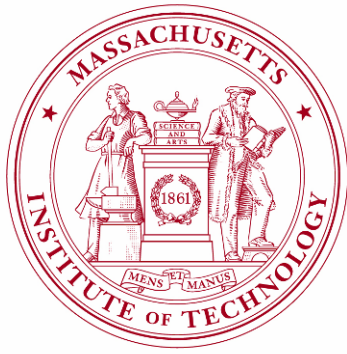




Recommendations for Community Development in Bangu, Rio de Janeiro

Objective

This document summarizes the experience and recommendations of a team of engineers and architects from the Polytechnic School of the University of São Paulo, Brazil, and the Massachusetts Institute of Technology, USA, which worked with the Pólo Comunitário em Bangu in January 2006.

It is meant to

- Record the conditions of the neighborhood and experiences of residents to assist the Pólo Comunitário as it determines project priorities and searches for municipal and outside resources to support them.
- Describe recommendations for both long and short term projects that can be undertaken within the community or in cooperation with outside organizations

Background

The collaboration took place in January 2006 with students from the MIT course known as D-Lab. D-Lab is a series of classes and field trips that educates students about technical, social, economic, and cultural aspects of development work, and provides opportunities for fieldwork and implementation. Students working in Bangu were part of the first class in the series, which provides a basic background in international development and appropriate technology through guest speakers, case studies and hands-on exercises. This was the third year a D-Lab team had worked in Brazil and the second time that the team worked with the Poli-Cidadã program from the Escola Politécnica da Universidade de São Paulo.

The mission of the Poli-Cidadã program is to motivate academics at the Escola Politécnica da USP to carry through projects that take care of the identified necessities, along with the representative entities of the society. With the realization of these projects, it is intended to collaborate in the formation of the students' social dimension, to stimulate educative processes in creating the sense of social responsibility, and to strengthen the relationship between university and society.

The visiting team consisted of an engineer-instructor and three engineering students from MIT, two architect-engineering students from the Escola Politécnica da Universidade de São Paulo, and three engineering students from EPUSP. The main contact at the Centro Internacional de Estudos e Pesquisas sobre a Infância (CIESPI) was Alexandre Soares. Mr. Soares made it possible for the team to work with Leidimar Machado, director of the Pólo Comunitário em Bangu, and the rest of the staff and volunteers at the Pólo. Contact information for the MIT-USP team and lead contacts from Rio can be found in Appendix A.

The summary below was reached through several meetings with community leaders and representatives from CIESPI at the Pólo Comunitário em Bangu, community surveys in Vila Aliança and Vila Nova Aliança in Bangu, and brainstorming recommendations within the team, which were then evaluated with Mr. Soares and Ms. Machado.

Community partners

CIESPI is a non-profit organization that aims to foster, aid, and support the establishment and organization of a variety of community development initiatives throughout Rio de Janeiro, including the project in Bangu. In each neighborhood, they work with community leaders in neighborhoods to build capacity for local development. CIESPI has established a network of local community groups, collectively known as the **Pólo de Ação Social**. CIESPI helps to empower these groups by teaching them how to get the resources necessary for establishing projects that promote capacity building and community-led local quality of life improvements.

The **Pólo Comunitário em Bangu** is part of the Pólo de Ação Social. Its objective is to support community initiatives dedicated to the growth and development of youth and the community. Through local networks, the Pólo Comunitário em Bangu aims to strengthen families and community projects, and to create mechanisms for exchanging information and experiences. It has as one of its major and early accomplishments the establishment of a physical space for local initiatives. This new space includes an office and safe, welcoming areas for community members, especially youth.

First organized in 2000, the Pólo Comunitário em Bangu started with the identification of the assets of the community, the creation of a physical space, and the training of five people who would coordinate the so-called *Bases de Apoio*. The *Bases de Apoio* is a CIESPI initiative which offers support to the new community organization through:

- **Pedagogy.** CIESPI helps leaders instill community responsibility for infant and youth development – like capacity-building and teaching personal responsibilities – leading up to direct implementation with neighborhood educators.
- **Information and research.** Successful local programs rely on physical space and regular access to information, among them internet and books.
- **Practical citizenship.** Together, the Pólo and neighborhood aim to cultivate political and local support for the continuity of their projects.
- **Institutional capacity-building.** One of the current objectives in the Pólo is obtaining a new outside source of financial support to sustain the Pólo in its elaboration and direction of projects as well as its resources for administration.
- **Seed funding of community activities.** This fund, which distributes approximately R\$12,000 (US\$5,600) each year, is part of the auxiliary connection between CIESPI and the *Bases de Apoio* project. This regular support, which has existed since 2000, terminates at the end of 2006.

Conditions, physical structure, and spatial distribution

The community of Bangu is a part of the municipality of Rio de Janeiro. It is composed of a series of small *bairros*. The community has two main sections, divided by a stream which serves as the community's repository for wastewater and human wastes. Residents refer to as the stream as the *valão*, or big ditch. Aliança is older, and dates back to old

public housing planned and built by the *município* of Rio de Janeiro. The settlement in Minha Deusa is more recent, and the development of this area has been more informal. Together, the two neighborhoods are home to several thousand residents. .

Aliança and Minha Deusa are quite distinct, with markedly different physical characteristics:

Aliança:

- Subdivided in two major sections, that of Vila Aliança and the Vila Nova Aliança, which was parceled and planned by the government (see map).
- Has infrastructure for the distribution of water and appropriate sewage disposal (which, still, in the end, goes into the river).
- Like Minha Deusa, Aliança has practically no treated water, due to the conditions of water distribution.
- Has physical infrastructure for the distribution of electricity, e.g. poles and meters. However many of the connections are illicit, resulting in unreliable and unsafe distribution.
- Has houses made of masonry/stonework and with some type of internal structural components (e.g. rebar).
- Is still reached and affected by flooding from the brook.

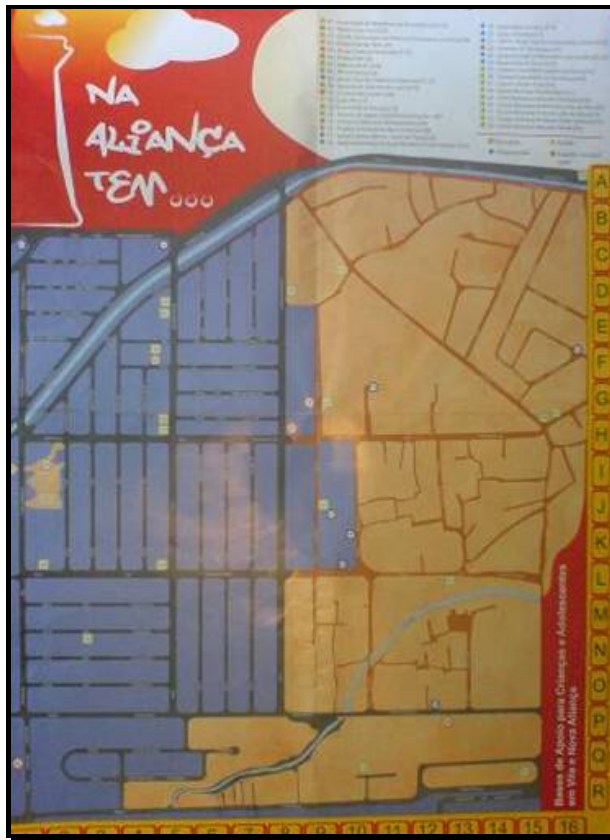
Minha Deusa:

- Situated along an abandoned railroad line, practically parallel to the course of the brook.
- Does not have any type of infrastructure or access to public services.
- However, some houses have water pumps, which pull water through pipes from the main water supply. Water can be sent directly through a hose from one side of the brook to the other. In these cases, there is no water storage (caixa d'água).
- The houses are still very precarious and often made of cardboard or corrugated plastic sheets. Some don't even have an entry door, leaving only a little partition to separate the interior of the house from the street itself.
- Flooding in this section is very common. In houses along the valão, flooding drives rats and bugs into the houses, causing illness.
- Due to lack of infrastructure in the water connections, one side of the river is often without water service, forcing residents to carry water by themselves from one part of the community to the other.

In addition to and in part because of the challenging physical conditions, local work and entrepreneurship opportunities are limited in both Aliança and Minha Deusa. Residents who can find work are usually limited to low-income jobs in the inner city. High transportation costs combined with low salaries reduce the appeal of working in the formal sector. As a consequence, residents often turn to informal employment or state assistance.



Minha Deusa



Community map



Minha Deusa



Vila Nova Aliança



View of residences and the stream in Vila Aliança

Local Challenges in Bangu

Following the first visit, there was a meeting of the group with students from the Escola Politécnica da Universidade de São Paulo (EPUSP), students from the Massachusetts Institute of Technology (MIT), and the community leaders, to identify the major challenges in the community. These challenges were then related to their level of urgency and the length of time needed to identify and implement an eventual solution.

To better understand the local issues and how residents could contribute to improving the area, four teams did community surveys in different parts of Aliança and Minha Deusa. Each team included Bangu residents, USP students, and MIT students. The questionnaire and responses from community members can be found in Appendix B and C, respectively. Interviews with residents elicited their major concerns and what they perceived as the origins of the problem and what they thought could be done about them.

Based on the results from the first meeting and the responses from the community survey, major concerns were grouped into three major categories:

- River and trash: The *valão* is the repository for all sewage and wastewater in the area and from communities upstream. People in Bangu often throw household or construction waste into the stream as well. The *valão* is both an environmental hazard and a health hazard. Children like to play in or drink from the pipes that release wastewater into the river. At least two children have died by falling into the river, which is below street level.
- Electricity: Complaints about unreliable and low-capacity electric connections are common. Most of this is the result of splitting a small electric supply into multiple illegitimate connections.
- Water: Besides the river, water issues are rampant within the community. Some parts of the community lack running water, in part due to inexpertly-made connections to the city's water mains. Residents then have to carry water from one end of the *bairro* to another. Those water connections that do work often leak significant quantities of water at all times. Water for drinking and cooking is often untreated, and many families lack filters or any way to purchase them. Water storage is insufficient in size and cleanliness.

Recommendations

The major concerns of the community in Bangu will, in the long-term, demand a lot of effort and investments, on the order of which the municipality or a well-established partnership with the private sector will be able to support. With the direction of the Pólo Comunitário em Bangu and the participation of community members, these long-term goals are feasible. The Bangu community cannot continue waiting, though. They are eager to work for improvements in their community, and are in particular looking for suggestions that they can implement with their own skills and labor.

With Ms. Machado, Mr. Soares, and other community leaders from Bangu, the MIT-USP team identified a variety of projects over the short (months), medium (one to two years) and long (multiple years) terms that can be implemented by the Pólo itself or in collaboration with other partners, like the engineering students from MIT and USP, private-sector partners, sister communities in their region, and even with the support of the municipality of Rio de Janeiro.

Short-term

Urgent community needs can often be addressed by action within the neighborhood. Rapid changes can be effected by working together. Responsibility for project sustainability can be shared among various stakeholders (e.g. benefitting families, the Pólo, local volunteers, entrepreneurs who receive payment for their work.)

- Local alternatives for the collection of garbage, combined with pressure on the prefecture to optimize the existing service to better meet the needs of the community.
- Installation of valves that control the reflux of sewage when the river is full – the outlet pipes now allow flow both ways, so when the river is high sewage creeps up the pipe and back into the houses.
- Planting appropriate trees, bushes, or grasses to prevent soil erosion. Furthermore, planned planting activities are a good way to bring the community together for a common goal.
- Construction of barriers or risers at the entryways to homes that are frequently affected by flooding.
- Establishment of alternative uses for waste construction materials such as concrete, wood, and brick. These materials can be used for things like pavement or the flood barriers above.

Medium-term

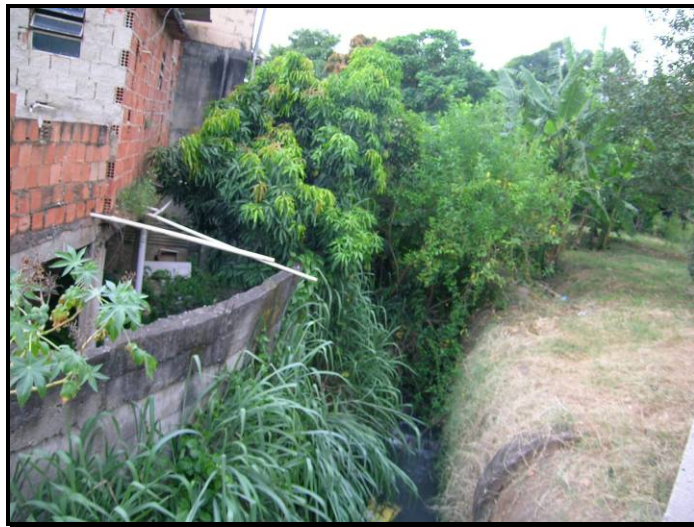
The Pólo Comunitário is also in a good position to implement intra-community projects that require a slightly longer time to get off the ground. Their support will make it possible to address institutional as well as technical approaches to local solutions.

- Incorporation with the five main goals of *Bases de Apoio* of a sixth line of action related to local sanitation.
- Creation of household-level systems for water purification. Technologies to consider may include chlorination, ceramic filters, solar disinfection of water collected in plastic bottles and exposed to the sun.
- Installation of fixed local garbage collection points (e.g., barrels, crates, or wire baskets as in photo below). Repositories may also allow compost or trash burning, depending on materials collected and separation facilities available.
- Knowledge-awareness of the population and establishing among the residents the habit of trusting in the local garbage collection system, such that they avoid throwing garbage and other materials in the river.

Long-term

Some improvements may need more background work or time to implement, but have great long-term benefits. The first steps may require partnership building towards eventual goals. These projects would likely need to be led from within the Pólo or by another community member with strong commitment.

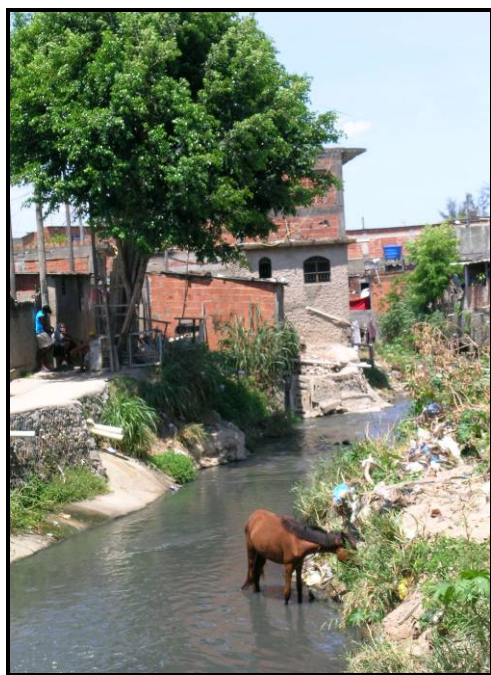
- More interaction between the Pólo and the children and local school. Activities may promote healthy living, pride in the community, or other positive life skills.
- Study about the control and waste of water. Results can be used for intra-community projects or may contribute to workshops which provide the community with general information about the advantages of having an official connection to the water mains.
- More infrastructure for basic sanitation (e.g. installation of a condominial sewage network or connections to the city services).
- Canalization and/or protection of the edges of the brook or actually covering the brook (which can be done in a variety of ways, and for which the cost will always be a factor in making the final decision).
- Development of safe community recreation areas and programs. This would ideally be done in collaboration with the one school nearby; school facilities are unused on weekends, summers, and after school, and teachers wish there were more activities for the students.
- Partnerships with local universities to bring relevant skills to intra-community projects and to promote effective work with the municipality to yield long-term improvements.



Channeling waste over a river



Example of canalization of a stream, in a community near Bangu



Current state of the stream



Inside a house along the stream, with one of the families interviewed.



Example of an elevated and fixed waste bin

Next Steps

The short-term ideas above are an important beginning in collaborating with the community to resolve local issues. Further, by addressing specific short-term possibilities at the same time as beginning to address long-term needs, the eventual solutions will be more permanent than merely palliative, and act directly on the problems and not just the symptoms. Most importantly, it is up to the needs, skills, and resources of the community to decide what issue and solutions to address first.

An example of a feasible approach may be for the Pólo to organize teams, including members from all over the community and potentially outside stakeholders, to prioritize and establish community improvement projects. For example, one team may focus on the physical implementation of a short-term improvement (e.g., adding the one-way valves to the outlet pipes along the valão). Meanwhile, another team can be working towards a medium or long-term objective. They may spend more effort in networking with appropriate organizations for engineering expertise, resources, or, eventually, government support. A structure like this allows people to work to their own strengths. Additionally, volunteers and the community as a whole can gain pride from the work they do on their own, which will also demonstrate their commitment to working towards long-term solutions.

Acknowledgements

Our work with the Pólo Comunitário em Bangu would not have been possible without the support of the Centro Internacional de Estudos e Pesquisas sobre a Infância (CIESPI), the Massachusetts Institute of Technology International Development Initiative (MIT IDI), the Poli-Cidadã Program at the Escola Politécnica da Universidade de São Paulo, and the financial support of Modec International, LLC.

Appendix A. Contact information

CIESPI

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Appendix B. Questionnaire

1) Perguntas Iniciais

1. Quantas pessoas vivem na sua casa?
2. Quantos são adultos e quantos são crianças?
3. Quantos de vocês trabalham? Onde vocês trabalham?
4. Quais são os primeiros problemas da comunidade que vêm à sua cabeça?
5. Você já pensou sobre esse(s) problemas, sobre as possíveis causas, os efeitos, se você já tentou solucionar? Você já pensou em falar com alguma pessoa sobre ele?
6. Quais são as coisas boas que você enxerga na sua comunidade?
7. O que você acha de morar aqui?

2) Lixo

8. Onde você joga o seu lixo, por que?
9. Como é o serviço público de coleta de lixo na comunidade?
10. Quais são as suas relações com as comunidades que estão rio acima?
11. Qual o material que mais vira lixo aqui?
12. Você sabia que houve uma tentativa de limpeza no rio? Por que você acha que o mutirão de limpeza do rio não funcionou? (perguntar para leidi, quando foi)
13. Você consegue pensar em alguma solução para o problema?
14. Se houvesse latas de coleta de lixo mais perto das suas portas, você as usaria?
15. Você recicla alguma coisa? Como você faz isso?

3) Água

16. Como é o seu abastecimento de água, de onde ela vem? Qual a confiança que você tem nessa fonte de água, quanto a fornecimento e qualidade?
17. Como você guarda a sua água?
18. Como você limpa a sua água?
19. Quanta e como você usa a sua água?
20. De onde vem a água que você bebe?
21. Como você despeja o seu esgoto?
22. Você acha que você consegue usar menos água?
23. O que você acha que causa as enchentes?
24. O que você acha do rio?

4) Se houvesse um programa da comunidade para tratar destes problemas, você participaria? Como?

Appendix C. Responses

The teams, each with representatives from the Pólo Comunitário em Bangu, MIT, and EPUSP, interviewed families in the neighborhood. The interviews included the questions presented in Appendix B. Responses can be found on the following pages.

	Samuel Crispin de Oliveira	Maria José Alves da Silva	Iraudo José da Silva	Janaína Cabral	Maurício Casal Martins	Ilma de Souza Cunha
Pergunta No.	Travessa Sta. Catarina 61	Travessa Sta. Catarina 57	Travessa Sta. Catarina 59	Travessa Sta. Catarina 51	Travessa Sta. Catarina 43	Travessa Sta. Catarina 55
1	9	5	6	4	7	6
2	3 crianças	2 crianças	5 crianças	2 crianças	3 crianças	4 crianças
3	1-Samuel, trabalha em Jacarepaguá como fiscal de transporte alternativo.	Apenas a mãe - Doméstica/Aconpanhante em Bento Ribeiro	1 - ele mesmo	1- marido - aux. de serviços gerais.	3 trabalham	1trabalha
4	valão quando transborda, bichos em geral (ratos, baratas, lacraias)	rio	rio	rio - relacionado tanto a sujeira acumulada quanto àquela trazida com as chuvas das comunidades rio acima	rio principal e falta de saneamento básico	Lixo e o rio
5	não adianta fazer nada sozinho			Já pensou, mas "Deus esqueceu esse lugar". Não tem muitas esperanças	Afirma que o rio deveria ser tampado e, sobre a cobertura, um espaço para crianças e praças.	
6	nada - só pensa em sair	nada	quase nada	se pudesse, já teria mudado faz tempo	transporte e comércio	poucas. Se pudesse mudaria
7	mora por necessidade	Não gosta de morar, mas não consegue vender.	não gosta - há uma falta completa de apoio do governo. Não há nenhuma entidade representativa.	péssimo	gosta. Se tivesse algum dinheiro a mais, reformaria a casa ao invés de mudar.	não gosta
8	no valão pois já está sujo	Utiliza o serviço de coleta municipal - toda 2a feira	Utiliza o serviço de coleta municipal - toda 2a feira	no rio	no valao, pela praticidade	já jogou no rio, mas atualmente utiliza coleta.

9	não vê coleta	toda segunda	toda a segunda	A caçamba foi retirada	Afirma que não tem coleta. As caçambas foram retiradas.	funciona
10	desconhece	desconhece	desconhece	reclama do lixo que vem com a chuva	ignora	ignora
11	papel	vende o plástico			restos de alimento	
12	vem muita sujeira das comunidades rio acima, então nem adianta tentar limpar			não funciona pois não tem aonde jogar		
13	Para começar seria bom cortar o mato. Citou também o exemplo do córrego de Santíssimo como solução.	limpar o rio	limpar/cobrir o rio. Construção de fossas	canalizar o rio, ou ao menos reforçar a proteção contra as cheias e coibir/diminuir o acesso ao leito do rio pelas crianças	Colocar mais latas de lixo. Tampar o rio. Fossas comunitárias	sair mesmo do lugar, nunca foi feito nada. Acha que fossas comunitária seriam uma boa.
14	usaria, mas não acha que vai dar certo, já que foi tentado antes.		Usaria. Menciona que já houve uma tentativa semelhante, mas as latas acabaram sendo destruídas/jogadas no valão/desapareceram	Usaria, mas desacetir completamente na eficácia de tal medida.	sim, mas não soube responder quando questionado com a pergunta de quem seria o responsável pelo transporte do lixo até os locais atualmente utilizados para coleta.	
15			não recicla nada		nope	
16	não tem problema de falta de água, vem direto da rua	acha que nunca teve problemas associados à qualidade da água.	não tem caixa d'água - fica sem quando o abastecimento é interrompido	da rua	da rua	da rua

17	não armazena - não possui caixa d'água.	Possui caixa d'água		não possui caixa d'água	nao possui caixa d'água, mas planeja adquirir uma	não
18	não limpa - bebe direto	limpa a caixa d'agua com cloro		não limpa, bebe direto	utiliza filtro	não limpa, utiliza direto
19					Assume que desperdiça água	
20	torneira	caixa d'água	torneira	caixa d'água	Água da rua filtrada	torneira
21	direto no rio	valao	valao	valao	valao	rio
22					sim	
23	sujeira e lixo no rio			lixo no valao. "As coisas que as pessoas jogam"	sujeira e lixo no rio	
24	péssimo, desvaloriza a região	se tivesse mais limpo seria melhor	traz doenças - perigoso para as crianças		tudo sujo e muitos animais, insetos e animais abandonados	tapar e/ou limpar
25	ajudaria em princípio, mas não tem muita esperança de que dê certo	não tem muita esperança que alguma coisa irá mudar de fato.		Faria, mas há uma descrença e falta completa de esperança. De um modo geral, se houvesse alguma coisa que ela pudesse fazer, ela sairia.	sim	sim
NOTAS	mora a seis anos no local. Tem muita reclamação dos bichos que invadem a casa após as enchentes. Alguns de seus filhos apresentam problemas de pele		paga a conta de água e luz	A defesa civil já alertou diversas vezes sobre a condição de risco de sua casa, mas naturalmente pouco adianta, uma vez que não tem para onde ir. Uma		Para prevenir que as águas das cheias invadissem sua casa, construiu um pequeno muro em frente à porta de entrada

				vizinha chamada Marlene chegou no meio da conversa e mencionou diversas vezes que todo mundo, sem exceção, joga o lixo no rio, e quem diz o contrário está mentindo. Essa vizinha em particular já foi entrevistada diversas vezes por redes de TV, sua casa já foi visitada por todos os conditados à prefeitura, governo estadual, etc. e nada mudou. Perdeu um neto que caiu no rio ano passado. Afirmou também, que frequentemente, aparecem pessoas mais ricas, de fora da comunidade, que jogam animais mortos no rio, ou simplesmente despejam lixo.		
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	Renan Barbosa	Ademir	Lurdes	Robson Pereira Costa	Jocimara	Vanice	Cristiane
Pergunta No.	21-3464-7395	21-3462-4751	-	-	21-9396-6095 (monique-filha)	21-3291-8793 (ceverina-avó)	21-9666-7016
1	4	3	5	2	6	7 e mãe grávida	3 e mãe grávida
2	2 adultos e 2 crianças	2 adultos e 1 criança	2 adultos e 3 crianças	2 adultos	2 adultos e 4 crianças	2 adultos e 5 crianças	1 adulto e 2 crianças
3	1 esposa	2-pai e mãe	1-marido	0	2 - pai e mãe	1 - marido	0
4	valão	valão	valão	saneamento básico e atendimento de saúde	problemas trazidos pelas enchentes e abastecimento de água	condições precárias de moradia	falta de água
5	políticos	deputado federal	ooo	prefeito, deputado e vereadores			
6	vizinhos	pouca violência em comparação com outras regiões	vizinhos	receptividade e hospitalidade da comunidade	estar perto do centro da comunidade	vizinhos fonte de renda	não tem muita violência
7	pra quem não tem muitos recursos tá bom	Por necessidade	por necessidade	gosta de morar	gosta	gosta	bom
8	no valão	antes no valão, hoje na lixeira	na rua - lixeira	caçamba de lixo	no valão, pela praticidade	na lixeira	na lixeira
9	bom, 3 vezes por semana	bom, 3 vezes por semana	ótimo, três vezes por semana		não sabe		
10							
11	plástico, borracha, garrafa	móveis					
12							

13	sobre o lixo - ao colocar o lixo a noite para esperar que ele seja recolhido cedo pela manhã, o recipiente é vandalizado, portanto é jogado diretamente no rio solução seria o uso de caçambas com tampa, que devem ser solicitadas na prefeitura	governantes	comunicara todos que é proibido e montar política de controle	trabalho de ampla conscientização da população	promover a sensibilização dos governantes e trazer a luz deles os problemas da comunidade	seria necessario a mudança do local de logradouro	mobilização da população junto com a cidade
14							
15							
16	não tem confiança, muitas vezes vem suja e a ligação é clandestina	cliente CEDAE	horrrível	clandestino	bomba clandestina	clandestino	clandestina
17	caixa d'água	nao tem	caixa d'água e galao	barril tampado, em área descoberta da casa	nao armazena	latão	caixa d"agua
18	ferve a água pra beber	filtro	filtro	filtro	nao trata a agua	direto	filtro
19							
20							

21	direto no rio	valao	valao	valao	valao	atraz da linha do trem	atraz da linha do trem
22							
23	sujeira e lixo no rio	lixo no rio, fogao sofa etv	lixo no valao	lixo no valao		sujeira no rio	acumulo de lixo o rio
24	péssimo, desvaloriza a região	se tivesse mais limpo seria melhor	horrrível	mais atitude e coerência por parte dos governantes	tudo sujo e muitos animais, insetos e animais abandonados	precisa ser limpo	péssimo
25	sim, já foi em algumas atividades do polo	sim	sim	sim	sim	sim	sim, já participou de ação comunitária para a instalação da linha elétrica na sua rua