

**Effects of Social and Environmental Inequalities on the Wellbeing of a
Slum Community:
The case of Vila dos Pescadores in Southeast Brazil**

By

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ABSTRACT

Effects of Social and Environmental Inequalities on the Wellbeing of a Slum Community: The case of Vila dos Pescadores in Southeast Brazil

By Cintia Gillam

This thesis applies a conceptual framework of wellbeing to analyse the factors that affect the wellbeing of fishers and other community members in the slum community of Vila dos Pescadores in the city of Cubatão, São Paulo state, Southeast Brazil. Two key factors identified are power and inequality. I argue that the social inequalities inherent in Brazilian society affect how fishers and community members can achieve wellbeing, especially in coping with environmental challenges. The analysis of fishers' and community members' wellbeing is important at the policy level to encourage interventions such as the involvement of fishers in conservation initiatives in the Vila dos Pescadores community. A wellbeing analysis may also provide motivation to convince policymakers to assist oppressed groups in society, such as slum-dwellers living in environmentally degraded areas.

Keywords: Wellbeing, Inequality, Environmental Racism, Fishers, Mangroves, Slum, Community, Brazil.

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1. Introduction

This thesis focuses broadly on the dual themes of wellbeing and development. Development corresponds to the changes that ameliorate peoples' standards of living (O'Malley and Clow, 2011, p. 211). Some of these changes are the provision of "investment capital, human resources, knowledge, technology, entrepreneurship, a disposition towards change or the capacity and disposition to pursue existing opportunities for self-advancement" (Veltmeyer, 2011, p. 124). Poverty can be defined as the deprivation of goods that are minimally required to meet human needs, including food, shelter, safety, etc. This concept of deprivation is beyond lack of income: it includes the needs for basic health and education and essential services that must be provided by the state to prevent people from falling into social vulnerability. Thus, poverty is a multidimensional phenomenon in which the various needs and socioeconomic factors associated with it are interrelated. Considering the multifaceted characteristics of poverty in development policy, it is relevant to broaden the focus of research on poverty beyond insufficient income through focusing on peoples' wellbeing.

Wellbeing contributes to a positive focus in development because the wellbeing lens includes not only social relationships and material assets, but also the subjective insights from people (White and Ellison, 2010, p. 159). McGregor (2008) states "wellbeing is a state of being with others, where human needs are met, where one can act meaningfully to pursue one's goals, and where one enjoys a satisfactory quality of life" (p. 1).

Wellbeing is a relevant concept in the study of international development because “the objective of international development could be described as the creation of conditions where all people in the world are able to achieve wellbeing” (Gough, McGregor and Camfield, 2010, p. 4). Thus, the poor “are not completely defined by their poverty” (p. 3).

From a research perspective, wellbeing is a “multi-dimensional approach to understanding and measuring social progress and development” (Britton and Coulthard, 2013, p. 28). The 3-dimensional wellbeing lens is comprised of the material, subjective and relational dimensions (Weeratunge et al. 2014, p. 255). Charles et al. (2012) state that the material dimension concentrates on the resources people have and how their needs are met; the relational dimension “considers social relationships which the person engages in to pursue wellbeing,” and the subjective dimension assesses if and how people are satisfied with their lives (p. 2). The concept of wellbeing builds on Amartya Sen’s ideas on ‘beings’ and ‘doings’ in the human development approach, but incorporates as well understandings from other academic research in “social anthropology, social psychology, livelihoods frameworks, and participatory development to focus on the interactions between beings, doings and feelings” (McGregor and Sumner, 2010, p. 104).

The specific problematic of this thesis is the role of power and inequality in a wellbeing context, focusing on an environmental and natural resource perspective. This is particularly important because there are systems of societal injustices that affect

whether people are able to achieve wellbeing or not. The disadvantaged are embedded in a macroeconomic environment that holds structural inequalities, which can make it burdensome for the poor to fully use their assets. Some of these injustices are systemic inequalities leading to spatial and racial discrimination.

To narrow the focus further, this thesis looks specifically at social inequalities inherent in Brazilian society, and specifically Brazilian urban slums. The case study examined here is the community of Vila dos Pescadores, which is located in a coastal slum area in the city of Cubatão, Brazil. Cubatão is a suitable case study on the relationship between wellbeing, inequality and environmental issues because this city has a high economic inequality rate compared to Brazilian standards, and a large part of its population, currently 56.7%, live in slums (Alves, 2012, p. 7, p. 12). These are areas of environmental risk - mangroves and hillsides.

The geographic location of Cubatão, near the state Capital (São Paulo), facilitated a more expressive industrialization compared to other areas in Brazil. Cubatão is the only Brazilian city with a hydroelectric plant, a steel plant and an oil refinery all in its territory (Silva, 2006, p. 66). The city of Cubatão was chosen to house the largest petrochemical complex in Latin America during the industrialization phase of the Brazilian economy, initiated by the nationalist policy of the president Getulio Vargas (1930-1945) (Silva, 2006, p. 61). The decline of coffee production in Brazil and the decline in imports caused by the Second World War were also important factors in adopting a developmental approach by the government (Silva, 2006, p. 62).

The cheap, migrant labor force was a key factor in industrial concentration in Cubatão, which led to the formation of slums in the city, through the exploitation of labor (Silva, 2006, p. 70). Many peasants in the Northeast region of Brazil, suffering from drought and extreme poverty, migrated to Cubatão to work in the industries and the construction of highways. Once the industries did not need this migrant, low-skilled labour force, unemployed and underemployed migrant workers moved to the slums. The increasing price of land in the city due to industrialization also contributed to the formation of slums because impoverished migrants could not afford to rent houses in the city.

Many of the people living in the Cubatão community of Vila dos Pescadores rely on coastal mangrove forests for artisanal fishing for their livelihoods and supplementary income. The thesis examines how those in this community can achieve wellbeing, especially in coping with environmental challenges. One of the inequalities faced by the community appears as environmental racism – environmental and social injustices on vulnerable ethnic groups, such as black and mixed-race migrant slum-dwellers, who are fishers and community members. Social inequalities take the form of racial, cultural and economic discrimination leading to environmental impacts that affect the livelihoods of artisanal fishers, such as the urbanization of mangroves and industrial pollution. Some of these environmental challenges are the industrial and urban pollution that affect the breeding grounds of fish and shellfish in the nearby Santos Estuary. Various environmental and social issues that affect people's wellbeing in Vila dos Pescadores are rooted in racial, economic and social inequalities in Brazilian society. The racial and

social inequalities arise because race is a “fundamental causal variable in the reproduction of social inequality in Brazil” (Santos, 2006, p. 4).

This thesis argues that the social inequalities, which are deep-rooted in Brazilian society, affect how fishers and community members can achieve wellbeing, principally in dealing with environmental challenges. The thesis also demonstrates how, Despite being disempowered by inequality, artisanal fishers and community members’ response to an environmental disaster demonstrates their strong relational wellbeing.

The thesis will be structured in the following way: Section one is the introduction. Section two is the literature review, which focuses on the debates on various lines of thought and research which are related to wellbeing, such as the themes of poverty and inequality, racism and slums, environmental racism, vulnerability, social capital, sustainable livelihoods and capability approach. Section three is the research methodology. Section four is an article focusing on how a wellbeing approach contributes to better assess poverty and the factors that affect fishers’ wellbeing in Vila dos Pescadores. It particularly explores how a pre-existing state of relational wellbeing in the community makes it possible for fishers to take action against environmental shocks. Section five is an article focusing on the factors, particularly inequality and racism, which affect wellbeing of the community of Vila dos Pescadores, especially in coping with environmental issues. Section six is the conclusion. The appendix provides the proposed interview questions and informed consent form.

2. Literature Review

The literature review aims to explore the relationship between the wellbeing framework and its related analytical approaches upon which the wellbeing lens was built. Some related concepts to wellbeing, such as vulnerability and social capital, concern the non-material aspects of small-scale fisheries (Weeratunge et al., 2014, p. 264), which are relevant because fishing is not only a job; it is a way of life.

2.1 Poverty, Inequality and Environmental Interactions

Poverty is a complex, multidimensional social phenomenon (Franko, 2007, p. 386). Poverty and inequality interact to curb the opportunity for the deprived (p. 386). Wood (2010) emphasized that when poor people live under situations of relentless inequality and adverse political economies, they are less in charge of the “institutions through which they must seek their livelihoods and wellbeing” (Wood, 2010, p. 118).

The inequalities seen in Latin America are a result of complex historical aspects such as colonialism and later modernization (Reygadas, 2010, p. 25). Wolf (2010) describes the history of the European expansion and the roles its nations played in the process of domination of other continents – thus creating inequality - with the purpose of generating wealth (p. 82). This led to migration, slavery and changes in trade to the benefit of the core, Europe, and local elites in the “periphery” (p. 196). Latin America has the most unequal income distribution in the world, with the “wealthiest twenty percent earning an average of twenty times the poorest 20 percent of the population” (Franko,

2007, p. 428). This is a consequence of “the accumulation of advantages and disadvantages contributing to the persistence of inequality” by creating two extremes of society - dualism (Reygadas, 2010, p. 37, 38).

Franko (2007) emphasises that “inequality is primarily caused by policies that have favoured the rich and neglected the importance of investment for human capital” (p. 428). The persistence of dualism and poverty in developing countries are a consequence of how elite groups in certain societies “invest in status differences and cultural barriers to defend unequal power relations” (Gough and McGregor, 2010, p. 39).

Sachs (2015) states that “hundreds of millions of people live in urban slums around the world” (p. 28). In Latin America, poverty is concentrated in urban areas, with poor urban dwellers living in inadequate housing with makeshift housing with limited or no access to basic services (p. 533). The Brazilian Federal Bureau of Geography and Statistics (IBGE) defines slums in Brazil (favelas) as “groups consisting of at least fifty-one domiciles (shacks, houses), most of which lack essential public services, taking or having held, until recently, invasion of land (public or private) and being arranged, generally disorderly and in a dense form” (2010). Slums in Brazil are an example of “socially constructed, power-laden, and deeply racialized exclusionary urban spaces” (Vargas, 2006, p. 60).

Reygadas’ analyses of the root causes of inequality connect to the source of Latin America’s economic discrepancies with various forms of inequality, with are results of “diverse economic, social, political, and cultural mechanisms” (p. 25). The historical mechanisms are shown as through history; people of indigenous and African descent

have been suffering from centuries of racial segregation, slavery, violence and even death in Latin America (p. 27). These mechanisms take the form of disparity in social capital, leading to physical and geographic segregation (p. 37). Damiani (2002) refers to "wage slavery", drawing attention to the poverty experienced by Brazilian northeast migrants, defined by labor turnover and its fluctuating characteristics (p. 119). After slavery was abolished, and Brazil had banished discrimination by law, discrimination takes form in everyday life in subtle ways. Cecchetto and Monteiro (2006) describe the lower social mobility rates for black Brazilians (p. 200). Racial differences are connected to class differences, which result on higher concentration of blacks and mestizos in lower income areas (p. 205).

Taylor (2014) describes how hazardous facilities are concentrated in minority and low-income communities in the United States and those communities are exposed to dangerous environmental conditions from industrial processes (p. 1, 3). Environmental racism disproportionately affects vulnerable ethnic groups and is "not limited to racist intentions", but is also present in "actions which have racial side-effects, regardless of their original intent", resulting in broader inequality (Herculano and Pacheco, 2008, p. 25). Franko (2007) states that slum-dwellers in Latin America are usually living in unsafe environments because environmental degradation, "crowding in high risk areas, fragile infrastructure, and a lack of preparedness heighten regional vulnerability to natural shocks" (p. 540). Herculano and Pacheco (2008) affirm that racism and prejudice in Brazil are not only projected towards blacks, mixed-race people or natives, but also against traditional people such as fishers, indigenous peoples and peasants (p. 11). Nonetheless,

these prejudices target these people in order to condone inequalities by excluding vulnerable populations, considering them “naturally inferior” and vulnerable to displacement as a consequence of the achievements of “national process” (p. 12).

Auyero and Swistun (2009) describe the environmental contamination of the slum community ‘Flammable’ in Argentina, where there is lack of reaction from the community against the contamination of their community (p. 4). This lack of reaction is due to the unequal power relations between Flammable residents and various external actors (p. 5) – the government and industries surrounding the slum.

O’Malley and Clow (2010) state “environmental issues become development issues when the environmental degradation threatens the sustainability of human economic activities and human health” (p. 212). The authors emphasize that the government needs to create policies and “modify the operations of markets” in order to “create the conditions within which corporations will change their practices and productions to meet environmental goals” (p. 216). In doing so, sustainable development can be achieved. Cartier et al. (2009) concluded that the communities with the lowest socioeconomic status tend to live closest to “industrial sources of environmental risks” (p. 2695). Thus, people with lower educational levels tend to live in areas of environmental risk in Brazil (p. 2701-2702).

2.2 Conceptual and Methodological Approaches

Social capital is based on strong ties between people, such as immediate family members, neighbors and close friends, which can guard against the vulnerability of the poor (Cleaver, 2005, p. 893). Putnam (2007) defines social capital as “social networks and the associated norms of reciprocity and trustworthiness” (p. 137). Cleaver (2005) states that it is generally assumed that the poor, while lacking material resources, can normally rely on the close relationships with “family, neighbors, and friends as a form of social security” (p. 898). Kithiia (2012) asserts that the poor, in the midst of diverse challenges, have been able to pursue a means of survival (p. 112). Saglio-Yatzimirsky and Landy (2014) state that most slum dwellers have some social capital (p. 5). This social capital helps slum dwellers to get through social exclusion by allowing them to find informal jobs in their community or beyond through cooperation with their networks.

Some criticisms of the concept of social capital are that “it can be used to sidestep issues of inequality, seemingly accounting for power differences without proper consideration of the negative aspects of social life, or the structural constraints on empowerment of the poor” (Cleaver, 2005, p. 894). Thus, Cleaver asserts that close social relationships require constant negotiation, trust and mutual assistance, “which can be eroded over time, by circumstances and actions” (p. 895). Some structural disadvantages upon the poor may limit their agency. However, social capital and social networks might be weaker in non-homogenous communities, as “social neighbourhoods can create identities” (Saglio-Yatzimirsky and Landy, 2014, p. 10).

The Sustainable Livelihoods Approach (SLA) is one of the frameworks that consider the non-material aspects of small small-scale fisheries, and thus, including perceptions and elements of the wellbeing approach (Weeratunge et al., 2014, p. 264). Akram-Lodhi (2011) describes 'livelihoods' as the "capabilities, assets and activities a household can employ to make a living" (p. 126). Ferrol-Schulte, Wolff, Ferse and Glaser (2013) states that the SLA is a conceptual framework, which has a potential to address poverty alleviation through livelihood diversification (p. 254). The SLA concept takes into consideration why people are poor, and a holistic approach of why and the consequences of ecosystem overexploitation and degradation on communities (Ferrol-Schulte, Wolff, Ferse and Glaser, 2013, p. 254).

Gough and McGregor criticize the SLA as it "over-emphasizes the agency of the poor and so obscure the role of structure constraining the poor" (Gough and McGregor, 2010, p. 22). This is particularly important as social structures may contribute to the reproduction of the poor's agency and poverty (Gough and McGregor, 2010, p. 23). Another weakness of this approach is that it assumes that a well-defined group of individuals are part of a community (Akram-Lodhi 127). The sustainable livelihoods approach, by focusing on poor peoples' assets, does not take into consideration that these assets might not be equally distributed amongst community members (Akram-Lodhi 127). Nevertheless, the sustainable livelihoods approach, when complemented by other suitable approaches to fill the gap in its weaknesses, is an important approach in making poor's people livelihoods a central goal of development efforts.

Sen (1999) criticizes the emphasis of commodities and incomes as a means to achieve wellbeing (Sen, 1999, p. 70). Gough and McGregor (2010) emphasize that the capability and need approaches identify the importance of a “basic level of security in human wellbeing (Gough and McGregor, 2010, p. 36). Sen (1999) describes ‘capabilities’ as the freedoms people have in order to lead the kind of life he or she has reason to value” (p. 87). The author also states that, in the analysis of social justice, it is important to consider poverty as the “deprivation of basic capabilities” rather than low income, which is commonly associated with poverty (p. 87). Sen sees social exclusion as ‘capability deprivation’ as well as a reason of various ‘capability failures’ (Sen, 2000, p. 5). Social injustice is one of the failures of capabilities. Saglio-Yatzimirsky and Landy (2014) asserts that when cultural exclusion is based on “social and religious hierarchy (India) and social stratification (Brazil), often translates into caste or race-based stigmatization” (p. 7). Thus, social exclusion might lead to poverty and slums, or this exclusion might be the consequence of poverty (p. 7).

The vulnerability approach emphasizes the “threats that endanger livelihoods” (Weeratunge et al., 2013, p. 11). Some of these are the exposure to risks and insecurity in the present and in the future (p. 11). Cartier, Barcellos, Hübner and Porto (2009) evaluated societal vulnerability in a Brazilian industrial area, and determined the correlation between “socially vulnerable groups and environmental risk, thus shaping a situation of environmental injustice” based on the adjacency of residents in relation to the industrial park (p. 2695).

3. Research Methodology

The methodology for this research involves a review of the literature and fieldwork. Each major chapter includes primary and secondary sources such as journals, books, theses and dissertations, online newspapers, non-personal Facebook postings, NGOs and government webpages, and photos from the Cubatão Archives. Other source of data came from the Cubatão Municipality, the NGO 'EcoFaxina', the 'Instituto de Pesca' website (São Paulo State Fisheries Institute) and the Facebook page from Vadinho, the president of the Community Association of Vila dos Pescadores - 'Mudando a História da Vila dos Pescadores' [Changing the History of the Vila dos Pescadores community]. The staff from the Cubatão Library and Archives kindly allowed me to access their photos and information about Cubatão and Vila dos Pescadores community.

I adopted a case study approach and qualitative research to investigate social and environmental issues affecting the wellbeing of fishers and community members in the Brazilian urban slum area of Vila dos Pescadores.

The qualitative approach allowed the observation of research participants in everyday life, being able to compare and interpret the answers given at different times and situations. The greatest advantages of the qualitative approach are "purposive sampling, capturing underlying meanings, and the holistic understanding of complex issues and processes" (Desai & Potter, 2006, p. 120). Some of the shortcomings of the qualitative approach are excessive trust in the researcher as an instrument of data collection and the lack of rigid methodological procedures.

Case studies can help the researcher to “bridge the gap between foundational studies and practice” (Berg, 2004, p. 252). The case study allows the objectification of the phenomenon, the prioritization of actions and the specification of links between the global and the local in particular phenomena, observing the interactions between the social world and the natural world. The case study approach allows a deep study of a specific case of a particular reality (Perecman and Curran, 2006, p. 21). Some criticisms of the case study approach are the lack of reliability or generality of findings due to the small number of cases (Soy, 1997, par. 2). A degree of bias is not unique to case studies, but can be observed in any type of research. The advantage of case studies is that it can be an example of insights and hypothesis to be followed in posterior studies (Berg, 2004, p. 258). A well-undertaken case study should contribute to understanding of comparable groups or individuals (p. 259). According to the way social inequalities affect how fishers and community members in Vila dos Pescadores community can achieve wellbeing, especially in coping with environmental challenges, keys aspects of this case study have the potential to provide data to be applied in other urban slum fishing communities around the world.

The methodological approaches adopted in this research include participant observation, informal conversations, video interviews and voice recorded semi-structured interviews. The fieldwork involved two trips to Brazil: July 14 to September 2, 2014, and April 16 to May 5, 2015. I interviewed three policy makers, twenty-two fishers, eleven community members, and four Cubatão municipal employees about Vila

dos Pescadores fishers' and community members' livelihoods, and other economic and sustainability aspects of their lives.

During the first phase (2014), I interviewed research participants about environmental issues affecting fishers and community members. Upon returning to Vila dos Pescadores in April 2015, I gathered data from fishers and community members about a crab fishery closure and the environmental consequences of a fire in the estuary, and about fishers' and community wellbeing. During that second phase, as a participant observer, I engaged in informal conversations about what factors contribute to community wellbeing and how pre-existent relational wellbeing contributes to the analysis of the consequences of environmental disasters affecting the community. During both fieldtrips, I travelled by land and motorboat with fishers along the Cubatão and Santos mangrove areas in order to identify urban and industrial pollution caused by slums, by the Port of Santos and by the Cubatão industrial hub. As a participant observer, observation was intentional and planned, goal-oriented, focused on specific behaviors, noting or recording (by writing) facts or occurrences. I observed community members in their social settings such as churches, local school, food activities, community market, mangrove areas, dock, family meetings, and meetings at the community centre. The invitation to accompany community members in their activities allowed me to observe human interactions and interview research participants in their own environment.

Although confidentiality was guaranteed in this research, research participants were free to refuse or skip any questions they didn't want to answer. To such a degree,

research partners felt more comfortable in informal conversations than on tape-recorded interviews. Thus, I found that the data collected from informal conversations and video-interviews was more reliable than the data collected from tape-recorded interviews because interviewees were often fearful to answer some questions on the tape recorder. Data obtained from informal conversations was essential to validate data obtained from tape-recorded interviews.

The Robin Rigby Trust funded both field research trips, and funded small development projects in the community, such as materials for the Community Centre, fishers' dock and the local school. As part of my research, I produced a 30 minute documentary about the various environmental issues affecting fishers and community members at Vila dos Pescadores entitled: 'Impact of environmental degradation on fishers' livelihoods: the case of a Brazilian mangrove community located in an industrial area – Vila dos Pescadores.'

3.1 Ethical Approval for Research

An ethics application was submitted and approved by the Saint Mary's University (SMU) Research Ethics Board (REB) with an original approval period from June 16, 2014 to June 16, 2015. An extension period was granted for continuation until June 16, 2016. The Pontifícia Universidade Católica de São Paulo (PUC-SP) also approved the research. All participation on this research was voluntary, but all research participants who agreed to be interviewed were required to sign the Informed Consent Form, as the Brazilian

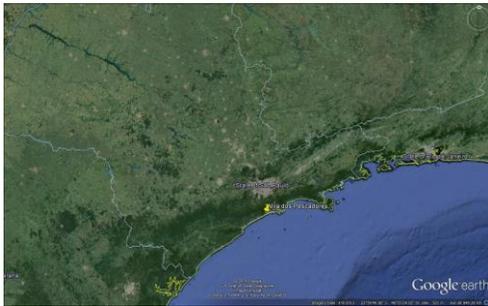
National Board of Ethics in Research (CONEP) requires a written consent from all research participants in the country.

I am a native Portuguese speaker, and hence, I performed the interviews in Portuguese. The Informed Consent Form was in Portuguese. Information provided by research partners is and will be kept in the strictest of confidence. Identifiable, confidential data was shared only with my supervisor, Dr. Anthony Charles. Only in cases where the research partners authorized their names, video or photos to be disclosed (e.g., video interviews) is identifiable data communicated in my research results. The data is being stored safely in the possession of the principal investigator. The data collected is and will be confidential and protected from any third party access (unauthorized by the interviewee). Within five years of the initial interview, the data will be destroyed in a manner ensuring privacy and confidentiality.

4. A Wellbeing Analysis of Fishers in a Brazilian Coastal Shantytown

The concept of a wellbeing approach contributes to better assess poverty and the factors that affect fishers' wellbeing at the mangrove community of Vila dos Pescadores (Fishers' Village), city of Cubatão, São Paulo state, Southeast Brazil. I argue that a pre-existing state of relational wellbeing enables fishers to deal with environmental shocks. The Santos Estuary is prone to environmental disasters due to the Santos Port and the Cubatão industrial hub. The analysis of fishers' wellbeing is important at the policy level to allow interventions such as selective urbanization and involvement of fishers in conservation initiatives at the Vila dos Pescadores community.

4.1 Introduction – Wellbeing as a Development Concept



McGregor (2008) states "wellbeing is a state of being with others, where human needs are met, where one can act meaningfully to pursue one's goals, and where one enjoys a satisfactory quality of life" (p. 1). Conventionally, the focus on peoples' wellbeing in development has been on material needs (McGregor and Sumner, 2010, p. 105). The global challenges we currently face require a broader policy approach beyond measuring income as an indicator for societal development (McGregor and Sumner, 2010, p.104). It is necessary to analyze peoples' wellbeing besides measuring economic gains as indicators of poverty, as the notion of wellbeing is beyond material wealth.

The term 'wellbeing' has been widely used in development rhetoric, policy discourses and in the literature, but it has hardly been used in development policy and practice (Coulthard, Johnson and McGregor, 2011, p. 457). The wellbeing concept is based on

Amartya Sen's ideas on 'beings and doings' – on combining the human development approach with perceptions from a livelihoods framework, participatory development, social anthropology, and social psychology focusing on "interactions between beings, doings and feelings" (McGregor and Sumner, 2010, p. 105). Sen defines the capability approach upon the individual choice of achieving the kind of life the individual values, aiming to achieve wellbeing (Sen, 1999, p. 74, 75). 'Beings and doings' relate to the capability of people to achieve wellbeing; for example, having good health or having meaningful relationships.

According to McGregor and Sumner (2010, p. 105), human wellbeing includes three dimensions, the material, the relational and the subjective. The material dimension of wellbeing focuses on a person's resources and how the person's needs are fulfilled (Charles et al., 2012, p. 2). The relational dimension focuses on "social relationships which the person engages in to pursue wellbeing" (Charles et al., 2012, p. 2). The subjective dimension addresses how a person gives meanings to the goals he or she achieves and the quality of life the person achieves (McGregor and Sumner, 2010, p. 105; Charles et al., 2012, p. 2).

It is important to note that all three dimensions have as condition to interact with each other in order to understand and achieve measurements of human progress (McGregor and Sumner, 2010, p. 105). All three dimensions of wellbeing need to be considered in pursuing a better understanding of small-scale fisheries and developing applicable policies due to fisheries "multi-objective and multi-scale nature" (Weeratunge et al.,

2014, p. 258). It is necessary to understand the perceptions of poor people and their own feelings about poverty to shape the “notion of 3-Dimension human wellbeing” (McGregor and Sumner, 2010, p. 5).

The 3-D wellbeing approach contributes to the development of sustainable fisheries by focusing the attention not only on fishers’ material needs, but also on their subjective and relational needs in policymaking. The wellbeing of fishers is relevant by the reason that fishing is not only a profession; fishing is part of the identity and culture of fishers and the community. Fishers’ relational wellbeing, through community cohesion, enables fishers to mobilize themselves against environmental shocks.

O’Malley (2011) notes that a society is part of a social system, in which “each part individually and collectively fulfilling the system’s needs” (p. 139). He explains the connection between wellbeing and social structure as being driven by underlying economic relationships, which are intensely constrained at the structural level (p. 139):

...the social structure is theorized in terms of a social division of labour that forms the structural basis for work as a social institution and an occupational class structure, in which each individual receives a ‘coefficient of well-being,’ that is, a reward, commensurate with his/her contribution to society. (O’Malley, 2011 p. 139)

Clarke (2006) focuses on the need to emphasize a “wide spectrum of human needs” in measuring wellbeing, emphasizing human motivation (p. 1). Camfield, Streuli and Woodhead (2009) emphasize “well-being does have potential as a bridging concept, at

the same time highlighting inequalities, acknowledging diversity, and respecting children's agency" (p. 65).

The community is an essential part of relational wellbeing and "having a sense of place" (McCubbin et al., 2013, p. 356). A strong community leadership, spiritual and cultural traditions nurture a sense of meaning in life, security and identity (356). O'Malley (1998) argues that within any social group, such as a 'community', there are extensive conflict and differences within the social group, either small or large (p. 4). One way to improve the wellbeing of community members is the promotion of lifelong learning among older adults (Merriam and Kee (2014, p. 128). Thus, educational projects to increase the education levels of fishers and other community members have the potential to improve their lives by being able to reach community resources.

Bennett et al. (2015) highlight the importance of social networks for the wellbeing of slum-dwellers living in resource-constrained settings, especially the elderly (p. 159). Relational wellbeing is closely linked to social capital. Social capital is the ability of people to cooperate and socially organize themselves based of rules of cooperation and a culture of social support (Veltmeyer, 2010, p. 124). While there are different definitions of social capital, a common view of it is through the recognition of the existence of social relations through networks of cooperation (Menon, Pendakur & Perali, 2015, p. 890). Menon et al. (2015) also state "social capital is an important element of social inclusion" (p. 891). Veltmeyer emphasizes the importance of social capital as instrumental to "bring the 'social' back into development" over the process of

community-based development (p. 123). He describes the importance of “alternative community-based and participatory forms of local development” intended to empower the poor, letting themselves in the pursuit of a route out of poverty (p. 123). In order to empower the poor, governmental and non-governmental organizations have the role to build an adequate institutional and policy framework to allow communities to access essential government services (p. 123).

The material dimension of wellbeing focuses on what resources are available to people to meet their needs (Charles et al., 2012, p. 2). Accordingly it includes “assets, welfare, and standards of living” (White, 2010, p. 161). The lack of material wellbeing leads to poverty, which is a result of peoples’ lack of power and resources to achieve basic human wellbeing such as food and shelter, and where society’s institutions refrain from supporting or protecting its own citizens (McGregor and Sumner, 2010, p. 109-110). Kofinas and Chapin (2009) state that wellbeing and livelihoods are thus the fundamental components that allow “sustainability, resilience, and adaptability of people to change” to materialize (p. 55).

Barkin (2011) emphasizes the need for extensive community participation in the use of surpluses both as a compensation for producers and as a reward while also “ensuring the continuing enrichment of the political and cultural institutions and ecosystems on which they all depend on” in order for the community to achieve sustainability (p. 209). Akram-Lodhi (2011) argues, “livelihoods are understood to encompass the capabilities, assets and activities a household can employ in order to make a living” (p. 126).

The Sustainable Livelihoods Approach (SLA) framework assumes that poor people are “agents who can articulate the boundaries of their capabilities” and have a range of capitals: access to “natural capital, such as land and water; physical capital, such as infrastructure and transport, shelter, sanitation and energy; financial capital, such as income, savings and credit; human capital, such as education, skills, knowledge and health; and social capital, such as households, networks, formal groups, institutions and information” (p. 127). The SLA framework needs to consider established structural changes in order to empower the poor (Akram-Lodhi, 2011, p. 129). Some of these changes are to combat inequality. The underprivileged are inserted in a macroeconomic environment that maintains structural inequalities, which can make it difficult for the poor to fully use their assets. Tetreault (2011) emphasizes the need for a substantial state regulated economy, aiming to achieve qualitative development in human welfare without relying only on quantitative expansion of production and consumption (p. 204). In order for this to happen, it is necessary to ultimately “redistribute wealth between North and South” (p. 204).

One critique of wellbeing is that it is often described as the expression of individuals in how they achieve their reliance on Western values including desired employment, high income, successful children and marriage, among others (McCubbin et al., 2013, p. 355). The literature on wellbeing mostly focuses on homogeneous groups of people, such as unemployed people in Western countries. In this case study, there are challenges to conceptualize wellbeing. Some of these, for researching subjective wellbeing in developing countries, are cultural bias and individualism (Gough and McGregor, 2010, p.

31). One of the reasons 'wellbeing' has not been widely applied in policy is because wellbeing "means many things to many people" (p. 457). Gough and McGregor (2010) emphasize issues with cultural bias and preferences in the research of social wellbeing in developing countries (p. 31).

In the West, people tend to have highly individualistic life ideologies, in contrast with other cultures' collective orientation (White, 2009, p. 8). Thus, the understanding of wellbeing is culturally and socially constructed (White, 2009, p. 8). In an individualistic culture, "self-affirmation and achievement are the symbols of achievement and thus wellbeing" (McCubbin et al., 2013, p. 355). In a collectivist culture, wellbeing is connected to the "fulfillment of social expectations of the community, rather than the individual" (p. 355). Some of these social expectations from a collectivist perspective are following the community's "systems of rules, expectations and norms related to roles, responsibilities and behaviors" (p. 355). Wellbeing definitions may vary depending on the point of view of European and North American cultures, which tend to be individualistic, while the Brazilian culture has somewhat a degree of individualism. The Brazilian society shows individualistic and subjectivist traits in several aspects: its fragile and individualist institutions; the lack of ability of citizens to think of the collective; and conflicts between the public and the private sphere (Couto, 2009, p. 9).

Another concern regarding wellbeing is the trade-offs between different communities. For example, Coulthard, Johnson and Bene (2010) describe the ban on sea cucumber fishing in India, which led to an increase in the wellbeing of the international community

through protecting a valuable endangered species, but at the expense of the wellbeing of fishers who relied on the sea cucumber for their livelihoods (p. 17). The instability of their profession and constant environmental threats to their livelihoods are not only material concerns for fishers' wellbeing, but also relational and subjective wellbeing concerns for them.

Brown and Vergragt (2015) propose a transitional process of cultural, political and economic changes in order for people to achieve wellbeing, beyond mass consumerism (Brown and Vergragt, 2015, p. 2). This transitional process is based on emphasizing a person's "natural predisposition to cheerfulness and satisfaction of basic needs", such as quality of health, family and friends' relationships, community and security (p. 4). This is of significant social and environmental consequences, as people over-consume to feel good about themselves, which results in increasing amounts of garbage in the landfills around the world. Part of the issue of decreasing overconsumption is because there is the issue of "the emotionally and politically loaded nature of the idea of consuming less, which for many people conjures images of retreat and loss" (Brown and Vergragt, 2015, p. 5). Furthermore, often people are not fully conscious of the ecological cost of their consumption patterns and the consequences of this overconsumption in surrounding communities, such as environmental degradation.

4.2 Contributions of Wellbeing to Fisheries

Charles et al.'s (2012) analysis demonstrate that the wellbeing lens, by connecting the "social, economic, environmental and institutional dimensions," reflects the varied

reality of sustainable development in fisheries, allowing a “better understanding and assessment of conflicts and tradeoffs, and improved approaches for fisheries governance to incorporate considerations such as livelihoods, poverty, vulnerability, and social capital” (p. 4). Mbatha, Rohe and Coulthard (2012) concluded that, in order to achieve sustainable social wellbeing, poor fishing communities in South Africa need fisheries governance approaches to reflect the needs of these communities by connecting the “fishing rights agenda” with ample social development (p. 5). Some of these broader social developments that affect community wellbeing are the implementation of “youth development, women empowerment and drug abuse awareness in small scale fishing communities” (p. 5). The wellbeing approach has the potential to further understand the “complex social and economic dynamics of small-scale fisheries”, and consequently, improve fisheries management and governance (Charles et al., 2012, p. 1).

Currently, fishing communities in Latin America suffer various pressures on their livelihoods such as governmental conservation restrictions (Begossi, 2010, p. 7). In most Latin American countries, artisanal fishing contributes “about a half of national catches” (Begossi, 2010, p. 7). Thus, fishing significantly contributes to the protein intake and subsistence of various coastal and riverine communities (Begossi, 2010, p. 7). Charles (2001) defines the various challenges for fishery systems in the world, such as natural and human sources of uncertainty, e.g. “fish-environmental interactions, fish prices and market structures” (p. 203 and 204).

Chuenpagdee, Johnson and Charles (2012) argue that small-scale fisheries are intrinsic to community wellbeing (p. 4). Fisheries contribute to communities' food security, livelihoods, identity, health and social cohesion (p. 4). Weeratunge et al. (2014) refers to wellbeing as a "non-analytical lens, which can help draw policy attention to the non-material benefits of fisheries" (p. 256). Fishers' love of fishing, sense of identity and pride of their profession are some of the non-material benefits of fisheries. These non-material benefits enable fishers to attain subjective wellbeing from their livelihoods. Many fishers consider the importance of their livelihood as a way of life due to their love for fishing and job satisfaction (Charles et al., 2012, p. 2; Santos, video interview, August 2014). The subjective dimension of wellbeing is demonstrated in what it means to be a fisher - fishing is not only an occupation, but it is a way of life, intrinsically embedded in fishers' lives. Fishers attain social and psychological wellbeing by being able to fish; and social exclusion, lack of identity, self-esteem, and sense of belonging by not being able to fish. Most fishers would not leave fishing for another occupation (Pollnac et al., 2001, p. 542).

Symes and Phillipson (2009) state the "resources of family and community contribute to the "survival strategies of fishing units" in situations of adversity for fishers (p. 2). These authors express that fishing communities and their networks of social relations characterize the true identity of the inshore artisanal fishing sector, where communities are an essential part of the future of industry (p. 2). Graham, Charles and Bull (2006) emphasize that in developing countries, "communities have been protecting and managing their resources for hundreds of years" (p. 15). Communities have organized

themselves by forming organizations to fight for the collective access to their resources, such as keeping industrial fishing vessels away from their traditional fishing grounds (p. 15). Communities have the potential to build community capacity, enabling people to recognize individual and collective capability, allowing “communities to take action around shared issues” (Winterton et al., 2014, p. 285). Community members can establish their wellbeing and resilience in facing external drivers of change (p. 285). Some of these external drivers are environmental disasters. Kral et al. (2011) explain that, once communities have control of their activities, well-being programs may have better outcomes (p. 435).

Weeratunge et al. (2013) state: The wellbeing lens is a broad concept that includes fishers’ material and non-material needs such as fair and safe working conditions (p. 256). Mbatha, Rohe and Coulthard (2012) emphasize that legal access to fisheries often includes many harvest restrictions that don’t take fishers’ livelihoods in consideration (p. 5). This situation leads to a discrepancy between fishers’ wellbeing needs and fishing regulations (p. 5). Thus, South-African fishers’ require capabilities in order to fully access the resources available, and in consequence, achieve wellbeing (Mbatha, Rohe and Coulthard, 2012, p. 5).

Britton and Coulthard (2013) demonstrate the differences in relational wellbeing between men (fishers) and women (wives of fishers) in Northern Ireland (p. 35). Women highly rated the importance of the community in relational wellbeing, while men (fishers) did not rate it at the same level of importance as men spend most of their time

at sea, while their wives are engaged in community activities such as churches and “women-in-fisheries networks such as the Fishermen’s Wives Support Group Northern Ireland Women in Fisheries network” (p. 35). While fisheries policies in developed countries tend to emphasize economic growth and wealth creation, strong state social welfare provides a safety net for fishers (Symes, 2009, p. 1). In contrast, in developing countries, fisheries development focuses on social issues such as employment, food security and the protection of community and individual fishing rights (Symes, 2009, p. 1). This focus on fishers’ material and relational wellbeing in developing countries is important for peoples’ food security. Fishing is an important source of protein and income for impoverished communities; thus a wellbeing policy approach emphasize the importance of focusing on artisanal fisheries to sustain these communities.

4.3 Community of Vila dos Pescadores

4.3.1 Methodology

The field research was conducted in two phases: The first phase took place between July 14 to September 2, 2014 and the second phase of the field research took place between April 16 and May 5, 2015. Case study and qualitative research approaches were used to investigate social and environmental issues affecting fishers’ and community wellbeing at Vila dos Pescadores. White (2010) emphasizes the relative subjective dimension of interpretation of wellbeing, which requires a qualitative approach (p. 165). The Pontificia Universidade Católica de São Paulo (PUC-SP) and the Saint Mary’s University Research Ethics Board (REB) approved this research. The interpretation of field data highlights the

importance of the material, relational and subjective dimensions of wellbeing for the development of a sustainable community.

This research also involved a review of literature and of media reports. The literature review includes books, journals, online newspapers, non-personal Facebook postings, NGOs and government webpages, and photos from the Cubatão Archives, theses and dissertations. Other source of data came from the Cubatão Municipality, the NGO 'EcoFaxina', the 'Instituto de Pesca' website (São Paulo State Fisheries Institute) and the Facebook page from Vadinho, the president of the Community Association of Vila dos Pescadores - 'Mudando a História da Vila dos Pescadores' [Changing the History of the Vila dos Pescadores community]. The staff from the Cubatão Library and Archives kindly allowed me to access their photos and information about Cubatão and Vila dos Pescadores community.

In my fieldwork, I interviewed 3 policy makers, 22 fishers, 11 community members, and 4 Cubatão municipal employees about Vila dos Pescadores fishers' and community members' livelihoods, and other economic and sustainability aspects of their lives. This qualitative research was conducted through a series of interviews with the local community leader and other key members of the communities, such as elders and partners of fishers. Questions were asked mainly focusing on the environmental and social aspects that affect fishers' and community members' wellbeing. I documented the lifestyle and empirical knowledge of community members, including fishers; collected qualitative data through tape recorded and video interviews; and listened to community

members discuss their problems with environmental and social issues that affect the community.

During the first phase (2014), I interviewed policymakers, municipal employees, fishers and community members about environmental issues affecting the community. Upon returning to Vila dos Pescadores in April 2015, I gathered data from fishers and community members about the crab fisheries closure and the environmental consequences of a fire in the estuary, and about fishers' and community wellbeing. During that second phase, as a participant observer, I engaged in informal conversations about what factors contribute to community wellbeing and how pre-existent relational wellbeing contributes to the analysis of the consequences of environmental disasters affecting the community. During both fieldtrips, I travelled by land and motor boat with fishers along the Cubatão and Santos mangrove areas in order to identify urban and industrial pollution caused by slums, by the Port of Santos and by the Cubatão industrial hub. As a participant observer, observation was intentional and planned, goal-oriented, focused on specific behaviors, noting or recording (by writing) facts or occurrences.

I interacted to several people in the community to prevent cultural barriers to involvement with the community prior to data collection. I was born and raised in the State of São Paulo, although not from the community of Vila dos Pescadores. It is important to learn the rules, codes of conduct, even to construct a way to approach people and create a real bond with the community. I observed community members in their social settings such as churches, local school, food activities, community market,

mangrove areas, dock, family meetings, and meetings at the community centre. The invitation to accompany community members in their activities allowed me to observe human interactions and interview research participants in their own environment.

Considering that the subjectivity of the researcher is always present, encouraged the research participants to freely express their opinions in informal conversations, making interpretations through a wellbeing focus. Thus, I gained a better understanding of the problems encountered by the community of Vila dos Pescadores. In such a way, there is a close relationship between social science and intervention in reality in order to promote the overcoming of difficulties of a particular social group. I accompanied the president of the Community Association of Vila dos Pescadores, José Arnaldo dos Santos (known as Vadinho) on some of his activities such as distributing milk to children in the community; receiving materials from local sponsors to do improvements in the community; opening of the community centre for children's capoeira classes, among other activities.

The questionnaire was a suitable tool to investigate the main environmental barriers for the community members' livelihoods. Questions were focused on the theme of the major changes community members had seen in their community, in terms of environmental changes, livelihoods, fisheries, and general wellbeing of the community. To such a degree, research partners felt more comfortable in informal conversations than on tape-recorded interviews. Thus, I found that the data collected from informal conversations and video-interviews was more reliable than the data collected from tape-

recorded interviews because interviewees were often fearful to answer some questions on the tape recorder. I believe community members were more comfortable to talk in front of the tablet (wireless portable computer) because it was a more familiar object than the tape recorder.

Although confidentiality was guaranteed in this research, if partners wished so, the more sensitive questions were not asked that could make interviewees feel uncomfortable. Thus, data obtained from informal conversations was essential to validate data obtained from tape-recorded interviews. There were many informal conversations with Vila dos Pescadores community members, fishers, municipal government employees and a visit to the company Unipar-Carbocloro and President Bernardes Petrobras refinery in April 2015. The Robin Rigby Trust funded both field research trips, and funded small development projects in the community, such as materials for the Community Centre, fishers' dock and the local school. As part of my research, I produced a 30 minute documentary about the various environmental issues affecting fishers and community members at Vila dos Pescadores entitled: 'Impact of environmental degradation on fishers' livelihoods: the case of a Brazilian mangrove community located in an industrial area – Vila dos Pescadores.'

4.3.2 Historical Background of the Community

The import substitution industrialization (ISI) led to massive migrations to the city of Cubatão (Couto, 2005). The ISI was a postwar development policy, which was widely adopted in Latin America (Lyne, 2015, p. 75). In Brazil, the import substitution period

between 1945 and 1964 consisted of several protectionist approaches, credit policy and other stimulus (p. 76). Some of these incentives were subsidized rates to implement the industrial expansion in the country.

Brazil experienced a great industrial growth due to the ISI policy that aimed to manufacture products that were previously imported, such as tools and machinery (Silva, 2006, p. 62). With the nationalist ISI policy, the state became the major funder of new industries in Brazil. The ISI policy supported the creation of the Cubatão industrial hub, when the National Oil Council decided, in 1949, to build a petroleum refinery in Cubatão (p. 62). The creation of the BNDES (National Bank of economic and Social Development) promoted the industrialization of the country, starting in 1952 (p. 62).

The strong process of industrialization and economic growth in Cubatão generated a stronger population growth, especially in the decades from 1960 to 1980 (Alves, 2013, p. 352). This rapid population growth happened due to intense migrations to the city. These migrants were looking for work in the petrochemical and steel industries. When the industrialization started in the 1950s, these rural migrant workers were largely absorbed by the construction industry (Silva, 2006, p. 68). The Santos Metropolitan Region received a large influx of migrants due to the Santos port expansion, the construction of highways and the industrialization of Cubatão in the 1950s. Economic stagnation, constant droughts and lack of economic prosperity in the Northeastern region of Brazil were determinant factors in the migration process to Southeastern Brazil (Ferrari, 2005, p. 38).

A large number of fishers in the city of Cubatão are northeastern migrants who migrated to the city since the 1960s in search of a better life and better living conditions (Silva, 2006, p. 88). The majority of Northeastern migrants in Cubatão were of rural origin, working in sugar cane plantations or living with relatives in small rural properties in Northeast Brazil (Silva, 2006, p. 83). A large number of these migrants were non-white. According to the IBGE census (1980 and 1991) the black and mixed-race young adult population in the Northeast Brazil was 73.0 % of the population of the region in 1980 and 74.2% in 1991 (p. 18). The intense industrialization in Cubatão demanded extensive migrant labour, especially in the construction field, and led to higher values in real estate, leaving many impoverished migrant populations with difficulty finding homes.

The growth of slums caused by the lack of housing affordability in Cubatão led to mangrove invasions, which created situations of high exposure to environmental hazards such as pollution, floods and landslides (Hogan, 1988, p. 187). Furthermore, the provision of basic urban services in these settlements, such as sewage, drinking water, electricity and road paving are precarious and are present only in the more central areas of these districts (p. 187). The conditions of impoverishment of the population in coastal areas is associated with the difficulties in accessing housing and employment which led to the development or expansion of diverse communities of fishers living in coastal mangrove areas of fishers using traditional fishing as a livelihood and as food supplementation.

The community of Vila dos Pescadores started in the 1960s, in an impoverished coastal mangrove area in the city of Cubatão, Brazil, when a group of artisanal fishers settled the area for subsistence fishing (Mendes, 2002). In the 1970s, with the government policy of strengthening industrial centres near the state capital (São Paulo), this location has undergone a rapid uncontrolled growth, attracting low-income, low-skilled migrant labor, critical to the expansion of the Cubatão petrochemical hub (Fagundes et al., 2012, p. 23).

Vila dos Pescadores is a very heterogeneous community with its members being migrants from various Brazilian states (Marcia Rosa, mayor of Cubatão, video interview July 21, 2014). This is an aspect that often affects the unity of the community, as cultural differences often lead to lack of communication. Mansuri and Rao (2004) argue that it is necessary that community participation in initiatives lead to empowerment and the risks of “taking positions that are contrary to the interests of powerful groups (p. 6-7). At Vila dos Pescadores there are different interest groups that often compete with each other for NGO or government funding. As will be seen, despite its divergences, the community of Vila dos Pescadores has a level of relational wellbeing that was important in how the different groups get together to support community members in case of disasters that affect the community.

A key group is the Community Association of Vila dos Pescadores which was founded in January 23, 1983 (‘Mudando a História da Vila dos Pescadores’ Facebook page, August 18, 2015). The association is a non-profit organization responsible for small projects in

the community that aim to improve the wellbeing of community members and partially compensate for the lack of government actions in the area. Other non-profit organizations work closely with the community association, such as the Salvation Army. The Salvation Army community centre helps children with after-school programs and other activities, such as crafts. Other evangelical churches give support to community members in case of disasters, such as houses that caught on fire (Interviewee 38, phone interview, Nov. 14, 2015).

Many of the people living in the Community of Vila dos Pescadores use the mangroves for artisanal fishing of fish and shellfish, which are a large source of income of people living in the neighborhood (Fagundes et al., 2012, p. 24). The community has 9,244 inhabitants (IBGE, 2010). At Vila dos Pescadores, about half of the shacks are on stilts, with a total of 3,260 registered families in the community (Folha de São Paulo, May 4, 2009). Many of these shacks lack basic urban infrastructure such as sewage treatment. The city of Cubatão plans to urbanize the community, estimated to cost about R\$ 150 million (Folha, 2009). The resettlements consist of moving families who live in shacks to a neighboring area, where new homes will be built.

At Vila dos Pescadores, although most of its members are poor, there are disparities in income and social class among citizens. The people who live in brick houses by the railway, school and health centre are serviced with paved streets, near amenities such as small businesses, hairdressers, corner stores, restaurants and corner stores. In contrast, many community members live in shacks, makeshift houses above the water, without

sewage treatment. Raw sewage is thrown in the water from the stilt houses. In order to access the stilt houses it is necessary to walk on narrow makeshift bridges called 'pinguelas', on unstable pieces of wood that move as people walk. It is common to see cats and dogs roaming underneath the houses looking for mice in the ocean of garbage accumulated during low tides, and children playing on makeshift bridges connecting the stilt houses to the paved roads in the community.

Poverty is multidimensional in Vila dos Pescadores; power relations determine the distribution of opportunities and benefits (Poverty Analysis Discussion Group, 2012, p. 3, 5). This situation of extreme poverty is connected to other factors that affect the community wellbeing, such as systemic racism and inequality. Reygadas (2010) concluded that economic disparities in Latin America are a symptom of colonial class differences based on ethnic, racial and gender discrimination, which are associated with extreme poverty (p. 31).

White (2010) explains that the social dimension of wellbeing is concerned with violence and other forms of social conflict and the capacity that "people have for collective action on matters that concern them" (p. 163). Fishers at Vila dos Pescadores fear the police when they arrive at night at the dock, as fishers could be a target of violence when police mistake them for drug dealers. This often happens when fishers (largely black or mixed-race) arrive at the Vila dos Pescadores dock at night with fish and shellfish on their boats. The reasons Afro-Brazilians fear the police are because black men are often the targets of police brutality in Brazil (The Guardian, Aug. 3, 2015). A positive side of the

relational dimension of wellbeing in the community is shown in how fishers engage themselves to achieve wellbeing, as will be described later on this paper.

Britton (2012) states the importance of faith in increasing relational wellbeing of women in a fishing community in Ireland (p. 15). At Vila dos Pescadores, the Christian faith contributes to the community relational wellbeing by enhancing the sense of community and cohesion of fishers (Interviewee 38, Nov. 14, 2015). There is no specific data for the Vila dos Pescadores community, but in Brazil, Christians are 86.8% of the population, in which Catholics are 64.6% and evangelicals are 22.2% (IBGE, 2010). The community shows its cohesion when it holds the Vila dos Pescadores' maritime and terrestrial procession in honor of São Pedro every year in the community. São Pedro is the patron saint of fishers. The fisher Helena Barros is one of the women who organized the procession, with the help of the municipal government (Carrari, Jul. /Aug. 2015, p. 3). Helena is the wife of the late fishers' leader, José Tobias Barros, who greatly contributed to the organization of fishers in the community.

4.3.3 Importance of Fisheries for the Community of Vila dos Pescadores

In 2011, inshore fisheries production in Cubatão (100,379 kilograms) held the 11th position among the 16 São Paulo state coastal municipalities, ahead of municipalities that exclusively rely on offshore fishing (Fagundes et al, 2012, p. 27). The main species of crustaceans and fish landed at Vila dos Pescadores dock are the land crab (*Ucides cordatus*); blue crab (*Callinectes sapidus and Callinectes danae*); white mullet (*Mugil*

curema), little snook (*Centropomus parallelus*) and common snook (*Centropomus undecimalis*) (Fagundes et al. 2012, p. 27).

Some fisheries require intensive labour such as crab gathering, which is provided by artisanal fishers. Artisanal crab gatherers use the technique of "braçejamento" at Vila dos Pescadores, which is the introduction of the fishers' arm inside the den where the crab lives in order to grab it with his hands (Magalhães and Schiavetti, 2011, p. 48). This is a labour-intensive technique because the crab gatherer has to insert himself (or herself) into the mangrove in order to harvest each crab, leading to physical exhaustion from the effort expended to bring the animal holed up to the surface of muddy substrate. It is not considered economically viable for larger-scale commercial fishers. The harvest of the mangrove crab uçá is legal only for artisanal fishers who use the "braçejamento" technique (Diário Oficial, Oct. 1, 2015). The land crab 'uçá' (*Ucides cordatus*) is a delicacy in several Brazilian resort towns, which are dependent on artisanal fishers to supply restaurants and the local economy. Indeed, artisanal fishers at Vila dos Pescadores supply restaurant chains with a range of fish and shellfish. Thus for Vila dos Pescadores, fishing is not only important from the cultural point of view, but also from an economic angle. Tourism is a very profitable industry in the Santos Metropolitan Region and artisanal fishers are an essential part of this system.

White (2010) notes that perceiving the place of relatedness in the structure of wellbeing do not therefore "eliminate but rather re-situates the significance of social structure and power relations" (p. 164). There is the need to improve the wellbeing of fishers by

tackling the environmental and social issues that affect their fisheries, such as pollution, and inequality. The non-material benefits of fishers' wellbeing at Vila dos Pescadores relate to the need for empowerment programs, economic support such as subsidies for fishing gear, and social programs such as racial consciousness. For the community of Vila dos Pescadores, sustainable fisheries means dealing with urban and industrial pollution; enforcement of environmental laws towards the industries of the industrial hub, and investment in community and fishers' wellbeing programs. The latter would include economic measures such as an increase of the compensation during the crab closure (Oct. 1 to Nov. 30), from 2 to 3 monthly minimum wages¹ (Interviewee 5, 18 and 16, fishers, Aug. 18, 2014). These measures were reflected as well in what many fishers and community members informally noted would contribute to their wellbeing, and their community's wellbeing. Another fisher demonstrated his anger towards politicians who just want votes and do not try to improve their lives. He states: *Politicians don't connect to us; they do not care how we can barely make a living from fishing. Politicians should connect to people who they are serving – the voters. They just do so before the elections, and after the elections we don't exist anymore* (interviewee 12, fisher, Aug. 20, 2014).

A key material wellbeing concern of fishers is adequate employment and livelihood opportunities. A local small business owner emphasizes how many shrimp fishers rely on fishing from January to May, and the rest of the year they work as construction workers, truck drivers and other activities in Cubatão and Santos (interviewee 24, August 10, 2014, community member). This relates to the comment of Symes (2009) that the

¹One monthly Brazilian minimum wage is R\$ 788,00 – approximately CA\$ 273.67

community cohesion existing in fishing communities in the past has now been replaced “by dispersed occupational communities embedded in a more diverse economy” (p. 2).

The decline of fisheries “forced” fishers to look for work in the more diverse economy of cities in the Santos Metropolitan Region (interviewee 24, August 20, 2014, community member). This diverse economy serves the interests of the Cubatão industrial hub for cheap construction labour. A city councilor, who grew up at Vila dos Pescadores, explains how to improve the wellbeing of fishers at Vila dos Pescadores:

The State environmental company Cetesb should work harder in order to avoid fishers to harvest contaminated fish and shellfish. Fish are eating lead and mercury. The government should compensate the wives of fishers who help them to fix their nets, and help to take care of their husbands when they suffer an accident while fishing. Thus, the government should give an allowance in order to fishers to fix their boats and work with safety. Fishers are workers like anybody else; they need government assistance in case of job insecurities. (Interviewee 14, city councilor, Aug. 25, 2014)

One important factor is the fishers’ love for fishing as a fundamental part of their wellbeing. Fishers do not want to become informal workers due to faulty fisheries policies that often don’t compensate them properly in cases of environmental disasters. The fisher R. S. describes how he feels about fishing: *No one will take me from fishing. I am crazy for fishing, and I will not stop fishing, even though I find a job. Fishing is something I learned to enjoy* (Aug. 27, 2014). Although later he found a job in one of the

industries of the Cubatão industrial hub, fishing contributes to his family's food security (R. S., fisher, April 26, 2015). The fisher and his wife (who is also a fisher) fish on weekends and sell their fish in the São Paulo city's markets.

Some economic challenges faced by fishers are the uncertainty of not being able to sell their fish, relying on middlemen, who often do not pay a good price for fish and shellfish. Many local fishing companies do not buy from artisanal fishers, who have to sell their fish and shellfish on the highway (Interviewee 5, fisher, Aug. 18, 2014). Fishers seek to sell their fish (on the 'Anchieta' highway) to tourists called "Paulistas", from São Paulo city, who go to resort towns in the Santos Metropolitan Region. Other fishers in the community complain that the government does not invest in improving the lives of fishers. Fishers are willing to clean up the mangrove if the government gives funding to the community to do so. The respondent emphasized that the municipality claims lack of funding to help fishers. He believes that the government has funding to help fishers, but politicians are not willing to help them (interviewee 5, fisher, August 18, 2014).

4.3.4 Environmental Issues Affecting Fishers' Wellbeing - Urban and Industrial Pollution

The last decade's economic growth in Brazil led to a rise in consumption in the country (Ferreira and Cristopoulos, 2012, p. 214). The higher consumption of goods, combined with lack of environmental awareness, appear to contribute to domestic garbage discarded in the mangrove areas of Cubatão, such as plastics and furniture. The community leader Vadinho emphasizes that a large part of the garbage that arrive at the

Vila dos Pescadores community is carried by ocean tides from other neighbouring cities in the Santos estuary (July 18, 2014). This seems to be an example of how overproduction and consumption patterns in the world, dependent on high levels of natural resource usage, leads to increasing conflict and pollution (Altvater, 2007, p. 1).

Fishing is carried out in several tributaries of the estuarine system of Santos, as well in the main harbor channel. Many of these fishing sites are historically contaminated areas such as the Port of Alemoa, the channel of Cosipa (now Usiminas) and in port terminals (Lamparelli et al. 2001). Most of the waste, which is thrown into coastal and estuarine areas, settles in sediments, which can generate a source of contamination of the entire ecosystem, since this waste affects the aquatic food chain (Gomes et al., 2009, p. 29). There are multiple sources of environmental damage in the Santos estuary. The main sources are industrial and domestic pollution (Interviewee 18, July 16, 2014).

The dredging of the Port of Santos may allow environmental contaminants in the sediment to be dispersed and absorbed into the benthic community, leading to contamination of the sediment both for the water column and for the benthic community. Gomes et al. (2009) emphasize the importance of measures to be taken in terms of chemical safety in the Cubatão industrial hub, port activities, the dredging of the harbor channel, domestic sewage and garbage dumps, as well as reducing the environmental impact and risks to public health (p. 31). Even though industrial pollution levels are considered below the limits recommended by health agencies and therefore the level of consumption for sea crabs from the Cubatão river mangrove areas is

acceptable, it is important to take in consideration the cumulative properties of many heavy metals (Virga et al, 2007, p. 782-783). It is important for the public to know what procedures are adopted by the Brazilian health agencies with regard to the establishment of limit values of metal contamination, and to determine the daily intake of crab meat consumption by the general population (p. 782). Fagundes et al. (2012) state that the most common pollution problem in the Vila dos Pescadores area (Cubatão) originates from urban garbage, mainly plastic and wood, damaging fishing gear (p. 28). In addition to the impacts on biodiversity, the plastic waste also affects navigation and causes damage to marine engines (Daemon, blog, April 19, 2015).

Fishers have expressed concerns with previous environmental disasters, which happened in the Cubatão estuarine area involving oil leaks (Fagundes, 2012, p. 26). Environmental (domestic and industrial) pollution has a great impact on fishers' wellbeing. A fire in the Copersucar storage facility in the Santos estuary on August 18, 2013 led to the leakage of 180,000 tons of sugar in the estuary (A Tribuna, Oct. 23, 2013). A fire on the Copersucar company terminal led to the irregular release of wastewater and sugar residues directly into the Santos Estuary (A Tribuna, Nov. 13, 2013), and the pollution of the Santos Estuary, with environmental impacts, such as the death of fish, crustaceans and reptiles, as shown in laboratory analysis (A Tribuna, Nov. 13, 2013). The syrup formed by burning sugar and low oxygen concentrations in water was responsible for the death of aquatic organisms (A Tribuna, Nov. 13, 2013). One of the respondents (a fisher) describes how fires and other environmental disasters in the

last decade affected their fisheries and how the industries “fill up the mangrove transforming it in landfills” (interviewee 5, Aug. 18, 2014).

Interviewees described how urban pollution and some of the industries of the Cubatão industrial hub are destroying the mangroves. One was worried about Brazilian environmental laws, which exist on paper, but are not put into practice (interviewee 5, fisher, Aug. 18, 2014). Another issue that affects fishers is a lack of environmental awareness from community members and society in general. Glaser (2003) states that the lack of understanding of how ecosystems function often leads to troublesome outcomes such as overfishing and mangrove destruction (p. 265). Some of the mangrove protection tactics applied by the state administrators are “punitive missions” to charge fishers and other communities to enforce environmental protection laws (p. 265). This kind of practice leaves mangrove users “uninformed, uninvolved and alienated” from nature, from the resources their livelihoods depend on (Glaser, 2003, p. 265). At Vila dos Pescadores, fishers have to be aware of the state environmental police in the waters, which do not always treat them with dignity. Mangrove management approaches must prioritize the socio-economic sustainability by emphasizing the quality of life of mangrove users (Glaser, 2003, p. 265).

In summary, environmental quality is essential to sustain fishers’ livelihoods. It is one of the material dimensions of human wellbeing. Environmental pollution not only disturbs fishers’ livelihoods, it affects their relational, material and subjective wellbeing through

competition for resources; and subjective wellbeing, as fishers are 'forced' to rely on informal construction work for survival.

4.4 Environmental Disaster in the Santos Estuary

4.4.1 The Fire of April 2015

A fire at the Ultracargo fuel distribution company in Alemoa district of Santos, in the São Paulo state coast, lasted from April 2 to 10, 2015 (O Globo, April 9, 2015). The place where the fire took place houses 175 fuel tanks, with capacity of up to 10,000 m³ each, in an area of 183,871 m² (O Globo, April 2, 2015). In the Ultracargo terminal in Santos, six tanks were burnt with more than three thousand cubic meters of ethanol and gasoline (O Globo, April 9, 2015). Through the use of liquid foam generator (LGE), the fire was contained on April 10th.

There were no human fatalities, but the fire led to the release of liquid and gaseous effluents, jeopardizing the security of neighbouring communities, employees and other installations in the same industrial zone, and caused the death of thousands of fish, damaging fishing in the region (Reis, 2015). I was told that tons of fish died due to the rise in water temperature and the release of chemicals in the water (Interviewee 15, April 20, 2015). This is supported by the Environmental Company of the State of São Paulo (Cetesb), which noted that seven tons of fish died because of lack of oxygen and high water temperature, which reached 27° Celsius, and polluted water used to fight the flames, which leaked into the estuary (O Globo, April 9, 2015).

The Environmental Company of the State of São Paulo (Cetesb) fined Ultracargo R\$ 22.5 million (about \$ 5.9 million) for the fire. Sindminerios (Union of Mines trade workers, Oil Derivatives and Fuels in Santos and Region) stated that the Union alerted the Ultracargo Company several months before the fire after complaints from employees about incidents and operational failures in transportation, handling and storage of hazardous liquids (Reis, 2015).

The researcher Mateus Rotundo, from the University Santa Cecilia (Unisanta), stated that many reproductive aspects of fish could have been affected due to this environmental disaster. This is because many of the species, which were found dead due to the environmental disaster, reproduce only once a year (Rotundo, in Vicentini and Schepis, EcoFaxina website, 2015). Fishers of Vila dos Pescadores complained that the amount of fish in the estuary diminished considerably, compared to the amount of fish they used to fish prior to the Ultracargo environmental disaster (Interviewee 15, phone interview, May 30, 2015). In consequence, fishers must now travel great distances to be able to fish. The impossibility of fishing not only economically affected fishers, but also affected their wellbeing, as fishing is part of their identity.

The Ultracargo environmental disaster led to problems with marketing of fish caught from the estuary. Artisanal fishers, who travel greater distances to fish in waters free of pollution, also encountered scepticism from people who believed their fish came from the area where the environmental disaster took place. This situation leads to loss of income and job uncertainty, as fishers had difficulty to market their fish in the Santos

area. Fishers who own a car and can afford to pay expensive toll fees on the 'Imigrantes' and 'Anchieta' highways (connecting the cities of Santos and São Paulo, including Cubatão) are able to sell their fish in the street markets of the Metropolitan São Paulo Region. Fishers who do not own a car, or cannot afford to sell their products in São Paulo have to suffer the consequences of not being able to sell their fish in the markets or highways of the Santos Metropolitan Region (Baixada Santista).

Right after this environmental disaster, fishers at Vila dos Pescadores were not able to fish, affecting their main sources of income and livelihood. Many fishers had to rely on family members for financial help and find informal jobs in construction. The increased number of workers in the informal sector led to workers' lower salaries. A fisher, who is registered with the fisher's colony (union), noted the lack of compensation for fishers when environmental disasters happen in the Santos Estuary. He described how the colony should be responsible for the wellbeing of fishers, but that has not happened. He states: *Cosipa* (now called "Usiminas" company) *and the Port of Santos pollute the water. How we, fishers, will survive? We enjoy fishing. There will come a day that the pollution will end it all. Our profession has to be respected* (Interviewee 9, fisher, Aug. 18, 2014). His opinion reflects how the majority of interviewed fishers feel about how the industries and government in the Santos Metropolitan Region handle environmental disasters. It has been said that the pool of available cheap labour leads people to "hardly ever escape from their poverty" (Gough and McGregor, 2010, p. 178).

Environmental disasters worsened what was already a decline in the fishery that the State of São Paulo has been facing since the 1990s. From mid-1970 to 1984 there was an increase in catches as a result of public policies to stimulate the fisheries sector (Amorim, 2015). At that time the São Paulo fisheries production reached 131,000 tons, which led to overfishing of the main fishing grounds and consequent drop in the fisheries (Amorim, 2015). The second half of the 1980s and throughout the 1990s saw an abrupt decrease of fisheries in São Paulo, which dropped to 25,000 tons in 1999 (Amorim, 2015). While a wellbeing approach in fisheries will not in itself lead to a recovery in catches, taking the broader holistic approach of 3D wellbeing has the potential to provide mechanisms to allow artisanal and subsistence fishers to maintain their way of life.

It is important to recognize the differences in wellbeing considerations among different stakeholders in the Estuary. For example, for people who work in the industries of Cubatão, compensation provided by the industries for environmental disasters could mean loss of jobs. As industries try to 'cut corners' when fined by the environmental agency Cetesb, there is a risk that these companies will lay off employees (Interviewee 25, municipal worker, May 18, 2015).

The Ultracargo disaster had the positive result of providing an incentive to boost fishers' material wellbeing by 'pushing' fishers to legalize their status as fishers, by registering at the Ministry of Fishing and Aquaculture (MPA) (interviewee 18, September 1, 2015). This is important because when artisanal fishers have valid (unexpired) fishing licenses, it

allows the government to compensate them in case of environmental disasters. Fishers are only entitled to indemnification if they hold their RPG document, which entitles fishers to exercise their profession (Carrari, May 2015). The Community Association of Vila dos Pescadores, together with the Vila dos Pescadores fishers' association 'Capatazia'² Z1' and the Fisheries Institute helped fishers to register for their license card (RPG – record of fishing activity card) (Mudando a História da Vila dos Pescadores Facebook page, Oct 27, 2015). At Vila dos Pescadores, there were only 37 registered artisanal fishers prior to the Ultracargo disaster (Carrari, May/Jun. 2015), even though the community has over 200 full-time fishers. After the Ultracargo disaster, many fishers obtained their fishing licenses, but others still need to provide proper documentation in order to complete their applications (Vadinho, Facebook message, November 23, 2015).

4.4.2 Social Organization of Fishers Following the Disaster

The EcoFaxina Institute – an NGO involved with coastal communities living in mangrove areas of the Santos Estuary – is one of the organizations which become involved with Vila dos Pescadores fishers during the Ultracargo environmental disaster. EcoFaxina aims to implement environmental waste collection projects with local communities and thereby recover degraded mangrove areas in the Santos Estuary. The Institute's goals are to reverse the degradation of mangrove areas, working in partnership with

² The 'capatazias' are groups of fishers organized in their communities or neighborhoods. The 'capatazias' belong to regional 'colonies' of fishers. 'Colonies' are the regional trade union organizations of artisanal fishers. The president of the Vila dos Pescadores 'Capatazia Z1' belonging to the Colony 'Z1' (of Santos Region) is Santana Barros.

impoverished communities such as people living in shacks, slums and inner-city neighborhoods (EcoFaxina, 2015).

EcoFaxina volunteers, in partnership with Vila dos Pescadores fishers and other community members, collected 1,055 kg of solid waste in the mangroves within the estuary of Santos on April 5, 2015 (Institute EcoFaxina website, April 5, 2015). They also observed the already visible effects of the waste originated from water that was used in fighting the flames from the Ultracargo containers (Vicentini, April 5, 2015). Several newspapers in the region used the photos taken by EcoFaxina staff and volunteers to demonstrate the dimensions of the Ultracargo environmental disaster.

The Ultracargo disaster led to the 'wakening' of fishers and community members to fight for their rights and find partners who empowered this community. The involvement of impoverished communities in environmental projects also enables the integration of the public and private sectors, and civil society, aiming to form a sustainable society. With about ten tons of dead fish floating on the surface, together with invertebrates, this was a bleak scene both for those who fight for a clean ecosystem and for those who rely on fishing for their livelihoods (Vicentini, 2015).

Another community organization, which helped to organize fishers to receive benefits after environmental disasters, is the Community Association of Vila dos Pescadores. The community association is a research partner with the 'Instituto de Pesca' (Fisheries Institute - São Paulo State) which gives the community important support about fishers' rights and environmental education. The Fisheries Institute is the only scientific

institution in the State of São Paulo that conducts research in extractive fishing (Instituto de Pesca, 2015). The president of the Community Association of Vila dos Pescadores (Vadinho), the coordinator of the Capatazia Z1 (Santina Barros) and the Cubatão municipality helped to organize the distribution of 'food baskets' for fishers and their families at the Vila dos Pescadores Community Centre on June 22, 2015.

In total, 139 families of fishers received food baskets, which contain basic non-perishable food items such as rice, beans, cooking oil, etc. (Mudando a História da Vila dos Pescadores Facebook Page, June 22, 2015). The Ministry of Fisheries and the Ministry of Social Development sought to help fishers and their families affected by the Ultracargo disaster granted the food baskets, transported by Ultracargo. (A Tribuna, June 3, 2015). Foods were obtained from federal inter-ministerial resources after finding that about 10 tons of fish died in the Santos Estuary during and after the Ultracargo fire (A Tribuna, June 3, 2015).

The 'food baskets' were delivered not only to fishers in Vila dos Pescadores but also to fishers in other communities in the Santos Metropolitan Region. In total, 2227 fishers and their families were registered to receive 'food baskets', plus 273 fishers who were not registered as fishers, but could prove their livelihoods as fishers in order to receive the benefit (A Tribuna, June 3, 2015). This activity, while helpful to fishers, was not without criticism: Maramar (2015) noted that many fishers did not want to pick up their 'food baskets' because the value of the rice, beans and oil delivered in the baskets was not worth the cost of missing a day of fishing.

The executive manager of Ultracargo, Fernando Coutinho, and the company's lawyer, Luiz Flavio D'Urso, explained that an internal committee, installed to assess the situation, conducted a series of visits to fishing communities in the Santos Metropolitan Region (Diário do Litoral, 19 June 2015, "Fishers do not have guaranteed compensation"). The professionals from Ultracargo talked with the main community leaders in the region in order to perform a more thorough diagnosis of the problems faced by fishers after the fire (Diário do Litoral, 19 June 2015, "Fishers do not have guaranteed compensation"). Representatives of Ultracargo also commented that the estuary is no longer contaminated with fuel and the oxygen content is back to normal (Diário do Litoral, June 19, 2015, "Fishers do not have guaranteed compensation"). The São Paulo State environmental company Cetesb has not yet concluded its study on the quality of fish for consumption (Diário do Litoral, June 19, 2015). The anthropologist Deborah Gondenberg, from Ultracargo, stated "damages and compensation will only be possible once technical reports are released" (Carrari, 2015, p. 6-7). Still, fishers continue to have many barriers to sell their fish in the region due to lack of trust from consumers about the quality of fish and shellfish in the Santos estuary.

Upon the Ultracargo disaster, the pressure from the Community Association of Vila dos Pescadores, fishers, NGOs, local governments, other fishers' association and other local actors led to an important step ensuring fishers livelihoods: the conditional reopening of the land crab harvest. Crab gatherers from the Santos region had their rights restored to capture the land crab uçá, in the mangroves, under certain conditions (Ratton, 2015).

The resolution of the Department of the Environment (SMA) 64/15 was published in the

Official State Gazette (Diário Oficial, October 1, 2015) and the activity will be allowed for two years (Ratton, Oct. 4, 2015). The land crab closure, since February 7, 2014, was ended on September 30, 2015 (Diário Oficial, 2015). Prior to this date, the São Paulo State government had considered the crab uçá, *Ucides cordatus*, as an endangered wildlife species (Legislative assembly of the state of São Paulo, December 29, 2014). The crab gathering was reopened after a joint scientific report from the Fisheries Institute, University of the State of São Paulo (UNESP) and the Area of Environmental Protection of the Central Marine Coast (APAMLC) stated that the mangrove crab uçá (*Ucides cordatus*) is abundant in the Central Coast of São Paulo, and it is also an essential economic resource source for the survival of families of crab gatherers in the central coast of São Paulo state (DO, Oct 1, 2015).

The SMA-64 resolution of September 30, 2015, established the rules for the conditional harvest of the land crab uçá, *Ucides cordatus* on the Central Coast of São Paulo (DO, 2015, Oct 1). This resolution allows local, subsistence and artisanal fishers who hold a license from the Ministry of Fisheries and Aquaculture (MPA) to capture males, transport and store and sell the land crab uçá (DO, 2015, Oct. 1). With the new rules, it is forbidden to capture females, and the use of any tools such as traps, sharp instruments and chemicals. (DO, 2015, Oct 1). It is still forbidden to gather crabs during their reproductive time, from October 1st to November 30th. The reopening of crab gathering in the Santos Metropolitan Region allows fishers to improve their material wellbeing by earning more income to support their families. Crab gathering also improved their relational wellbeing by improving the relationships between community members in

order to sell crabs, relying less on the middlemen (Interviewee 38, phone interview, Nov. 14, 2015). Their subjective wellbeing comes into place by fishers' having their sense of identity and belonging for being able to catch crabs again. Before October 1st, 2015, crab gatherers and fishers had to rely on the black market to sell their crabs. Thus, fishers were afraid to be fined or even go to jail (Interviewee 38, phone interview, Nov. 14, 2015). The conditional re-opening of the land crab fisheries is a small victory towards improving fishers' wellbeing and livelihoods.

For many fishers, community members and researchers, the Ultracargo disaster represented a common element to reunite community members to fight for fishers' and their families' rights in the community. Many of the women in Vila dos Pescadores now meet to discuss fisheries and livelihoods issues, after the Ultracargo disaster. These women were teenage friends who, in the past, led by Helena da Silva Barros, organized several craft classes in 1992 and the next few years for teenage girls, aged 13 to 14 years old. There were around 35 girls, who learned crafts techniques such as painting on glass, making dishtowels and building costumes (for Christmas, etc.) aiming to help to support their families' livelihoods alongside fishing. The importance of relational wellbeing to the community is seen by the fact that female fishers and wives of fishers, who were friends in their adolescence, have reunited to fight for fishers' rights and their families following a man-made environmental disaster. This pre-existing relational wellbeing is an essential element in fighting environmental disasters in the community. Women are proud of contributing to the livelihoods of their husbands and partners through mangrove reforestation and craft skills, and for some, also for being fishers. The women, through

the former 'José Tobias Barros' fishers' association, in which Helena Barros was one of the directors, went to the media to demonstrate how the Ultracargo disaster affected fishers and community members of Vila dos Pescadores.

The former president of the 'José Tobias Barros' and community member, Marly Vicente, gave several interviews to the media to expose the damage of the Ultracargo disaster to fishers and community members of Vila dos Pescadores. This led to media attention, and possibly played a role in the benefits granted to fishers as food baskets, and the fines imposed by the Environmental Company of the State of São Paulo (Cetesb). Cetesb fined the Ultracargo Group \$22.5 million for environmental damage to the population and other consequences of the fire in the industrial area of Santos (Radio Guaiba, April 15, 2015). The company was fined for releasing wastewater in the estuary of Santos, in mangroves and in the pond adjacent to the terminal, and releasing gases in the atmosphere; jeopardizing the safety of nearby communities, employees and other facilities located in the same industrial zone; causing significant nuisance to the wellbeing of the population; and causing the death of fish of various species in the estuary and Rio Casqueiro, damaging fishing in the region (Radio Guaiba, April 15, 2015).

4.5 Connection between Wellbeing and Conservation Initiatives at Vila dos Pescadores

Wellbeing of fishers is dependent on sustainable fisheries. Fishers need to have the conditions to achieve full potential as individuals and as members of the community. Conservation initiatives have the potential to enhance community and fishers' wellbeing by improving the availability of the resource (fish). Fishers and their families at Vila dos

Pescadores are proud of being part of a large conservation initiative funded by the São Paulo State Environmental Company, Cetesb, in the 1990s.

The mangrove reforestation project took place due to the high pollution levels in the 1980s and 1990s that had destroyed a large part of the mangroves in the city of Cubatão. Cetesb supported a research project of replanting propagules and seedlings of mangrove trees (*Rhizophora mangle*) in the 1990s (Menezes, 1999, p. 73). This mangrove reforestation happened with the help of the fisher José Tobias Barros (Inácio), his wife, Helena da Silva Barros, and children and many members of the community of Vila dos Pescadores. Scientists and community members reforested large parts of the mangrove of the city of Cubatão (Menezes, 1999, p. 68). The experiment was carried out in May 1993 and monitored until February 1996 (Menezes, p. 68). In 1995, children and adolescents from Vila dos Pescadores collected about 5,800 propagules of *R. mangle* in approximately two weeks (Menezes, p. 68). This mangrove reforestation project led to the increase of the amount of shrimp in the estuary and mangrove areas of Cascalho River, in Cubatão (Osvaldo Rodrigues, fisher, August 21, 2014). Several fishers at Vila dos Pescadores claim that the number of crab, fish and shrimp has increased due to this conservation project. This 20-year-old mangrove reforestation project serves as guidance for many future potential conservation projects in the Community of Vila dos Pescadores and in the Santos Estuary.

Fishers are clear about the need for mangrove conservation to improve their livelihood. A fisher states: *Fishers don't pollute the mangrove, but the industries and people from*

our community and other communities pollute the environment. The industries throw chemicals in the rivers, and people throw garbage in the mangroves (Interviewee 3, July 10, 2014).

Fishers and community members are eager to join government-funded conservation projects, but further government-funded mangrove replanting projects are not being implemented due to lack of funding. According to Dr. Marcelo Pinheiro, professor of Zoology of invertebrates at the Unesp University campus in São Vicente (Santos Metropolitan Region), there is lack of investment in research and monitoring of mangroves in the area, and the trend is getting worse (Diário do Litoral, 2015, April 7, 2015, para 4). The anthropogenic influence on the environment is due to the industrial hub in Cubatão and the Port of Santos (para 5). He states: “The decontamination (of mangroves) takes a long time and is expensive” (para 1), noting that the environmental company Cetesb does the monitoring of the region (Santos Estuary), but it is necessary not only to detect the problem, but to do something to repair the environmental pollution (para 4).

According to Santos and Furlan (2010) the Brazilian government should enable the recovery of mangrove areas through projects that integrate the local community (p. 11). The authors suggest the implementation of projects integrating the local community for the success of mangrove restoration projects in the Santos Metropolitan Region, through the creation of units of conservation (p. 11). Funding is essential for this to succeed. Already very impoverished fishers cannot afford to volunteer to remove

garbage from the mangrove, as they desperately need to work every day to maintain their livelihoods. An interviewee states:

The government doesn't put garbage collectors in the mangroves. Fishers do not have the equipment or resources to clean up the mangrove themselves, but the government did not even put garbage collectors in the mangroves. The fishers in the community do not have the resources or equipment to monitor garbage pollution in the mangroves. (Interviewee 5, 30 July 2014).

Although the government has not significantly invested in mangrove reforestation projects, and should ideally make more efforts to implement such projects in the Santos Metropolitan Region, private companies have a great potential to improve the wellbeing of the populations in the area by involving communities in their mangrove restoration projects. For example, the company Dow Chemical Brasil, located in the neighboring city, Guarujá, through its CSR (Corporate Social Responsibility) program, funds and manages a mangrove conservation initiative in the area. This program involves a local university (Santa Cecilia University - UNISANTA), together with communities and fishers. The program 'Mangue Limpo' [Clean Mangrove] began in 2003 as an activity developed by the Advisory Panel Community of Guarujá, where Dow Brasil is located (Vanoni, Silveira and Vale, 2011, p. 11). The project has the objective to study and test aquaculture methods, especially for shrimps, and teaches these techniques to communities (p. 11). The project also consists of replanting mangrove seedlings in environmentally impacted areas, monitoring of birds in the region, building a vertical

garden and environmental education for public and private schools in the area and for employees and customers of the company (p. 11). This conservation program benefits all the communities in the Santos Estuary by improving the situation of mangroves in the area.

Conservation initiatives involving community members and fishers have the potential of increasing not only fishers' material wellbeing, but relational and subjective wellbeing as well. Such initiatives may also connect to activities such as ecotourism that contribute to income generation, social integration and improving the quality of life of these community members. Already, women who are fishers or wives of fishers demonstrated the need to promote their crafts to supplement their family income from fishing, with the sustainable use of recycled materials such as plastic soda bottles, and enhancing the effective marketing of their products – resulting in the generation of income, increased self-esteem and quality of life of fishers and community members.

Previous government-funded conservation initiatives led to an increase of community wellbeing by enhancing community cohesion and the pride of the community members and fishers to be part of an important conservation project. Ideally, conservation efforts should be bottom up, but the community of Vila dos Pescadores is socially and economically vulnerable. An initial approach with the involvement of government, NGOS, industries, universities and other research centres could empower fishers to develop conservation initiatives in the Estuary of Santos, which the Vila dos Pescadores'

fishers rely on for their livelihood. Fishers have a lot of ecological knowledge, and institutions could assist them with funding.

4.6 Conclusions

The 3-dimensional wellbeing approach – based on material, relational and subjective wellbeing – highlights the importance of wellbeing for the development of sustainable fishing at Vila dos Pescadores. Fishers at Vila dos Pescadores will be able to support their livelihoods once powerful actors give support to them such as conservation of mangrove areas and the introduction of environmental education in slum areas. Symes (2009) argues that governmental intervention is not the only way to lead to the social sustainability of the fishing industry and of fishing communities, but fishers' self-esteem and self-help should be taken in consideration in the fishing industry (p. 4). Then, government policies should focus on investing in achieving confidence in the fishery industry and applying "clear social objectives for attaining an equitable, profitable and sustainable future as a basis for collective action" (Symes, 2009, p. 4). It is important that policymakers consider fishers in a different way than other professions, considering fishing as a way of life, not just a job.

The contributions of artisanal fishers go beyond revenue generation, since part of their catch is consumed by their families and, or shared within households. Fishers encounter unstable living and economic conditions such as uncertain incomes and employment, seasonality, weather issues, fluctuation in fishing stocks and market instability, leading to uncertain revenues due to this risky activity (Symes, 2009, p. 2; Charles, 2001, p. 203-

206). Inshore fishers often rely on informal labour hidden from official statistics (Symes, 2009, p. 2). The informality of the fishing activity often leads to job insecurity (p. 2). The survival of individual fishers is often dependent on the resources of family and communities (p. 2). Weeratunge et al. (2014, p. 260) emphasize the importance of job satisfaction and happiness to understanding the different levels of fishers' "resistance to changes in the fishery". Some of these changes are decline in stocks and environmental disasters.

Mangrove invasions, as well as urban and industrial pollution, have been leading to negative environmental impact in mangrove areas including destruction of fish and shellfish habitats, consequently contributing to the decline of fisheries. The community of Vila dos Pescadores suffers from environmental vulnerability by being located in an industrial area in the Santos estuary (where the largest port in Latin America is located) and being a very impoverished neighborhood. One of the factors that affects community and fisher wellbeing is environmental disasters in the estuary. These affect fishers' livelihoods by causing fish mortality and environmental pollution. The data analyzed in this paper shows fishers' concerns about environmental hazards in the area and the need for enforcement of fishery and environmental policies to ensure fishers' wellbeing. Some of these policies are proper compensation to fishers due to environmental disasters and livelihoods programs to enhance the wellbeing and livelihoods of fishers. On the latter, Paulo Jr. et al. (2012) highlight the possibility of culturally-oriented sale of crafts and ethnic foods, building community cohesion and drawing on cultural aspects of fishing communities such as their rituals of faith, cultural

events, folk and memories of their traditions, and their natural ecological knowledge (p. 515).

A crucial route to improve fisher wellbeing is to improve fisheries policies. One way to allow the government to deliver benefits to fishers is to ensure that all fishers at Vila dos Pescadores are registered with the Capatazia Z-1 at Vila dos Pescadores and the Colony of Fishers (a union organization of fishers) in Santos. “Capatazias” are groups of fishers organized in their communities or neighborhood to discuss the problems fishers face; the monthly fees from fishers registered in the colony, and accountability to the colony.

The president of the Community Association of Vila dos Pescadores describes how the community reacted to the Ultracargo disaster:

We will continue demanding assistance of the competent authorities for the 139 families living from fishing (in the community) and remain until this day without any kind of help, except for food baskets donated by the federal government. It is regrettable that in a city like Cubatão, the authorities do not come together to help these families. Instead, politicians are already circulating in the city newspaper that councilors have been using this situation as the basis of political campaign. (Vadinho, community leader, Facebook post, Oct. 2, 2015)

It is necessary to encourage fishers to access programs and projects that aim to support artisanal fishing, especially women. In Brazil, the Federal program PRONAF (National Program to Strengthen Family Agriculture) helps small farmers and artisanal fishers to access services, especially lending and financing fishing gear at low interest rates (p. 7).

These kinds of initiatives have the potential to not only increase the material wellbeing of fishers, but also their subjective wellbeing through increasing their self-esteem. The Brazilian federal government, through the Secretary of Infrastructure Development and Fisheries and Aquaculture, and the Department of Development and the General Coordination of Encouragement and Support For Credit has special lines of credits and microcredit for artisanal fishers (MPA, 2014, p. 15). Fishers at Vila dos Pescadores who obtain their fishing card (MPA) will be able to fully access these government-funded resources, improving their material wellbeing.

The challenges facing fishers at Vila dos Pescadores are beyond environmental issues. Social exclusion, poverty, rapid urbanization and growing inequality affect the future of fisheries in the community. Environmental racism is one of the factors that affect fishers in the community. This form of racism disproportionately affects vulnerable ethnic groups and is “not limited to racist intentions” (Herculano and Pacheco, 2008, p. 25). It is a side effect of a racist society, resulting in broader inequality (Herculano and Pacheco, 2008, p. 25). Fishers, who are mainly non-white, live in areas of environmental risk, near the Cubatão Industrial Hub, where they are susceptible to environmental disasters. Because they (fishers) live in a slum area, they suffer social exclusion by not being able to properly access services such as proper housing and sanitation.

Protecting and promoting human wellbeing is a way to achieve social justice. The partnership between the Community Association of Vila dos Pescadores and the State Fisheries Institute, and the partnership of the NGO EcoFaxina with fishers and

community members, are good steps in improving fisher wellbeing. The reopening of the crab closure is a success due to the relational wellbeing of the community, by joining forces with the Fisheries Institute.

The implementation of conservation measures also relies on government policies (federal, state and municipal levels) and enforcement of these policies to ensure petrochemical industries do not pollute the area. Fishers who have been relying on fishing for decades should not lose their livelihoods and be shifted into informal workers, further degrading their material, relational and subjective wellbeing. By improving the quality and availability of the resource (fisheries), fishers will have their income-generating capacity improve, and consequently, their wellbeing. The fishers' sense of identity and belonging are intrinsically attached to their profession as fishers.

The Ultracargo disaster served as an environmental shock that also led to shock waves of awareness of building social capital and reconnecting existing relational wellbeing to unite fishers and women in the community to fight for livelihoods rights of fishers and their families. It is essential to change the paternalistic, top-down approach to give compensation to fishers in a more participatory process following environmental disasters in the Santos Estuary.

The wellbeing lens reflects the many aspects of sustainable development in fisheries by integrating the “social, environmental, economic and institutional dimensions” of fisheries, enabling a better understanding and assessment of conflicts and tradeoffs, and improved approaches for fisheries governance to incorporate considerations such as

livelihoods, poverty, vulnerability, and social capital” (Charles et al. 2012, p. 5). The fishers’ response to the Ultracargo disaster demanded fishers’ adaptation to this environmental change. This adaptation came through an existing relational wellbeing that led fishers and community members to change their survival strategies to unite with external agents to respond and adapt to negative environmental changes. Fishers and community members utilized their social capital in order to gain communal strength. Although disempowered in many ways by suffering the effects of an unequal society (racism, poverty, etc.), fishers at Vila dos Pescadores have relational wellbeing that allows them to fight for their rights after environmental shocks.

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5. Wellbeing – A Community-Centered Approach to the Analysis of Inequality, Racism and Environmental Issues in a Brazilian Slum

Summary

This chapter examines the contribution of the 3-dimensional wellbeing lens (material, relational and subjective dimensions of wellbeing) to the analysis of factors that affect the wellbeing in the slum community of Vila dos Pescadores in the city of Cubatão, Southeast Brazil. I argue that inequality and racism affect how community members and fishers can achieve wellbeing, including in coping with environmental issues. Social inequalities affect community members and fishers by racial, cultural and economic discrimination, leading to environmental impacts that affect the livelihoods of artisanal fishers and living conditions in the community, such as the occupation of mangroves areas and industrial pollution. Some sources of environmental and social issues that affect people's wellbeing in Vila dos Pescadores are rooted in racial, economic and social inequalities in the Brazilian society. The racial and social inequalities arise because race is a "fundamental causal variable in the reproduction of social inequality in Brazil" (Santos, 2006, p. 4). The contributions of community leadership to community wellbeing and to the development of the community are actions aiming to counterbalance the effects of social inequality. Due to a lack of state support, community leadership fills the gaps in providing for the wellbeing of the community, as the community suffers the side effects of societal power imbalances and inequality. This chapter examines the impacts of a lack of provision of basic needs by the state to the community, which is due to (1) the slums being perceived as undesirable spaces by governments and society in general, and (2) the media's portrayal of the community as the source of violence and crime in the city. This situation is mainly due to rooted historic, social, ethnic and racial disparities in Brazilian society leading to racialized spaces in the Cubatão slums. By integrating the contributions of community leadership to community wellbeing, we focus on what impoverished communities can do to improve their livelihoods and wellbeing, combat problems such as environmental degradation and racial discrimination, and contribute to changing the paternalistic patterns of development policies in Brazil.



5.1 Introduction – Wellbeing as a Community Development Concept

Three major global challenges currently faced in developing countries are inequality, environmental degradation and loss of livelihoods; these require a policy approach broader than that based on relying on measuring income as an indicator for societal development (McGregor and Sumner, 2010, p. 104). A 'wellbeing' approach has been widely recommended as a means to address such challenges.

While there is no "universally accepted definition of well-being" (Clarke, 2006, p. 2), it is important to consider a "wide spectrum of human needs" in measuring wellbeing, emphasizing human motivation (Clarke, 2006, p. 1) and including the perceptions of poor people and their own feelings about poverty (McGregor and Sumner, 2010, p. 5).

McGregor (2008) suggests "wellbeing is a state of being with others, where human needs are met, where one can act meaningfully to pursue one's goals, and where one enjoys a satisfactory quality of life" (p. 1). Evans and Prilleltensky (2007) define wellbeing as "a positive state of affairs in which the personal, relational, and collective needs and aspirations of individuals and communities are fulfilled" (p. 681).

In development, the focus on peoples' wellbeing has usually been on material needs (McGregor and Sumner, 2010, p. 105), but it is necessary to analyze wellbeing beyond economic gains as indicators of poverty, since the notion of wellbeing goes beyond material wealth. One path to that broader perspective lies in shifting to the 3-dimensional wellbeing framework, which is based on material, relational and subjective

dimensions of wellbeing (McGregor and Sumner, 2010, p.5, p.104). The material dimension focuses on what assets people have and how people fulfill their needs (Charles et al., 2012, p. 2). The relational dimension focuses on the people's relationships to seek wellbeing (p. 2). The subjective dimension consists of peoples' perception of the quality of their lives (p. 2).

The wellbeing concept is based on Amartya Sen's ideas on 'beings and doings' – on combining the human development approach with perceptions from a livelihoods framework, participatory development, social anthropology, and social psychology focusing on "interactions between beings, doings and feelings" (McGregor and Sumner, 2010, p. 105). 'Beings and doings' refer to the capability of people to achieve wellbeing, notably the individual's choice of achieving the kind of life the individual values, aiming to achieve wellbeing (Sen, 1999, p. 74, 75). Sen defines the capability approach as the freedoms a person has in order to achieve his or her desired way of life (p. 87). He believes that by enhancing human capabilities, development and economic growth will be achieved through enhancing human freedoms (p. 87). Thus, enhanced capabilities and freedoms lead to wellbeing.

Sen sees the agency of individuals as fundamental to achieve freedoms. In his analysis of 'Development as Freedom', Sen elaborates ideas that define freedom as the means and end of development, so this development analysis arises in assigning the capability of people to do things they consider valuable to make or have while exercising their agency (Sen, 1999, p. 4). He describes how social and economic provisions, such as education

and health services, and civil rights, such as political freedom as a means of promoting development and promotion of substantive freedoms (p. 3). Deneulin and McGregor (2009) criticize Sen's capability framework as being an individualistic approach to peoples' freedoms (p. 5). The authors state that the capability approach should involve a social conception of human wellbeing and include peoples' everyday hardships in order to achieve wellbeing (p. 5). Although Sen highlights the importance of capabilities and freedoms to achieve wellbeing, he seems to simplify the problems of poverty and inequality by giving too much emphasis of the agency of individuals to overcome poverty.

White (2010) argues that it is important to focus on wellbeing at the community level (p. 168) – “wellbeing as something that inheres within the community as a collectivity” (p. 168). However, O'Malley criticizes the ‘mystification’ of the understanding of the ‘community’ term in development, which could lead to obscuring fundamental structural inequalities (p. 2). Some of these structural inequalities are social divisions within a community, associated with different social groups based on relations with gender, religion, class, race and ethnicity (Veltmeyer, 2011, p. 115; White, 2010, p. 163).

Wellbeing is a social process which takes part in the relationship between the “collective and the individual; the local and the global; the people and the state” (White, 2010, p. 168). Bennett et al. (2015) highlight the importance of researching the “protective role of social networks for subjective wellbeing” as a part of resilience of slum dwellers (p. 166). This is particularly important during social and environmental shocks in slums that

could lead to economic losses. Bennet et al (2015) stated “formal networks can successfully mediate the impact of adversity for older people in low income urban settings” (p. 167). Thus, relational wellbeing is a key factor in the resilience of slum communities.

Evans and Prilleltensky (2007) state that the “promotion of collective well-being also enhances personal well-being and depends largely on relational well-being” (p. 685). Social movements are a key factor in enhancing communities’ relational wellbeing by striving to “create and improve institutions that deliver services to all citizens, irrespective of means” (p. 685). O’Malley (2011) emphasizes the role of social movements in their effectiveness to “bring about more substantive structural, and therefore ‘revolutionary’ change” in society:

...social movements are generally organized to mobilize the forces of resistance to structure of economic and political power and to contest that power from the standpoint of social groups and classes that have been marginalized, disadvantaged, exploited, oppressed and dominated by structural features of society. These ‘structural distortions’ have resulted in extreme forms of deprivation in its many economic, political, cultural and social forms, and social movements seek structural solutions for these structural inequalities. (O’Malley, 2011, p. 45)

Environmental quality is part of material wellbeing (Britton and Coulthard, 2013, p. 29). O’Malley and Clow (2011) state that at the moment that environmental degradation “threatens the sustainability of human economic activities and human health”,

environmental concerns become an important matter in development (p. 2012). This is especially relevant when impoverished communities live near or in environmentally hazardous areas. Taylor (2014) asserts that minority and low-income communities in the United States often live in neighbourhoods where hazardous facilities are located, and that “those communities are exposed to inordinate amounts of environmental hazards” (p. 1). Thus, environmental pollution also affects peoples’ subjective wellbeing due to peoples’ shame of living in a stigmatized, unbeautiful neighbourhood.

McGregor and Sumner (2010) state that the relational dimension of wellbeing includes “the resources that a person is able to command and the extent to which they are able to engage with others in order to achieve their particular needs and goals” (p. 2). Inequality and power imbalances affect how a person or a community can achieve wellbeing. The analysis of the role of power and inequality in the wellbeing concept is especially important because slum dwellers are oppressed groups, often ostracized and associated with a negative image in the media. It is important, in analyzing a community’s wellbeing, to address the reasons why power imbalances are the root problem of poverty and lack of individual freedoms, and analyze the root causes of labour discrepancies benefiting dominant elites outside a slum community. This is particularly meaningful because the community is an essential part of relational wellbeing and “sense of place” (McCubbin et al., 2013, p. 356), with strong community leadership, spiritual and cultural traditions nurturing a sense of meaning in life, security and identity. Inequality is a major factor in Latin America.

Reygadas (2010) describes how the origin of high inequality indicators in Latin America arose from historical factors such as the colonial heritage, and post-colonial experiments of economic, social and political modernization (p. 29). Historical accumulation of advantages and disadvantages led to the overlapping of several inequality processes (p. 46). The inequality started with the historic dependency of the economy on indigenous and black labour (p. 39). High-income elites, allied with the west, block any policies that attempt progressive reforms (p. 45). This creates a high concentration of power and private accumulation of wealth by elites (p. 44). Disparity in social capital, weak social ties and networks of power holders lead to the “accumulation of advantages and disadvantages, contributing to the persistence of inequalities” and the creation of societal dualism (37). This societal dualism is seen in the large number of Afro-Brazilians living in Cubatão’s *favelas* (slums).

A number of critiques have appeared about the wellbeing concept. Gough and McGregor (2010) note issues with cultural bias and preferences in research on social wellbeing in developing countries (p. 31). McCubbin et al. (2013) emphasize that one of the reasons ‘wellbeing’ has not been widely applied in policy is that wellbeing “means many things to many people” (p. 457). Furthermore, the literature on wellbeing mostly focuses on homogeneous groups of people, such as unemployed people in Western countries.

A recurring concern is that wellbeing is often based on individuals and how they assess their situation with respect to Western values such as “high income, rewarding

employment, advanced education, quality marriage, healthy and developmentally appropriate and occupationally successful children, good health, close friends and social status in the community” (McCubbin et al., 2013, p. 355). In an individualistic culture, “self-affirmation and achievement are the symbols of achievement and thus wellbeing” (p. 355). In a collectivist culture, wellbeing is connected to the “fulfillment of social expectations of the community, rather than the individual” (p. 355). Some of these social expectations from a collectivist perspective are following the community’s “systems of rules, expectation and norms related to roles, responsibilities and behaviors” (p. 355). Collectivist cultures place emphasis on inter-personal factors that are part of their relational wellbeing. It is important to note that understandings of wellbeing may vary depending on social classes, with the middle and upper classes tending to see their wellbeing in a more individualistic way while the poor see their wellbeing in a more collective way. This reality will be examined at a later point.

5.2 Community of Vila dos Pescadores

5.2.1 Methodology

I conducted two field research trips to Vila dos Pescadores and other sites in Cubatão in 2014 and 2015. The first trip took place between July 14 to September 2, 2014 and the second between April 16 and May 5, 2015. Case study and qualitative research approaches were used to investigate social and environmental issues affecting fishers’ and community wellbeing at Vila dos Pescadores. The Pontifícia Universidade Católica de São Paulo (PUC-SP) and the Saint Mary’s University Research Ethics Board (REB)

approved this research. The interpretation of field data indicates the importance of the material, relational and subjective dimensions of wellbeing for the development of a sustainable community.

This research also involved a review of literature and of media reports. The literature review includes books, journals, online newspapers, non-personal Facebook postings, NGOs and government webpages, and photos from the Cubatão Archives, theses and dissertations. Other source of data came from the Cubatão Municipality, the NGO 'EcoFaxina', the 'Instituto de Pesca' website (São Paulo State Fisheries Institute) and the Facebook page from Vadinho, the president of the Community Association of Vila dos Pescadores - 'Mudando a História da Vila dos Pescadores' [Changing the History of the Vila dos Pescadores community].

In order to achieve the goals of the thesis, I talked to several people in the community to prevent cultural barriers to involvement with the community prior to data collection. I observed community members in their social settings such as churches, local school, food activities, community market, mangrove areas, dock, family meetings, and meetings at the community centre. The invitation to accompany community members in their activities allowed me to observe human interactions and interview research participants in their own environment. I accompanied the president of the Community Association of Vila dos Pescadores, José Arnaldo dos Santos (known as Vadinho) on some of his activities such as distributing milk to children in the community; receiving

materials from local sponsors to do improvements in the community; opening of the community centre for children's capoeira classes, among other activities.

During my first field research trip (2014), I interviewed policymakers, municipal employees, fishers and community members about environmental issues affecting the community. Upon returning to Vila dos Pescadores in April 2015, I gathered data from fishers and community members about the crab fisheries closure and the environmental consequences of a fire in the estuary, and about fishers' and community wellbeing. During that second trip, as a participant observer, I engaged in informal conversations about what factors contribute to community wellbeing and how pre-existent relational wellbeing contributes to the analysis of the consequences of environmental disasters affecting the community. During both fieldtrips, I travelled by land and motor boat with fishers along the Cubatão and Santos mangrove areas in order to identify urban and industrial pollution caused by slums, by the Port of Santos and by the Cubatão industrial hub. As a participant observer, observation was intentional and planned, goal-oriented, focused on specific behaviors, noting or recording (by writing) facts or occurrences.

In my fieldwork, I interviewed 3 policy makers, 22 fishers, 11 community members, and 4 Cubatão municipal employees about Vila dos Pescadores fishers' and community members' livelihoods, and other economic and sustainability aspects of their lives. This qualitative research was conducted through a series of interviews with the local community leader and other key members of the communities, such as elders and partners of fishers. Questions were asked mainly focusing on the environmental and

social aspects that affect fishers' and community members' wellbeing. I documented the lifestyle and empirical knowledge of community members, including fishers; collected qualitative data through tape recorded and video interviews; and listened to community members discuss their problems with environmental and social issues that affect the community.

The questionnaire was a tool to investigate the main environmental barriers for the community members' livelihoods. Questions were focused on the theme of the major changes community members had seen in their community, in terms of environmental changes, livelihoods, fisheries, and general wellbeing of the community. To such a degree, research partners felt more comfortable in informal conversations than on tape-recorded interviews. Thus, I found that the data collected from informal conversations and video-interviews was more reliable than the data collected from tape-recorded interviews because interviewees were often fearful to answer some questions on the tape recorder. I believe community members were more comfortable to talk in front of the tablet (wireless portable computer) because it was a more familiar object than the tape recorder. Some interview questions were not asked due to a lack of trust from fishers. Although confidentiality was guaranteed in this research, if partners wished so, the more sensitive questions were not asked that could make interviewees feel uncomfortable.

Data obtained from informal conversations was essential to validate data obtained from tape-recorded interviews. There were many informal conversations with Vila dos

Pescadores community members, fishers, municipal government employees and a visit to the company Unipar-Carbocloro and President Bernardes Petrobras refinery in April 2015. The Robin Rigby Trust funded both field research trips, and funded small development projects in the community, such as materials for the Community Centre, fishers' dock and the local school. As part of my research, I produced a 30 minute documentary about the various environmental issues affecting fishers and community members at Vila dos Pescadores entitled: 'Impact of environmental degradation on fishers' livelihoods: the case of a Brazilian mangrove community located in an industrial area – Vila dos Pescadores.'

5.2.2 Historical Background of the Community

Vila dos Pescadores is a mangrove-based slum neighborhood of Cubatão, which developed as a small community of fishers and crab gatherers in the 1960s (Fagundes et al., 2012, p. 23). Since the 1970s, with the government policy of strengthening the industrial centres near the state capital, Vila dos Pescadores has undergone a rapid uncontrolled growth, attracting low-income, and low-skill migrant labor, crucial to the expansion of the Cubatão petrochemical hub (p. 23). Many of these migrants use the mangroves for artisanal fishing with exploitation of fish and shellfish, which are an important source of income of people living in the mangrove areas of Cubatão.

Economic stagnation, constant droughts and lack of economic prosperity in the Northeastern region of Brazil were determinant factors in the migration process to Southeastern Brazil (Ferrari, 2005, p. 38). The import substitution processes in Brazil led

to massive migrations to the city of Cubatão for people looking for work in the petrochemical and steel industries (Couto, 2005). Due to the high socio-economic disparities between the Northeast and Southeast Brazilian regions, the industrialized Southeast region received a large part of the Northeast migrants (Ferrari, 2005, p. 39). The Santos Metropolitan Area received a large influx of migrants due to the Santos port expansion and the industrialization of Cubatão in the 1950s (Silva, 2006, p. 89). Northeastern migrants are about 60% of the population of Cubatão (Diagnóstico Urbano Socioambiental, 2013, p. 260)

The majority of Northeastern migrants are of rural origin, working in sugar cane plantations or living with relative in small rural properties in Northeast Brazil (Silva, 2006, p 83). They migrated to Cubatão in search of better living conditions (p. 88). During the 1950s, the import substitution industrialization (ISI) policies of the Brazilian government led to a massive industrialization in Cubatão, especially petrochemical industries (Couto, 2005). This industrialization demanded extensive migrant labour, especially in the construction field. The intense industrialization in Cubatão led to higher values in real estate, leaving many impoverished migrant populations to occupy mangrove areas. A large number of these migrants were of blacks or mixed-race. According to the IBGE census (1980 and 1991), in the Northeastern region, the mixed-race and black young adult population was 73.0 % of the population of the region in 1980, and 74.2% in 1991 (p. 18).

5.3 Systemic Factors that Affect the Wellbeing of the Community

5.3.1. Slums and Perceptions of Undesirable Spaces Affect Wellbeing

The word “slum” originally referred to inappropriate poor housing in Britain in the early industrial era (Arabindoo, 2012, p. 636). In Brazil, various cities still lack adequate sewage systems and in the metropolitan regions, shantytowns are often present in environmentally protected areas, such as mountains and mangrove areas. These slum areas are called ‘favelas’ and defined by the Instituto Brasileiro de Geografia e Estatística [Brazilian Federal Bureau of Geography and Statistics - IBGE] “as poor, ramshackle settlements with more than 51 houses” (IBGE, 2010). However, some Brazilian slums are bigger than towns, having more than 200,000 residents (Herculano and Pacheco, 2008, p. 253-254). IBGE states that 5.6% (3,224,529) of the total Brazilian households are located in slum areas (Favero, 2015). There are 6,329 slums spread across 323 Brazilian municipalities (Favero, 2015). Although the majority of slum dwellers live in poverty, not all of them are poor.

Slums in Brazil suffer from social stigma because of the negative way the media in general portrays slums in the country. Silva states how Brazilian slums are portrayed in a biased way by the mainstream media (The Guardian, Aug. 5, 2015). He notes that the favela ‘Rocinha’ (Rio de Janeiro) “has always been portrayed by newspapers as a dangerous and dirty place where residents lack an understanding of how the world works” (Silva, 2015). The media in Cubatão tends to portray Vila dos Pescadores in a negative way for similar reasons. The way the Brazilian media portrays slums is biased

because only a small number of slum-dwellers are criminals. Most slum-dwellers are hardworking people who cannot afford to live in a wealthier neighbourhood.

Most of Brazil's middle- and upperclasses consider favelas as sources of violence and criminality (Wu, 2012, p. 9). Research by the Data Popular Institute supports this assessment, demonstrating that non-slum dwellers have a negative biased view of slum-dwellers (Gandra, 2015, para 1). Often people in richers neighborhoods tend to assume that slum-dwellers are criminals, and in consequence, have concerns in hiring people living in slums (para 4). Hence, many slum-dwellers do not explicitly say that they live in slums when looking for employment (para 3). Although there is discrimination towards slum-dwellers, often references from previous employers are the determining factor when it comes to getting jobs in richer neighbourhoods (Brasil, 2015, para 5).

These attitudes lead to a situation in which forms of development such as paternalistic development policies towards slum dwellers could result in circumstances "which will make it much harder for some people to achieve wellbeing" (McGregor and Sumner, 2010, p. 107). Indeed, Damiani (2002) uses the term "wage slavery" highlighting poverty experienced by migrants, characterized by labor turnover and its nomadic character (p. 119).

Maricato (2003) argues that the tolerance that the Brazilian government has expressed in relation to the illegal occupation of urban lands is remarkable, and that even greater tolerance for illegal urban occupation in favelas comes from municipal governments, especially during pre-election periods (p. 157). Political patronage is common (p. 157).

For example, during election campaigns, some candidates offer construction materials to Vila dos Pescadores newcomers in exchange for their votes, allowing these new slum dwellers to occupy the mangrove areas of the community (Interviewee 18, April 22, 2015), even though mangroves are protected areas in Brazil (Portal Brasil, Feb 2, 2015).

Political patronage in Cubatão worsens the situation of mangrove occupations at Vila dos Pescadores. Corrupt politicians prey on the community's lack of material wellbeing for their own benefit (Interviewee 18, April 22, 2015). Every day, new families arrive and build their shacks above the water (Interviewee 18, April 22, 2015), with mangrove invasions degrading the environment and living conditions of Vila dos Pescadores' community members. This reflects the situation elsewhere in Brazil with some segments of the poor working population invading areas that are rejected by the private housing market and public areas, located in devalued regions, such as streams, hillsides, polluted regions, protected areas, and spaces subject to flooding or other types of risks, due to lack of enforcement (Maricato, 2003, p. 159).

In order to improve housing conditions of the community, the Brazilian Ministry of Planning and the Federal Heritage Service (Serviço do Patrimônio da União) transferred the area where Vila dos Pescadores is located to the municipality of Cubatão to allow the urbanization of the neighbourhood. The legal transfer occurred on May 6, 2014 by Ordinance 145 (Pimentel, 2015). The homes, which are located in urbanized areas, in theory, will receive drainage, water network installation and sewage and other urban services. Although this is a policy that has the stated goal to improve the wellbeing of

impoverished families at Vila dos Pescadores, many community members are not satisfied with the top-down urbanization approach from the municipal government.

A community member demonstrates his views about the top-down approach to urbanization of the community: *If the urbanization happens, we will be transferred to apartment buildings and I will lose my house, which I'm still building. Thus, I will have to pay rent. As a fisher, how can I store my fishing equipment in an apartment?* (Interviewee 15, fisher, April 21, 2015). Another notes: *I'm not registered as a fisher because I fish on weekends and work in construction on weekdays. How will I be able to put food on the table when paying rent and living away from the estuary?* (Interviewee 16, April 26, 2015). Many community members at Vila dos Pescadores hope their families will be able to stay in the community after the urbanization process (Interviewee 15, fisher, April 21, 2015).

The current housing secretary, Silvano Lacerda, states how the municipality will improve the housing situation of the Vila dos Pescadores community members during the urbanization process:

Currently the municipality's policy deals with the issue of large housing projects in order to reintegrate these populations in the mainstream society in an orderly and sustainable manner. At Vila dos Pescadores there are housing projects that will affect approximately 6,000 homes. We will not remove the population, but settle this population in the places where they actually are located, but in an orderly manner. Our design does not only include housing, but it includes the repopulation

of fauna and flora. We will provide parks and ecological zoning, leading to offering quality services such as, health, basic sanitation, health centers and leisure areas. We will recover the environment in the areas where the population actually lives. We will invest in citizenship, essential public services and improve their quality of life for the Vila dos Pescadores community members. (Silvano Lacerda, video interview, 21 July 2014)

Community members at Vila dos Pescadores hope that the municipality fulfills its promises to not transfer community members to other areas of the city (Interviewee 16, April 26, 2015). However, concerns arise based on experiences elsewhere in the world. In India, for example, Mathur (2009) emphasizes how the Indian government chose to eliminate slums as they are easy to be “identified, targeted and reached” (p. 11). It has been said that it is easier to hide the visible representations of poverty by transferring people to housing complexes than dealing with the roots of poverty (Arabindoo, 2012, p. 638).

5.3.2 Racism and Inequality Affect Wellbeing: Slums as Racialized Spaces

Slum communities face barriers to improving their wellbeing, such as racism (social and environmental) and inequality. These particularly affect relational and subjective dimensions of wellbeing, while environmental issues tend to affect the material dimension of wellbeing. The three dimensions of wellbeing are, however, closely interrelated. Notably, environmental and social problems that affect people’s wellbeing in Vila dos Pescadores are often rooted in racial, economic and social inequalities in the

Brazilian society. The racial and social inequalities happen because race is a “fundamental causal variable in the reproduction of social inequality in Brazil” (Santos, 2006, p. 4). Poor whites who migrate from the impoverished Northeast to the industrialized Southeast are often considered by many Brazilians to be non-whites (Herculano and Pacheco, 2008, p.256). The geographic exclusion of Afro-Brazilians is an expression of other types of marginalization that Afro-Brazilians are subject to in Brazil, such as politics, work opportunities and conditions, areas of residence, and education (Vargas, 2006, p. 52).

Reygadas’ (2010) analysis of the root causes of inequality connect Latin America’s economic disparities with other forms of inequality, with are results of “diverse economic, social, political, and cultural mechanisms” (p. 25). The historical mechanisms are shown as through history, people of indigenous and African descent have been suffering from centuries of racial segregation, slavery, violence and even death in Latin America (p. 27). These mechanisms take the form of disparity in social capital, leading to physical and geographic segregation (p. 37). Due to this systemic racial and economic discrimination, currently 56.7 % of the population of Cubatão lives in favelas (Alves, 2012, p. 12). It is important to analyze power and inequality in a wellbeing context because the victims of inequality, usually non-whites, are often associated with the negative connotations of slums, such as violence (Observatório das Metr6poles, August 2, 2012).

This has been addressed in the historical context of the United States by Turchin (2013, Feb. 8) who demonstrated an inverse relationship between wellbeing and inequality over time. His central argument is that “general wellbeing tends to move in the opposite direction from inequality: when inequality grows, well-being declines, and vice versa. Wilson (Oct 29, 2015) states that the American states and counties “that experienced the largest increases in income inequality between 1990-2000 also experienced the largest increases in bankruptcies, divorces, and long commutes.” This relates to the decrease of social and individual wellbeing while inequality increases.

Similarly, in India, Oommen (2014) describes the decrease in wellbeing of the population due to income concentration in Kerala, India (p. 195). One of the causes of the decrease in wellbeing in Kerala is a liberalization of the economy that led to the opening of several private hospitals, so that now 70% of hospital beds are in the private sector (Oommen, 2014, p. 195). Oommen states: “While the poor spend over 40 per cent of their income on health care, the rich spend about 2.4 per cent”, and furthermore, the majority of the poor population cannot afford health care (p. 195).

There is economic and social inequality and racism in Brazilian slums because blacks cannot fully benefit from the current social and economic opportunities (de Vogel, Feb. 26, 2014). Santos (2006) describes the “cumulative cycle of disadvantages” affecting non-white people as a by-product of racism due to discrimination against non-whites in the education system and in the job market (p. 5). Whites are able to attend good universities and attain higher paying jobs than blacks and ‘pardos’ (mestizos). Thus,

there is a higher concentration of blacks in the poorer areas of São Paulo state's cities, and a lower concentration in wealthier areas (Franca, 2007, p. 5).

In Brazil, 47.7% of the population is white; 7.6% black and 43.1% of "mixed-race" (IBGE, 2010). Currently, there is no statistical data on racial groups at Vila dos Pescadores, but the city of Cubatão has a population of 7.7% blacks and 48.8% 'pardos' (IBGE, 2010, in 'Litoral Sustentável', p. 8). Htun (2004) describes the legacy of slavery as one of the reasons causing the impoverishment of blacks in Brazil (p. 64). Race is a social construct, reinforced by a racial ideology and changing through time (Santos, 2006, p. 3). The concept of race in Brazil is based on appearance and socio-economic status (p. 4). Although Brazil shows lower levels of racial segregation than the USA, Brazil has higher levels of racial inequality (Santos, 2006, p. 5). There is an ambiguous form of racism in Brazil that leads, on the one hand, to afro-Brazilians and whites intermarrying, and living near each other, but on the other hand, racial ideologies are embedded in social practices that feed the "production and reproduction of racial inequality" (p. 4). Thus, economic inequalities in Cubatão are rooted in historic, social, ethnic and racial disparities – Northeastern migrants living in the city's slums are mostly non-white and largely Afro-descendants. These inequalities lead to a racialized space in Cubatão, i.e. the slums.

Reygadas (2010) states that Latin America remains a region of great inequality because the economic disparities are reflected in other forms of disparity such as an income gap between whites and non-whites, and between women and men (p. 30). Economic

disparities in the regions are a symptom of colonial class differences based on ethnic, racial and gender discrimination, which are associated with extreme poverty (p. 31). Vargas (2006) describes the “disproportionate number of blacks inhabiting Brazilian slums, characterized by the “lack of infrastructure, poverty, and imposed marginalization” (65). Slums, as poverty, are connected with race (65). Space is socially constructed, where “whites have used institutionalized privileges to maintain racial homogeneity in their workplaces and neighborhoods” (66).

The Brazilian economic development came about with environmental and social costs, paid by displaced populations in rural areas and poor slum dwellers in urban areas (Herculano and Pacheco, 2008, p. 244). Cubatão has a high economic inequality rate comparing to Brazilian standards, and in consequence, a large part of its population lives in slums (Alves, 2012, p. 7). Inequality is clearly seen in the case of unskilled, non-white Northeastern migrants who have to survive on informal unskilled jobs, with some relying on fishing and crab gathering to supplement their income in the slums of Cubatão. Meanwhile the Cubatão elites, including in the industrial hub, benefit from slums as a source of cheap labour, providing labourers such as maids, construction workers and unskilled workers for some segments of the Cubatão industrial hub (Interviewee 25, municipal employee, August 21, 2014). The resort towns in the Santos Metropolitan Region also rely on cheap labour for construction work to build and maintain resort housing and businesses.

The black and mixed-race migrants lack access to economic opportunities due to the ability of Brazilian elites to maintain their privileges through the failure of efficient redistributive policies. These mechanisms appear as disparities in social capital, leading to physical and geographic segregation (Reygadas, 2010, p. 37).

Benjamin et al. (2010), state that racism is the source of society's violence, creating the inequalities that model the "social conditions and structural context" that control people's lives (p. 5). The "cumulative cycle of disadvantages" is a by-product of racism due to the discrimination of non-whites in the education system and in the job market. Whites are able to go to good universities and attain higher paying jobs than blacks and 'pardos' (mixed-race). The racial discrimination takes form as limiting economic and social mobility of Afro-Brazilians. This racial inequality creates two types of economies, one traditional, another informal (Reygadas, 2010, p. 39). The informal sector gets through the formal sector by providing labour power, maintaining low salaries and a consumer class, being part of a larger process of accumulation of capital. Global trade conditions, together with "certain patterns of colonization" lead to a "highly unequal access to economic, political and social opportunities" (Reygadas, 2010, p. 40).

One way to address these many problems affecting Vila dos Pescadores, and more broadly Cubatão, Brazil and beyond, and thereby strengthen relational wellbeing in the community is through racial awareness. The Department of Racial and Ethnic Equality of Cubatão, with its director, Júlio Evangelista Santos Junior, has significantly improved awareness about racism in Cubatão and ways to help black citizens in Cubatão achieve

racial equality. One of the ways to improve black peoples' lives is to tackle the gap between whites and blacks in accessing public health and other available public services. Evangelista emphasized that there is a need to increase public health care, where there is a concentration of blacks, and greater involvement of municipal councils for the necessary changes to tackle institutionalized racism; understand how it happens and eliminate it (Evangelista, qtd. in 'Rodrigues', 2014). Teaching the Afro-Brazilian and indigenous cultures in the school curriculum of the city of Cubatão is a priority in creating racial equality policies (Evangelista, qtd. in 'Rodrigues,' 2014). The city of Cubatão has implemented quotas for Afro-Brazilians in municipal jobs as a way to improve the standard of living of blacks in the city (Evangelista, 2014).

Evangelista states that “that the perception that blacks are human beings has yet to be achieved by the Brazilian collective imagination, as the dehumanization that happened for over 350 years has been the keynote of the slave philosophy in Brazil by this way of portraying the black population in Brazil with the stigma that turned into legacy” (Evangelista, qtd. in Rodrigues “Public Health”, 2014). Evangelista fights to implement affirmative actions, aimed at inner-city black youth, victimized by institutionalized racism.

5.3.3 Environmental Challenges Affect Wellbeing

McGregor and Sumner state, “poverty occurs where some people have neither the resources nor the power to achieve even the most basic levels of wellbeing” (2010, p. 109). When societal institutions fail to support poor people in their efforts to achieve

wellbeing, people encounter barriers such as environmental racism. When underprivileged racial groups live in environmentally degraded areas, not only their basic needs are denied (proper housing, water, etc.), but also their dignity is affected as the mainstream media and society negatively profile the neighbourhood in general. Thus, environmental racism affects peoples' material, relational and subjective wellbeing.

Environmental racism arises when there are disproportionate environmental injustices affecting vulnerable ethnic groups (Herculano and Pacheco, 2008, p. 269). Often environmental racism is not limited to racial intentions that "result in racial side-effects" (Herculano and Pacheco, 2008, p. 269), which in Vila dos Pescadores includes migrants' lack of access to housing, and consequently, invasion of mangrove areas of Vila dos Pescadores. Harrington (2009) describes how communities – focusing on issues such as poverty, unemployment, drugs and crime – may not place environmental issues as top priorities (Harrington, 2009, p. 2-3). Furthermore, "many black communities do not have the organization, financial resources, or personnel to sustain a long-term fight against facilities that pose a threat to their health and wellbeing in their communities" (Harrington, 2009, p. 2-3).

The Community of Vila dos Pescadores, being located near the Cubatão industrial hub, faces the effects of industrial pollution in the Santos Estuary, which affects fish, shellfish and humans alike. The Santos Estuary is one of the most polluted areas in Brazil (Ribeiro et al., 2009, p. 206). The Santos Metropolitan Region, where the city of Cubatão is

located, stands out as the most affected area of all of the São Paulo coastline, with its waters, soil, air and forests contaminated by industrial and port activities and by domestic effluents which are released untreated (Ribeiro et al., 2009, p. 206). Large quantities of environmental contaminants such as organochlorine compounds, toxic metals, dioxins and furans, among other substances have been released in this densely populated area (Ribeiro et al., 2009, p. 206). The community is prone to environmental disasters due to the proximity of the Santos Port and the Cubatão industrial hub. The growth of slums in mangrove areas (as well as on hillsides) creates situations of high exposure to environmental hazards such as floods, landslides and pollution.

Furthermore, the provision of basic urban environmental services in these settlements, such as sewage and drinking water, are precarious and present only in the more central areas of these districts (Hogan, 1988, p. 187). Environmental racism disproportionately affects vulnerable ethnic groups and as noted earlier, is “not limited to racist intentions” (Herculano and Pacheco, 2008, p. 25). It is a side effect of a racist society, resulting in broader inequality, regardless of the original intent (Herculano and Pacheco, 2008, p. 269).

At Vila dos Pescadores, urban pollution deeply affects the community, where garbage accumulates underneath the shacks. The community leader Vadinho states:

Fish and crabs don't have space to spawn because there is so much garbage [in the mangroves]. We cannot walk on the mangrove soil because of the garbage. We step over garbage, old sofas, wood, tires, plastic bottles; there is plastic everywhere. It is

necessary to invest in environmental education in the area, so that people do not throw garbage in the mangrove. (Vadinho, video interview, 18 July 2014)

The excess of garbage in the mangrove areas leads to bad smells, visual pollution, hazards for children and adults, and proliferation of dengue fever and rats. The dengue mosquito relies on freshwater to proliferate, such as rainwater inside plastic containers. Often people who live on the water, in shacks, do not bring the garbage to the main collection station in the urbanized area of the community due to lack of environmental education. To address this shortcoming, there is a need to include the participation of community members in environmental projects, and especially for government-funded environmental education to be elaborated in partnership with the Community Association, to allow more engagement of community members with environmental issues.

5.4 The role of the Community Association of Vila dos Pescadores in Improving Community Wellbeing

Jha, Rao and Woolcock (2007) describe how slum dwellers access governance networks and how slum leaders are “intermediaries between the formal government and the urban poor” (p. 231). Koster and Vries (2012) describe how slum community leaders have a deep knowledge of the history and issues of their communities and help community members with their everyday issues (p. 84). Community leaders “gather and circulate information, organize activities and attempt to improve the neighborhood” (p. 84). In the slums, community associations “historically are the first mediators of the

relationship between the state and the population of the slums” (Guariento, 2011, p. 2). The poorest, unemployed residents of the community rely on the work of the community association for their wellbeing (Koster and Vries, 2012, p. 84). Ultimately, the aim of the work of community associations is to improve the quality of life of community members by filling the gap in government assistance to slum communities, and advocating for water, sanitation and power installation in the houses and shacks, etc.

In Vila dos Pescadores, the Community Association was founded in January 23, 1983 (‘Mudando a História da Vila dos Pescadores’ Facebook page, August 18, 2015). It is a non-profit organization responsible for small projects in the community that aim to improve the wellbeing of community members. Due to weak state involvement in the community, the association serves as a bridge between community members and the government and contributes to the material, relational and subjective wellbeing of the community by partially filling the gaps in government assistance to fulfill the community’s needs. This is analogous to the situation Koster and van Dijk (2013) describe of slum leaders as interagents between the formal government and the urban poor in a slum community in Northeast Brazil (p. 221). The importance of slum leadership to the community of Vila dos Pescadores is that the community leader addresses social issues of community wellbeing, which have an impact on slum-dwellers’ livelihoods, such as advocating for community members’ rights over sanitation, fishers’ rights, distribution of milk to children, etc.

The current president of the association, Vadinho, was born in 1960 in Itabaiana, in the state of Sergipe, Northeast Brazil ('Mudando a História da Vila dos Pescadores' Facebook page, 2015). Vadinho, elected by the community, holds an unpaid position as a community leader. He has been living in the community of Vila dos Pescadores since March 1984. As a fisher, he reports that his typical day, since March 2007, has involved "sleeping from 8 pm to 2 am; fishing from 2am to 5am every day, and then working during the day as a community leader" ('Mudando a História da Vila dos Pescadores' Facebook, Aug. 18, 2015).

As in any community, the Vila dos Pescadores community association must deal with varying expectations of residents, as well as a range of conflicts and disagreements in the community. In terms of expectations, it has been suggested that while some community members (slum dwellers) expect their leaders to be altruistic, by working unconditionally for the community, others expect the leaders to serve their own private interest to make a living (Koster and van Dijk p. 222). In terms of conflicts, O'Malley (1998) argues that within any social group, such as a 'community', there are extensive conflicts and differences within the social group, either small or large (p. 4). All of these differences between individuals and groups within a community are part of differing power relations within the community. To deal with this range of expectations and disagreements in the community, Vadinho posts pictures and descriptions of his work on the Community Association Facebook page 'Mudando a História da Vila dos Pescadores' [Changing the History of Vila dos Pescadores], and posts donations received by the Association's public and private partners. This reflects a transparency in his management

style. The Facebook page serves as an important tool to diminish tension in the community as it serves as an informal report of his activities and of his team to the broader community and partners who donate materials for community projects.

Koster and van Dijk (2013) state that community leaders fill the gaps in government assistance to slums by providing or linking services to slum-dwellers that improve their quality of life (p. 221). Some of these services are coordinating projects in the slum that vary from food to arts, and advising on government institutions (p. 221). Some of the various activities organized by the Community Association of Vila dos Pescadores, aiming to improve the wellbeing of the community, included the following:

- Coordinated with government to have piped water installation and the proper functioning of the health clinic through renovations and the distribution of milk to children in the community; requested the paving of the Avenues 1 and 2;
- Built leisure areas such as a leisure area by the railway, playgrounds and futsal³ court;
- Requested from the municipality the implementation of an ambulance 24 h service, which has happened;
- Gathered various groups of young people to implement projects such as painting, renovating and cleaning recreational places, and implement actions to fight dengue fever;

³ Futsal is sport similar to soccer, played between two teams of five players, with a ball and a smaller field than soccer.

- Through negotiations with the municipal bus company (CMT), the Community Association helped to implement an increase in the bus fleet in the community.

The Community Association of Vila dos Pescadores also contributes to the wellbeing of the community by partnering with public and private organizations, and NGOs, such as Sabesp (Sanitation company of the State of São Paulo), which installed piped water in the houses in the community, and MRS Logística (a train company) which funded, through its Corporate Social Responsibility projects, some construction materials for the school garden, community centre and other areas in the community. The association also received support from the Robin Rigby Trust, Canada (2013 to 2015), which funded donated materials for the community centre, local school and fishers.

Koster and Vries (2012) emphasize the importance of the community leader's "insider knowledge" and connections with the community as being great assets for governmental and non-governmental agencies that work with slum community leaders (p. 89). In this regard, Vadinho often holds neighbourhood meetings at the community centre. For example, some of these meetings were held with fishers, community members and the State Fisheries Institute to convince the state government to reopen the land crab harvesting in the Santos Metropolitan Region's mangrove areas ('Mudando a História da Vila dos Pescadores' Facebook page, August 18, 2015).

The community of Vila dos Pescadores has built considerable social capital in the form of relational wellbeing, and has maintained a certain level of material wellbeing with its population of resilient, resourceful people including women who skillfully make crafts;

fishers who supply tourist areas of the Santos Metropolitan Region with mangrove crabs and many other people who work for the industries of the Cubatão industrial hub. For example, when thirteen houses caught fire on August 23, 2013, at Vila dos Pescadores, various members of the community helped some of the families to rebuild their shacks with labour (Interviewee 7, August 24, 2014). In a richer neighbourhood, people would most likely rely on their savings or help from relatives to rebuild their houses.

Various groups at Vila dos Pescadores, through social media, aim to associate the community with a positive image. At Vila dos Pescadores, the work of the Community Association and other individuals, as the Facebook page “Vila dos Pescadores Cubatão”, which posts historical facts and other positive news about the community and what other ‘favelas’ in Brazil have been doing to improve their communities. The Salvation Army at Vila dos Pescadores has some educational programs with children in the community, and posts photos and videos of children’s activities and other events in order to improve children’s wellbeing and encourage children and women’s sense of belonging to the community (Salvation Army Facebook Page, Vila dos Pescadores, 2015). Some of these activities are after-school tutoring for youth at risk.

5.5 Discussion

Why, given the positive efforts of the community Vila dos Pescadores, has poverty persisted? Wolf (2010) describes development and underdevelopment as “not separate phenomena” but deeply interconnected (p. 22). Everywhere where private control of production and consumption was inserted, it imposed the dynamic of exploring

surpluses from the periphery to the core in an unequal relationship favouring the core (Wolf, 2010, p. 22). Poverty has not yet been eliminated because the significant wealth accumulated by developed countries acquired through centuries of exploitation of other poor nations, has led to inequalities, which are seen nowadays around the world. At the local level, the elites accumulate wealth and the periphery (slums) suffers the consequences of inequality. The wellbeing concept may simplify the problems of poverty and inequality between the mainstream society and slums by giving too much emphasis to the agency of individuals to achieve wellbeing. Unfair market conditions have denied the wellbeing of slum-dwellers who in many occasions cannot afford to buy food.

People in this impoverished community of Vila dos Pescadores cannot achieve wellbeing by themselves. There is a whole system comprised of government, the industries of the Cubatão hub and society in general that affect who at Vila dos Pescadores can achieve wellbeing or not. The partnership between the Community Association of Vila dos Pescadores and the various levels of government in wellbeing-focused projects is essential for the community's success in improving the quality of life of its community members.

However, there are concerns in the community over material wellbeing (e.g., housing and sanitation), over relational wellbeing (improvement of relations with all levels of government) and over subjective wellbeing (a sense of not belonging to the general society due to feeling ostracized as a result of systemic discrimination).

There are also challenges faced by the leader Vadinho, including hidden power imbalances when seeing the 'other' as a slum-dweller. To exemplify the consequences of power imbalances and inequalities at the Vila dos Pescadores community, Meirelles (2015) notes that even getting a job is more difficult for the slum dweller, as most of these residents are black (para 9). The reality of segregation demonstrates the barriers of community members to achieve material wellbeing. Racism also affects their relational and subjective wellbeing as a community. The geographic exclusion of Afro-Brazilians is an expression of other types of marginalisation that Afro-Brazilians are subject to in Brazil, such as political, work opportunities and conditions, areas of residence, and education (Vargas, 2006, p. 52). Only by confronting racism will we be able to "understand and work toward the elimination of "racialized inequalities that characterize Brazilian social relations" (p. 52).

It has been said that the association between poverty and exposure to environmental risk generates high environmental vulnerability situations in the slums of Cubatão (Alves, 2013, p. 363). Thus, people living in high social and environmental vulnerability areas have significantly worse socioeconomic conditions than people living in areas of non-environmental vulnerability (p. 363). Hence, environmental hazards, poverty, racism and inequality are deeply interconnected at the community of Vila dos Pescadores.

Cubatão is a rich, highly industrialised city, which should not have almost sixty percent of its population living in slums. Some government policies such as the racial affirmative municipal laws in Cubatão are a small step for social inclusion of community members of

Vila dos Pescadores and other slum areas in the municipality. With affirmative education, the municipality is forming a new generation of citizens who will create empathy towards people living in slums. This is a first step in achieving wellbeing: young people, no matter their race, learn about racial equality, which allow them to potentially see slum members as equal, comparing to the people from the mainstream society. A positive wellbeing concept can benefit policy labelling by avoiding targeting the other group as different – “the other” (White, 2010, 159). This can help to avoid the ‘othering’, common in policy labelling, and deter the target group from deserving inferior goals from program staff and planners (p. 159).

5.6 Conclusions

While slums are a reality, it is important to improve the quality of life of slum dwellers and make their neighbourhood better places to live. It is essential to change the society’s view that slums represent only problems. Public and private investments in slums improve the economic conditions of slum dwellers, attracting new investors, but such contributions will only be sustainable if government and entrepreneurs from the mainstream society consider slums as effective partners (Athayde, 2014). The state's role is to create mechanisms to encourage such partnerships (Athayde, 2014). For this reason, a wellbeing analysis requires a holistic approach, including racism and inequality. The inclusion of slum community leaders in policymaking is essential to improve the wellbeing of slum-dwellers by giving these slum-dwellers a voice.

The enforcement of environmental policies is essential for fishers and community members to achieve wellbeing. Urban and industrial pollution affect negatively the quality of life of slum-dwellers. It is necessary to improve the garbage collection in the community and properly supervise the industries in the area to ensure they are not illegally releasing pollutants in the Santos Estuary. Nonetheless, it is relevant to have further research connecting community wellbeing with environmental racism and vulnerability in slum areas in Brazil and around the world.

As part of a wellbeing approach, I suggest the employment of mixed-methods (quantitative and qualitative) data collection aiming to collect statistical data at Vila dos Pescadores on the racial groups and place of origin of the Northeast migrants in the community. It is important to understand the racial divide in the city of Cubatão and the impacts of wellbeing-focused policies on the community, such as literacy, empowerment of youth and women through racial awareness courses; afterschool activities for youth at risk and so on. Collecting statistical data on racial groups in the community will potentially result in development policies benefiting the wellbeing of Afro-Brazilians in the community, and of the community in general.

A recommendation in doing research on wellbeing in slum areas is the adoption of a strategy of “cultural contextualism” as well as “cultural fairness” (Biswas-Diener and Diener, 2001, p. 332). In the context of Vila dos Pescadores, there is the possibility of a cultural bias as most researchers in the Santos Metropolitan Region are white, and a large number of slum-dwellers are non-whites. It has been said that this situation is

partly due to the educational and cultural gap between whites and blacks (and mixed-race), as non-whites have fewer opportunities to access education (Heringer, 2002, p. 62).

It is relevant to improve the concept of wellbeing as a way to critically analyse why poverty has not yet been eliminated, and to convince policymakers to draw on wellbeing concepts to favour oppressed groups in society, such as slum dwellers. One way to apply the wellbeing concept is by collecting data on the perceptions of slum-dwellers about their wellbeing around the world, and compare the cultural differences amongst slums to understand how to apply wellbeing concepts in different cultural backgrounds in disempowered areas. For the material, relational and subjective wellbeing, housing-focused policies should take into consideration how slum-dwellers perceive their communities and encourage the participation of slum community leaders in decision-making. White (2010) emphasizes wellbeing improvement as being a process (165). Although poverty has not been eliminated, policymakers can move in directions that improve wellbeing, such as good living conditions, employment and a sense of belonging, when making important decisions about oppressed groups, especially when approving urbanization projects. Only by confronting racism we will be able to “understand and work toward the elimination of “racialized inequalities that characterize Brazilian social relations” (Vargas, 2006, p. 52).

Some issues arise in the use of the wellbeing concept. For example, there may be an assumption that the poor might perceive the quality of their lives in a similar way as

wealthier people (White, 2010, p. 166), which could lead to a lack of understanding of the effects of potential cuts in state-sponsored aid programs for communities. For this reason the wellbeing concept must be seen as a process, which requires a holistic approach to improving peoples' lives. Top-down approaches to urbanization and relocation of slum-dwellers can be harmful to communities. In contrast, a more equitable division of power involving the Community Association of Vila dos Pescadores with the government in decisions such as those relating to urbanization can lead to material, subjective and relational wellbeing improvements for community members. One way to improve their wellbeing is focusing the urbanization process in the areas where people already live and allowing all the community members to stay in the community. This is especially important for fishers, who need to live in the estuary in order to support their livelihoods.

The application of the wellbeing concept could emphasize the reasons why power imbalances are the root problem of poverty and lack of individual and community freedoms, and the root causes of trade and labour discrepancies between slum-dwellers and the mainstream society. In this sense, it is relevant to have a community-focused view of wellbeing, emphasising the agency of the community, not only the individual. It is necessary to demonstrate a strong analysis of power relations that affect development in order to understand peoples' wellbeing. When emphasizing the agency of communities, it is important to avoid racism which demonstrates itself in a Eurocentric way of thinking – whites need welfare, but non-whites should be self-reliant. In a developed country such as Canada, there is a cushion in case we fall into the cracks

of an open market society. If we lose our jobs, we apply for employment insurance; if we become disabled, we are eligible for government benefits. Although the community of Vila dos Pescadores has relational wellbeing in terms of community cohesion when exposed to environmental shocks, such as environmental disasters, it is inequitable to expect from slum-dwellers that they should be completely self-reliant. For this reason, the partnership of the Community Association of Vila dos Pescadores with the various levels of government, in wellbeing-focused projects, is essential for the community's success in improving the wellbeing of its community members.

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6. Conclusions and Recommendations

The 3-dimensional wellbeing approach – based on material, relational and subjective wellbeing – draws attention to the importance of wellbeing for the development of sustainable fishing at Vila dos Pescadores. Sustainable development leads to a holistic perspective of a well-functioning society that accomplishes “wellbeing for its citizens today and for future generations” (Sachs, 2015, p. 11). According to Sachs (2015), there are at least five kinds of concerns about the distribution of wellbeing, which are extreme poverty, inequality, social mobility, discrimination and social cohesion (p. 11-12). Thus, these concerns are external factors that affect how or if people are able to achieve wellbeing.

The challenges facing fishers at Vila dos Pescadores include serious environmental issues but also go beyond. Social exclusion, poverty, rapid urbanization and growing inequality affect the future of fisheries in the community. Environmental racism is one of the factors that affect fishers and community members in Vila dos Pescadores. Fishers and other community members, who are mainly non-white, live in areas of environmental risk, near the Cubatão industrial hub, where they are susceptible to environmental disasters and subject to ongoing pollution. Because the community is located in a slum area, people suffer social exclusion by not being able to properly access services such as proper housing and sanitation. It is relevant to have further research connecting community wellbeing with environmental racism and vulnerability in slum areas in Brazil and around the world.

Coastal mangrove forest areas, such as in Vila dos Pescadores, are key sites for occupation by newcomers to the region. This process is a side effect of a deep inequality and racism that are inherent to the Brazilian society. Often in Brazilian industrial areas, the existence of “empty” land and good transport infrastructure attracts poor people who are not able to afford housing rents in other neighbourhoods (Cartier, Barcellos, Hübner & Porto, 2009, p. 2702). Alves (2013) researched the association between poverty and exposure to environmental risk in certain areas of Cubatao, which generates high environmental vulnerability (p. 363). The author also found significant differences in income indicators between communities in areas of environmental vulnerability in the city of Cubatão (p. 361). The concentration of households with income per capita below the poverty line (less than half the minimum wage) in areas of high socio-environmental vulnerability is significantly larger than those areas with concentrated poverty, but not exposed to environmental risks (p. 361). Notably, the disorganized growth of cities, leading to social exclusion and social degradation, led to the invasion of Permanent Preservation Areas (PPAs), without proper urban planning, indicating the lack of state intervention (Araújo and Rosa, 2014, p. 118). Mangrove invasions, as well as urban and industrial pollution, have been leading to a negative environmental impact in mangrove areas including destruction of fish and shellfish habitats, consequently contributing to the decline of fisheries.

The data analyzed in this thesis shows fishers’ concerns about environmental hazards in the area and the need for enforcement of fishery and environmental policies to ensure fishers’ wellbeing. Some of these policies are proper compensation to fishers following

environmental disasters, together with livelihoods programs to enhance the wellbeing and livelihoods of fishers. Since urban and industrial pollution affect negatively the quality of life of slum-dwellers such as those in Vila dos Pescadores, it is necessary to improve garbage collection in the community and properly supervise the industries in the area to ensure they are not illegally releasing pollutants in the Santos Estuary.

Although the community of Vila dos Pescadores has relational wellbeing in terms of community cohesion when exposed to environmental shocks and disasters, it is somewhat unfair to expect from slum-dwellers that they should be completely self-reliant. One of the concerns expressed about applications of wellbeing is an individualistic approach in public policy (White, 2010, p. 167). Thus, by overemphasizing individuals as being able to take responsibility for what happens in their lives, wellbeing could justify reduced state support to social programs (p. 166-167). Thus, it is important to have a community-based approach to wellbeing policies in order to improve the lives of fishers and community members. For this reason, the partnership of the Community Association of Vila dos Pescadores with the various levels of government, in wellbeing-focused projects, is relevant for the community's success in improving the wellbeing of its community members.

It is relevant to improve the concept of wellbeing as a way to critically analyse why poverty has not yet been eliminated, and to convince policymakers to draw on wellbeing concepts to favour oppressed groups in society, such as slum dwellers. The application of the wellbeing concept must emphasize the reasons why power imbalances are the

root problem of poverty and lack of individual and community freedoms, and the root causes of labour discrepancies between slum-dwellers and the mainstream society. This provides another strong reason that it is relevant to have a community-focused view of wellbeing, emphasising the agency of the community, not only the individual. It is also important to consider that inequality and racism affects if and how people can achieve wellbeing, either in a conscious or unconscious way. Systemic racism is often invisible because it hides the reasons for structural inequalities in the society by separating people with different kinds of privileges – whites enjoy systemic privileges while blacks do not.

When conducting research on wellbeing in slum areas, it is relevant to adopt a strategy of “cultural contextualism” as well as “cultural fairness” (Biswas-Diener and Diener, 2001, p. 332). In the context of Vila dos Pescadores, there is the possibility of a cultural bias in research. Most researchers in the Santos Metropolitan Region are of European descent, and a large number of slum-dwellers are Afro-Brazilians. In Brazil, whites still have more access to quality education than blacks and thus, most researchers are white. Only by combating systemic racism will we be able to recognize and work toward the elimination of “racialized inequalities that characterize Brazilian social relations” (Vargas, 2006, p. 52).

Different cultures have local wellbeing issues. Thus, it is important to collect data on the perceptions of slum-dwellers about their wellbeing around the world, and compare the cultural differences amongst slums to understand how to apply wellbeing concepts in

different cultural backgrounds in disempowered areas. In considering all of material, relational and subjective wellbeing, and housing-focused policies should take into consideration how slum-dwellers perceive their communities and encourage the participation of slum community leaders in decision-making. Although poverty has not been eliminated, policymakers can move in directions that improve wellbeing, such as good living conditions, employment and a sense of belonging, when making important decisions about oppressed groups, especially when approving urbanization projects.

The employment of conservation measures also relies on government policies (federal, state and municipal levels) and application of these policies is needed to ensure that petrochemical industries do not pollute the area. Fishers should not lose their livelihoods and be forced into becoming informal workers, further lowering their material, relational and subjective wellbeing. Fishers will have their income-generating capacity improved, and consequently, their wellbeing improved, by increasing the quality and availability of the resource (fisheries).

There is significant knowledge and willingness on the part of Vila dos Pescadores community members to create solutions to overcome the various social problems they face in their everyday lives. In order to improve their lives, an initial level of support is necessary. Credit, labour and construction materials are the most common barriers to building proper housing in Brazilian slums (Assad, 2013). The design and renovation of existing residences in the slums is a cheaper option than allowing people to build or renovate their houses. The illegality of construction in slums makes it difficult for slum-

dwellers to obtain credit to properly build their houses. Construction companies and banks, in partnership with the local government and the Community Association of Vila dos Pescadores, could offer credit, low-cost materials and professional assistance for the purchase of building materials by community members.

Wellbeing is related to environmental quality. In terms of environmental recovery, resolving environmental contamination from industrial pollutants in the Santos Estuary could benefit from more research on the use of phytoremediation – the use of plants to “clean up soil and ground water from heavy metals and other toxic organic compounds” (Paz-Alberto & Sigua, 2013, p. 71). It involves growing plants in a contaminated area to detoxify or facilitate the degradation of pollutants (Paz-Alberto & Sigua, 2013, p. 71). Paz-Alberto, Celestino & Sigua (2014) demonstrated the phytoremediation potential of certain mangrove trees as pollutant eradicators of lead in sediments (p. 256). Thus, mangrove conservation and reforestation projects benefit the breeding grounds of fish, shellfish and other organisms in the estuary, and mangrove trees have the potential to neutralize some of the effects of industrial pollution.

Fisheries co-management could be an option to improve the wellbeing of fishers and community members. Co-management requires sharing responsibilities among stakeholders. Co-management is a model of governance of fisheries resources (Njaya and Donda, 2012, p. 652). Fisheries community co-management requires a certain degree of decentralization, including negotiations among the community, fishers, port authorities, and government at all levels and Cubatão industries. Decentralisation is

crucial to co-management implementation (Ballet, Koffi and Komona, 2009, p. 59), and includes community leadership, civil society and local government (Charles, 2011, p. 10). Co-management should emphasize community rights as a way of attaining fishing tenure, and consequently, alleviating poverty as a way to keep fishing stocks in the community.

In the case of Vila dos Pescadores, the São Paulo State Environment Secretariat, the Cubatão Environment Secretariat, the Federal Ministry of Fisheries and Aquaculture (Federal), the port authority, and the Commercial and Industrial Association of Cubatão, and the Fisheries Institute (Instituto de Pesca) could partner with the Community Association of Vila dos Pescadores and the Fishers' Association (Capatazia) to work together in fisheries co-management. It has said that a fishing community can elect community board members representing stakeholders in the local fishery and the broader community in general (Loucks, Charles and Butler, 1998, p. 34). Through consultation among their representatives, the community can define its roles in the co-management process (p. 34). The state government introduced legislation that will allow the implementation of policies suggested by the committees (p. 34).

Agents of transformation have the potential to lead the process of community strengthening and organization during a co-management plan (Seixas et al., 2011, p. 37). The external agent might be from government, academia and/or NGOs (p. 37). Local universities in the Santos Metropolitan area, together with the Vila dos Pescadores Community Association leader, could cooperate in fisheries co-management as "external

agents” by gradually guiding the community into the co-management process. Universities and NGOs could work together to provide workshops in conflict-resolution, adult literacy education and diversified training courses to help fishers to expand their education level, and consequently, be empowered enough to work in a co-management process with powerful stakeholders such the petrochemical industries of Cubatão.

Since slums cannot be eradicated in the short-term, it is important to make them better places to live. It is fundamental to change the society’s views that slums represent only problems. Public and private investments in slums improve the economic conditions of slum dwellers, but it is necessary that government and the private sector consider slums as partners. The state's role is to conceive structures to strengthen these partnerships. For this reason, a wellbeing analysis requires a holistic approach, including racism and inequality. The inclusion of slum community leaders in policymaking is essential to improve the wellbeing of slum-dwellers by giving these slum-dwellers a voice in a true democratic society.

APPENDIX A: Proposed Interview Questions for Fishers

1. What is your educational level?
2. Do you have another job besides fishing?
3. How many family members live in your house?
4. What is your age group?
 - 18-24 years old
 - 25-34 years old
 - 35-44 years old
 - 45-54 years old
 - 55-64 years old
 - 65-74 years old
 - 75 years or older
5. For how many years have you lived in this community?
6. Have you lived here since you were born?
7. When did you move to this community?
8. Did you grow up in a farm, or in the city?
9. Do you have another job besides fishing to complement your income? If yes, what kind of work are you doing now?
10. Are you currently a fisher? Have you always been a fisher and how long?
11. What kind of gear do you use to fish and gather crabs?
12. How many trips to you make (annually) to fish?
13. What species of fish and crabs did you catch last year?
14. What pay arrangements do you have with the middlemen who buys your fish, or do you sell the resource yourself? Who is your most important buyer – for example, tourists, middlemen, and restaurant owners?
15. What have been the major changes you have seen in your community, in terms of environmental changes, fisheries, and general wellbeing of the community members, especially fishers?
16. Have you seen the implementation of government programs on your community in the last five years aiming to improve the livelihoods of fishers?

17. How many times were you unable to fish last year due to the weather, floods, or pollution?
18. How much competition is there among fishers to sell their product?
19. What are the main factors in determining the price you get for your fish? For example, proximity to buyer, friendship with buyer.
20. Do you enjoy fishing? What things do you like the least about fishing?
21. Do you want your children to go into fishing?
22. What do you think of the ways in which the federal government is regulating access to fisheries?
23. What should be done to improve the quality of fish and shellfish in the region? For example, lower pollution levels in the area, etc.
24. Are there any changes you would like to see in the unemployment insurance regulations?
25. How do you usually learn of new or changed policies and regulations concerning fishing and crab gathering?
26. Are you a member of an organized fishers association? For example, coops, community organizations, etc.
27. How many hours per day do you work as a fisher? Do you work for someone or are you self-employed?
28. Did you notice any change in the quantity of fish and shellfish that have been harvested in the past few years?
29. Do you return female crabs to the mangrove to preserve the species?
30. Did you or do you know people who lost their homes due to floods in the area?
31. How has garbage in the mangrove been affecting the fisheries?
32. What are the problems caused by excess garbage in the mangrove?
33. How has pollution from the industries and port in the mangrove been affecting fishing in the area?
34. What are the problems caused by excess pollution in the mangrove?
35. Do you know the number of women who are active in fisheries in the community?
36. Do you know the number of crab processing plants in artisanal scale in the community?
37. What is your level of income? For example, between one and two monthly minimal wages.
38. What is your household level of income? For example, between one and two monthly minimal wages.
39. Do you receive any payments from government programs such as the cash transfer program?

40. Do you receive unemployment insurance during the crab closure?

Proposed Interview Questions for Policymakers

1. What are the government policies regarding mangrove protection from intense urbanization?
2. How can urban and industrial pollution data from the government environmental agency “CETESB” enhance the livelihoods of fishers?
3. How are the unemployment insurance rules applied to non-registered fishers?
4. How is fishing tenure managed under a federal protected area (mangroves)?
5. Which are the land tenure laws in invaded mangrove areas?
6. How is fishing effectively enforced, and who is not eligible for this assistance?
7. Are you aware if fish and shellfish harvested in the mangrove areas of Cubatão are safe for human consumption?
8. How can the government ensure fishers and their partners who informally help them in their activity, have access to unemployment insurance?

Proposed Interview Questions for the Petrochemical, and other Industries in the City of Cubatão

1. What is your vision of sustainable development?
2. Do you consider your company sustainable, i.e. it ensures the production of goods and services and at the same time implements a new vision of economic development considering environmental, social and economic dimensions?
3. Does your company have any community development projects aiming to improve the lives of the people living in the mangrove areas of Cubatão?
4. Many people living in the mangrove areas suffer the consequences of climate change due to flooding, droughts and other effects. Does your company have any projects to recover the mangrove areas, or carbon sinks?
5. How does your company treat industrial waste before releasing it to the mangrove areas of Cubatão? How has that industrial waste affected the mangrove and fishers who live in mangrove areas?
6. Do you consider the effluents released by your company to comply with international environmental standards?
7. Cubatão is an example of environmental recovery since the high pollution levels in the 1980s and 1990s. How did the government, industry and civil society agreed to ‘clean-up’ Cubatão? Could this effort to be made to help impoverished mangrove communities with their problems with pollution?

APPENDIX B: Informed Consent Form – SMU REB File # 14-273

Research Title: Preservation or Survival? How Fishers Support their Livelihoods with Coastal Stewardship and Conservation Initiatives in Mangrove Areas. A Case Study of a Mangrove Communities in Southeastern Brazil, Vila dos Pescadores.

You are being asked to participate as a volunteer in a research that aims to contribute to the conservation of fish and shellfish, and consequently, to increase knowledge about the livelihood of fishers in the neighborhood of Vila dos Pescadores, city of Cubatão, state of São Paulo, Brazil. This study may be instrumental in the development of communities of fishers who survive through this activity of the reasons crabs have declined in the region.

Benefits:

This project will be developed in response to local needs, and in order to better understand the mangrove areas and the value of biodiversity and ecosystem conservation; effectively address the environmental and coastal resource management issues, assist in the development of coastal areas responsible manner, and to improve the living conditions of the people living along the coast. There is no direct benefit to the research participant.

If you accept being part of this research, you will respond to an interview, which may be recorded and/or photographed, and you might be observed by me, in some of the places you frequent. Through an interview will be lifted information that will help find solutions to the decline of fish and shellfish in these mangroves, so that these animals can still be caught by the communities, but in a sustainable way. Thus, if you want to participate in focus groups and interviews, interviews will last one hour, and focus groups, two hours.

There are no significant risks to this research. If you don't feel comfortable in answering any questions, you are able to withdraw from the research without any penalty. Participants have the right to withdraw of data by December 31, 2014.

The data collected will be confidential and protected from any third party access (unauthorized by the interviewee). Identifiable data will be shared only with my supervisor, Dr. Anthony Charles. Data analysis will be communicated in my results, and only in case the research partner authorizes his or her name, video or photos to be disclosed, data (i.e., the content of the interviews) will be communicated in my research results.

Your identity will be known to other focus group participants and the researchers cannot guarantee that others in these groups will respect the confidentiality of the group. I will cordially ask that you will keep all comments made during the focus group confidential and not discuss what happened during the focus group outside the meeting.

Anonymous information provided by you will be kept in the strictest of confidence. The data will be stored safely in the possession of the principal investigator in his office and will not be shared with anyone else. Within 5 years of the initial interview, the data will be destroyed in a manner ensuring privacy and confidentiality.

According to the Brazilian Research in Ethics Commission (CONEP), the IC form will be delivered in two copies, one of which will be with the research partner; that the

research partner does not pay or receive to participate in the study; the confidentiality of the subject will be maintained and the data will be used only for academic purposes.

Questions about the Study

You may contact the researcher, Cintia Francisca do Nascimento, cintia.gillam@smu.ca or 001-902-491-6437 for any information and clarification about the study, before, during and after your participation, feedback and to find out the results of the study.

This research has been reviewed and approved by the Research Ethics Committee of the Pontifical Catholic University of Sao Paulo (CEP-PUC), and the Saint Mary's University Research Ethics Board. If you have any questions or concerns about ethical matters, you may contact the chair of the Saint Mary's University Research Board at ethics@smu.ca or 001-902-420-5728. If you have any questions or concerns of ethical matters, you may contact the Chair of the Saint Mary's University Research Ethics Board at ethics@smu.ca, or the PUC-SP at 11-3670-8466, e-mail:cometica@pucsp.

Principal Researcher: Cintia Francisca do Nascimento, International Development Student, Saint Mary's University, 923 Robie Street, Halifax, NS B3H 3C3, tel. 902-491-8635. Cintia.Gillam@smu.ca

Supervisor: Dr. Tony Charles, Management Science and Environmental Science Saint Mary's University, 923 Robie Street, Halifax, NS B3H 3C3
Phone: (902) 420-5732; Fax: (902) 496-8101, tony.charles@smu.ca

Sponsor: The Robin Rigby Trust, c/o Development Office, Saint Mary's University, 923 Robie Street,
Halifax, NS B3H 3C3 Canada, robinrigbytrust@smu.ca.

CONSENT

By having been advised (a) the contents of all here mentioned and understood the nature and purpose of the cited study, I manifest my consent to participate, being fully aware that there is no economic value, receivable or payable for my participation. This study has been explained to me and any questions I had have been answered. I know that I may leave the study at any time. I agree to take part in this study.

Print Study Participant's Name Signature Date

Print Name of Person Obtaining Consent Signature Date

I declare to be aware of the above and wish to participate in the research project.

I authorize my name, video or photos to be disclosed Yes () No ()

Cubatão _____ of _____, 2014.

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