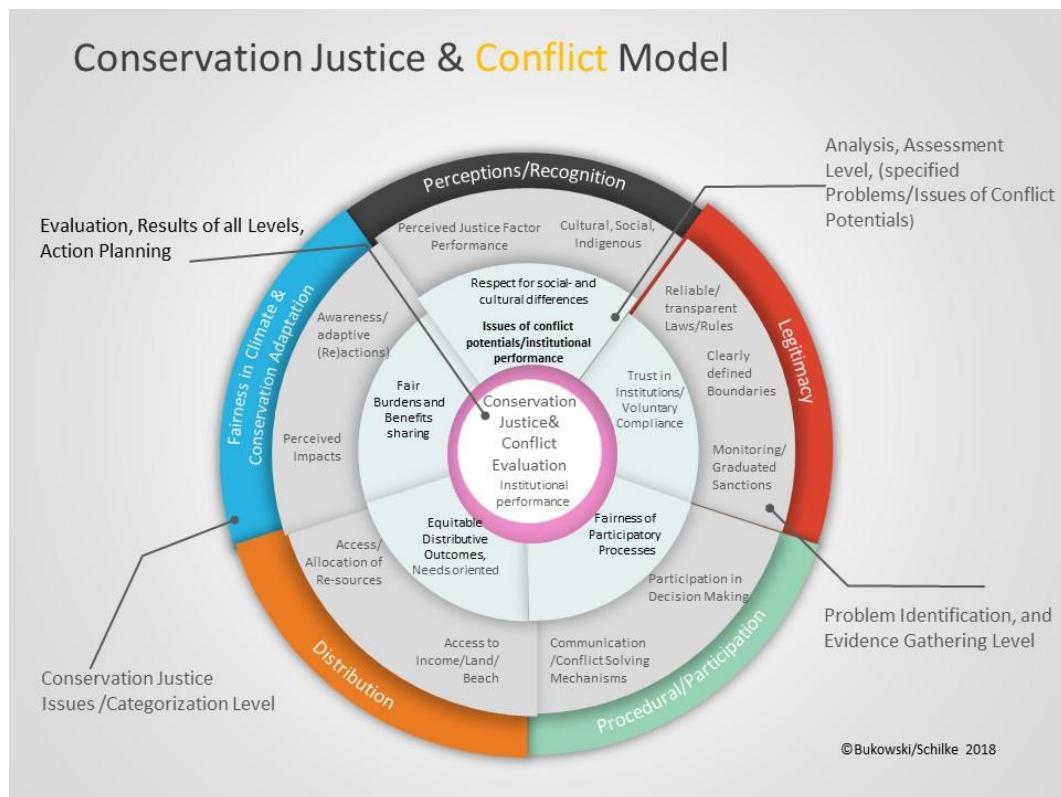


Figure 9, source own, Bukowski 2018<sup>18</sup>

### Short description of the Conservation Justice Model:

The Conservation Justice Model is meant to support institutional agents and conservation practitioners and researchers to evaluate the potentials of problems and conflicts in conservation areas. The main objective is to assess the social/environmental justice implications to enable a pro-active and/or preventive action planning. The desired outcome is a sustainable conservation area in balance with local society's needs.

<sup>18</sup> For enlarged display in color please see Appendix A

It works twofold: Either **problem focused/centred**: to assess certain conservation areas with regard to problematic justice implications and dwelling conflicts, or **institution centred**: to evaluate, improve and plan institutional performance along conservation justice impacts on residents of conservation areas. The implementation of conservation justice ideas inspired by the SDGs are likely support the local stakeholder satisfaction, which reduces the threat of conservation conflicts. The conflict and justice centred model offers an advanced form of security analysis and planning tool for conservation areas. It enables institutions, practitioners and planers to comparatively evaluate areas and institutional performance with regards to particular phenomena that bear possible environmental conflicts. This enables a fast response to threats and can show security issues before they escalate. The theory driven CJC-Criteria have been proven by numerous scholars to be supportive for a sustainable and peaceful governance as well as management of ecosystem (services) and/or common pool resources. The model depicts **conservation justice criteria** and their analysing subunits according to their investigation levels. The **first level** shows the broad **categorization** of relevant justice issues within conservation areas. Potential problems or dwelling conflicts can be detected and addressed in the **second level**- which is called “the **survey and problem identification level**”. Any preventive measures can only take place if the problem is known. **The third level** is the “**analysis level**”, where identified problems, or conflicts (also dwelling ones) can be assessed and compared, so that recommendations for preventive actions/conflict solutions can be found. In the best-case scenario this leads to the **desired outcome: the prevention of conflicts and an improved perception of institutional justice performance and several SDG targets in action.**

The CJC-Model below illustrates the correlation of the “Conservation Justice and Conflict” factors with the SDGs as described in chapter 4.1:

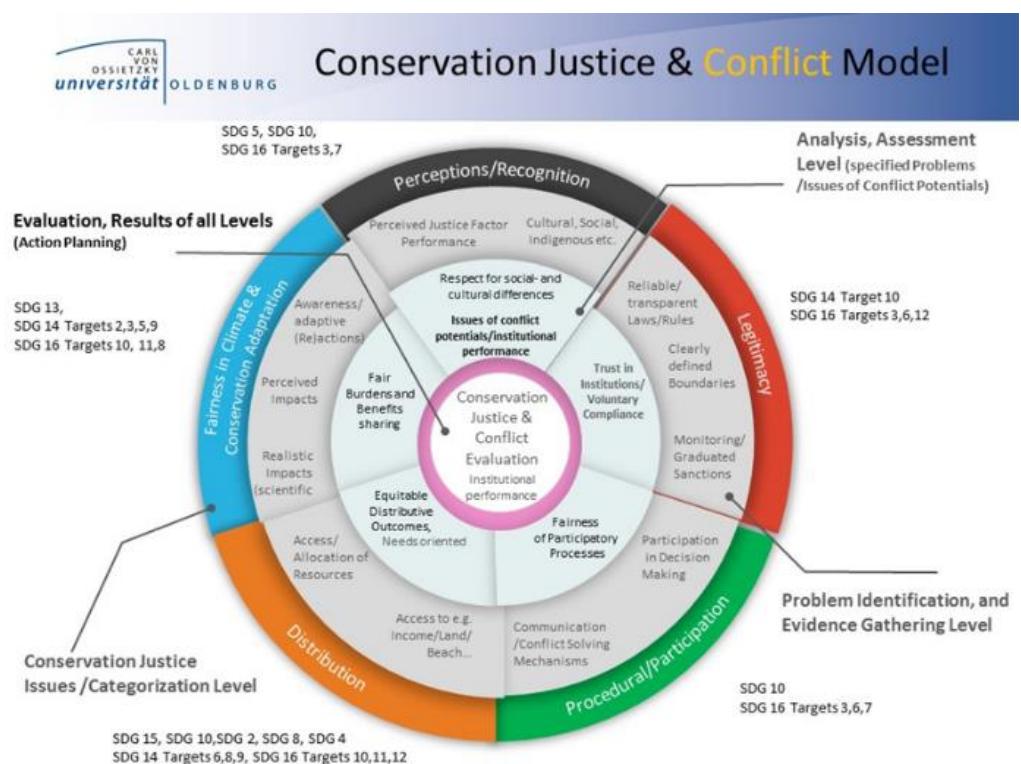


Figure 10, source Bukowski 2018

#### 4.3 Adapted Conflict Assessment for Conservation

To approach a conflict analysis and assessment with a focus on social and environmental justice categories differs from most other conflict assessment concepts which namely do entail certain concepts of justice, but focus rather on technical or compensational side, instead of cutting relevant issues of stakeholder interests with regards to the social–environmental interaction into analysable pieces (Madden et al. 2014, Peterson et al. 2007). This enables a deeper look into the conservation impacts on local communities, and inner social/environmental needs, concerns and frictions. An expert who has analysed and dealt with conservation conflicts for nearly two decades is Madden, who explains that often deeply rooted more fundamental conflicts are overseen and may therefore, hinder conservation efforts (Madden et al. 2014). To address this Madden (2014) offers the approach of “Transforming Conflict”, which advances the traditional conflict management and assessment approaches. The transformation in this regard means to apply a more unifying point of view, which includes relationships and deeper-rooted conflicts (Madden et al. 2014). Often analysis and/or assessment of

a conflict are faulty due to a limited scope, focusing solely on the conflict, and thereby neglecting the deeper sources and drivers of conflicts (*ibid.*). The present research study has taken Madden's expertise and warnings into account and developed a complementary approach that facilitates the demanded consideration of deeper rooted, problematic and conflicting situations in conservation. She explains in an interview that the including justice implications are tangent to material but also "[...] non-material, unmet social and psychological needs, such as status and recognition, dignity and respect, power and sense of identity" (Forstchen 2015, p. 3). Through the design of the Conservation Justice and Conflict (CJC) Model that implements and categorize justice relevant indicators for an analysis of the respective situation such as procedural, participative possibilities and actions, like joint decision-making, social, economic and cultural aspects as well as perceptions of justice. Furthermore, adapted from the Canadian Institute for Conflict Resolution, Madden created a model to review the different levels of conflicts

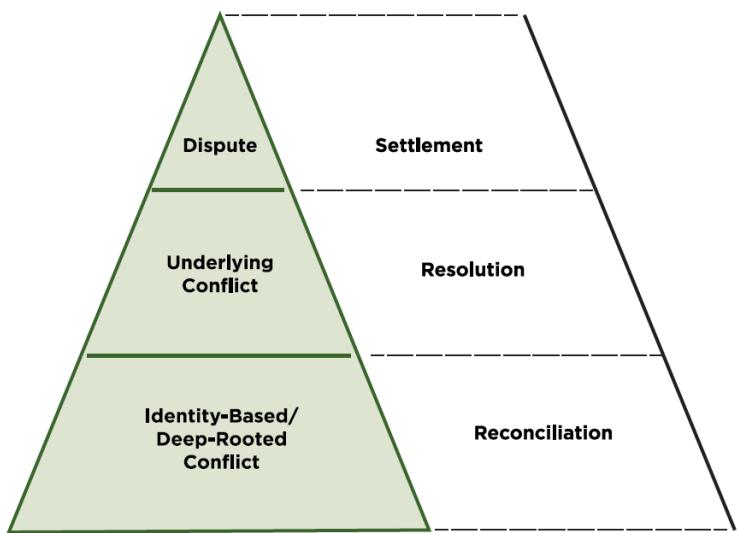


Figure 11, Madden, McQuinn, 2014, p. 100.

Madden's and McQuinn's (2014) model shows the different levels of conflict that have to be considered: 1. **Dispute**, a straightforward disagreement that can potentially be settled. 2. An **underlying conflict** that is rooted in past incidents and more difficult to recognize. 3. The **identity-based/deeply-rooted conflict**, which creates an "us versus them" attitude though different and/or conflicting values, beliefs and socio-psychological peculiarities, which can lead to especially severe and prejudicial driven consequences (Madden et al. 2014). Although of minor

interest for this study, Madden's "Conflict Intervention Triangle" is to be briefly mentioned, as it supports wildlife and/or conservation managers and practitioners to deal with conflicts by categorizing the process of conflict resolution into "Substance (e.g. level of conflict as mentioned above), Process (e.g. Participation) and Relationships (e.g. trust between stakeholders) (*ibid.*).

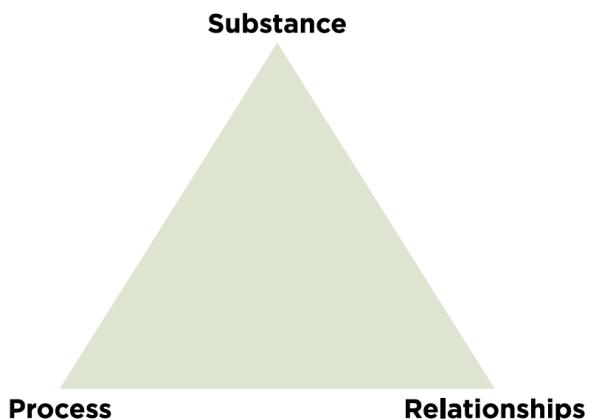


Figure 12, source, Madden et al. 2014, p.102.

The present analysis and assessment of conflicts over conservation issues within a protected area is a special conflict analysis as it is conducted on a qualitative, small-scale level focusing on the defined conservation justice criteria. That means the conflict assessment has not been conducted separately but was conducted alongside its established procedure (see below) yet through scientific means and methods. The book "Environmental Conflict Management" by Clarke and Peterson (2016) introduces structures of conflict assessment procedures for particular cases, which have been interpreted and adapted for this study to the present research requirements. It was the goal to use this information to design a process to support conflict prevention through identification of conflict potentials and their assessment, in the hope to improve governance and management of Marine Conservation, at not least to improve the situation for affected communities.

## **Conflict Assessment based on the Conservation Justice and Conflict Model**

### **Level 1 Categorization**

1<sup>st</sup> Environmental problem focused on background research (here: including theoretical background research, focusing on conservation problems, finding out about problems and conflicts reported, observed, mentioned; b. do the problems and conflicts fit into the categories),

### **Level 2 Problem identification, and evidence gathering**

2<sup>nd</sup> Identification of research question and analytical entities (variables, categories and hypotheses etc.),

3<sup>rd</sup> Key stakeholder identification and selection, (What are the relevant positions and perspectives?)

4<sup>th</sup> Development of interview instrument (selection of methods, questionnaire design),

5<sup>th</sup> Conducting interviews (including making contact, interview schedules etc.; investigating if the pre-found problem and conflict categories match with the stakeholders (informants) realities?)

### **Level 3 Analysis and Assessment**

6<sup>th</sup> Synthesize evidence and perform qualitative content analysis

7<sup>th</sup> Assess institutional performance according to the key findings, and feasibilities

8<sup>th</sup> Write conflict evaluation/assessment report (here study), with case study site-specific recognition

9<sup>th</sup> Potential recommendations for conflict-solving planning

Figure 13, Own source, Bukowski 2018 (adapted from Clarke et al. 2016, p. 55)

## 5. Methodology and Research Design

The research interest of this study, to gain a deeper understanding of socio-environmental problems and conflicts in the correlation of “conservation justice”, requires a strategy and framework of analysis that incorporates well founded and tested indicators of environmental justice, adaptable to the realities of the cases. The Conservation Justice and Conflict Model (CJC) is designed to serve as an analytical framework for this research (see Chapter 4), relating thereto conservation justice and conflict assessments/evaluations of the selected cases have been conducted with scientific means and methods. The categories are deduced from the academic “justice” literature and adjusted inductively to the observed and gathered evidence. This process includes an investigation of the phenomenon (research question) and a test of the hypotheses and designed analytical tool. This chapter focuses on the definition and determination of the research strategy, -procedures, -methods and coding frame for analysis. Starting with an introduction of qualitative research, emphasizing on the case study and the applied qualitative empirical approaches, the chapter ends with the explanation of the research design and analytical framework.

### 5.1 Qualitative Research and Methods

The qualitative approach as research direction was chosen as the appropriate research strategy for the present study, as it offers a possibility to variate the study organization according to the need of the description and interpretation/understanding of human behaviour within an institutional context (Anderson 2010; Norman et al. 2000; etc.). Qualitative research within selected cases offers a certain degree of flexibility compared to quantitative research approaches and enables dealing with complex and dynamic questions; focusing on the “how” and “why” of a certain phenomenon of human behaviour (Yin, 1994, p. 9), and its correlation with environmental injustices within the institutional governance and management framework of conservation areas (including MPAs). The qualitative research approach meets these requirements as it facilitates a non-linear research perspective. In this vein, the researcher can work either open-, and/or pre-structured and even combine deductive and inductive coding frame design (see inter alia Mayring 2000a/b, Yin 1994, et al.). The present qualitative research strategy chosen has been conducted with an exploratory point of view and ex-ante theoretical assumptions (see Chapter 2) reflected by a system of variables (ibid; Denzin et al. 2000, Bortz and Döring 2006, pp. 49-51). The

hypotheses generated for this study are understood as a defining element for the correlation of the testable variables and for the transformation of hypothetical propositions into empirical and verifiable systems (and subsystems), not for generating generalizable findings. Especially, since qualitative methods are criticized for being inappropriate for generalization of cases due to the limited scope of cases and standardized data points collectable (*ibid.*). The general propositions of concepts for the research design of this study are thus, on one hand, derived from established theories and studies on social- and environmental “justice” and “governance”, and, on the other hand drawn from the collected data which’s additional information extends and alters several pre-assumed categories of the analytical research frame (see also, Bailey, 1994). Including collected data inputs have been chosen to deliver further insights beyond theoretical presumptions and to support the creation of a conservation justice analysis framework (later advanced to a conservation justice factor matrix and model). With regards to the interdisciplinary character of the present research questions and theories, the analysis framework resulting from a triangulation process of the theoretical approaches mentioned above; developing first propositions and then creating a conceptual framework open enough for (due) change. However, the chosen research approach of qualitative nature is tangent to the typical qualitative research aspects of attempting to investigate and understand relatively “new” phenomena, (Mayring 2000a/b, Schirmer 2014) like environmental, respectively conservational problems and their justice implications.

### 5.1.1 Case Study

Since the emphasis of this study is not on the statistical generality of its findings, the case study method has been chosen accordingly (Yin 2003, Gillham 2000, Hartley 2004 etc.). The case study method is seen by many scholars as supportive and favourable for qualitative research strategies, as they help to explore different types of research questions, e.g. the dynamics of single settings (*ibid.*). This is in alignment with the decision for case studies to support this present qualitative research as it was driven out of “[...] the desire to understand complex social phenomena, and to retain the holistic and meaningful characteristics of real-life events” (Yin, 2003, p. 2.). Dynamic real-life events, like conservation justice implications required to be examined through qualitative data used as evidence from fieldwork, interviews, reports, observations and documents. In accordance with Gläser and Laudel (2008) case studies are used here to provide theoretical insights and enable systematic case selections by giving the phenomenon a kind of reference frame, and hence, support with the theoretical criteria sampling a more

systematic and deeper understanding of the phenomenon of interests (e.g. conflict potentials, including dwelling conflicts relation to circumstances, community relations, status quo etc.) as well as its correlation to other issues (e.g. spatial peculiarities, cultures etc.) (Gläser, Laudel 2008). As mentioned above, when it comes to the research strategy of the present thesis, there are still several things that have to be taken into account. *Inter alia* the distinctive selection of case types among different foci of case studies (exploratory, descriptive, and explanatory). Especially, since the decision for the case study nature affects not only the type of research questions, (case studies are preferable looking for explanations instead of incidences) but also the mere choices of context-related variables which of course exceed the observations possible (see also Yin 1994). Although the case study approach is open to both qualitative as well as quantitative research designs, in this paper, the latter one is not considered, as it was found inappropriate due to the complex nature of the phenomenon of interest (Yin 1994). For the present study rather the combination of the case study research strategy together with the qualitative methods selection to test the exploratory findings and theoretical criteria of the case (Menai Bay Conservation Area) with semi-standardized survey-based research methods of qualitative means have been found adequate (Hartley 1994). Thus, the research strategy orientates along the following two definitions of Case Studies by Hartley and Yin:

"Case study research is a heterogeneous activity covering a range of research methods and techniques, a range of coverage (from single case study through carefully matched pairs up to multiple cases), varied levels of analysis (individuals, groups, organizations, organizational fields or social policies), and differing lengths and levels of involvement in organizational functioning" (Hartley, 2004, p. 332). Yin defines a case study as an investigation of a contemporary phenomenon by empirical enquiry, which takes place within its real-life context, especially if, like for this present study, there are no clear boundaries between the phenomenon and the context. As such, case studies are reliant of multiple resource evidence since they have to cope with more variables than data points. Therefore, the development of prior theoretical propositions are beneficial to guide data collection and analysis (see Yin, 1994).

### 5.1.2 Qualitative and Empirical Research

This sub-chapter introduces the data collection method (interviews, particularly semi-structured expert interviews), according to the as mentioned theory–driven research, and sampling strategy. As mentioned, the kind of evidence required to capture the relevant knowledge about a dynamic single setting of the protected area to be investigated which could be best collected through qualitative interviews. Therefore, the form of interviews with experts, so-called “expert interviews” (Gläser et al. 2010) were conducted, whereby not only scientific or governmental experts were taken into consideration but, also those informants who bear valuable site and situation specific information (Gläser and Laudel 2010). In the present case, these include also “local experts” (Karrasch 2017). Thus, all selected interview partners are considered to be experts and have been selected according to their role and part taking in the social, and/or environmental context (internal actors), part taking of decision-making or affected by these and privileged/peculiar information concerned with the aforesaid. These expert interviews are seen as one of the key elements to gather a deeper understanding of the complexity of the topic, which is needed for the approach chosen. The interview schemes are problem centred/catered and a semi structured questionnaire was designed that grants a certain level of structure but maintains enough flexibility for adjustments and adaptation. The qualitative survey was performed in a communicative process, partly with a single, or a group of experts, and offered a high-level interaction between the researcher and informant (Mayring 2000b).

In this study the semi-structured interviews, the survey, the circumstances as well as the generation of a reciprocal communication with the goal to understand the complex issues of environmental site-specific problems, conflict potentials and certain justice notions have been considered. The questionnaire design was therefore conceived according to the selected dimensions and categories. The sample selection process focusses on the conservation area of Menai Bay which was established within the MACEMP/SWIOFish project of the World Bank (further information Chapter 4 “Case Study”). The relevant stakeholders have been identified with an emphasis on local fisheries communities (artisanal and small-scale) under the jurisdiction of Menai Bai Conservation Area, Zanzibar (Stone Town). For this, five fishing communities on Zanzibar (4 within the Area; one as control group outside the MPA, near Stone Town). The interviews were conducted with institutional and local experts (including researchers, NGOs, government,

international institutions like World Bank employees (MACEMP/SWIOFish) and local fishing communities. The overall survey period took place between 2012, 2014 (Aug/Sept./October) with some follow up inquiries until 2016. The majority of interviews were held within 2012, and updated and followed not in person, but digitally through skype/telephone interviews, or in writing. Additionally, different sources of data collection including stakeholder analyses, conflict potential assessments, reports, scientific publications and institutional documents as well as legal conservation agreements and protocols, and observation and discussion with colleagues (Institute of Marine Science (IMS), University of Dar Es Salaam, on Zanzibar). One of the quality criteria for the stakeholder selection was the inclusion of the main controversial positions trying to prevent the focus on a single point of view. Thus, the identified stakeholder belongs to the following groups: **a)** **Fishermen** of five different locations, **b) conservation authorities and institutions** (Fishery Ministry, MBCA, management, Deep Sea Fishery Authorities (World Bank), **c) researchers** (IMS) Institute of Marine Sciences (University Dar Salaam, location Zanzibar, Stone Town. The expert interviews were sometimes conducted singularly or as a group interview altogether approx. 57 – 63 ( $\varnothing$  60) members of the key stakeholders<sup>19</sup>. Therefore, 48 interviews were held over the survey period in total, all personally either on-site or via ICT<sup>20</sup>. 29 one-site interviewed were held during a three-month research trip in 2012, and in the following years, 19 interviews were conducted from a distance on the phone and/or per skype, mainly as follow up. The interviews were held either in form of group interviews with several members of each stakeholder group of experts, or as single expert interviews. Unfortunately, there were only five female experts of the fishery community (seaweed gatherers) available for interviews, or willing to be interviewed (see Chapter 9.2 “Shortfalls”). All interviews were held in English, partly with the help of an interpreter of Kiswahili, all complied with the previously designed interview guidelines, whereat the openness of the questionnaire allowed each expert to add some relevant evidence etc. The interviewed experts and local experts were then asked to rate/rank each indicator of the CJC-Factors (with a points system, whereas 10 points is the highest ranking and equivalent to high approval rates, 5 points to mediocre approval rates and 0 points which represents the lowest approval rate.

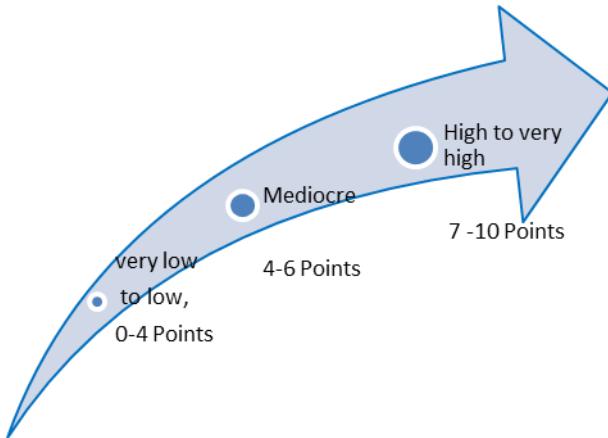
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<sup>19</sup> Group Interviews with varied numbers of participants

<sup>20</sup> Information and Communication Technologies

### Ranking scheme of the stakeholder's evaluation

The figure below illustrates the ranking scheme of the stakeholder's evaluation of the "conflict potentials" and "institutional justice performance" which is used for both, either a) the rating of the conflict potentials or b) to measure approval rates, i.e. very low conflict potentials can go along with high approval rates of institutional performance.



(Fig. 14, source own ibid.)

Three relevant, since partly controversial stakeholders' perspectives, have been identified: 1) by the conservation authority and management, 2) by the local artisanal and subsistence fisheries and affiliated (i.e. pearl farmers, sponge gatherers, small-scale retailers, local NGO members etc.), as well as 3) the conservation researchers and scientists. Each interview comprised an approximately 45 – 60 minutes personal correspondence. The majority of the interviews were conducted at or near the work place of the informants (e.g. fishermen near their beach areas, the MBCA management in the Fisheries Ministry in Stone Town or in the Headquarter in Kizimkazi, the scientists within the Institute (IMS). All interviews held were digitally recorded and additionally secured through protocols (minutes), to be processed for a subsequent sophisticated data processing. For the analysis, all interviews were transcribed literally and adapted to standard orthography, but content focused directly into a computer-based qualitative data analysis software (F4, MaxQDA), (Mayring 2000b). Correspondingly, an anonymization of data (interviews, observation reports, conflict assessment, and field notes) was conducted as far as wished by the informants. Lastly, a brief case study protocol (including all evidence gathered) complemented the analysis preparation (see inter alia Mayring 2000b, Yin 2009, pp.170 et seq.).

### 5.1.3 Evaluation (Qualitative Content Analysis)

Mayring's qualitative content analysis method was selected for a qualitative evaluation that enables the comparison of different sites, positions and notions of environmental justice and conflict potentials that allows a theoretically guided data procession, especially relevant for (governmental) institutional- and organizational governance and management approaches for marine protected areas. The qualitative content analysis was favoured as it can be used either inductively or deductively which complies the chosen research strategy that uses both processes of analysis. According to Elo and Kyngäs (2008) as well as Mayring (2000b), the analysis process involves three core phases either way: preparation, organization, and report of findings/results.

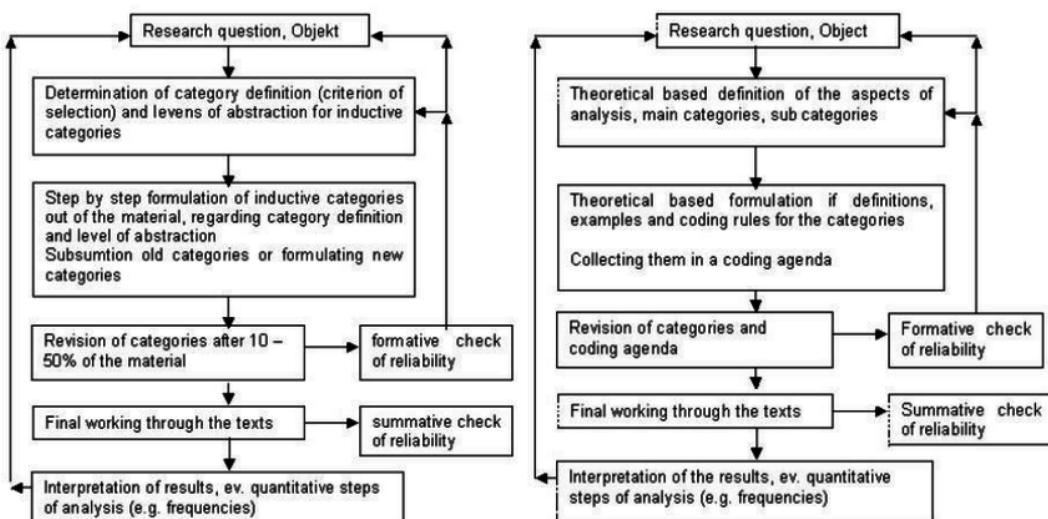


Figure 15: Step model of inductive/deductive category development (Mayring 2000b, p. 11).

Firstly, suitable data was collected, and units of analysis were defined, secondly, in a deductive manner, the organization of evidence was categorized in a kind of model including a content review of all data which were then coded for understanding and to exemplify the determined categories. In case the chosen categories match and represent the selected concepts here “(conservation) justice concepts and indicators” transferred into a model that corresponds with the anticipated research questions and was feasible to conduct, offering an appropriate analysis framework. Thirdly, the findings need to be reported based on an analysis alongside the justice categories which are explaining the phenomenon (ibid.).

The method of qualitative content analysis allowed a coding frame design (e.g. aspects selected for the analytical process, categories, subcategories et al.) of this study to start at first deductively with a theory-guided pre-structuring pattern. Which has been extended and adapted inductively according to the evidence gathered as the study unfolds, mainly through unforeseen information from observation or interviews, e.g. adding variables, categories, indicators in form of codes. For the qualitative analysis of content, a combination of both strategies (inductive/deductive) is widely accepted by the qualitative research community (inter alia, Mayring 2000a, Mayring 2000b Kuckartz 2010). In this vein, every stage of the present research processes implies several different operational levels, iterative, yet not necessarily linear. The research interest required an interdependent and explorative procedure due to the necessity of redefinition and adaptation. To develop an understanding of the relationships of environmental justice issues and environmental conflict (potentials) (Bullard 2005) in conservation areas requires a certain degree of incorporation of founded theoretical pre-assumptions. The triangulation of different theoretical approaches of “justice”, “institutional design”, and “conflict assessment” form the fundament of the primary code framing design; the basis of the “conservation justice and conflict model”. The deductive-inductive method approach follows the logic from the more general to the more specific point of view, supported by the observed patterns and freedom of additional categories and even a tentative hypothesis – narrowing the research work to a kind of bottom-up perspective and general conclusion drawing. The goal was to develop a useful assessment and planning tool for conservation governance and management to support justice performance and conflict identification and assessment by scientific means. Still, beforehand a wider methodical reference frame for the application of the developed analysis model had to be set. In this regard, approaches to “conflict assessment” delivered a useful analytical procedure and overall operational sequence. It can hence be seen as an immanent structure of the assessment of conservation conflicts and its correlation to institutional “justice” performance of MBCA.

## 5.2 Socio-Environmental Conflict (Assessment)

Conflicts with environmental and resource distributive relevance are an ever-growing challenge of these days, as described in the first chapter, there is a correlation between justice related socio-ecologic problems and conflicts, especially for conservation. Conflicts over environmental matters pose unpreceded

threats to societies, and therefore to decision-making and governance processes that need to be adapted to this challenge, and to adjust to an increasing awareness of social “injustices” that environmental-, ecosystem-, or resource issues may impose (Clarke et al. 2016, p. 1). For this study, conflicts within a conservation area are, as described in chapter one, seen as a form of social-environmental conflict, that take place in a confined space, represented by contradicting interests and needs as well the expressed disagreements about how to jointly use resources and ecosystems (see also Madden et al. 2014, Clarke et al. 2016). Any interference with the essential needs of those local stakeholder who are dependent of CPRs, and the ecosystem (services) may lead out of desperation to severe conflict, and even turn violent threatening the conservation outcome in total (as argued in the first chapter). Conservation areas bear a special, explosive mixture of socio-ecologic conflict potential due to the nature of different interests on a relatively small area which have been put under conservation laws and regulations. In accordance with Clarke and Peterson (2016), conflicts are here understood as a form of “communication processes” and “social interactions”, moreover they include the different perceptions about threats and received “fairness” of treatment in relation to the subjectively “deserved justice notion” (*ibid.*, Jacobsen et al. 2016, Clayton 2000).

Conservation areas are special and very challenging to govern and/or manage if it comes to any conflict situation especially over environmental problems; to balance between the conservation mission versus human needs and desires (Hammil et al. 2006, Buttram et al. 1995, . But there is often more to a social conflict as this simple dichotomy of the human/wild-life dilemma, some conflicts are deeper rooted in the social structure and may be driven out of non-material desires, and rather induced by inter-social unmet needs and different forms of perceived injustices (Madden et al. 2014, Clarke et al. 2016, Jacobsen et al 2016, Bennett et al. 2014). Often these subliminal frictions that are tangent to issues of empowerment, recognition, or identity culturally, socially and emotionally wise, not necessarily only between conservationists interests and those of local stakeholders, but often also between different local groups or even within a community, or on different levels, like between a local group, and the national, international or even global interests and desires for resources or other ecosystem related needs (Madden et al. 2014). These underlying social imponderables may be continued and transferred into conflicts over conservation issues (see also Clarke et al. 2016, Burton, 1990, Madden et al., 2014). In this regard it is interesting that Clarke *inter alia* points out that resource competitors, and different interest groups who might not even have

met before or otherwise (*ibid.*). The counterparties can perfectly share the same common values, yet still vary in their ideas and interpretation of the translation of these values into policy (Clarke et al. 2016, Peterson, 2002, Madden et al. 2014), management, the design of institutions etc. The majority of these value translations are in turn to some extent tangent to “justice” related issue like: the distribution of environmental goods and bads, participation in conservation policy or management processes, legitimacy of reliable conservation laws and rules, recognition of stakeholder’s identification features (cultures, etc.), stakeholder’s perception of “deserved” and “received” fairness of treatment also with regard to adaptation to changing processes (environmental degradation, climate change etc.) (Jacobsen et al 2016, Ostrom 1990, Adger et al. 2014, Adger et al. 2006, Veit et al. 2004, Martin et al. 2016, Fraser 1998). If environmental conflicts and especially its inherent (social) justice implications are neglected or poorly considered, the situation may worsen or escalate, and put “human security” (Adger et al. 2014, McClanahan et al. 2013a, Standing 2017, Bennett et al. 2017), and therefore also conservation efforts themselves at stake. To prevent any unforeseen escalation, it is here seen as advantageous for the governance and management of conservation areas to dare a more detailed and deeper view into social relations and perceptions of the local stakeholders in conservation areas. As Clarke et al. (2016) and other scholars explain, environmental conflicts can have a subliminal manner, and are mostly carried out on a small-scale level (e.g. between groups or special stakeholder) (Madden et al. 2014, Michalski, 2006). They can be rooted in “justice” related social-, cultural-, and indigenous bias, and are prone to be overseen, either due to incompetency, lack of capacity, or unwillingness to cope with complex inter- societal agendas over environmental issues (Clarke et al. 2016, Madden et al. 2014, Clarke et al. 2016, Adger et al. 2014, Martin et al. 2016, Fraser 1998).

Madden et al. (2014) argue that a long-term success of conservation projects, depend also on the ability to analyse, and to adapt the stakeholder engagement processes to possible “deeper roots of social conflicts”, which in this study is advanced by the foci on the “conservation justice aspects”. Therefore, it is of vital importance to improve sustainable conservation conditions (Clarke et al. 2016, Jeong, 2008, Madden 2014) and to overcome the tendency for short-term conflict solutions (Dickman, 2010, Leong 2008). Posing the question of why the response, and problem respectively conflict solving in many conservation areas fall short, it is useful to consider that many institutional designs of conservation areas, as well as their executives are rather specialized on environmental protection, and

obviously (see also Chapter 1) often enough neglect conservation's interdependency with the human factor (Paker et al. 2013, Madden 2014, Veit et al 2004). Thus, the prevailing foci of conservation planners, managers et al. are mainly on physical or economic measures to solve conflicts, and vary from incentives and compensations, technical improvements (like fishing gear, fences etc.) to stricter laws and its enforcement (e.g. prohibitions, no take areas, and even relocation of the local population) (*ibid.*, Woodroffe, 2005). In this vein the ability to efficiently analyse and evaluate conflicts, or situations with regard to their conflict potentials is necessary, but difficult to achieve, and time consuming.

A promising approach is the idea of including intangibles, inter-social, and more psychological needs (Madden 2014, Leong 2011, Clarke et al. 2016), but it is here argued that these ideas are difficult to achieve without breaking the conflict into analysable pieces of justice implications. Since these are a vital component of human identity (individual or of a group etc.) (Clayton, 1991, Jacobsen et al. 2016), and determine social conflicts, one way or the other. As any conservation conflicting party (individual or a group) believes someone had wronged them or is about to do so, e.g. through mutually exclusive interests. The perceived justice and the deserved one are therefore an issue of interest (Clayton 1994). Unfortunately, most conflict analysis' methods and theories are limited to the conventional ideas (Clarke et al. 2016). To support a more holistic approach to conflict assessments and solution efforts, this study has been conducted with scientific means and methods, to generate a useful tool for conservation conflict analysis with regard to social- and environmental justice implications.

### 5.3 Characteristic Site Values

The Case: Menai Bay Conservation Area encompasses different coastal landscapes (marchlands, sandy beaches, mangroves, coral reefs, etc.). In order to obtain an overview of the case study area and the five subcases and their differences in justice related issues, there will be introduction including a description of distinct geographical, environmental, and cultural and socioeconomic features prevalent in each section. The site-specific differences have been imminently acknowledged in the case study description, and, if relevant for conservation justice issues, in the analysis. Expressly, if these geographic differences determine the conditions of the communities, their status quo, e.g. remoteness, access to beach, alternative livelihoods, tidal zones, extreme waves, mangroves, storm or flood proneness etc.). Thus, the conservation justice and

conflict potential analysis contains the different spatial aspects of the cases within the conservation area.

#### 5.4. Focus Operandi/Stakeholders

The Conservation Justice and Conflict Analysis are carried out with two foci operandi:

- a. Stakeholder focus;
- b. Spatial/site specific sub-focus

For one thing, the different operational foci are supported by the identification and understanding of different perspectives of the relevant issues with regards to the situation (conservation problems and conflicts). Secondly, the use of two different analysis foci stay abreast of the shortfalls of qualitative empirical data analysis and the requirements of a careful examination of evidence with a reliability check (feedback loop) (Mayring, 2000a/b). Thus, the double foci operandi enable a site-comparison and a double check of the gathered information, and the different subjective stakeholder equation of justice issues. Therefore, each evidence and statement of stakeholder groups relevant are checked against each other, and additionally squared with site-specific aspects/features.

#### Stakeholder/Survey locations

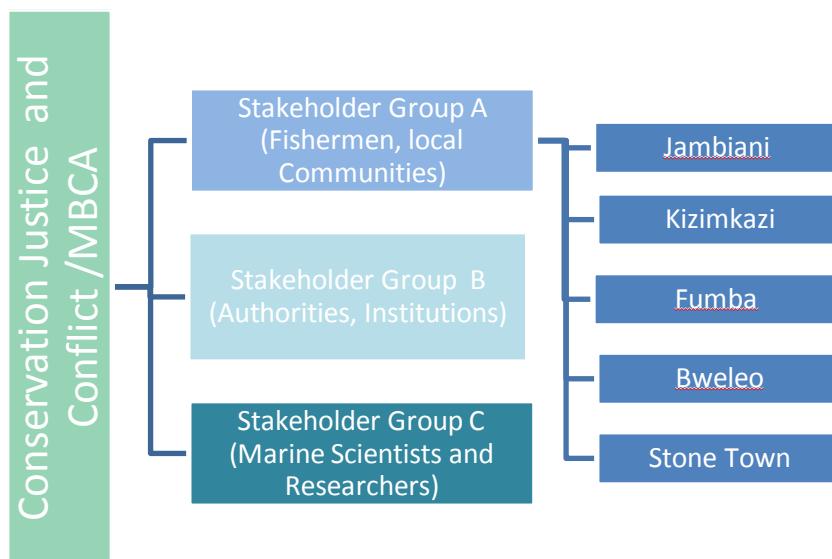


Figure 16, source: own, Bukowski 2018

In respect thereof the graphic above depicts the different analysis foci modes: a) the stakeholder's perspective mode; b) local, site-specific sub-mode. For the evaluation of stakeholder statements, and comparison of site-specific features,

three different stakeholder groups have been compiled. The Conservation Justice and Conflict Analysis (CJC) stakeholder perspective focuses on the findings derived out of the analysis of the following stakeholders: Group A (representatives of local fisheries communities), Group B (conservation authorities), and Group C (marine scientists and academic experts). To gain a site-specific understanding of the perspectives of the Stakeholder Group A were additionally evaluated with regard to five different areas (fishery villages), four within and one outside the conservation area of Menai Bay.



## 6 Case Study: MBCA, Zanzibar

The following chapter deals with the case study area (MBCA) and the five different fisheries et al. village cases. In this context, the background information is provided to understand the socioeconomic and socioecological settings and backgrounds, as well as the sample of interviewed stakeholders are closely introduced. Furthermore, the conservation history and framework are introduced, and related to the conservation managing and governing institutions.

### 6.1 Zanzibar, Tanzania (Background Information)

The conservation area Menai Bay is located in Zanzibar which forms together with Tanzania Mainland the United Republic of Tanzania. The Zanzibar-Archipelago is semi-autonomous, governed by the Revolutionary Government of Zanzibar, and located off the Swahili Coast next to Tanganyika (Tanzania Mainland). It consists of the two islands Unguja and Pemba, and many small islets that cover an area of approx. 2,650 km<sup>2</sup> (land and water) (Everett, Mwangamilo et al. 2014, p. 20). With regards to the management of the fisheries within its territorial waters, Zanzibar has full governmental rights, i.e. 12 nautical miles, and over internal waters (Breuil et al. 2014, DHI et al. 2014). Zanzibar's coastal line measures about 880 kilometres in length of coastline altogether (RGoZ 2014) and offers a marine environment with biodiversity, and high resources richness, including ecosystems like mangroves, coral reefs, seagrass beds, sandy beaches, off-shore habitats, lagoons, etc. (ibid, RGoZ 2007, Foltz 2016, DHI et al. 2014, Davies et al. 2006). These diverse

ecosystems and habitats host a variety of endangered species such as dugong, dolphins, humpback whales, sea turtles, coconut crab, reef fish, coelacanth and others. The tropical climate, with its two major monsoon winds (Kaskazi, and Kusi), and the dominant East African Coastal current shape the marine and coastal environment. The proximity of the ubiquitous ocean has resulted in a high dependence on coastal and marine resources and ecosystems, and in a typical tropical coastal fishery of small-scale, and artisanal manner, traditionally equipped (i.e. traps, nets, hooks and lines etc.) with small boats (Dhows, canoes, etc.) mostly motor less or with small outboard motors (Jiddawi et al. 2002).

### Socio-Economic Importance of Fisheries

The fisheries' and tourism sectors are the major contributors to the socio-economic development of Zanzibar (World Bank 2014). Whereby the tourism sector makes up about 51% (Breuil et al. 2014) of the GDP; while fisheries hold about 7.1 % (FAO 2012). According to DHI et al. (2014), and the World Bank (2014/2016) assessments, the tourism industry is steadily growing. By 2017 governmental official websites claim that tourism accounts for about 70% of the country's foreign currency earnings (RGoZ, official website 2017). The tourism industry is perceived as the driver or "catalyst" to promote economic growth for many branches (employment, agriculture, and fisheries etc.) (*ibid.*). Despite its small contribution to the GDP, fisheries represent the most dominant source of livelihood," with 28.7% participation on average across all districts" (DHI et al. 2014, p. 29). All marine resource appropriating sectors (fisheries, seaweed farming, mariculture et al.) are essential in terms of livelihood (income, employment and subsistence) as it employs over 40 % of the population together with the associated seaweed farming (14.4%), whereas tourism (also jointly calculated) employs about 32.6% (MACEMP 2009). For the poorer parts of society, the wider fisheries sector is even more vital as it provides up to 98% of the source of protein (Hamilton et al. 2011), (and is also the main provider of fish for the tourist industry). There is obviously an imbalance of the high GDP contribution of the tourist sector, and the mediocre employment rate, i.e. it depicts the participation ratio of the local population in this economic development. DHI et al. (2014) identify, yet two other important sources of income: agriculture (27.3%) and industry (including trade) 15.4% (DHI, SAMAK 2014, I- IV).

### Mix of Livelihoods

The 1.3 million population of the archipelago (DHI et al. 2014) depends on a "mix of livelihoods, including fisheries, subsistence farming, mangrove cutting, coastal thicket harvesting," (DHI, SAMAKI 2014, p. 23) seaweed farming, aquaculture,

livestock keeping, clothes manufacturing, and trade and wage employment, just to name a few (ibid, World Bank 2014, UNEP Ochiewo 2016). The life expectancy is estimated around 47 years for men, and 50 years for women, the population growth rates for Zanzibar's islands are 2.5% on Pemba and 4.2% – 4.4% on Unguja (RGoZ-MKUZA II, 2010). The population distribution depicts, according to the World Bank (2014), 68% rural population, and a countrywide demographic factor of 44% of the inhabitants who are aged less than 15 years. The high rates of population growth and the increased tourist frequentation, however, correlate with the higher demand for resources, including space, and opportunities for livelihoods, and challenges the whole ecosystems, its services and resources (flow variables). Especially, due to limited space, the finite resources (like water, space etc.), poor infrastructure, and increasing waste disposal (commercially or privately), as well as and a lack of capacities to move further offshore and the negative effects on ecosystems, habitats, and nearshore fisheries are already unmissable (Belghith et al. 2017, DHI, Samaki. 2014). These negative impacts do not only affect the resources, but also the tourist industry that is also relying on a healthy, clean and beautiful environment.

#### Fisheries in Zanzibar

Zanzibar does not have at the moment its own fishing fleet or appropriate harbour facilities to exploit the resources within their territorial waters, which are still abundant, except for the nearshore areas, that are overexploited, as Zanzibar's fishing industry mainly consists of small-scale activities. According to reports on Tanzania (2014), there are estimations from 2010 of about 8,600 of small-scale fishing vessels (over 95% non-motorized) and over 34,000 fishermen, plus a significant number of seasonal fishermen (RGoZ 2014, p. 6). Basically, the fishing operations take place nearshore (above 20 – 30m water depth) (RGoZ 2014, Breuil et al. 2014), yet it could be observed quite a few landings of big fish like tuna, or King Fish, caught with bigger dhows that are manned by a group of fishermen (Bukowski field trip 2011/2012). The concentration of the fisheries in the nearshore area has led to an ongoing decrease of these “accessible” resource units (Ostrom 2007) despite a resource richness in habitats further offshore. But due to the lack of capacity (vessels, know-how) it is nearly impossible, or at least very risky for the local artisanal fishermen to get access to these resources, furthermore the landed fish cannot be stored or cooled and may lead to postharvest losses) (Breuil et al. 2014) and is mostly consumed on the day and is sold directly from the landing site or at the market. The limited fish processing methods consist of salting, sun drying, and smoking. In the light of the increasing demands with a decrease of the flow

variable leading to scarcity of these core resources (Ostrom 2007), and therefore to an increase of fish demand and prices, which are additionally driven up by the tourist industry (Ochiewo 2016, Benansio, Jiddawi 2016, Davies et al. 2006). Although the environmental pressures (decline of habitats, by pollution etc.), the overcapacity of nearshore fishing activities, and the growing number of local fishermen, decrease the individual CPUE<sup>21</sup>, and thus the local resource appropriators do not benefit from a growing price rate due to declining catch rates per person/group (see also Davies et al. 2006).

The only industrial fishery effort this study could detect is the licensing of the EEZ (Exclusive Economic Zone) which is jointly governed by Zanzibar and Tanzania (World Bank 2014). The core resource of the EEZ are migrating species such as tuna and tuna-like fish, therefore Tanzania's EEZ belongs to the wider EEZ network of the SWIO region (South West Indian Ocean region) governed and managed in consultation of each SWIO country and monitored through the Indian Ocean Tuna Commission who report thus in terms of "catch allocations" of tuna fish through licensing for each country (IOTC 2017, IOTC 2018, Lee et al. 2016). Yet, the distribution of licenses to foreign vessels bears quite some insecurity with regards to potential impacts to local fisheries and economies, effective monitoring, inspections-, and enforcement instruments (Pomeroy et al. 2016, McClanahan et al. 2013, Rosello 2016). For a country without an effective coast guard, and lack in capacities all over (financially, technically, etc.) the inspection, and enforcement of rules and regulations to foreign EEZ license holders with superior technical equipment, might put a severe challenge to Zanzibar's government, although assisted by the World Bank et al. project SWIOFish (World Bank 2014). To singularly look at the economic contribution of EEZ turnovers can, therefore, be a risky endeavour (Lee et al. 2016, Ochiewo 2016<sup>22</sup>, Rosello 2016, Mwakio et al. 2014, Belhabib et al. 2017), especially with regard to IUU<sup>23</sup> (*ibid.*, Standing 2017, Greenpeace 2015). In this context the IOTC (2016) reports, for instance, that part of the tuna stocks (Yellowfin, Marlins) are already fished beyond the MSY<sup>24</sup> and need to recover to regain a biomass of MSY, though other tuna stocks are still fished below MSY (IOTC 2017, IOTC 2016) the number of foreign fishing vessels has increased to a number that Lee et al. advises against further investment for EEZ operating vessels (Lee et al. 2016). Apart from the fisheries there are other marine resources appropriating activities that are subsumed by the term "fisheries",

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<sup>21</sup> Catch per Unit Effort

<sup>22</sup> See Chapter 5 and 6

<sup>23</sup> Illegal Unregulated Unreported Fishing

<sup>24</sup> Maximum Sustainable Yield

like aquaculture, seaweed farming, half-pearl farming et al., which provide especially a source of income diversity, and income possibilities for women (21.970 seaweed farmers) (*ibid.*, SWIOFish 2014).

## 6.2 Institutional, Legal and Policy Framework (Conservation and Fisheries)

The fisheries of Zanzibar's territorial waters, and the so-called internal waters (between the island and Mainland) fall under the responsibility of the Ministry of Livestock and Fisheries, which delegates the governance and management resource matters to the Department of Fisheries Development (DFD) and the Department of Marine Resources (DMR) (Anderson, Jim. 2011, Breuil et al. 2014). In the light of an increasing decay of the marine ecosystems and diminishing resources (at least nearshore) issues of conservation are deeply interrelated with fisheries matters in Zanzibar, which therefore combines fisheries and conservation matters responsibilities (see *inter alia* van Hoof et al 2017). In this vein, the DFD is responsible for conservation and fishery issues and accommodates four different sectors within the conservation unit: Artisanal fisheries development, planning, "Fisheries Industries Development", and MCS (Breuil 2016). "The DMR is also composed of four sections: Seaweed Farming, Mariculture, Markets and Value Addition, and Planning" (*ibid.* p. 29). As for the further hierarchical structures of jurisdiction, there is a clear trend of decentralization, where the district fisheries offices work together with the communities and the so-called "Sheha" (local leader) (Davies et al. 2006, p. 5) that represents the lowest institutional level affiliated directly with the government and represents solely their jurisdictional villages, and landing sites. The next levels of conservation and resource management are community-based within the fishing communities themselves organized through the Sheha Fisherman's Committees (SHCs) (SWIOFish 2014). Furthermore, the "Bwana Dikos" (Beach recorder) keeps a record of the catch directly at the landing site. The latter is part of the community-based organizational strategy designed for the governance and management of marine resources on village level through Fishing Village Committees (FVC) in Zanzibar. Breuil's (2014) explains that this is in alignment with the overall decentralization process in the country "[...] the devolutions of responsibilities and rights to districts and ultimately communities through the committees (FVC) have many advantages", Breuil et al. 2014, p. 30). Yet, the overall performance of this decentralization in Zanzibar is seen rather critically, due to insufficient financial and human resources and capacity (see Anderson 2011, Van Hoof et al. 2017). As a result of the increase in environmental degradation and ever pressing resource needs, (especially with regards to spatially

limited nearshore fishing activities), this led to a couple of Conservation Acts, and conservation projects that are supported by the government, but also by NGOs, and international institutions. The latter ones provide funding, technical and other assistance to support a sustainable resource use and conservation of habitats. The Act of 2010 including management related further acts, regulate the management of the Marine Conservation Areas (MCAs) which includes the Menai Bay Conservation Area (established in 1997) (RGoZ 2012a, RGoZ 2012b, RGoZ 2010, Ochiewo 2014, Davies and Jiddawi 2006, World Bank 2014).



Map 1, SWIOFish 2014, p. 20

The Conservation Area of Menai Bai (MBCA) incorporating (meanwhile) the whole southern area of Zanzibar, from below Stone town, around the peninsula Fumba on the West side to above Paje on the East side (see map in SWIOFish 2014, p.20). With regards to MPA categorization of the IUCN, MBCA is classified as a “Managed Resource Protected Area” (Category VI) (see Chapter one) (Hoyt, 2005). The whole area incorporates different ecosystems and habitats: coral reefs, seagrass beds, mangrove forests, sandy beaches and tidal areas and more and is the largest conservation area in Zanzibar with a coverage of approx. 467 km<sup>2</sup>

(including water sites) (see *ibid.*, DHI et al. 2014, ). According to Eco Africa (2005, p. 10), the population of the MBCA has been 27,000 people located in 19 villages in 2005, unfortunately, there are hardly any updated numbers of the MBCA population published. However, it can be assumed that according to the overall population growth rate of Zanzibar (4.2%), RGoZ 2010) and the extension of the MBCA after 2005 that this number has significantly increased. In this region women and men jointly work for marine based livelihoods (including subsistence), even though the fishing activities are mainly carried out by men, whereas the females work refers either to the further resource procession and/or in other resource appropriation activities (seaweed gathering etc.). In any case, the local coastal communities depend heavily on marine and marine-related resources (World Bank 2003, Bennett et al. 2014). As mentioned, the management of the MBCA is a matter of the Department of Fisheries Development and the decentralized authorities on a local village scale.

After experiencing a decrease of resource stocks in the decade between 1980 and 1990 due to the increase of local fishermen, destructive gear use and poor management, a series of protected areas have been established and increased successively (Shinn 2014). Starting off as a community initiative on monitoring to target illegal fishing practices (Levine 2006), the MBCA became established in 1997 with the WWF as a co-initiator of this conservation area project (that has been promoting the creation of an MPA since 1994). The new conservation area was back then mainly funded by USAID, UKAID and Switzerland (Shinn 2014), and replaced the communities' efforts of self-governed monitoring. Driven by Zanzibar's government efforts to improve the situation of fisheries, its management, and natural ecosystems and habitats preservation, in order to enhance food security, and economic benefits, a long-term participation in big international conservation projects has become evident. Thus, by approx. 2005 Zanzibar participated in international long-term projects, set up by large international institutions (like the World Bank, FAO (SmartFish) etc.). By 2017 the MBCA has already received over 10 years support by the World Bank et al., though two big scale international coastal conservation projects: The Marine and Coastal Environment Management Project (MACEMP, 2005-2011/12) with \$75 m. budget for Tanzania alone (World Bank Database 2012) and, followed-up by the First South West Indian Ocean Fisheries Governance and Shared Growth Project (SWIOFish 1, 2014/15 – 2021) with about \$ 72.89 million budget involved (SWIOFish 2014/2016, Everett et al. 2016, World Bank Data Base 2018). The

MACEMP project had the aim to lay the groundwork on the procedural structures for institutions through the following objectives: Component I. the establishment of a commonly-governed Exclusive Economic Zone (EEZ); Component II. the increase of protected areas, implementation of sustainably managed MPAs (et al.), and Component III. the creation of a coastal village fund (Tanzanian Social Action Fund (TASAF)) to support coastal community projects with regards to marine conservation issues (*ibid*, DHI, Samaki 2014, World Bank 2014 and 2016, World Bank Data Base 2012, Gustavson et al., 2005). The still prevalent threats to fisheries and marine environment, and thus to the local livelihoods and economic development (further driven through ever more apparent climate change impacts) have resulted in the participation of Tanzania, and other SWIO countries to jointly participate in the World Bank regional fisheries governance program: Namely the SWIOFish Program, and its series of projects (here SWIOFish 1), with the target to provide technical assistance and funding for an further implementation of institutional matters of the MACEMP project, and to improve data collection, monitoring performance, and license fee (tax) collection from international industrial fisheries using the EEZ. Whereas MACEMP targeted the design and establishment of institutional fishery management and governance, the SWIOFish1 project aims toward the implementation of the Components: I) regional collaboration, II) Improved governance of flow variable (core resources), and III) a higher economic profitability from these core resources (priority Fisheries, WB) (World Bank 2014, World Bank Database 2018, Indian Ocean Commission 2015). Required as a condition of World Bank funding, there has to be documentation and assessments on environmental and social impacts of the project (World Bank 2014). The assessment update 2016 (World Bank et al. 2016) reveals several problems with the delayed implementation of governance and management goals, implementation of procurement activities, as well as sub-projects initiations (further details in Chapter 5), which also accede to the relevant “conservation justice” issues identified. If it comes to the distinct management and governance structure of the MBCA, there are, as mentioned three vertical levels: the District Authorities (including Department of Fisheries and MBCA management), the District Conservation Committees (DCC), and the Village Conservation Committees (VCC). For instance, if a problem or conflict occurs, the local leaders (Shehas) can inform the VCCs who can forward the issues to the DCC which can, if necessary, in turn, forward the issue to the District authorities (EcoAfrica, 2005, Davies et al. 2006). Altogether the MBCA is perceived as a success (van Hoofen 2017, Davies et al. 2016), technically equipped with patrol boats, radios, computers, offices, and

some funding, and managed facilities to implement structures for a community based/co-management with the inclusion of research institutions e.g. IMS (Institute of Marine Sciences, University of Dar es Salaam ), to organize workshops and provide fishing gear according to the conservation regulations, in return for abandoning of unsustainable fishing tools, and to nearly abandonment of illegal fishing practices like dynamite fishing. There are approx. 15 staff members of the Department of Fisheries who are responsible for the daily management, administration, and patrolling of the MBCA and count as management authorities. Despite all the sound efforts, positive outcomes and integrative approaches the conservation area of Menai Bay still has grave social-environmental problems and depicts regional varying forms of reluctance and capacities of the local communities to participate actively, although most residents understand and appreciate the conservation measures in general (World Bank et al. 2016, DHI et al. 2014, Benansio et al. 2016, Davies et al. 2006).

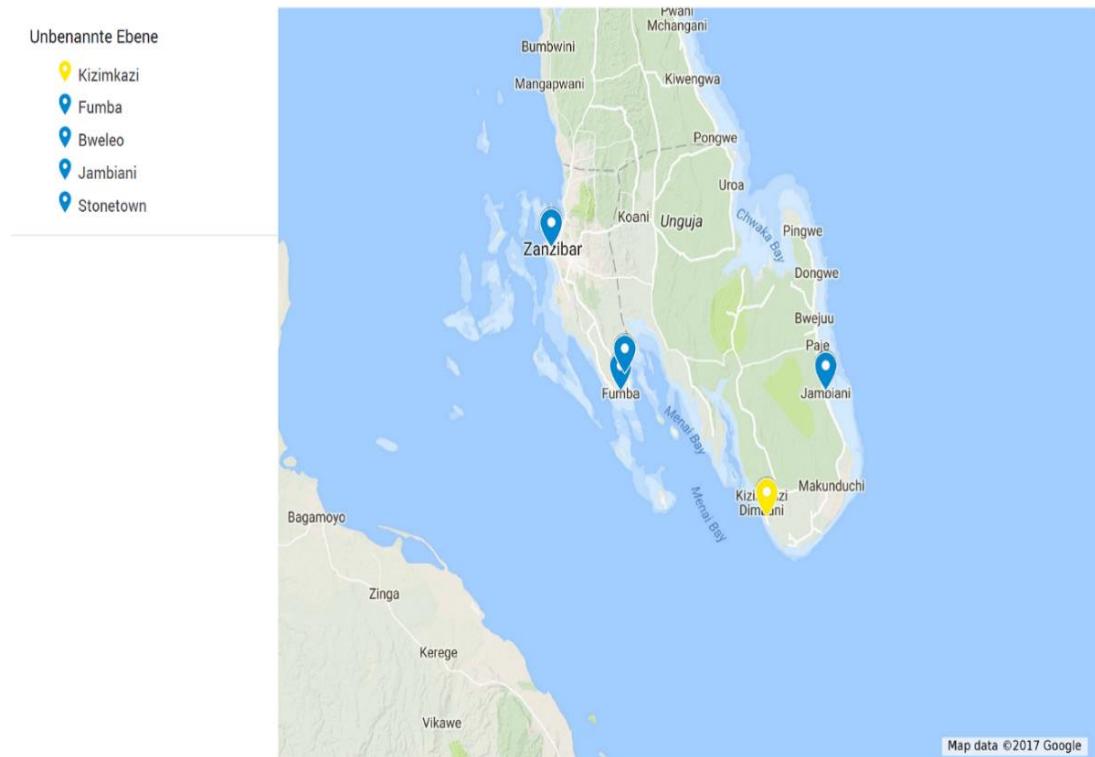
### 6.3 Case Studies: Site Comparison and Sample Selection

The four different fishing villages within the MBCA and the one landing site outside of the protection zone, Stone Town, depict quite some spatial and geographical differences, varying in size, location, access to infrastructure, socio-economic and cultural differences. The average village size is between 1500 and 4000 people all over the selected sample, except for “Stone Town”, respectively Zanzibar City, that has an estimated population above 200.000 (DHI et al. 2014, World Bank 2014, etc.).

#### 6.3.1 Fishery Communities Profile

The fishing site **Fumba** is located at the tip of the Fumba Peninsula on the west side of the Conservation Area; it is located near the Fumba Village. The fishing site Fumba is characterized by relatively small strips of beaches determined by the tide and relative quiet waters. A medium sized village with its own district facilities, and its own conservation office, and infrastructural access (to roads etc.). Currently the planning and construction of “Fumba Town” is on making an apartment city complex with commercial and recreational areas, financed by Arabian states in the search for new investment possibilities (see also C9 Hotelworks 2017). Yet, is it dedicated to creating new residential properties (mainly for Tanzanians (Mainland), and foreign clients.

## Menai Bay Conservation Area



Map. 2. Source: own (google maps), highlighting the research area and the case study villages.

The fishery **village Bweleo**, located near Fumba on the east side of the peninsula of Fumba, with a water site confined by the Fumba peninsula, is of smaller size than Fumba or Kizimkazi. It is characterized by a high tidal range, small, rocky and partly muddy beaches and no open access to the sea, low infrastructural development. To date of the field study trips, there were no noteworthy infrastructural conditions (no roads, no sanitation etc.), even the access to the beach was difficult and hence a disadvantage for a landing site, or tourist attraction. The quiet water surf is ideal for pearl farming though.

**Kizimkazi village** is a medium sized village, located on the southwest side of Unguja with a high tourist frequency due to the proximity to Indo-Pacific bottlenose dolphins, migrating along the coast, and hosts the MBCA head office. The fishing landing sites are characterized by rocky beaches, little coral islets a strong tidal zone, and relatively quiet surf. “According to officials, fishermen and other “grey literature” the conservation efforts of Kizimkazi are seen as the most successful conservation stories in Menai Bay, since the abandonment of destructive fishing gear and prohibition to hunt marine mammals have led to the return of the dolphins,

which in turn, have led to an alternative income through tourism for the “fishermen” and other clever business people. Another factor of conservation success describes Benansio and Jiddawi (2016), who report about Kizimkazi as one of the villages with the most diverse fish populations of their sample. Nonetheless, there are other voices, who still criticize the anthropogenic threats of dolphins (*Tursiops Aduncus*), who also threatened to become bycatch (Amir 2010) or disturbed through the vast number of tourists approaching them by boat too closely.

**Jambiani** village is a small to medium sized village, located on the eastern side of Unguja, belonging to the “extended” area of MBCA, which expanded from the Menai Bay area to include the entire south coast. Jambiani hence represents a relatively new member of the conversation area to date of the field trips. The village landing sites are characterized by white, long, and sandy beaches in front of a lagoon that stretches approx. 2 – 3 km towards the open ocean and serves as a natural barrier before the Indian Ocean surf. Its coral reef is indicated by, during low tide the end of the lagoon, and during high tide through the huge waves as white surf in the distance. Besides the tropical beaches, there is not much access to a functioning infrastructure, but despite of the remoteness of this area there are several “tourists” in a walkable distance which offers a possibility to retail the fish catch. The fishing conditions are mostly limited to the lagoon, which is characterized by mediocre surf as long as there are no strong winds.

The fishing site near **Stone Town** is close to the urban centre, and hence has access to infrastructure, know-how and an access to high-value commodification of the catch to highly frequented touristic sites e.g. hotels, restaurants etc. Furthermore, the fishermen in Stone Town have close contact to the shipbuilders who offer a variety of traditional fishing vessels dhows etc. and reparations; however, the competition with the tourist industry and others for access to the beaches are evident.

### 6.3.2 Interview Sample: Stakeholder Profile

The stakeholder groups are all located near or within the MBCA and represent some form of “expertise”. Particular features of the selected interview partners have been solely collected and cumulated for the Stakeholder Group A, since the other stakeholder groups function “only” as representatives of the institutions and organizations. Stakeholder Group A comprises of 5 locations within the MBCA; represented mainly by male fishermen (91,66%). Only 8,33% of the interview partners were female (seaweed gatherers, other marine-based activity). The calculation of the cumulative average values of the age of the interviewed “local

“experts” is around 42.56 years in average (cumulative values). The relatively old age averaged may have resulted of the fact that the sample of each fisher community was considered to include at least one of the village’s oldest fishermen and most experienced, which has been quite successful. The average years of experienced in fishing reported, is accordingly: 20.333 years. All interview partners of the Stakeholder Group A are native to their villages, except for the few women who, for marital reasons, had moved to another village than their place of origin. All local experts of the Stakeholder Group A use small-scale fisheries or maricultural gear, for subsistence and artisanal fishing, and seaweed gathering activities. Stakeholder Group B represents the conservation authorities who have been accessible, namely experts from a) the Deep Sea Fishing Authority, and b) Department of Fisheries and Marine Resources (including the Menai Bay Conservation Area Management). The last summarized Stakeholder Group C symbolized the academic and conservationist side of the perspectives and have been recruited from the IMS (Institute of Marine Sciences, University Dar es Salaam, Zanzibar office), and two smaller NGOs (Marine Culture, Swiss); and (Fumba Peninsula Environmental Conservation Organization (Zanzibar)).

## 7. Conservation Justice and Conflict Analysis

The analysis of the environmental justice and conflicts of the conservation area of Menai Bay in Zanzibar, was conducted according to the identified conservation justice criteria, including all 48 interviews of the three different stakeholder groups, whereby the Stakeholder Group A received the most attention, and hence contains the majority of interviewed local experts; for which an equal number of interviews per village has been aspired. Furthermore, publications, reports, official socio-environmental assessments, field notes, scientific literature, legal texts, and other sources of information have been taken into consideration to estimate and position the empirical findings. The aim was to gain a deeper understanding of socio-environmental problems, especially with regards to conflicts or conflict potentials of local conservation communities, and how these are reflected by the justice criteria. The factors are rated by quantifying the statements for each factor as well as the number of experts, and qualitative severity of the problematic (conflict) issues behind the respective conservation “justice” factor. Designed as a qualitative research with a semi-structured interview guideline, the analysis frame offered enough flexibility to include open questions, which was helpful not only to detect issues off the conservation justice scale but also to include additional information, recommendations, wishes or suggestions by the expert informants. The results of the analysis are depicted through a respective weighing of the conservation justice factors in the Conservation Justice and Conflict Model, giving an (immediate) overview of the relevant factors and coincidences for the sample.

### 7.1 Qualitative Interview Outcome with (Local) Experts

In the following, the outcomes of the interviews with all stakeholder groups are presented, compared, and discussed. For the interviews, all questioned experts have been asked about the “justice” factors (indicators etc.) and their perception of a “just” treatment in correlation to institutional performance as well as about any problematic situation and/or conflicts with regard to socio-ecologic issues.

#### 7.1.1 Stakeholder Group A (Resource Appropriators)

The statements of the Stakeholder Group A or local experts, namely the fishermen and seaweed gatherers<sup>25</sup>, of five different cases; four locations within the Menai Bay Conservation Area, and one location outside of the conservation area, the so-called “control group” of fishermen in Stone Town. All different case study sites are

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<sup>25</sup> Expressed through the terms: fishermen et al., fishers, resource appropriators, resource users, local experts.

evaluated according to the respective geographical and spatial specific features in context to the findings.

## Fumba

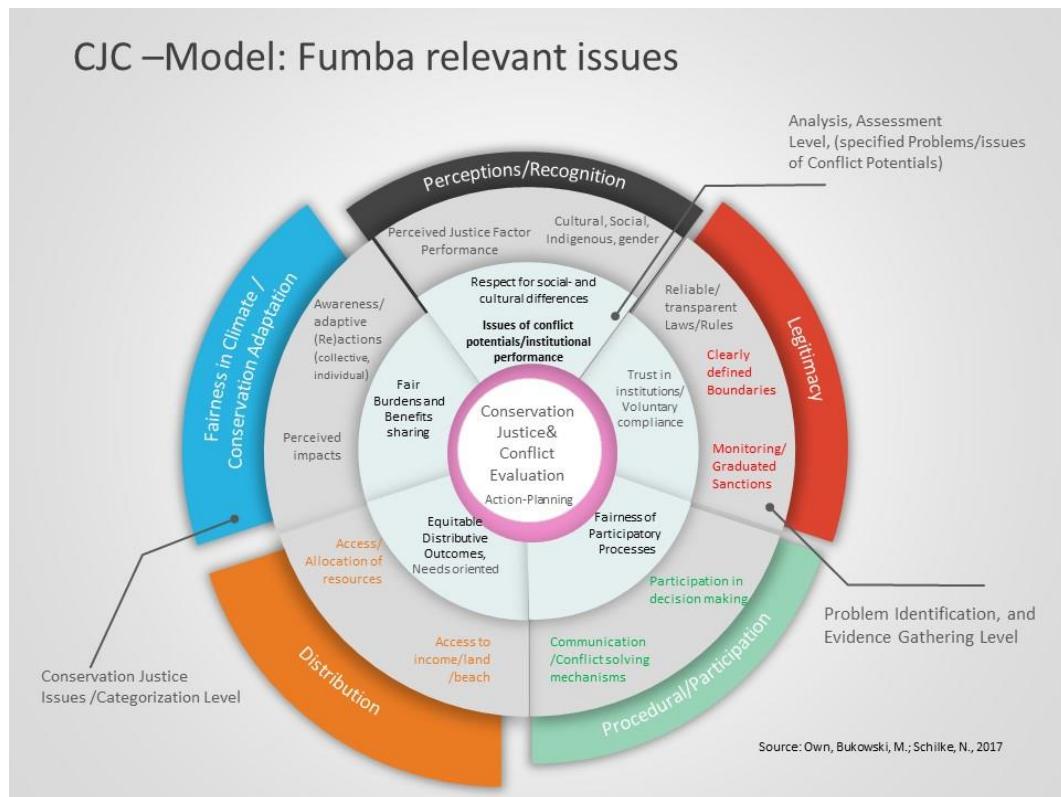


Figure 17, source own, Bukowski 2017

The CJC-Model reveals several relevant “justice”<sup>26</sup> issues and problems, within all factors identified, with the significance accordingly depicted through the different proportions of the factors. For the case of Fumba, three justice factors are especially relevant: “Distribution”, “Fairness of Climate and Conservation Adaptation”, and “Legitimacy”.

With regard to “Distribution” one of the most frequented issues of concern, and even conflict is the access to the beach, i.e. spatial problems; over 86% of the local experts have answered accordingly. These are especially relevant in the light of the new project of “Fumba City”, which on one hand raises concerns of an ever-decreasing departure/landing space for the fisher boats, but on the other hand, induce hopes for an increased fish demand, which 65% of the interviewed cherish. However over 53% of the fishermen/seaweed gatherers state that they are

<sup>26</sup> Justice is here referred to as „conservation justice“ as defined in Chapter 3

determined to fight for their right to access the beach, due to the compelling necessity for fisheries to survive and to make a living. This is particularly frequently expressed with concerns of the access to alternative incomes. To gain an income through the increasing tourist industry is understood as most unlikely (81%), since the qualifications of English and other (management/ entrepreneurial) education is missing, also with regards to becoming tourist guides for marine environments. However, 24% of the interviewed fishermen describe a transformation of their income generation, from fisheries to other coastal activities like pearl farming, bee keeping etc., which the informants have had learned through the PWANI Project<sup>27</sup>. A four-year ecosystem-based management project of cross-cutting nature funded inter alia by USAID et al. that started in 2009 and took an integrated approach to capacity building on community resilience, addressing also key barriers for women. In this context, projects like cultivation of marine products like half pearl farming<sup>28</sup>, jewellery production out of the by-products, further processing of seaweed for cosmetics etc., sustainable dolphin tours, and others (Torell et al. 2014). In any case, apart from the short term of this project, not all interviewed could participate, yet it is an example for an integrated coastal zone management involving the local residents and is named relevant also in other villages.

Referring to “Procedural Issues”, the possibility to participate in the SFC (Sheha Fishermen Committees), and to have a “beach recorder” (Bwana Dikos) is viewed by over 70% of the interview partners as positive for the conservation and preservation of marine resources (especially with regards to their flow variable), although half of the statements voice the concerns of the effectiveness of this participation, as “the [...] government does what it wants anyway, if we take part or not” (interview Fumba resource appropriator F7, 2012, 2014). The local experts express the wish for a broader integration of effective training and further education, like those of the PWANI project. 67% would like to be more involved in the conservation matters also in the way decision-making affects their area of the MBCA.

The indicators of “Legitimacy”, like “transparent and reliable rules and regulations”, “clearly defined boundaries” etc. are of relevance for 76% of the local experts interviewed. Most of the interview partners are aware of MBCA rules and regulations, particularly in the context of fishing gear and restrictions, and state they would act accordingly. 65% could name more than two measures and

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<sup>27</sup> The PWANI Project is an ecosystem-based management initiative (in cooperation also with UKAID etc., see Stakeholder Group C.)

<sup>28</sup> Meaning the cultivation of marine products for consumption, as well as jewelry making.

regulations correspondingly. The biggest concerns about regulations and boundaries are expressed to be “foreign” fishermen from Tanzania Mainland. The fishermen et al. claim that these foreign fishermen would simply ignore conservation regulations and take advantage of their efforts for conservation without keeping to the rules. Furthermore, the question whether the people from the Tanzanian “mainland” had the right at all to cross Zanzibar’s territory remained yet unclear to the locals (83%). The disputes over fishing rights and rules with the fishermen from Tanzanian mainland are seen to have a conflict provoking character. This is stated in the initial interview phase as well as in the later updated interviews with a relatively high frequency of 76% (2012), and 70% in 2014. According to this, the fishermen express that they try to chase the “Tanzanian fishermen” away or destroy “foreign” fisher camps, if possible.

Asked about the effectiveness of the new possibilities of support by the conservation authorities e.g. through monitoring with regards to dealing with the mentioned concerns, provoked mixed answers. Over 60% of the interviewed perceive that the situation has improved since they are within a conservation area, and having access to conservation facilities, and a patrol boat location in Fumba, but too often “the “violators” leave before any monitoring can come to effect, and even if, the sanctions would not keep “foreign” fishermen away” (interview Fumba, 2012), explain the fishermen et al.. Yet, the interviewed experts welcomed their proximity to an own MBCA field office and patrol boat which was understood as trust building (82%). With regards to questions on “conflict solving mechanisms” 54% of the interview participants explained that they could address their issues to the Shehas and their Fishermen’s Committee, who can forward these problems even further. In any case, the majority of interviewed are careful with a too optimistic expectation on the effectiveness of these “committee meetings”. With regards to the implementation of a Deep Sea Fishing Institution that sells licences to foreign industrial fishing fleets, and as a part of the SWIOFish project which the conservation zone is a part of, the local experts question the effective means of monitoring and enforcement of the rules (73%). Therefore, the local fishermen are concerned and one of the older spokesmen explained, with the approval of the interviewed expert group that [...] “we don’t know what else the big and foreign fishing companies might take, and how, would be mean if we here try our best to sustain the resources while the trawlers in front of our coasts operate unsustainably” (interview Fumba fishermen F5 2014). The local resource appropriators perceive the Exclusive Economic Zone as unfair for the local residents and fear a sell-out of East Africa’s marine resources, since they are

dependent on nearshore fisheries. The local villagers are aware about Zanzibar's fisheries limitations (e.g. no own fishing fleet, no professional landing facilities or harbours) and the inaccessibility of Zanzibar's resource richness of the middle and further territorial waters in the ocean for the local population, left for others to be taken. Particularly, in the context of the local dependency on marine resources and the lack of participation in economic benefits generated through the EEZ, the fisheries community in Fumba remains sceptical. The fishermen expect a severe impact on the island's small-scale fisheries through a decline in the fish stocks, especially for many larger fish species like tuna fish or king fish. The experts thus expect an increase of conflicts over the few remaining fish resources.

The factor "Recognition" was just mentioned with relatively low frequency of occurrence. 32% of the interviewed resource appropriators express that they appreciated if their previous efforts for marine conservation measures, which they claimed to have done before the Menai Bay Conservation Area project started, would be taken more into account, as well as some local observations, and indigenous knowledge.

Concerning the factor "Climate and Conservation Adaptation", over 90% of the interviewed fishermen et al., including former fishermen (now retired or e.g. half-pearl farmers and seaweed gatherers), indicate an observed and perceived shift of fishing seasons, and an increase in storms and floods. Especially, during the June/July season, the weather is reported to be more "unpredictable" and "rougher", "[...] so that we cannot predict anymore when, or if, we could go out, resulting if we have any food or not. [...]" (interview; Fumba fishermen spokesman F3, 2012, affirmed by update 2014 and 2016). Although, it should be mentioned that the concept of climate change (adaptation) was not initially understood by the resource appropriators. The according concept was either mixed up with the regular seasonal shifts in weather patterns, or with conservation issues. For instance, the "clear cut of mangroves" is blamed for the increase in storms and unpredictable weather conditions, and not only for the raising "impacts of storms" (e.g. flood or erosion) through missing protection. However, with some support from climate-pre-educated fishermen (e.g. through participation in one of the conservation- and climate projects), and with the help of an NGO representative (FUPECO<sup>29</sup>) the idea of "unusual change" weather conditions that are e.g. unusual for the season, region and time of year, and which repeatedly take place (over years), became apparent. The supportive, and jointly explanations have revealed

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<sup>29</sup> Fumba Peninsula Environmental Conservation Organization. Located in Bewleo

that all fishermen et al. have already had to adapt to several changes one way or the other; mostly by changing the fishing times (in accordance to the MBCA of course). Apart from that, the conservation issues, together with the issues of climate change, the decrease of fish stocks, and the increase of fishermen have been reported and were expressed with concern and worries (68%).

The overall satisfaction level <sup>30</sup> of “Institutional Justice performance” is stated by 64% of the interview partner in Fumba as “mediocre to high” (6-8 points), whereas the others were either indifferent or just to some extent satisfied with their treatment by the local authorities since. Yet the majority acknowledges the efforts by the MBCA management to support the local conservation communities. The overall justice performance for the local institutional work in Menai Bay was hence valued relatively high, but the closer to upper levels of government, the less high ranked is the justice performance.

Issues of conflict and problems identified: access to beach; access to alternative income; unclear restrictions of boundaries and monitoring effectiveness (likely to increase conflict with fishermen from the Mainland); concerns over the impacts of the EEZ on fisheries, climatic food insecurities, declining stocks and overcapacity of small-scale, nearshore fisheries.

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<sup>30</sup> Including the cumulated outcomes of the other factors

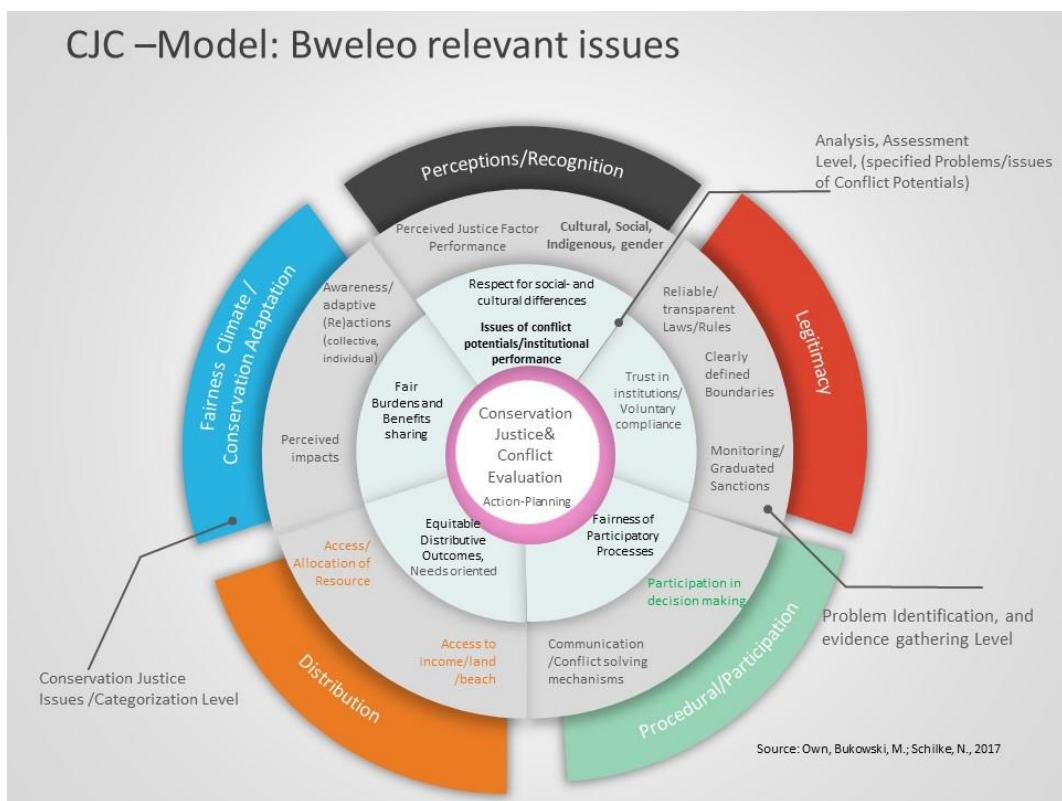


Figure 18, source, own, ibid.

The CJC-Model of Bweleo identified the relevant “justice” issues and problems, which show a high frequency of occurrence within all factors identified, with the significance accordingly depicted through the different proportions of the factors.

With regard to the CJC-factor “Distribution” the most urgent problem named by all local experts of Bweleo is the lack of infrastructure, starting with the lack of basics such as sanitary facilities or passable roads etc. This in turn has adverse effects on the living standards and obstructs possibilities of alternative livelihoods generation e.g. in the tourist sector, the transportation of appropriated resources and community development. It is explained by the local experts that during the rainy season tourists could not even pass through the village, even if they wanted to, not to mention the missing restrooms. In this context, the question of the MBCA entrance fee (collected from foreign visitors) and its allocation was an issue. The local experts of Bweleo assume that the entrance fee revenues would go as a monetary support directly to the MBCA villages, except for their village. They further express that Bweleo would especially need this money to improve their catastrophic infrastructure, despite the fact that this money is neither distributed to the villages directly, nor is it meant or sufficient enough to start an infrastructural process. Yet, the urgent need was omnipresent in Bweleo, and the most

devastating observed during the field trips. Another relevant problem named is the difficult “access to education” in Bweleo, over 80% of the interviewed informants find this a problematic matter. The interviewed experts understand this as a cause for the prevalent status quo of the underdevelopment in their village that might even lead to conflict. Bweleo’s resource appropriators indicate that low education and missing basic resources, leaving them no other choice than to be trapped in this situation. On the other hand, the initiatives of the PWANI Project, especially the retraining of fishermen to become e.g. pearl farmers et al. was acknowledged as a good step forward, yet, according to the interviewed experts, it lacks commodification training, i.e. in how far the new commodities can be brought to market and generate a living (see also Room 2000). Further distributive matters mentioned are the access to technical innovation (75%), beyond [...] “the handout of fishing hooks, and very small-scale funds” (interview, 2014) as these would not lead to an improvement of the situation. Another special issue of distribution expressed is the wish for community cooperation and team building training to improve the cohesion of the community members, which is named by over 90 % of the “local experts” of Bweleo, which could also be tangent to participatory aspects, yet, as not being mentioned to connect with the conservation management procedures, it is here categorized within distributive matters.

Concerning “Participation”, the CJC analysis reveals that the majority of community members (85%) feels disempowered, as they perceive being neglected by the management, especially with regards to “problem or conflict” solving. According to the informants, the authorities refuse to listen to them constructively [...] “they refuse to listen to us, or our representatives, also about conflicts” (Interview, fishermen B7 member of the village’s Fishermen Committee 2012/2014).

The question of “Legitimacy”, was mentioned with an even higher frequency, referring basically to the problematic issue of “transparency”, particularly when it comes to the assumed allocation of the collected “MBCA visitor’s entrance fee”. According to the interview partners, 10% of these entrance contributions are dedicated to the villages of the conservation area directly (as it is, according to the fishermen, mentioned on the receipts). That raises the question about the basis of collected fee in total. “[...] 10% of what, and why just 10%?” (Interview, Bweleo Fishermen B3, 2012). Yet, again the information of the informants was incomplete, which has become apparent after the examination of the official documents, reports and the interviews with the MBCA management, who explained that it is about 30% that goes to the villages, but in form of initiatives, workshops and

emergency help. However, the lack of transparency and/or information transfer cannot be denied, since it took quite some effort to get hold of concurring information on this matter. Furthermore, the indicators: “clearly defined boundaries” and “congruent regulations” have been another recurring matter of mentioned conflicts, mainly referring to the disregard and violation of the conservation “rules” by “foreign” fishermen (from Tanzania Mainland) who apparently “intrude” and still use destructive gear. Over 93 % of the interview participants find this a matter of conflict (sometimes of verbal-, but also of violent nature). With this regard two significant questions became apparent for the “local experts”, firstly, if the conservation rules also apply to the foreigners (fishermen from Mainland Tanzania); and secondly, if the “foreigners” are even allowed to fish within conservation “territory”. Another delicate matter indicated, is reflecting the proximity to the Deep Sea Fisheries Centre with regards to the allocation of EEZ licenses. In this context, the fishermen also express insecurities about the rules and regulations, and especially the effectiveness of enforcement and monitoring in light of the lack of e.g. a water police or coast guard. Referring to this, the people of Bewleo obtained “new” information, shared by the fisherman who, as a contact person and interpreter for the interviews, accompanied the research team to the Deep Sea Fishery Centre. The digestion of the information he gathered was processed afterwards jointly in a big round of fishermen, and discussions were raised about possible positive and negative outcomes of the endeavour to sell licenses to international fishing fleets with superior vessels and technical superiority. Recurrently, the fear to [...] end up like the Somalians, or having trouble like the neighbours in Kenya”, came up (interview Bweleo 2012/2014-update 2015). These concerns referred to the possibility of a further decrease in the fish stocks and/or an increase of competition for fishing grounds, even though the waters off the coast of Zanzibar and Tanzania are still underexploited, and can, so far, not be accessed by the Tanzanians (including Zanzibaris) themselves. Still, the threats of an overexploitation by industrial fishing fleets which “[...] may even make use of dragnets, with nobody to stop them” (interview Bweleo fisherman B 12, 2012, 2015), cannot be denied either, since various studies on especially West African fisheries (but also East African fishery) elicit this fact (Ochiewo 2016, et al.).

As a matter of “Recognition”, the inclusion of indigenous/or local knowledge, and the acknowledgement of local communities with their district cultural and social particularities, are another issue of interest in Bweleo. The impression that the people of Bweleo are not heard or recognized is enhanced by the complaints about

the MBCA officials, who refuse to work with-, or at least listen to Fumba's own conservation association (FUCEPO<sup>31</sup>). Nearly all interviewed (95%) are in favour of an involvement and cooperation with this NGO and the MBCA. Especially, since the FUPECO members are perceived as a part of the community who are better educated (e.g. including a teacher et al.). By the interviewees' account this would increase community trust, and reassurance, showing good will. But so far this has not been the case, according to the fishermen and the responsible NGO "chief accountant".

Last, but not least, the conservation justice factor "Fairness in Climate and Conservation Adaptation" is a matter of high frequency of occurrence and is accordingly highlighted in the model. With regards to the perceived climate and/or conservation issues several problems have been reported. Initially, the lack of the distinction of conservation matters and matters of adaptation to climate change is worth noting. The observed phenomena by the fishermen, however, are tangent to both, and are even for scientists difficult to distinguish. Although no specific "adaptation measure" is named, the experiences and reactions indicate a change of behaviour. The fishermen "adapted" to a shift of fishing seasons, due to a lack of fish especially during June and July, and less fish during November-December is repeatedly reported as an ever-increasing challenge (2012/2016), as well as a source of growing concern, and pressure on their already difficult socio-economic situation. Furthermore, the observation and perception of a permanent change of weather patterns (i.e. stormier, and ever more unpredictable) by the respondents, forces the resource appropriators to change and adjust their strategies, nevertheless. Yet, the idea of an adaptation to a climate that is changing was challenging to understand for the fishermen et al., and initially mixed up with the regular shifts in seasons, but due to the PWANI project and, with the support of the Chairmen of FUPECO the issues could be explained and have led to the above listed statements.

All in all, the perception<sup>32</sup> of a "fair treatment" and "Institutional Justice Performance" of the MBCA authorities was correspondingly low and can be identified as "worthy of improvement".

Conflict potentials identified: unclear boundaries and restrictions, especially with regards to "foreign" fishermen; concerns about the EEZ and an impact on local fisheries; problems with the access to infrastructure, access to beach, access to

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<sup>31</sup> Fumba Peninsular Environmental Conservation Organization

<sup>32</sup> Including cumulated outcome of perceptions of the other factors.

alternative income (at least to a minimum standard), access to education (conservation and climate change related) and training in cooperation and community building; missing participation opportunities; a lack of transparency (entrance fee); insufficient recognition of opinion and concerns and conservation attempts e.g. through the acknowledgement of the little local NGO.

### Kizimkazi

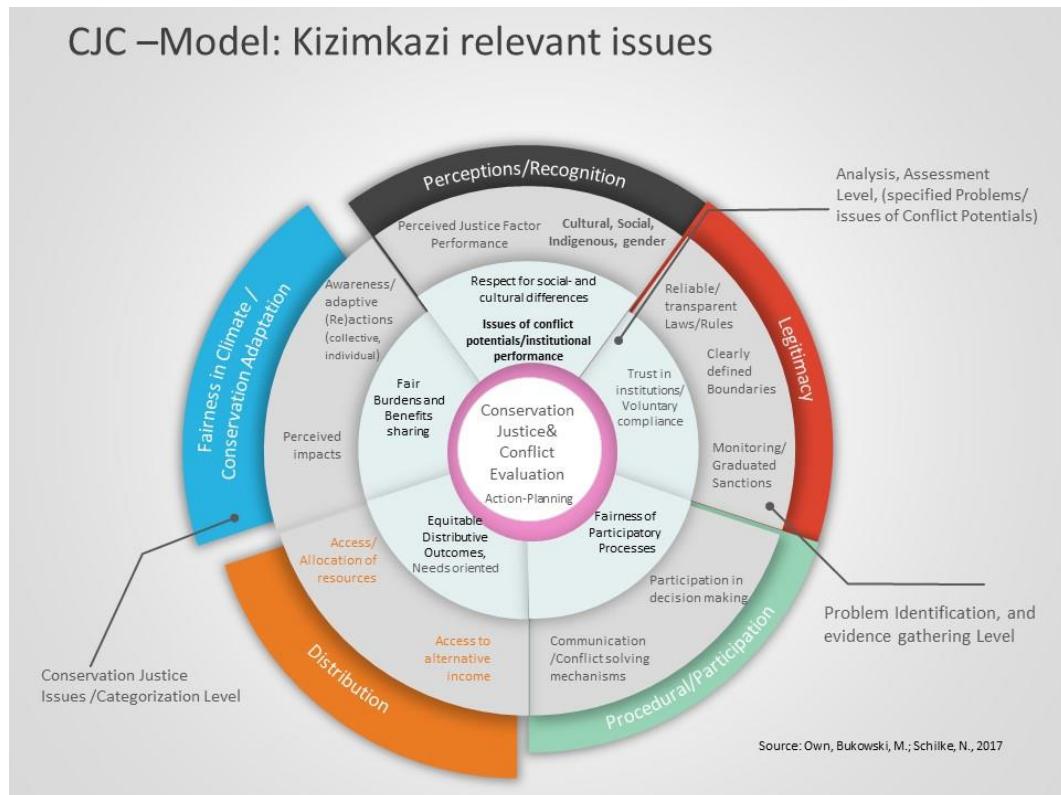


Figure 19, source own, ibid.

In Kizimkazi, the outcome of CJC analysis is totally different, as the model depicts basically two factors as particularly relevant with regard to the frequency of occurrence of statements, with a special relevance of the blue field, namely "Fairness in Climate and Conservation Adaptation", followed by the "Distribution" factor.

Starting off with the matters of "Distribution", it could be established in the course of research that the fishermen of Kizimkazi have several problems, especially with regards to the "access to an alternative livelihood" and the "access to the beach". As for the alternative income through tourism 97% of the interviewed "local experts" explained that for one thing, the fishermen do not have the capacity or the equipment to take part in the "dolphin watch tourism", namely regarding appropriate- English knowledge or appropriate boats to transport tourists. "We

could show them [the tourists] more than dolphins, but the tourists hardly stay long enough for that, [...] nor do we have the English knowledge to communicate with them anyhow, and our fishing boats are not built to transport tourists" (interviews Kizimkazi 2012/14). Even though the literature mentions several improvements, and efforts for fishermen to generate an alternative income through sustainable Dolphin Tours, for which the PWANI project equipped some fishermen in Kizimkazi with small outboard motors to transport tourists (PWANI Evaluation, Final Report 2013). Secondly, over 85% of the interviewed had concerns about the decline of landing space and increasing limitation to access to the beach due to the prevailing touristic facilities like hotels, resorts or restaurants that often block the beaches for resource appropriation, and about the recrudescence of a former conflict with a hotel in this context. "There should be a better regulation for joint beach use, but big money rules" (interview fisherman K 8, Kizimkazi 2014). Besides this matter, all interview partners humbly expressed that they are meanwhile content with the help and support by the local conservation management on distributional matters which they understand to be limited, but striving and helpful to a certain extent, and due to the fact that they "[...] can at least sell the fish to the hotels" (interview fisherman K 12, Kizimkazi, 2012/2015).

Regarding the factor "Participation", the local interview partner had many positive impressions and named with a high frequency of over 90 % the appreciation of the conflict solving mechanisms of the MBCA management, for they receive help when something unforeseen happens. Principally, the personality of the MBCA manager is respected and highly valued. With regards to the participation in decision-making, 67% of the fishermen stated that they can participate, but that "those above", namely not those engaged in the local management of the conservation, but the higher government authorities, would do anyway what they want. Therefore, the interviewed explained that they do not feel to have any impact with regards of the decision making- "or there would be more no-take areas for the fish stocks to regrow" (interview Kizimkazi 2014). Yet, the highly valued efforts of the MBCA manager and his team, as well as Dr N. Jiddawi are taken into consideration positively. Naming the latter coincidentally, raised the fishermen's sudden interest in "gender issues", that have initially not been part of the research inquiry. Particularly, the notice that women do not participate in the fishermen's council, which over 65% found a pity, as they could enrich the council, others were against that, due to family duties, although all acknowledged, not without proud the intelligence of the Zanzibari women.

With respect to the CJC-factor “Legitimacy”, the interview partners depicted an overall knowledge of the rules, but also stated concerns about the fishermen from the outside that do not accept the conservation rules, and keep using destructive methods, taking advantage of the conservation efforts of others, and the slow regrowth of resources, over 80% expressed this. Yet, the fishermen declared they would chase them away, but they also expressed insecurities whether they would simply move a bit further on and continue their violations. The interview participants see the presence of a patrol boat, and the proximity to the MBCA office as a big advantage, with regards to legitimacy aspects as it gives them a feeling of security and trust.

The factor “Recognition” is just mentioned in terms of the “foreigners” (Tanzanian fishermen) who would not respect the indigenous population and local culture. The observed “gender” issues were not a topic of interest, not even for the female villagers themselves. There were only very few female resource appropriators possible to be interviewed (mostly seaweed gatherers), who rather accept their situation, and claim they do not have any interest in getting involved with the “men’s business”, as they have other duties, but yet suggested an own “female conservation committee”. Furthermore, 49 % of the older “local experts” mention that they had begun with conservation measures long before the MBCA started and would like to become more involved in the MBCA, otherwise they feel recognized, and acknowledged.

In view of the most frequented factor “Fairness in Climate and Conservation Adaptation” (98%) several issues and concerns have been expressed. Besides the observed change of (fishing) seasons, with unstable monsoons, which 94% of the resource appropriators of Kizimkazi find very concerning, and problem triggering. Especially, since the weather conditions make their living unpredictable “[...] we don’t know if we can go out and have food at all, before [5 years ago] we could rely upon the seasons, but now we can’t” (interview Kizimkazi fisherman K 1, 2012, 2014). With regards to adaptation measures, the local experts explain that they would mostly react jointly, coordinated by the MBCA and collective choice arrangements. The experts added that the MBCA management has changed the fishing season (i.e. the time the fishers are allowed to go out) by two months, and all fishermen in Kizimkazi would cooperate to adapt to this. Furthermore, the local fishermen et al. acknowledge the support by the MBCA management who provided the fishermen with gear appropriate for the conservation issues (e.g. nets with bigger mesh size). Yet again the fishermen could not distinguish between climate-

induced reactions or conservation matters, as the size of the meshes does not have any effect on the increase of storms or permanent seasonal shifts, nor is it a matter of climate adaptation. However, at least the overall concept of climate change was understood, particularly apropos of the changing situation of the seaweed, which was observed to decline in the shallow waters, which is also less nutritious nowadays, and hence the plant would move to deeper water, which is unfortunately difficult to access for the women (who are the main seaweed gatherer), since they are reported not to be able to swim and to lack the possibility to go out fishing. Nevertheless, after asking about if this is a climate or a conservation problem, the fishermen of Kizimkazi have shown quite some conservation expertise, as the majority, 78% expressed that any anthropogenic induced decay of the seaweed through overharvesting can be precluded. Thus, the local resource appropriators interpreted further that, if they did not cause the harm though deforestation, clear-cut, disposals or other, this can hence just be a climate problem. The proximity to the conservation management has initiated a kind of knowledge transfer in this village which was astonishing and shows what is possible to achieve in this regard.

As for the perception of “Justice Performance”<sup>33</sup> of the Institutions 96% of the interviewed local experts state to feel fairly treated, and blessed due to their advantageous location, which is not directly at the open seaside, and also not directly covered with mangroves, with this regard they have shown to be quite generous, as they host fishermen (from Zanzibar) who come to camp when the sea gets rough anywhere else. The overall justice performance of the conservation authorities is rated accordingly satisfying.

Issues of problems and conflict potentials detected: climate change impacts and implications; access to alternative income, access to the beach and therefore increasing spatial conflicts potentials with hotels and other tourist facilities.” [...] the minute we fishermen cannot go out or land our fish we will fight, but the tourists would not get fish anymore too, so we hope they [the tourist industry] are reasonable” (interviews 2012, 2014).

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<sup>33</sup> Including cumulated outcome of perceptions of the other factors.

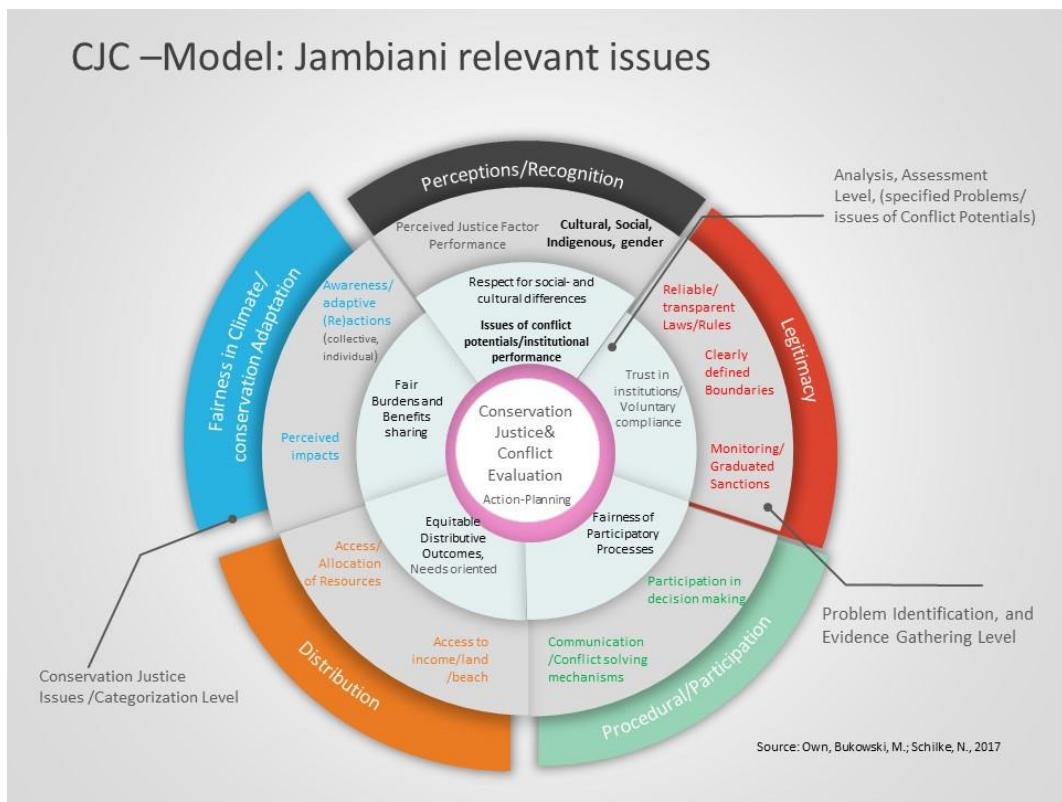


Figure 19, source, own, ibid.

For the case Jambiani the model shows three prevailing conservation justice factors which have been mentioned most frequently and significantly by the local experts interviewed: “Distributive” issues, “Fairness in Conservation and Adaptation” and Issues of “Legitimacy”.

In the vein, of distributive matters the stakeholder in Jambiani express their deepest concerns about the decreasing access to the beach due to a growing number of hotels, and private ownership mainly. According to the interviews, the new tourist facilities, and private buildings at the beach are mainly owned by foreigners, despite a law that forbids foreigners to acquire land. Asked about the reasons for this problematic situation the fishermen and seaweed gatherers plainly state that the government is corrupt. Over 85% of the local experts share the spatial concern, and rate it as extremely problematic and conflict-inducing, as well as livelihood threatening. With regards to the diminishing space on the beach, it was observed, during the field trips, that there are tiny corridors made by the fishermen to maintain beach access which are even too small for a person to stretch out, viz. not at all big enough to fit a boat through it. The other relevant indicators named are the access to education and alternative incomes, which are interdependent, according to the fishermen (and seaweed gatherers). Access to education and

projects would not only support the understanding of conservation issues but also, increase the possibilities to generate alternative incomes, in the case of English training, even open up access to tourism. 63% of the interviewed would like to explain their marine environment to tourists, to raise awareness for Jambiani's particular environment, and thereby to create an alternative livelihood. When it comes to educational issues, over 48% mentioned the PWANI project as a positive example for "something substantial", as the local experts call it, and praise Dr Jiddawi et al. for her engagement. The awareness that the lagoon provides just finite resources, which becomes especially apparent by the fact that the community does not have appropriate boats to overcome the surge at the end of the lagoon's coral reef, has also increased questions of distribution, but also climate change (see below). Yet, 62% of fishermen claim not to have another choice, but to appropriate resources, like their forefathers did, despite the severe resource pressure, as the lagoon does not provide enough. The distribution of fishing grounds has already led to tensions within the village. Therefore, the wish for a bigger boat, capable of moving beyond the surf without risking lives, as well as for bigger lamps for their boats to attract more fish, came up frequently (76%). The lack of an appropriate boat which has already caused some fatal incidents was reported. Considering this, 51% explained they would need not only technical support, and a boat, but also training, and know-how about off-shore navigation.

The justice factor "Participation" reveals an inner conflict that has been dwelling ever since Jambiani became part of the conservation area; the statements on the severity of this matter are not congruent though. With regards to the dwelling conflict over conservation matters, dividing the village over gear preference. The resource appropriators from the northern part of the village prefer line fishing and derma traps and were in favour in becoming a part of the conservation area, already using an appropriate gear within the conservation guidelines. Thus, it is claimed to have been easier for the northern villagers to adapt to the new situation, 41% of the interviewed resource appropriator indicate that, whereas the fishermen to the south prefer net fishing with nets and did not favour falling under conservation restrictions. The inevitable change of gear for the net users, not only with regards to mesh size but also the net kind, has been a challenge to the southern fishermen, according to 65% of the interviewed. In this respect, the interview partners, who have been recruited from both sides, coincidentally, expressed different emphasis of concerns. Especially, the fishermen to the south, who feel unfairly treated and disadvantaged, 58% of the local experts, expressed this sentiment, or that this sentiment is relevant. With a view to conflict solving

mechanisms, 54% of the resource appropriators articulated that the conflict solving happens through conservation authorities who then would find a resolution, e.g. by the allocation and determination of fishing sites/ grounds. Yet, the dispute is expressed not only about spatial disputes, the conflict-prone situation, is driven by the feeling of unequal treatment as far as the empirical evidence indicate, for this, the chairmen of the fisheries committee (northern villager) explains that all fishermen can hand in a written complaint, or claim help in case of emergency, for instance claiming the loss of gear or worse. But to get help takes a lot of patience “[...] up to one year before anything happens” (interview Jambiani 2012/ 2014). Asked what is done about any conflicts that occurs, the chairmen of the SFC (Shehas Fishermen Committee) explained that “[...] we first sit together and try to solve it ourselves, but if the conflict escalates, which we already experienced, we need to include external help from the conservation management “(interview Jambiani fisherman J14, 2012, 2014). Over 43 % of the fishermen found that the resource users in the north are privileged due to personal contacts to the conservation management, which would lead to an unfair preference of the northern fishermen. But besides that, the MBCA management received, yet again, a lot of positive voices, especially the choice of the manager personality, were perceived as respected and exerted, but within limited boundaries of upper procedural decisions making. Meanwhile, the majority supports the participation in the MBCA, expressing the hope that this would improve the resource situation, and attract tourists, who “[...] obviously prefer healthy and clean environments” (interview Jambiani fisherman J10, 2014). Even those who had opposed the conservation area, and claim that there are preferences by the MBCA team to the fishermen of the north, express respectful acceptance to the head of the management as “[..] a respectful person, and correct as far as we experienced” (interview fisherman J11, Jambiani, 2012).

The overall “Legitimacy” of the conservation area is nevertheless recognized by all interviewed, especially with regards to the necessity of conservation. This unity is astonishing after nearly half of the village fishermen claimed not to have been in favour of the area in the first place, which has obviously changed. The rules and regulation have been understood by 67%, yet not all of them could name more than a few “regulations”. Asking about the congruence of the rules and regulation, the majority (84%) stated that these apply to all fishermen equally, except that a part of Jambiani’s fishermen had to adapt, and still feels disadvantaged about that. The reliability of decisions was rated indifferently though, “[...] sometimes decisions stick, and sometimes they do not” (interview fisherman et al. J6, Jambiani 2012).

Regarding the Deep Sea Fisheries, the majority of the interviewed did not know or hear anything about the selling of EEZ licenses to foreign (international) industrial fisheries, but over 76% expressed their concerns about that, also referring to the case of Somalia and West Africa, they had heard about it. "We sometimes found that those with real ships are cheaters, not necessarily deep-sea fishers, but already those who are closer to the shore" (interview fisherman J1, Jambiani 2012/2014). 12% of the interviewed resource users even claimed they had seen one of these big fishing vessels in the distant during their fishing trips out.

The CJC-factor "Recognition" mainly applies to the expressed cultural difference within the village, which was very difficult to detect as a foreign researcher, but the frequented demand from one side to be more acknowledged was omnipresent. :

The CJC-factor "Fairness of Climate and Conservation Adaptation" is frequented by 98% of local experts of Jambiani to bear the highest conflict potentials. Yet again both topics (Climate Adaptation and Conservation) were mixed up, but due to the supportive translation of explanation through the local contact person whose English is very good, the expressions of observed, and perceived incidences as well as reactions, became apparent in more detail than expected. In this context the unreliable weather conditions were mentioned by all interviewed as a problem, as well as the resulting unpredictable and unreliable fishing seasons, which are reported to be way shorter than that they used to be approximately a decade ago. Furthermore, an increase of sand shifts, higher waves and a change in water temperature, which became especially apparent through the decline of seaweed in shallow waters, was mentioned. Additionally, the increase in tropical storms, especially during the "midtimes" (midterm season of fishing; during the south monsoon in July/August) was described as being rougher, "[...] too rough to go out sometimes" (interview fisherman J2, Jambiani 2014). This is an experience 95% of the local experts share and which has led to collective action to adapt. The adaptation to these changes was named with their seasonal migrations, and the use of fisher camps, staying near to the shore, or using peddles instead of sails. With regards to the observed and perceived conservation issues the fishermen recognized a growth of fishermen population and suggested that during the low tide, the water channels should be put under total protection (viz. temporal no-take zones), since the fish would withdraw to these channels during low tide. Again astonishing 84% were in favour of this measure to prevent the further decline of fish stocks.

Principally most of the interviewed fishermen and seaweed gatherers felt treated fairly by the local authorities<sup>34</sup>, (unlike by the higher authorities,) only with regards to the inner community conflict there have been expressions of mistrust. Otherwise, they are thankful for the attention of the MBCA management and hope to attract more tourists, and to find solutions to overcome the natural barrier of the reef with its high surf especially during high tide (which is the only time the reef is passable).

Issues of conflicts and problems reported: climate and conservation issues (the decline of fish stock, the decline of seaweed, insecure weather conditions, increasing storms etc.); access to beach, access to alternative income, access to education/ training and knowledge transfer of nautical and technical issues (e.g. seaworthy boat building); procedural/participative justice issues within the village over perceived unfair preference of one group by the conservation authorities; insecurities about the application of rules and regulations by “foreign” fishers (including the EEZ), especially with regards to the monitoring system.

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### Stone Town

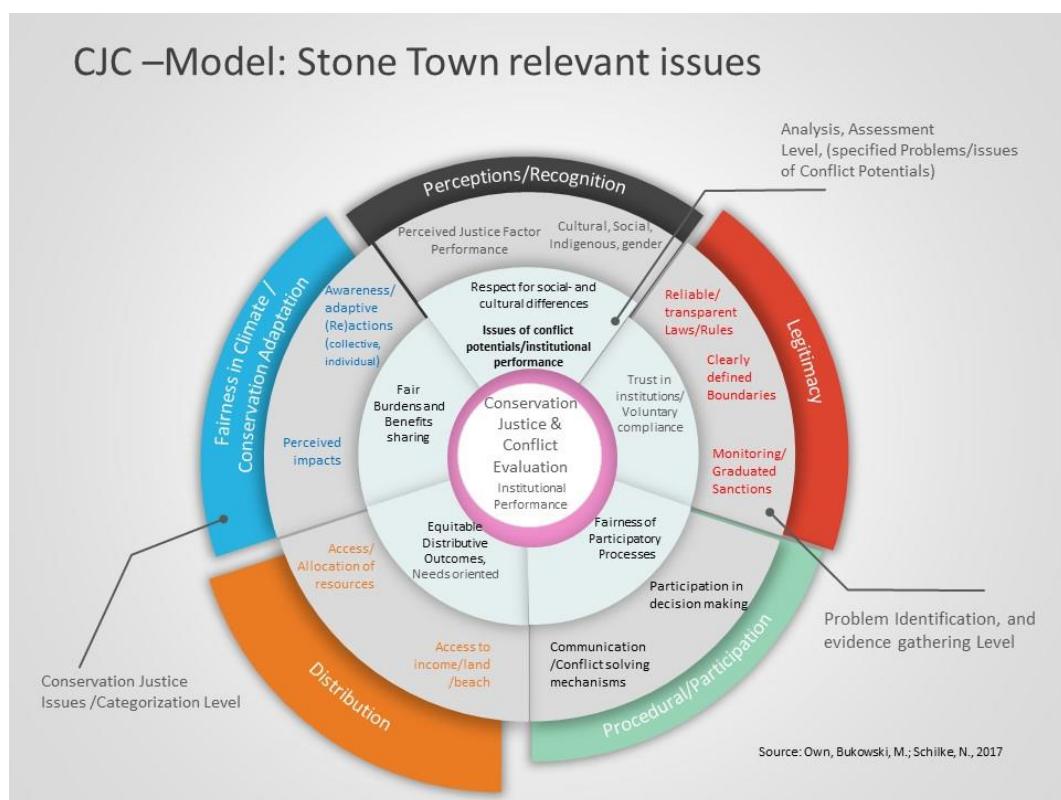


Figure 20, source, own, ibid.

<sup>34</sup> Including cumulated outcome of perceptions of the other factors.

The fishermen in the area near Stone Town were selected as a control group, as they are, so far, not yet part of the MBCA. The emphasis, the CJC model reveals is here more towards distribution and adaptation concerns.

With regards to “Distribution” the majority of interviewed fishermen,<sup>35</sup> see the access to alternative income as a threat, due to a lack of English knowledge which makes the interaction or work in the tourist sector rather difficult (86%). Yet compared to the fishermen in the rural areas of Menai Bay, at least 31% of the local experts interviewed had basic English knowledge, probably due to the daily proximity to tourists who curiously watch their activities, and dare sometime to ask them something. Another prevalent problem that has been reported by the Stone Town fishermen is the lack of participation in the growing tourist industry. According to the local experts this fact is likely to increase conflicts and is perceived as unfair for the local society, referring to the increasing number of private-run foreign companies that open hotels, restaurants etc. and bring their own personal, leaving no chance for Zanzibaris to take part in the economic growth. Nevertheless, over 90% of the fishermen express that they have at least the access to sell their fish 100%, due to the many tourists. Thus, hardly any post-harvest losses occur, as long as they do not come back too late to land their catch (after midnight), but even then, they explain to have the advantage of the urban area, and the “hunger for fish from the tourist” (interview fisherman S7, Stone Town 2014). Besides of the problems to generate an alternative livelihood the interviewed fishermen report, with a high frequency of over 85%, the increasing pressure to get access to the beach, which the increasing number of tourist facilities poses on them. “[...] the tourists enjoy the beach too, and like to observe us, and the hotels and restaurants need our fish, luckily, otherwise the beach might have been locked for us fishermen a long time ago” (interview fisherman S13, Stone Town 2012). Apropos distributive issue, the access to equipment, boats and repair of fishing boats is seen by all participants of the Stone Town interview participants as a big advantage.

Since the fishermen of Stone Town are, at the time of this study, not integrated in a conservation area, the participation in “Fishermen Committees”, nor in any other co-management project to strengthen community participation is a factor of subordinate nature and therefore not of interest for 76% of the local experts of Stone Town. “We have just us, and ok, those who produce boats, and repair them, that is a big advantage as we are free” (interview fisherman S7, Stone Town 2014). However, the fishermen of Stone Town exchange regular information with other

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<sup>35</sup> Just male fishermen available

fishermen of Zanzibar, including MBCA fishermen, which is especially interesting as the Stone Town fishermen have the highest capacity in terms of boat size and reach, and proximity to Zanzibar's harbour. Due to these circumstances, the fishermen from Stone Town can acquire information from parts, the other fishermen cannot access. Asked to whom they can address any imponderables, emergencies, or cases of conflict, 34% of the interviewed answered that the Fisheries Department in Zanzibar employs some "good people" who might give some advice or even help and is thus their contact.

The inquiries about any issues of Legitimacy with regards to conservation, 80% of Stone Town's fishermen have had heard of the MBCA, and about the plans to expand the zone all around Zanzibar, which they face with mixed feelings. With concerns for clearly defined boundaries, the overwhelming majority of 95% of informants state that they do not know about clear defined boundaries, not clear to them at least, nor to the "foreign" fishermen from Tanzania Mainland, added several interviewed fishermen. Furthermore, the local experts explained that they talked with the Mainland fisheries often about these issues and that they are as uninformed as themselves. Asked if they would also chase away these "foreign" fishermen they answered with an overwhelming majority that they do not, as long as they are not using destructive gears as dynamite. "[...] fishermen from Mainland also just want to feed their families" (Interview Stone, fisherman S8, Stone Town 2012). A few fishermen suggest a kind of new form of fishing licences defining the fishing grounds or a fishermen passport, in order to gain better knowledge of the boundaries and the respective rules. Most of the fishermen, who gathered around, not belonging to the selected stakeholder group, opposed that suggestion, claiming that there is yet enough corruption of the authorities in general and that that would just increase their cost, and not be effective. 68% of the interviewed yet understood the necessity of conservation zones for fish to regrow and recover and would try to respect these areas. With regards to monitoring 51% claimed to perceive monitoring sometimes, but mainly by the fishermen of the MBCA themselves, which is never a problem as the Stone Town fishermen explain that they go out further than their rural colleagues, thus "we do not disturb the very nearshore fishermen of the conservation areas" (interview fisherman S14, Stone Town 2014). However, the EEZ is perceived as a threat, mentioned astonishingly often, over 78% of the interviewed local experts claim they are afraid of the industrial fisheries, as they compete for the same core resources since both would target bigger species like tuna fish or kingfish. In this context, several catch landings of the aforesaid species could be observed by the researcher, which is also reflected by

the restaurants' menus ("catch of the day"). The local experts from Stone Town additionally questioned the feasibility of an effective monitoring and law enforcement referring the off-shore fisheries within the EEZ. This stakeholder control group share the worries of the other stakeholder sub-groups of MBCA resource appropriators with regards to the worries to "[...] end-up like other African nations, like our colleagues in Kenya or Somalia, we might not be well educated, but we are not stupid, and we have heard enough stories to be concerned" (interview fisherman S7, Stone Town 2016).

The CJC-factor of "Climate and Conservation Adaptation" is again a high frequented topic of the fishermen also in Stone Town, who see environmental problems as a driver of pressure on their business (in form of resource decline and overuse), and conflicts. Over 67% of the interviewed fishermen expressed this as an increasing threat, more severe than expected. Yet, the majority of the interviewed resource appropriators of Stone Town (92%) were astonishingly informed about climate and conservation relevant questions, and were open-minded in sharing their observations, and perceptions which are grounded basically on the experienced shift of fishing seasons," [...] we used to go out on different months than now" (interview fisherman S9, Stone Town 2012). According to the fishermen, they experience a recent decrease in catch volume in November and December, and a total decline of fishing operations in June/July due to unpredictable weather conditions (e.g. increase in storms, and current speed, higher wave sizes etc.). "We cannot go out as predicted as we were hoping, even with our comparably bigger boats [...]" (interview fisherman S14, Stone Town 2014). Furthermore, 80% of the informants report about several observations of coral bleaching, of an increase in flood impacts and a decrease of mangroves. Again, the differences in conservation matters and climate change matters remained unclear to them and the impact of their profession. Whereas the reported issue of a decrease of fish stocks led to a lower volume of harvested biomass in November and December through an overcapacity of nearshore fishing activities, the described fishing seasonal change in June/July origins in an meteorological change represented through the increase of extreme weather events, warmer water surface temperatures, storms etc. which prevent the fishermen from operation. Nevertheless, according to the interviewed local experts, the concept of adaptation is so far relatively unknown, yet the resource appropriators stated to practice adaptation measures despite not knowing the theoretical ideas. In these regards, adaptation is only understood as an inevitable reaction to changes in order to survive, "[...] live is always an adaptation to the circumstances, isn't it?

Our adaptation strategy is thus to go out when possible, and when the fish is there" (interview fisherman S1, Stone Town 2014). Furthermore, the informants point out that there is another observation that provokes an adaptive response, the shift of fish reproduction phases and migration patterns, which has changed for some species.

The Fishermen of Stone Town stated that they feel fairly treated and cannot judge the "Institutional Justice Performance" of the conservation authorities as being outside the area. Subsequently, the interview partners expressed their luck and advantages of the location, "we are free, left alone, and we are in Stone Town, even if we have difficulties to go out and catch the fish, we can sell whatever we land for sure, 100%" (interview fisherman S2, Stone Town 2012, verified again 2014). Additionally, this stakeholder sub-group expressed that they are lucky to have access to boats builders and tools, and infrastructure, such as transportation etc.

Issues of conflicts and problems reported: access to beach, access to alternative income, climate and conservation justice issues (increased change of weather patterns towards more unpredictable and stormier fishing seasons), a decline of resources and an increasing number of fishermen.

#### 7.1.2 Stakeholder Group A- Specific Analysis

The fishermen and seaweed gatherers of four different locations within the MBCA have been not only open-minded towards any research interest with regards to environmental or conservation-related scientific evidence gathering, and but also participated actively, e.g. showing and demonstrating their statements and activities, and areas of interest like space problems or geographical features. 94,02 % of the local experts of the whole Stakeholder Group A (i.e. all fisheries communities and villages) expressed appreciative respect to the scientists of the IMS, which proves to have a positive effect on the attitude of the interviewed fishermen and seaweed gatherers towards cooperation with researchers. Regarding the CJC-analysis, the selected cases indicate an overwhelming accordance of several factors which will be discussed in the following according to the frequency and ranking mentioned: 1) Fairness in Climate Change and Conservation; 2) Distributional Issues, especially access to the beach or fishing grounds, alternative income and information; 3) Aspects of Legitimacy, particularly towards "foreign" fishermen, and EEZ impacts. Concerning the issues of the factors Procedural Participation and Recognition, these are only frequented relevantly by two of the five fishery locations and will be mentioned accordingly.

Particularly surprising is the overwhelmingly congruent frequency of occurrence of the **Climate and Conservation** relevant factor, and indicators with regards to expressed worries that are likely to trigger conflicts, like the fishing and seaweed gathering et al. conditions are getting worse, but the high dependency on resources and outdoor lifestyle that is closely connected with nature. Therefore the amalgamated terms Climate Change and Conservation (see Chapter 5.2) were initially used to adapt to the interviewed knowledge-level, since these terms were largely mixed up and any questions regarding the climatic aspects over time were rejected, not understood or answered with “we don’t care about yesterday, yesterday is gone and remains to be seen” (interview fishermen et al. 2012/2014), but after referring to environmental and conservation issues and changes several interesting findings emerge, e.g. the same high rating for both impacts. On the other hand, the awareness and worries about the fast-changing natural conditions clearly depict a high interest and affection of the fishing communities in these matters. Otherwise, the process of adaptation to changing natural conditions, including changes in seasons, has also been stated to be a relevant driver of conflict potentials. The vital life and the livelihood-threatening nature of implications of wildlife and habitat decline as well as the unsteady climatic conditions are therefore among the biggest threats perceived and reported, even for the interviewed fishermen outside of the MBCA. That, in turn, shows how extreme and apparent these changes already are. Climatic and wildlife-habitat changes are mentioned and ranked by all fishermen interviewed with the same high priority. Most interview partners expressed a clear awareness and sensibility for environmental concerns and issues, which in turn casts also a promising light on the conservation efforts and information policy of the conservation responsible institutions (authorities, NGOs and academics). Most of the adaptive actions reported and observed bear some form of collective choice arrangements, e.g. the joint action plan of the fishermen in Jambiani to temporarily move their fishing efforts to other locations within the MBCA in case of extreme weather events, with the acceptance of resource appropriators of this other location who also decided to support their “neighbours” collectively.

With regard to **Distributive** issues, all locations share the concerns about the decreasing access to the beaches and landing places, as well as about the access to alternative income, which has been stated as a problem with growing frustration rates, except for the fishermen in Stone Town who rate these issues lower. Stone Town fishermen especially rank the access to alternative livelihoods lower than the MBCA villagers.

Also, the distributive aspects of sharing fishing grounds through the growing number of fishermen, and the thus resulting exacerbating competition are of concerns for all, but for the Stone Town fishermen. The increased number of inland fishermen and “foreign” fishermen are also expressed by the MBCA resource users to be a driver of conflicts among the fishermen of the MBCA. This reflects inter alia Pomeroy’s et al (2016) findings, who describe the increased competitions over the declining resources especially of nearshore fisheries as a driver of conflicts (Pomeroy et al. 2016). As the highly frequented worries about “foreign” fishermen (from Tanzania Mainland) highlights too, which are mostly explained through the growing awareness that the resources are declining, and the fear of a. losing the livelihood and subsistence? The tense situation and the fight over the last remaining vital resources can even divide a community, as the case Jambiani indicates, were the dwelling conservation conflict presents itself as a form of “underlying conflict” (Madden et al. 2014, p. 100) that is rooted in past actions or even an identity based/deeply rooted conflict (*ibid.*) that may also fall under the categories of **Recognition and Participation** since a part of the community feels not valued and powerful in comparison with the other half of the village fishermen. Another indicator for the second and/or the third level of conflicts, according to Madden et al. (2014), are the expressed by the traditional difference in the preference of fishing gear and identity of the Jambiani fishermen. Furthermore, the MBCA local experts state the uniform wish for more training and education, which could also be categorized into the participation features, as it has often to do with learning more about the conservation, being integrated in the conservation project, but also to enable the access to alternative incomes, as e.g. improving English knowledge to work for the tourist industry.

Regarding features of **Legitimacy**, the vast majority of all interview partners (84%), with lower rates for those outside the MPA (42%), are aware of the conservation rules and regulations, and understand their advantages, but this knowledge is full of insecurities if it comes to fishermen from outside Zanzibar. In this vein, over 70% of the interviewed are not sure whether and how these rules apply and come to affect. In this connection, all MBCA villagers interviewed share the worries about an unfair part-taking in benefits and advantages of the conservation efforts by fishermen who act unsustainably, which accounts particularly for fishermen from outside Zanzibar but not only. This attitude, even if to some extent socially excludes, depicts the fishermen’s understanding of the advantages of conservation efforts, which they are ready to defend. Yet, at the same time some of the interviewed fishermen of the conservation area wished for bigger lights or lights to

attract fish in the dark, which has been forbidden since 1993 (Jiddawi et al. 2006). This still reveals some lack of information or understanding of conservation. The degree of acceptance of the conservation measures by the fishermen can be taken from expressions of the interviewed local experts. Over 68% of all interview partners of the Stakeholder Group A. indicate a certain degree of conflict readiness with violent notions in case of conservational misbehaviour, especially of perpetrators from outside Zanzibar, but not only. E.g. "we chase them away" (interview Kizimkazi) or "destroy fisher camps if we can" (interview Fumba). Just the Stone Town fishermen have shown some sympathy for the "foreign" mostly Tanzanian (Mainland) fishermen, but then the urban fishermen possess larger more advanced fishing boats and are therefore not bound to the nearest shore fish stocks that are heavily overexploited but can go out further. The matters of legitimacy are mostly tangent to the (probable) misbehaviour of "foreign" fishermen, and the effectiveness of the monitoring, also with regards to the Deep Sea Fisheries arrangements. The Exclusive Economic Zone (EEZ) concerns over 90% of the interviewed resource appropriators. Among the fears expressed are the possible impacts foreign industrial fishing fleets (EEZ) could have on the small-scale fisheries, especially referring to the case of Somalia. The latter shows how information about conflicting and threatening situations can reach even the remotest of fisher villages. The reason for this information transfer on this matter can be found in the close connection of Zanzibar and Somalia, and in terms of Somalian refugees living in Zanzibar after the situation worsened in their country. Over a million Somalis fled the country, also towards Zanzibar and Tanzania, and vice versa (particularly in the past, when opposition supporters fled the violence of the aftermath of the elections in 2000), as the journal African Review from July 2012 reported (African Review 2012).

With regards to **spatial comparison**, the case Bweleo depicts some standard deviations in relation to the other interviewed sub-groups within the conservation area. The village is, especially disadvantaged, twofold, as the poorest community of the selected cases with practically no functioning infrastructure and challenging geographical conditions, due to the relatively remote location, with no direct access to the ocean, but to the fjord-like bay, small muddy to rocky beaches, very confined fishing grounds, and low opportunities to attract tourists. Though the location offers many possibilities for "nurseries" for young fish, and the calm waters are positive for the half-pearl farming, and as a protection against storm surge. The disadvantages of the lacking infrastructural conditions, which definitely need improvement, add to the dissatisfaction level of the interviewed fishermen et al.

Here also “underlying- and identity-based conflicts” (Madden et al. 2014) dwell, that lay in the past, and are tangent to a more fundamental non-material unmet social- and psychological needs (Madden et al. 2014). This becomes clear as the fishermen of Bweleo feel not acknowledged or recognized in their distinct identity but left behind and unheard. In terms of site-specific aspects of the other locations, they share all certain advantages in their geographic and environmental location. Therefore, Kizimkazi has proximity to the dolphin routes and offers a favourable fishing place close to the ocean, yet still on Zanzibar’s relatively calm “inshore waterside” (viz. the seaside in direction of the Mainland) that attracts also fisher camps, which are obviously tolerated as long as the camping fishermen are from the islands and/or keeping to the conservation rules. Jambiani, located on the east side of Unguja, in front of the open Indian ocean, offers vast sandy beaches, palm trees, and a protective lagoon, although this lagoon is also a disadvantage in terms of confined space for fisheries, and prone to be overused. Whereas Fumba offers a little town-like a centre for a village, some sandy beaches, and a relatively good connection to the urban centres, roads and a certain degree of infrastructure, the fishing location “Stone Town” provide a wide access to tourists, to the sea in front of relatively calm waters towards the coast of Tanzania “Mainland”. One of the biggest advantages of the Stone Town location is the access to craftsmen and skilful boat constructors that can build bigger boats that are seaworthy and can go out further to fishing grounds that are not fully overexploited yet.

The issues of **Procedural Participation** and **Recognition** were particularly relevant for Bweleo, and Jambiani and highly rated as relevance for conflicts, even if for various reasons. For Bweleo procedural participation is rather a matter of trust and recognition and for Jambiani an internal issue over dividing up their very confined fishing ground in the lagoon. Whereas this matter was not relevant for Stone Town fishermen as not being part of the MBCA, and as such not expecting to be heard or taking part in this. The other stakeholder sub-groups show a certain degree of approval of procedural participation possibilities, even though all interviewed are sceptical about the impact their participation has, except for the actual conflict solving mechanisms which are appreciated and confirmed by all except the two villages mentioned. **The perceptions of a fair treatment**, as well as the overall grading of the justice performance of the institution also depict several spatial conformities, the majority of the interviewed experts feel relatively fairly treated and are relatively satisfied with the justice performance of the institutions, particularly in terms of the local MBCA management, lesser by the “upper government”, who is perceived to decide over their heads. In this vein, the

empirical data acquisition included several rules of play, which concern a “fair” criticism, including an attempt for constructive criticism, as a mutual condition of all interview participants as well as for the interviewing research team, and this publication. In terms of the overall good perception of institutional performance, Bweleo depicts a standard deviation with relatively low satisfaction levels. Another kind of standard deviation presents the Stone Town location, as their fishermen could not give a rating, just declared to be satisfied by being on their own, yet expressed a deep interest in the conservation areas, and environmental imponderables. In summary there is a clear picture of the relative satisfaction level in the context of institutional justice performance of the local management, and an unanticipated high rated relevance of environmental and climate interests in correlation to perceived threats and possible conflicts, along with the distributive aspects of access to the beach, resources, education etc., whereas the inclusive nature of the conservation area project leads to relatively low conflict rating of the procedural participative indicators, the other aspects show more site specifics as mentioned above.

### 7.1.3 Stakeholder Group B (Conservation authorities)

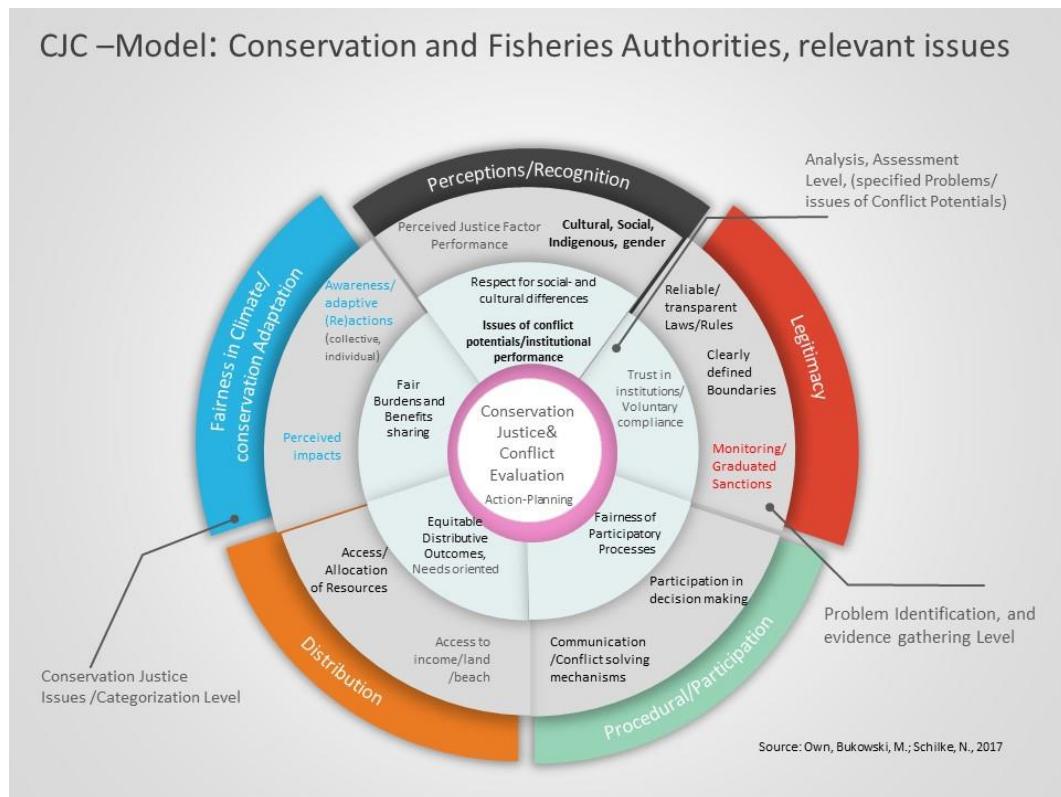


Figure 21, source, own, ibid.

The gathered empirical data was collected from representatives of the local fisheries authorities<sup>36</sup> (e.g. Fisheries Ministry) who are directly or indirectly involved in the conservation management and governance processes of the Islands and in the international SWIOFish1 project. Therefore, particularly the management team of the MBCA, and several employees of the Deep Sea Fishing Authorities, who are located within the conservation area, have been interviewed in depth. The evidence gathered from this Stakeholder Group B is cumulated and subsumed and is especially relevant as comparison to the statements given by the other stakeholder groups.

Regarding “Distributive” matters the interviewed representatives of the fisheries and conservation authorities state, first of all, that there would be no conflicts or conflict potentials within the MBCA, and that all conservation measures are undertaken on behalf of the fishery ministry that decides about the regulation. In this context, the relevant objectives for the conservation authorities would be to offer training and information with regards to conservation issues, the exchange of fishing gear to support a more sustainable resource appropriation (e.g. nets with smaller mesh size, hooks, etc.), and, in case of emergency or for special projects, to provide assistance and funds.

Concerning the CJC-factor “Procedural Participation” the MBCA management explains that there are three types of funding for this conservation area that also determine their position in the participative process of the big-scale project (MACEM/SWIOFish1): A) Governmental funding (e.g. most conservation staff employed by the government, who define therefore the direct implementation of orders), B) International donors like the World Bank, “[...] that is basically funding our operational costs,” (interview MBCA management M1, 2012), and C) some minor funding from other organizations (e.g. USAID, EU, FAO or NGOs), that offer mere technical and administrative support, and initiation of smaller projects. In this context the Smart Fish Project offers mainly training, workshops, and the coordination of the different co-operations (with e.g. science). In this vein, the appreciation of the technical and organizational assistance for the set-up of, for example, the MBCA entrance fee collection was expressed. The latter are apportioned to 70% for the management, and 30 % for community activities, and initiatives etc., whereas the local fishermen et al. claim that 10% would be allotted

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<sup>36</sup> Although the MBCA manager received a lot of praise especially due to the trust in the person directly, all interviews in this study have been anonymized, for a. security reasons and b. to increase trust on all sides.

directly to the villages. Asked about this, the management team explained: "We don't distribute it [the entrance fee] equally to the villages, it goes to the fishermen committee meetings which are for all members of the communities, [respectively for their representatives], a possibility to represent communities' interest democratically" (interview MBCA 2012). Furthermore, the entrance fee money was explained to flow into projects, initiatives, or emergencies (if a fisherman is in need due to e.g. weather imponderables). There are many possibilities for participation through the approaches of community-based/co-management in MBCA, elucidate the interviewed authorial experts further. In view of the indicators of conflict solving mechanisms or conflict prevention, it is explained that the system works twofold, on one hand through a multi-use that does not prohibit all fishing activities, "[...] we don't forbid but allow fishing, we just restrict the gear, and this is good for the communities who depend entirely on fish. There is just a small area where fishing is prohibited, a kind of fish sanctuary" (interview MBCA M1, 2012). Therefore, the management clarified further that the community friendly way of conservation is of low conflict potential. Additionally, it is stated that the task of the MBCA team is to raise awareness for conservation matters, and sustainable fisheries issues, and to give support also concerning the solving of conflicts in case they emerge. In this context it was exemplified that their procedure of conflict solution approaches disputes as following: Firstly the "problem" or "conflict" should be reported to the chairman of the respective Fishermen Committee, if the committee members cannot solve the conflict, it can be forwarded further from the local leader (Shehas) to the district commissioner's office, "[...] and if we cannot cope we forward the problem to the director of fisheries, and if he fails it goes further to the ministry" (interview MBCA M2, 2014).

The matters of "Legitimacy" with regards to congruent and transparent rules and regulations as well as clearly defined boundaries and monitoring the conservation authorities answer is as follows. The rules and regulations of the MBCA would count for all resource appropriators, local or not local, within this protection zone. The "new" rules and regulations are, according to the authorities of the MBCA, explained to all local fishing communities, and can be viewed at any conservation office, and in all facilities that deal with fisheries matters on Zanzibar. Referring to monitoring and enforcement, the responsible manager of the MBCA explains:

"We offer graduated sanctions, i.e. in case of the first violation, we sent out merely a warning, or, if a severe violation happens (e.g. using destructive gear such as poison, dynamite or other) a fine. In case of a repeated violation of the

conservation regulations, we can increase the fine, and can even bring the case to court. Yet, it needs to be considered that the most fishermen are poor, thus the punishment requires a careful and adequate selection" (interview MBCA, Stone Town 2014). In the context of the monitoring, there were two patrol boats to be observed during the field trip, although they had been inactive for the time of the research visit, which was explained by the authorities through the lack of petrol and money for petrol. In this context, it needs to be stated that the first field trip (2012) was conducted during the transition period of projects from MACEMP (2012/2013) to SWIOFish1. With regards to the EEZ, the management team forwarded the questions to the Deep Sea Fishing Authorities, whose statements revealed that the matters of legitimacy are of particular relevance. Especially, "[...] with regards to monitoring we face several obstacles, whereas the rules and regulations with regard to the commodification of fishing licences to foreign industrial fishing companies are clear and implemented with the support of the World Bank" (interview Deep Sea Fisheries Centre D1, 2014). The monitoring and enforcement challenges include, according to the expert of the Deep Sea Fishery Centre, the coordination of the jointly governed EEZ, which is a matter of the United Republic of Tanzania (viz. Tanzania Mainland, and Zanzibar), and the lack of an own EEZ enforcement means, like an effective EEZ coast guard that could monitor and, if necessary, enforce sanctions, "[...] we can, but hope that these industrial fisheries keep to the rules, since we cannot check directly, as the catch is mostly not landed on within our territories" (interview Deep Sea Fisheries Centre D1, 2016). Asked about reasons for catch landings abroad, the interviewed representatives referred to the lack of adequate harbour facilities, and infrastructure, like missing storage facilities, cooling, further procession, and transportation capacities. Although the experts anticipate that these infrastructural shortcomings and obstacles are in the planning to be improved.

Accordingly, the observed situation at the Deep Sea Fisheries Centre on-site showed a new building, many new offices, not yet fully operational. The office of one of the interviewed technical operators accommodates a computer plus monitor that in turn depict and followed several vessels on the digital map of the EEZ. Concerning this the interviewed experts explains the use of a Vessel Monitoring Systems (VMS), which according to the interviewed, describe the system, shown on the screen, and is used in commercial fishing to enable fisheries institutions to track, monitor, and regulate the fishing activities of fishing vessels, which are clarified to play a vital role of monitoring control and surveillance (MCS) programs at national and international levels. "With this program, we are able to monitor

vessels in the territorial waters of our country, or of the shared Exclusive Economic Zones (EEZ) that would extend approx. 200 nautical miles" (interview Deep Sea Fisheries Centre D2, 2012). "We try to protect the local fishing communities by improving our management toward a sustainable use of the marine environment; by the safeguarding of appropriate fishing operations and prevention of illegal fishing" (interview ibid, 2012).

Yet, when asked about any video surveillance which is nowadays integrated into such computerized tools, to get an impression of the actual catch volume, and the discard of by-catch, the experts were astonished and stated that they would forward this idea to their superiors. In this vein one of the interviewed authority experts of the Deep Sea Fisheries stated "we might have underestimated the power and capacity of these huge engines operating within our EEZ, the uncertainties of the operationalization, especially with regards to the uncertainties of the impact for our local nearshore fishing activities" (interview ibid. 2014). But so far the interviewed experts do not report any conflicts with the vessels or the local fishermen, and "we can see if one of the vessels leave the zone, even if we could not much do about it yet, but as long as we are guided by bigger organizations like the World Bank, we hope they will find ways of sanctions and rule enforcement, or support us to set up those measures" (interview Deep Sea Fishing Authorities D3 2012/2014<sup>37</sup>).

Apropos of the CJC-factor "Recognition" the MBCA management declared that the acknowledgement of site-specific, traditional and indigenous knowledge of fishermen is immanently integrated into the management. Particularly with regards to their expertise in specific conservation attempts, observations etc. which sometimes is rooted in times before any marine protected area was designed. "We acknowledge the insights of the fishermen, we visit them, and listen to them, sometimes they teach us" (interview MBCA D1, 2012/2014). The interviewed experts of the Deep Sea Fishing Authorities see a difficulty in bringing the local and traditional district cultures of Tanzania, or at least the joint culture of a developing country together with the totally different culture (including business culture) of the foreign fishing companies of industrialized countries, and expressed the wish that these would be improved, if possible, and implemented in the EEZ regulations to prevent any misunderstandings or even conflicts (national vs. international), as they have heard of from other African countries, yet the experts see the EEZ as a chance for Tanzania for economic development.

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<sup>37</sup> The update is meant as a check up on the interviews and if the empirical evidence is still relevant, if both dates are cited, it means that there have not been any changes in the content of the statements.

The matters of “Climate and Conservation Adaptation” are of particular relevance for the MBCA management, who also depicted quite some uncertainties of the difference of the concepts of adapting to environmental problems induced locally like the clear cutting of mangroves, or the increase of population and hence fishermen, and of adapting to shifts of fishing seasons, weather patterns and extreme events. Which is, as mentioned not an easy endeavour since the causes of climatic change impacts are even for scientist often not clear, and are prone to be mixed up, not even to mentioned the differences between micro-climatic changes (through deforestation or through desertification etc.) and macro-climatic impacts such as a rising sea temperature, or an increase in acidification and salinification levels of the ocean, or an intensification of unstable overall weather patterns, and rising intensity of storms in general. Even in this context, the connection is not directly obvious, and thus very difficult to categorize. In this light the MBCA stated that they have no specific measures for climate change or to adapt, yet, the management showed some form of adaptation e.g. by changing the times of fishing seasons to adapt to the shift of fish behaviour in reproductive or other population matters, which would make this adaptation necessary. However, it is not understood as a specific adaptation measure to climate change by the MBCA. Referring to the observed and perceived changes of conservation or climatic issues the management team of Menai Bay receives reports, and observed for themselves several issues from coral bleaching, to an increase of storms and its impacts, and ever more unstable weather conditions, beach erosions as well as the decline of seaweed and an heavy increase of the black sea urchin population due to natural predatory enemies, and decline in water quality (update2016). Asked what measures the management has taken to face these challenges the listed actions include “we bury the sea urchins in the sand if we can, we conduct projects to reforest the mangroves to protect the beach from erosion or impacts of storm surge, we shift the fishing seasons, and work closely with the researchers from the IMS and the international organizations” (interview MBCA D1, 2012/2014).

The overall perception of a fair treatment of the local fishermen, as well as the perceived fair treatment by the local fishermen and seaweed gatherers, the management concludes that as they are trying their best, but assumed an “unfair” judgement by the local fishers et al. In the light of the many challenges due to the overall high poverty the authorities interviewed stated to do their best to treat all communities and local people as justly and fairly as they can, yet, that their performance is to be decided by the fishermen et al. The MBCA management

sometimes feels unfairly judged too, since the MBCA communities often have unrealistic expectations toward the conservation management (interview Stakeholder Group B, M1, 2012). The managers explain that they are, just implementing the rules and regulations of the higher ministry and are often very limited in their means and resources (*ibid.*). Due to this, and the “limitations as human beings” (*ibid.*), to fulfil all the desires of the communities would be beyond the manageable and should be considered by the local fishermen too (interview MBCA, M1, 2014). “If we haven’t dealt or offered training to certain villagers, we ask for patience, some villages are new in the conservation area which has been and is still about to be extended, and we are doing what we can, but we are also bound to the rules, and possibilities the upper authorities give us as a working frame” (interview MBCA, D1, 2012/2014).

#### 7.1.4 Stakeholder Group C (Academic Stakeholders)

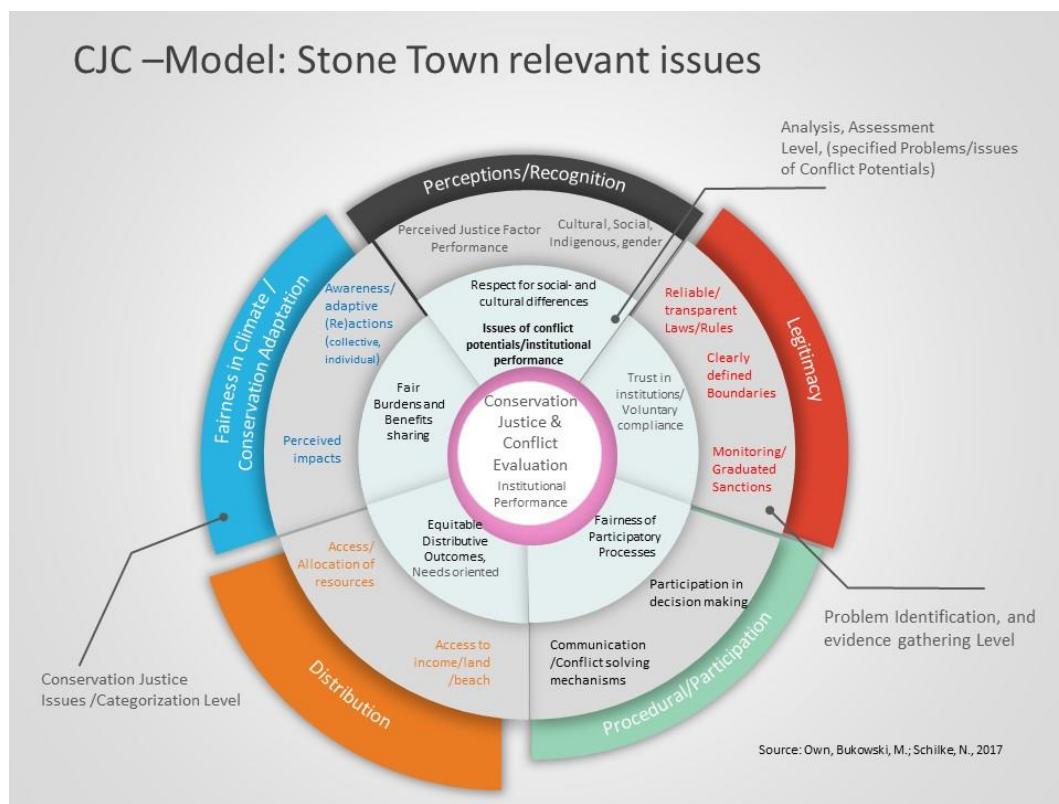


Figure 22, source, own, *ibid.*

To gather empirical academic evidence several researchers from the Institute of Marine Science (University Dar es Salaam, Tanzania, Zanzibar) and two affiliated researchers (World Bank) have been interviewed. Since all stakeholders had the choice to be anonymized for the analysis, this stakeholder group has chosen indifferently. In the light of this uncertainty, and due to the limitations of a

computerized congruent data analysis, all academic experts interviewed have been anonymized like the experts of the other stakeholder groups.<sup>38</sup>

The CJC model depicts the frequency and emphasis of the relevance of the gathered statement and indicate an expected emphasis on conservation and climate change matters for this stakeholder group. In terms of the conservation justice factor “Distribution”, the interviewed academic experts give the rise to a particular concern to be considered for the interpretation of the overall empirical evidence gathered for this study. Referring to the resource appropriators’ tendency to sometimes “exaggerate their expression of complaints”, especially with regards to the distribution of resources (interview researcher R1, 2012/ updated 2014). The researchers interviewed suggest bearing in mind the socio-economic background of the majority of resource appropriators, who belong mainly to the most vulnerable and poor parts of the society with a relatively low education level and are highly dependent on a functioning ecosystem and its services. Furthermore, the researchers indicate that they experienced that one of the reasons for the complaints by local fishing communities would be an “over expectation” of the possibilities of conservation measures on their livelihoods. With regard to the access of alternative income the researchers express the difficulties for the local residents to take part in the growing tourism sector, due to a lack of education, language skill, and because of the fact that the mainly foreign-owned or managed touristic companies would “employ their own staff, mostly not from Zanzibar” (interview researchers R2, 2014). This development thus opens up a secondary access to income through an increased demand in fish and other marine products, so it seems. The expert stated that there are several studies that indicate that even the increase in fish demand through the growing population, and many tourist visitors, provide no way out of poverty for the fishermen et al. “Ever more fishermen are sharing the benefits of a decreasing resource, which reduces the amount of individual catch and income possible” (interview researchers R1, 2012). Moreover, according to the academic experts interviewed the steady increase in tourism from over 200,000 – to over 350,000 tourists<sup>39</sup> annually also increases the pressure on the fragile ecosystem, and its resources, including the spaces on the beaches. The competitions for space between the local residents and the tourists are hence increasing, not only relevant for resource appropriators but also relevant for other beach-related activities like boat manufacturing or further services along the

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<sup>38</sup> The researchers in favour to be mentioned are therefore referred to in Chapter 8 “Synthesis” within the form of literature references and citations of publications.

<sup>39</sup> Verified by Commission for Tourism Zanzibar 2016 (ZCT)

processing of marine resources, e.g. space for drying the seaweed on the beach. The experts see the current possibility of alternative income rather in the transformation of livelihoods regarding the further procession of marine resources (e.g. jewellery production, production for the beauty-, hygiene-, medical et al. industry (e.g. seaweed soap) or in a sustainable small-scale form of mariculture like half-pearl farming, sponge farming or through improving the fisheries value chain, and reduction of post-harvest resource losses. Different projects have been cited accordingly (PWANI<sup>40</sup> et al.). In this context, the PWANI project has been mentioned several times as example for capacity building for a sustainable resource appropriation, and for providing ideas of alternative livelihoods of the local fishing communities, with a special emphasis on female resource appropriators who are especially vulnerable and marginalized within a society strongly dominated by males. Whilst warning about exaggerated expectations of the immediate impacts those projects have, as they mostly require mid-, and long-term measures as a cultural peculiarity of the Zanzibarian attitude that is focused on the today, and not so much on the yesterday or tomorrow since many of its citizens live in fragile and insecure circumstances. Beyond this, it was explained that it remains difficult to reduce the number of fishing operations, though the limited possibilities for alternative livelihoods. Therefore, an effective implementation of existing measures and a better availability of viable alternative income generating schemes are indispensable. Without those measures it will be very difficult to reduce the pressure on the nearshore resources and improve the fair distribution of income which is in turn also likely to lead to further competitions and conflicts.

With regards to procedural justice implications the researches stated that the creation of the MBCA with its community-based co-management approaches can be interpreted to have a positive effect, especially in conflict reduction through the redesign of regional institutions towards a more community integrative implementation, also with regard to the further community development, which would have been unlikely without the interventions of the Fisheries authorities and institutions (see also Davies et al. 2006). Particularly for the women, the academic experts explained, the integrative management of the conservation area would have shown some positive effect in the light of the overall circumstances. However, the researchers give further food for thoughts by the explanation that not all community members would take advantage of their participative possibilities, either

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<sup>40</sup> The PWANI Project is an ecosystem-based management initiative that targets the northern coastal area on the mainland, including Saadani National Park (SANAPA) and the Wami River estuary, in Pangani and Bagamoyo districts, as well as the Menai Bay Conservation Area in Zanzibar

due to the missing ability, and capability, like e.g. a lack of education, or simply due to a time-consuming desperation of subsistence (see also McClanahan et al. 2013, Bennett et al. 2014). Even lethargic and depressive reasons, like the belief that an engagement would not change anything, are named by the experts as possible reasons why even the most ambitioned community involvement might fail or not lead immediately to the desired outcome.

With regards to the legitimacy factors and indicators, the academic experts indicate that their studies reveal that the majority of the fishermen et al. within the MBCA are meanwhile aware of the rules and regulations, and likely to accept them, which is congruent with the empirical data gathered for this study (interview researchers 2014). The researchers explain that they conducted several studies that indicate a reduced use of destructive fishing gear which has particularly declined in recent years. This development is supported through training that raises the awareness about the necessity for a sustainable resource use, and conservation. “Though we need more training and project involvement to show the advantages of conservation for the fishermen, and other resource users, and to increase the trust in the conservation regulations and rules” (interview researcher R1, 2012). In terms of the CJC-factor “Legitimacy” and the indicator “effective monitoring” and “ecosystem surveillance”, the interviewed marine experts call for a required improvement, “[...] we need more scientific data on Zanzibar’s marine ecosystems and fish stocks and a better inspection of the conservation area but the MBCA is too big for the limited resources and few patrol boats available” (interview researchers D4 2012/ updated 2015). The scientific experts are also concerned about the impacts Dee Sea Fishing arrangements, the EEZ, may have. The issues of an ineffective monitoring and low enforcement of the regulations that increase the threats of IUU<sup>41</sup> are seen as problematic by the entire Stakeholder Group C. The scientists explain that this ineffectiveness and IUU have the potential to lead to severe resource conflicts on the local as well as on the international level, as negative examples of West Africa, and other regions have shown. They add that these issues should be under institutional surveillance, accompanied by scientific research on the impacts of the EEZ on ecosystems, resources and on the small-scale fisheries of Zanzibar. The scientific experts see an improvement regarding the CJC-indicator “clearly defined boundaries” referring to the definition and regulations that have led to more clarity throughout the MBCA project

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<sup>41</sup> Illegal, unreported and unregulated Fishing

development: "now there is for example just a limited number of fishermen from the Mainland (Tanzania) allowed" (interview researcher R5, 2014).

The CJC-factor "Recognition" is evaluated by the researchers as a vital source of a respectful interaction and hence is perceived to decrease the potentials of conflict. As far as this factor is tangent to the academic stakeholder's participation in MBCA projects, "the attempt to consider, respect and include the different identities, cultures, religions and socio-economic backgrounds is inherent" (interview researcher R1, 2012), and are especially considered by the local researchers from Zanzibar. The experts also explain that issues of recognition are included in the design of the MBCA, and it has been observed to be implemented as far as they can say. All interviewed academic experts agree that the recognition and respect with regard to the acknowledgement of culture etc. as well as gender issues are vital, but still remain a challenge on Zanzibar. Especially, with regards to gender inequalities, the researchers interviewed explained, "women traditionally do not participate directly in the fishing operations, rather in the further procession, or other activities, and women are especially vulnerable due to their double burden/responsibilities (family/ livelihood generation) and their position in the Zanzibarian culture" (interview researcher R3, 2012). Accordingly, many women work as seaweed gatherers, and in the further procession of marine resources, retailers on the markets, but also have their traditional role to care for the family and children. However, many of the female resource appropriators are now threatened to lose their livelihood, on which the whole family depends on, through the decline of seaweed, due to several conservation and climate reasons, pronounce the experts interviewed.

In terms of "Fair Climate and Conservation Adaptation the academic experts elucidate that there is strong data of observed changes of the Zanzibar's climate, in terms of extreme weather trends, rising temperature (in average and maximum), increasing wind speeds etc. Regarding the environmental observations of the other stakeholder groups, the researchers verify an overall increase of extreme weather standard deviations which are supported by meteorological data from the islands gathered over the last decade. The academic experts explain further, that the data indicates a temperature increase of the sea surface, a trend scientifically observed for the last twenty years, which is likely to have an effect on the sea weed population decline in shallow waters but also to change the wind-driven surface currents. Yet, together with the recent observations of coral bleaching, the researchers assume that these events could also be connected and/or enhanced

with some recent El Niño phenomena that induce extreme weather trends. The interviewed experts pointed out that there are mostly interconnections between impacts of climate change and conservation issues, e.g. the impacts of increased storm levels can cause more damage through flooding and erosion which are correlated with the clearcutting of mangroves as a natural protection against flood and erosion. The conservation problems can be often associated with socio-economic drivers, for instance the mangroves are cut to get cheap and affordable firewood (e.g. for cooking etc.). The researcher further explains that the economy of Zanzibar is very much dependant on the climate and conservation conditions because of its fragile ecosystems, resource-based livelihoods and tourism sectors. As for the decay of seaweed in shallow waters, it was expounded by the academic experts that this phenomenon, happens *inter alia* through diseases like the ice-ice disease that develops especially due to an increase in temperatures of the ocean and sunlight intensity, by attraction of bacteria this disease hardens seaweed and is lethal for the plant. Additionally, the higher temperatures cause the plants to migrate to deeper waters, unfortunately, by that they get out of reach for the mostly female harvesters, who often cannot swim or are afraid to dive in deeper waters, not to mention that many female resource appropriators carry their children e.g. on their backs during the harvest, which is not possible when having to swim or dive (interviews researcher R1, 2014, 2016). The issues of adaptation to climatic or other environmental problems and changes are, according to the researches, a severe challenge and needs to be improved and cultivated steadily. For the interviewed training and capacity building is the first step towards a more climate and environmental resilience, and a possibility to increase the fairness of the adaptation processes. The difficulties to bring across issues of climate change, and to explain the difference between conservation and climate change, which are often interdependent, are an advanced challenge especially with regards to the culture of the local residents. Particularly since “[...] the difficulty of any explanation on climate change is the culturally based lack of the concept of tomorrow, especially for the mid-, and long-term effects. Though we are already there, the local population has been experiencing more and more climate change impacts and start to be more open towards the previously “unknown” threat” (interview researchers R3, 2014).

The overall perception of “Institutional Justice Performance” are therefore seen by the local scientist as work in process, with some positive outcomes, and several promising approaches, of which some have been adapted and some are still pending, “we are all in a learning process” (interview researcher R1, 2014).

Nevertheless, the statements indicate that although the fishermen are trapped in poverty, Menai Bay is likely to have a positive effect on the communities, as the management explains the numbers of severe conflicts (viz. including police) have declined.

## 7.2. Synthesis and Discussion of the CJC Analysis

In the following the Conservation Justice and Conflict Factors, extracted from the interviews of the Stakeholder Group A (fishermen and seaweed gatherers), are further compared in correlation to the statements of the other stakeholder Groups B (authorities) and C (researchers). Moreover, the findings are discussed and related to the academic literature. The comparison and analysis of the most frequently mentioned justice implications reveal several concordances and several discordances between the different stakeholder groups, and literature references. The findings are contextualized with the overall research questions about the relevance and supportive character of the conservation justice factors to gain a deeper understanding of socio-environmental problems and conflicts with local communities in conservation areas and reflect the situation on site. The findings of the analysis with discussion is conducted in order of their relevance according to the ranking by the stakeholder groups, whereas the Stakeholder Group A serves as the reference value, and the evidence gathered by the other stakeholder groups are viewed as a kind of corrective feedback loop, as well as the literature as scientific backing. Conclusively, the main outcomes are summarized and reflected.

1. Before the outcome of the most prevalently mentioned factor "**Fairness in Climate Change and Conservation Adaptation**" is further described, the context of the terminology needs to be considered as it is tangent to the empirical evidence gathered. As the study unfolds it became clear that there is a need for reconsidering the meaning of, and to adapt this factor to the stakeholder's needs and understanding. In this sense, two factors have been put together in the meaning of the CBD's definition of "ecosystem-based adaptation", which understands an overall adaptation strategy to support people to adapt to climatic change through the use biodiversity and ecosystem services as vital parts (CBD 2009). Secondly, the amalgamation of terms is necessary due to the fact that the terms are closely connected (See e.g. mangrove reforestation as an adaptation measures for the prevention of flooding or as a conservation measure after clear cutting). The majority of interviewed "local and governmental experts" have had problems in distinguishing both terms "Climate Change and Conservation", particularly with regards to "adaptation". The reactions as well as coping strategies

to environmental changes, declining resources, extreme weather events, or constant climatic changes are all perceived by most stakeholders as one form of “adaptation”, although an adaptation process would include more than reactive small-scale actions. Furthermore, the difference between conservation measures, like reforesting mangroves to prevent storm damage and erosion, and climate adaptive measures like shifting the fishing seasons, have not been clear to all. Therefore, the different knowledge levels were taken into consideration, and the two different, but reciprocal terms were combined into one factor, as well as the terms of adaptation and coping are summarized, to create at least one kind of “ground on consensus and understanding” that is vital to addressing social justice issues (Sen et al. (1989), Walzer (1983), Sikor (2013), Schlossberg (2007)). This practice has been chosen as necessary to balance the scientific approach with reality on site, since the focus of this study is not on the scientific climate change definition as such, but rather about the varieties of conservation justice matters. As indicated, the combination of conservation and climatic adaptation arises from the ideas of an ecosystem-based adaptation, which was found appropriate and suitable for the analysis in this paper. It combines “[...] measures to conserve, restore or sustainably manage ecosystems and natural resources,” (GIZ 2012, p.1) “[...] to generate valuable co-benefits, such as carbon sequestration, biodiversity conservation, or food production” (*ibid.*). Another relevant issue for any adaptation and conservation success is the “willingness to cooperate or voluntary compliance” of conservation stakeholders which is particularly relevant for poorer countries with tight conservation budgets and high vulnerability (Tyler and Huo 2002, Tyler 1990, Paloniemi et al. 2011, Alexander 2005, Gezelius 2002, Ostrom 2009).

The highest ranked and most frequent responses within the Conservation Justice and Conflict analysis correlate with the factor: **Fairness in Climate and Conservation<sup>42</sup> Adaptation** by the Stakeholder Group A. The information “control/checkup<sup>43</sup>” Stakeholder Groups B (authorities) and C (researchers) verify the related statements of the fishermen et al. in this regard, and rank of this issue similarly high<sup>44</sup>. Especially, after separation of the findings on both terminologies-as far as possible- it becomes clear that climate change impacts and the Conservation-, respectively environmental impacts share similar high ratings with an acceptable proximity of about over 90% frequency of high ratings each. Yet, due to the uncertainty of empirical evidence, regarding the interference of the

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<sup>42</sup> Including environmental impacts

<sup>43</sup> Meaning the experts groups to double check and compare statements and testimonies.

<sup>44</sup> Identified through the frequency of the rating (low- mediocre- high) of conflict potential

material through the “terminology separation attempt” the factors are calculated cumulatively as one. In this vein the adaptation processes, in terms of climatic changes, have been often named as a driver of conservation challenges and conflicts by most stakeholders interviewed. In this regard 94%<sup>45</sup> of the interviewed respond accordingly that there are climatic and environmental changes which have been observed and feared, and to which an adaptation process is taking place, respectively, has to take place, due to the direct exposure of impacts on the ecosystem services for the local communities. The adaptation actions mentioned by the fishermen et al. mainly concern issues of food (in)security and loss of livelihood. In this regard the local experts of Stakeholder Group A referred to several impacts as essential drivers: seasonal changes including fishing seasons (including an interrupted resource flow during certain seasons), unpredictable weather phenomena, extremer weather events (like non-motorized boats/dhows that cannot be handled in stronger storms), but also the decline of habitats and resources, e.g. degeneration of seaweed in shallow waters, etc. (see also Jiddawi interviewed in ABP News, Reed 2017). These challenges make adaptive activities by the fishermen et al. inevitable, yet that has been reported to become an increasing challenge for the already struggling local resource dependent and appropriating communities. As elicit in the previous chapters<sup>46</sup> there are only limited adaptive strategies for the “poor” local fishing communities, especially in light of the increasing insecurity of food supply and income generation. The weather and fishing conditions are ever more challenging, “[...] so that we cannot predict anymore when, or if we could go out, meaning if we have food or not.[...]" (interview, Fumba fishermen F3, 2012), "[...] the situation has not improved ever since, it has gotten worse, now the weather<sup>47</sup> is even more against us" (ibid. update 2014). “The unpredictability of our situation has continuously worsened over the last two years”, (interview Jambiani fisherman J15, update 2014). The growing dangers through stronger storms, higher waves and currency changes trouble the impacted fisheries communities more than anticipated. As well as the collective adaptive action of a temporary migration in the form of fisher camps to other fishing locations within the MBCA that are less affected by the event, phenomenon, situation (mainly storms) is named as an additional adaptive activity, but also as a stress factor. Climate Change as a stress-multiplier was especially for the female

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<sup>45</sup> Cumulated interview evidence of both terms over time (2012 and 2014).

<sup>46</sup> Interview outcome Stakeholder Group A, 5.1-5.1.2

<sup>47</sup> Including climatic (long term) challenges- since the fishermen describes “weather” with all phenomena, (climate changes, weather events, recurring weather events, season shifts, temperature rise, etc....).

interview partners of Stakeholder Group A of concern with regards to their children, but also for over 69% of the other resource users, who connected personal experiences of climatic and environmental changes as a severe stress factor for them as parents, not only in the sense of provision of food etc., but astonishingly also with farsightedness of “what will be left for our children and grandchildren, if the weather is getting evermore crazy” (interview Jambiani J1, 2014)? “How can we and our children cope without fish and alternatives to gather food [seaweed etc.]” (interview Fumba F5, 2014)? One of the reactions to the situation observed were the relatively small number of children of the interviewed fishers (mostly one to three/four). Particularly, in the context, of the “moving together strategy” which further exacerbates the stress on both fishing communities, the host and the guest fishermen et al. (cumulated interview outcome Stakeholder Group A). The sharing of fishing grounds by more fishermen than usual adds to the pressure over the declining remaining resources of the host fishing grounds, and is also tangent to a sociocultural dimension, viz. the shame of becoming a burden for the “host fishery community” that is also struggling to survive, 63% of the local expert interviews reveal this worry, but also explain that there is sometimes no alternative strategy at hand to change the practice of “fisher camps” outside the own fishing areas. This strategy has been practised for a long time, but the interviews report about an increasing stress factor, as the interval of migration periods are getting shorter due to the changing weather conditions (cumulated interviews’ outcome Stakeholder Group A). Astonishingly, despite all these facts all local experts interviewed within the MBCA were open and sympathetic to host “fellow fishermen” from Zanzibar (especially from the conservation area) to a certain extent of course, unlike the reported reactions towards “foreign” fishermen from Tanzania Mainland. With regards to the conservation issues, mentioned by the same group of local experts, they centre mainly on the decline of core resources (90%) which is ranked highly volatile towards conflict potentials. Furthermore, with a mediocre to high ranking, the potentials of the conservation areas (including high hopes), but also observed environmental decline like beach erosion, the degeneration of non-target species, bleached corals etc., are to be mentioned. In this context the Stakeholder Group C’s (researchers) advance notice of too ambitious expectations concerning conservation outcome by the resource appropriators can be partly verified, on one hand the fishermen et al. really have very high expectations, on the other hand these are kept within limits (mediocre ranking), and are also correlated with the more realistic estimation of conservation potential, viz. that conservation is necessary and supportive, limited range of action of local conservation

practitioners, and the awareness that overall poverty and socioeconomic low conditions are not eradicated through the conservation project.

The statements of the stakeholder groups (authorities and researchers) both support the importance of this CJC factor. In this connection, the conservation authorities explain to have also observed several climatic and ecosystem changes, and therefore taken some “adaptive” and/or “conservation” actions, like the shift of fishing seasons, respectively changing certain fishing restrictions; reforestation of mangroves, etc. In this vein, the answers to adaptation to “climate change” and the “conservation” initiatives, depict an uncertainty level of Stakeholder Group B towards both terms, which are perceived as one, due to interrelations.

With regards to the stated and observed challenges of climatic and conservation adaptation, the reports of all stakeholder groups correspond widely. The interviewed academic experts back these findings of the empirical analysis of the other stakeholder groups furthermore with strong data of observed and measured climatic changes and extreme weather events on Zanzibar (e.g. extreme weather trends, increasing wind velocity, rising temperature of air and sea, etc.). In this context, a previous small-scale field survey revealed also that 80 % of the MBCA fishers witnessed a decline in biodiversity (Benansio, Jiddawi 2016). The researchers also rate the impacts and predicted impacts of climatic and environmental changes (including a decline of the flow variable) as a severe driver of problems and conflict (Adger et al. 2014). The local academic experts explain congruently that impacts on the ecosystems affect directly and immediately the local fishing communities, their resource-based livelihoods, their precarious socio-economic status, the whole modus vivendi which is characterized by the nature as well as their direct exposure to any environmental changes (cumulated interviews' outcome, Stakeholder Group C). This is particularly challenging with regards to the vulnerability and fragility of the ecosystems and habitats of a tropical archipelago, and a developing country, like Zanzibar (Pomeroy et al. 2016, OECD/FAO 2015). As an example, the experts named the “seaweed decline”, which migrates to deeper water beyond the reach for the (mainly) female resource appropriators, who thus suffered through this loss of livelihood generation.

Several studies further back the Stakeholder A's reports, and concerns about an growth of the total numbers of resource appropriators while in comparison, the numbers of fish catch simply cannot keep pace with the growing demand, is stagnating and/or declining (Benansio et al. 2016, FAO 2014, WB 2014, Pomeroy

et al. 2016). This is further evidenced by a graphic of Zanzibars' Fisheries Department, showing the both, overtime divergent trends until 2011<sup>48</sup>.

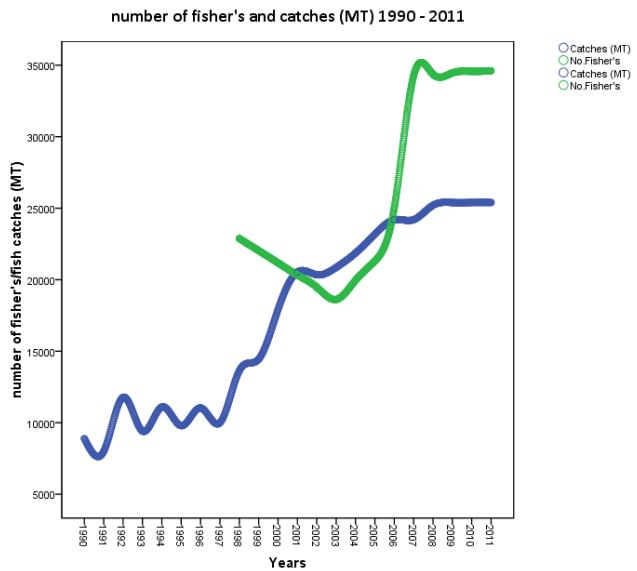


Figure 22: Fish Catches (MT) and the Number of local Fishers in Zanzibar Island from 1990- 2011. Source: Zanzibar Fisheries Department, in Benansio, Jiddawi 2016, p.7<sup>49</sup>.

This trend is also described by the interviewed Stakeholder Group A, including “bwana dikos/beach recorders”, and indicates also a tendency to catch smaller fish, either immature or barely the size allowed. Although rates of destructive fishing practices such as e.g., dragging nets in shallow waters, beach seining and dynamite fishing) are lower in Zanzibar than in Tanzania (FAO 2014), they are still prevalent for Zanzibar though (Benansio, Jiddawi 2016), adding to the vulnerable nearshore fish stocks, due to the pressure from the incessant “increase of fishing capacity” (FAO 2014, p. 13). The empirical findings and therefore the relevance of this justice factor is further supported by several publications such as the coastal report of the DHI et al. (2014), the World Bank’s SWIOFish ESA<sup>50</sup> (2014/update 2016), and the latest World Bank poverty assessment for Zanzibar (Belghith et al. 2017) all of which refer to an increasing vulnerability of the coastal residents (especially those heavily depending on marine resources) due to climate change, which is exacerbated by the population growth similar to other Small Island Developing States (SIDS). In accordance to the gathered empirical evidence, the

<sup>48</sup> More updated data is unfortunately unavailable.

<sup>49</sup> The upper polygon course shows the number of fishers; the lower, shorter one the catches.

<sup>50</sup> Environmental and Social Assessment

literature prognosticates the environmental challenges of increasing floods and inundation, saltwater intrusion, storms surge, coastal erosion to become a growing risk to livelihood structures dependent on fisheries, marine resource processing, mariculture, and tourism. The predicted negative impacts on the diverse ecosystems and its services of Zanzibar are hence likely to have a harmful effect on coastal livelihoods, particularly without appropriate and site-specific adaptation strategies (DHI et al. 2014, World Bank 2014/2016, and 2017, Belghith et al. 2017).

2. With reference to **Distributional Justice Issues**, the stakeholder Groups generally agree on their statements, more than expected, yet depict also some disparities. The Stakeholder Group A particularly refers to following distributional justice matters as drivers of conflict potential: a) **access to the beach or fishing grounds**, b) **access to alternative income** and c) **access to training and information**. Whereas the conservation authorities, particularly the management of the MBCA do not see any conflict potentials but affirm to support the local communities as much as they can.

The often-stated concerns about the **declining access to the beaches** and **landing shores** by the fishermen et al. (83%)<sup>51</sup>, yet proves to be well-grounded, and is supported by the Stakeholder Group C, including the SWIOFish1 project assessors, as well as by own observations<sup>52</sup>. The Stakeholder Group B (authorities) does only mention that there are several beach access problems, but there is just a little the local conservation authority could do about this land use problem. The interviewed researchers verify the concerns of the local resource appropriators and see a significantly increased number of tourists and tourist facilities, exacerbating the pressure on the beach spaces, and the ecosystems, resources etc. (e.g. through consumption, and pollution). These statements are concordant with the findings published in the SWIOFish1 Assessment Report (World Bank 2014, p. 52 – 54, p.111) that also addresses the coastal land use problem for Zanzibar and Tanzania. According to the researcher, the competition over space with local residents and the tourist industry has a negative effect on the resource appropriation, and also on all businesses that take place at the beach (Davies et al. 2006).

The next highly frequented indicator for distributive conservation justice “**access to alternative livelihoods**” for the local fishermen et al. (69%)<sup>53</sup>. Again the

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<sup>51</sup> Cumulated interview outcome of Stakeholder Group A.

<sup>52</sup> Very narrow corridor (approx. 50 cm wide) between buildings that block the access to the beach, Jambiani, 2012.

<sup>53</sup> Cumulated interview outcome Stakeholder Group A.

Stakeholder Group C (researchers) support, and share the perceptions of the Stakeholder Group A (fishermen and seaweed gatherers), whereas the Stakeholder Group B (conservation authorities) does assume any conflict potentials, and refer to this matter only with regards of conservation sub-projects, like half-pearl farming, and the limitations they face in the light of the overall low economic development. Yet, the conservation efforts are constantly thwarted and threatened by the increasing overcapacity of fishing efforts in Zanzibar that also derives from the lack of alternatives in terms of income generation. This sentiment is also named by the Stakeholder Consultant Field Report of the SWIOFish1 assessment, which states that “[...] the “Introduction of alternative livelihood to the fishers will definitely reduce the fishing pressure thus regeneration of fishing habitats, increased fish stocks which will contribute to the individual fisher’s income” (World Bank 2014, p. 74). Access to alternative income is repeatedly named in the SWIOFish1 Assessment as an issue of relevance (World Bank 2014, p. 72, p. 61, etc.). Yet, it needs to be considered that alternative livelihood projects do not always have also a positive effect on conservation, other projects fail (World Bank 2014, p. 73), however, there is still little evidence gathered on these correlations (Roe et al. 2015). The Stakeholder Group C (researchers) also verified the problems to find alternative income possibilities for the resource appropriators as a potential driver for a further exacerbation of the tense situation, and as such a conflict potential. According to the Stakeholder Group C (researchers) the problem is correlated with the low level of education of the local residents of the conservation area, which is understood as a barrier in finding sources of alternative income, e.g. in the tourist industry (DHI et al. 2014, WB 2017). Another reason the academic experts mentioned is the “preference for own staff” of the mostly foreign-owned or managed business as well as the low economic development that in case of growth (e.g. the tourist sector) not transferring the benefits to the vast number of mostly poor fishing communities (interviews researchers accumulated 2012, 2014), who remain “trapped in poverty” (Davies et al. 2006, Belghith et al. 2017). The interviewed researcher gives further food for thought by the elucidation that the described development would only enhance the “secondary access” through selling fish to the tourist sector, which in turn even increases the competition over the last remaining resources” (interview researcher R2, 2014).

Several publications on “poverty traps” of local residents within conservation areas (e.g. Barrett et al. 2011, Fisher et al. 2005 etc.), explain the term by the evidence that the poor have no, or only low chances to generate and mobilize sufficient resources to overcome the chronic low-income situations, and/or are being very

vulnerable to any environmental disturbances (caused for instance through extreme weather events etc.), and consequently may remain trapped in poverty (Fisher et al. 2005). With regards to the relationship between protected areas and poverty, there is a long-running ongoing debate in academic and policy circles (Brockington et al. 2015). The academic experts interviewed, and the literature see shifts in livelihoods rather happen on Zanzibar in manufacturing of marine resources or mari- and aquaculture (2012/2015), a hint Davies and Jiddawi refer to already in 2006 and suggest a required 20% increase in the supply of fish from aquaculture to meet the current demand (Davies et al. 2006). The DHI et al. (2014) assessment of coastal livelihoods in Zanzibar, considering key livelihood assets such as education, skills, infrastructure and institutional set up (supporting livelihoods) reveal several emerging issues, which have not significantly changed for the SWIOFish1 Mission update 2016. The findings show that the coastal population dependent on natural resources and marine environment for a living (DHI et al. 2014), shift to more diversified varieties of livelihoods generation if possible (World Bank 2017b). In this connection, the latest World Bank poverty assessment (Belghith et al. 2017) stresses this finding and describes an unequal development and poverty distribution between urban centres and the rural areas (*ibid.*).

With regards to the third highly frequented distributive justice indicator being perceived as another driver for conflict potential by all stakeholder of Group A (resource appropriators) cumulated (78%) is: “**access to training and education**”. The local conservation authorities explain to offer training, workshops and information to the fishing communities. Though, the conservation management elucidated that these educative actions can only precede successively, community by community, and according to the institutional capacities. The successive process and limited resources of the MBCA management which does not enable to cover the whole area at the same time, explains the differences of statements between the fishing communities, depending on if they have received the training and information already. In this vein, the Stakeholder Group C, (researchers) warns about exaggerations by the fishermen et al. regarding complaints, and also of high expectations of the training projects, especially with regards to the distribution of resources, and fears that conservation measures have a negative impact on the livelihoods. This fear cannot be overall verified by the CJC analysis since nearly 70% of the interviewed fishermen et al. do not report any unrealistic exaggerations, thus the estimation of expected training benefits or conservation harm has proven to be moderate.

3. **Legitimacy** as CJC factor present the third highest frequency of occurrence (78%) and ranking (mediocre- high) by the Stakeholder Group A (fishermen et al.), the most relevant indicators are: **transparency and congruent rules** as well as **monitoring and enforcement** issues. In the context of transparency and congruent rules the often stated insecurities of the Stakeholder Group A referring to the legitimacy of the fishermen from Tanzania Mainland fishing within the MBCA, the local conservation authorities (Stakeholder Group B) assures that they explained all rules and regulations to all fishing communities, including the conservation area regulations, which apply to all, “local or not” (interview MBCA management M1, 2012), viz. all fishermen et al. from Zanzibar and Tanzania have the right to get a fishing licence. It is interesting, that despite the local authorities’ assurance of comprehensive conservation regulation information to the communities as well as scientific evidence supporting this, the resource user Group is still neglecting the rights of Tanzanian fishermen to access Zanzibar’s fishing areas. To different extents the majority of the interviewed fishermen et al. share insecurities of whether the rules also apply to “foreign” fishermen et al. and rank this issue with a high to mediocre conflict potential. Yet, the gathered empirical data of this study verifies, it aligns to the Stakeholder Group C (researchers), the statements of the local authorities about the provided information. Therefore, it can be assumed that the hostile attitude towards mainland fishers is not as much resulting from misinformation, as anticipated. Rather, the analysis of the statements by the local experts reveals, that this sentiment of the fishermen et al. may result from a frustration over the increasing competition over the declining resources. The fear and competition of declining resources are discussed to be relevant in further studies (African Development Bank 2017, Bennett et al. 2014, Davies et al. 2006, Benansio et al. 2016, Pomeroy et al. 2016). In this vein the field survey shows that despite the majority of “[...] fishers understood the implications of damaging fishing practices” (Davies and Jiddawi 2006, p. 8), “[...] fishers were concerned that competition from outside the area and problems of enforcement, were reducing the potential benefits of the MPA” (*ibid*). However, this topic is still a matter of conservation justice and conflict, and needs to be taken into account by the design and management of conservation areas (Pomeroy et al. 2016), as over 50% of the Stakeholder Group A assume wrongly about legitimacy issues (such as transparency, congruent rules and regulations, trust etc.), and therefore the rights of “foreign” Tanzanian fishermen to fish within local fishing grounds are not considered by the local fishers (except for the few female local experts). Yet, the question is how far the local authorities can monitor and/or sanction

misbehaviour remains unclear and criticized by researchers and World Bank consultants too (World Bank 2014, World Bank et al. 2016, FAO 2014, Benansio et al. 2016).

The other relevant issues of “Legitimacy” reported by the Stakeholder Group A, are the indicators: **monitoring, and enforcement** of regulations, especially with regard to the EEZ. Although the local authorities and fishermen agree on and appreciate the system of graduated sanctions, the monitoring and enforcement of regulations are still viewed as a problem by all stakeholder groups. In light of the coastal marine resources, particularly the local researchers interviewed as well as their study reveal that there are not only differences in biodiversity and fish species richness between different areas and villages within the MBCA (interview outcome researchers; Benansio et al. 2016), but also plead for more information and studies to investigate the marine resource situation. Verifying Kizimkazi as one of the areas with the richest fishing grounds of the case study villages chosen (Benansio et al. 2016). During the field trip, it became instantly apparent that there is often not enough petrol money to fuel the patrol boats. Furthermore, the Stakeholder Group B (authorities) explain that the conservation area does not have enough manpower to detect every violation. In addition, the application of an efficient enforcement even with graduated sanctions can be difficult because of the low economic situations of most fishermen, hence management tries to balance and find appropriate ways to serve both the environment and the people within their limited resources.

With regards to the often-stated concerns about the EEZ, which 68 % of the interviewed resource users are worried about, still depict a mediocre-high conflict potential, since they presume negative impacts. Some of the worries are shared by the other two stakeholder groups, particularly in relation to poor e.g. monitoring, inspection and effective enforcement of regulations (all stakeholder groups), or benefit transfer from the EEZ to the local economy (cumulated interview outcome researchers), which is also of interest of other related reports, research and assessment (OECD/FAO 2015, Ochiewo 2016, McClanahan et al. 2013, World Bank 2014). Though, according to the FAO, and World Bank it can generally be assumed (due to lack of scientific data) “[...] that overfishing in inshore areas has continued to cause a decline in fish catches, whilst the deeper coastal waters remain moderately exploited due to lack of capacity by local fishers to operate further off-shore” (FAO 2014, p 14). Thus, the exploitation of the more distanced waters is approached through the licensing of fishing activities for industrial

vessels. The SWIOFish (World Bank 2014) and SmartFish (FAO 2014) report that most of the fishing efforts within the EEZ are conducted by foreign fleets, targeting mainly tuna and tuna-like species, which are also an integral part of the overall key coastal fisheries: “[...] tuna, swordfish, prawns, demersal fish (Grouper and snapper), octopus, and mariculture (shrimp farms, seaweed, shellfish culture)” (FAO 2014, p. 15). As per the WWF (2014), the Tanzanian (including Zanzibar) EEZ is located within the tuna belt of the South West Indian Ocean (SWIO), which offers abundance in tuna fish (WWF 2012, POSEIDON et al. 2014). In this sense, in 2010, an average of 1,021.6 metric tonnes (Mt.) of EEZ landings<sup>54</sup>, is reported for Tanzania (FISH- i 2014). The Indian Ocean Tuna Commission (IOTC 2017) estimates for 2012-2015 an average tuna fish catch allocation range of Tanzania’s EEZ of 5,626-13,581 (Mt.) (IOTC 2017, p. 11). In 2016 there are already seventy-nine vessels registered to fish within Tanzania’s EEZ (*ibid.*), all operated by foreign distant water fishing nations (Lee et al. 2016). Lee et al. deduce an average of 9,848 (Mt.) from the IOTC estimations and calculated the value of the EEZ waters of Tanzania between US\$ 17,726.465 and US\$ 24,620,091 (Lee et al. 2016, p. 64)<sup>55</sup>.

Particularly interesting in the context of the EEZ are concerns expressed by the Stakeholder Group A of this present study, is not only the increase of distant fisheries activities, to a degree that even influences professional recommendations for the Tanzanian EEZ. In this regard the mentioned IOTC’ s stock status report (2016) explains that even though parts of the tuna stocks are fished below MSY (Maximum Sustainable Yield), the stocks of Yellowfin and Marlins need to recover to a biomass within MSY. The baseline study of Tanzania’s fisheries and related investment possibilities goes even further, and advice against investment to further increase the fishery fleet capacities for the EEZ. “[...] although the IOTC scientific Committee has estimated that part of the stocks is being fished below MSY. In the light of the authorization of 6,407 fishing vessels and 63 fish reefer vessels in 2016, even the Baseline Report of Tanzania and Zanzibar, meant *inter alia* to elicit investment possibilities in the fisheries sector, warns that there is “little room to further increase fleet capacity” (Lee et al. 2016, p. 87). The literature promotes the need for improved reporting, monitoring and data collection (SWIOFish 2014/2016, IOTC 2016, IOTC 2017, OECD/FAO 2015, OECD/FAO 2016 etc.). Referring to the obsolete data on fisheries (monitoring indicator), Lee et al. (2017) assess the statistics and management of Tanzania’s coastal fisheries as a matter that

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<sup>54</sup> The source no page given.

<sup>55</sup> Assumed average price of 1,800 and 2,500 US\$/Ton (Lee et a. 2016).

“requires a lot of improvement” (Lee et al. 2016, p. 72), though Lee et al. report about the updated data gathered by the URT in 2016, after their last report 2009. The dynamics of this sector requires a regular check-up and a wider range of resource assessment though. Unfortunately, the insufficient data situation does not allow a well-founded assumption of the fisheries stocks, ecosystems, and proportion of exploitation through the distant water fishing nations (DWFN), “due to weak monitoring, control and surveillance” (Edward Kimakwa (WWF) interview in FISH-I 2014). In addition, it is not clear in how far possible overlapping interests in species could lead to an increased competition with nearshore coastal fisheries (Ochiewo 2016), especially as there are trends showing that coastal developing states lack capacity to protect those stocks from the impacts of illegal, unreported and unregulated (IUU) fishing practices (Rosello 2016). Additionally, Zanzibar does not offer an appropriate landing infrastructure, including harbours storage facilities, further processing industries etc., although the Zanzibar’s harbour facilities have recently been extended. So far Zanzibar’s and Tanzania’s Exclusive Economic Zone it is under surveillance through VMS (vessel monitoring system) and MCS (monitoring systems)<sup>56</sup>. Unfortunately, without any video monitoring requirements to carry such technology nor the software to access and process the video data to extent and advance the existing monitoring systems through surveillance via video. This would increase the chance for Tanzania and Zanzibar to observe and check on the fishing fleets, on the discard, actual catch and gear in real time (SEAFISH 2012). This information is particularly valuable for countries that do not have the capacities to land the fish nor to enforce misbehaviour (SEAFISH 2012). However, efficient enforcement is also a matter of efficient monitoring (with regards to fish stock research, and/or fishing activities). The expressed challenges and conflict potentials in this matter cannot yet be assessed and remain to be seen. The interviewed academic researchers are careful with the impact expectation of the EEZ, for economic growth, but also for negative impacts on the local fisheries, since several target species passing by the nearshore areas could be caught further outside by the trawlers. There is no certainty that the international fishing industries conduct their fishing according to the regulations, e.g. not to use bottom-trawling fishing gear, but so far nobody can directly say as the monitoring systems of the Deep Sea Fishing Authorities do only depict the location and direction and whereabouts of the trawler or fleet, as well as a catch log. In this regard the responsible Deep Sea Fisheries authorities rely on the satellite-based monitoring system, yet do fail to explain how to inspect, check

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<sup>56</sup> See interview Stakeholder Group B

and control the fishing practices and concrete amount of fish catch or discard of bycatch, or in what way enforcement takes place in case of misbehaviour. Several research studies as well as local researchers, and SWIOFish 1 consultants indicate that there is a need for further research on the impact and the benefits generated from EEZ have on poverty alleviation (Davies et al. 2006, FAO 2000, World Bank 2014, World Bank et al. 2016).

The concerns of the fishermen et al. of the negative impacts of the EEZ to a kind of “Somalia Effect”, are explained by the Stakeholder Group A as a kind of “dystopic” problem that has been reported to the local resource appropriators as result from the illegal (mostly industrial, foreign) fishing rampant off Somalia’s coast which lead the fishers to become criminals (cumulated interview outcome Stakeholder Group A). The fishermen et al. did not put the “Somalia problem” in a broader context though, e.g. the vicious cycle of a corrupt government, low economic growth, and devastated local population, and closely linked to the political situation of Somalia, which is different from Tanzania or Zanzibar. There are many reasons for the Somalian situation, which have not been named by the interviewed local experts. The devastation and chaotic humanitarian situation did not only result from unregulated EEZ activities but had their cause inter alia in a civil war (starting 1991), a lack of governmental control, several natural disasters like droughts, decrease of crops yield, partly due to soil erosion, lack of fertilizers and further instability (Djama 2016). Unlike Tanzania and Zanzibar, Somalia’s coastal marine resources remained underexploited, for various cultural and other reasons. Besides the different fishing traditions, the artisanal fishing activities could not cope with the illegal industrial foreign fishing activities, pollution of the territorial waters with toxic and nuclear waste, bequeathing depleted fish stocks and destroyed habitats (Djama 2016, Raunek 2016). The complexity of the Somalia topic is thus not fully grasped by the interviewed local fishermen et al., however the fear to “end up like the Somalis” is stated by over 50% of the interviewed fishermen and seaweed gatherers in correlation with activities of the “Deep Sea Fisheries” and industrial fishing vessels, and needs to be considered by the management and planning of MPAs, with respect to inform, but also with respect to take precautions to avoid similarities.

4. In accordance with the analysis of the cumulated interview outcomes of all stakeholder groups cast a positive light on the **Procedural Participation and Recognition** issues, which are anyhow rated as important conservation justice factors. Especially the “conflict solving mechanisms” are mentioned by all

stakeholder groups to have a positive effect. Considering this, the “procedural” aspects are mentioned by 51% of the Stakeholder Group A to be of mediocre level<sup>57</sup>. Although the majority of resource users states that their participation does not have an impact on the decisions made by the authorities. The lack of trust is referring to the “higher” authorities (ministries from Zanzibar and even more Tanzania Mainland, UNO etc.), not to the local MBCA management, which is basically trusted. Last, but not least, through the community-based management approaches used within the SWIOFish project. The participation in projects that are offered by the institutions like training, workshops etc. are appreciated by all stakeholder groups. The Stakeholder Group A would like to see this training to be increased in order to create possibilities for all local marine resource using communities to participate, which the MBCA management stated to work on and asks for patience. The participative approach of conservation management and governance is building trust in the local authorities, which is fruitful for collective actions that encourage the willingness to cooperate and engagement important to successfully sustainable resource-, and conservation management (Ostrom 2009, Redpath et al. 2016).

Regarding the often mentioned “entrance fee”<sup>58</sup> by the fishermen and seaweed gatherers, the authorities proved their information as faulty and deficient. This lack of regulatory knowledge leads to wrong assumptions and frustration between the fishermen et al. There circulates e.g. the incorrect information that 10 % of the collected money would be directly given to every community within Menai Bay, except to their own community. A sentiment that provokes the notion of “unjust treatment” and even conflicts. In fact, 30 % of the entrance money is invested into the communities but just indirectly for activities and initiatives, or in case of emergency. The remaining 70% of the collected entrance fee is used to maintain conservation actions (staff, offices, administration) (interview Stakeholder Group B, MBCA management 2012/2014). Although this issue could also be listed above for it affects also distributional issues, it was chosen for the participative factor, since it is mostly connected with a fair part taking, and less with the assumed economic advantage resulting out of this. The fact that even if the wrongly assumed 10 per cent of a couple of dollars entrance fee by non-local visitors, divided through the many villages within MBCA would not have made a big contribution to the

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<sup>57</sup> Including the standard variance of two villages (Bweleo, and Jambiani) which rated this issue higher due to the reasons named in the previous subchapters.

<sup>58</sup> During the time of the research phase visitors of the MBCA pay an entrance fee of 3 USD. The collected entrance fees are intended to fund the natural reserve and support the 19 villages in the surrounding area (Frisk et al. 2012, Gautam 2010).

individual communities, was clear to all interviewed. That means the misunderstanding to not participate has little to do with monetary benefits, but with an intangible perception of being unfairly treated. For some of the cases and local experts, misunderstanding is even more of a reason of frustration, and loss of trust in the local authorities, which can easily be fixed through a more direct, and maybe understandable information to the local resource appropriators. The otherwise relatively low conflict potential over the CJC-factor “procedural participation” is also being driven by the “community friendly way of conservation” (MBCA management M1, 2014). Still, another issue was raised, especially as the answer to the question why conservation implementation in the communities is sometimes slow. In this context it became apparent that the participation in the fishermen’s committee sometimes lacks to integrate the “real leaders” of the village, who are mostly those who possess bigger boats, providing work for other fishermen (interviews stakeholder update 2014/2015). The statements reveal further that those men mostly do not have the time nor interest to take part in time-consuming activities with these participative opportunities offered by the conservation approach, although it was explained that these big boat owners with a high socioeconomic status would express wishes if necessary. Thus, this issue is also tangent to the CJC-factor “Recognition” that includes the “recognition” of different socio-economic backgrounds and should be considered in conservation planning too, for example with regards to generating incentives for unobtrusive community leaders to effectively participate since they can have an influence on the whole community.

With regard of “**Recognition**”, the reported imminent integration of recognition issues (*ibid*), such as cultural, religious, socioeconomic, and gender etc. aspects in the MBCA management plan seem to pay off. The local experts of resource users frequented this CJC factor with 39%, with a “low to mediocre” conflict potential within the MBCA communities. However, the interviewed stakeholder of Group A understood that these issues could cause severe conflicts, and had caused violence in the recent local history e.g. the fights with the political opposition in the 2000 elections; fights between different ethnicities etc. often ignited by political-, religious-, cultural-, or social differences (cumulated interview outcome Stakeholder Group A, 2012/2014). Despite the surprising understanding and insight of the local fishermen and seaweed gatherers, as well as of the local authorities, there are still several subliminal cases of “recognition” in the conservation area that are overseen. For instance, in terms of gender aspects, which the problematic situation of the female seaweed gatherers or lack of female fishers shows, as well as the internal dwelling fraction within Jambiani community,

or the different case of Bweleo. These cases bear quite some conflict potential tangent to either different gender roles, cultural fishing habits, social status, or other particularities. The researchers interviewed elicit accordingly that especially gender aspects, but also cultural and socio-economic issues remain a challenge. In this vein Redpath et al. (2015) reminds that the origins of conflicts arise often beyond material differences, but from a deeper cognitive level, often linked to power relations or divergent values, which in turn ingrained in the social, or cultural past (Redpath et al. 2015, Madden et al. 2014, McClanahan et al. 2013, Bennett et al. 2014). Furthermore, in accordance to the statements of local experts (Stakeholder Group A 2012/2014/2016) and the DHI and SAMAKI (2014) coastal report findings it becomes clear that there is an overall decline in traditional knowledge resulting from socio-economic changes and new value systems as well as population pressures and intergenerational gaps- “rendering community management practices almost dormant” (DHI et al. 2014, p. 48).

5. The CJC-factor “**Institutional Justice Performance**”, basically reflect Stakeholder Group A’s overall evaluation of perceived “just” treatment by the conservation institutions, expressed through the ranking of approval rates (high-mediocre-low). The overall approval rate includes also the consideration of the outcome of each conservation justice factor analysed. In this vein, the CJC analysis of the Institutional Justice Performance of the MBCA reveals a high approval rate by over 68 per cent (with Ø 7,6 points<sup>59</sup>) of the interviewed local experts which is interpreted as a satisfying institutional performance of the MBCA, especially in the light of the many challenging issues accompanying the conservation situation. Only 15 per cent of the interviewed expressed a lower approval rate, and 17 % abstention or no concrete or detectable opinion<sup>60</sup>. This result is basically based on the very high ranked performance, and trust rates of the local MBCA management, whereas the more distant, higher levels of institutions on the governmental level are rather distrusted, leading to (political) disenchantment and a kind of weariness.

The study’s positive interpretation of the MBCA institutional performance rates results also from the comparison of other conducted and analysed, yet unpublished, studies of CJC factors of fishery communities, for instance in Rio de Janeiro, Brazil. The following exemplary excursus serves as a comparative illustration:

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<sup>59</sup> See chapter 5.1.2(Ranking scheme of the stakeholder’s evaluation)

<sup>60</sup> Mainly by Stone Town Fishermen who were not included in the MBCA during the time of examination, and some standard deviations within the MBCA.

With regard to the “Institutional Performance”, the CJC analysis of small-scale, subsistence fisheries in Rio de Janeiro, Brazil reveals devastating approval rates of under 20% (with Ø 6,5 points), and a high conflict potential of nearly all factors, even with violent notions. In this context the research team could observe the aftermaths of attacks on governmental conservation representatives, respectively on their work (e.g. display hatch) whose work was meant to support and explain the conservation area. The hostility was explained by the local artisanal resource appropriators with an “unfair” and “unjust” treatment, driven by the anger of the fishermen about a corrupt, excludable system. Whereas just a synopsis of the fishermen complains (including male and female fishermen) can here be given such as a lack of procedural participation (see also Leal 2013), prohibited access to traditional, and still relatively uncontaminated fishing grounds at the Copacabana beach; displacement to other shores with a high ratio of toxic waste (mainly through oil spills, e.g. Guanabara Bay). Or the other way around, local fishermen of contaminated traditional fishing grounds (e.g. some Guanabara Bay areas) seek uncontaminated fishing grounds and collaborate with the traditional Copacabana fishermen (Peipke 2006, Robichaud 2017, Leal 2013). The Brazilian fishermen express a special anger due to the fact that their treatment happens, while the tourist industry can still access, and use the MPA, leaving waste and other disposals<sup>61</sup>, conducting game fishing tours, dive, and party etc. (cumulated statement interviews Rio de Janeiro 2012/2013 updated 2016, and observed). In addition, the artisanal fishermen report to have been totally prohibited to access their fishing grounds for about ten days during the Earth Summit 2012 (Rio+ 20) on sustainable development, without any compensation (also verified by statements of a high responsible institutional officer). The problematic and conflict driven situation of artisanal fishermen in and around Rio de Janeiro, from Copacabana to Guanabara Bay is also described in several publications and news articles, which report about the persistent presence of oil spills and their impacts on the ecosystems and fish populations, without any compensation scheme for the fishermen (Robichaud 2017, Peipke 2006, et al.). This unsustainable practice is not surprising as the oil company Petrobras manages and finances big parts of marine environmental protection measures in this area. In this sense, the interviewed Petrobras’ spokesperson for marine environmental issues does, for instance, not see the need for action concerning the reparation of the observed oil leakage in a nearby estuary and river emptying in the sea close to the famous Copacabana beach

<sup>61</sup> For what the fishers are often blamed (statements of Stakeholder Group B and A, Rio de Janeiro)

due to cost inefficiency (interview Petrobras environmental spokesperson 2012). The reported aggressive reactions of military, even shooting at the boat when the fishermen's boats crossed into military owned waters is also reported regularly and can therefore not be taken as an exception for the Earth Summit and its special security requirements (Robichaud 2017, Leal 2013). Therefore, the reaction of the military to prevent the fishermen from fishing during a conference, ready to use force, was not anticipated in the present follow-up study about CJC in Brazil, especially with regards to the context of a conference dealing inter alia with sustainable fishing, and subsistence fisheries as well local, artisanal community-friendly focus et al. (UNEP, 2012).

Box 1 source own, Bukowski 2018

In this light the integrative conservation approach of the SWIOFish1 project, for the examined case study area (MBCA) deserves compliment, yet the CJC analysis still reveals several problems and conflict potentials which can be found to a certain extend as concerns in the SWIOFish assessments (which are closer discussed in the next chapter). Thus, despite the high and positive approval rate of the local conservation actions by the local resource users of Zanzibar, the approval rate of higher levels of the government are significantly lower, and the described highly frequented conservation justice concerns still bears quite some conflict potential that also results from a constantly ascending cycle of a devastating economic situation that lacks alternatives, an increase of resource users, tourists and accompanying growing pressures on the fragile ecosystems, habitats, and resources, in a time were climate change exacerbates the situation. All these factors have been also mentioned in the various research literature (Bennett et al. 2014, Pomeroy et al. 2016, McClanahan et al 2013, OECD 2017, Brockington 2015, Barrett et al. 2011, Adger et al. 2014).

### 7.3 Summary of Case Study Findings

With respect to the prevalent research questions and anticipated hypotheses of this study, the CJC model has opened a possibility to analyse conservation challenges from a different angle, and thereby unearth on the micro level peculiarities of overall valid justice implications in conservation activities. That is mostly mentioned on a macro level in literature, assessments and reports. Therefore, this study aims to deliver findings to answer: In how far the selected **conservation justice factors** help to gain a deeper understanding of **socio-**

**environmental problems and conflicts** with regard to local communities within protected areas? The different characteristic values of the CJC-factors deliver evidence on an overall (cumulated) level, and on a specific level (case/site specific). The latter one explains the differences and similarities of each factor rating according to the community situation, put into context by a comparative analysis with the evidence gathered of the stakeholder Groups B and C. There were several conflicts and conflict potentials that could be detected through the different CJC-factor analyses. Therefore, the hypothesis assuming that, if the conservation justice factors are considered for instance in the assessment of conservation areas, socio-environmental conflicts and problems can be better detected and better understood. The factors selected for the Conservation Justice and Conflict Model have been proven to be relevant, as the following figure shows.

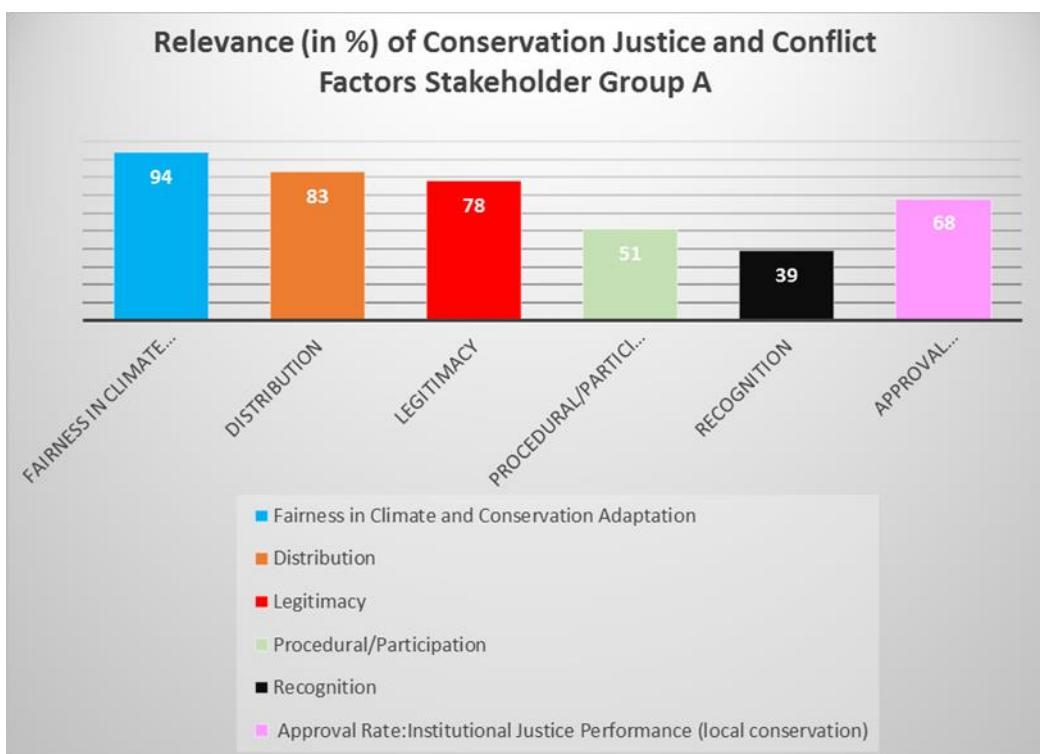


Figure 23, source, own, cumulated outcome

The graphic above shows the cumulated outcome, respectively prioritization, of the Conservation Justice and Conflict Factors by the local experts of Stakeholder Group A. Although the factors have cross-cutting features they show a general tendency that is interpreted for this study as an indicator of what topics matter mostly to the local people in the MBCA. A very interesting, and unexpected finding in this context is the consistently high ranking of the factor **Fairness in Climate – and Conservation** (environmentally wise) Adaptation with regard to be a severe driver of socio-environmental conflict and/or problem. Not anticipated, not by the

author of this present study, nor by the academic or institutional literature, is the fact that local fishers prioritize climate and environmental challenges as severe conflict driver over materialistic or mere **distributional** matters (such as the distribution of access, gear, compensation, space etc.). The previously anticipated imagination of an unawareness of local resource appropriator in terms of climatic changes falsifies this. The fusion of the climate and conservation, respectively environmental imponderables, enables the local experts interviewed to understand climate change issues through a more ecosystem-based adaptation idea. This idea has proven to be functioning as the cumulated empirical evidence indicates how much climate change impacts affect small-scale artisanal resource gathering, even apart from mere environmental or conservation matters as the case-specific findings unearthed. The next surprise of the cumulated evidence is the high ranking of **legitimacy** as a problem and conflict driver, since the conservation regulations and rules should be clear to all by now, but the further analysis depicts several explanations for this ranking. The relatively low socio-environmental conflict relevance of the factors **Procedural Participation- and Recognition**, in comparison to the other factors, is interpreted as a success of the conservation design using a community – friendly approach, which recognizes peculiarities such as cultural, socio-economical, values, religion et al. However, the comparatively low ratings of the two factors should not obscure the fact that they are named by about 51%, respectively 39% of the interviewed local experts as bearing still some socio-environmental conflict potentials and should thus not be neglected by the conservation practitioners, and responsible decision-makers. In this vein, another surprising finding is the unexpected high approval rate of **institutional justice performance** with regards to the CJC factors. Examined in more detail it becomes clear that this derives especially from the trust in the local conservation management and researchers, while the Stakeholder Group B (authorities, including the local conservation management) anticipated a worse rating, and “unfair” evaluation by the local resource appropriators (interview authorities 2012/2014).

The main findings of socio-environmental problem/conflict potential are listed in order of the stakeholders' ranking as follows:

- The specific assessment of **Fair Climate and Conservation Adaptation** of the local resource appropriating communities dependent on the coastal and marine ecosystem services (mainly marine resource use). The residents within/and close to the Menai Bay Conservation Area (MBCA) in Zanzibar revealed a high conflict potential closely linked to the increase of competitions over the dwindling nearshore resources and the worries about insecure weather and ocean conditions, especially an increase of storms, wind velocity, wave heights, and/or shift of fishing seasons (including different patterns of fish stock migration and accessibility).
- Stakeholder Group A's observations on climatic changes are verified by researchers, and academic literature. In this vein several issues occurred in the interviews: Erosion, mangrove loss, saltwater intrusion, coral reef loss, seaweed migration into deeper water, increase of wind velocity, and in turn rougher sea conditions, warmer temperature (including water and water surface), changing seasons, changing fish stock migration patterns, etc. In contrast to the majority of publications on Tanzania and Zanzibar, assuming that the above-listed impacts are not well-known and acknowledged by the local population, except for coastal erosion since this is visible (DHI et al. 2014, p. 46), the local fishermen et al. interviewed were obviously more observant and attentive than anticipated. This fact becomes particularly recognizable if the local resource appropriators are observed and accompanied for several days/and/or weeks, exceeding the empirical evidence gathering beyond the mere interview situation. Hence, there are increasing problems, clearly expressed, and academically verified, that relate to occurrences of extreme weather conditions e.g. winds that already affects the fishermen et al. livelihood and food security, and thus their behaviour. The predicted effects to coastal areas are already taking place and show significant impacts on coastal livelihoods, expressed by the assessment and evaluation of conflict potentials.
- Main findings:
  - o The often frequented "livelihood and food insecurity" due to the climate and environmental changes result in several adapting and/or coping strategies: a) increase of fishermen et al. migration (use of fishing camps) to locations with more fish richness and/or less exposure to climate or environmental impacts such as

Kizimkazi; b) diversification of livelihoods (e.g. half pearl farming, seaweed gathering); c) inactivity viz. not going out, and accepting a decline in food and income; d) or taking higher risks and go fishing despite dangerous conditions; e) or by a shift of fishing seasons, which is officially backed, and supported by the MBCA management.

- Conservation issues are still a main driver of environmental problems such as habitat damage and decline of marine resources. The local experts (fishers et al.) expressed severe concerns about resource decline, ecosystem and habitat degradation. The analysis shows that overfishing is not the only problem, but also the use of destructive fishing gear, which was sometimes unintentionally revealed by the fishers and seaweed gatherers, or directly observed, as well as expressed by scientific experts. There is an ambivalence of the behaviour and attitude of the local resource users, which varies between the pride of being part of environmental protection activities, and readiness to punish violators, and keeping to the rules – and the disputes over using the less effective, but more sustainable fishing gear. The latter problem is often mentioned concerning the challenges that emerge out of this in terms of a decrease of food and income. Further education and training about conservation and climate issues are necessary but needs to be accompanied by actions that assist the building of capacities, including economic development.
- For any climate and conservation adaptation process an inclusion of access to alternative livelihood is important, otherwise the pressures on the ecosystem such as fishing overcapacities and increasing competition through an increased number of fishermen will not allow an appropriate adaptation strategy that considers the protection of ecosystems, its services and habitats.
- Possible activities to improve the situation were named by the stakeholder Groups as supportive for the adaptation process: education, further qualification regarding marine resources use, including the creation of further manufacturing- and storage facilities, infrastructural improvement (including harbour facilities, and investment in an own medium sized fishing fleet that could access the fishing grounds between the near coast and the EEZ).

- The latter idea of the local experts is backed by a report, which assesses the medium sized fishing vessels<sup>62</sup> to still offer opportunities for investment, unlike investments in the overcapacities of the nearshore fisheries, or already highly frequented offshore EEZ fishing (Lee et al. 2016).
  - The whole conflict-prone situation related to conservation and climate threats is worsened by several facts, overcapacity of nearshore fishing activities, a low productivity of the fisheries, a lack of alternatives to generate incomes and food, and if alternatives are found, they are mostly tangent to other vulnerable marine and coastal resources (e.g. seaweed). This, in turn, raises the pressure to increase the fishing or resource appropriation efforts, and this sometimes is accompanied by the use of more destructive fishing gear or growing hostility toward fishermen from the mainland. These interdependencies show the mutual influence of each justice factor to the other, such as distributive matters to conservation and climate adaptation matters-apart from the clear correlation of a fair distribution of climate and conservation benefits and burdens et al.
- **Distributive** issues are still the second most frequented conflict drivers. Particularly the access to alternative income, access to the beach and landing shores are the most dominant topics. The prevalent issue of frustration and conflict potential, which is exacerbated by the growing pressure on the resources, is the increasing demand for **alternative livelihood options**, yet, low economic and industrial development limit the possibilities to enter or access the growing tourist industry (e.g. due to low education levels, especially of the poor rural population of the MBCA).
- Several marine resource-based alternatives to fishing like e.g. seaweed farming, sponge growing, beekeeping, half-pearl farming etc.) are offered through different conservation and development projects and highly appreciated. However, it should not be forgotten that all resource-based income strategies rely on certain environmental conditions that are threatened by environmental and climatic changes. The seaweed declines and the resulting loss of thousands of jobs for mainly female resource appropriators highlight that problematic situation. The expressed wishes for community

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<sup>62</sup> [...] from 15-20-meter longline fishing for sedentary tunas" (Lee et al. 2016, p. 87).

training on cooperation, and entrepreneurship may support the development of cooperatives and sustainable SMEs that are rather limited in the area to date.

- Another finding is tangent to misunderstandings concerning **training and entrance fees**, which have been found to bear quite some conflict and dispute potential. However, these risk potentials can be easily soothed through clarification by the management to avoid unnecessary dispute.
- The expansion of tourism, and an unregulated and/or law enforcement of regulation of this industry leads to a high risk of bearing conflicts particularly due to **spatial-use competitions (access to the beach)**, increase of habitat destruction and resource depletion by pollution and an ever-growing demand for marine resources. The limiting traditional access to the coastal and marine resources and livelihood impacts, are a serious issue of problem and increasing source of frustration. For the tourist industry, besides environmental degradation, and an increase in hostile conflicts could lead to a severe slump in sales, a confrontation with tourists and tourist facilities will inevitably result in a decline of the total number of visitors, and further investments. To avoid a loss of economic prosperity/benefits and investment from the tourist industry, the conservation authorities need to take immediate action, and design, implement or restore spatial planning strategies, as well as to integrate more local people in the tourist sector (e.g. through assistance to build self-governed community eco-tourist possibilities, such as offering local accommodation and insights in the culture).
- As a trust-, and therefore peace guarantor, the local conservation management is perceived to deserve respect. In addition, the local stakeholder expressed the idea of a further decentralization of power away from the far distanced governments and international organizations, to strengthen the local management (through provision with enforcement rights regarding the spatial problems for example), and the communities. Yet, a power shift to strengthen the local institutions needs to be treated with care and sensitiveness, to avoid a further establishment of local injustices and elites.

- The CJC analysis of the factor **Legitimacy** discloses several unexpected insecurities and misunderstandings which bear more socio-environmental conflict potentials than expected.
  - o Within the conservation area, the transparency and congruency of rules are characterized by many misunderstandings (and/or) a potentially problematic design. In this regard, the free access for the Tanzanian fishermen was a source of repeated anger and conflict, despite the clear rights of both parties to fish in this area, provided each resource appropriator follows the rules and regulation. But due to insufficient **monitoring** capacities, and little means of enforcement, this issue seems to be a never-ending matter. The local fishermen accuse the Tanzanian fishers of breaking the rules of conservation more often than Zanzibaris, for instance by the use of destructive fishing gear. This statement is supported by the FAO country review (2014) which finds the issue of destructive gear use as more relevant for Tanzania than for Zanzibar (FAO, Breuil et al. 2014, p. 14). Yet the accusations of the fishers should be also treated with care, as they are not appropriately backed scientifically, empirically or statistically wise, particularly regarding mainland fishers' behaviour on Zanzibar's fishing grounds.
  - o Another reason of frustration over the jointly used fishing grounds with Tanzanian fishers could be the often frequented "unfair possibilities" to access the respective fishing shores of Tanzania mainland (e.g. due to less seaworthy boats etc.).
  - o The legitimate practice and regulation of the "entrance fee" distribution of the MBCA, which is bearing mediocre to high conflict potentials, basically driven by the feeling of an unfair treatment, requires more transparency and clarification at best during a plenary assembly with all village representatives present to avoid further feelings of injustice over assumed preference and/or opaque activities.
  - o Further insights of social-environmental conflict potential are revealed by the unexpected expressions of fears and hopes regarding the EEZ. In this context, the Stakeholder Group A presents a not anticipated, and diffuse fear of "Somalian conditions" with regards to end up in unequal competition with powerful industrial fishing fleets. At the same time the same group voices

statements of hope in the EEZ, for new possibilities of income generation, and economic development, e.g. through investment into the fisheries sector such as infrastructure and manufacturing to create jobs that are accessible for the local resource appropriators.

- Another concern, shared by all stakeholder Groups, is an effective monitoring and a regular scientific data collection on the fish stocks. There are several indicators such as obsolete data, academic concerns over an insufficient data situation and requirement of an improved scientific data collection over marine resources for Zanzibar and Tanzania. This insight is also mentioned by international organizations (IOTC, DHI, World Bank, FAO, WWF etc.). As an especially vital part of a functioning sustainable fisheries management on all levels a reliable database and further monitoring of the stocks status quo, also including the EEZ catches is inevitable. In this context, Zanzibar and Tanzania need to extend and build capacity to establish a reliable resource monitoring. The enforcement of regulations is another issue of insecurity, verified by all stakeholder groups. The Deep Sea Fisheries Authorities expressed the hope of support by the SWIOFish and other international partners if necessary to enforce the law or punish violators. But to enforce and punish the fishing activities of the foreign fleets needs to be known other than as a digital signal on the computer. Despite an electronic vessel monitoring system (VMS), there is thus room for improvement. To improve the monitoring data collection and also effectively check-up on foreign fishing fleets' activities, like catches, bycatches, gear et al., the Tanzanians (including Zanzibari) could take advantage of a meanwhile globally establishing technique of video surveillance, and live transfer on board of a foreign fishing trawler-which is particularly interesting for a country which does not have the capacities to do regularly monitoring etc.
- “Programs like Catch Quota Trials or fully documented fisheries (FDF) using on board video cameras (CCTV), coupled with the use of highly selective gear, are seen as a valuable tool to address discards and improve stock recovery” (SEAFISH 2012, p. 1).

This kind of technique would enable Zanzibar and Tanzania, as well as the other countries within an EEZ to monitor and control activities of distant

water fishing nations and their fleets, especially if catches are not landed in the respective country. Through the live video surveillance situations of overfishing, and/or fear of inappropriate behaviour of industrial fishing operators could be reduced, and problems could be identified in time, to adapt, adopt and improve the management of the EEZ, and if necessary, take countermeasures, and prove a responsible and modern resource management.

- The lower frequency of occurrence and ranking of conflict potentials concerning the factors: **procedural participation and recognition** results from a relative satisfaction of the local residents due to community participation options, like the fishermen committees (Shehas), **conflict resolving mechanisms** etc., and inclusion of issues of  such as cultural, religious, and socio-economic distinctions, including knowledge of older fishermen. The low worries over procedural aspects to become a driver of conflict potentials indicate a positive impact of the community-friendly conservation approach, a sound implementation, and proper local management. The only exception is the recognition of gender, and lack of integration of female resource appropriators in e.g. committees. Though the analysis revealed further insight of two standard deviations, and thereby again verified the hypothesis that through each justice factor a problematic situation can be better detected and understood. The cases Jambiani, and Bweleo show apparent terms of frictions and dissatisfaction of procedural participation issues, which are both tangent to more underlying, and deeper-rooted conflicts. If categorized according to Madden's model on conflict levels (2015), who explains the underlying and deeper-rooted conflicts as resulting from past incidences- and/or differences of identity and values (Madden 2015), which is inherent to both cases. Both cases are differently connected with conservation impacts. The described situation in Jambiani partly results from the conversation since it concerns the perception of an unfair preference of fishing gear, and preference of treatment through the conservation management and regulation. But the Jambiani case also shows an unexpected long-term rivalry of two fishermen groups within the village that roots way before the establishment of the conservation area. The situation in Bweleo is different, yet not less deeply rooted. The frustration over the devastating situation, lack of infrastructure, and the feeling of neglect, and not being heard or integrated into the conservation decision making is not a result from conservation

measures or regulations, but from the overall poverty and low economic possibilities. However, both cases reveal a kind of problem shift, looking for answers in conservation management which have not, or not only caused the problem, maybe due to unrealistic high expectations in conservation. The problematic cases also depict different patterns of the CJC model, the standard deviations are therefore easily detected but need to be addressed and treated with special dexterity, including the different cultural, habitual and socio-economic situations of each party.

- In addition, the analysis unearths a lack of motivation of local village decision makers, like big fishermen boat owners, to take part in the fishermen committees, due to a lack of time and incentives. To include these respected persons is seen as supportive to implement conservation measures and could function as a kind of “change agents”.
- One of the more surprising results of the CJC analysis is relatively high approval rate of **institutional justice performance** of the local management which yet include the awareness of its limited capacities, especially compared to the significantly lower levels of trust for higher levels of government. This finding is particularly unexpected as the interviewed local conservation authorities anticipated an “unfair” rating by the fishers and seaweed gatherers. This can be interpreted as a success of the community-friendly management approach of the case study conservation area (MBCA). The missing procedural/participation options of the control case outside the MBCA (Stone Town fishery) reveals, in turn, high frequencies of frustration, expressed by the statement of “feeling left alone” (or “we have just us”, interview Stone Town S22, 2014), 76% of the answers of the control fishing community reflect this sentiment.
- This shows that the MBCA management and design are making a relevant contribution to a successful conservation implementation, yet it cannot make up alone for the overall situation, and therefore needs to be supported and provided with an efficient budget to continue to evolve. In addition, the program’s directives like to support alternative practices and possible compensations to redirect the livelihood activities to other sectors are still not proceeded far. Yet, the socioeconomic threats and challenges conservation efforts face, such as low economic development, slow implementation of projects, efficient enforcement of regulations, and the overcapacity of nearshore fishing activities, and missing alternatives to livelihood generation cannot be dealt with by conservation area creation

alone. Conservation areas and MPAs are just, but “tools to specify the location of fishing,” and [...] “do not affect incentives [to] replace institutional structures to address overfishing” (Davies et al. 2006, p. 9). An interesting finding can be further detected by the open question in the questionnaire about “anything to add for improvements” (e.g. wishes, ideas etc.). In this context over 40% of the local resource users expressed the idea to improve and accelerate sustainability project implementation (as targeted by the SWIOFish program), especially with regard to create alternative income possibilities, through some power shifts (including financial means) towards each local conservation area’s management, and to the local researchers, since both groups are viewed as being closer to the respective situations and people on-site. By this, the local experts (resource appropriator) anticipate a more appropriate, adapted to the local needs, and faster realisation of such projects, avoiding unclear struggles and fights for responsibilities “on the top” (cumulated interview outcome Stakeholder Group A, 2017). This issue is particularly relevant as the World Bank et al. in their update “aide memoire” for the SWIOFish 1 project on Tanzania (World Bank et al. 2016).

- The analysis of the different stakeholder groups shows that the groups share the understanding that a conservation area is a learning process. In this vein, especially the local conservation authorities and the local researchers understand the conservation project as a continuing learning process, including successes and failures.
- With regard to the overall design of the MBCA it can be summarized that the community-based approach seems to pay off, but that there are still many obstacles and challenges to overcome such as climatic changes, environmental pressures, poverty etc. Anyhow the integration of the local residents and the careful implementation of conservation measures are likely to increase the willingness to cooperate. The latter is inevitable for any conservation activity and keeps the transaction cost economical. Over 86% of the interviewed local experts stated to feel more motivated to participate in cooperation through connecting activities, and participation in the procedural process, like the official local committees, and conflict solving mechanisms. Although there is a need to build further capacity to enhance the qualification for cooperation and collective choice arrangement which are of vital importance to counter severe threats like climate change etc. However, with all these findings it must be borne in

mind that the analysed conservation and fisheries situations dealing with a distinct cultural background of a semi-autonomous state. This is inter alia relevant for the Recognition justice factor on a national level, and needs to be considered, as it for instance explains why the local fishers from Zanzibar define the fishers from Tanzania as “foreign fishermen”, despite the fact that both groups are from one country, and often perceived, from outside, as one. The factor of recognition nationally wise, viz. the different cultural identities, needs to be considered in the conservation and other project planning, in this vein it is an interesting question whether the indicator “clearly defined boundaries” needs to be reconsidered to prevent conflicts, respectively conflict escalation, between the fishers from both parts of the country. Interestingly this issue is not an issue for the few female resource appropriators in the Stakeholder Group A, whom all agree to despite violence or conflicts with “fellow” resource users from the mainland, “we all but want to raise our children well, have food and be happy. These fishermen are in the same poor situation” (female resource appropriator interview 2012). The special relationship and culturally peculiarities characterize conservation-, and sustainable fishing efforts on the ground, as activities have to deal with the different attitudes, values and social status etc. to find a common ground and to maybe unifying consensus over the shared vulnerable environment and ecosystems (including its services).

- Another overall finding that was not anticipated, not even by the local interview partners of all stakeholder groups, was a high congruency of the local resource appropriators regarding fears and worries, and hence CJC ratings, revealing a strong accordance that could be used to unite the communities in their efforts to sustain their ecosystems and ecosystem services while facing the socio-economic threats (such as poverty, low rural development (economically and infrastructural wise etc.). Furthermore, the strong, to mediocre-strong concordance with the other two stakeholder groups, especially with the expertise of Stakeholder Group C (researchers), that depicts a sense of a common bond, even if the CJC analysis unearthed further concrete problems that have not been mentioned by the control groups of professional experts, particularly Stakeholder Group B (authorities).

The respective CJC models for each community case have proven to identify different characteristic values of each justice factor relevance, which have been

found dependent on the site-specific situations (geographically, socially and culturally), and the pre-existing conservation design. In this sense each justice factor helped to gain a deeper understanding of the situations and phenomena. Socio-environmental problems could be identified, and the status quo of different conservation situations, issues, or conflict-prone worries gives new insights and perspectives. The creation of site-specific CJC models visualize the locally prevalent conservation justice factor and allows an easy comparison of the different cases. Furthermore, it becomes apparent that those conservation justice factors considered in the conservation planning, set-up and management, like procedural participation and integration of local residents resulted in the comparable satisfied rating of the institutional performance.



## 8. Transferability of CJC-Criteria

The CJC analysis model is transferable to other any conservation cases as it contains theory driven and well-tested justice criteria that are relevant for all human interactions, especially with regards to socio-environmental issues (including human-wildlife challenges). The selected CJC factors are backed by a broad literature and a vast variety of case studies on social and environmental justice, problematic conservation activities, socio-wildlife conflicts, and sustainable fishery and ecosystem management. Furthermore, the CJC factors are inspired by the UN's Sustainability Development Goals and targets, predominantly the SDG 16 which calls for “peace, justice and strong institutions” (UNDP 2018) and the SDG 14 (life below water) that is dedicated to oceans and marine environments. The CJC approach tries to transfer these goals into action through the better understanding of justice implications of marine conservation that strengthens institutional performance with regards to establish fair and conflict free environmental protection measures in cooperation with the local population.

### 8.1 SWIOFish

SWIOFish Program with its projects (I.-III.) accrue from the South West Indian Ocean Fisheries Project (SWIOFP<sup>63</sup>) and the South West Indian Ocean Fisheries Commission (SWIOFC), which connected the countries of the South West Indian

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<sup>63</sup> Ending date March, 31<sup>st</sup>, 2018

Ocean (SWIO), namely: “Kenya, Mozambique, South Africa, Seychelles, Comoros, Madagascar, Mauritius, France (non-beneficiary participant), Somalia (observer) and Tanzania” (World Bank Data Base 2018). The SWIOFP is seen as a successful project concerning its dedicated purpose of regional capacity building to improve and coordinate marine resources management (including fisheries management and –networking, and a regional management framework creation) (ibid, World Bank 2017b). Thus, after the end of the SWIOFP, the members of the SWIOFC jointly requested a follow-on-program (the South West Indian Ocean Fisheries Governance and Shared growth Program, SWIOFish Program), which implementation is based on a Series of Projects (SOP) as long-term financing platform (World Bank 2017a, World Bank 2017b, World Bank 2014). This gives due consideration to the diversity of cultures, needs and backgrounds, and several sharing challenges of the different SWIO countries (ibid, Souto et al. 2014). All developing SWIO countries are invited to successively take part in this program (based on a 15 years period) with the common objective to enhance economic growth and to reduce poverty through a sustainable use of marine resources (World Bank 2017a, World Bank 2017b). So far, the World Bank and GEF have approved the SWIOFish <sup>1<sup>64</sup></sup> projects for Mozambique, Comoros and Tanzania. Further SWIO countries are expected to join progressively, as Madagascar (SWIOFish 2<sup>65</sup>), or the Seychelles (SWIOFish 3) (World Bank 2017a, Garnaud et al. 2017). The SWIO countries share similar challenges although probably depicting different emphases and characteristic values of CJC Model results, which would have to be closely evaluated by a thorough CJC analysis.

The SWIO regions are part of a larger marine ecosystem that has overlapping and cross-boundary features (for instance migratory fish resources such as tuna-fish like species (World Bank 2017a). In addition, the SWIO countries also share other features, such as a heavy dependency on fisheries for the livelihoods of the population, and a small scale-subsistence fisheries that are of major social importance as “[...] an economic backbone of livelihoods and economies in rural coastal communities” (World Bank et al. 2016, p. 4). According to the World Bank the SWIO countries also depict a congruency in improbability of the data situations on actual ecosystem, and fish stocks etc. as well as a collective underestimation of the marine resource use sector although it is estimated to employ over a million people, including approximately 50% female resource appropriators (ibid.). In this vein the fisheries sector is understood as the major contributor to nutritional health

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<sup>64</sup> Whereas MACEMP rather focused on Tanzania and Zanzibar.

<sup>65</sup> SWIOFish 2 and SWIOFish 3, approval date 2017.

and food security of this region (*ibid*, p. 4), which is especially true for the poor rural coastal populations. To enhance a trans- and international sustainable resource management that is ensuring at the same time economic development, including poverty reduction without provoking international conflicts, all participating states require an equal treatment. Hence, already on the international level, environmental management efforts depict several mutually related socio-environmental justice implications, e.g. about matters of allocation of resources (CJC Factor Distribution), of joint management with congruent rules, regulations and a functioning monitoring system (CJC Factors: Legitimacy and Procedural) as well as a process of interconnection, networking and participation (CJC Factors Procedural) of all nations in the commissions, such as the SWIOFC (World Bank 2017a, World Bank 2017b, World Bank 2014, and 2016, Lee et al. 2017, Souto et al. 2014, etc.). The distributional character of the jointly-used EEZ can be seen, *inter alia*, in the way the IOTC publishes its data on EEZ catches. As the guardian of tuna fish (and tuna fish like) data acquisition, the Indian Ocean Tuna Commission (IOTC) refers for example to “average allocation of tuna fish” (IOTC 2017, p. 11). The increasing social threats and challenges as described in the SWIOFish1 – 3 that arise from resource- and ecosystem decline, from climate change impacts and even from conservation measures to fight environmental degradation, bear conservation justice implications which are likely to result in conflicting situations one way or the other. In this vein, further congruencies could be found: Regarding Climate and Conservation, the social risks are mentioned by all different SWIOFish projects and participants, yet evincing different emphasis, which correlates widely with those unearthed through the CJC analysis of the Menai Bay Area. In accordance with the regional and local CJC analysis of the MBCA, the SWIOFish Projects assessments and country reports evaluate matters of climate change adaptation as an important cross-cutting issue (World Bank 2017b and 2017a, Garnaud et al 2017, Andersen et al 2013, Souto et al. 2016, World Bank 2014, and 2016). Therefore, the problems of adaptation to these environmental challenges listed vary from mentioned threats to possible jeopardization of the local seafood industry, and by this, the food security (Garnaud et al. 2017; SWIOFish 3). The ESA of the furthest progressed First SWIOFish project assessed additionally falls short, such as missing climate change coping strategies and improvement of strategic mechanisms (World Bank 2014 SWIOFish 1, p. 115), and missing community capacity to cope and/or adapt to climatic changes (*ibid*. p. 45). Further recommendations of the report include also the request for “more clarification on climate change” (*ibid*, p. 112), particularly for the

local residents and conservation authorities, this corresponds also with the findings of the present CJC analyses and can be regarded as a fact that has led to the aforesaid decision to combine the terms environmental (conservation) and climate change in this study. This idea could possibly help to integrate people mentally, considering local knowledge and insights, and by this support successful climate adaptation projects (see also SWIOFish 1, Mozambique, World Bank 2017a, p. 155). With the help of existing research on this matter, many connecting points could be found and further verified through the CJC Analysis, such as the decline of fish species, the seasonal changing patterns of fish migration, observed coastal erosion due to mangrove desertification, and an increase of the number of storms and wind velocity etc. The CJC analysis for Menai Bay reveals that the most credit for clarifying information concerning climate and conservation issues deserve the local researchers as well as the local institutional conservation practitioners, who are working on-site, implementing a broad variety of international projects and sub-projects. SWIOFish, MACEMP, Smartfish, or other local projects like PWANI have already improved the local resource appropriator's pre-knowledge and awareness of climate change, and conservation issues. The necessity to adapt to climatic and environmental challenges is differently developed in the SWIOFish project countries though, whereas the Seychelles have the climate issue already integrated in their Ministry for Environment, Energy and Climate Change (MEECC) with high priority status of the latter, while other countries (e.g. Tanzania, Mozambique) are still lacking an appropriate climate adaptation strategy (World Bank 2014, Souto et al. 2014, World Bank 2017a and 2017b). All assessments and reports highlight the importance of climatic and environmental change as a severe risk to nutrition and food security, local economy etc. However, the majority of reports and assessments correspondingly criticize insufficient financing and capacities as well as inadequate institutional and legal frameworks to address these issues (*ibid.*). These shortfalls have in turn relevant impacts on socio-environmental justice issues, and indicate further congruency with the CJC factors, such as Distribution (including access to resources, (also finance), training, spatial rights), and Legitimacy (including transparent rules, monitoring, clearly defined boundaries etc.). In the context of distributional matters and indicators, the CJC model has also proven to enable further insights of problematic conservation situations, which are not only relevant in Menai Bay, but being mentioned as relevant for the whole SWIO region, even on different levels (nationally, regionally, and locally).

With respect to the CJC factor Distribution, and the indicator “access to the beach, and fishing grounds”, the SWIOFish project findings correlate also with the present local CJC findings on the vital necessity for spatial planning (World Bank 2014, p 51) in order to address sustainable conservation (World Bank 2017a). Specifically, in the light of the social implications involved, such as the increasing conflict probability through the competition for-, and allocation of spaces that are likely to emerge from the loss of space through environmental, climate impacts, and tourism (*ibid*, Souto et al. 2014, (SWIOFish 1), Garnaud et al. 2017 (SWIOFish 3)). The problematic spatial situation includes many obstacles and may even lead to the “relocation of people” (Garnaud et al 2017, p. 52). Further spatial conflict potentials, expressed by the SWIOFish project reports, such as the reallocation of space for economic development of the fisheries sector, e.g. enhanced fisheries activities (aqua-, and mariculture), construction of infrastructure, harbour facilities etc. (Garnaud et al. 2017, World Bank 2014, Souto et al .2014, World Bank 2017a) also bear issues of “spatial conflicts” (Souto et al. 2014, p. 98). The spatial matters are hence also tangent to other conservation justice aspects, such as Legitimacy (e.g. clearly defined boundaries, legal frameworks etc.), but also the will and possibility to enforce regulations that consider the needs of the poorer local population (World Bank 2014, p. 111.). These include matters of legitimacy, like law enforcement, unclear or overlapping mandates and responsibilities (World Bank 2014), and unclear or deficient laws and regulations as well as corruption etc., which may increase the distrust in the institutions, and are likely to reduce “human security” (Adger et al. 2014, CBD 2009). All these legal imponderables tangent to the CJC factor Legitimacy prevent for instance to curb the unsustainably expanding tourism industry that is ever more occupying traditional spaces near or at the beaches, blocking the access to fishing grounds and landing spaces, and additionally increase the level of pollution and resource consumption (World Bank 2014, p. 51). These failures become an ever-increasing matter of spatial and environmental conflict (*ibid.*) between the local resource appropriators, and the tourism sector, as the resource dependent local residents are kept away from access to ancestral landing shores and beaches that are vital for local livelihood generation, while being confronted with additional environmental degradation and overuse.

The issue of “loss of income” (SWIOFish 3, Garnaud 2017, p. 52) through conservation or the above-mentioned challenges like resource decline etc., is also of concern for all SWIOFish projects, and correlate with the CJC Distribution indicator “access to alternative livelihood activities”. In this sense the authors of the

SWIOFish reports and assessments favour an improvement of “economic benefits from fisheries” (World Bank 2014<sup>66</sup>, p. 53; Garnaud et al. 2017, p. 6; World Bank 2017a) and/or the provision and exploration of “more sustainable alternative livelihoods” (Souto et al. 2014<sup>67</sup>, p. 179, World Bank 2017<sup>68</sup>, p. 11). However, the issue of “alternative livelihood”, though a topic for all SWIOFish participants, is a difficult endeavour, in light of the low economic and industrial development of the countries, which do not yet offer many subsistence and livelihood alternatives, and therefore results to be kept in severe dependency on marine resources of the local coastal population (World Bank 2017). In this context “[...] fish accounts for around 50 per cent of animal protein intake in Mozambique, up to 70 per cent in Tanzania, and 20 per cent in Madagascar” (*ibid.*, p. 3), particularly for the poor, rural, and low educated population. But the economic development (including the fisheries and tourism sector) aimed by the SWIO countries requires to consider possible negative impacts (environmentally) and social injustices, such as described above. Therefore, a CJC factor analysis can detect critical points of social issues on conservation and sustainable economic development, which would depict varying needs that differ from one village to the other, and thereby enhance appropriate, site-specific transferability of the mentioned conservation experts’ recommendations into practices as well as to evaluate ongoing endeavours. Still, the SWIOFish project reports and evaluations do not reflect the threats and risks from a justice point of view, and only immanently referring to conflict potentials, and disputes that are likely to rise from the economically desperate situations of big parts of populations in need of the resources and other ecosystem services that are focused by conservation (McClanahan et al. 2013).

The CJC factors “Procedural/Participation” such as the integration of all stakeholders in the decision-making process (inter)nationally (e.g. joint coordination of the SWIO EEZ) as well as community wise (to reduce resistance and harmful impacts to local people) are inherent to all SWIOFish projects. Moreover, the integration of the local population keeps the conservation transaction cost at a lower level, which is especially relevant regarding the weak economic situations of the most SWIOFish participating countries (*ibid.*). The procedural/participation justice factors (CJC) are valuable to support a positive relationship between conservationists and local resource users and need to be assessed regularly in the field. The positive association with the “impacts of

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<sup>66</sup> SWIOFish 1 Tanzania

<sup>67</sup> SWIOFish 1 Mozambique

<sup>68</sup> SWIOFish 2 Madagascar (SWIOFish 3 Seychelles)

participation” (Garnaud et al. 2017, p. 48<sup>69</sup>), is also reflected by the CJC findings of Zanzibar’s Menai Bay Conservation Area, and was one of the more optimistic outcomes, with a relatively satisfactory rating of institutional performance that is leading to a reduction of conflict potentials (through integrated conflict solving mechanisms, and community-based approach). The country report of Mozambique even stresses the special importance of procedural participation as it refers to a “stand-alone report on the public participation process” (p.98, Souto et al. 2014), but also the other SWIOFish project reports include the community-based and co-management strategies to address conservation issues with regards to conservation measures and related restrictions, but also concerning monitoring and legal frameworks (World Bank 2014, World Bank 2017 p. 7, p 15; World Bank 2017).

Concerning the CJC factor “Legitimacy”, and its indicators such as “reliable, transparent rules”, “clearly defined boundaries”, and “effective monitoring”, are understood by the SWIOFish program to support the provision of guidance towards “environmental and social parameters during the implementation and operation of subproject activities” (Souto et al. 2014, p.13, World Bank 2014, World Bank 2017a)<sup>70</sup>. In this context, monitoring is understood in this thesis as fundamental to ensure that the objectives set forth in the respective conservation planning and design are being achieved satisfactorily (*ibid.* p.14), not only for the SWIOFish countries, but beyond. The Seychelles (SWIOFish 3) also target an enhanced “monitoring, control and surveillance of the natural resources and economic activities” (Garnaud et al .2017, p. 6) to watch e.g. catch quotas, by-catch, discards etc. Yet, none of the reports and affiliated publications suggests the use of the effective and globally used vessel video surveillance system (Chapter 5.2) to strengthen monitoring and inspection efforts, notably with the concern of industrial fishing activities. The legitimacy matters described by the reports and assessments are mainly tangent to the reliability of regulations and rules, and coordination of fisheries management (particularly for the jointly used EEZ or overlapping fishing grounds), to “strengthening capacities for priority fisheries management” (World Bank 2017 p.12, p. 9, Garnaud et al. p.5). The SWIOFish reports listing also several environmental and social risk factors as well as challenges of the respective projects such as “unauthorized occupation (and non-consensual) of land belonging to local people” (Souto et al. 2014, p. 105); conflict potentials over competing resources, access to alternative livelihoods (World Bank 2014), work

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<sup>69</sup> SWIOFish 3 Seychelles

<sup>70</sup> SWIOFish1 Mozambique

conflicts and disputes for work between local people and people from other parts of the country and/or outside the country (Souto et al. 2014, p. 105). In correlation to the CJC findings of the MBCA, the SWIOFish country reports and assessments describe also a social conflict susceptibility about international investors and workers (*ibid*, p. 104), e.g. with regards to insecurity about impacts of the EEZ endeavours on locally fished core resources (see also Chapter 5.2), since SWIOFish “project objectives and components [...] will look broadly at priority species where they are found along the coastlines and in the EEZ” (World Bank 2014, p.29). Nevertheless, the EEZ is not described as a matter of social implications by the SWIOFish reports to and by the World Bank, except for economic growth, yet not in how far this development boost benefits for the local artisanal and subsistence fishing communities. This is not congruent with the criticism expressed through the World Bank’s Combined Project Information Documents and Integrated Safeguards Datasheet (2017a) that refers to rather humble economic backflow through the EEZ, and a “marginal role of the offshore economy for the region’s development- despite the resource wealth” (World Bank 2017, p. 5 ). Besides, the World Bank (2017a) states that “the tuna fishing, processing and marketing” is dominated by foreign operators, with only modest benefits retained in the region”, (World Bank 2017, p. 5). In this light the neglect of at least requesting on information and research on the social and environmental impacts of EEZ on local economies, including the small-scale fisheries sector is difficult to understand.

The CJC factor of “Recognition”<sup>71</sup> deals with the distinct backgrounds of local villages, regions or nationalities, and is acknowledged widely as vital for conservation and fishery management, especially as cultural features, traditional fishing practices, gender roles etc., including landscapes with some level of cultural significance (e.g. cemeteries, sacred sites) (Garnaud et al. 2017, p.148) might be adversely impacted by SWIOFish projects and sub-projects (World Bank 2014, Garnaud et al. 2017, Souto et al. 2014, World Bank 2017/2017a). Reportedly, the “recognition” of different cultural, social and other backgrounds is of relevance to all SWIOFish participants and the donating and assisting organizations (World Bank, GEF, etc.). In this vein, the country reports of Mozambique and the Seychelles mention the threats of conservation efforts to the traditional ways of life, cultural heritage and culturally relevant sites (Garnaud et al. 2017, p. 53) through: “interruptions to means of livelihood, disturbances to cultural resources, an influx

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<sup>71</sup> Including the recognition of different identities, cultures, values, gender, socio-economic status etc.

of foreign workers “(Souto et al. 2014, p.112). In this context, the “transparent and culturally appropriate communication with communities” (Garnaud et al. 2017, p. 53), the preservation of biological and cultural diversity mentioned shows the relevance of the integration of CJC recognition indicators (*ibid.*, p. 34). This, however, bears social conflict potentials over accesses to resources, or “traditional” fishing grounds, which arose from the increasing number of fishers in competition for the dwindling resources and declining access to beaches, which altogether threaten the traditional life-style (World Bank 2014, p. 111). In alignment with the CJC findings of the MBCA interview outcomes, the World Bank reports also verify that the tense situation intensifies the resentment towards “migratory fishing groups of “dago” fishers” during seasonal visits (World Bank 2014, p.16), particularly if these are considered “foreign”. In addition, the decline of resources, environmental degradation, and economic pressures are also understood to exacerbate the loss of traditional cultural practices in coastal areas, which also limits the types of economic activities involving women (*ibid.*, p. 25). Although the described problems are tangent to matters of “recognition”, indicators of Recognition as such are not further described as an essential or stand-alone matter of interest by the SWIOFish reports, but related issues are assessed rather subliminal as interwoven with the respective project objectives and sub-project definitions e.g. as cultural, traditional etc. way of life, or as gender issue. Although the recognition of the multidimensional nature of community identities are vital for conservation matters since they can promote a suitable, and appropriate project design and therefore a successful conservation outcome.

In terms of the evaluation of Institutional Justice Performance to assess acceptance of conservation measures and projects, the SWIOFish program and its SOP (Series of Projects) do not include any similar idea or attempt to identify shortfalls and/or approaching conflicts, or the indication of the important “willingness to cooperate” (Ostrom 1990). In this sense each distinct justice factor analysed can contribute results not only for the assessment of site-specific conservation issues and problems (particularly if bearing conflict potentials), but also give an overview of the institutional performance through a rating system of each CJC factor (low-mediocre-high) which, if cumulated, equals the Institutional Justice Performance. This evaluation can unearth for example an (unanticipated) positive or negative rating of institutional work. Yet, these findings are also attributable to the fact to reveal a supportive or non-supportive conservation design (top-down versus community-based-, and (adaptive) co-management), but also on less practical attributes like a weak regulation to target possible law enforcement

capacities (or willingness) with regards to for example “spatial-planning” (see also World Bank 2014, p. 51-52; Garnaud et al. 2017, p. 22). Hence the CJC Model provides insights into the effectiveness of conservation approaches and planning as such, and in how far these approaches are implemented, and practicable. The relevance of such performance evaluation through the local conservation residents for the SWIOFish projects can be gathered from the multiple empirical data collection activities which are already in progress (World Bank 2014, p. 38; Souto et al. 2014, p. 151). In this vein, the World Bank (2017) listed in the implementation and status report the indicator “target community members with the rating “satisfied or above on project interventions” (p. 5). The project directives include field appraisals with in situ interviews with “local stakeholders who can provide useful input on social and environmental impacts” (Garnaud et al. 2017, p. 31).

The CJC factors could be thus easily integrated into the field visits and interviews or in interviews with conservation authorities (Chapter 7); the resulting CJC Model would furthermore visualize the outcome by highlighting the relevant factors comparatively for each region or location. The conduction of ESAs (Environmental and Social Impact Assessments) (Souto et al. 2014, p. 178), ESAs (Environmental and Social Assessments) (World Bank 2014, World Bank 2017a), or EIAs (Environmental Impact Assessments) (Garnaud et al. 2017, p. 31) support the relevance of a critical socio-environmental analysis as well as the interest in “local stakeholder’s satisfaction” (World Bank 2017, p. 5). A CJC analysis is hence likely to advance and support these interests, open up new angles of conservation assessments, and unearthing several not anticipated outcomes.

## 8.2 Further Transferability of the CJC Model

Conflicts and disputes over environmental and conservation issues are well documented, and can be found globally, which are not only bound to marine or terrestrial conservation in developing states, but may occur in all human-wildlife, respectively human-ecosystem interactions, environmental problems, climate change related impacts etc. Whether it concerns fishery closures in the Northern Atlantic (Finlayson 1994), oil spills by big companies leaving the local resource dependent population in despair, increasing pollution in the Mediterranean Sea (EEA 2015), or conflicts associated with resettle mammals (mainly predators) (Delibes-Mateos 2015), e.g. Wolves resettlements in Germany, spread of diseases through industrial aquaculture (and mariculture) (Morton et al. 2017). Referring to the latter, the researcher Morton (2017) published in her article, the first scientific evidence about the infection with piscine reovirus (PRV) of a large number of wild

salmon due to salmon farms, threatening not only the species, ecosystems, but in turn also the food security of indigenous residents as well as of salmon depending mammals etc. (Morton et al. 2017). Whereas the likeliness for a conflicting situation in this context is rather given if an individual or Group is particularly depended on the ecosystems and its services (Pomeroy et al. 2016), which are to be protected, particularly if a lack of alternatives for food or income generation, viz. if conservation meets vulnerable populations (McClanahan 2013, Adger et al. 2014, Bennett 2017b). The present CJC Model also indicates a connection between the high ranking of conflict potentials with regard to threatened food, and livelihood generation (here mainly through marine resource appropriation), though environmental, and climate related impacts like dwindling nearshore fish stocks, increasing unstable weather conditions etc. Researchers such as Bennett et al. (2017b), McClanahan et al. (2013), Pomeroy and Parks (2016), Adger, Pulhin et al. (2014), Paavola (2005), Barnett (2014), Grothmann et al. (2017) agree that threats to food security, and insecurity of livelihood bears the potentials to become a driver of “social conflicts over diminishing resources increase(d)” (Grothmann et al. 2017, p. 24, FAO 2014, DHI et al. 2014 etc.), and are hence vital factors for “human security”<sup>72</sup> at all (Adger et al. 2014, p.761). In this spirit, the flexible approach of “human security” for this study is tailored to the definition of the UN General Assembly (2005), yet exceeding the definitions of Adger et al. (2014) and the UN, as it is understood to refer “to the idea of people’s right to live in freedom, dignity and free from poverty and despair” (UN General Assembly 2005), including conservational conflicts, food security, and equally, yet suitable socio-environmental justice opportunities to overcome vulnerabilities, “to fully develop human potentials” (*ibid.*). The “human security” idea is notably significant if it comes to basically freely accessible marine resources so called CPRs, whereas solely relying on Smith’s invisible hand of the market, and waiting for the unintended social benefits to emerge from individual self-interested actions, has not been proven to integrate the matters of “human security” (Adger et al. 2014), which includes food security, into fisheries management (Burroughs 2017). According to McClanahan this integration would imply a social component, connected with “a greater concern about equity and fairness” (*ibid.*<sup>73</sup>). This would also mean that environmental benefits and burdens are fairly distributed, e.g. that the harvested resource “actually reach the population in need”, which is specifically a concern of the CJC case study region, not only in terms of the EEZ benefits, but also with

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<sup>72</sup> (A/RES/66/290)

<sup>73</sup> No page number indicated-on the source.

regards to environmental, conservational, climate related impacts on the nearshore fisheries (including the fish stock decline though overharvesting). In this vein, Bennett (2017a) warns about the pushing for (marine) conservation can become a conflict driver if "socially unjust or inappropriate actions [would] be promoted, including those leading to displacement, violence, marginalization and poverty" (Bennett 2017a). The CJC model acknowledges these threats and hence supports an assessment of justice perceptions by the local stakeholder affected, including the appeal for a "code of conduct for marine conservation" such as considerations of fair governance, social justice and accountability practices, human (indigenous) rights as well as food and livelihood security, conflict resolution mechanisms etc. (Bennett et al. 2017). The selected CJC factors for the model hence contain such justice implications that go in the alignment with these demands. As the results have shown, the prevalent constrains of the vulnerable local residents over climate change impacts, the factor "Fairness in Climate and Conservation Adaptation" bears for itself the different justice factors and would need an own CJC analysis to analyse the different justice implications appropriately. The scientific connection between climate change and increasing conflicts is complicated and involves many insecurities (Detges 2017, Pomeroy et al. 2017). The multidisciplinary of climate change impacts, conflicts and conservation issues offers therefore a broad variety of research findings in literature. Similarities of this heterogeneity of the qualitative, quantitative, and theoretical publications can only be found concerning the dependency of situation, countries, social groups etc. (ibid, Pomeroy et al. 2016, Adger et al. 2014). This means that correlation between conflicts and climate change cannot be drawn without more ado, yet, there is evidence indicating that the vulnerability of societies to face climatic impacts, or shocks are probably dependent on issues as location (exposure to affects), ineffectiveness in institutional response, and high dependency on natural resources. Yet, Adger et al. (2014), and Grothmann et al. (2017) go further, despite acknowledging the complexity of this topic, the researchers identify the connection between several threats imposed by climate change on human security, and therefore also towards conflict potentials, such as increased probability for migration, land use competitions, missing appropriate institutional response, economic and livelihood implications that also bear cultural dimensions etc. The present study does not aim to prove such connection but attempts to supporting these findings with the help of an assessment of conservation justice and conflict implications, reflecting the perceptions and situations of the vulnerable, resource depended communities on-site to improve the understanding of problematic situations, finding out about

possible conflict potentials driven by this phenomenon, but also by others. In this context the issue of climate change is rather seen as a conflict driver or “risk enhancer” of other prevalent problems such as poverty, resource decline, environmental degradation etc., though the direct impacts of climatic changes, especially the perceived “forces of nature” raises the strongest fears of the local resource appropriators (cumulated interview outcomes Stakeholder Group A 2012/2014). There are many obstacles to overcome for a sustainable resource management and conservation, regardless if marine-, or terrestrial protection activities. Besides the afore mentioned environmental and climate change, other drivers of threats and conflicts can be found, either within the institutional performance (Murshed-e-Jahan et al. 2016), such as weak governance, weak institutional capacity and capabilities, low enforcement, lack of information, lack of stakeholder participation, and corruption (Pomeroy et al. 2016), and/or in the socioeconomic circumstances, like poverty, low development, lack for alternative income (either due to remote and rural locations, low education or exclusion), food insecurity, population growth, political issues, lack of education, inequality, etc. (ibid.; Bennett 2017b, McClanahan et al. 2013, Brockington et al. 2015, Bullard 2008). Unfavourable conditions can lead to unsustainable resource appropriation, whereas the resource appropriators’ circumstances need to be considered too, viz. whether concerning an impoverished and desperate e.g. fisher, farmer etc., using unsustainable means for mere subsistence, or involve industrial resource use for profit sake (McClanahan et al. 2013, Bennett et al. 2017, Pomeroy et al. 2016). In this vein food insecurity driven by, for instance, poverty, resource scarcity and lack of alternative livelihood generation is likely to induce unsustainable behaviour out of mere desperation (McClanahan, interview by Burroughs 2017). The selected factors of the Conservation Justice and Conflict Model (CJC Model) aims to reduce harmful social impacts on vulnerable local residents through conservation activities. The issues of socio-environmental interactions are tangent to questions of distributional justice, either of benefits<sup>74</sup> or of burdens, including urban–rural gaps in development and poverty, alternative economic opportunities, access to education, infrastructure, goods, services, training, or to the landing shores or medical treatment. When injustices occur, these are likely to lead *inter alia* to an increased dependency and vulnerability of the especially poor rural resource users, who have to deal additionally with a growing number of desperate young resource users due to population growth, and low economic opportunities to make a living

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<sup>74</sup> Indicated through the indicators „access to resources, land/beach, alternative income etc., “which is used to describe distributional issues emphasizing on the character of free choice of what is perceived as “distributional benefits/burden.

(AfDB 2018). Thus, an overharvesting of the freely accessible resources is likely, and can lead in case of scarcity to conflicts, civil unrest, violence etc. (Pomeroy et al 2016, Brockington et al. 2008, Martinez-Alier 2012, Wilson 2003). Correlating with the afore mentioned impacts on “human security” issues, the CJC model transfers these concerns to a bottom-up perspective, acknowledging real life problems, through justice perceptions of the local, and regional stakeholders (including researchers, authorities and residents), giving them a voice to express problematic issues, but also to compare and double-check them through the integration of the three prevalent stakeholder groups. Conservation efforts that are preventing or restricting resource appropriation without offering options for other livelihoods, and without considering the overall socioeconomic circumstances can even drive the most conservation friendly fishers to violate regulations, and even to become criminals due to hunger and desperation (McClanahan, interviewed by Burroughs 2017). To avoid this inhumane conservation outcome, the relevance of the selected CJC indicator “access to (alternative) livelihoods” is also reflected further by the academic literature. In this sense, issues of livelihood strategies are understood to be relevant for bearing “[...] very negative” impacts on local communities (Bennett et al. 2014, p. 10) in the context of fishing and harvesting. A diversification of livelihoods strategies can be supportive to prevent unintended negative outcomes for local resource users but would involve mostly other natural resources like seaweed farming, agriculture or other natural resource related activities, and therefore still depict vulnerabilities to environmental problems. Therefore, the distributional matters such as access to resources bears further injustices, as e.g. the CJC analysis on the situation of the Brazilian fishermen and – women elucidates, similarly described by Bennett et al. (2014). In this context the researcher’s study (Bennett et al. 2014) reveals that local fishers in Thailand also suffer from unfair enforcement of conservation measures concerning a preferential treatment of the tourism sector with regards to use marine protected areas, which are otherwise prohibited for subsistence fishing activities (Bennett et al. 2014, p.110). Another recurring justice related issue in conservation literature is the lack of appropriate spatial planning (World Bank 2014, Pomeroy et al. 2016), which often leads to a situation of discrimination of notably poorer strata (World Bank 2014). According to Pomeroy et al. (2016) the injustices in spatial management can be linked to stress factors on coastal nearshore areas as landless poor increasingly settle near the coast in order to have at least access to marine resources (Pomeroy et al 2016). Although the CJC model for MBCA identifies spatial problems of marine and coastal areas (like the access to the

beach), it can be transferred to identify other land management shortfalls and spatial planning injustices that are likely to become drivers of conflict. Pomeroy et al. (2016) summarize the situation as a complex feedback cycle, whereas the low economic opportunities, landlessness and population growth lead to a run for coastal marine resources, resulting in overharvesting (as most global coastal fisheries), leading to resource scarcity, and increased poverty levels and desperation, and in turn to (violent) conflicts between resource competitors (Pomeroy et al. 2016, Pomeroy et al. 2017). The CJC factor Legitimacy, and related indicators (like clearly defined boundaries, monitoring, transparent rules) are not only tested by Ostrom (1990) in her many case studies, but emerge over and over again in the scientific literature, such as the acknowledgement of the importance of legitimacy, transparency, accountability inclusiveness and participation, as well as fairness or equity, and capability which is here included in the factor “recognition” that includes cultural, but also educational and socioeconomic status, and backgrounds (Bennett et al. 2014, Jenthoft 2000, Murphy 2005, Scharpf 2010, Stern 2008a, Van Kersbergen et al. 2004, Paavola 2005, Armitage et al. 2012, Schlossberg 2007, Biermann et al. 2009, Adger et al. 2014, Flannery et al. 2016, OECD 2017, etc.). On the other hand, the interpretations of the legitimacy indicator “enforcement of regulations” vary between the majority of research literature and this study. Whereas the literature rather refers to “clear communication of rules” (Bennett et al. 2016, p. 108), this study follows a more “put into practice” interpretation of this indicator and separates the communicative necessity to Ostroms idea of “transparent and congruent rules and regulations” (Ostrom 1990). Furthermore, the publications support the assumptions of this study regarding the problems of conservation and human environmental interrelation as well as low institutional performance, particularly concerning problematic conservation situations with a vulnerable population. In order to build up relationships with the local resource users to establish an effective, and fair conservation project McClanahan (2013 and 2017), Bennett et al (2014), Pomeroy et al. (2016) and others refer to the essential value of “trust”. The CJC model evaluates this local relationship and “trust”, including the “willingness to cooperate” (Ostrom et al. 2011, 2009) through the stakeholder’s ranking of Institutional Justice Performance for each conservation justice factor. In addition, the scientific publications show that the concerns expressed by the local fishermen et al. of the Menai Bay Conservation Area (MBCA) towards the EEZ are not groundless, many reports deliver evidence that support the CJC findings. In this respect also reports of the African Centre for Strategic Studies (2017) elucidate

the predicament of an increasingly unsustainable exploitation of Africa's fisheries sector" by foreign fishing firms [that] undercut the political will needed to build more robust surveillance and law enforcement capacity" (Standing 2017<sup>75</sup>). In this context the report describes an alarming situation about the expansion of foreign fishing endeavours that is already causing a decline of fish availability on local markets<sup>76</sup>, which is, in light of the extreme dependency on fish by the local population, a worrying fact (Standing 2017). Yet, these kinds of arguments and worries have not been of interest to the authorities of the MBCA and Zanzibar's Deep Sea Fisheries authorities as the interview analysis revealed (see interview outcomes Stakeholder Group B, Chapter 5). In this regard the institutional officers persistently refer to their existing satellite-based monitoring system (VMS) (without video surveillance) (cumulated interview outcomes Stakeholder Group B). However, it is unfortunately a bitter reality that e.g. Chinese's and other industrial vessels already operate illegally off East Africa Coast, despite alleged surveillance and monitoring (Standing 2017, Anderson 2012, Greenpeace 2015, Pauly et al. 2013), due to either low enforcement, corruption or just criminal behaviour. This phenomenon is mostly connected with West Africa but the studies and report, show that Africa's coastline and EEZ is threatened by illegal, unreported and unregulated fishing activities (IUU) in total (Mwakio, WWF 2014, Greenpeace 2015, Anderson 2012, Pauly et al. 2013). In this context the WWF reports already in 2014 about Kenya loosing high rates of economic benefits through industrial illegal fishing endeavours by foreign vessels, but also scientific publications dealing with this issue (Pauly et al. 2015, Anderson 2012). Ochiewo (2016) also reports about conflicts between local fishing and industrial fishing activities, still the correlation between a EEZ, and a low monitoring, insufficient surveillance (including data acquisition) and weak enforcement options is not proven. It remains also unclear to what extent a missing inspection capacity is contributing to the difficult situation (Pauly et al. 2013). The only fact is that IUU<sup>77</sup>presents many uncertainties, however the tendency of industrial IUU within the distant fishing activities of an EEZ poses a threat to sustainable resource use, and habitat or ecosystem conservation (Ochiewo 2016, Standing 2017, Mwakio 2014). This threat is also acknowledged by fisheries experts such as Belhabib, Pauly, and Greer (2017), who explain that in addition to the impacts of overharvesting, off-shore exploitation and "effects on ocean warming" (*ibid*, p. 9), the local coastal fisheries are facing other forms of

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<sup>75</sup> No page given (online resource)

<sup>76</sup> Africa is according to Standing (2017) the only continent with declining fish consumption due to insufficient availability.

<sup>77</sup> Illegal Unreported and Unregulated Fishing

“illegal industrial fishing”. In this context nearshore industrial fishing activities are “competing for fish with artisanal fisheries” (Belhabib et al. 2017, p. 9). Furthermore, the researchers report about insufficient monitoring in form of missing data on artisanal fishing activities and offer thus an advanced understanding of CPUE<sup>78</sup> and effort metrics (*ibid.*). Despite the criticism about insufficient data and underestimations of artisanal fisheries, the experts assume the impacts caused by the artisanal fisheries sector to be lower than by the industrial fishing sector, in terms of catch as well as on the ecosystem (*ibid.*). Consequently, the fisheries experts propose to implement policies which prioritize the artisanal sector (*ibid.*). This study agrees with the idea of prioritization of small-scale subsistence, respectively artisanal fisheries, notably because of the dependency of the local people on the natural resources. The present thesis is also agreeing with Redpath et al. (2015) on the complexity of conservation conflicts, and conflicting issues within sustainable fisheries management as well as with the call for more multi-cross-disciplinarily approaches. In this spirit the CJC analysis tries to add another point of view that combines several disciplines, though without any exhaustive means or attempts. In conclusion, the CJC model and its factors can be viewed as transferable to further locations, situations, and phenomena of socio-environmental scope; particularly since each factor is reflected by various research studies, findings, reports, and assessments. Hereinafter, the model aims to switch the attention and perspective to those affected the most, and attempts to translate each impact of environmental, climate related-, or socio-economical scope through a concrete conservation justice and conflict analysis into a micro-level, respectively ground-level.

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<sup>78</sup> Catch per Unit Effort

## 9. Conclusion and Recommendations

Environmental problems including climate change, resource scarcity, ecosystem degradation, and habitat loss bear quite some conflict potentials, especially if these impacts hit poor, and natural resource dependent populations (McClanahan et al. 2013, Bennett et al. 2017, Adger et al. 2014, Adger et al. 2006, Pomeroy et al. 2016). The global prevalence of these problems has led the global community to established 17 Sustainability Development Goals addressing global challenges, like poverty, inequality, climate adaptation, environmental degradation, prosperity, and peace and justice. These challenges are very complex, and the SDGs are accordingly formulated very generally, focussing on the (inter)national level. However, they do not only affect the international level but take place locally, therefore this study took the freedom to interpret several SDGs and targets (see chapter 4.1) according to the respective circumstances of the study area. Therefore, this study understands the SDGs as an inspiration and transfers them, with the help of social and environmental justice theories and approaches, into a model that aims to reduce conflicts and to empower the poor and marginalized people of conservation areas, to be heard and integrated in the decision-making process in order to defend their rights. The protection of the vital (marine) environment under the challenging humanitarian circumstances bear the potential for conflicts, particularly if the affected stakeholders are treated unjustly, and/or feel treated unfairly. In this vein, Bennett and many of his colleagues (2017) published an appeal for a code of conduct for marine conservation to reduce the injustices in marine conservation concerning the often-desperate local populations. A multitude of studies from various fields as well as reports, assessments etc. verify this. Justice theoretical approaches have been on trial of the phenomenon of “justice” for a long time, and offer several vital reference points to identify, and define aspects of social and environmental justice; from the theoretical foundations of distributive-, and/or procedural justice (Rawls 1971, Sen 2009a/2009b, Walzer 1983, Roemer 1996 etc.), to advancements such as recognition, legitimacy or fair climate adaptation (Adger et al. 2006, Paavola et al. 2006, Martinez Alier 2012, Schlossberg 2007, Walker 2009 et al.). Furthermore Ostrom 2009, Van Laerhoven et al. 2007, Paloniemi et al. 2011, Abunge 2011, Agrawal 2009, etc.) have identified useful and well-tested criteria for an effective and functioning sustainable resource management, especially with regards to jointly used resources (CPRs), which in turn correlate with aspects of social and environmental justice. Yet, taken separately, the social and environmental justice theories and studies on sustainable management and governance of these resources as well as conflict

assessments do not reach far enough when dynamic “justice” questions being considered that investigate and analyse the situation onsite, reflecting on real-life problems of local communities in conservation areas. In addition, there is no applicable analysis and evaluation tool for environmental conflict analysis in the field of conservation justice that summarizes the most relevant justice dimensions and helps to gain a deeper understanding of the conflict (prone) situation and deliver an easily comparable visualization of results of each case. This study identifies conservation justice factors through a deductive-inductive research approach, derived from well-sound theoretical approaches; it adjusts these factors inductively through field tests. Then, the adapted criteria or factors have been transferred to the qualitative Conservation Justice and Conflict Model, which has been developed for qualitative case study research and analysis, evaluating each factor with concern of problematic situations, conflicts, and conflict potentials; a) through the local experts, and b) in correlation of the local authorities, researchers and wider relevant literature. In summary, to gain a deeper understanding of socio-environmental problems and conflicts has led to the development of a supplementary tool for qualitative evaluation and assessment of (marine) conservation management and governance impacts on small-scale and local level in the light of socio-environmental challenges and threats. In addition, this analysis tool supports comparative case study evaluation and can be applied to any other case tangent to social-, or environmental justice issue though it is specially designed for conservation situations.

### 9.1 Conclusion/Research Questions

In how far do conservation justice factors help to gain a deeper understanding of socio-environmental problems and conflicts with local communities in protected areas, a) the situations on site, and b) the institutional performance)? These questions can be answered on different levels; a) an overall overviewing level revealing insights (disparities and commonalities) on the whole case study area, and cumulated ranking of conflict potentials of each factor; b) on a village site-specific level, unearthing specific imponderables (problems and conflicts); and c) on the institutional level assessing its justice performance, and concomitant conservation area design and planning.

The overall cumulated analysis of the CJC factors of the case study area and local resource users, which have been ranked by each fisheries community individually, revealed several (un-) anticipated outcomes such as:

- The highest ranking of climate change impacts and affiliated difficulties to adapt as most severe conflict potentials by the local experts.
- The high ranking of conservation concerns, particularly with regards to overharvesting (resource scarcity) and the impacts of natural degradation (deforestation of mangrove, pollution etc.).
- Expressed worries about matters of legitimacy, like transparent rules, and regulations, but also transparent implementations (e.g. misunderstandings concerning “entrance fee”, training, access rights for Tanzanian “mainland” fishers).
- Unexpected concerns of the local population about an ineffective monitoring, inspection and rules enforcement with regard to the conservation area, especially regarding EEZ impacts.
- Congruency of high ranking of distributional matters, such as “access to resources” (including fishing ground), “access to alternative livelihood generation”, and “access to beach”.
- The relatively low ranking of “procedural/participative”, and “recognition” as conflict potentials, which indicates a preceding integration of these matters in the conservation management and planning.
- The high rating of “institutional justice performance”, and relative realistic and reflected criticism by the local experts, despite differently anticipated by the other Stakeholder Groups (B and C) and the author of this present study.
- The consistent idea of the local fisheries communities to enhance the capacities of communities and of the local conservation management, also regarding financial resources and power shifts.

The site-specific CJC analysis unearthed more individual socio-environmental problems and conflict potentials, like:

- The deeper-rooted conflict of perceived “injustice” within a village, in relation to assumed preferences through conservation measures and authorities.
- The problematic conservation situation due to low development and missing infrastructure, economic opportunities, and location, and a perceived neglect in terms of recognition (e.g. of own initiatives (NGOs)).
- Specific concerns of blocked access to landing shores which do not follow the legal, spatial requirements (through individuals or tourism).
- The different quite creative ideas of constructive criticism to improve the situations by local experts of each case study location:
  - Community training (capacity building for village cooperatives, a/or social forms of SMEs) with regard to finding alternative incomes, in different areas e.g. (eco)-tourism.
    - Trans-community training of the MBCA to enhance the common ground of conservation communities
  - Sub-project ideas like soil generation, sponge farming, and fertilization to increase agricultural efforts, to ease the dependency on fish.
  - Business administration training, computer and computer training, as well as English training, to become fit for the growing tourism sector.
  - Bigger boats and training to operate them, and to navigate on the open sea, between the nearshores and EEZ.

These findings could be gathered alongside the dimensions of the CJC factors, and suggested, but open indicators relevant to choose or name relevant issues such as access to e.g. beach, land, resources, water etc., and revealed several socio-environmental conflicts and conflict potentials, which could be contextualized with the situation on site, and the overall background. Therefore, the hypothesis assuming a better understanding (identification, assessment) of these kinds of conflicts can be verified.

The second hypothesis, regarding the correlation of CJC factors and its ratings with the conservation area governance (processes) and management (execution), reflected by a high ranking of institutional justice performance, can be partly verified. Although the CJC analysis gave new insights on the situations and the

institutional performance, the ratings of the respective criteria do not necessarily correlate with the overall rating of the Institutional Performance. For instance, the integration of procedural justice aspects in the MBCA really lead to satisfactory ratings, but on the other hand, do the number of justice factors that are rated to bear severe injustices and a high conflict potential not correlate with the actual satisfactory institutional performance rating. The many CJC factors with high conflict-prone ratings were previously assumed to lead to a “worse” institutional performance perception. The hypothesis II. indicates rather that if a CJC factor is qualitative satisfying integrated, and executed in the management and governance, a higher rating of the institutional performance is likely, regardless of the quantity of CJC factors acknowledged. Otherwise, it could also be assumed that the good ranking may result from a special relevance of the “Procedural-Participative” factor in the MBCA that is orientated towards a community-based co-management. However, on the whole, the CJC analysis and model have proven as an useful tool to gain understanding, reveal problems and conflict potentials, but also leading to a reflective consideration of “fair” judgement through the local stakeholder with was unanticipated by all stakeholder groups.

## 9.2 Contributions and Shortfalls of Research

In view of the increasing pressures on food- and human security and correlating conflict potentials, this study contributes an analytical assessment tool for conservation researchers, practitioners, planners and managers to gain a deeper understanding of socio-environmental conflicts in protected areas of all kinds (IUCN categories, see chapter 2). It is time to put the noble, and useful sentiments such as the UN’s Agenda 2030, and the correlating SDGs as well as the appeal of a code of conduct by researchers (Bennett et al. 2017) further into practice.

Several conservation approaches and numerous conflict management ideas aim towards bridging the gaps between socio-economic challenges and environmental protection, this study contributes a different approach, but to the same goal. The research motivation was nourished by the fact that these ideas and approaches need to reach the vulnerable poor resource dependent parts of the population, integrating their perceptions and knowledge, reflecting “real life problems” as well as identifying and analysing concrete conflict potentials through conservation justice implications, in order to take appropriate actions. Therefore, the CJC Model attempts to prioritize small-scale fisheries, and subsistence resource appropriators (as recommended by Belhabib et al. 2017), through the integration of local

concerns and problems, but also to elicit constructive ideas to improve concrete situations. Through the integration of the perception of justice and the rating of institutional justice performance, the local fishers and seaweed gatherers interviewed report to feel valued as their opinion matters. The CJC approach thereby has unexpectedly proven to unearth more “fair” play, and mutual respect than presumed, e.g. sympathy for the local fishermen from the researchers (PWANI project) and local management (graduated sanctions etc.) and vice versa. That is also reflected by the relatively careful, quite reflective and constructive criticism expressed by the local fishermen and seaweed gatherer, including this stakeholder group’s contribution of concrete ideas to improve the conflict-prone situations they are in. Yet, the good rating of institutional performance and fair play are astonishing in the context of the overall poverty and despair and was thus not anticipated by the authorities or researchers. It seems as if the justice idea inherent of the CJC analysis supports a change of perspectives.

The CJC model contributes to transferring existing theoretical and practical approaches to bridge theory and practice, including planning processes. The combination macro-level findings and theoretical approaches of “justice” are reflected by e.g. different ESA outcomes, investment assessments, recommendations as well as research findings in the correlation of conservation and sustainable fisheries, and could be transferred into a local micro-level. Thereby the model generates concrete empirical data on conservation justice, eliciting the prevalent conflict potentials, and visualize the outcome comparatively. The chosen conservation justice and conflict factors support a deeper understanding of the acute situation and site-specific evaluation of differences and congruencies of problems and perceptions. In this context, the present research findings positively correlate with the overall research questions, about the usefulness of the conservation justice factors to gain a deeper understanding of socio-environmental problems and conflicts with local communities in conservation areas and reflect the situation on site. In addition, the institutional justice performance evaluation could show not only the gaps, but also the positive outcomes of conservation work, which in turn can also enhance motivation for the local conservation responsible officials as well as to give an indicator for the conservation design and planning. Additionally, an evaluation of justice relevant performance by the stakeholders could be supportive for public outreach, as any conservation project is also a matter of public interest, depicting the status quo of institutional justice performance, and conflict likeliness of each area of the project, which in turn enables a quick and pro-active respond to emergent fragile situations.

With regard to the shortfalls of this study, it is clear that any inter- and transdisciplinary study interests have its limitations, especially concerning multidimensional issues such as conservation conflicts, since there mostly have to cope with more variables than data points (Yin 1994). As for the empirical shortfalls, there are several issues to criticize, first of all, the long time period of data acquisition from 2012 – 2016, whereas the majorities of gathered data dates between 2012 – 2014, and could only be updated through distant communication, which unfortunately made it difficult to reach all the stakeholders who participated in the first place due to manifold reasons, like lack of telecommunication or IT devices of the local experts, etc. Another difficult matter is the obvious gender gap of the interviews with the resource appropriators, yet the access to female resource users for interviews was challenging also with regards to the willingness to be interviewed, also the preference to stay out of the “men’s business” in context of the patriarchal structures of the society of the case study area. This situation could have been probably eased through separate and independent interview circumstances that separates female and male resource users, to avoid stigmatization and surveillance by the men, who observed any interview attempt with female community members with curiosity. In addition the interview situations bore quite some confusion concerning the size of interview groups as the majority of interviews were held directly in the village or at the beach, a varying number of fishermen joined the interview unanticipated, which could not have been predicted, and makes it difficult to determine the exact number of interview partners, but is, as several local researchers verify, typical for this kind of interview settings. Furthermore, the research includes some incongruent standard deviations (such as the deeply-rooted conflict potentials within one of the communities) that do not totally fit into sufficiently fit the model but have been carefully examined and integrated. All in all, the extremely dynamic and unpredictable situations, imponderables and insecurities the local residents face, led to emotional statements by the interview partners that were threatening to distort the survey outcome but remained in the qualitative data analysis. In this vein, e.g. one group of interviewed fishermen lost a team member at sea due to “bad weather” which changed, of course, the whole interview situation. The weather conditions and the fatal accident of a fishermen kept the fishermen from fishing, resulting in a temporary food shortage. Yet these problems belong to the reality of the local people in resource dependent societies and give an impression of the conditions the poor communities must cope with. From a theoretical perspective, another

shortfall is the amalgamation of the terms “climate change” and “conservation” due to reasons of understanding (as explained in Chapter 4). However, this theoretical shortfall does not endanger the consequences, since the study does not aim to focus solely on climate adaptation measures as such, but rather on the issues of social and environmental impacts of these changes, the coping strategies, and in how far these issues can lead to conflicts.

### 9.3 Recommendation and Outlook

Despite the tendency for urbanization in Africa (FAO 2017, AfDB 2018, AfDB 2017), still the majority of the populations live in rural areas and depend mainly on nature-based subsistence livelihoods (agriculture, fisheries, etc.) (*ibid.*, König 2009), which makes particularly vulnerable to environmental-, and climate-related disturbances (Adger et al. 2014, McClanahan interview by Burroughs 2017, Pomeroy et al. 2017, AfDB 2017). The developmental-, socio-economic-, and environmental projects (including the SWIOFish project and other conservation initiatives (SmartFish, etc.) are mostly dominated and designed by urban elites, (inter)- national organizations and NGOs, often financed from outside (through international donors, like the World Bank, GEF and industrial countries). According to König (2009), and Cortes-Ramirez (2015) this domination occurs due to missing organizational networking and representation of economic and political interests of the rural population, grounded in a traditional form of organization, which is not being acknowledged as equal by the civil societies, although if understood according to Gramsci’s theoretical conception of cultural hegemony – particularly these traditional forms of organization enable the hegemony of the elites, and their “dominant culture”. Thus, in order to initiate a social rethinking, and development of the civil society towards more sustainability and conservation, and to increase resilience capacities of the marginalized rural population, Gramsci’s concept of cultural hegemony (Barfuß et al. 2014) maybe enriching to understand that there is still a need for honest capacity building, and further appropriate procedural participation development in the case study area (Schlossberg 2007, Sen 2009b) that not only considers cultural, indigenous, or gender backgrounds, but introduces a power shift, that empowers local communities, researchers and institutions on the ground, though adequate resources also financially. Another idea comes from a German local fishery expert who suggest that the creation of an independent “fisheries society” that includes all “fishermen committees” could establish a connection for example to German fisheries societies and fishing clubs. The associations of a developed country could initiate an exchange for knowledge and

free provision of used but modern fishing gears, like fishing rods for the artisanal and subsistence fisheries.<sup>79</sup> According to Mr. Humm the German fishing associations and clubs would be open-minded to start an initiative to support their fellow fishermen in Zanzibar, provided they can find an equivalent official body, like an association or society for fishermen.

In addition, the criticized slow enforcement of e.g. sub-projects by SWIOFish project assessors and consultants (World Bank et al. 2016), as well as the cumulated statements of the local resource-dependent communities, lead to the recommendation to enhance community training on cooperation and community management. Through these suitable sub-projects can be promoted and initiated, to enhance alternative incomes, education and training, fostering cooperative behaviour and build capacities. Moreover, the sub-optimal situation of spatial planning should be clarified either through a clear pre-condition setting promoting the acknowledgement of the traditional right of coastal residents to access landing sites and beaches by the international organizations that are assisting and financing the conservation project. The problematic spatial situation could be eased through a power shift toward local conservation institutions and communities (e.g. village committees) transferring the right to confine the spatial expansion of e.g. touristic facilities, for example with the help of a fining system, which could be used to compensate the affected community directly. This endeavour would need the backup of international organizations to curb *inter alia* corruption that threatens efforts to enforce land use regulations of the conservation area. With regards to adaptation to climate change and conservation challenges, the implementation of “Ecosystem-based adaptation” approaches (CBD 2009) can be useful and supports the already partly understood interrelation of climatic and environmental impacts, and is, on the ground, already partly active, thus offering a basis to build (further) adaptation capacities.

As for the insecurities of monitoring, inspection and enforcement situations, particularly tangent to the EEZ, a regulation of video surveillance system for the foreign vessels, that most industrial fishing operators either already have, or can afford, should be compulsory. In this sense, the governments of Tanzania and Zanzibar need support to establish such a system and operate the software to combat IUU<sup>80</sup> and to monitor actual fishing practices, catches, discards and bycatch. This would also facilitate to identify perpetrators of unsustainable fishing

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<sup>79</sup> Expert interview with Mr. Humm, Bremen 2018

<sup>80</sup> Illegal, Unreported and Unregulated Fishing

activities and could be fined or banned. Though it cannot track IUU as such but inspect only those vessels registered. Furthermore, in the light of an unexplored fishing area between the coastal waters and EEZ (Lee et al.), and the recommendation of Lee et al. (2016) with regard to fisheries investment for medium-sized vessels, gives food for thought to recommend the creation and establishment of a Tanzanian/Zanzibari fishing fleet, to fight the increasing food insecurities through overexploitation and resulting resource scarcity of nearshore areas. Yet, in consideration of the former prawn fishery that closed 2008 due to many reasons affiliated with shortfalls of fishery management, this needs to be closely considered and evaluated (Breuil et al. 2014, Silas 2011). However, after all, Tanzania and Zanzibar have received quite some assistance from international projects to improve sustainable fisheries management, and skills. Anyhow, this would also presuppose adequate landing viz. harbour -, storage-, and further manufacturing capacities, which are seen here as useful to induce and thrive development, provided these endeavours are guided by a sustainability notion and the inclusion of the local population of all educational levels. As further recommendation to prevent and/or react to conservation conflicts, the CJC model can be used for an Environmental and Social (Impact) Assessment and planning of environmental conservation projects (like the SWIOFish projects). It assesses justice challenges of (marine) conservation and sustainable resource management and gives an insight of the institutional performance. The CJC model offers an easy comparison of different conservation areas and their respective prevalent problems. E.g. see figures below as an example of the prevalent justice issues of different areas:



Figure 25, source own: a) Brazil (Bukowski 2018); b) Seychelles (CJC evaluation of the SWIOFish 3 ESA (Garnaud's et al. 2017); c) Madagascar (CJC evaluation of the SWIOFish 2 Status Report (World Bank 2017b).

Additionally, the CJC Model can be useful tool to transferring the SDGs into marine resource management and conservation planning. In this context the model could be integrated in the management education so that the managers internalize the universal principles of “justice” and the UN’s noble sentiments of “justice, peace, environmental protection, poverty reduction, food security, etc.

In accordance with the latest Zanzibar poverty assessment (Belghith et al. 2017), the CJC findings reveal manifold challenges and uncertainties to food- and human security, especially in rural areas. Yet, a conservation project with socially responsible scope needs a further transformation to enable the poor resource-dependent communities to shape their own social, economic and cultural development (König 2009, Cortes-Ramirez (2015)), which cannot be forced, but needs to be cultivated through community and rural capacity building, also financially. Several ideas and projects, such as, the former PWANI project or the Barefoot College (campus Zanzibar) (Kummitha 2017) offer additional support to increase this capacity, which is urgently needed in order to avoid an exacerbation of the challenging situations. The engaged and highly valued and trusted local researchers could be better equipped with (human and monetary) resources in accordance with extended tasks and responsibilities to accompany the local communities and balance the influence of a sometimes needed top-down scope (international organizations, foreign researchers, and intergovernmental “power tussles” (e.g. unclear responsibilities of Tanzania, Zanzibar and the different ministries).

**Outlook:** Reflecting on the overall critical situation-, and continuing cycle of environmental degradation (also through the extreme growth of tourist numbers), overcapacity of near-shore fishing activities, remaining natural resource dependency of big parts of population, a lack of alternatives for subsistence and income generation, exclusion of rural and/or low educated parts of the society to take part in the growing tourism sector, and increasing impacts of climate change etc., an ease of the tense situation and correlating conflicts are rather unlikely. Therefore, the conflict potentials of environmental and social concern can be assumed to exacerbate. Yet there is hope, conservation projects are on the make showing already some success, as well as many engaged persons, like the local communities, researchers, conservation managers and local fishery ministry representatives, who are all working ceaselessly to improve the situation, though they need assistance in the face of the overall low development and environmental

problems. Hence, the protection of the impoverished and marginalized rural parts of the population from the local and international elites (including companies), by e.g. supporting cooperatives and further decentralization of responsibilities, and financial means, and social networking International organizations and institutions should promote the peculiar Zanzibarian/Tanzanian sustainable outcome, as this will determine the further development. In context of fisheries, this thesis ends with the statements of Belhabib, Pauly, Greer (2017): “Better monitoring and catch recording, along with a prioritization of the sector, can mean a lower negative impact on the ecosystem, as fish stocks and marine biodiversity would be able to recover from heavy industrial fishing pressure” (p. 9). First, better links are needed between the social and natural sciences, so that the underpinning social and political context can be understood and linked to the understanding of human–wildlife impacts. Without such understanding, effective management will continue to be challenging. Second, a robust evidence base is required that is built on the monitoring and evaluation of the process and the outcomes, to address how engagement affects conservation outcomes and which processes are most effective in supporting coexistence. There are examples in the literature on human–wildlife impacts of apparent conservation success stories, but where these outcomes are the result of parties striving to enhance conservation asserting their interests to the detriment of others; it can be hypothesised that these positive outcomes will ultimately be less durable for conservation, and thus less sustainable and future-orientated.

“Justice is the first virtue of social institutions, as truth is of systems of thought. A theory, however elegant and economical must be rejected or revised if it is untrue. Likewise, laws and institutions no matter how efficient and well-arranged must be reformed or abolished if they are unjust” John Rawls, *A Theory of Justice* (Rawls 1971, Rawls 1999).

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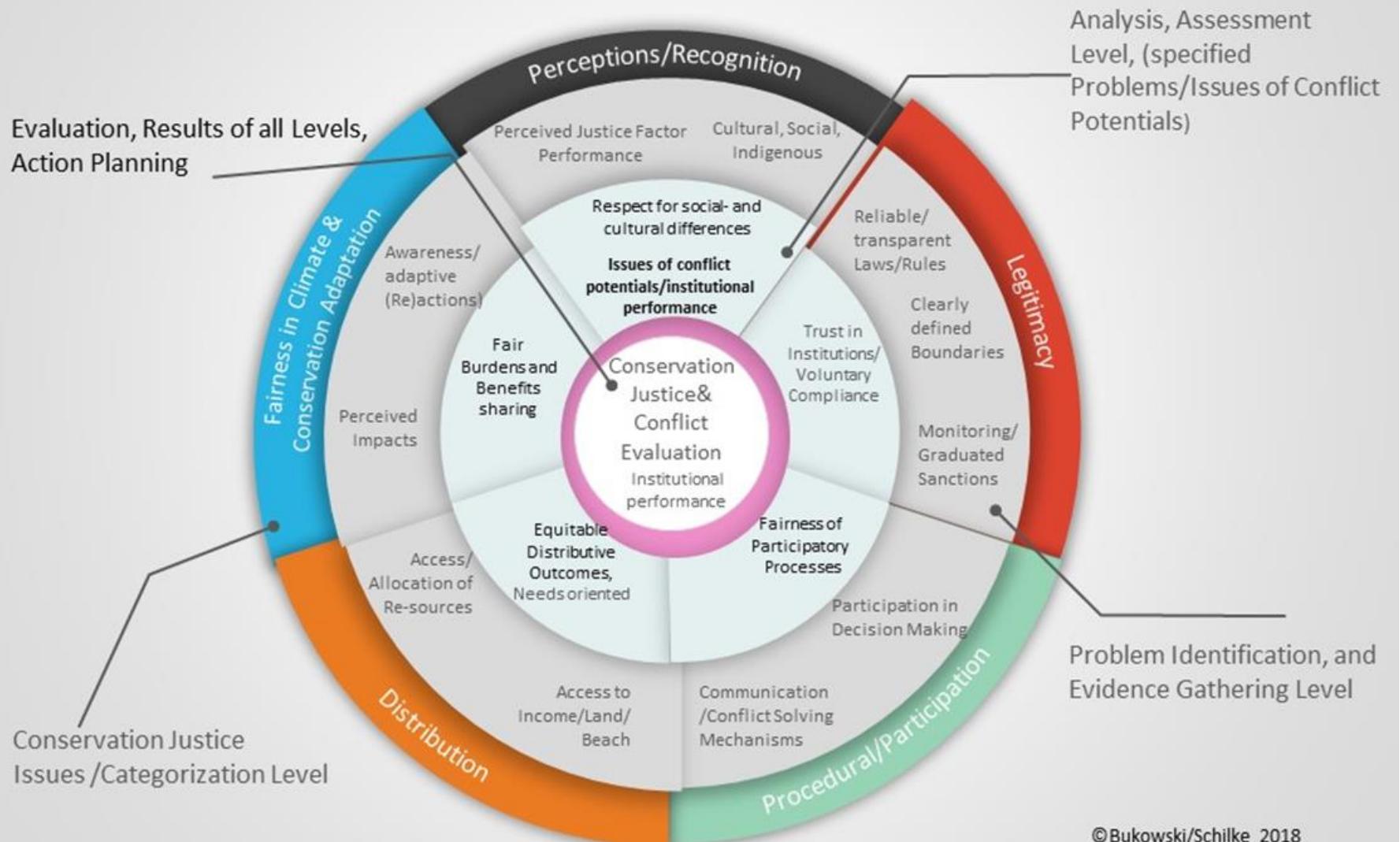
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## Appendix A (CJC-Model)

# Conservation Justice & Conflict Model



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## Appendix B

### Declaration of Originality and Good Scientific Practice

I hereby declare that the present thesis is my own original work, and certify that to my best knowledge the intellectual content of this assignment is the work of my own, and, that I have not sought or used inadmissible help of third parties to produce this work. All assistance and resources used are clearly referenced in accordance with the departmental requirements, and guidelines for good scientific practice of the Carl von Ossietzky University. Furthermore, this thesis has not been submitted previously to other institutions or published for other purposes.

Signature

Date

## Appendix C

Cover picture “Sansibar” original, by Andrea Finck

