

Robin Rigby Trust Collaborative Coastal Research Report

Impact of Environmental Degradation on Fishers' Livelihoods – The Case Study of a Brazilian Mangrove Community, Vila dos Pescadores.



Report on field research conducted at Vila dos Pescadores, City of Cubatão, São Paulo State, Brazil (July 14 to September 2, 2014 and April 16 to May 5, 2015).

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Partner organization: Community Association of Vila dos Pescadores

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I would like to thank the community of Vila dos Pescadores and specially, the leader of the Community Association of Vila dos Pescadores, José Arnaldo dos Santos (Vadinho). As the leader of the Robin Rigby Trust partner community organization, Vadinho introduced me

to fishers, policy makers other members of the Community, guided me through cultural norms of the community of Vila dos Pescadores and carried out work such as renovation of the Community Association building, led a group of fishers painting their boats and managed the use of the materials bought with the Robin Rigby Trust funds. A special thank you to the fishers at Vila dos Pescadores and the fishers Valdice Santos, Ana Paula Lourenço Antunes and Robson dos Santos, who helped my research providing boat tours, car rides and guidance in the community.



Introduction

This field research trip conducted in the Vila dos Pescadores, city of Cubatão, Brazil is part of my Master's thesis in International Development Studies at Saint Mary's University, Halifax, Nova Scotia, Canada, entitled: "Applying the 3-dimensional wellbeing concept to the development of sustainable artisanal fisheries. A case study of a mangrove community in Southeast Brazil, Vila dos Pescadores." This research aims to explore the various social and environmental factors that lead to livelihood insecurity and poverty among fishers at Vila dos Pescadores and possible options to revert these fishers' situation through an analysis of the 3-dimensional wellbeing framework (McGregor and Sumner 105).

This 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 research trip took place between April 16 and May 5, 2015.

During my master's field research at Vila dos Pescadores in 2014, I documented the lifestyle and empirical knowledge of fishers, collected qualitative data through tape recorded and video interviews, and listened to community members about their problems with pollution, flooding, garbage in the mangrove, fishers, and social issues. We bought much needed materials for the Community Centre during this trip. After the first phase of this research trip (July and August 2014) I produced a 30 minute documentary about the various environmental issues affecting fishers and community members at Vila dos Pescadores. Upon returning to Vila dos Pescadores in April 2015, I gathered data from fishers and community members about the fisheries closure due to an environmental disaster in the Santos Estuary and about fishers' and community wellbeing.



Collaboration and Partner Organization

The Community Association of Vila dos Pescadores is a non-profit organization responsible for small projects in the community that aim to improve the wellbeing of community members and partially fulfill the lack of government actions in the area. The Community Association receives materials from businesses and other entities aimed to help with neighborhood improvements with social projects such as delivering milk to needy families, improving streets and leisure district sites. The Community Association president, Vadinho gives proof of residency to Vila dos Pescadores residents upon request, lends the community centre for capoeira classes, exercise space for seniors, among other functions. As the vast majority of homes in Vila dos Pescadores are undocumented due to invasions of the mangrove and lack of urbanization, there is an institutional vacuum in the neighborhood. The Community Association partially meets this institutional vacuum.



Vadinho at the Vila dos Pescadores Community Centre (Vadinho, 2014)

Environmental Issues

The community of Vila dos Pescadores suffers from environmental vulnerability by being in an industrial area in the Santos estuary, where the largest port in Latin America is

located, and being a very impoverished mangrove neighborhood. Vadinho, the Vila dos Pescadores Community Association president and community leader describes the environmental situation at Vila dos Pescadores:



Garbage accumulates in the mangrove areas of Vila dos Pescadores. Fish and crabs don't have space to spawn because there is so much trash here. We cannot walk on the mangrove soil because of the trash. We step over trash, old sofas, wood, tires, plastic bottles; there is plastic everywhere. We find even refrigerators in the mangroves. It's not just here - other mangroves of Cubatão are in this situation as well (Vadinho, July 2014).

One of the factors that affect community and fishers wellbeing are environmental disasters in the estuary that affect fishers' livelihoods by causing fish mortality and environmental pollution. The latest environmental accident is the fire at Ultracargo Company which began on April 2, 2015 and reached six fuel tanks (Globo 2015). There is concern about the possibility of contamination of fish caught in the area after the explosion of the fuel tanks of Ultracargo in the Industrial Park of Santos. Due to water and mangrove pollution, fishers at Vila dos Pescadores are not able to fish, ending their main sources of income and livelihood. Fishing is not recommended until final contamination reports are released by the state environmental agency Cetesb.

Fishers are not allowed to catch crabs in the Santos estuary by State Decree No. 60133, which prohibits the capture and sale of land crabs since the beginning of 2015. The impossibility of fishing not only economically affects fishers, but also affects their wellbeing as fishing is part of their identity as fishers.



Nobody will take me away from fishing. I am crazy for fishing, and I will not stop fishing, even though I find a job. I might not make a living from fishing, but it will be a leisure activity for me. And it's something I learned to enjoy (Robson Santos, fisher, Aug. 2014).



What did we do to put food on the table? We used to gather crabs in the mangroves (Santina Barros, Capatazia's leader, July 2014).

General chronology of the data acquisition and Methodology

The methodology adopted included participant observation, informal conversations, video interviews and voice recorded semi-structured interviews. The overwhelming amount of information was obtained with informal conversations during the period between July 15 and August 30, 2014 and April 18 to May 3, 2015.

Data presented for Vila dos Pescadores comes from a research project in which 42 semi-structured interviews was conducted with artisanal fishers about their fisheries, livelihoods, and other economic and sustainability aspects of their lives. In this study, a semi-structured questionnaire was applied to assess how fishers in these communities perceived the sustainability of their fisheries and livelihoods, and environmental and political barriers to make a living from their fisheries activity. 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.

I had to eliminate some of the interview questions due to a lack of trust from fishers. For example, when I asked if the fishers received any cash from government cash transfer programmes, many of them (fishers) were afraid to lose their benefit if they said to me that they attained income from fishing and also from the cash transfer programme "Bolsa Familia." Although confidentiality is guaranteed in my research, if partners wished so, I eliminated the more sensitive questions that could make interviewees feel uncomfortable. I've learned that community members were more comfortable with tablet video recorded interviews than tape recorded. The tablet is a more familiar object to them than a tape recorder.

Industries and sustainability

Franz Joseph Hildinger, the director of Cubatão's Department of Educational Planning, booked a visit for me to Unipar-Carbocloro and Petrobras (Presidente Bernardes refinery) about sustainable development in Cubatão and how large companies operate in contributing to sustainable development and in particular in the environmental area, with corporate social responsibility projects.



Petrobras - diesel hydrotreating

The Unipar-Carbocloro Open Factory Program offers free guided visits to the public aiming to have an open and transparent communication between the factory and the community. Two professionals in the environmental area of Unipar-Carbocloro kindly demonstrated how the company works with communities in the city of Cubatão in projects such as mangrove reforestation, recycling materials, among other socio-environmental projects. At the President Bernardes refinery, one professional gave me a tour of the refinery. The Presidente Bernardes refinery is a unit with high conversion capacity, producing dozens of petroleum derivatives of great market value and international standard (Petrobras 2015). Another professional gave a PowerPoint presentation about the various corporate social responsibility projects of Petrobras in the city of Cubatão. The Presidente Bernardes refinery has various partnerships with community such as "Petrobras environmental program as digital inclusion and pedagogical support to hard of hearing people", "recycle Cubatão", among others.



Petrobras Southern Area / Park liquefied petroleum gas spheres (GLP)

School gardening workshop as a sustainable option for healthy eating for young children



As a professional agrologist, I gave a day workshop on school community gardening to 7 preschool teachers at the community municipal school (UME Estado do Pará) on April 29, 2015. This presentation was about school gardening techniques for small children aimed to:

- Guide teachers to encourage the development of actions to face environmental problems and use recycled materials in the school garden – “reduce, recycle, rethink, reuse”
- Teach students on environmental issues through gardening by promoting notions in children and nature protection attitudes, sustainability and diversity and raising awareness of the saving of natural resources ;
- Encourage children aged 4 and 5 year-old (this educational unit) to acquire healthy eating habits, preventing the dangers of obesity, diabetes and the damaging effects of "fast food"
- Applying a "hands on" method in school gardens as a key contribution in developing children’s team spirit, motivation, responsibility, personal growth and creativity.

With the Robin Rigby Trust funds, Vadinho and I bought several gardening supplies for the UME Estado do Para school at Vila dos Pescadores in order for the school teachers and staff to be able to start a school garden.

Boat Painting

In the last week of April 2015, Vadinho and I bought several cans of paint for fishers to paint their boats and materials for lighting the dock. Fishers demonstrated an immense sense of pride while painting their boats to get them ready for the Fisher’s Day” in June, to be organized by the president of the “José Tobias Barros” association, Marly Vicente.



Problems Encountered on Field Trip

Although my research trip was successful, it had its challenges. One of them was getting connected with fishers in the beginning of the field research trip in July 2014. Another challenge was the lack communication between the leaders of the two fisher associations in the community, “Capatazia Vila dos Pescadores” and “Jose Tobias Barros”. Communities are very heterogeneous groups of people and often there are disagreements among specific groups in the community. By having the Community Association as a research partner organization helped me to do research in a more politically neutral environment. The main lesson I’ve learned is that communities are not a homogenous group as many researchers think. Vila dos Pescadores, with Northeastern migrants, with different cultural backgrounds, often suffer from a lack of communication, leading to cultural divergences in the Community. Thus there is a hierarchy of power in the Community. Although with political and cultural divergences, the creation of the “Jose Tobias Barros” is a first step in sharing power between the two fisher associations and improving the lives of fishers at Vila dos Pescadores.

In the beginning of this field trip (2014), the president of the Community Association of Vila dos Pescadores, José Arnaldo dos Santos (Vadinho) introduced me to fishers in their dock area. Sometimes it was difficult to meet fishers either because they were fishing, or they were in their house. Initially, fishers wanted the Robin Rigby Trust funds to be used to fix their dock. Due to political divergences between fishers and their leader in July and August 2014, it was not possible to use the RRT funds to fix their dock. Thus, there was a lack of trust in scientists who do field work there, and this is one of the reasons why it was difficult to interview fishers in the beginning of my research.

Another field research trip issue was the lack of availability of some the industries for an interview. I contacted the persons responsible for the environmental area of the companies Petrobras, Brazilian Company of Styrene, and Usiminas. Petrobras and Carbocloro kindly gave me a tour and valuable information about their corporate social responsibility (CSR)

projects in Cubatao. The environmentally related people from the other two companies recommended me to send my interview questions by email. Once I sent it, I've never got an answer.

Successes Achieved

Due to lack of organization of fishers in 2014, I decided, together with the community leader Vadinho, to invest the Robin Rigby Trust funds in the Community Centre instead of investing it in fixing the dock. Vadinho and I, with a fisher, Robson, went to a store in Cubatão and another one in Vila dos Pescadores and bought a new freezer, a vapor pressure washer, two 85 W bulbs, two toilet flushes, seats, mirror, kits for bathroom, two bathroom locks, two latches, three hinges, one breaker, one 46 W bulb, six tubes of paint, thirty bags of cement, three brooms, two squeegees and one dustpan, various cleaning supplies, three iron bars and two roofing tiles. The Community Centre is a space used by the Vila dos Pescadores community for events such as dance classes, distribution of food for low income families, rental space for weddings, and many other activities. Fishers are users of this space, and Vadinho (president of the Community Association of the Vila dos Pescadores) plans to repair the older freezer for storing fish and shellfish for fishers.

I made many connections with Cubatão's municipal employees, including people who work in the municipal library, archives, and the secretariat of the environment of the city of Cubatão. This opportunity of networking started when I was invited by the Secretary of the Environment of Cubatão (2014), Pedro Hildebrando da Silva, to join the SHEWC 2014, XIV Safety, Health and Environment World Congress in Cubatão, from July 21 to 23, 2014. SHEWC provided participants with recent information in health, safety, and environment fields, having Brazilian and international scientists giving lectures, plenary sessions, presentations of papers and workshops. This congress gave me a great opportunity for networking and relationship building with policymakers and employees from the municipal government, and local scientists from CEPEMA (Centre for Training and Research in the Environment of the University of São Paulo).



Among other activities offered by the Secretary of the Environment, I visited the Ecological Perequê and Cotia-Pará parks, a tour at the Cubatão's industrial park, and a tour on the

SABESP (State Water Company) water collection and treatment area in the Serra do Mar State Park with the Secretariat of the Environment Advisor Romeu Magalhães.

On July 25, 2014, I was invited by the Secretary of the Environment to join a meeting on implementing selective waste collection in the city of Cubatão, including Vila dos Pescadores. The launch of the recycling collection in the City was on August 4th, 2014. The Association of Collectors of Recyclable Waste of Cubatão was present. I shared some information in how recycling and waste disposal is applied in Halifax.

The presence of a Canadian researcher in Cubatão attracted the attention of many people in the City. One of these people was a historian from the Cubatão's Archives who contacted the City's media to interview me. The interview was published in three Brazilian Newspapers (below):

http://correio.rac.com.br/_conteudo/2014/08/ig_paulista/200158-cubatao-e-tema-de-mestrado-para-universidade-canadense.html

<http://www.cubatao.sp.gov.br/noticias/8979-cubatao-e-tema-de-mestrado-para-universitaria-brasileira-radicada-no-canada/#.VBORgC5dXIQ>

<http://www.jornaldaorla.com.br/noticias/15265-cubatao-e-tema-de-mestrado-para-universitaria-brasileira-no-canada/>

In August 2014 I introduced the Fisheries Institute (Instituto de Pesca) professor and researcher Ingrid Cabral Machado to Vadinho (president of the Community Association). The Fisheries Institute (São Paulo state) has a large amount of data collected on the Santos Estuary. In April 2015 I introduced Ingrid to the UME Estado do Pará school coordinator and guide counselor. We had a lunch meeting about implementing school and community gardening at Vila dos Pescadores. Ingrid aims to form a team to work at Vila dos Pescadores with educators and a psychologist who are interested in working with women in the community. The Fisheries institute plans on collaborating with the Community Association of Vila dos Pescadores in a way to seek compensation for fishers in case of environmental accidents in the Santos Estuary.

The fact that there was a Canadian researcher at Vila dos Pescadores, an impoverished neighborhood which has been negatively profiled by the local media helped to open the doors to more researchers to work in the community. The scientific community and the community in general will hugely benefit from doing research in slums by acquiring data that will be to the benefit of the community and not rely on the biased media that only shows the problems of criminality and violence in Brazilian slums. It is necessary to show the world that Vila do Pescadores is a very vibrant, hardworking community which is in need of various social projects such as gardening, environmental education and so on.

People in Cubatão were amazingly friendly and helpful to my research. One unforgettable moment was a boat trip in August 2014 when I took a boat tour to a chemical waste dumping pipe underneath one of the Cubatão's industries. The company dumps chemical

waste underneath their platform in the Santos estuary mangrove area, where nobody can see it. We had to lower our heads inside tunnels so I could record and film this pipe releasing chemicals. Some Vila dos Pescadores community members say that this water is killing the fish. People in general told me facts off camera that they are frustrated by how a super-rich city such as Cubatão is filled with slums and criminality. During the same trip, mangrove trees were seen being cut down by workers (mangroves are national protected areas in Brazil). I video recorded this devastated mangrove area.

What I have learned from the Field Trip

The main lesson I've learned is that communities are not a homogenous group as many researchers think. Vila dos Pescadores, with Northeastern migrants, with different cultural backgrounds, often suffer from a lack of communication, leading to cultural divergences in the Community. Thus there is a hierarchy of power in the Community. This can be seen amongst fishers as it is difficult for them to get united to fight for their rights.

In order to not engage with corrupt people in Brazil, it was a quick and necessary learning process for me to "read through people" to ensure that I was doing research with honest people. Luckily Vadinho is a very honest community leader. His character could be seen by how he presents and documents all the donations the Vila dos Pescadores Community Association has received from local companies, the City of Cubatão, Robin Rigby Trust and other partners.

Brazil is a country of contrasts, and at Vila dos Pescadores and Cubatão in general I found the most caring, helpful, warm and amazing people in my entire life. There people told me about how the industries have been polluting the environment, how politics contributes to mangrove invasions, how fishers work so hard to barely make a living, having to rely on informal work to supplement their income, and many other extremely useful information for my thesis. The situation of these migrants requires the analysis of their conditions of inequality as a consequence of the capitalist labour exploitative relations, power imbalances, and social and political situations in Cubatão, and in Brazil in general. The complex ways Brazilian politics is involved in every citizen's life is amazing. Once well connected with people in Cubatão, I learned how many local politicians get involved with community members in slums to gather votes, and once elected, most of these politicians rarely serve the communities who elected them.



One great lesson learned is that in order to work in a developing country, it is necessary to have a strong background in social science, and get deeply involved with the community under study, following the local culture and practices. In my research trip, it was necessary to emotionally get involved with people in order for them to be close to me. Some degree of ethnographic learning was necessary to blend into the community and gather the most reliable information possible. At a personal level, I've made good friends at Vila dos Pescadores and Cubatão, achieving a great amount of personal gratification.

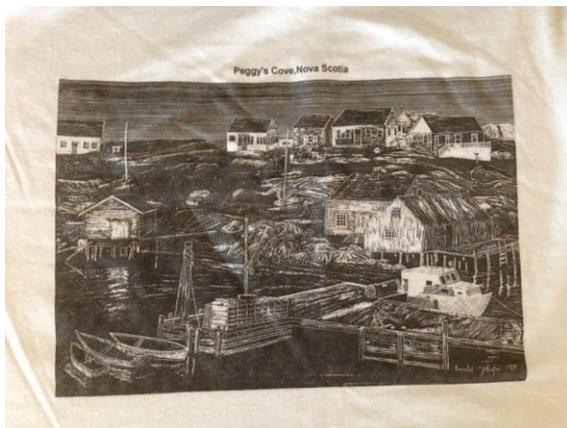


The Robin Rigby Trust (RRT) funding was a key factor in the success of my field trip at Vila dos Pescadores. When fishers heard about funding for their dock, it was the moment I could connect more closely to them and became able to interview more fishers. Without this funding it would be much harder to connect to the Vila dos Pescadores fishers and other community members. Thus, by using the RRT funds to help the community, I was perceived as a trustworthy person and still now I receive valuable information about the community.

Future Academic Plans

The 3-Dimensional human wellbeing framework relates to material, relational and subjective dimensions of wellbeing (McGregor and Sumner 105). In my master's thesis, I will focus on fishers' wellbeing and the role the 3-dimension wellbeing approach in the significance of the relational and subjective dimensions of wellbeing for the development of fishers' sense of belonging and identity. The study of the 3-dimensional wellbeing framework is a tool to analyse what it means to be a fisher in terms of maintaining their livelihood. At Vila dos Pescadores, fishers suffer from social exclusion and from the loss of their identity and self-esteem by not being able to fish as they would in the past, and consequently, by becoming workers in the informal sector.

The generation and reproduction of poverty leads to material deprivation, but also to loss of dignity, as fishers slowly have been losing their livelihoods due to environmental degradation. Fisheries policies must address fishers' wellbeing as a reason to encourage artisanal fishers to support their livelihoods.



One of the T-shirts donated to fishers by Canadian artist Ron Yhap



Painted dishcloth by Vila dos Pescadores artist Maria José Silva

Conclusions

Being a native Portuguese speaker allowed me to interview and connect with research partners much faster than if I needed the help of an interpreter. If I had to replicate this research, I would have stayed in Cubatão during the whole time instead of staying in the neighbour city, Santos. Being geographically close to the research site saved me time and financial resources in transportation during the April trip. The second trip to the community in April was an excellent opportunity for me to thank the many research partners who contributed to my research, use the remaining funds from the Robin Rigby Trust on the local school garden, boats and dock, and gather more data on the fishers' and community wellbeing.

I learned many cooperation skills during this field research. It was necessary to be aware who were the honest people in the community and who were the people who were after me only to obtain the Robin Rigby Trust funds. Cooperation with the community leader Vadinho was essential to ensure the Robin Rigby Trust funds were successfully applied to the benefit of the community. International development field work requires quick thinking while in the field in order to make decisions. While time in the field is short, it is necessary to “read through” people to find the key people in the community who will help us, researchers, to carry on research and projects.

One important linkage on coastal resources management happened with the São Paulo state Fisheries Institute (Instituto de Pesca) in Santos. I introduced the researcher Ingrid Machado to key members of Vila dos Pescadores community who will allow her to carry on important projects in the community in partnership with the president of the Community Association, Vadinho. Ingrid runs a project aiming to assess sustainability through quality of life (qualitative and quantitative method, using indicators of social, economic, environmental and governance), with fishers in the Santos Estuary and the Southern Coast of São Paulo state, involving a graduate student. They intend to apply this approach in the estuary of Santos adding the analysis of social vulnerability, which will be helpful to the socio-environmental problems encountered by fishers and other community members at Vila dos Pescadores. This research will allow further development of human and natural resources in the area.

The socio-environmental information obtained from the Vila dos Pescadores community have the potential to support initiatives to organize the population to communicate to the government to give them unemployment insurance during the crab closure, the fisheries closure due the explosion of Ultracargo containers, a plan to clean the mangrove areas and other issues. These are much marginalised communities which could hugely benefit from international recognition, which could consequently attract the attention of local governments to their economic and social issues.



A striking income concentration that afflicts millions of Brazilians, poor education and violence express the level of the social inequalities in Brazil. Along with the Brazilian economic development itself, social disparities in education, income, health, are relevant in

in the country. In this pool of inequality, fishers in a slum area are not the priority of any of the three levels of government, federal, state and municipal.

Conservation measures are needed for the long term, but with the economic pressure in the estuary (the largest port in Latin America - Santos, and the industrial hub) fishers tend to be forgotten by a lack of political priorities by all three government levels. Fishers at Vila dos Pescadores want clean water to fish, want help from the government and industries to clean up the mangrove, but because they believe this will not happen, they want more opportunities for their children to work in the industries so they can have a better future.

There is an urgent need to help these fishers to support their livelihoods at this moment, but there are many powerful actors who are barriers for these fishers, such as government policies favouring economic development over social conditions. With all these barriers, the Vila dos Pescadores community has over a hundred fishers and a significant amount of fishing.



Mangrove reforestation, Santos Estuary, 1998. Photo: Helena da Silva Barros

At a personal level, working with people living in impoverished areas gave me a sense of justice being done for these people. I was born and raised in São Paulo city, part of a middle-class family of European descent. A lot of migrants from Northeastern Brazil are living in mangrove slums; they were and still do suffer racial and economic discrimination, doing the jobs the elites don't want to do, and this has always bothered me, this tremendous injustice. They became marginalized groups and in the case of the Vila dos Pescadores, many people are unemployed and make a living as fishers. For me, by showing their struggles, it is time to give back the hope, the opportunity they deserve as human beings, to have equal opportunities as those of the middle class people in Brazil.

It is fundamental that more reliable data be available on pollution and a deeper understanding of the artisanal fisheries in Santos Harbour from the social sciences point of view focusing on fishers' needs. Possible solutions to the problems of environmental degradation in Cubatão are investing in public policies for environmental education in slums and the industrial hub, and intensification of dialogue on the environmental and sustainable development among government, business and civil society.



Expenses between July 14 to September 1, 2014

Category	Description	Details	Total (\$)
Communication	Prepaid cell phone credits, Internet, printing	1 ½ months	132.61
Rent	Rent	1 1/2 months	757.64
Transportation	Car rental, taxi from the airport, gas, plane ticket	1 1/2 months	1572.52
Food (per diem)	Lunch and sometimes supper	49 days	1274.00
Materials for the Vila dos Pescadores Community Centre	Iron, roof, paint supplies, 30 bags of cement, lights, 4 fans, roof, 2 bathroom taps, wires, electrical tapes, accents for bathroom, 1 breaker and 3 hinges, 6 brooms and dust pans, freezer and pressure vapor water	Construction materials	2351.18
Total expenses	(not including the trip to Brazil in April 2015).		6087.95

Expenses between April 16 to May 5, 2015

Category	Description	Details	Total (\$)
Communication	Prepaid cell phone bills, 4 USB drives		89.17
Hotel	Hotel Crisbel (Cubatao)	16 nights	574.53
Transportation	Taxi, plane ticket, boat trip		1,513.56
Meals (per diem)	Lunch and supper	18 days	494.00
Materials for fishers to paint their boats and installation of lights for their dock	Paint and electric materials	15 m of conduits (electrical); 4 breakers; 2 cans of varnish; 2 cans of thinner (5L); 2 sealers; 3 reflectors medium size; 3 bulbs of 500 W; 1 large reflector; 1 lamp 1000 W; 5 paint brushes 1 ½"; 3 paint rollers size 9 cm; 6 screws with plugs; 3 paint rollers size 15 cm; 15 cans of paint for boats; 15 sandpapers for wood; 4 sandpapers for iron; 1 can of primer; 1 coil of electric wire	890.06 (materials for fishers and school)
Materials for school "UME Estado do Para"	Gardening and classroom supplies	4 loupes + 6 water cans for school garden; 3 large containers of liquid soap; 3 gardening hooks; 44 markers for white board; gardening compost + seeds; gardening nets; 2 brushes 1"; 1 gardening kit	
Total expenses			3,561.32

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