

LUND UNIVERSITY
Housing Development & Management



MASTER'S PROGRAMME IN URBAN MANAGEMENT AND DEVELOPMENT

(October 2005 – September 2006)

*“Twin Cities in Amazonian Transnational Borders, an Appropriate
Cross Border Approach for Squatter Settlements on flood prone
lands located on border's fringe: The Case Study of Leticia and
Tabatinga”*

ERIK VERGEL TOVAR
COLOMBIA

Supervisor: RACHELLE NAVARRO ÅSTRAND, PhD

UMD 2

Lund, September 11th of 2006

Summary

The thesis focuses the topic of squatter settlements located along borders in twin cities on the Amazon context. The study claims that Twin Cities are integrated by informality, in this case by squatter settlements along borders. In addition to the integration, these squatter settlements are transforming the border from a limit towards a social spatial construction of their territory. Based on that, the study looks for a cross border approach which can be developed by local governments of twin cities in order to manage squatter settlements along borders as a shared and common problem.

In order to develop the research, the study has been done in the case of *Leticia* (Colombia) and *Tabatinga* (Brazil) twin cities in the Amazon. The thesis is focused in a natural space which has been the border between these twin cities the *San Antonio* ravine. Along this “natural” limit between Colombia and Brazil has been taken place an occupation of squatter settlements that has transformed the international limit into an “informal” urban space.

The thesis developed two approaches in order to study the mentioned case of squatter settlements located along borders in twin cities. First, the study developed a bottom up approach analysing socioeconomic and physical characteristics of squatter settlements inhabitants and comparing both squatter settlements based on fieldwork findings. The comparative study looks for symmetric and asymmetric issues between both squatter settlements which are a key output towards a cross border approach between the twin cities based on needs and characteristics of squatter settlements inhabitants in the Amazon context.

On the other hand, the study developed a review of urban policies of Colombia and Brazil looking for aspects that can be taking into account for local government of Leticia and Tabatinga in their local policies for managing squatter settlements on flood prone lands located on the border’s fringe. In addition, the study made a review of the current frontiers policies of both countries in order to find key elements that can be used by local government for developing a cross border cooperation for managing squatter settlements in a cooperation and integration framework.

Finally, the study looks for a short and long term appropriate approach for managing these two squatter settlements located along the border between the Leticia and Tabatinga twin cities. The recommendations for both terms can be useful input for future housing policies, and urban planning and management instruments in the twin cities based on Amazon characteristics. Moreover, the research methodology developed in the study can be an appropriate research procedure for further urban studies in Leticia and Tabatinga twin cities, especially on squatter settlements along border’s fringe.

Acknowledgements

I would like to thank *Rachelle Navarro Astrand* for her constant interest, support, advises, stimulating comments, she taught me how to write a thesis. My *Father* for his permanent spiritual, personal, economical and unconditional support during my studies, without him I would not have been able to finish it. Thank to my *Mother* for her spiritual and unconditional support, and her beautiful love. Thank to my *Sister Carolina* for her wonderful friendship, communication and company during bad and good moments during my studies.

In addition, I would like to thank my *Aunt Perla* for being my mother in Sweden, likewise to *Anders* and my two beautiful cousins *Laura* and *Frida* for being my family and my support during my period in Sweden in which they made me fell at home. This thesis is dedicated to my *Nona* and my *Grandmother*, my *Father*, my *Mother* and my *Sister*.

Thank to *Eloisa* for building beautiful things each other and for gave me her love and company and encouraged to me for developing this thesis. Likewise, thank to *Carmen Arevalo* for showing me how to be a good professional and the Caribbean side for enjoying life.

Thank to *Sandra Forero*, *Pastora Murillo* and *Jairo Barcenás* for gave me the chance to learn from them and to work with an amazing and well experimented group of professionals at the Ministry, and for the special friendship that now we have.

Thank to the HDM staff, especially to *Johnny* for showing me how to be an architect with a social inclination. Moreover, thank to *Graciela* and *Janis* for they permanents comments that improved my thesis. Thank to *Claudio* for have been my guide during my studies.

Thank to the special inhabitants from Leticia, especially *German Ochoa* for his advices, permanent support and gave me the opportunity to carry out my thesis in the Amazon context. Likewise, thank to *Argenis*, *Leady*, *Solangel*, *Claudia*, *Juan Carlos*, *Carlos Zarate*, *Marco*, *Cesar* for the nice moments in Leticia during the fieldwork.

For sure, thank to *Maria Cristina* for being like my mother in Leticia, and thank to *Kelly* and her family for they hospitality in Brazil. Thank to the Municipality of Leticia and its staff at the planning office, to the Prefeitura of Tabatinga, especially to *Walmir* for his time patient and invitation to the Ministry of Cities capacity building workshop.

In Bogotá, thank to *Carlos Alvarado*, *Lina Maria*, *Teresa Lozano*, *Rodolfo Cano* and *José Alejandro Bayona*, *Beatriz Calvo* and *Sergio* for the interviews, time, key information and right comments for this thesis. In addition, thank to my friends in Colombia, my architects colleagues and to *Margarita* for her company and love.

And of course, this thesis is dedicated to the inhabitants of *La Union* and *Guadalupe* neighborhoods in the Twin Cities of Leticia and Tabatinga.

Abbreviations

POT	Territorial Planning Plan (<i>Plan de Ordenamiento Territorial</i>)
PBOT	Basic Territorial Planning Plan (<i>Plan Básico de Ordenamiento Territorial</i>)
MDG	Millennium Development Goals
NGO	Non Governmental Organization
IMANI	Amazon Research Institute at the National University of Colombia (Leticia)
RETIS	Research Group RETIS at Geography Department at Federal University of Rio do Janeiro UFRJ, Brazil
SINCHI	Amazon Scientific Research Institute, Ministry of Environment Housing and Territorial Development, Colombia
MAVDT	Ministry of Environment, Housing and Territorial Development of Colombia
DANE	National Statistics Agency of Colombia
INCRA	National Institute of Colonization and Agrarian Reform of Brazil
ICBF	Colombian Institute of Family Wealthy
IBGE	Brazilian Institute of Geography and Statistics
VIS	abbreviation for Social Interest Housing in Spanish language (Colombia)
CORPOAMAZONIA	Regional Environmental Agency of the South Colombian's Amazon
ZF	Frontiers Zone
ZIF	Integration Frontiers Zone
CONPES	National Council of Economic and Social Policy of Colombia
UAESPNN	Special Administrative Unit of National Natural Parks of Colombia

Table of Contents

Summary	ii
Acknowledgements	iii
Abbreviations	iv
Table of Contents	v
Chapter 1 Introduction and research methods	1
1.1 Introduction	1
1.2 Background: context of the Amazon region	2
1.3 Definition of problem/question	4
1.4 Main aim of the research	5
1.5 Research questions and hypothesis	6
1.5.1. <i>Main Research Question</i>	6
1.5.2. <i>Research sub questions – housing comparative study</i>	6
1.5.3. <i>Research sub questions – urban and frontiers policies</i>	6
1.5.4. <i>Hypothesis</i>	7
1.6 Scope and limitations	7
1.7 Research methodology	7
1.7.1. <i>Desk study</i>	8
1.7.2. <i>Fieldwork</i>	9
1.7.3. <i>Unit of analysis</i>	9
1.7.4. <i>Questionnaire</i>	9
1.7.5. <i>Documentation</i>	10
1.7.6. <i>Semi structured interviews</i>	10
1.7.7. <i>Observations</i>	10
1.8 Thesis structure	10
Chapter 2 Literature review / theory	11
2.1 Theoretical and conceptual framework 1	11
2.1.1. <i>Informal Settlements and Urbanization in the Amazon</i>	11
2.1.1.1. <i>“Illegal” and “informal” city</i>	11

2.1.1.2. <i>Informal Settlements, Slums and the Millennium Development Goals</i>	13
2.1.1.3. <i>The informal settlements or slums, an introduction to the discussion from an Amazonian perspective</i>	14
2.1.1.4. <i>Slums, squatters and informal settlements in the Amazon</i>	15
2.1.2. <i>Squatters Settlements on flood prone lands on the Amazon context</i>	17
2.1.3. <i>Flood prone lands and risk areas.</i>	18
2.1.4. <i>Risk, hazard and vulnerability.</i>	19
2.2. <i>Theoretical and conceptual framework 2</i>	20
2.2.1. <i>Cities and Amazonian Transnational borders</i>	20
2.2.1.1. <i>Twin Cities</i>	20
2.2.1.2. <i>Borders, limits, frontiers and twin cities in the Amazon context.</i>	23
2.2.2. <i>Cross border cooperation.</i>	25
2.2.2.1. <i>Cross border cooperation in the Amazon context.</i>	26
2.2.3. <i>A meeting point for Colombian and Brazilian Urban Policy.</i>	27
2.2.3.1. <i>Urban policy.</i>	28
2.2.3.2. <i>Colombian Urban Policy and the Amazon context.</i>	28
2.2.3.3. <i>Brazil and its recent urban policy.</i>	29
2.2.4. <i>Cross border approach and cooperation.</i>	30
Chapter 3 Case Studies: Squatter settlements along the border of Leticia and Tabatinga	32
3.1 <i>Twin cities of Leticia and Tabatinga</i>	32
3.1.1. <i>Leticia</i>	32
3.1.2. <i>Tabatinga</i>	32
3.1.3. <i>Twin cities population growth</i>	33
3.1.4. <i>Twin cities urban growth</i>	33
3.2. <i>The Twin Cities and squatters settlements formation in flood prone lands</i>	35
3.3. <i>The basin of San Antonio’s Ravine as the border’s fringe</i>	36
3.3.1. <i>The case of La Unión Neighborhood in Leticia – Colombia.</i>	38
3.3.1.1. <i>La Unión neighborhood growing process.</i>	38
3.3.2. <i>The case of Guadalupe Neighborhood in Tabatinga – Brazil</i>	39
3.3.2.1. <i>Guadalupe neighborhood growing process</i>	40
3.4. <i>The current urban management and planning instruments in Leticia and Tabatinga</i>	41
3.4.1. <i>The Territorial Planning Plan PBOT of Leticia</i>	41
3.4.2. <i>The Plano Diretor of Tabatinga</i>	42

Chapter 4 Housing Comparative Study between *La Unión* and *Guadalupe* neighborhoods squatter settlements.....43

4.1 Comparative housing study of socioeconomic and physical characteristics of the households	43
4.1.1. <i>Socioeconomic characteristics</i>	43
4.1.2. <i>Income and occupation</i>	45
4.1.3. <i>Housing characteristics</i>	47
4.1.4. <i>Security of Tenure</i>	49
4.1.5. <i>Access to water</i>	50
4.1.6. <i>Access to sanitation</i>	51
4.2. Comparative study of reasons that lead people to settle in <i>La Unión</i> (Colombia) and <i>Guadalupe</i> (Brazil) neighborhoods and inhabitants risk perceptions and actions during flooding periods.....	52
4.2.1. <i>Reasons to settle in the neighborhood</i>	52
4.2.2. <i>Risk and flooding periods</i>	53
4.3. Comparative study of housing typologies between <i>La Unión</i> (Colombia) and <i>Guadalupe</i> (Brazil) neighborhoods	54
4.3.1. <i>La Unión neighborhood</i>	54
4.3.2. <i>Guadalupe neighborhood</i>	55

Chapter 5 Reviews study between Leticia and Tabatinga possible cross border cooperation elements57

5.1. The Territorial Planning Plan POT	57
5.1.1. <i>Planning instruments</i>	58
5.1.2. <i>Slum upgrading, risk reduction and disaster prevention</i>	59
5.1.1. <i>An interview with the Planning Secretary of Leticia Municipality</i>	60
5.2. The <i>Plano Diretor</i> a new participative planning instrument	61
5.2.1. <i>Instruments for land regularization</i>	62
5.2.2. <i>Risk areas for human settlements</i>	63
5.2.1. <i>An interview with the Infrastructure Secretary of Tabatinga Municipality</i>	63
5.3. Frontiers and integration policies between Colombia and Brazil	64
5.3.1. <i>Significant elements of the Colombian frontiers policy</i>	64
5.3.2. <i>Significant elements of the Brazilian integration policy</i>	66
5.3.3. <i>The foreign affairs representation point of view</i>	68
5.3.4. <i>La Unión neighborhood inhabitant’s perception</i>	69

5.3.5. <i>Guadalupe neighborhood inhabitant's perception.</i>	70
Chapter 6 Conclusions and recommendations	71
6.1 Summary, findings and conclusions	71
6.1.1. <i>Key symmetric and asymmetric findings between both squatter settlements for an appropriate cross border approach</i>	71
6.1.1.1. <i>Socioeconomic characteristics</i>	71
6.1.1.2. <i>Housing characteristics</i>	72
6.1.1.3. <i>Risk and resettlement issue</i>	75
6.1.2. <i>Common and significant elements from both instruments urban policy</i>	76
6.1.3. <i>Key findings for Leticia and Tabatinga cases from frontiers and integration policies between Colombia and Brazil</i>	77
6.2. Recommendations.....	79
6.2.1. <i>An appropriate approach in the short term for managing squatter settlements in flood prone lands in border's fringe</i>	79
6.2.2. <i>Long term</i>	81
6.3. Emerging issues and implications.....	82
6.4.1. <i>Squatter settlements and urban policies in the Amazon context</i>	82
6.4.2. <i>Twin cities and borders in the Amazon context</i>	83
Bibliography/References	84
Annex 1. Interviews	87
Annex 2. Brief historical background of the Twin Cities of Leticia and Tabatinga	88
Annex 3 Data collected in <i>La Unión</i> neighborhood (Leticia).	91
Annex 4 Data collected in <i>Guadalupe</i> neighborhood (Tabatinga).	94
Annex 5 Questionnaire No. 1 Codes Book No. 1	97
Annex 6 Questionnaire No. 2 Codes Book No. 2	102
List of Graphs	
<i>Graph 1. Leticia Population growth</i>	33
<i>Graph 2. Tabatinga Population growth</i>	33
<i>Graph 3. La Unión neighbourhood. Place of birth - nationality</i>	43

<u>Graph 4. Guadalupe neighbourhood. Place of birth - nationality.</u>	43
<u>Graph 5. La Unión neighbourhood. Inhabitants that have been living in the neighbourhood and different countries.</u>	44
<u>Graph 6. Guadalupe neighbourhood. Inhabitants that have been living in the neighbourhood and different countries.</u>	44
<u>Graph 7. La Unión neighbourhood. Has lived always in the neighbourhood and if has lived in neighbouring countries.</u>	45
<u>Graph 8. Guadalupe neighbourhood. Has lived always in the neighbourhood and if has lived in neighbouring countries.</u>	45
<u>Graph 9. La Unión neighbourhood. Income.</u>	45
<u>Graph 10. Guadalupe neighbourhood. Income.</u>	45
<u>Graph 11. La Unión neighbourhood - Occupation.</u>	46
<u>Graph 12. Guadalupe neighbourhood - Occupation.</u>	46
<u>Graph 13. La Unión neighbourhood–Occupation and Countries.</u>	46
<u>Graph 14. Guadalupe neighbourhood–Occupation and Countries.</u>	46
<u>Graph 15. La Unión neighbourhood. Housing type and Location on flood prone lands.</u>	47
<u>Graph 16. Guadalupe neighbourhood. Housing type and Location on flood prone lands.</u>	47
<u>Graph 17. La Unión neighbourhood. Year of arrival to the neighbourhood.</u>	47
<u>Graph 18. Guadalupe neighbourhood. Year of arrival to the neighbourhood.</u>	47
<u>Graph 19. La Unión neighbourhood. Rooms per person.</u>	48
<u>Graph 20. Guadalupe neighbourhood. Rooms per person.</u>	48
<u>Graph 21. La Unión neighbourhood. Reasons to settle and Housing Construction.</u>	52
<u>Graph 22. Guadalupe neighbourhood. Reasons to settle and Housing Construction.</u>	52
<u>Graph 24. Guadalupe neighbourhood. Feeling of risk during flooding periods.</u>	53
<u>Graph 23. La Unión neighbourhood. Feeling of risk during flooding periods.</u>	53

List of Tables

<u>Table 1. Twin Cities Brazilian and Colombian Amazon.</u>	3
<u>Table 2. Housing Building Material.</u>	48
<u>Table 3. Secure of Tenure.</u>	49
<u>Table 4. Access to Water.</u>	50
<u>Table 5. Access to Sanitation.</u>	51
<u>Table 6. Socioeconomic Characteristics Squatter Settlements.</u>	71
<u>Table 7. Housing Characteristics Squatter Settlements.</u>	72
<u>Table 8. Risk, Flooding Periods And Resettlement.</u>	75
<u>Table 9. Cross border Cooperation Elements Colombia - Brazil.</u>	78

List of Diagrams

<u>Diagram 1. The Research Design.</u>	8
<u>Diagram 2. The concept of Twin cities.</u>	22
<u>Diagram 3. The concept of border.</u>	24
<u>Diagram 4. An Appropriate approach for managing the San Antonio's ravine basin squatter settlement.</u>	79

Diagram 5. A Long term approach. A long term recommendation for further urban studies in Amazon Human Settlements which can continue a bottom up approach in order to give an input for a future Amazon Urban Policy in accordance to the local context and culture.82

List of Maps

Map 1. The Settlement Ring in the Great Amazon.4

Map 2. Leticia Tabatinga Twin Cities......34

Map 3. Leticia Tabatinga Twin Cities......34

Map 4. Leticia Tabatinga Twin Cities......34

Map 5. Leticia Tabatinga Twin Cities......34

Map 6. Plan view of San Antonio’s ravine basin.37

Map 7. Housing Typology 1. La Unión neighbourhood......54

Map 8. Housing typology 2. La Unión neighbourhood......54

Map 9. Housing Typology 3. La Unión neighbourhood......54

Map 10. Housing Typology 1. Guadalupe neighborhood......55

Map 11. Housing typology 2. Guadalupe neighborhood......55

Map 12. La Unión neighbourhood......56

Map 13. Guadalupe neighbourhood......56

Map 14. Border’s fringe and Twin Cities Map......67

List of Pictures

Picture 1. First area of La Unión neighbourhood......39

Picture 2. Second area of La Unión neighbourhood......39

Picture 3. Third Area of La Unión neighbourhood......39

Picture 4. First area of Guadalupe neighbourhood......40

Picture 5. Second Area of Guadalupe neighbourhood......40

Chapter 1 Introduction and research methods

1.1 Introduction

In the contemporary world at the beginning of the 21st century borders have become a more important issue for Nation States due to changes and *disfunctionalizations* taking place in borderlands in a different way of the nation state interests (*Machado, 2000*). On this context, two main issues of the contemporary world are merged into one relevant phenomenon: urbanization and borders. Cities and urban areas located along borders are the main point of cross border transactions and interactions between countries. This phenomenon has become an interesting and focus of research in different parts of the world.

Moreover, cities located in borders with a pair city located at each side are the built environment and meeting points between countries in the current globalization process with a big impact on population, living conditions, especially to the habitat. These cities that have emerged due to the existence of the border with a relationship with its counterpart on the other side have been called *twin cities*. Twin cities located along the border's fringe are characterized by cross border flows (*Steinman, 2005*).

Recently, on the Amazon Basin borders have been a relevant and common interest by nation states, especially because the rainforest areas are a rich natural resource. On this context, urban areas along borders have becoming a common interest by nation states in order to have presence on official limits. In the South American context it is important because the existence of processes such as market economy, common and shared problems, cross border migration and socio economic perspectives (*Steinman, 2005*).

Twin cities in the Amazon context are not an exempted from urban problems that several cities have been facing in our current urbanized era. Twin cities as other urban areas in the Amazon have environmental problems such as lack of basic services, occupation of risk areas, squatter settlements, contamination, pollution, unhealthy conditions and lack of adequate housing for urban inhabitants are the most important issues that local governments have been facing (*Becker, 1995*).

On one hand, squatter settlements located in twin cities are a complex phenomenon due to migration processes, occupation of risk areas such as flood prone lands, lack of infrastructure and services generating impacts among borders and further. In addition, the existence of different ethnic groups, migration of inhabitants from different places of each country conforming a more complex social reality and backgrounds of urban habitants. Illegal and informal economies, especially drug traffic, have been increasing the complexity of informality not only in the economy, even more in social and physical dimensions, for instance, squatter settlements.

Squatter settlements located in flood prone lands in Amazon cities has becoming an interest area for research due to its contradiction between the laws, regulations and norms on one hand, and the traditional settlements practices in this context on the other one. The occupation of flood prone lands for human settlements and agricultural purposes has been traditional practices by indigenous groups in the Amazon. However, the urban policies in countries such as Colombia and Brazil, has considered this areas as risk areas for human settlements generating difficulties for local governments for improving the housing conditions of the squatter settlements dwellers in flooding areas (*Hurtado, 2005*).

Therefore, this thesis focuses in the common and shared urban, housing and environmental problems in the twin cites of Leticia (Colombia) and Tabatinga (Brazil). The study analyses the

socioeconomic characteristics of the households occupying flood prone lands, the social processes they have created along the borders, transforming it, from a limit into a social space. Furthermore, the study looks for elements for cross border cooperation taking into account legal and administrative frameworks of the local policy and planning instruments. While at the same time, the study takes into consideration symmetric and asymmetric aspects and requirements of squatter settlements inhabitants for developing cross border cooperation on these issues. Moreover, the double approach involves a bottom up process putting the reality of inhabitants living in squatter settlements as the main concern. At the same time, looking at the legal framework that can help the twin cities developed a local approach of cross border cooperation for this shared phenomena.

1.2 Background: context of the Amazon region

In the context of an urbanizing world Latin American cities have been experiencing an amazing and fast urban growth without precedents. The Amazon region located in the northern part of South America does not escape to this phenomenon¹. In addition, the Amazon is not different to this regional trend of urbanization process, which is referred to as the “urbanized jungle” (Becker, B. 1995). The Amazon River Basin Region is comprised of 6 countries: *Bolivia, Brazil, Colombia, Ecuador, Peru and Venezuela*. Each country has reflected the same increasing population dynamics in the urban areas located within the Amazon in two parallel processes. First, with a big pressing on the tropical forest ecosystem through a big network of human settlements around the Amazon and interconnected with the different transport systems with the national road system of each country. On the other hand, there are some human settlements located within the Amazon, which are interconnected only through the network of rivers, or by airways transport services with the more urbanized areas of each country.

On this context, the urbanization process in the Amazon Region which is called “*the settlements ring of the Amazon*”² has transformed the romantic idea of the untouchable jungle as the World’s lung into a big network of big cities as well as medium and small towns carrying out a pressure over the natural resources and the tropical forest. Nowadays, the “*Urbanized Jungle*” is a phenomenon with few urban studies and surveys in order to understand the Great Amazon of the 21st century (Becker, B. 1995).

Therefore, in order to understand the complex phenomenon of the urbanization of the Amazon some research urban studies has been classified it in two sub-regions: “*the Amazon’s settlements ring*” and the “*Amazon within the settlement ring*”. The former, is conformed by big cities and human settlements well interconnected by roads around the big Amazon area advancing from the periphery of the tropical forest to the rich center jungle. The latter, is conformed by big cities, medium and small towns which are called “*enclave*”, which means “urban-puncture” settlements located near of big rivers and interconnected by fluvial networks with a strong support from national governments in order to have its presence in far away frontiers. However, the lack of presence of the State at the borders as “neglecting places”, where the internal conflict like *Civil*

¹ In 1990 in Latin-America and the Caribbean the urban population was 441.066 millions of inhabitants of which 315.4 millions were living in urban areas. For 2005, the forecast is Latin America and the Caribbean’s urban population will increase until 546.3 millions of inhabitants, with 420.7 millions in urban areas. An Urbanizing World, Informe Mundial sobre los Asentamientos Humanos, 1996, UN-HABITAT.

² SINCHI Institute. *Perfiles Urbanos de la Amazonia Colombiana*, 2005.

War in Colombia and the drug traffic networks have marked the history of *borderlanders* and the agenda of National Governments ³ (Sierra, *El Tiempo*, 2006).

The 6 countries that belong to the Great Amazon Basin are facing a big challenge in the 21st century related to the consolidation of these urban-regional structures troughs different legal and illegal economy activities called “*boom or bonanzas*”⁴, which have served as the best engine to maintain the urban growth trend. Moreover, the new “boom” of the biodiversity in the Amazon has generated a big interest for multinationals and rich countries for available natural resources that the jungle could provide for future developments.

On this “neglecting places” the emerged of cross border paired cities or twin cities has defined the presence of Nation States, which is the first employer in he region, by national government agencies, army installations, regional and local governments as the main “presence” of the state. Thus, there are several cases of twin cities along the border between Colombia and Brazil, which are identified by each country, depending on the presence by the nation-state, military installations, size of the towns and cross border interactions.

Table 1. Twin Cities Brazilian and Colombian Amazon.

Twin Cities BRAZILIAN Amazon			Twin Cities COLOMBIAN Amazon		
Country	Brasilian side	Neighbour's Country Side	Country	Colombian Side	Neighbour's Country Side
GUYANA FRANCESA	Oiapoque	Saint Georges	ECUADOR	San Miguel (Putumayo)	Lago Agrio
GUYANA	Bonfim	Lethem	PERÚ	El Encanto (Amazonas)	El Estrecho
VENEZUELA	Santa Elena	Pacaralma		Puerto Alegría (Amazonas)	Yubinetto
COLOMBIA	Tabatinga	Leticia		Puerto Nariño (Amazonas)	Cabalocochoa
PERÚ	Benjamin Constant	Islandia	BRASIL	Leticia (Amazonas)	Tabatinga (Amazonas)
	Santa Rosa do Purus	Santa Rosa		Tarapacá (Amazonas)	Ipiranga
	Iñapari/Assis	Bolpebra		La Pedrera (Amazonas)	Villa - Betancur
BOLIVIA	Brasiléia	Cobjija			

Source: Grupo RETIS (Universidade Federal do Rio do Janeiro UFRJ). Source: Perfiles Urbanos de la Amazonia Colombiana. Instituto SINCHI de Investigaciones A

On this context, there is a significant and unique case in the sub-region: “*Amazon within the settlement ring*” of two medium cities in the transnational border between Colombia, Peru and Brazil on the Amazon River. The cities of Leticia (Colombia) and Tabatinga (Brazil) have grown in a parallel process as sister’s cities until the point that they became the well known “twin cities”. In addition, Leticia has grown with a Spanish urban pattern while Tabatinga has grown with military Portuguese urban pattern.

During the 70’s and 80’s both cities experienced a fast population increase process and a big urban growth due to the “boom” of profitable business, including illegal drug trafficking drugs networks and wood commercial trade. On the other hand, the high impact of tourism in “the Amazon tourism axis” between *Iquitos* (Peru), *Manaus* (Brasil) and *Belem Do Para* (Brazil) and in the middle of this “network” there are the *twin cities* of Leticia and Tabatinga, which receive many tourists every year.

The “twin cities” as a common urban area have been facing common and some shared cross border problems such as high contamination of water bodies, high levels of pollution, lack of water supply and water treatment infrastructure and squatter settlements on flood prone lands.

³ Sierra, 2006, Las Fronteras de Colombia, El Tiempo, Junio, Informe Especial.

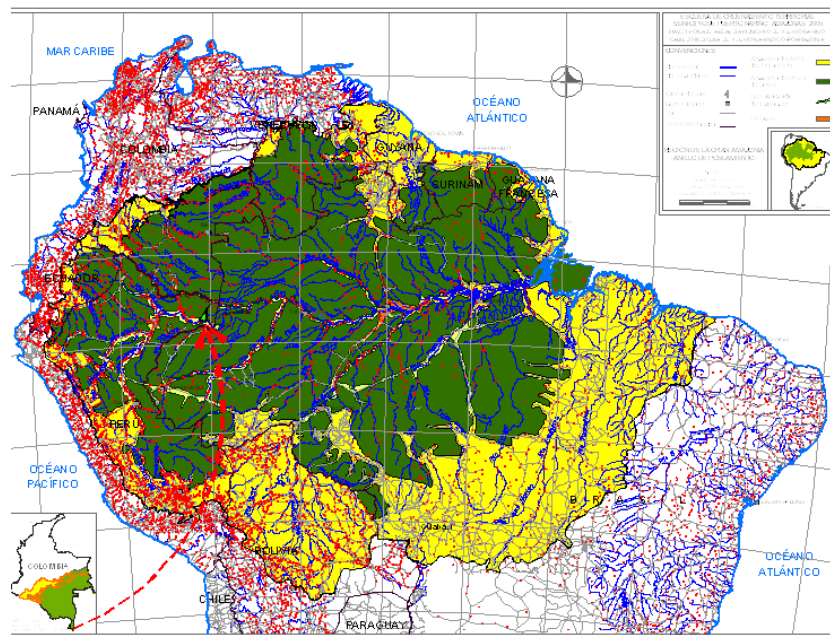
⁴ The Great Amazon has been a place in which different extractives activities have took place in an unsustainable way in the XX century, beginning with the “rubber” and changing to “oil”, “energy production” and “coca” for trafficking drug activities.

The problem is a result of a strong housing shortage in the twin cities, and one of the most difficult problems that this urban area has been facing for more than 10 years now.

Nowadays, the level of knowledge about urbanizing phenomena in the Great Amazon is very low, in the case of Leticia and Tabatinga as well. Thus, the possibility to understand more the phenomenon of squatter settlements on flood prone lands in a unique and complex context, such as cross border paired cities, like Leticia and Tabatinga, becomes not only an interesting challenge, but is also a contribution to the knowledge on the urban problems in the Amazon region. In addition, this effort can contribute in the future for carrying out a cross border approach between the twin cities of Leticia and Tabatinga for managing shared problems synchronizing their local policies.

1.3 Definition of problem/question

The “Great Amazon” area is currently under an urbanization process, which has been subdivided into two sub-groups. First, the Sub-region 1 called the “*Amazon of the settlement’s ring*” which is the ring conformed by the human settlements around the Great Amazon exercising a big pressure over the jungle. Second, the Sub-region 2 called “*Amazon within the settlement’s ring*” which is conformed by the human settlements located within the jungle, especially in the most important rivers, commonly known as “enclaves”. The twin cities are located in the sub-region 2, in the transnational border between Colombia, Peru and Brazil (South America) in the high area of the Amazon River Basin. The Leticia’s urban population is 26.310 inhabitants and the Tabatinga urban population is 34.659 inhabitants.



Map 1. The Settlement Ring in the Great Amazon. Esquema de Ordenamiento Territorial Municipio de Puerto Nariño, Amazonas. Territorial Ordering Scheme (EOT) of Puerto Nariño Municipality. GEORDENA. Elizabeth Riaño Umbarila – Franz Gutierrez Rey.

The twin cities of Leticia and Tabatinga have experienced a fast urban growth process in last 3 decades covering the “stable lands” and the “flood prone lands” or “várzea”⁵. This is a result of a high migration process of inhabitants from different countries (e.g. Colombia, Brazil and Peru) looking for job opportunities, on one hand in illegal activities such as drug trafficking, extractive and commerce of wood, on the other hand, to acquire a job with the government, in the tourism sector or with a research institute. In addition, the twin cities which developed without urban planning process as well as nor regulatory framework of the housing sector, resulted in the urbanization of the “stable lands” or “high lands” by the formal housing sector, and the urbanization of the “flood prone lands” or “várzea” by the informal housing sector.

As a result of this process, the twin cities are therefore facing a common problem: “the housing shortage in twin cities of Leticia and Tabatinga combine with inadequate planning and responsive policy has lead to a chronic occupation of flood prone lands by low income groups resulting in the large scale development of squatters settlements”.

This problem is caused by lack of available land in Leticia for a future urban expansion, two failure resettlements projects for inhabitants located in the “flood prone lands” as result of urban planning and housing policies without taking into consideration the local culture and the requirement of the inhabitants (Hurtado, 2005).

This local government policies for planning and housing in the context of Colombian and Brazilian Amazon are the *Territorial Planning Plans* POT and the *Plano Diretor* respectively. While the POT in Colombia has been formulated since 2000, the *Plano Diretor* is just beginning the formulation process. However, the Colombian municipalities are closing a first stage of its POT which coincidences with the *Plano Diretor* formulation stage in Brazil. Under this context, the year 2006 marks an extraordinary opportunity to synchronize these local government policies between twin cities governments. Moreover, this is an opportunity for local government policies to receive an input from the local culture in the Amazonian municipalities in bottom up processes.

1.4 Main aim of the research

The main objective of this thesis is to determine the appropriate cross border approach to manage the shared problem of squatter settlements on flood prone lands on the border’s fringe between Leticia and Tabatinga twin cities. The thesis has analyzed the twin cities and thus highlights the need of a cross border co-operation between the twin city’s local governments. In order to do this, an understanding of the phenomenon of squatter settlements located on the border’s fringe is essential. The study claims that informality is integrating both cities more than the formal cities themselves.

Furthermore, the research undertakes a bottom up approach by studying two neighborhoods (*La Unión* in Leticia and *Guadalupe* in Tabatinga) in the twin cities analyzing their *socioeconomic* and *physical* characteristics, identifying on adaptation during flooding periods, and their perception of the *border* between Colombia and Brazil. Then, the study identified the *symmetric* and *asymmetric* issues of the characteristics founded between both squatter settlements trough a comparative study. These comparative study permits to find these issues that shows in which

⁵ “Várzea” is the name given to the flood prone lands in the Amazon by the local inhabitants. The “Várzea” has been a special place for indigenous inhabitants for two main purposes: for agriculture when river’s level go down due to high nutrients, and on the other hand, for harbors in order to get an easy access to the river (Riaño, E., 2003).

aspects are equal twin cities and in which are not. An understanding of these aspects can help facilitate the participation of the inhabitants in finding appropriate housing solutions for them.

By analyzing the socioeconomic requirements of the inhabitants of the squatter settlements, the study can provide an input to the local government's urban management instruments from an Amazonian perspective. This input can be a contribution towards a cross border approach of border's fringe between cities. Moreover, it can be a useful input for an appropriate housing policy for urban planning and management.

Furthermore, the research methodology developed in this study can be an important tool that can be applied in future similar urban studies of neighborhoods located in the "flood prone land" in the twin cities of Leticia and Tabatinga in order to achieve a complete study of the whole urban area. In addition, this methodology can also be applied in other twin cities located in the Amazon context.

1.5 Research questions and hypothesis

Given the main objective, the thesis asks the following questions and states the hypotheses below:

1.5.1. Main Research Question.

What is the appropriate cross border approach to manage the shared problem of squatter settlements on flood prone lands on the border's fringe between Leticia and Tabatinga?

1.5.2. Research sub questions – housing comparative study

- What are the socioeconomic and physical characteristics of the households and dwellings located on the squatter settlements of *La Unión* (Colombia) and *Guadalupe* (Brazil) neighborhoods within the frontier's fringe between Leticia and Tabatinga twin cities?
- What are the reasons that led inhabitants who are living in *La Unión* (Colombia) and *Guadalupe* (Brazil) neighborhoods to settle on the frontier's fringe between Leticia and Tabatinga twin cities?
- What are the key settlement patterns used by the inhabitants of *La Unión* (Colombia) and *Guadalupe* (Brazil) neighborhoods, which can help determine appropriate housing solutions for them?

1.5.3. Research sub questions – urban and frontiers policies

- What are the existing slum management approach being implemented in Colombia and Brazil? What are the common elements between Colombia and Brazil, which the local governments of Leticia and Tabatinga should consider to develop a common approach for managing the squatter settlements along the border's fringe?
- What are the significant elements of the Colombian frontier's policy, which the local government of Leticia should consider to manage appropriately, the squatter settlements on flood prone lands along the border's fringe?
- What are the significant elements of the Brazilian integration frontier's policy, which the local government of Tabatinga should consider to manage appropriately, the squatter settlements on flood prone lands along the border's fringe?
- What are the perceptions on border and frontiers between Colombia and Brazil of the inhabitants of *La Unión* (Colombia) and *Guadalupe* (Brazil) neighborhoods?

1.5.4. Hypothesis.

- The squatter settlements on flood prone lands located on the frontier's fringe between Leticia and Tabatinga are a transnational-shared problem.
- The squatter settlements on flood prone lands located in the frontier's fringe between Leticia and Tabatinga are affected by the decisions taken by the local governments of both cities.
- There are meetings points between the urban policy frameworks of both cities that can be used for a cross border strategy for managing the squatter settlements on flood prone lands in the frontier's fringe.
- The socioeconomic and physical characteristics of the inhabitants of the squatter settlements must be considered in urban management process for twin cities on the Amazon.
- The squatter settlements on flood prone lands located on the frontier's fringe are integrating the twin cities more than the formal city.

1.6 Scope and limitations

The thesis focuses on the twin city's squatter settlements analyzing two neighborhoods (*La Unión* in Leticia and *Guadalupe* in Tabatinga) as case studies at both sides of the international border. In order to carry out the fieldwork in the Twin Cities the author has had the opportunity to visit the twin cities before, as a consultant of the Ministry of Environment, Housing and Territorial Development of Colombia. Thus, the author has key contacts in the Amazon Research Institute IMANI at the National University of Colombia in Leticia, which supported the fieldwork by providing documents, contact persons in the Consulates, Local Governments and squatter settlements.

However the thesis presented some limitations. On one hand, the study had financial resources limitations. First, the fieldwork in the twin cities was undertaken within a period of only 20 days. Secondly, the subsidy for fieldwork period could not cover all of expenses needed for the research process. On the other hand, the thesis had as an advantage to visit during the month of July the twin cities due to was possible to visit several housing units and observed living conditions. However, it was impossible to cover the flooded period, but the study gives elements for further research during flooding period, which is between November and March.

1.7 Research methodology

The research method was divided into two parts: the fieldwork and the desk study taking into account the border in both approaches. On one hand, the fieldwork involves an on site visit to the twin cities of Leticia and Tabatinga in order to conduct a survey of two squatter settlements, one in Colombian territory and the other in Brazilian one. During the fieldwork, it was possible to carry out a survey of several housing units and conduct interviews in both sides of the border, as well as, interviews with local government planning officials among others. The *desk study* developed a review of the urban policy of Colombia and Brazil, specifically on the main planning instruments for local government that both laws have established. It was possible to look at its principles, objectives and common elements for informal settlements approach located on risk areas. Furthermore, the desk study looks also covered the frontiers policies of both countries focused on the case of Leticia and Tabatinga, which can be applied by both local governments towards cross border cooperation on urban issues.

1.7.1. Desk study.

As a point of departure the *desk study* considered the fact that Leticia has been implementing its Territorial Planning Plan PBOT since 2002, which made it possible to see the policies and programs, implemented during this past 4 years. Currently, the Local Government has the initiative to asses the implementation of the PBOT for future revisions and modifications. Likewise, a planning process is setting up in Tabatinga due to the issued of the urban policy in Brazil called “CITY STATUTE”. The *Plano Diretor* is the main planning and juridical instrument for local government in order to manage urban and rural areas. In addition, the Local Government of Tabatinga has as a deadline for approval of its Plan by the Municipal Council next October of 2006. Thus, the thesis is looking for findings that can give an input for these two parallel processes. The desk study found common elements, which can link the two main planning instruments and local policy of both municipalities, focusing on squatter settlements and risk areas.

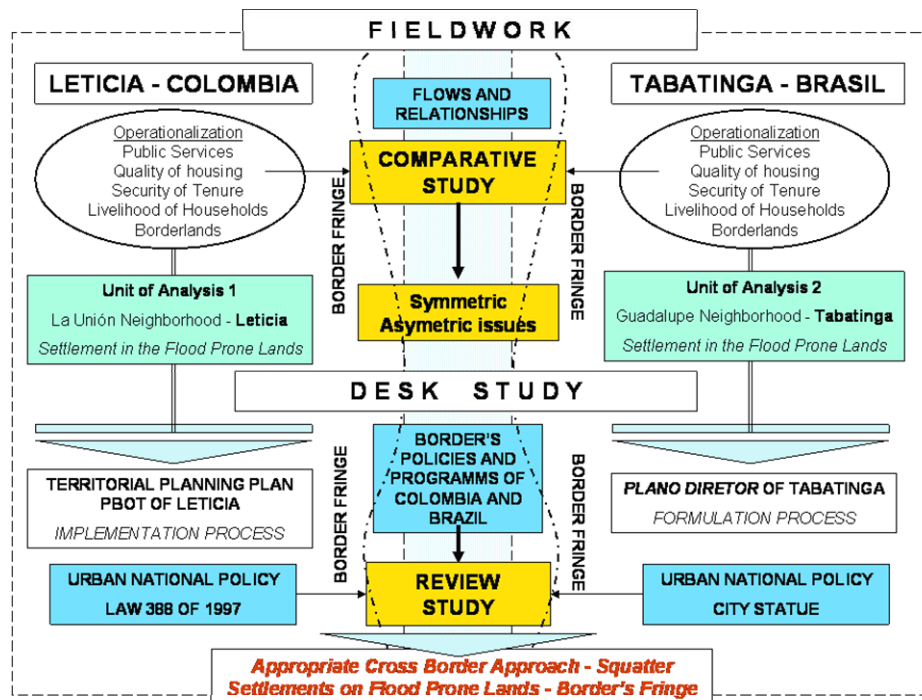


Diagram 1. The Research Design. Thesis Proposal. Erik Vergel Tovar. UMD 2.

On one hand, the thesis developed a comparative study between the two units of analysis, two neighborhoods located on the “flood prone lands” in the border’s fringe between Colombia and Brazil. The comparative study was done by analyzing housing conditions in both squatter settlements such as: socioeconomic and physical characteristics, inhabitant’s frontier’s perception, as well as inputs from planning head officers of each city. On the other hand, the thesis also reviewed the urban policies of Colombia and Brazil focusing on squatter settlements, flood prone lands and risk areas, taking into account only the elements that can apply in a context like the Amazon twin cities. The review study is supported by interviews with policy makers of

Colombian National Government⁶, documents published by both countries regarding foreign affairs and cross border cooperation in the specific case of Leticia and Tabatinga twin cities.

1.7.2. Fieldwork.

The author in two parts conducted the data collection period. First in Leticia and Tabatinga during 20 days, from the 14th of July and the 31st of July of 2006, with the support of the Professor German Ochoa a researcher of the Amazon Research Institute IMANI at the National University of Colombia located in Leticia. During the data collection period the author hired a student from the Amazon State University (Brazil) in Tabatinga, who accompanied the researcher during the visits to the housing units of the Brazilian neighborhood, and Tabatinga local government officials staff interviews. Second, the data collection period continued in Bogotá between the 31st of July and 4th of August period in which the author visited national government agencies of Colombia.

1.7.3. Unit of analysis

The twin cities of Leticia and Tabatinga have approximately 6 squatter settlements on flood prone lands; only 2 are located on the border's fringe in the international border between Colombia and Brazil, *La Unión* neighborhood in Leticia and *Guadalupe* neighborhood in Tabatinga. Other squatter settlements are located in the water front area of Leticia, such as *El Águila* and *Victoria Regia*, in front of the Amazon River and the "*Fantasy Island*". In accordance to the scope of this thesis, the units of analysis are *La Unión* neighborhood in Leticia (Colombia) and *Guadalupe* neighborhood in Tabatinga (Brazil). Both unit of analysis were selected in accordance to the following *criteria*: both neighborhoods have to be located on the border between Colombia and Brazil, squatter settlements in flood prone lands, similar scale, and traditional Amazon architecture settled in areas which have been declared as risk areas by the local governments.

1.7.4. Questionnaire⁷

The questionnaire was designed for the inhabitant's squatter settlements of the two neighborhoods. 87 out of 101 housing units were visited in *La Unión* squatter settlement (Leticia) and 37 out of 40 housing units in *Guadalupe* squatter settlement (Tabatinga). The questions cover the following variables:

- Built Environment Dimension: *Housing Characteristics, Secure of Tenure, Access to Water and Sanitation, Use of the Housing, Durability and Quality of the House.*
- Socioeconomic Dimension: *Social Characteristics, Level of Studies, Occupation/Income.*
- Border and Management Dimension: *Border and Policies, Management, Governance.*

⁶ National Government of Colombia, entities visited: *the Ministry of Environment, Housing and Territorial Development of Colombia, Territorial Development Department and International Relationships Department. The National Planning Department, DNP, Territorial Sustainable Development Department. The Ministry of Foreign Affairs, Sobering and Frontiers Issues Department.*

⁷ Please see on Annex 5 and 6 the Questionnaire No. 1 and 6 their respectively Codes Book.

1.7.5. Documentation

Part of the documentation that the author collected in order to know more about the situation of the twin cities are two *Master of Science Thesis*⁸ carried out in Leticia and Tabatinga, which have important findings about urban poor, marginality and the geography of the twin cities. On the other hand, it was important to make a search of documentation in the local governments and others organizations that are related to squatter settlements in flood prone lands.

1.7.6. Semi structured interviews⁹

During the fieldwork period was possible to have an interview with persons working at the following entities in Leticia and Tabatinga: *Municipality of Leticia, Prefeitura Municipal of Tabatinga, IMANI – Amazon Research Institute, Consulate of Colombia in Tabatinga, Consulate of Brazil in Leticia, local leaders of La Unión and Guadalupe neighborhoods*. Likewise at staff officials at the following National level entities in Bogotá: *the Ministry of Environment Housing and Territorial Development, the National Planning Department DNP and the Ministry of Foreign Affairs*.

1.7.7. Observations

On site survey of the neighborhoods allowed the author to observe the daily life of squatter settlements inhabitants. On this sense, the researcher could carry out walking observations exploring the life of *borderlanders* in the twin cities. In addition, during the visits was possible to draw a scheme of the settlement in relation to the group of housing units and the official limits between both countries. During the visits to each housing unit the author made a drawing of each house plan view looking for defining housing typologies in accordance to the settlement area.

1.8 Thesis structure

The thesis is divided in six chapters. Chapter 1 includes an introduction to the topic, background of the context, a problem definition, objectives and research questions, hypothesis, scope and limitations of the study, and the research methodology. Chapter 2 presents the theoretical approach, which consists on two theoretical frameworks. The first one looks at issues in informal settlements and risk in urban areas. The second one looks at concepts as twin cities, borders, frontiers and cross border cooperation, and urban policies. Chapter 3 presents the case of Leticia and Tabatinga twin cities, and specifically the cases of two squatter settlements *La Unión* in Leticia and *Guadalupe* neighborhood in Tabatinga. Chapter 4 presents the comparative housing study between these two squatter settlements and symmetric and asymmetric findings. Chapter 5 presents a review on urban policies and frontiers policies of Colombia and Brazil. Finally chapter 6 presents conclusions, and recommendations of the study and emerging issues of the research.

⁸ In the literature review process the author found two thesis which were carried in the twin cities: Steinman, R., 2002, *A Geografia das Cidades de Fronteira: Um Estudo de Caso de Tabatinga (Brasil) e Leticia (Colômbia)*. Hurtado Gómez, L.M., 2005, *Pobreza y Marginalidad Urbanas en la Amazonia. Un estudio de caso de los asentamientos ubicados en zonas inundables*.

⁹ For further information regarding persons interviewed during the interviews please see annex No. 1.

Chapter 2 Literature review / theory

The first point of departure of the theoretical framework developed for this research is the author involvement with the Ministry of Environment, Housing and Territorial Development in the National Technical Assistance Program for Regions and Municipalities¹⁰ supporting municipalities of the Colombian Amazon in the processes of formulating, agreement and implementation of Territorial Planning Plans POT¹¹. Within this national program the author had the opportunity to start a capacity building and technical assistant process with the Municipality of *Leticia* in order to set up an evaluation process for the *Territorial Planning Plan* PBOT.

The study has developed two theoretical frameworks due to the complex phenomenon of squatter settlements on flooding areas in a context such as the Amazon where these flood prone lands is a common characteristic of human settlements. The phenomenon becomes more complex when these squatter settlements are located close to international borders between countries where legal frameworks, languages and cultures meet on different layers. Moreover, the phenomenon is more complex when it is presented in twin cities in a context such as the Amazon region.

Therefore the chapter 2 was developed in two theoretical frameworks covering the main concepts that are relevant to the complex phenomenon of squatter settlements on flood prone lands settled in border's fringe. The first framework looks at the concepts and issues in *informal settlements* and *risks in urban areas*. The second framework involves a literature review on the concepts of *twin cities, borders, and frontiers* and *cross border cooperation*. It is complemented by a review of current *urban policies* in Colombia and Brazil. Both theoretical frameworks discusses the above mentioned issues in general as well as in the context of the Amazon region.

2.1.Theoretical and conceptual framework 1

2.1.1. Informal Settlements and Urbanization in the Amazon

2.1.1.1. "Illegal" and "informal" city

The fast urbanization process that Latin America has had during last 50 years is very close related to the production of cities in two ways: "legality" and "illegality". This two terms have been used by different government institutions and urban professional for understanding the process urbanization in Latin American cities where the collective work of building cities has been done in two ways, on one hand, planned areas of cities, and on the other hand, unplanned areas of cities growing "outside" of the legal system.

¹⁰ During this work experienced the author had the opportunity to meet the integrants of the Environmental Urban Studies Group GEAUR of the National University of Colombia in Leticia. The group was compounded by *Lina María Hurtado, Elizabeth Clavijo, Dora C. Ramírez, Gonzalo Lema Trujillo, Juan Camilo Cagijas, Juan Carlos Murillo, Germán Ignacio Ochoa*. The group was created under some reflections such as *What is, or what might be the environmental urban issue in the Amazon?, How manifest the urban phenomenon in this specific region?*. The group had a special interest on squatter settlements on flood prone lands in Leticia since 2002. After my work experience in Leticia, the author has had a contact with one of the GEAUR members, the researcher German Ochoa. He worked mainly in *La Unión* neighborhood in Leticia. He worked in a census journey with the GEAUR group in 2002 which came up with key findings about these type of squatter settlements on borders.

¹¹ The Territorial Planning Plans POT is the main juridical planning instrument for public policies at the local level that the Law 388 of Territorial Development 1997 establishes for an integral planning process in Colombian Municipalities.

After decades of failure policies in which evictions and resettlements programs of inhabitants living in “illegal” settlements marked the government way of thinking, which has been seen as a relocation of the “problem”, and forced eviction has increased poverty¹². Thus, the policy approach has changed from forced eviction towards slum upgrading projects in which regularization by ensuring security of tenure and provision of basic services and infrastructure are on at the top of the agenda.

In addition, as part of the statement of improving the lives of slums dwellers the new approaches due to the necessity to show results in achieving the Goal 7 and its Target 11 of the Millennium Development Goals MDG includes involving slum dwellers as one more actor of development processes. It is a shift in urban policies in which an improving of lives of “urban poor” must be part of the agenda, involve private sector, NGO’s and community based organizations CBO in policies, programs and projects looking for collective efforts and resources¹³.

On this context, the concept of exclusion in urban areas by the “legal city” against the “illegal city” come up as the result of several years of looking the slums as a problem that has to be eliminated from the city. Specially, in Latin America the idea of “*the right to the city*” has been taking place as a new approach that recognized that cities have been becoming the place for job opportunities, better education and health services, and every body has the right to have access to this advantages provided by urban areas.

“the right to the city” from a juridical, political and cultural perspective has marked the urban debate in Latin America¹⁴. Thus, an outcome of the debate in Colombia was developed of the *Law 388 of 1997 of Territorial Development* in Brazil the *CITY STATUTE*, both as juridical instruments for treating urban problems such as the “illegal city”.

On one hand, however, the debate has been more oriented to what does means “legal” and “illegal” production of cities means, and some issues that come up in the discussion. Some authors advocate for the inclusion of the cultural dimension of urban phenomenon as the way to understand the urban fragmentation and the values that legitimize that process¹⁵.

Likewise, it is necessary to understand the social production of “illegality” in the city, and the debate is enriched by the discussion about the uses of “illegal” and “informal” in the same way, which impedes a clear lecture of the city as a field of opportunities¹⁶, in other terms “*the society forms, as well as the city shapes, are creations from which new possible(s), before inexistent because private of sense, appears*” (Giraldo, 2003).

Therefore, public policies that focuses on the flexibility of urban regulations in the process of legalized the illegal city, is not enough from this point of view, because this process needs more creativity and innovations for setting up a proposal of a democratic city, diverse and plural¹⁷. Likewise, the critique mentioned that there is an imposition of foreign cultural values in the

¹² UN Millennium Project, 2005, A Home in the City, Task Force on Improving the Lives of Slum Dwellers. Page. 48.

¹³ Ibid.

¹⁴ Rincón Patiño, A., *Legalidades colectivas: Historia de los espacios urbanos no con-sentidos*, 2005, Espacios Urbanos No Con-sentidos, Legalidad e ilegalidad en la producción de ciudad, Colombia y Brasil. Universidad Nacional de Colombia, Sede Medellín, Alcaldía de Medellín, Area Metropolitana del Valle de Aburrá.

¹⁵ Torres Ribeiro, A.C., *Dimensiones Culturales de la Ilegalidad*, Ibid.

¹⁶ Ibid.

¹⁷ Ibid.

regularization process of the city, which does not recognize the difference of the “other”, for instance, the private property and the family life (*Torres Ribeiro, A.C.*)¹⁸.

On the other hand, in the urban debate in Latin America has come up the critique to the urban law and policy that defines prohibited and permitted functions within cities. It defines territories inside and outside, legal and illegal, regions with and without citizenships¹⁹. Moreover, there is a concern on the democratization of juridical institutionalization due to that the laws and juridical instruments does not reflect the social reality, and determines inequity conditions for access to land and housing in cities²⁰.

Based on the debate we can argue that the “illegal” production of cities needs more research, surveys and studies that can feed to the discussions with new arguments. This should be a process for finding out relevant regulations frameworks and local initiative that provide endogenous elements for understanding, managing, planning and producing Latin American cities in accordance to social and local cultures. Moreover, with a process that really can look for the local dynamics in the production of the “illegal” city it will be possible to provide more elements in order to continue the path that urban polices such as the Law of Territorial Development in Colombia and the City Statute in Brazil have established a process that really can find ways to continue the production of cities in a democratically and equally access for the benefit of urban areas, and to reconcile the “illegal” and “informal” city with the formal one.

Finally, studying the complex social and cultural process that are taking place in the “illegal” or “informal” city it is possible to develop a more local planning and management of cities, and not as an imposition from a worldwide trend of urban management tools that are looking for city marketing, competition between cities ruled by the market economy.

2.1.1.2. Informal Settlements, Slums and the Millennium Development Goals

As is already agreed by different authors and researches it is not possible to define slums in general terms as a concept that can be applied in all urban areas around the world. However, in order to find the common characteristics of these urban areas, the UN HABITAT describes slums as a “*heavily populated urban area characterized by substandard housing and squalor*”²¹. But, the high diversity and variation of “slums” around the world and the different cases in terms of housing structure and access to water and sanitation services cannot permit to have one common definition for slums or informal settlements.

In addition, the UN HABITAT has found two broad classes of informal settlements or slums. On one hand, is the *slum of hope*, which are “*progressing settlements, which are characterized by new, normally self-built structures, usually illegal (eg squatters) that are in, or have recently been through, a process of development, consolidation and improvement*”. On the other hand, is the *slums of despair*, which are defined as: “*declining neighborhoods, in which environmental conditions and domestic services are undergoing a process of degeneration*”²² (UN HABITAT).

¹⁸ *Ibíd.*

¹⁹ Rincón Patiño, *Legalidades colectivas: Historia de los espacios urbanos no con-sentidos*, *Ibíd.*

²⁰ *Ibíd.*

²¹ UN HABITAT, 2003, *the Challenge of Slums*, Global Report of Human Settlements.

²² UN HABITAT, 2003, *the Challenge of Slums*, Global Report of Human Settlements. Page, 9.

Likewise, the report defines a group of characteristics for slums as follows: *lack of basic services, substandard housing or illegal and inadequate building structures, overcrowding and high density, unhealthy living conditions and hazardous locations, insecure tenure; irregular or informal settlements, poverty and social exclusion, minimum settlements size*²³.

On the other hand, the Cities Alliance worldwide network which is “a global coalition of cities and their development partners committed to scaling up successful approaches to poverty reduction”²⁴ in order to achieve the main goal of “cities without slums”, describes slums as: “neglected parts of cities where housing and living conditions are appallingly poor. Slums range from high-density, squalid central city tenements to spontaneous squatter settlements without legal recognition or rights, sprawling at the edge of cities. Slums have various names, favelas, kampungs, bidonvilles, tugurios, yet share the same miserable conditions”²⁵.

The Millennium Development Goals established the Goal 7: Ensure environmental sustainability in which the Target 11 was establishing in the following terms: “by 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers”²⁶. After the agreement, each country has been working on policies, programs and projects in order to achieve the worldwide goal in a collective effort in different urban areas around the World. The Target 11 has been established by two groups of indicators: *indicator 31: Proportion of urban population with access to improved sanitation, and, indicator 32: Proportion of households with secure of tenure*²⁷.

2.1.1.3. *The informal settlements or slums, an introduction to the discussion from an Amazonian perspective*

One of the questions that arise in this approach to the topic of slums is how are slums defined in Amazonian cities? Is there any difference in the formation of slums in the Amazonian cities? Is there a classification of slums in the Amazon that differ from other countries? It is necessary thus to research further on urban issues in the context of the Amazon, which did not been follow the same urbanization patterns as those in Europe, the United States or even more, the already urbanized areas in Latin-American countries.

According to Becker cities in every place generate environmental problems and the Amazon region it is not the exception, understanding the concept of environment as the physical and social components in an urban area. Continuing with Becker, the main urban environmental problems that Amazon cities have are: inadequacy of basic sanitation, housing and living conditions, location and site in risk areas, pollution and the inadequate design of planned cities (Becker, 1995).

²³ The definition of slums in physical and legal terms without taking into account the complex social dimension: *inadequate access to safe water, inadequate access to sanitation and other infrastructure, poor structural quality of housing, overcrowding, insecure residential status. The Challenge of Slums*, 2003. UN HABITAT.

²⁴ Cities Alliance Web Page. <http://www.citiesalliance.org/index.html>.

²⁵ It is argued that there are several features for the concept definition of slums such as *complexity* of slums areas with more than one parameter, *relativity* in terms of different meanings depending on the context and city, *variability* of slums in different cities, *dynamicity* of slums due to fast variation during a period of time and *spatiality* characteristics of slums in size and possible changes along the time, thus it is not possible to develop a single definition.

²⁶ Millennium Development Goals MDG, Goal 7, Target 11.

²⁷ *Ibid.*

Furthermore, cities in the Amazon has been facing proliferation of slums, irregular and clandestine plot land setting, occupation of public and private lands, and housing solutions provided by the government are not affordable by low income groups as well. Moreover, it has been found that the inadequacy of the dwellings is due to poverty and the fact that come residents are eminently provisional without certain for a long term settlement as an ownership (Becker, 1995, Sawyer, 1987).

The location of population in risk areas is one of the big issues on Amazonian cities due to location of population in “flood prone lands” and water tables are very close which without good drainage system generates big problems for cities. As Becker and other authors advocate there is a positive perspective for development in Amazon cities, even more for them the urbanization process that has been taken place in the Amazon is seen as a condition for new opportunities, as a challenge for the future, and new questions as how it is possible to adapt them for in the role of new development solving environmental problems.

Therefore, the succeeding sections discussed on issues related to urban areas in the Amazon context focusing on the occupation of the “flood prone lands” by low income groups and in river borders as a result of the characteristics of the environment due to the existence of wet lands and traditional settlements patterns developed by indigenous in human settlements.

2.1.1.4. Slums, squatters and informal settlements in the Amazon

The discussion regarding informal settlements in the Amazon has had different approaches depending on the context and the urban area studied. In some cases the process of formation of slums has been called squatter settlements formation in the context of boomtowns in the Brazilian Amazon, which has been a process of urbanization or expansion of the urbanization frontier in Brazil by foundation of new human settlements.

In the urbanization process of the Amazon some authors has called the formation of slums or informal settlements “peri-urbanization” which means the occupation of peripheral areas by squatter settlements or shantytowns of self-built housing units, located in illegal landholdings, with different names such as *favelas* or *baixada* in Brazil’s urban areas ²⁸(Browder, Godfrey, 1997, page 130).

The explosive population rate in the urbanization process in the Amazon called in some cases boomtowns, in which some authors assumed that “unsustainable pressure on local governments and in turn on the incomes of residents through lofty property values, lack of credit, and rents that often exceed salaries”²⁹, have had a big impact on the urban growth pattern in cities due to the fast process and difficulties for the government to provide at the same time of growing rate housing, infrastructure and services. Likewise, based on the study of Roberts, in the city of *Parapuebas* in Brazilian’s Amazonian the “invasion” that forms squatters settlements depend on the responses of landowners and local governments, in a dynamic interaction between squatters, landowners, the state, and politicians, which has permitted the formation until regularization of these areas when they seen it as potential political gain. In addition, the case of *Parapuebas* has showed how the formation of informal settlements in the Amazon has strong links with local

²⁸ Browder, John O. & Godfrey, Brian J. 1997, *Rainforest Cities, Urbanization, Development, and Globalization of the Brazilian Amazon*, Columbia University Press.

²⁹ Roberts, J.T., 1992, *Squatters and Urban Growth in Amazonia*, American Geographical Society, *Geographical Review*, Volume 82, Issue 4, Pages 441-457.

politicians who have been inspiring, directing, facilitating, and regularizing squatter invasions just to find political support for elections purposes (Roberts, J.T., 1992).

Other issues that explains another approach for informal settlements in the Amazon is the settlement of inhabitants in peripheral areas in cities due to migration, job opportunities in cities and displacement by internal conflicts such as the country side war that has taken place in countries like Colombia. Therefore, inhabitants have been building squatter settlements or informal settlements increasing the urban population in some cities in the Colombian's Amazon.

For instance, the case of *Miraflores* Town in the Guaviare Region explains is situation. Drug trafficking networks have attracted people, because urban areas are a meeting point, between inhabitants who work in the coca fields in the rural areas close to Amazon cities, traffic dealers, transportation companies (illegal flights) and other actors of the network. *Miraflores* Town increased the population from 5.000 inhabitants in 1990 to 50.000 inhabitants in 2000 showing an amazing demographic growing rate without precedents in the Colombian's Amazon due to the attractions of inhabitants for drug business (SINCHI, 2003).

Likewise, the migration of displaced inhabitants due to the civil war in Colombia has had a big impact in the shape and urban growth of cities in the Colombian Amazon which is the case of the *Florencia* in the *Caquetá* Department, where more than 100.000 inhabitants has been settled in peripheral and risk areas around the city looking for a place in the city that the local government was not prepared to offer.

But there is a special characteristic in the squatter settlements in the Amazon region that is related to the adaptation of "flood prone lands" by low-income groups in order to have access to the city and to water areas as well. Since Amazon has been used as the main transportation System Rivers as the common and meeting point for Amazon's inhabitants, river basins have been seen as the main structure for communication in the region. Thus, the occupation and access to the water has been an important pattern for human settlements.

However, the fast urban growth process of cities in the region has been facing the overcrowded occupation of those areas, and specially by low income groups due to lack of available land, housing shortage, lack of planning, generating environmental, social and ecological problems in a fragile ecosystem such as the water areas. According to Becker "*the creation of slums in Amazonian cities is a result of the environmental problem that an urban area creates in a place which is reinforced with social and ecological problems*" (Becker, Page 72).

The informal settlements or slums in the Amazon is a fact that cities has been facing either in peripheral areas, risk areas and flood prone lands depending on the areas where the city is located, generating environmental problems, without planning and management. In the context of this research is important to find the local management tools that local inhabitants has used in order to adapt these areas for squatters settlements, taking into account some traditional techniques such as housing over flood prone lands, that can give important elements for understanding the complex reality of the formation of cities in the region.

Finally, the urban growing pattern in the Amazon region which differs from the pattern of European or North American cities, and which is still in some cases just the beginning of a future urban network in the Amazon river, demands research in the field just to find local elements and stop the failed adventure of implementing planning and management instruments imported from abroad. Likewise, the informality as Becker has said should be seen as an opportunity for Amazon cities and not any more as a problem.

2.1.2. Squatters Settlements on flood prone lands on the Amazon context

Urban areas that grew due to its location close to water areas have had as part of its urban space water front communities. But, in some cases water front communities is the urban pattern follows by low-income groups in order to have access to the city. As Navarro argues that the bodies' waters in cities located in coasts or large rivers for trade are extremely important in the movement of inhabitants, goods and services (Navarro, 1994). Furthermore, she concluded that low-lying and flood prone areas are cheap alternatives for settlements, and some of the reasons for its inhabitants to settle on these areas are: strategic location for cities and towns, cultural reasons and source of livelihood.

The human settlements located along the Amazon River basin have settled in two different ways: on high lands or on low lands. In accordance to old human settlements located on stable lands its characteristics pattern is a circular organization, or around central places, but nowadays are located along drains ³⁰(Meggers, 1981, Riaño, 2003). On the other hand, the characteristics pattern of human settlements located on low lands, flood prone lands or "várzea" is a lineal distribution due to the exploitation of the "várzea" by its inhabitants.

As Becker stated, old cities in the Amazon developed along the banks of major rivers prone to frequent flooding, especially for the necessity to have access to the river as the main resources for transportation and mobility in the Amazon basin. Furthermore that, intense and unorganized occupation favored erosion and intensification with a big impact over population settled in the "flood prone lands" that has been considered as poor population in the city and the waterfront as the periphery took by them.

In contrast, other research studies states that the water front communities are not considered as poor population within cities. Even more, they are the result of a long tradition of occupation the "várzea" in order to have access to the river, to fish and to use the land for agriculture purposes after the flooding periods³¹ (Hurtado, 2005). Likewise, the instruments and indicators to measure poverty are questionable by this study in which they author argues that water front communities has traditional and cultural values, close connection with the city center and the formal and informal economy in the city.

However, the water front communities have had to face problems such as lack of infrastructure for water supply and sanitation, lack of water management instruments order to prevent erosion and manage well flood periods, which have generated human health problems. The lack of security of tenure and overcrowding occupation of "flood prone lands" have generated a big impact on Amazonian cities in which local governments have decided to classify the neighborhoods located on "várzeas" as informal settlements or slums³².

Some studies were made on other human settlements on the Amazon River close to the Twin Cities of Leticia and Tabatinga, which actually are indigenous, settled in some cases in "flood

³⁰ Riaño Umbarila, E., 2003, *Organizando su Espacio, Construyendo su territorio, Transformaciones de los asentamientos Ticuna en la ribera del Amazonas colombiano*, Universidad Nacional de Colombia, Sede Leticia.

³¹ Hurtado, L.M., 2005, *Pobreza y Marginalidad Urbanas en la Amazonia. Un Estudio de Caso de los Asentamiento ubicados en zonas inundables*, Universidad Nacional de Colombia, Sede Leticia.

³² The Territorial Planning Plan of Leticia, 2002, the PBOT classified the "flood prone lands" located on the Amazon river water front of the city as risk areas for human settlements, and the water front communities were classified as informal settlements.

prone lands” in Indigenous Reserves (*Resguardos Indígenas*)³³. On these settlements, the inhabitants have been managing the flood and non flood periods, using the “várzea” for fishing during flooded periods and using the land for agricultural purposes during dry periods (*Riaño, 2004*).

In the case of *Belem Do Pará*, the second largest city in the Brazilian Amazon, the population has adapted its housing units for flooding period, however, the conditions in terms of water supply and sanitation has generated an unhealthy environmental conditions with a strong impact in the quality of life of the this population (*Hurtado, 2005*).

As is already seen in the Amazon region the occupation of flood prone lands and squatters settlements has a strong link. The problems of water supply and sanitation have been a common problem in the different cases. Likewise, the adaptation in a considered as risk area is one of the additional issues that local governments need to take into account in studies, surveys, for a better urban planning and management.

2.1.3. Flood prone lands and risk areas.

The Urban policy of Colombia and Brazil has considered the occupation by human beings *flood prone lands* as risk areas for human settlements. Thus, in the regulation framework, the land use plans in cities do not allow any legal framework to permit the occupation of risk areas if the risk cannot be mitigated. In the context of slum upgrading process, both urban policies have in common the impossibility of upgrading an informal settlement that is located in risk areas. In the Amazon context as we have already seen the occupation of flood prone lands has been done by low income groups looking for a place in the city. The squatters settlements in different Amazon cities is a common problem in the region, but reasons that explain occupation of flood prone lands differ from one case to another.

In some cases, the occupation of flood prone lands has been considered as a means that some inhabitants, specially the indigenous inhabitants, to continue them tradition to adapt this areas to human settlements, setting up a contradiction with the regulation framework established by the urban policy (*Hurtado, 2005*). Therefore, it is necessary to develop further studies in order to understand the reasons why inhabitants settled in the flood prone areas to occupy areas, which from one point of view are considered as risk areas, but, on the other hand, are considered as traditional way of occupation of human settlements in the Amazon.

Moreover, some question can emerge on this point. For instance, is there a density limit for human settlements in order to occupy “flood prone lands” maintaining the tradition of typical indigenous techniques? It is possible to find some local management instruments developed by the inhabitants of the flood prone lands in order to be used in planning and management process between communities and local governments? To what extent can the urban policy and regulation framework of Colombia and Brazil allow the occupation of flood prone lands? Is resettlement the only answer for water front communities in accordance to the current regulation framework? Is it possible to involve inhabitants located in water front communities in planning and management process in order to improve their quality of life? In order to contribute with these issues, the research focuses in the occupation of the flood prone lands in the twin cities of Leticia and Tabatinga, in order to explore the answer of some of the questions rose above.

³³ Riaño Umbarila, E., 2003, *Organizando su Espacio, Construyendo su territorio, Transformaciones de los asentamientos Ticuna en la ribera del Amazonas colombiano*, Universidad Nacional de Colombia, Sede Leticia.

In addition, the occupation of flood prone lands has been classified as informal or illegal urban areas in Amazon cities. The informal city areas are a common problem as it already was discussed but at the same time are an opportunity. In a region where local initiatives are necessary for generating processes that improves quality of life, the informality becomes a source of knowledge. Therefore the informality should be seen as an opportunity for the urbanization process and *“through the linkage of housing and urban policies it is possible, at the municipal level, to improve dwellings. The regularization of land ownership, urbanization of settled areas, resettlement of the population residing in risk areas, construction of adequate housing are simple and effective measures. Many can be applied under the existing legislation, but the simplification of codes and rules, which at present are unrealistic, and the creation of new legal instruments are necessary”* (Becker).

2.1.4. Risk, hazard and vulnerability.

The concept definition of risk has a significant importance when squatter settlements are located on flood prone lands. The risk issues takes more significance in the Amazon context a region where indigenous communities has been settled on flood prone lands taking advantage of this situation as it was discussed earlier. Therefore, the discussion has to take into account the legal definition of risk; but, on the other hand, the fact that some indigenous human settlements in the Amazon have been occupying flood areas in a properly way as well.

Basically, the concept of risk is accompanying by two additional ones hazard and vulnerability. In order to have clarity for the purpose of the present study, these three basic concepts definitions are taken into consideration. The concept of risk on the context of the *National Guidelines of Risk Reduction and Disaster Prevention* of Colombia, the official definition of risk is “the possible unfavorable economic, social and environmental consequences that can presented as a result of an occurrence of a damage event in a context of social and physical weaknesses at it”³⁴. Likewise, it is important to understand the risk as *“a social construction”* in order to be able for an appropriate approach of it. In addition, the estimation of the risk in a correct way *“is an interdisciplinary exercise carries out by professionals from different fields, which have to look at social and physical factors or characteristics”* in order to be able to develop a correct approach (*Methodological Guide, MAVDT, 2005*).

*Risk and disaster are different. “Risk is the process with which are creating conditions in order to occur a future disaster. For instance, housing units built on rivers edge that is exposed to flooding periods, in this process it is a construction of risk. The disaster refers to the consequences of do not manage or do not intervene on time the risk situations. Therefore, the actions that are develop in order to reduce the risk, or, to avoid future risk apparitions are more economic, it is cheaper to reduce the risk”*³⁵ (*Methodological Guide, MAVDT, 2005*).

On one hand, the concept of *hazard* is understood as *“ the probable occurrence of a phenomenon, it can be natural or generated by human beings without intention, that have the potentiality of generating damage and loses in a social context within a determined temporal space”*³⁶. Hazards

³⁴ Concept definition of Risk. Ministerio de Ambiente Vivienda y Desarrollo Territorial. 2005, Guía Metodológica 1. *Incorporación de la Prevención y la Reducción de Riesgos en los Procesos de Ordenamiento Territorial. Seria Ambiente y Ordenamiento Territorial.*

³⁵ Ibid.

³⁶ Ibid.

can be classified in: *natural origin, socio-natural origin and human origin*. (*Methodological Guide, MAVDT, 2005*). On the other hand, the concept of *vulnerability* is understood as “*the susceptibility or debility that presents a society in front of a hazard which affects it and its capacity to overcome after the affectation*”³⁷. The vulnerability is a phenomenon eminently social related to lack of development that a society presents.

In addition, in order to define risk it is necessary to take into account the lack of response capacity in a determined area. Therefore, the concept of risk is the result of the addition of the factors and concepts mentioned above as follows³⁸:

$$\text{Risk}(R) = \text{Hazard}(H) \times \text{Vulnerability}(V) \times \text{Lack of Response Capacity}(LR)$$

Finally, we can conclude that human beings are generating the risk; it does not exist if human settlements inhabitants do not occupy areas with land sliding or flooding for instance. On this sense, when human beings are occupying flood prone lands are generating the risk. However, as was discussed before in the Amazon region indigenous has been adapting their human settlements in order to occupy flood prone lands in a properly way (*Riaño, 2004*). On this sense, indigenous people have developed settlement patterns based on their traditional way of having to adapt to their environment.

2.2. Theoretical and conceptual framework 2

After defining the themes and emerging issues behind informal settlements and flood prone lands in the Amazon context, it is important to discuss the concepts of twin cities, borders, frontiers and limits. As complementation of these concepts discussion, the second theoretical framework has a review of the current urban policies of Colombia and Brazil taking into consideration its application on the Amazon context.

2.2.1. Cities and Amazonian Transnational borders

2.2.1.1. Twin Cities

The study of boundaries and specially borderlands has been recently a new field for researchers due to it has gained more protagonists in nation-states agenda in a more interconnected contemporary world. In addition, cities located along borderlands or border cities have gained an important attention by different disciplines especially in Western Europe due to the integration effort of the European Countries within the European Union (*Ehlers, Buursink, Boekema, 2001*)³⁹. But, going further on this border cities field there is one subject of special interest for different borderlands areas which is the phenomenon of double cities is defined as a pair of two cities of about equal size that are situated close to each other (*Ehlers, Buursink and Boekema, 2001*). Recently the border studies has become a big interest among politicians and researchers due to the

³⁷ Ibid.

³⁸ Wamsler, C., 2006, *Integrating Risk Reduction in Housing and Human Settlements Development Planning*, Lecture at HDM, Lund University.

³⁹ Ehlers, N., Buursink, J., Boekema, F., 2001, *Introduction: Binational cities and their regions: From diverging cases to a common research agenda*, *GeoJournal* 54: 1 – 5.

*territorialization*⁴⁰ processes that have taken place in borderlands through flows of inhabitants and networks, which are becoming a new challenge to *nation-states*⁴¹, because the borders are changing from a restriction area towards a profit incentive areas between states (Machado, 1998).

On this context, cities located on borderlands have gained more protagonist in the nation-states agenda as the more important meeting point with neighborhood nations and exchange point between each other, thus, the name twin cities has becoming a mainstream in order to call pair cities located in borderlands establishing a permanent dialogue each other. In accordance to the Chamber Dictionary, twin town is defined as: “*n. a town paired with another foreign town of similar size for the purpose of social, cultural and commercial exchanges*”⁴².

Cities located in international borders with a pair in the other side of the international boundary have been called in different ways; these urban areas have received the names of *border cities*, *double cities*, *bi-national cities*, *twin cities*, *cross border cities*, *partner’s cities*, *city pairs* and *border-crossing cities* in different parts of the world. A *border city* has been defined as a city that depends on the border its own existence with an special reason to be build in an specific place along the borderland, with a peripheral location within its country and main urban areas (Buursink, 2001). In addition, the border cities can be classified in three different groups: duplicated and partitioned border cities, connected cities and adjacency.

According to Buursink (2001) there are some examples of these three groups of pair border cities in the world. The *duplicated border cities* along the borders between the USA and Mexico like Sand Diego and Tijuana, and the USA and Canada border land like the Niagara Falls cities due to one human settlements following an occupation on the border area is founded in other side of the first one. The connected of Calais in France and Dover in England and, Malmö in Sweden and Copenhagen in Denmark are considered as pair border cities due to international tunnels or bridges as infrastructure that permit new relationships between each other. The *adjacency* cities like Minneapolis and Saint Paul in the Minnesota State in the USA are considered as pair border cities; although they are located in the same country, because of adjacency, it also includes two important aspects in neighboring cities: *competition* and *co-operation*.

The coexistence of border pair cities can develop common problems for both urban areas, which can be solved with *cooperation* between both cities. However, coexistence can generate a conflicting interest between both cities, which can lead to *competition* between each other. It is important to remark that cooperation is one of the key aspects to study in cross border cities studies because the coexistence of this kind of cities means that there are some relationships between the cities not only between government agencies and institutions, but also between the populations that lives in the borderlands. Therefore, the urban and regional studies that are developed in border pair cities need to involve local governments, institutions and organizations, and the social construction made by *borderlanders* in order to find some relationships and synergies which can lead towards a future integration in common problems resolution.

⁴⁰ In this case the concept of *territorialization* is understood as the issues that occur in a specific territory converted into given facts by borderlanders that influenced the territory by different flows.

⁴¹ Nation-State is understood as the modern state project in which it has the power and set up the rules for a whole nation. The nation-state concept on border studies is crucial because “the incapacity of governments in the contemporary world to control much of the traffic of persons, goods and information across their frontiers is changing the nature of states”. (Anderson, M. 1996)

⁴² *Ibid.*

There are some main aspects to look at in cross border cities studies in order to find a real parity. This includes origin of the urban areas, age, size, appearance in terms of the built environment, culture, minorities and relations between each other. Based on these aspects, is possible to make a comparison between paired cities on cross border relationships, however according to *Buursink*, there are three different aspects of this kind of cities: physical or built up landscape, institutional framework and city as a community.

The physical or built environment is an important aspect because it defines the characteristic of the architecture's city, public spaces, and city as part of the environment and an outcome of a special culture, climate and history. The institutional framework of both cities at the local level and different organizations that plays an important role in the relationships between both sides of the border is basically the support for cooperation and defines ways to resolve common issues. In addition, the social reality in the border cities as part of they daily life experiences in a peripheral area of each country, nationality and origin place can determine relationships, social interactions and ownership feeling to one space or place.

The points explained above helps in the definition of cross border paired cities or twin cities. However, there is a big discussion regarding the definition of this kind of urban and regional areas, especially when names such as bi-national cities and twin cities have been used by different local governments and institutions looking for marketing, slogans, and trade relationships, financial resources from donors and just to find their own identity. First, for *Buursink* the bi-national city is not an appropriate concept for cities that are located in different countries impeding the possibility for each one to be part of the neighboring country, in his terms "*border-crossing cities*" is the best name for pairs of borders cities" because both cities are based on border-crossing contacts and inspired by common interest and attractive opportunities. Likewise, the term of twin cities does not make sense for him due to the "twin" concept means that two cities are identical and like-minded beings with a strong feeling of belonging together, which are not characteristics founded in paired border cities.

However, twin cities is not only regarding identical and likeminded beings. Twin cities regards with different interactions and connections with the territory depending on how the urban development in one or the other side of the border has taken place. Therefore, twin cities issues can be classified at the same time into *symmetric* and *asymmetric*.

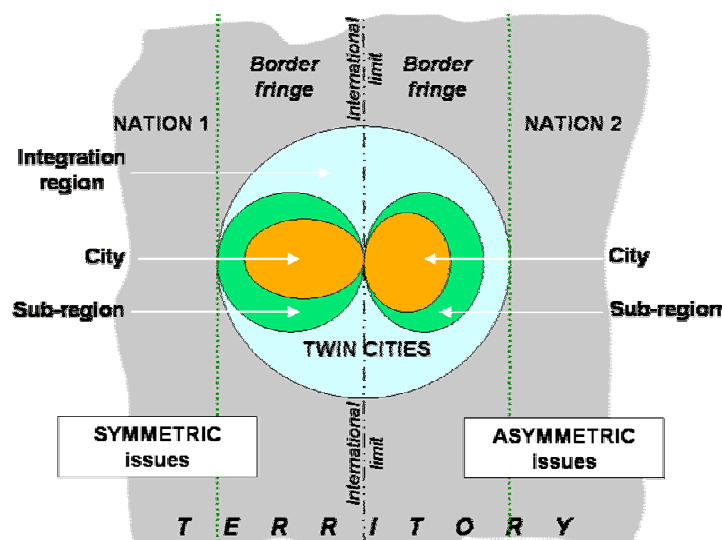


Diagram 2. The concept of Twin cities. Based on Concepts of Border fringe. Re-structured Proposal for Development Programme Border Fringe. Ministry of Integration. Federal State Brazil. Page. 22. Drawing: Erik Vergel.

Twin cities are cities located on borders, marked by the international boundary, with some symmetric aspects such as size, population and origin. In addition, twin cities are characterized by cross border flows of job opportunities, study and health services, commerce, legal and illegal commerce networks and informal economic sectors. On the other hand, twin cities can be asymmetric in terms of political structure, institutional frameworks, language, identity, and feelings of belonging, ethnic origin, and urban morphology among others. Thus, twin cities can be symmetric and asymmetric in different factors, terms topics, areas or fields. One of the most important aspect on this sense is to identify in which aspects twin cities are *symmetric* and *asymmetric*, and not to focus on if twin cities are perfectly equals like a mirror each other.

However, the concept of twin cities has more interpretations as Steinman argues, the twin cities formed structural subspaces within the border fringe, where is carry out preferentially cross-border flows (Steinman, R. 2004). On this context, it is not a matter of similarity between the built environments, institutional frameworks or feeling of the population, it is also a matter of social spaces created by borderland's inhabitants that generates symmetric and asymmetric issues which defines the characteristics of the border. In order to understand the importance of the concept of twin cities, it is necessary to discuss the concept of borders and frontiers, which is different depending on the context where it is used and if it applies in. For instance, different definitions have been taken place in Europe, North America and the Amazon region due to the complex reality and different histories between these three areas.

2.2.1.2. Borders, limits, frontiers and twin cities in the Amazon context.

The concept of border and frontiers in the context of the twin cities is important and explain the origin and reasons behind a pair of cities adjacent to each other, between nation-states boundaries. As Machado argues that there is a difference between border and limit, which consists on border, is oriented towards outside and limit is oriented towards inside, thus, the *limit* is an abstraction of the nation state without inhabitants presence, while border has a tie sense (Machado, 1998)⁴³.

In a contemporary world where borders are taken more relevance for nation-states due to trade, commerce, migration and exchange the tie sense and relationships on borders include the local initiatives, borderland's inhabitants flows generating a conflict with the idea of a centralized nation-state (Machado, 1998). Therefore, nation-states are more interested in boundaries and its approach is having a switch in terms of new legal instruments for special territories, special legislation for communication places that belong to international networks which nation-states are paying more attention.

On this sense, the concept of international boundary has had an evolution from the concept of natural or artificial boundaries towards an approach to the effects that international boundaries has on the territory (Steinman, R. 2004).

The European Union has changed the conception of international boundaries towards integration between the countries within the union in trade agreements of a global market economy and financial resources flows while there are several restrictions for population mobility. But, in a paradigmatic case such as the boundary between the USA and Mexico the realities is totally different due to migration and security policies established by the Federal Government of the United States.

⁴³ Machado, L.O., 1998, *Limites, Fronteiras, Redes, Fronteiras e Espaço Global*, AGB-Porto Alegre, Porto-Alegre, p.41-49.

As a result, there is a conception of *dis-function-alization* of nation state's frontiers (Steinman, R. 2004) due to the possibility to control by central governments borderlands is every time more difficult which is towards a dissolution of national limits multiplying the cross border networks, competition between policies, with legal and illegal actors (Machado). Therefore, the borders between countries in the Amazon context as Brazil, Peru and Colombia, which have been for a long period of time marginal areas far away from the central governments power centers and have experimented a process in which the border is not a limit, the border is a social space built by its inhabitants. In addition, in some places of the borderlands between Brazil and Colombia where there is no natural limit such a river, just an imaginary line over the huge jungle is not possible to be aware when it is part of Colombia or Brazil.

On this context, twin cities play an important role because the cities are the place where both nation-states meet each other in the reality, and the border is not any more a limit. It is a common space that is shared by two cities with differences such as origin, culture, built environment characteristics but with networks of inhabitants, trade and commerce without the legal framework established by the *nation-states*.

In the Amazon Region, the case of Leticia (Colombia) and Tabatinga (Brazil) is only one that is common between Colombia and Brazil, because they are the biggest towns in size and population, both are municipalities, have central government institutions and are already con-urbanized. In addition, the only access to these cities is by air and water, giving them an insular character. The origin of Tabatinga as a military settlement founded in 1776 by Portuguese in order to control the mobility on the Amazon River and as a gate to the "Portugal Empire" gives a strong dependency on the border for the town (Steinman, 2005). On the other hand, the Peruvians founded Leticia in 1867 with the idea to mark presence on the territory by the nation state of Peru.

In addition, the twin cities of Leticia and Tabatinga have approximately same size and population, while the former had 26.539 inhabitants in 1999, at the same period of time Leticia had 27.760 inhabitants. Likewise, urban growth processes of the twin cities followed an expansion towards the border between each other, until a physical connection, through the international avenue, in which traffic and inhabitants flows without restrictions, as a complement of the natural connection, which is the Amazon River.

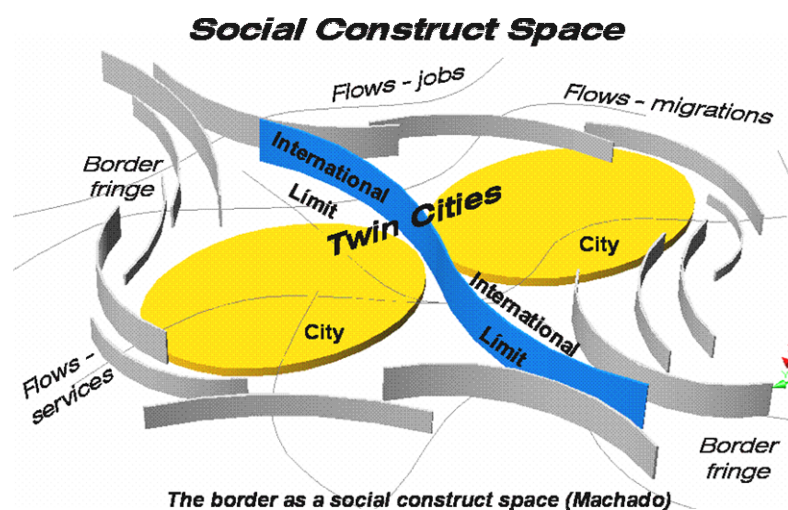


Diagram 3. The concept of border. Drawing made by Erik Vergel Tovar based on theoretical framework and Machado's concepts.

Finally, after the facts explained earlier and based on a definition of border as a social spatial construct by borderlanders in a context such as the Amazon, seeing that the twin cities have some similarities like size, population, permanent cross border interactions among its inhabitants, both are local governments or municipalities with in its own country, are far away from the central power of the nation-state and both were founded with the idea to demark the limits and entrance to other nation or territory, it means as the meeting point between the Spanish and Portuguese urban patterns.

Moreover, nowadays the towns of Leticia and Tabatinga are forming structural social subspaces by cross-border flows of exchange, migration, job opportunities, sharing services each other, competing for harbor services and facing common problems. Based on these facts it is possible to call the towns of Leticia and Tabatinga as “twin cities”.

2.2.2. Cross border cooperation.

Cross border cooperation is becoming nowadays a new issue between countries in order to find ways for managing international borders issues in urban areas, conurbations and city-regions, transport migration of inhabitants in different parts of the world. In a contemporary world when boundaries have converted in the most important meeting points for trade and commerce network cooperation, in a world ruled by the market economy, frontier cities located along boundaries play an important role. In addition, cross border cooperation has been part of national agenda between countries in environmental, infrastructure, migration and recently security⁴⁴, but it is necessary to include as part of the agenda between countries the role that the built environment plays in borders is necessary to include as part of the agenda between countries. Cross border cooperation can be classified agreed between countries in three levels: nation-states, regional governments and local governments⁴⁵.

On the context of this research the level of concern is the cross border cooperation between local governments specifically in urban areas that conformed twin cities. However, the cross border cooperation between twin cities in international boundaries has a strong link with common agreements of cooperation between *nation-states*, as we will discuss further in the thesis.

Therefore, the issue of cross border cooperation has become an important aspect that local governments located in borderlands has had to face in order to provide services for its population, facilitate transport connections and specially to try to harmonize or at least define some guidelines for natural resources management, trade and commerce, migration and environmental concerns in the built environment. In addition, the cross border cooperation has been increasing in different parts of the world due to the decentralization process that several countries have been implementing during the last decades. Let's see some examples in different continents in the world and then we will look how cross border cooperation has taken place in the Amazon region.

As discussed earlier, one of the recent cross border cooperation processes at the national, regional and local level has been the European Union based on the idea of integration which means a

⁴⁴ The United States and Spain have been facing the difficulties to manage a border where several of inhabitants are trying to get in their territories.

⁴⁵ The international agreements between nation-states have been an important issue in foreign affairs during the 20th century in subjects such as, human rights (e.g. *UN 1948*), environment (e.g. *Kyoto Protocol*), and integration (e.g. *European Union*) and recently in international trade and commerce (e.g. *NAFTA – Mercosur – CAN*), and security (e.g. US national security policy).

common vision of future between the EU members. In terms of cooperation, the EU has mentioned in different policy documents the importance of networking between EU states and regions (Church, Reid, 1996)⁴⁶ in which local governments have it implemented in urban areas like the euro-city regions.

Another example is the processes and efforts to achieve cross border cooperation between different levels of government structures and organization in cross border cooperation in the border between Mexico and the United States cities. Planners and officials of the “twin cities” located along the border have been concrete meetings in shared issues such as transportation and sanitation⁴⁷. However, often times, the strategic planning process and cooperation in regional issues that come up in the meeting cannot go beyond a mutual agreement without a legal support due to the national constitution of both countries have established that “*the state or states cannot enter into agreements with other countries*” (Peña, Sergio).

On the other hand, the concept of borders has not had just one meaning because it has been an important concept for different fields of knowledge. The concept of border and its relations with territory has been an important subject especially for the social sciences. For instance, as discussed earlier, in Human Geography the border is not a limit or a line, the border its part of a social construction of the space establishing dominions and space delimitations, thus the border has a relational role that separates and connects at the same time⁴⁸ (Vargas Lopez de Mesa, 2003, page 35).

2.2.2.1. Cross border cooperation in the Amazon context.

In the context of the Amazon cooperation have been in important aspect between the countries that are part of the Great Amazon. Thus the Amazon Co-operation Treaty TCA was signed by the governments of Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Surinam and Venezuela in which all of them agreed in the article 1, that “*the contracting parties agree to carry out joint efforts and actions to promote the harmonious development of their respective Amazonian territories, in such a way as to ensure that these joint actions produce equitable results of mutual benefit, as well as the preservation of the environment and conservation and rational use of the natural resources of these territories*”⁴⁹.

Recently, the governments that are part of the TCA agreed in the *Manaos Declaration* celebrated last 14th of September of 2004 reaffirmed the relevance of the TCA as “*the principal instrument in order to carry out coordinated policies of sustainable and integral development in the Amazon Region, in the benefit of their respective populations*”⁵⁰. Likewise, the *Manaos Declaration* approved the Strategic Plan 2004 – 2012 of the Organization in which regarding to was established the relevance of cross border cooperation regarding between others subjects territorial

⁴⁶ Church, A., Reid, P., 1996, *Urban Power, International Networks and Competition: The Example of Cross-border Cooperation*, Urban Studies, Vol. 33, No. 8, 1297± 1318.

⁴⁷ Goodno, J.B., Aug/Sep 2003, *Hands across the border*, Planning, Vol.69, Iss. 8; pg. 20, Chicago, USA.

⁴⁸ Vargas López de Mesa, 2004, *Fronteras: espacios conceptuales y materiales en el contexto de la geografía*, Fronteras Territorios y Metáforas, Instituto de Estudios Regionales, INER, Universidad de Antioquia., Colombia.

⁴⁹ Translated into English from Amazon Cooperation Treaty, TCA.

⁵⁰ Translated into English from “Declaración de Manaos”, Septiembre 14 de 2004, VIII Reunión de Ministros de Relaciones Exteriores de los Estados Miembros de la Organización del Tratado de Cooperación Amazónica. Manaos, Brazil.

ordering, human settlements and indigenous affairs due to “*politic and administrative decentralization processes, transferring major responsibilities to the regional and local governments in the execution of public policies, obey to the incorporation of powerful instruments of planning and territorial ordering that contributes for equilibrium development of regions, physical space organization, prevention and attention of natural disasters, with priority in the territories with major social, economic and environmental fragility*”⁵¹.

On this context, it is clear that there is a common agreement between the nation-states that are part of the Great Amazon for cooperation and coordination for public policies, and especially in the issue that concerned to the present thesis: territorial ordering and human settlements. This special attention to the built environment is a result of a common agreed statement, which is that the Amazon is an *urbanized jungle* (Becker) as mentioned in chapter one. The fact that urbanization process in the Amazon has lead that in the TCA Strategic Plan is included as part of territorial ordering and human settlements field that “*the development planning acquire dimensions less valuated. To the traditional economic and sectoral emphasis it is stated a necessity to introduce the socio-cultural, environmental and special dimensions*”⁵². However, the cross border cooperation at the local level just have been concrete in some common agreements to execute some control on the borderlands due to drug trafficking networks, illegal trade of wood and animals and national security, which actually are an outcome of the political will between the central governments of Colombia and Brazil.

2.2.3. A meeting point for Colombian and Brazilian Urban Policy.

It is important to take into consideration the concept of territorial ordering in the Amazon context, before to introduce the urban dimension. The concept of territorial ordering has a special characteristic in the Amazon context due to it has been applied by environmental agencies and organizations, self-representative indigenous organizations and municipalities. It is important to remark that in the Amazon context environmental planning and management of Natural National Parks⁵³ as well as land use planning in indigenous territories⁵⁴ with the support of NGO's and Environmental agencies have had successful outcome in terms of territorial ordering proposals to manage the rainforest areas where they are located with in.

But the concept of territorial ordering in urban areas has not evolved as in the environmental and indigenous land use planning exercises. However, the Law 388 of Territorial Ordering of 1997 “*to complement economic and social planning with territorial dimension*” has defined the objective of the territorial ordering concept⁵⁵. On this sense, the concept looks for an integral

⁵¹ Translated into English from “Plan Estratégico de Cooperación Amazónica” 2004 – 2012. Organización del Tratado de cooperación Amazónica – OTCA.

⁵² Likewise, the TCA Strategic Plan has established as “*fundamentals the efforts to amplify the cover and sustainable access for clean water, sanitation services as part of improvement of quality of life of Amazon's population and to fight poverty contents in the Millennium Development Goals MDG*”. 2004, OTCA Strategic Plan, 2004 – 2012.

⁵³ *Parks with Inhabitants*, 2001, Public Policy of the Special Administrative Unit of National Natural Parks (UAESPNN) in Colombia obtained a successful advanced applying the concept in the National Natural Parks in which local communities have been involved in planning and management processes defining land uses, traditional and technical knowledge in total co-ordination and collaboration between public sector and local inhabitants such as the case of the *Cahuinari* Park in the middle Colombian Amazon.

⁵⁴ ACAIPI and GAIA Foundation, Vaupés Region in the Colombian Amazon.

⁵⁵ Law 388 of Territorial Development, 1997, National Congress of Colombia. Article 6

planning process in which not only the built environment can be planned but also involving urban actors and citizenships.

Likewise, there is one interpretation of the concept of *territorial ordering* that has been considered in the Amazon context due to its close relation with this special context. For Dominguez, *territorial ordering* is “*the outcome of the socio-spatial relationships in which there are complex relationships and hierarchies with a social creation of the space by its inhabitants ordering and reordering permanently the territory*”⁵⁶ (Dominguez, 2001).

2.2.3.1. Urban policy.

2.2.3.2. Colombian Urban Policy and the Amazon context.

The National Constitution of 1991 introduced a radical change in terms of land policy which was the social and ecological function of the property regulating use and property rights. Moreover, the document established as one of its principles *the prevalence of the general interest over the particular one*, which was the fundament to declare the public and social interest of property in urban and rural areas. In addition it is established, as well, that Municipalities as the basic political administrative entity of the Nation State transferring the *decision-making* power to the local governments in order to decide its own policies, development plans, urban and regional planning and fiscal instruments such as taxes.

This decentralization process is still going on and for municipalities located in borders has been a contradictory one due to the fact that nation-state are interested in its presence on the borderlands but at the same time local governments are not totally autonomous in terms of cross border cooperation due to the necessity to agree with national governments actions and agendas. Although, decentralization in Colombia has had an amazing progress especially in land use planning, property taxes and local democracies in terms of mayor and municipal council elected by the citizenships, the process has had several difficulties due to the lack of support from the national governments institutions giving capacity building and technical assistance to municipalities, and the lack of guidelines in some aspects, for instance, the National Policy for the Colombian Amazon, generating confusion in local and borderland areas.

Likewise, on this context of decentralization process in Colombia, governance has becoming an important issue for municipalities that are implementing a local democracy. In the case of borderland municipalities the lack of transparency in elections processes, several corruptions cases in different administrations and the lack of legitimacy of local governments with the citizenships have had a tremendous impact in areas where the necessity to set up a good urban governance its compulsory in order to develop policies and programs in urban areas. Moreover, governance is a key aspect for cross border cooperation. It is not possible to carry out a process of cooperation with other local governments from a neighbor country without the support of the inhabitants that have been constructing the border space.

On the other hand, unfortunately, the implementation of the concept of territorial ordering in Colombian Municipalities located in the Amazon region based on the Law 388 of 1997 of

⁵⁶ Dominguez, Camilo, 2001, *Zonificación, Ordenamiento, Ordenación Territorial*. Universidad Nacional de Colombia, Sede Leticia.

Territorial Development has had several difficulties⁵⁷ due to the special characteristics of the human settlements in the Amazon region, because something that is complicating “the formulation of appropriate urban policy in the region is the fact that the urbanization of the Amazon does not neatly replicate USA or European urban transition models”⁵⁸.

In addition, cities in the Amazon have shown several environmental problems taking into account social and physical problems such as underemployment, unemployment, environmental pollution, lack of basic services, slums in peripheral areas, location and site in risk areas (*Becker*). Moreover, the lack of ordering public policies and urban management instruments looking for sustainable development in Amazonian cities are as well one of major environmental problem⁵⁹.

Likewise, the territorial planning plans POT supported by the Law 388 of Territorial Development has faced a conflict in its implementation in the Colombian Amazon municipalities due to local characteristics differ than rest of cities in the country such as land, management and financial instruments for urban development without taking into account the environmental development as a source of wealthy⁶⁰ (*Rey, Acosta, Salazar, 2004*). Therefore there is a lack of legal instruments for urban management for the Amazon environmental sustainable development⁶¹ (*Rey, Acosta, Salazar, 2004*).

Moreover, this affirmation is confirmed by the several problems that urban areas in the Amazon have had in managing and planning cities with the instruments that have been used, for instance in the Colombian case, the city of Leticia formulated and approved its own territorial Planning Plan PBOT in 2002, but after 4 years of its implementation the main objectives such as improved quality of life, has not been achieved.

Finally, as Dominguez argues the lack of democratic formulation processes of the Territorial Planning Plans in Colombian Municipalities is a weak point because the territorial ordering has to be made by the community and the planning process must be based on the outcome of the former process (*Dominguez, 2001*).

2.2.3.3. *Brazil and its recent urban policy.*

The *City Statute* is the result of a process that started since 60's decade in which the Urban Reform took place due to the high level of urbanization that the country had those days. Likewise, the *City Statute* is one step more in the process to set up a National Urban Policy in Brazil after the National Constitution of 1988, which included a chapter regarding urban policy guaranteeing a set of instruments for municipalities, in urban areas, the defense of the social function of the property and the democratization of urban management (*National Constitution of Brazil, articles 182 and 183*).

⁵⁷ The Technical Assistance Plan for Municipalities and Regions PAT, Ministry of Environment Housing and Territorial Development found several difficulties that Amazon Municipalities has had implementing the Law 388 of 1997. The Amazon is a different context in which some instruments of the Law cannot applied as in other regions.

⁵⁸ Browder, J.O., Godfrey, B.J., 1997, *Rainforest Cities, Urbanization, Development, and Globalization of the Brazilian Amazon*, Columbia University Press, New York.

⁵⁹ Rey, Acosta, Salazar , 2004, *Perfiles Urbanos de la Amazonia Colombiana*. SINCHI. Page 47.

⁶⁰ *Ibíd.*

⁶¹ *Ibíd.*

Since 1988 with the National Constitution the decentralization process in Brazil which nowadays has become in one of the most decentralized nation states in the world in terms of tax distribution and political power⁶² (Sadek, M.T., 1997). Therefore, the process has had a fast development in terms of giving more autonomy and responsibilities to local governments in the formulation and implementation of public policies, especially in land use planning and taxes. However, the decentralization process has not showed at all instruments for local governments located in borderlands for developing cross border cooperation as a local initiative, but it is a key aspect to explore in the current legal framework of Brazil in its national borders policy.

The *City Statute* was approved last 2001 by the National Congress of Brazil and established the beginning of a process in which is expected that every municipality with more than 20.000 inhabitants have to develop its own *Plano Diretor* for the whole extension of municipalities, putting into practice the constitutional principles such as the social function of the property. The *Plano Diretor* is the basic instrument of Municipal's policy for urban development and expansion which have to be formulated taking into account a broad lecture of local reality, involving major and diverse society sectors (*City Statute, 2005*).

On the context of this process of decentralization, Brazil has been rebuilding its urban governance policy with some innovations develop by different actors that makes cities work, around the concept of the right to the city⁶³. Therefore, there are two main aspects that show this process. First, the possibility to put together and in the same direction different actors that work improving the lives of the urban poor such as the government (national and local), legislative bodies, professionals and research institutions, civil society, civic and business leaders, and the urban poor themselves⁶⁴. Second, cities have become the place to innovate in social policies and its implementation. The *City Statute* gives special attention to informal settlements or low income groups settlements as part of an integral urban management process.

2.2.4. Cross border approach and cooperation.

In summary, after the discussion about twin cities, borders, cross border cooperation, decentralization process in Colombian and Brazil, especially in terms of urban policy, it is possible to come up of a definition of cross border planning which is the purpose of the present theoretical framework, and even more, to gives definitions that can help in the understanding of the Amazon context in this issues, especially in twin cities.

In accordance to the urban growth process of twin cities in which a share common social space called borders is the area where social, economical and environmental aspects meet generating some urban problems as I explained above. Likewise, when a case of twin cities have common and share problems there is the possibility to start a process of cross border cooperation between local authorities, border cities inhabitants, border lands organization or the communities directly involve in the problem. In terms of planning and management the cooperation between countries has been agreed between nation states s in the Amazon with the concept of territorial ordering, as

⁶² Sadek, Maria Tereza, 2000, *Constitutional engineering in Brazil: the politics of federalism and decentralization*. Rev. bras. Ci. Soc., vol.15, no.42, p.153-154. ISSN 0102-6909.

⁶³ UN Millenium Project, 2005, A Home in the City, Task Force on Improving the Lives of Slum Dwellers, Chapter 3, Reaching the target through improved governance.

⁶⁴ *Ibid.* Page. 40.

the Amazon Cooperation Treaty – TCA has agreed and its different agreements, especially in two fields: human settlements and indigenous territories.

Cross border cooperation is a process that is setting up at the local level by borderlands' inhabitants because it involves the actors, institutions, organizations that are dealing with the reality of a specific case. In terms of Peña "*cross-border planning is defined as an institution-building process to achieve mutually beneficial outcomes. Its primary emphasis is on the facilitation of collective action with regards to the shared natural, built, and human environments constrained by territorial politics and boundaries of nation-States*", based on institutional analyses (Ostrom, North, 1990) and cross border planning and interrelationships (Herzog, 2000).

However, as we saw in the definition of twin cities, the inhabitants that live in cross border cities are fundamental in a cooperation process, not only the institutions as Peña argues because the experience of the border between Mexico and the USA is completely different than the border between Colombia and Brazil. In addition, based on the definition of borders as a construction of social space inhabitants that live and use the different services and built environment of the twin cities is a key actor.

In accordance to the concept of territorial ordering explained by Dominguez, we can say that a planning process takes into account not only the space but also social dimension, thus the importance of a participation process in which inhabitants is involve from the problem definition to the implementation of the plan and its instruments. Moreover, in a case of twin cities it is necessary to involve inhabitants located in both sides of the frontier and based on their experience and perceptions of the border, the relationships between both sides and a feeling to be part of the city.

On the other hand, the role of local government is very important due to in a decentralized context they have the commitment to formulated in a participative way the public policies for planning and management urban areas. In order to carry out the formulation process of public policies is necessary a good control system for avoiding corruption, clear criteria for transparency and social control over public policies ⁶⁵(Becker, De Mello, 2003).

Now, we can conclude that cross border cooperation in a context such as twin cities is a process that starts with a common and share problem definition in the common urban area, involving not only local governments but also inhabitants directly and indirectly involve in the problem and the solution as well. On this sense, a cross border approach is a result of a cross border cooperation agreement which should be based on legal instruments from both local governments in order to give a legal support and a long term vision for the plan solution.

Likewise, cross border approach should be a bottom up process involving local inhabitants in participation activities. It can take into account the local context following local necessities in accordance to the experience of inhabitants in the borderlands. Thus, Cross border approach cannot be a central governments initiative it should be an outcome of a local integration processes that takes place in spaces such as twin cities.

⁶⁵ Sustainable Amazon, Workshop, 15th to 18th of June, 2003, GT 3: Políticas públicas e planejamento regional na Amazonia. Moderacao: Bertha K. Becker, Neli de Mello. SUSAM.

Chapter 3 Case Studies: Squatter settlements along the border of Leticia and Tabatinga

3.1 Twin cities of Leticia and Tabatinga

The chapter developed three scales in order to present and describe the case study of the present thesis which is focus on two squatter settlements in the border between Colombia and Brazil. First, is explained a description of Leticia and Tabatinga Twin Cities, then a description of the San Antonio Basin's ravine and finally the focus area of *La Unión* neighborhood in Leticia (Colombia) and *Guadalupe* neighborhood in Tabatinga (Brazil).

3.1.1. Leticia

Leticia foundation has two versions. The first version says that Leticia was founded in 1867 as a military fortification as part of Peruvian expansion and presence on the Amazon. The name for the town was "*Gran Mariscal Ramón Castilla*" and it was located just in front of the Brazilian town Tabatinga (Zarate, C. 2006). The second version says that Leticia was founded in 1867 as a strategic port in the Amazon River. In both cases the idea behind of it foundation was to have a human settlement in an strategic curve of the Amazon river and just in front of the San Antonio's ravine basin, which has been a border along the history as it can be appreciated in the brief historical background described in the Annex XX.

Nowadays Leticia is a municipality and the capital of the *Department of Amazonas* in the south part of Colombia. The municipality area is 5.829 Km². Its urban area is located on the left margin of the Amazon River. Leticia had in 1996 33.431 inhabitants, and in 2002 a population of 39.636 inhabitants, 26.310 inhabitants in the urban area (DANE, PBOT Leticia, 2002).

Regarding housing and public services, Leticia has a housing shortage of 2155 new housing units for 2005. It is expected that in 9 years the housing demand of the city will be of 3975 families. The water supply coverage ratio is a 93% and 70% of urban households have sewage.

3.1.2. Tabatinga

Tabatinga was founded in 1766 by Portuguese expansion on the Amazon basin. It was founded as a military fortification just in front the San Antonio's ravine basin. Tabatinga was considered during Portuguese occupation as the "*gate*" to the Empire in the Amazon. Therefore, the fortification was considered as an important port for Portuguese Empire, and even more as the place where you entered to the "civilized" world (Chaumeil,)⁶⁶.

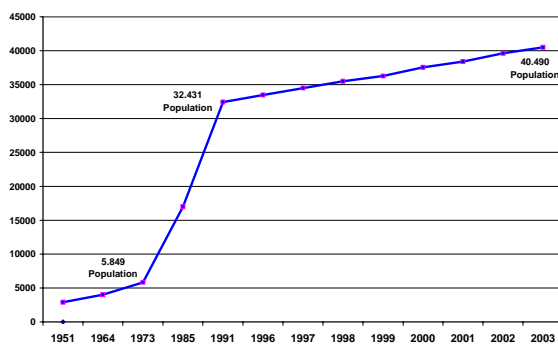
Since 1985 Tabatinga is a municipality part of the "*Alto Solimoes*" micro-region. It is located on the meso-region "*Sudoeste Amazonense*" in the North Region of Brazil. Tabatinga is one of nine municipalities that conforms the micro-region "*Alto Solimoes*" within the "*Estado do Amazonas*" in Brazil of which *Manaus* it's the capital. The municipality area is 3.225 Km². Its

⁶⁶ For further information about the historical background of the Twin Cities please find it in Annex No. XX. The information collected during fieldwork about historical formation of the Twin Cities was a result of an interview with the researcher *Carlos Zarate* a professor at the Amazon Research Institute IMANI at the National University in Leticia, Amazonas.

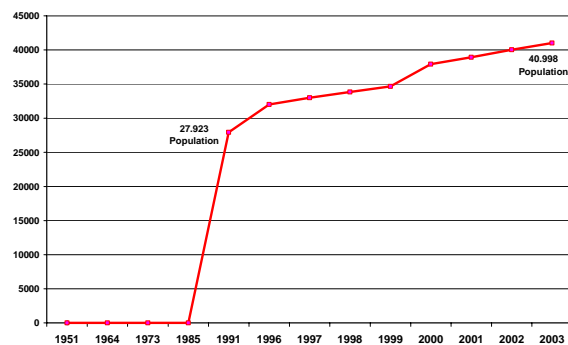
urban area is located in the left margin of the Amazon River. Tabatinga had in 1996 a population of 32.009 inhabitants, 19.822 inhabitants in the urban area, and in 2000 a population of 37.919 inhabitants, 26.637 inhabitants in the urban area (*Atlas do Desenvolvimento Humano*, IBGE, Brazil). Regarding Housing and public services in the urban area, Tabatinga presents 39,5% of water supply coverage ratio, 81% in electricity and 60,7% of urban households with sewage.

3.1.3. Twin cities population growth

During the second half of the 20th century the twin cities of Leticia and Tabatinga have had a fast population growth. While in 1973 Leticia had 6849 inhabitants in the 1980's decade it population was 32481 inhabitants.



Graph 1. Leticia Population growth. Source: DANE.



Graph 2. Tabatinga Population growth. Source: IBGE.

Nowadays the population in Leticia is about 40.690 inhabitants within 62,2% are urban population; while in Tabatinga Municipality there are 40.998 inhabitants from which 69.4% are urban population.

The population growth trend has a strong relationship with urban growth process in both cities. The spatial occupation in each case is different. In Leticia the occupation started in the high lands while in Tabatinga it was in the water front area. In order to see this relationships the twin cities urban growth process during the second half of the 20th century is explained below.

3.1.4. Twin cities urban growth

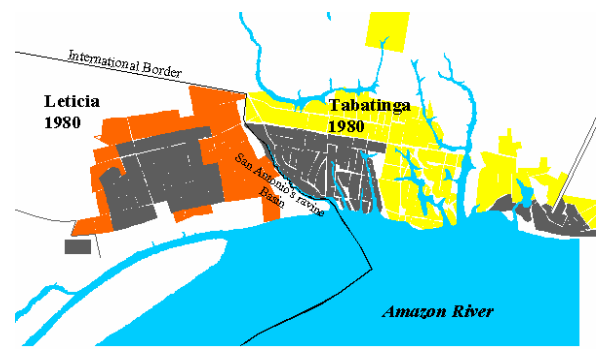
The importance of the foundation of Leticia just in front of the San Antonio's ravine basin was to have finally a human settlement in front of the natural border that Portuguese and then Brazilian had established which has been the San Antonio's ravine basin. The importance of the San Antonio's ravine is the role that it has played as a border by Portuguese during 18th and 19th centuries. Tabatinga was considered as the "gate" to the Portuguese Empire, and then as the "gate" to the Brazilian world⁶⁷.

⁶⁷ For further information about the historical background of the Twin Cities please find it in Annex No. XX. The information collected during fieldwork about historical formation of the Twin Cities was a result of an interview with the researcher *Carlos Zarate* a professor at the Amazon Research Institute IMANI at the National University in Leticia, Amazonas.

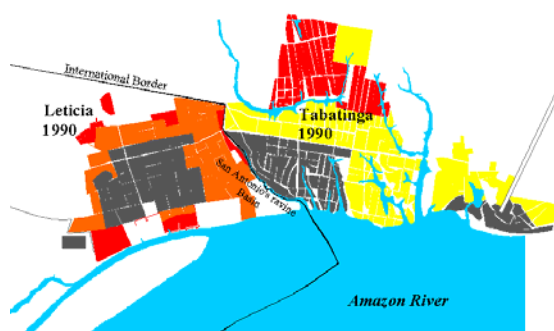
During the second half of the 20th century both towns had a rapid urban growth process. Tabatinga during the 1950's decade occupied two important areas, one of them just on the border of the San Antonio's ravine, both in "low lands" with a clear access to the river. At the same time, Leticia had a clear grid urban patten with a main square but built it on the "high lands" but without constructions on the river. Both cities had a fast urban growth during the 1970's and 1980's. This urban growth process occurred at the same time when illegal drug traffic boom took place in the region (Hurtado, 2005).



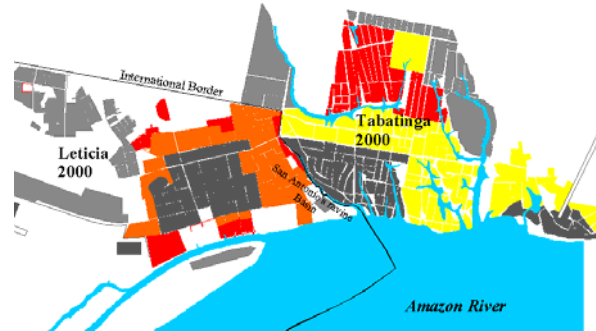
Map 2. Leticia Tabatinga Twin Cities. Urban Growth. 1950-1970.



Map 3. Leticia Tabatinga Twin Cities. Urban Growth. 1980-1982.



Map 4. Leticia Tabatinga Twin Cities. Urban Growth. 1990-1991.



Map 5. Leticia Tabatinga Twin Cities. Urban Growth. 2000.

Source: Prefeitura Tabatinga, Alcaldía de Leticia. Steinman 2005. Drawing: Erik Vergel Tovar, 2006.

During this period of urban growth is clear an urban extension of Leticia towards the Amazon River, while Tabatinga already covered the area left before on the water front. The occupation and access to the river as a urbanization process is more fast and clear in the Brazilian case, whit an occupation of this flood prone lands on the river's edge. On the other hand, Leticia has not started an urban expansion towards the river in a formal way.

The 1990's decade is characterized by the urban expansion of both cities although the drug traffic boom was not equal at the former period. While Tabatinga was continuing its urban expansion towards the north, Leticia had it around the already urbanized area but with major occupation of it water front. It is remarkable that the urban growth process at this stage already connected both cities towards a only urban area.

Then, at the 2000 year Tabatinga continues the same urban expansion trend due to the water front was already occupied since the 1980's. Leticia continued having an occupation of the flood prone

lands in its water front and an urban expansion towards the areas surrounding the airport and the road to *Tarapacá (Amazonas)*.

While Tabatinga has had more available land for urban expansion while Leticia has not. The occupation of flood prone lands in Leticia has been a more recent process but characterized by low income groups surrounding the formal grid pattern city. In Tabatinga the occupation of flood prone lands was a process in which the objective was to have access to the river looking for a port construction.

On this context, the San Antonio's ravine basin has been the border between both cities but the relationships of each city with it has been different. Tabatinga occupied this area before than Leticia having more time length to consolidate and adapt the formal urbanization to the flooding periods. On the other hand, Leticia has had a more recent occupation of this area by low income groups as squatter settlements looking for a place close to the formal city. The first occupation on the area was "*La Esperanza*" neighborhood and then *La Unión* neighborhood. However, the Amazon River front area left by Tabatinga was occupied in the 1990's by the *Guadalupe* neighborhoods households as is explained in the case study description.

Finally, it is remarkable that recent administrations has been mentioning a common concern regarding the urban growth process of the twin as follows: (Steinman, 2005, Hurtado, 2005): *the Amazon River, the international limit with the neighbor country, land own by the Army and Navy forces of each country, institutional ownership of land (e.g. INCRA, Brazil) and indigenous collective lands (Resguardos Indígenas)*.

Leticia has the economical and cultural leadership in the triple frontier region between Colombia, Brazil and Peru. The influence of this tri-national region has been calculated in a ratio of 150 km in which are located *Leticia* and *Puerto Nariño* (Colombia) with 30.000 inhabitants, *Tabatinga* and *Benjamin Constant* (Brazil) with 49.000 inhabitants and *Caballo Cocha* (Perú) with 10.000 inhabitants. Based on this, the Federal Government of Brazil has been introducing high investments in *Tabatinga* and *Benjamin Constant*; the two most important Brazilian cities in the triple frontier region, looking for convert it in sub-regional epicenters (*SINCHI, 2004*).

3.2. The Twin Cities and squatters settlements formation in flood prone lands

The occupation of flood prone lands has been different in both cities as it was discussed in the twin cities urban growth process.

Leticia was founded in "high lands" avoiding the flooded areas in front of the Amazon River. This process generated that the formal city did not have a connection with the river due to difficulties for building in flood prone lands. While the formal city grown occupying "high lands" low income groups arriving to the city settled in the "low lands". The informal land market and self building process permitted an occupation of the flood prone lands (*Leticia Municipality, 2002*).

Tabatinga had an occupation process in the beginning on the Amazon River edge and just in front of the San Antonio's ravine basin. However, it expansion was towards the high lands and the water front area where nowadays the port is located. The Tabatinga water front left less vacant "low lands" than in Leticia's case. Thus, the occupation of squatter settlements in Tabatinga has a minor proportion. However, Tabatinga has two squatter settlements located on flood prone lands, *Guadalupe* neighborhood in front of the international limit, the other one is *Rui Barbosa* neighborhood where it is possible to find solid waste residues at open air (*Steinman, 2005*).

However, the twin cities are symmetric in terms of inhabitants origin in squatter settlements. As discussed in chapter 2 migrations is one of the causes in squatter settlements formation in borderlands. In Leticia and Tabatinga immigrants from Peru Colombia and Brazil has been occupying flood prone lands. In addition, in both cities the squatter settlements are characterized by lack of public services, infrastructure, public spaces and security of tenure (Steinman, 2005, Hurtado, 2005).

On the other hand, some inhabitants that has been settled in these mentioned squatter settlements has an indigenous background, thus it has been applying traditional housing building techniques in order to adapt it for flooding periods. This adaptation includes activities in flooding periods such as building of wood bridges, mobilizing by boats; and on the other hand, using the land for agricultural activities during dry seasons.

However, on urban areas the traditional adaptations has not been successful at all, because the density, population, urban patterns and public services of formal cities could not adopt this areas on a proper way. Therefore, low lands have the lowest land prices on formal market sector. The informality development has generated an informal housing market where plot of lands and houses are cheaper than in the formal one, especially because the land has been declared high risk areas which depreciates the land value.

In addition, Politicians has been promulgating several promises to squatters settlements inhabitants as an invaluable “votes cluster” for elections purposes. For instance, in Leticia politicians has been promising ID citizenships to illegal Peruvian inhabitants who has been settling in neighborhoods such as *La Unión*, just to have the capital power in order to be elected for high government positions. However, actions developed by politicians have been a kind of assistance ship but not going to the causes of the problem. Peruvian inhabitants settled illegally in Leticia said “Now I can be a beneficiary of Colombian government programs because my two children have borne in Colombia”⁶⁸.

Nowadays, cross border migration processes with squatter settlements in urban areas in the region has been characterized by permanent and high population dynamics⁶⁹ coming from Peru and Brazil in Leticia, and from Peru, Colombia and Brazil rural areas in Tabatinga. These processes are materialized in the twin cities in neighborhoods such as *La Unión* (Leticia) where several Peruvians have settled, and in *Guadalupe* (Tabatinga) where there are several *Cocama*'s indigenous families, Peruvians and Colombians introducing by the informal housing market.

3.3. The basin of San Antonio's Ravine as the border's fringe

The present thesis is classified as *micro level border study* because the focus area is one part of the border between Leticia and Tabatinga twin cities. The thesis looks at the San Antonios 'ravine in order to understand the only two squatter settlements on flood prone lands in the twin cities that are settled in front or on the border between Colombia and Brazil.

The basin of San Antonio's ravine is the natural and political border between Colombia and Brazil. It is a micro basin and tributary of the Amazon River and its topography is a narrow flat

⁶⁸ Interview with one single Peruvian mother in La Unión neighborhood, during fieldwork period. July of 2006.

⁶⁹ Leticia Municipality, *Plan Básico de Ordenamiento Territorial PBOT*, 2002. Componente General. Memories of an exposition in Leticia by the professor Jean Pierre Chaumeil, E.R.E.A – CNRS. France.

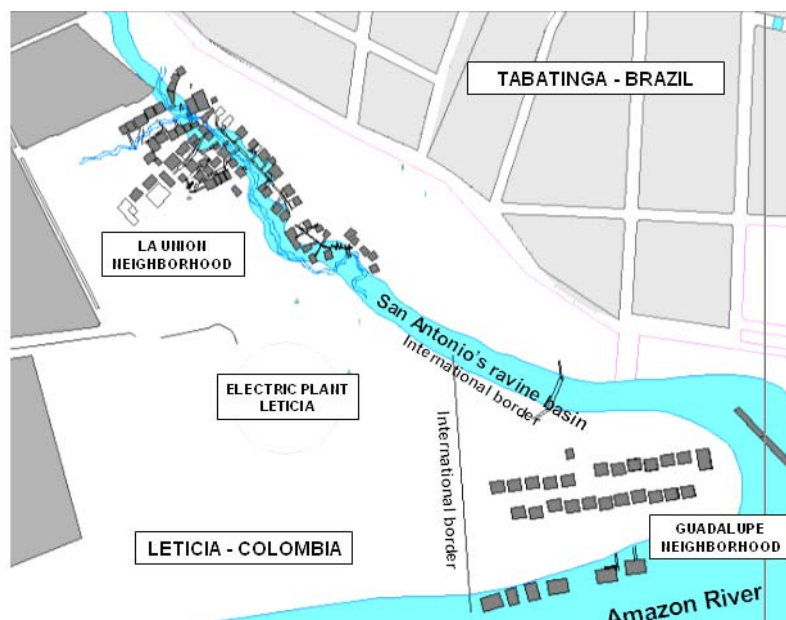
area with high slopes on both urban sides. However, when the micro basin is closer to the Amazon River the slopes change generating on hill just in front of the Amazon River.

The micro basin of San Antonio's ravine has been used by Leticia as one of their final disposal of its sewage; on the other hand, it is the final disposal of the Municipal Slaughterhouse residues. This situation has deteriorated the environmental quality of both cities and of the Amazon River as well. In addition, it has become a binational problem due to the high levels of pollution has been affecting the main source of the Tabatinga water supply system which is located just after the mouth of the San Antonio's ravine on the Amazon river.

The migration of inhabitants from different areas as it discussed earlier has become a tri-national issue as well. And the informal activities occurring in these squatter settlements are issues for both local governments in the twin cities. For instance, in 2000 a big portion of La Unión was flooded due to Tabatinga public authorities decided to close a Colombian discharge of black waters which is connected to the San Antonio's ravine (Steinman, 2005).

The space of the San Antonio Ravine's has been occupied by informal settlements on both sides of the border with unprecedented implications by *La Unión* (Leticia) and *Guadalupe* (Tabatinga) neighborhoods. First, the environmental degradation has got high levels of pollution due to final disposal of residues by the Municipal Slaughterhouse, the Municipal sewage, and, additionally, the disposal of the housing units of *La Unión* neighborhood which does not have a sewage system and the garbage throw by its inhabitants. Therefore, the health conditions of the inhabitants, especially children population is critical with several diseases cases among *La Unión* inhabitants.

The spontaneous settlement of *La Unión* has been growing during the last 20 years in a process where the Colombian territory was full occupied, thus the informal market developed by its inhabitants has taken land of the Brazilian side. Finally, during the flooding period due to the growing process of the Amazon River the San Antonio's ravine is over flood increasing the pollution problems because garbage, final residues disposal of the city, the Municipal Slaughterhouse and the housing units of the squatter settlement cannot be evacuated.



Map 6. Plan view of San Antonio's ravine basin. The location of *La Unión* (Leticia) neighborhood and *Guadalupe* (Tabatinga) neighborhood. Map made during field work period based on interviews, observations and walk out journeys in the neighborhood. Source and Drawing: Fieldwork. Erik Vergel Tovar. 2006.

The next two sections present the two case studies of the thesis. First it is described the case of *La Unión* neighborhood and then the case of Guadalupe neighborhood. In both cases the settlement growing process is presented as well.

3.3.1. The case of *La Unión* Neighborhood in Leticia – Colombia.

The neighborhood *La Unión* is located between the 10th and 11th streets and over the San Antonio's ravine basin which is the official international border between Colombia and Brazil. The neighborhood is one of squatter settlements on flood prone lands in Leticia with the difference that is not on the Amazon river water front area. This squatter settlements has several environmental problems such as pollution, unhealthy conditions between its inhabitants, lack of public services especially water and sanitation, intra-familial violence, several cases of children's illnesses (Census Data, ICBF, 2002).

La Unión neighborhood is a recent settlement due to its occupation is the result of a failure resettlement project developed by the Municipality of Leticia. Before the current neighborhood it was settled inhabitants of *La Esperanza* neighborhood which was relocated due to be located on high risk area for flooding which is the San Antonio's ravine basin. *La Esperanza* neighborhood was relocated in the northern part of Leticia in the new area called *Nueva Esperanza*. However, some inhabitants came back to the area and started a new spontaneous settlement process, especially in the down area which is less consolidated. Nowadays the neighborhood has 101 housing units located in three sectors in accordance to the chronological development. During the fieldwork period was possible to visit 87 housing units located in flood prone lands, from which 37 are already settled in Brazilian territory. During the visits it was possible to ask two questionnaires per family in order to find the main social and physical characteristics and the perceptions about the frontier of the interviewed.

3.3.1.1. *La Unión* neighborhood growing process.

La Unión neighborhood can be classified into three areas in accordance to its consolidation process. Just in front of *El Castañal* neighborhoods are located a group of houses which started the urbanization process in the area. In an interview with *Doña Raimunda* a Brazilian mother of 8 children and married with *Don Wilson* a Colombian citizen, she and its family has been living in the neighborhood for 20 years. She explained the settlement process: “we were just 3 houses in the block, and the ravine was beautiful even more, we could go and use the clean water. We have been living in three different houses in the neighborhood; we already sold our first and second one, and we got the plot of land of our first house with a friend who was working for the Municipality many years ago”⁷⁰.

The neighborhood has a second area which is located down of the most consolidated part. This area is a recent area characterized by having in front the ravine coming from the Municipal Slaughterhouse and its union with the San Antonio's ravine. All houses located in this area are built in wood columns with an average height of 1.50 meters from the ground as an adaptation for

⁷⁰ Interview carried out with *Doña Raimunda* during the field work period in Leticia. 28th of July of 2006.

the flooding periods. Likewise, the spontaneous development has no pattern and the walking bridges joined the whole area which is above the ground as well.

The third area is the lowest located in front of the Electric plant and is the most recent spontaneous development. It is characterized for being located in Brazilian territory, to have a Brazilian family and it has been formed by an informal market of plot and houses. In addition, the housing units located on this part are the less consolidated part of the neighborhood, the only access to get it is through wood pedestrian bridges which some connects several houses while others only are using by one.



Picture 1. First area of La Unión neighbourhood. The oldest and most consolidated part. Source: Fieldwork. Erik Vergel Tovar, 2006.



Picture 2. Second area of La Unión neighbourhood. Most recent spontaneous area. Source: Fieldwork. Erik Vergel Tovar, 2006.



Picture 3. Third Area of La Unión neighbourhood. The lowest part and most recent spontaneous development. Source: Fieldwork. Erik Vergel Tovar, 2006.

3.3.2. *The case of Guadalupe Neighborhood in Tabatinga – Brazil*

The neighborhood Guadalupe is located at between San Francisco neighborhood in Tabatinga and the Amazon River. On the neighborhood's east side is the international border with Colombia which is a virtual line between the San Antonio ravine's and the Amazon River with an official signal of the Ministry of Transport of Colombia. On the neighborhood's west side is the mouth of the San Antonio's ravine in the point where the ravine tributes its waters into the Amazon River.

Guadalupe neighborhood is separated from the formal city of Tabatinga by the San Antonio's ravine. This isolation factor has advantages and disadvantages for squatter settlement inhabitants. It is an advantage because the neighborhood has this water front area with permanent connection and communication with the Amazon River. This situation permits inhabitants and goods flow by fluvial mobility connecting with Peru, Colombia and rest of Brazilian areas. Moreover, there is available land for agricultural activities.

However, the disadvantage is that during flooding periods Guadalupe inhabitants are unprotected and unplugged from the formal city. Thus, they have to build a wood bridge in order to be able to visit the "city" as households called Tabatinga. In addition, it is necessary to use boats when the bridge does not work leading inhabitants to live more isolated and generating more risks.

3.3.2.1. Guadalupe neighborhood growing process

The neighborhood has been growing in an order pattern of a linear settlement in two basic periods. In accordance to the first person who has settled in the neighborhood in 1988, in an interview during the fieldwork period she mentioned: “*I decided to organize the neighborhood in one line of houses because the water of Amazon river was just in front of this houses. Nowadays the river’s edge changed and we organized a second line of houses just in front of the first one*”⁷¹.



Picture 4. First area of Guadalupe neighbourhood. The first area is settled on the hill which is the highest place in the area. Source: Fieldwork. Erik Vergel Tovar. 2006.



Picture 5. Second Area of Guadalupe neighbourhood. These are the Boat Houses which float the whole year on the Amazon river. Source: Fieldwork. Erik Vergel Tovar. 2006

Likewise there are some “*boat houses*” that are floating on the Amazon River and are tied to the land by ropes and wood. These “*boat houses*” provides fluvial transport services for Tabatinga (Brazil), Leticia Colombia) and Santa Rosa (Peru) towns and as a parking places for boats from the three countries.

Guadalupe is a neighborhood separated from the formal city by the San Antonio’s ravine in an non clear situation due to the natural limit it’s supposed to be the international border between both countries. However, the neighborhood is settled on a big plot of land owned by the Brazilian Navy. Continue with the interview with the indigenous leader, she adds: “*the Navy allowed us to live here without any requirement or duty, and we can stay here until we really want*”⁷². In addition, just on the west side of the neighborhood is the official announcement of the Colombian Ministry of Transport in which is clears the message: “*Kilometer 0, Leticia, Frontier between Colombia and Brazil*”. Based on these facts it is possible to affirm that the international border is not only the San Antonio’s ravine, there is one imaginary line between it and the Amazon River which finally determines the international limit in legal terms.

On the other hand, *Guadalupe* has environmental problems due to the garbage and final sewage residues that comes from Leticia along the San Antonio’s ravine, thus during the flooding period the bad smell, garbage coming from the Colombian side increased the unhealthy conditions of the

⁷¹ Interview carried out with the first Indigenous woman with *Cocama* ethnic origin settled on the neighborhood, fieldwork in Tabatinga, July of 2006.

⁷² *Ibid.*

population. Moreover, the squatter settlement has not a good connection with the “formal city” of Tabatinga due to its inhabitants has to cross the San Antonio’s ravine on a big throne which during the flooding period disappears. Therefore, *Guadalupe* inhabitants have to build a wood bridge every year during flooding period in order to be connected to the city. Likewise, they have to use boats in order to get the “formal city” for children going to school or just for going to work.

3.4. The current urban management and planning instruments in Leticia and Tabatinga

3.4.1. The Territorial Planning Plan PBOT of Leticia

As explained in chapter 2, the Law 388 of 1997 established the Territorial Planning Plans POT as the main juridical instrument for planning the economical, social and territorial dimensions of municipalities. Therefore, the municipality of Leticia started the process of making its own territorial Planning Plan since the formulation of the mentioned Law.

In 2002 the Municipal Council of Leticia approved as a municipal law the Territorial Planning Plan PBOT. The implementation process has had several difficulties because the approach to manage squatter settlements has been resettlement projects which have failed twice. In addition, the PBOT did not take into consideration risk regulations for those squatter settlements located in flood prone lands.

Another main concern is the lack of available land for urban expansion. The PBOT did not include land management instruments in order to improve the urban development performance. Thus, the city has had land speculation and the Colombian Army own several areas which has rejected to give to the city. The problem has increased the squatter settlements because there is no serviced land for urban development, and the expansion towards Brazilian territory by squatter settlements such as *La Unión* neighborhood is the result of a city that cannot growth more in many directions.

Second, the squatter settlements formation on the flood prone lands or “*várzea*” areas in the water front of the Amazon River has been a chronic occupation process due to the high prices of building materials in a city where land prices in high and serviced land are very expensive. At the same time, low lands are not part of the land market due to have been declared risk areas encouraging informal land market development in those areas.

Leticia is a city that has not been looking its main natural neighbor: the Amazon River, this explains why income groups low, has been taking the flood prone lands where there is no infrastructure at all. The neighborhoods that are located on flood prone lands in Leticia are: *Victoria Regia*, *El Aguila* and *La Unión* (Hurtado, 2005).

These two main points are the big challenge for an urban planning and management process that began with this first generation of a PBOT. Due to it was adopted 4 years ago which is the duration of one administration, the National Government, especially the Ministry of Environment, Housing and Territorial Development, is advising the Municipality in order to set up an assessment process of the Plan. Based on the results of this evaluation it will be possible to redefine and put into practice the planning and management instruments that the Municipality can use based on the Law 388 of Territorial Development.

Finally, the Municipality of Leticia has a very good opportunity to evaluate its main planning and management instrument in order to develop an appropriate housing policy that can really takes

into account housing and social characteristics of squatter settlements formation. The PBOT can give useful tools for land management and urban development which are needed in Leticia. In addition, as a border city in front of its twin Tabatinga, in this evaluation process there is an opportunity to explore cross border alternatives for shared urban problems between both cities towards a cross border cooperation based on municipal laws. Likewise, the lack of knowledge about the local context by technicians who were working in the formulation process of the PBOT⁷³, the lack of political will by politicians in order to take decisions in terms of land tenure, and the idea to force a city to growth in a context such as the Amazon with foreign patterns are some of the weak points of this local public policy.

3.4.2. *The Plano Diretor of Tabatinga*

The most recent planning document for Tabatinga was developed for a period of time 2001 – 2004. The name of the document is Local Integral and Sustainable Development Plan PDLIS. The document was carried out for the Defense Ministry of the Federal Government of Brazil. The Plan PDLIS of Tabatinga has as an objective to improve social, economical, physical and institutional infrastructure in the Municipality. Likewise, the plan defines programs and projects to be implemented in the Municipality during the period 2001 – 2004. However, in this Plan is not taking into account as an important urban issue occupation of squatter settlements in flood prone lands.

After this Plan, Tabatinga has not defined a local policy for the urban area, and especially for squatter settlements in flood prone lands. This situation has changed since the Federal Government issued the new *City Statute*. As explained in chapter 2 the *City Statute* is the recent Brazilian Urban Policy. The *City Statute* has established the *Plano Diretor* as the main juridical planning instrument for municipalities in Brazil. Therefore, every municipality has to carry out its own *Plano Diretor* which has to be approved by the Municipal Council no longer than next October of 2006.

The *Plano Diretor* in the Tabatinga case is a good opportunity to set up a first participative planning process in order to define the main objectives and policies for future urban development in the city. Tabatinga has not deal with problems such as water supply and sanitation, housing for low income groups, property tax revenues, and to manage the squatter settlements and risk areas. In addition, Tabatinga has no records regarding squatter settlements, occupation of flood prone lands by low income groups. In 1991 Tabatinga reported 1,31% of inhabitants living in squatter settlements, but in 2000 reported 0% (IBGE, Brazil, 2006).

It is a fact the necessity of a clear urban policy in Tabatinga. Recently the Federal Policy evicted from Brazilian territory a squatter settlement of Colombian inhabitants that could not find a place in Leticia. The squatter settlement is now located just in the border between Colombia and Brazilian on high lands. However, the squatter settlements become a shared issue of twin cities in high lands as well. Finally, Tabatinga has the opportunity to define aspects for future actions on shared problems with Leticia. It is the begin of the process and Tabatinga can introduce in this planning participation from different actors, citizenships, Community Based Organizations and elements for cross border cooperation with its twin counterpart.

⁷³ Hurtado Gómez, L. M., 2005, *Pobreza y Marginalidad Urbanas en la Amazonia. Un estudio de caso de los asentamientos ubicados en zonas inundables*, Tesis de Maestría en Estudios Amazónicos, Universidad Nacional de Colombia, Sede Leticia.

Chapter 4 Housing Comparative Study between *La Unión* and *Guadalupe* neighborhoods squatter settlements

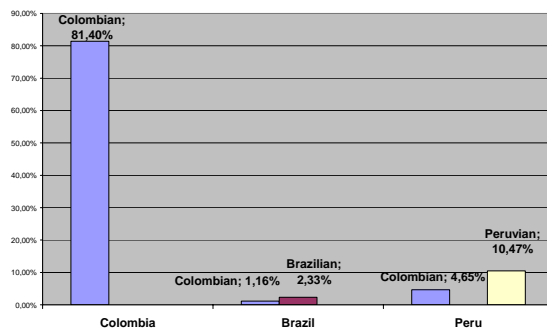
The Housing comparative study between these two neighborhoods has as a main objective of identifying in which aspects the two squatter settlements are symmetric and asymmetric. This information covers variables within social and physical characteristics of squatter settlement inhabitants. The aim of the comparative study is to find key elements that should be considered by local governments for an appropriate approach for the benefit of this population.

The comparative study has three objectives: first, to compare the socioeconomic and physical characteristics of the inhabitants in both neighborhoods in order to determine the key elements the local government’s policies should take into consideration. Second, to compare the reasons that led inhabitants to move into this two squatter settlements; this information will be an input for both local governments in order to tackle the causes of the problem. Third, to compare the housing typologies and settlements patterns developed by the two neighborhoods inhabitants as lessons to be implemented in the future interventions.

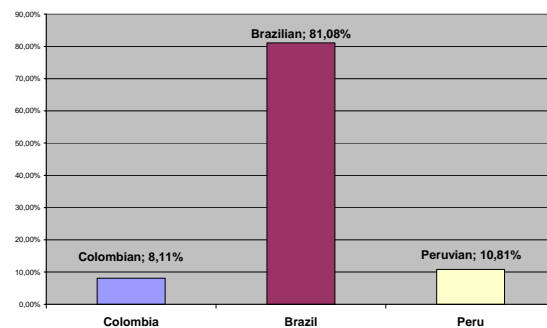
4.1 Comparative housing study of socioeconomic and physical characteristics of the households

4.1.1. Socioeconomic characteristics

The population in *La Unión* neighborhood (Leticia) is diverse, compounded mainly by Colombians and Peruvians some of them with an ethnic origin, and few Brazilian population. On the other hand, the population in *Guadalupe* neighborhood (Tabatinga) is mainly Brazilian with a high percentage of indigenous *Cocama*, there is a small percentage of Peruvians and Colombians. When the variable of place of birth and nationality are analyzed crossed, it is clear that in the Colombian neighborhood 81% of inhabitants (interviewed) who are born in Colombia have the Colombian citizenship. On the Brazilian side, 81% of inhabitants (interviewed) whose born in Brazil have the Brazilian citizenship. In both neighborhoods to have the nationality of the country where the settlement is located in is a big advantage for receiving support from the government. Thus, it is the main goal for illegal immigrants, which is the case of Peruvians in Colombia. During the visits in both neighborhoods, 10% of the inhabitants in *La Unión* are Peruvian. While in *Guadalupe* 10% are Peruvian, thus means that Peruvians are the majority of the immigrant group in both settlements.



Graph 3. *La Unión* neighbourhood. Place of birth - nationality. Source: Fieldwork questionnaire.

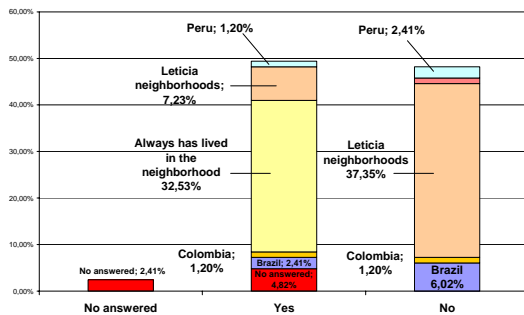


Graph 4. *Guadalupe* neighbourhood. Place of birth - nationality. Source: Fieldwork questionnaire.

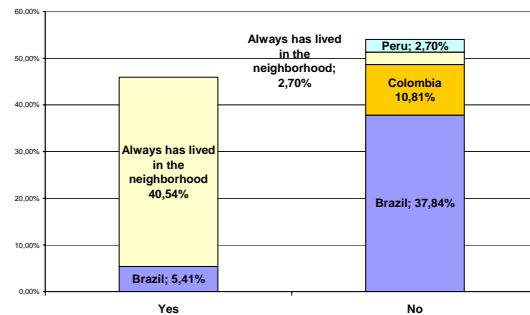
However, there is a difference between both settlements regarding Peruvian immigration who have the Colombian citizenship. The 4.65% of Peruvian interviewed in the *La Unión* neighborhood have the Colombian citizenship. On the other hand, in *Guadalupe* neighborhood there are Peruvians who have not obtained the Brazilian citizenship. The reason for this difference is language. Peruvian immigrants have had more possibilities to adapt into Leticia than in Tabatinga because their mother language is Spanish.

In order to understand the origin of squatter settlements in these two neighborhoods, the study crossed analyzed two variables, the place where inhabitants have lived before they settled in the neighborhood and in which countries they lived before. In *La Unión* neighborhood there is a diversity of origins, there are two main groups. First, within the group of inhabitants who answered that *have not lived outside the neighborhood before*, 32% of them said that always have lived there, while 7.23% of them said that they lived in rental rooms in other neighborhoods in Leticia; 2.41% in Brazil and 1,20% in Peru. Second, with in the group of inhabitants who answered that they *have lived outside the neighborhood*, 37% of them said that they have lived renting rooms in other neighborhoods in Leticia, 6% in Brazil and 2.41% in Peru.

On the other hand, the Brazilian case is very different, within the group of inhabitants who answered that they *have not lived outside the neighborhood before*, 40.64% of them said that always lived there and 6% said that they have lived in other Brazilian areas. This is the case of indigenous inhabitants who are the majority group in the neighborhood. Most of them come from an indigenous community in Tabatinga rural areas. Second, within the group of inhabitants who answered that they *have lived outside the neighborhood*, 87% were from Brazil (*Sapotal Indigenous Community, Tabatinga rural areas*), 10% were in Colombia and 2.70% were in Peru.

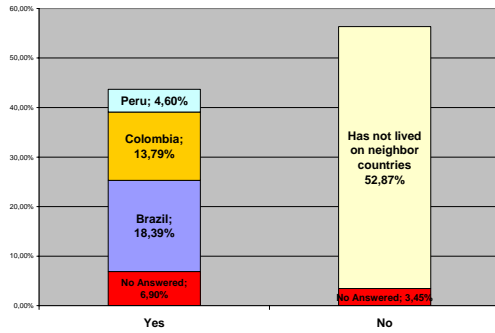


Graph 5. La Unión neighbourhood. Inhabitants that have been living in the neighbourhood and different countries. Source: Fieldwork questionnaire.

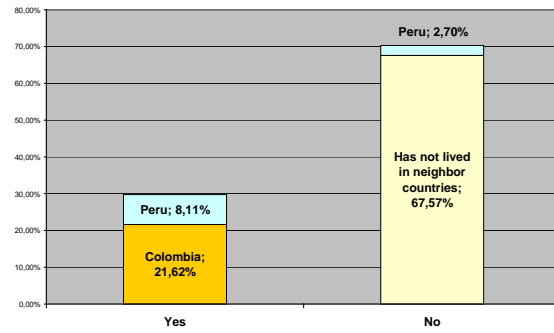


Graph 6. Guadalupe neighbourhood. Inhabitants that have been living in the neighbourhood and different countries. Source: Fieldwork questionnaire.

Based on this information is possible to affirm that the migration processes is a fact. Peruvians have been illegal immigrants in both squatter settlements, but, Colombian immigrants have started to become an important group of inhabitants in Brazil. In addition, it is possible to affirm that the Brazilian neighborhood is more recent than the Colombian one, and thus the less diverse composition of its population. Thus, the squatter settlements are asymmetric in that sense. *La Unión* used to be a Peruvian “cluster” in Leticia while *Guadalupe* neighborhood is a “Cocama cluster” in Tabatinga. Since *La Unión* is a more consolidated squatter settlement, it has changed into a multicultural and diverse neighborhood. *Guadalupe* in the other hand, it being a more recent settlement, the indigenous group is the majority. Given these, any program or action on the squatter settlement must take into consideration that there exists many illegal immigrants from Peru and that have diverse backgrounds.



Graph 7. La Unión neighbourhood. Has lived always in the neighbourhood and if has lived in neighbouring countries. Source: Fieldwork questionnaire.

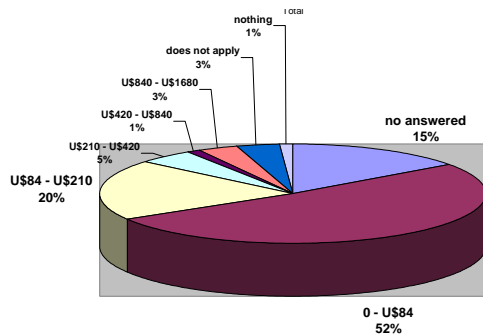


Graph 8. Guadalupe neighbourhood. Has lived always in the neighbourhood and if has lived in neighbouring countries. Source: Fieldwork questionnaire.

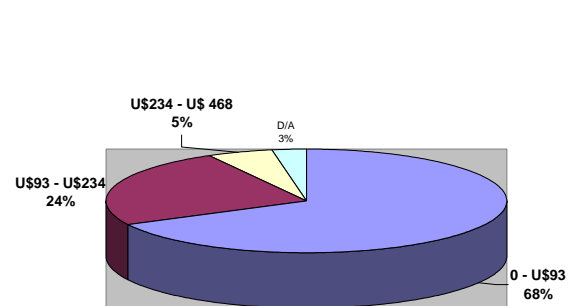
On the other hand, in a triple frontier such as the place sub-region of the twin cities of Leticia and Tabatinga, it is usual that inhabitants have lived in neighboring countries. In *La Unión* especially, it is significant that 43% of the interviewed said that they *have lived in neighboring countries*, the 18% said to have lived in Brazil, the 13% in Colombia (it refers to inhabitants that have migrated to Leticia or that have lived in other Colombian areas close to Leticia) and the 4.6% in Peru. In comparison, in *Guadalupe* is different because only 29% of interviewed said *to have lived in neighboring countries*, the 21% said to have lived in Colombia and the 8.11% in Peru.

The two squatter settlements are asymmetric on inhabitant's background in terms of living outside of the neighborhood or the country. In *La Unión* there are more inhabitants who have used to live in other places, while in *Guadalupe* the main origin is the *Sapotol Indigenous Community* (Tabatinga).

4.1.2. Income and occupation



Graph 9. La Unión neighbourhood. Income. Source: Fieldwork questionnaire.



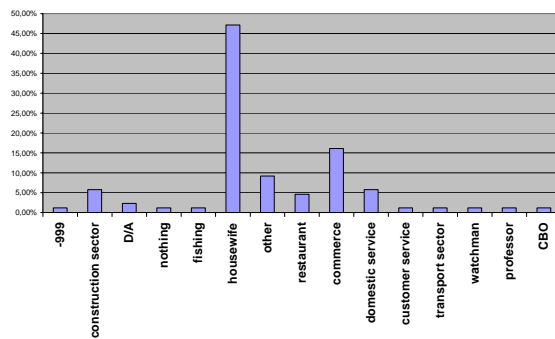
Graph 10. Guadalupe neighbourhood. Income. Source: Fieldwork questionnaire.

Regarding income, the study used the same group of income ranges used in other studies developed in the twin cities. The study shown a symmetric aspect between both inhabitants interviewed which is that the majority have an income average US\$84/US\$93 dollars per month⁷⁴.

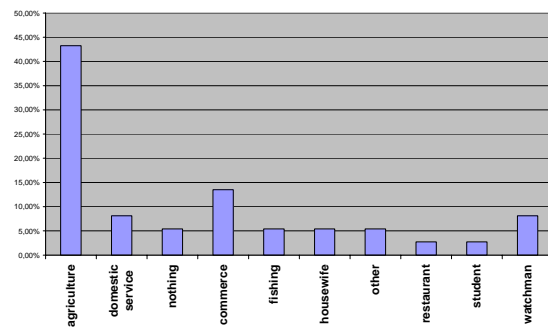
⁷⁴ This finding is significant taking into account that the minimum legal salary in Colombia is US\$171 per month and the minimum legal salary in Brazil is US\$162 per month.

However, the range of incomes in the Colombian neighborhood is broader than in the Brazilian one. While in *Guadalupe* there are three main ranges of incomes which are not higher as US\$468 per month, in *La Unión* there are 5 ranges of income. In which, two are above US\$500 per month. This asymmetric characteristic has a strong link with occupation. In *La Unión* inhabitants have broader differences of occupations while in *Guadalupe* the majority work in agricultural activities.

There are more persons with higher income in Colombia than in Brazil, but one of the reasons for that difference is the occupation. While *Guadalupe* inhabitants are mainly working in agriculture, fishing and boat services, because they are of indigenous background; *La Unión* inhabitants have a more diverse occupations such as the Construction Sector, Transport Services, Professors, Technicians, Sellers and Cooking Assistants. In addition, the majority of inhabitants interviewed are housewives who have said that their husbands work at the Leticia Port, Construction Sector, Transport Services and Commerce in both cities. In *Guadalupe* the 43% of inhabitants interviewed work in agricultural activities because the existing plant in the neighborhood.

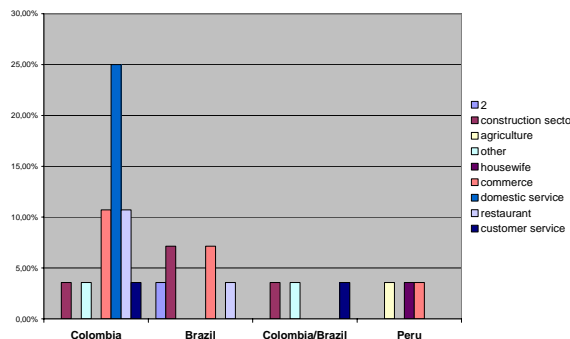


Graph 11. La Unión neighbourhood - Occupation.
Source: Fieldwork questionnaire.

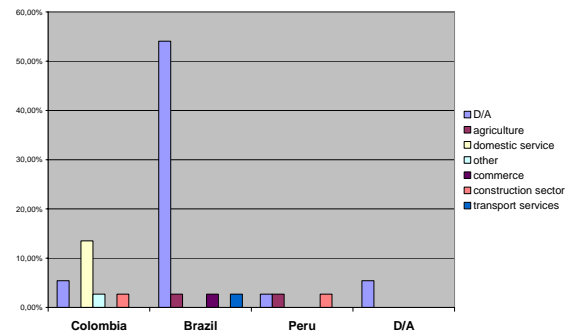


Graph 12. Guadalupe neighbourhood - Occupation.
Source: Fieldwork questionnaire.

Furthermore, the study asked squatter inhabitants if they have worked in neighboring countries. In *La Unión* the tendency is different than in *Guadalupe*. *La Unión* inhabitants have more diversity of occupations and the 21% said to have worked in Brazil, the 10% in Colombia and Brazil at the same time, and the 10% in Peru. *Guadalupe* inhabitants mainly work in Brazil while a few percentages of them have worked in neighbor countries. The 24% said to have worked in Colombia and 8% in Peru.



Graph 13. La Unión neighbourhood - Occupation and Countries. Source: Fieldwork questionnaire.



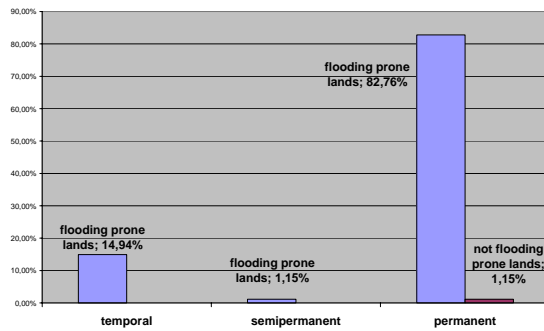
Graph 14. Guadalupe neighbourhood - Occupation and Countries. Source: Fieldwork questionnaire.

Finally, it is fundamental to take into consideration the social characteristics of both neighborhoods inhabitants for every housing policy and action in order to improve their life

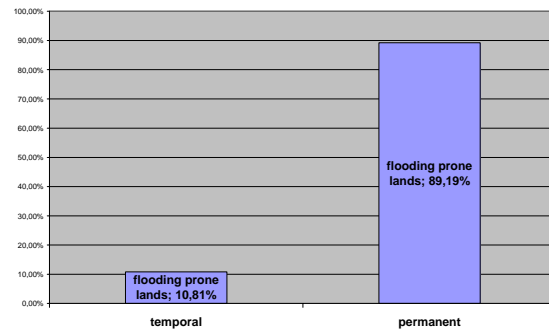
conditions. Policies and programs must take into consideration the needs of these inhabitants to be close to job opportunities, which at the end will give them the necessary income for housing improvements. In the Brazilian case, activities such as agriculture, selling the products fishing, and doing handicraft are extremely important, while for the Colombian, one to be close to the city center and the borderland between both cities in order to have access for jobs opportunities at the informal market, constructions sector, selling and commercial areas are extremely important.

4.1.3. Housing characteristics.

The housing characteristics of two squatter settlements covered variables such as location, time of settlement, rooms per persons, secure of tenure, housing building materials, access to water and sanitation. The two squatter settlements are symmetric in terms of being located on flood prone lands. But *La Unión* is an older neighborhood with a longer consolidation process having a 1.16% of housing units located in areas which are not flooded at all. In addition, the two squatter settlements are symmetric in terms of houses of permanent structures: 83% in *La Unión*, 89% in *Guadalupe*.

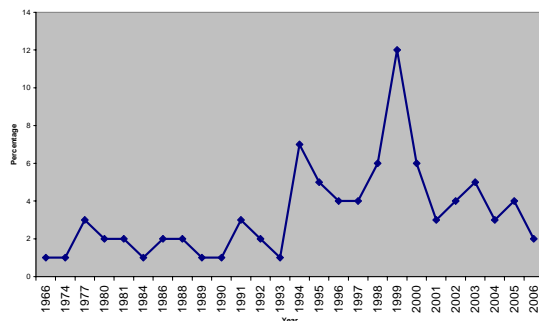


Graph 15. La Unión neighbourhood. Housing type and Location on flood prone lands. Source: Fieldwork questionnaire.

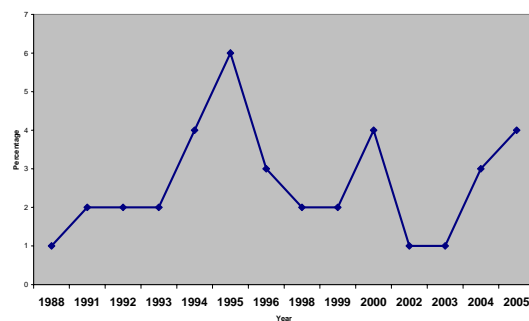


Graph 16. Guadalupe neighbourhood. Housing type and Location on flood prone lands. Source: Fieldwork questionnaire.

It is a fact the *La Unión* is an older squatter settlement than *Guadalupe*. While in *La Unión* there were two main periods of people's arrival: 1994 and 1999. In *Guadalupe*, the periods were in 1995 and 2000.



Graph 17. La Unión neighbourhood. Year of arrival to the neighbourhood. Source: Fieldwork questionnaire.

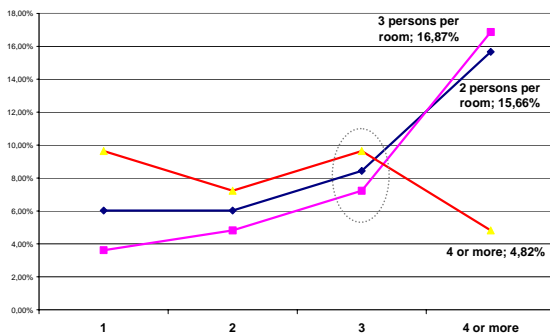


Graph 18. Guadalupe neighbourhood. Year of arrival to the neighbourhood. Source: Fieldwork questionnaire.

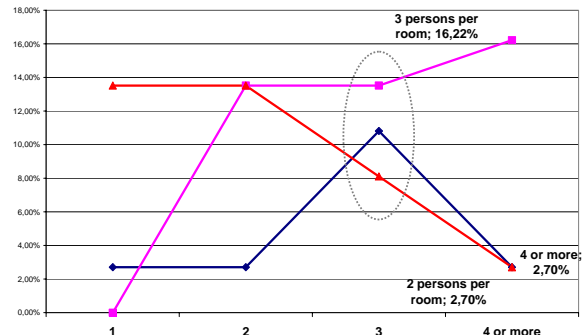
However, in *La Unión* the tendency is going down, due to high expectation towards a resettlement project and the fact that the spontaneous settlement is already very dense and highly

occupied in relation to the available land. On the other hand, *Guadalupe* presents a growing tendency which has been increasing since 2003. Moreover, during fieldwork it was possible to realize that *Guadalupe* inhabitants are bringing several building materials transported by boat to the neighborhood and expanding the housing units.

Therefore, is possible to affirm that while *La Unión* has set up an informal housing market for new immigrants well located in the city, it is decreasing as squatter settlement. On the other hand, in *Guadalupe*, it is starting an informal housing market where Peruvians and Colombians are buying housing units already built. And several houses units are being expanded at the backyards as it is shown in housing typologies part. Thus, the two squatter settlements are asymmetric in terms of consolidation processes.



Graph 19. La Unión neighbourhood. Rooms per person. Source: Fieldwork questionnaire.



Graph 20. Guadalupe neighbourhood. Rooms per person. Source: Fieldwork questionnaire.

The index of inhabitants sleeping per room is high in both neighborhoods, but especially in *La Unión*. There is a tendency in both squatter settlements in which 3 inhabitants are sleeping in the same room. However, it is clear that *La Unión* has more population, and the tendency towards more than 4 persons per room is higher than in *Guadalupe*, a settlement with at least a half of population.

Regarding the building materials, both neighborhoods are symmetric in housing units built as en structures.

However, in *La Unión* it being an older settlement, the most consolidated part already presents housing units with walls made on bricks, floors are made of cement since they are not in flood prone lands. On the other hand, both settlements are symmetric in terms of housing roof made on metal roofing. However, *Guadalupe* presents housing units with roof made on straws due to the indigenous background of its inhabitants.

Table 2. Housing Building Material			
Place	Material	Guadalupe	La Unión
Housing walls	Wood	94,59%	91,95%
	Bricks		1,15%
	Mix	5,41%	6,90%
Housing floor	On land		1,15%
	On wood	100%	96,55%
	On cement		2,30%
Housing roof	Zinc	97,30%	98,85%
	Straw	2,70%	1,15%

Source: Fieldwork questionnaire.

4.1.4. Security of Tenure.

Regarding security of tenure both neighborhoods are symmetric about perception of ownership. A high number of respondents said that they own the dwelling, 83% in Brazil, 78% in Colombia; but, at the same time they mentioned that they do not have formal titles, 83% in Brazil, 58% in Colombia. However, in the Colombian side there is a big discussion around the resettlement project which have influenced the answers due to the formal title is a document that gives a guarantee for being relocated by public authorities.

Table 3. Secure of Tenure				
Place	Variable		Guadalupe (Brazil)	La Unión (Colombia)
HOUSING	Own the dwelling	Yes	83,78%	78,16%
		No	16,22%	21,84%
	Has a formal title deed	Yes	8,11%	29,89%
		No	83,78%	58,62%
	Rent		2,70%	11,49%
	Parents House		-	4,60%
	Parents in Law House		5,41%	-
	Other		8,11%	6,90%
LAND	Own the land	Yes	78,38%	74,42%
		No	21,62%	25,58%
	has a formal title deed	Yes	8,11%	33,72%
		No	89,19%	62,79%
	pays property taxes	Yes	5,41%	11,63%
		No	94,59%	88,37%
	pays for public services	Yes	81,08%	73,26%
		No	18,92%	26,74%

Source: Fieldwork questionnaire.

Likewise, in *La Unión* is clear that there is an on going rented market while in *Guadalupe* is just starting. In addition, in the Colombian squatter settlement it is common to find inhabitants living in their parent’s house, which in most of cases is an additional room within the dwelling. But, in the Brazilian settlement there are inhabitants living in their parent-in-law’s house due to their indigenous background in which husbands got the place first and then his wife arrives to the settlement.

Regarding property tax and public services, the conditions are symmetric. Almost every household do not pay property tax, 94% in Brazil, 88% in Colombia. At the same time, a high percentage of inhabitants are paying for public services, which are mainly water supply and electricity in *La Unión*, and water supply in *Guadalupe*.

In addition, the 37 housing units of *La Unión* located in *Brazilian* territory are receiving electricity from Brazil. The households located in Brazilian territory mentioned: “*the electricity from Brazil is cheaper than the electricity in Colombia*”⁷⁵.

⁷⁵ It is based on an informal discussion that the researcher had during one visit to one household of *La Unión* located in Brazil, which is on the other side of the San Antonio’s ravine basin in Brazil.

4.1.5. Access to water

Access to water on both neighborhoods is symmetric in terms of having water supply from the water company of each city. The 86% of households visited receives water from the Water Company in Brazil, while the 80% of households in Colombia receives water supply from the local water supply company. It is clear that both municipalities have installed water supply for both neighborhoods, which has been a contradictory action because it a means of regularizing these neighborhoods. In the case of Leticia, to provide water supply for squatter settlements has been a practice done by politicians in order to keep votes for future elections. However, politicians have not thought the consequences of these kinds of actions.

Table 4. Access to Water			
Guadalupe (Brazil)		La Unión (Colombia)	
Source of water		Source of water	
<i>Tabatinga Water Company</i>	86,49%	<i>Leticia Water Company</i>	80,46%
<i>Public Tank</i>	5,41%	<i>Public Tank</i>	2,30%
<i>Surface Water</i>	2,70%	<i>Surface Water</i>	1,15%
<i>Rain Water</i>	5,41%	<i>Rain water</i>	5,75%
		<i>Electric Plant</i>	9,20%
Source of drinking water		Source of drinking water	
<i>Tabatinga Water Company</i>	78,38%	<i>Leticia Water Company</i>	1,15%
<i>Public Tank</i>	2,70%	<i>Electric Plant</i>	98,85%
<i>Rain Water</i>	16,22%		
Household with tank of water		Household with tank of water	
<i>Tank of water</i>		<i>Tank of water</i>	
<i>Yes</i>	32,43%	<i>Yes</i>	54,02%
<i>No</i>	67,57%	<i>No</i>	40,23%
<i>0 Reales</i>	27,03%	<i>0 pesos</i>	8,05%
<i>US\$1,3 - US\$2,6</i>	5,41%	<i>US\$4,14 - US\$8,28</i>	24,14%
<i>US\$3,23 - US\$4,62</i>	67,57%	<i>US\$12,43 - US\$24,87</i>	21,84%
		<i>No answered</i>	45,98%

Source: Fieldwork questionnaire.

On one hand, the source of drinking water is asymmetric. In Leticia the Electric Plant after a big social pressure due to high noise in the area decided to give free water for the settlement. This supply point is located just in a corner of Leticia at 100 walking meters from *La Unión*. This is another action that has permitted *La Unión* inhabitants to stay and to grow due to free access to water. On the other hand, drinking water sourcing in *Guadalupe* is the Water Company, Public Tank, Rain Water and Surface Water. However, these sources are not clean at all, and it is one of causes of illnesses especially children.

Regarding water prices, it is among clear the advantage of low prices in Brazil than in Colombia, which is the result of currencies differences. While 64% of inhabitants interviewed in *Guadalupe* mentioned that are paying between US\$3,23 – US\$4,62 per month, the 24% of inhabitants in *La Unión* said that are paying between US\$ 4,14 – US\$8,28 for water supply per month. The difference between prices explains why some households in *La Unión* settled on Brazilian territory mentioned that public services in Tabatinga are cheaper than in Leticia.

4.1.6. Access to sanitation

Regarding access to sanitation both are symmetric and asymmetric aspects. In terms of having a toilet inside the house the consolidation process of *La Unión* shows a 60% of households with private toilet. In *Guadalupe* 45% of housing units visited have a private toilet. In both settlements the private toilet, the latrines are connected to the San Antonio's ravine throwing the residues without treatment. This situation has a big impact on the environmental conditions of the San Antonio's ravine, which is worsened by the sewage of Leticia, and the garbage thrown into the river by *La Unión* inhabitants. In *Guadalupe* 72% of the housing units visited are throwing residues (garbage and toilet residues) to the river, while 86% of the housing units visited in *La Unión* are doing the same.

The squatter settlements are symmetric in environmental problems due to the lack of sewage. However, in a flood prone land, it is more difficult to install a sewage system rather than a water supply system.

Table 5. Access to Sanitation					
Guadalupe (Brazil)			La Unión (Colombia)		
Kind of toilet			Kind of toilet		
<i>Private Toilet</i>		45,95%	<i>Private Toilet</i>		60,47%
<i>Latrine</i>		8,11%	<i>Latrine</i>		13,95%
<i>Public Toilet</i>		40,54%	<i>Public Toilet</i>		16,28%
<i>Use Outdoors or other</i>		5,41%	<i>Use Outdoors or other</i>		9,30%
Connection of toilet/latrine			Connection of toilet/latrine		
<i>Connected to rivers</i>		56,76%	<i>Connected to rivers</i>		8,14%
<i>Connected to septic tanks</i>		24,32%	<i>Connected to septic tanks</i>		9,30%
<i>private toilet connected to rivers</i>		16,22%	<i>private toilet connected to rivers</i>		77,91%
<i>Others</i>		2,70%	<i>Others</i>		4,65%
Household using same toilet			Household using same toilet		
<i>No Answered</i>		5,41%	<i>No Answered</i>		58,62%
<i>4 inhabitants</i>		67,57%	<i>2 inhabitants</i>		4,60%
<i>5 inhabitants or more</i>		27,03%	<i>3 inhabitants</i>		6,90%
			<i>4 inhabitants</i>		26,44%
			<i>5 inhabitants or more</i>		3,45%
<i>Have seen children using outdoors as a toilet</i>	Yes	59,46%	<i>Have seen children using outdoors as a toilet</i>	Yes	47,62%
	No	29,73%		No	51,19%
	D/K	10,81%		D/K	1,19%

Source: Fieldwork questionnaire. Erik Vergel Tovar 2006.

In addition, the index of inhabitants using the same toilet is asymmetric in both neighborhoods. In the 64% of housing units visited in *Guadalupe*, 4 persons are using the same toilet/latrine, while in the 26% of housing units visited in *La Unión* 4 persons are using the same toilet/latrine. However, the 58% of interviewed did not answer the question, because for some of them is a characteristic of their houses with which they are not content at all.

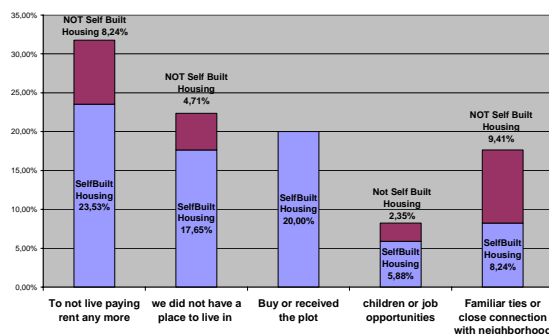
On other hand, in both settlements inhabitants interviewed have seen children of the neighborhood using outdoors as a toilet. In *Guadalupe* the 59% of inhabitants answered to have seen children using outdoors as a toilet, while in *La Unión* 47% of inhabitants answered the same.

Finally, the two squatter settlements are symmetric in access to sanitation condition and its consequences. In both neighborhoods the bad smell, children with illnesses, predominance of

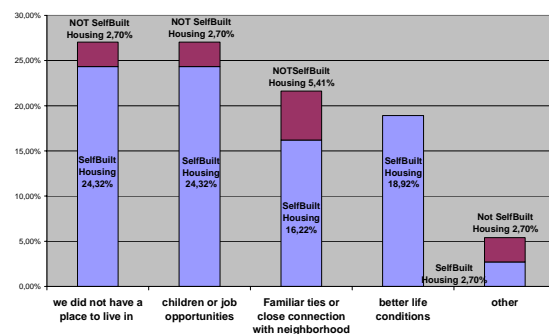
mosquitoes and flies in the environment are some of common things founded. The garbage is an additional issue. In *La Unión* is very high the concentration of garbage on the San Antonio's ravine, although inhabitants can take out the garbage for recollection service on the most close street. Guadalupe inhabitants are doing the same increasing the pollution of San Antonio's ravine. There is no difference in levels of contamination in the basin.

4.2. Comparative study of reasons that lead people to settle in *La Unión* (Colombia) and *Guadalupe* (Brazil) neighborhoods and inhabitants risk perceptions and actions during flooding periods

4.2.1. Reasons to settle in the neighborhood



Graph 21. *La Unión* neighbourhood. Reasons to settle and Housing Construction. Source: Fieldwork questionnaire.



Graph 22. *Guadalupe* neighbourhood. Reasons to settle and Housing Construction. Source: Fieldwork questionnaire.

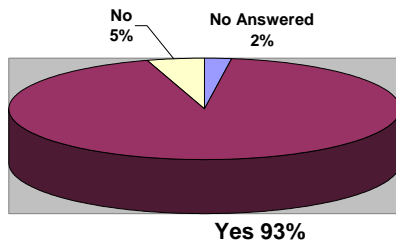
The two squatter settlements are asymmetric in reasons, which led inhabitants to settle on the San Antonio's ravine. Comparing the reasons stated by the inhabitants, it is clear that for *La Unión* inhabitants the main reason was to avoid living on rent in Leticia which was very expensive for them. On the other hand, in *Guadalupe* is clear that one of the main reasons was to look for better education and job opportunities. However, a common reason in both settlements is that inhabitants *did not have a place to live in*: 22% in Colombia and in 27% Brazil. Another common reason is having relatives or at least a link with a person who is already settled, for instance in Brazil it is the 21% mentioned it and in Colombia it is 17%.

Regarding building processes of the houses, both neighborhoods are symmetric in self built housing units. The 86% of housing units in *Guadalupe* are self built while the 75% in *La Unión* are self built. Likewise, in both neighborhoods the housing unit was already built when the occupants arrived because they had close relations ties with relatives or friends that lived already there. A small percentage bought the housing unit on this informal housing market.

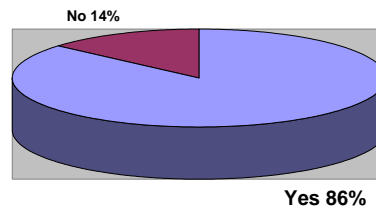
Therefore, the formal city and its housing market of the twin cities are very expensive for low income groups which have not enough income for buying a plot of land or to live at least on rent. In addition, this people is migrating to cities looking for better job opportunities and study for their children. However these urban areas have shown to not be prepared for those people migrations, especially with serviced land, infrastructure and low building material prices.

During the presentation⁷⁶ of the thesis at the National University of Colombia in Leticia in fieldwork period, the researcher had a discussion with audience regarding formal housing and land market in Leticia. Everybody agreed that it is very expensive to buy urban land and to build houses, even for a professional with a good job and income in the formal economy. Moreover, it is difficult to access building materials, specially wood which is forbidden to cut without permission in Colombia.

4.2.2. Risk and flooding periods



Graph 23. La Unión neighbourhood. Feeling of risk during flooding periods. Source: Fieldwork questionnaire.



Graph 24. Guadalupe neighbourhood. Feeling of risk during flooding periods. Source: Fieldwork questionnaire.

Regarding risks, inhabitants interviewed mentioned that they feel under risk during flooding periods. Both squatter settlements are symmetric on that sense. 93% of *La Unión* inhabitants feel under risk during flooding periods, while 86% of *Guadalupe* inhabitants feel under risks on the same season. However, both squatter inhabitants developed different kind of actions during flooded periods. In *La Unión*, within the group of interviewed that said to feel under risk during flooded periods, 12.64% said that they go out of the neighborhood, 12% mentioned that they do not allow children go out of the house and 10% said that they work collectively building bridges, shelters and cleaning the neighborhood. On the other hand, *Guadalupe* inhabitants that said to fell under risk during flooded periods, 45% said that they stay at home and do not allow children to go out. But, *Guadalupe* inhabitants said that they have to build bridges and use boats in order to have access to Tabatinga.

Both squatter settlements are symmetric in activities such as do not allow children to go out. In addition, both settlements are symmetric in terms of building bridges, closing well the houses and to take care of children. However, both settlements are asymmetric in terms of leaving the neighborhood during flooded period. *Guadalupe* inhabitants said that they stay during flooded periods in the neighborhood while *La Unión* inhabitants said that they go out and live in other places in Leticia or building shelters close to the neighborhood.

⁷⁶ The thesis author did a presentation the 27th of July at the National University in Leticia due to an invitation of the professor *German Ochoa* in the framework of the Inter- Institutional Agreement “*Saber y Cooperación Amazónica*” between the National University in Leticia and the Netherlands Universities (UvA, Tilburg and Wagenigen).

4.3. Comparative study of housing typologies between *La Unión* (Colombia) and *Guadalupe* (Brazil) neighborhoods

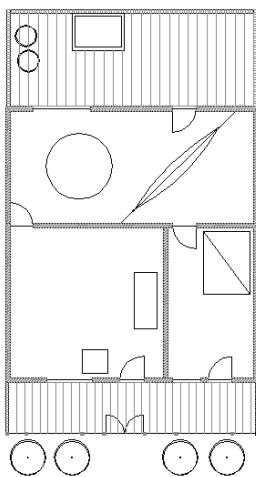
4.3.1. *La Unión* neighborhood

The housing typology developed by squatter inhabitants is a result of their adaptation to the flood prone lands. In *La Unión* neighborhood the housing typologies are in accordance to the three sectors or areas described in chapter 3. Thus, the housing typology has a strong link with the duration of occupation of the dwellers.

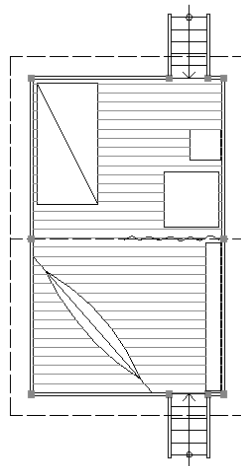
The *housing typology 1* is the most consolidated type. It is characterized by floor made of cement, walls made of bricks and some houses built with a second floor. In addition, it has been growing in different periods of time depending on the household's income. The most consolidated part of the neighborhood was developed in long plot of lands which have canded to this type of houses to grow towards the back yard.

The *housing typology 2* is located on the second sector of *La Unión*. It is built on wood in a platform above the ground with an average height of 1.50 meters due to the flooding periods. In addition, this housing typology was built as one space with later subdivisions in different rooms, which have two or three activities at the same time. It means that in some cases the household's cooks indoors, and when the process of consolidation more complete, an extension for cooking and laundry were built at the back.

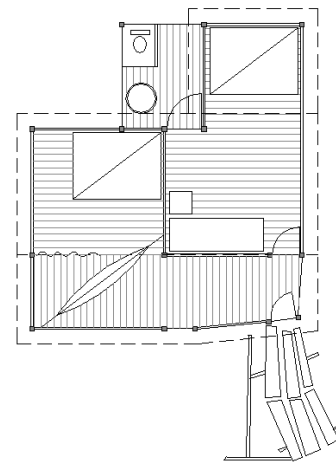
The *housing typology 3* is located in the lowest part of the neighborhood on Brazilian territory. It is the most recent development. Therefore, the housing units are wooden platforms with wooden walls and partitions of plastic or metal sheets. This housing typology does not have a single bridge as an entrance, this housing units are interconnected by a wood pedestrian bridges network which is above the ground 1.50 meters as well. In some cases there are public toilets and these are the houses in worst conditions in the whole squatter settlement.



Map 7. Housing Typology 1. La Unión neighbourhood. The oldest and most consolidated part. Source: Fieldwork.



Map 8. Housing typology 2. La Unión neighbourhood. Most recent spontaneous area.



Map 9. Housing Typology 3. La Unión neighbourhood. The lowest part and most recent spontaneous development.

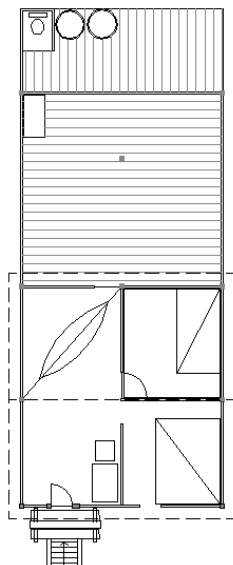
4.3.2. Guadalupe neighborhood

The housing typologies in *Guadalupe* neighborhood are in accordance to two areas which compose the neighborhood. Housing typologies are the result of an adaptation process in two different natural areas; one is a hill between the San Antonio's ravine and the Amazon River, on flood prone lands. The second area is the river edge where houses are just floating on the Amazon River.

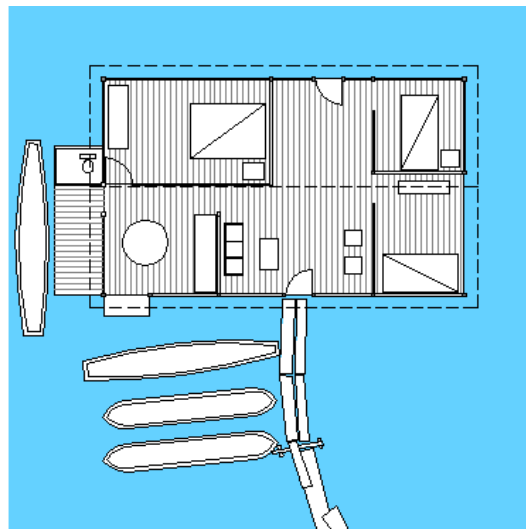
The *housing typology 1* is a self built house with a clear growing process in accordance to the large plot of land where is located. The first construction is a wood platform above the ground 1.80 meters in average, with a roof in zinc tiles, in which the households divides the space in different rooms. Then, the house expanded towards the backyard with an extension of the wood platform. This space is mainly for cooking purposes, and another rooms. Finally, the house has a final extension which is for the toilet and the laundry, keeping the same wood platform height.

The *housing typology 2* is a boat house floating on the Amazon River. The house is anchored by tying it to a big wooden post located on the rivers edge. In some cases the housing unit is for dormitory purposes, but in most of cases, it has an area for receiving boats. The main activity of inhabitants living in boat houses is to keep boats and machinery. Therefore, the housing typology 2 is divided into two subgroups, first the houses for dormitory purposes, and second, the houses for boat repair.

Finally, the housing typologies of both neighborhoods are asymmetric but are different kind of adaptations to the flood prone lands. The *housing typology 1* in *La Unión* has been growing at the same manner than the *housing typology 1* in *Guadalupe* towards the backyard. However, the difference is that in *La Unión* there is no separation between plots while in *Guadalupe* there are.



Map 10. Housing Typology 1. Guadalupe neighborhood. The first area is settled on the hill which is the highest place in the area. Source: Fieldwork.

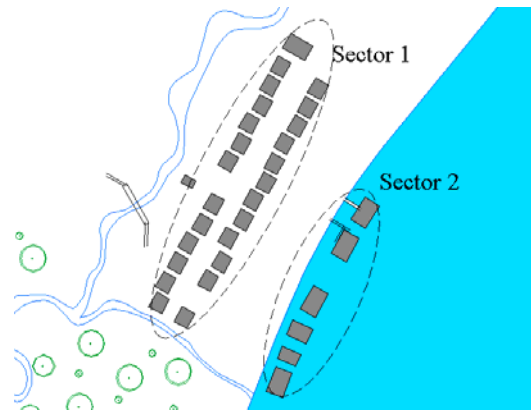


Map 11. Housing typology 2. Guadalupe neighborhood. These are the Boat Houses which float the whole year on the Amazon river. Source: Fieldwork.

The *housing typologies 2 and 3* in *La Unión* have a similarity with the *housing typology 1* in *Guadalupe* which is a wood platform above the ground. In some cases in *La Unión* this housing units are separately each other. However, the *housing typology 1* in *Guadalupe* has one advantage which is a regular and organized human settlement growing process. But, the housing typologies 2 and 3 in *La Unión* have as an advantage to have wood bridges connecting the majority of the spontaneous settlement, improving the mobility in the neighborhood during flooding periods.



Map 12. La Unión neighbourhood. Map made during field work period based on interviews, observations and walk out journeys in the neighborhood. Source: Fieldwork. Erik Vergel Tovar, 2006.



Map 13. Guadalupe neighbourhood. Map made during field work period based on interviews, observations and walk out journeys in the neighborhood. Source: Source: Fieldwork. Erik Vergel Tovar, 2006.

Chapter 5 Reviews study between Leticia and Tabatinga possible cross border cooperation elements

As explained in chapter 2, the urban policy of Colombia and Brazil has a common principle: “*The social function of the property*”. In addition, both urban policies have citizen’s participation as a common element in the formulation, approbation and implementation processes in both of its planning instruments. The planning instrument in the Colombian Urban Policy is the *Territorial Planning Plan POT*, while in the Brazilian Urban Policy is the *Plano Diretor*. Both are the municipal law, which guides policies, objectives and principles of municipalities in both countries.

The objective of chapter 5 is to find elements that can be used by Leticia and Tabatinga Municipalities in order to develop an appropriate approach for managing squatter settlements located in flood prone lands in the San Antonio’s ravine. The study takes the planning instruments of both municipalities as the point of departure for any intervention since both are the local level policy in aspects such as definition of risk areas for human settlements, to formulate projects for regularization squatter settlements and resettlements projects, and the main instrument for formulating housing policies. The review study is complemented by an interview with the Head of the Planning Office of each city carried out during fieldwork, looking for a comparison between what it is established in laws and what it is happened in reality.

The study also looks at the frontiers and borders policies of both countries in order to find elements that can be used by Leticia and Tabatinga municipalities for an appropriate approach for managing squatter settlements located in San Antonio’s ravine. Moreover, the study takes, as a point of departure that squatter settlements located in border’s fringe is already a shared problem, which means a cross border issue for both municipalities.

Finally, the study develops a list of key elements, which can be considered by Leticia, and Tabatinga municipalities in order to be included in their local planning instruments for an appropriate cross border approach for managing shared problems in the squatter settlements.

5.1. The Territorial Planning Plan POT

The territorial planning plan POT is the main instrument establish by the Law 388/97 of Territorial Development. The principles of the Law are: “*the social and ecological function of the property; prevalence of the general interest over the particular one; equitable distribution of the loads and benefits; public function of the urbanism and democratic participation of the citizenships*”⁷⁷.

The Law 388 of Territorial Development of 1997 was approved in accordance to the National Constitution of Colombia looking to strength the decentralization process in the country and the municipality’s autonomy based on one principle: *the municipality as the fundamental cell of the Nation State*. The Law 388 applied the territorial ordering concept using two basic groups of elements: *dimensions for development* (political, economical, social, environmental and cultural) and *attributes* (public services, urban land, *housing*, public equipment, transport infrastructure and public space). Likewise, the Law 388 of 1997 gave to Municipalities innovative planning,

⁷⁷ Articles 2°, 3° and 4°, Law 388 of Territorial Development, 1997, Congreso de la República de Colombia.

management and financial instruments for building and modification processes of urban spaces⁷⁸. Therefore, the Law 388 of Territorial Development permits to improve municipality's capacity for urban management, to increase its urban governance and to recover the importance of urban planning in order to guide the financial investments from the public and private sector as well in urban development. Moreover, the Law in accordance to the social function of the property must guarantee the Constitutional's rights such as housing, public services and the public space.

On this context, the Territorial Planning Plan POT is the basic instrument of the physical – juridical – economic planning of the territory and it is compulsory for all of the municipalities in Colombia. The POT as a set of objectives, directives, policies, strategies, goals, programs, performances and norms adopted in order to orient and to administrate the physical development of the territory as well as the land use⁷⁹.

5.1.1. Planning instruments

The *partial plans* is another tool and planning instrument within the POT, which applies in urban land, urban expansion land, actuation *city-planning units* (*unidades de actuación urbanística*) and *macro projects* (*macroproyectos*). The *partial plans* are physical integral units of territorial planning and ordering in which is defined the land uses, building index, occupation index, infrastructure and public space areas⁸⁰.

The POT can determine a city – planning unit for building and urbanization process in urban land and urban expansion land in areas for urban revitalization, redevelopment, new developments, in which the unit has the possibility to work different plots of land looking for a rationale use of land guarantying the equal distribution of charges and benefits of the actors. In addition, the city-planning unit must be in accordance to the city-planning norms.

Municipalities can determine the social interest housing VIS needs for new housing and housing unit's improvements as well. The Municipalities have to develop the objectives for medium term, the instruments and strategies for short term for the housing programs looking for solve the housing shortage. Likewise, the local governments have to define the percentage of urban expansion land for social interest housing, in same manner the inner city revitalization projects have to contain the social interest housing areas as well (*Law 388, Article 92, 1997*).

Regarding low-income groups access to housing, Municipalities will determine the social interest housing needs for new housing and housing unit's improvements as well. The Municipalities have to develop the objectives for medium term, the instruments and strategies for short term for the housing programs looking for solve the housing shortage. Likewise, the local governments have to define the percentage of urban expansion land for social interest housing, in same manner the inner city revitalization projects have to contain the social interest housing areas as well⁸¹.

⁷⁸ Giraldo Isaza, Fabio, 1999, *Ciudad y Crisis*, Tercer Mundo Editores.

⁷⁹ *Law 388 of Territorial Planning*, 1997, Article 9, Congreso de la República de Colombia.

⁸⁰ The partial plans are the tools through which are developed and complement dispositions of the Territorial Planning Plan POT, for urban land areas and for those areas included in urban expansion land. The partial plans have the following aspects: "*delimitation and characteristics of the area, definition of objectives and urban guidelines for the city planning units, urban norms, urban space characteristics, roads and streets, urban and public services and land management instruments*", *Law 388 of Territorial Development*, 1997. Article 19,

⁸¹ *Law 388 of Territorial Development*, 1997, Congreso de la República de Colombia. Article 92.

5.1.2. Slum upgrading, risk reduction and disaster prevention

Nowadays in Colombia there is a national document with clear guidelines for urban development and management for Colombian cities. It is the CONPES 3305 “*Guidelines for improving the Urban Development Policy 2004*”, in which two strategies related to informal settlements and risk areas for human settlements has been introduced with a technical assistance support from the national government to municipalities. The first strategy is *informal settlements upgrading*; and the second strategy is *environmental urban risk prevention and mitigation*. Both aspects have becoming a big necessity at local level policies for long run.

The strategy for *informal settlements upgrading* is compounded by the following actions⁸²:

- **Integral improvement of neighborhoods**, in which the National Government will give support and technical assistance to Municipalities, in slum upgrading programs looking for cooperation resources and credit from Multilateral Bank in accordance to fiscal capacity.
- **Massive entitlement program**, the MAVDT, the IGAC and the National Register Agency will give capacity building and technical assistance to Municipalities to carry out entitlement processes in 12 cities for at least 100.000 landed properties in those households located in upgrading areas in informal settlements.

The strategy for *environmental urban risk prevention and mitigation* is compounded by the following actions⁸³:

- The MAVDT will give **technical assistance** to Municipalities in order to introduce the **risk variable** in the territorial ordering in the **POT**.
- The National Government, through the National Program fiscal vulnerability reduction of the State, work in the definition of instruments and measures of legal, social, institutional and finance measures which permit to introduce the **resettlement** for infrastructure works, environmental protection and **disaster prevention** as a component of territorial ordering and regional development.
- The MAVDT will work on formulating strategies for **risk reduction** in the **water supply and sanitation** sector giving technical assistance to the local companies.

Based on the technical assistance process for introducing *risk reduction* in the Territorial Planning Plans POT of Municipalities in Colombia⁸⁴ the Ministry MAVDT developed the guidelines for risk reduction developed by the National government. The guidelines recommends to Municipalities to carry out a *diagnostic* of the risk and hazard areas municipality in order to introduce evaluating land zoning processes of hazard and risk. Then, municipalities should continue with a characterization process of these threatens and risks, with clear maps showing the areas already identified. Although of this first steps in weak municipalities, it is necessary to carry out a *Risk Study*, especially in urban areas, which can come up with conclusions and recommendations regarding how the risk can be mitigated. In cases where is not possible to mitigate the risk, it is necessary a resettlements of inhabitants living on this areas.

⁸² Translated into English from CONPES 3305, 2004, “*Guidelines for improving the Urban Development Policy 2004*”, Page 16.

⁸³ *Ibid.*

⁸⁴ The National Government of Colombia is implementing a national assistance program on “*Risk Reduction and Disaster Prevention in the Territorial Planning plans POT of Municipalities*” with the technical support of the Ministry of Environment, Housing and Territorial Development.

In terms of the expert *Carlos Alvarado* a civil servant of the MAVDT who designed and wrote the guidelines for introducing risk reduction in the POT, mentioned: “*Leticia has been selected as one of the pilot Municipalities for the national program due to its problems with squatter settlements on flood prone lands. In addition, we have the support of the Environmental Regional Agencies in this case CORPOAMAZONIA*”. The official mentioned that the situation in Leticia is critic, regarding to that he explained: “*I made one visit to the squatter settlements in Leticia with the Municipality of Leticia last month, and the situation is dramatic. Leticia has to make a hazard diagnostic and a **technical risk zoning**, in those areas where the hazard is identified as **high**, it is not possible to allow people to live there. The legal problem is delicate for the Mayor of Leticia because former administration has allowed people to live in risk areas and there are public investments in those areas which is in detriment of public resources*”. Finally, the official added that: “*indigenous people are very clever and intelligent in order to occupy flood prone lands because they **read river dynamics**, nobody can change the river*”⁸⁵.

5.1.1. An interview with the Planning Secretary of Leticia Municipality.

The Planning Secretary who was interviewed stated that: “*we have a cross border problem, inhabitants who is occupying Brazilian territory like in La Unión, is inhabitants to which we cannot give any kind of service, and there is no reciprocity from Brazil in order to help them. We just can to give health services to the inhabitants who are living in Colombian territory*”. When we were asked about how many inhabitants of La Unión neighborhood is living in Brazil, he said: “*To be honest I do not really know how many inhabitants there are*”.

Regarding land prices, property tax and land management, and the official said that: “*the most expensive land is in the city center, but the Municipality has not been receiving property tax from land owners for some years, thus we have to apply for support and financial resources from the national government. In addition, you know that the Army is the owner of many plots of lands surrounding the city of Leticia, and the Municipality could never negotiate rational prices with them or to receive from them some lands for urban development in the city*”.

In addition, the Army has a new project which according the Planning Secretary: “*it is going to modify the Territorial Planning Plan PBOT in order to give them the possibility to build a new Air Force Headquarters*”. The Secretary added that this situation is going to change the urban expansion areas and thus the planning goals, but he said: “*we are now on negotiations*”.

About the resettlement project of La Unión, he added: “*the Housing Policy of the Municipality is based on a budget of U\$422.297 dollars. We are looking to buy some land areas in the north part of the city, in order to find a place to relocate La Unión neighborhood*”. Likewise, the Municipality is interested on a relocation of two more neighborhoods located on flood prone lands, and one squatter settlement, which was already evicted from Brazil by the Federal Police of Brazil. The objective of the municipality consists on a self-build housing project starting with a basic unit (toilet, kitchen, one room), and then the relocated inhabitants can continue the building process. However, he said that building materials in the city are very expensive which increases social interest housing prices, he said: “*a social interest housing unit in Leticia nowadays costs U\$5000 dollars, which is too high for us*”.

⁸⁵ Interview carried out with *Carlos Alvarado*, an official and national expert, in charge of the National Program for introducing risk reduction in the POT at Territorial Development Department of the Ministry of Environment, Housing and Territorial Development MAVDT in Bogotá, July of 2006.

Now, the Municipality and especially the planning office are looking for a group of professionals that can carry out the resettlement project, with the housing project design plan for which the local government would have U\$3300 dollars per housing unit. However, he added that for the Municipality is very expensive to provide service land for the project which is one of the national government requirements in order to provided housing subsidies.

Regarding cross border cooperation with Tabatinga the official said: *“I have not thought to work with the Prefeitura of Tabatinga in the resettlement project of La Unión, each city has to resolve the problem by itself. And there are some topics that we cannot manage with Tabatinga, we tried to set up a freezer for food for both cities together and it was impossible because each city wanted to have it in their side”*.

Finally, he mentioned that the Municipality is very interested on the revision and assessment process of the Territorial Planning Plan PBOT, with the technical assistance from the Ministry MAVDT, especially on housing and risk management, which are the main issues in the city. However, he said that they have not thought about the revision of the Plan to bridge some aspects with Tabatinga.

5.2. The *Plano Diretor* a new participative planning instrument

The *City Statute* Federal Law No. 10.257 10th of July of 2001 is the National Urban Policy of Brazil. One of the main objectives of the *City Statute* is to guarantee the right to the city for every citizen. Moreover, the *City Statute* has one main principle the *social function of the property* based on the Articles 182 and 183 of the Federal Constitution of Brazil as follows: *“these articles established the instruments for guaranteeing, in the ambit of each Municipality, the right to the city in fulfillment of social function of the city and the property”* (*City Statute, 2001, page 45*).

The *City Statute* established the *“guidelines and parameters of Urban Policy in Brazil and offers instruments for Municipalities for local governments can invest in planning processes on urban and territorial management and to guarantee the right to the city”*⁸⁶. The planning process at the local level looks for better and more equal cities, which can be possible facilitating participation of all segments in the society during this process (*Ministry of Cities, Guia Plano Diretor, 2001*).

The main planning instrument for Municipalities established by the *City Statute* is the *Plano Diretor*. The *Plano Diretor* is obligatory for municipalities with more than 20 thousand of inhabitants, those that integrate metropolitan regions and urban agglomerations, with tourist interest areas, and, municipalities located in influenced areas by activities of significant environmental impact for a region or the country. Likewise the *Plano Diretor* has the principles, objectives and guidelines for territorial policy for the Municipality in the long term. It has to defend the right of citizenships for dignity shelter, to the city, for a good environment, in a process of sustainable cities respecting diverse cultures (*Plano Diretor na Amazonia, 2006*).

On the other hand, the *Plano Diretor* has to delimit urban, rural land and urban expansion land. Likewise, to identify risk areas or high vulnerable areas for human settlements, to save land for social interest housing for low income groups, and to define instruments for land regularization among others. In addition, in small municipalities the *Plano Diretor* have to identify priority problems, to find articulation with the regional level and to look for integration and support from

⁸⁶ Ministry of Cities, 2001, *Plano Diretor Participativo, Guia para a Elaboracao pelos Municipios e Cidadaos*, Brazil, Translated into English from *Introduction*, Page 12.

the State and Federal governments levels for local urban policies and programs. The fundamental objective of the *Plano Diretor* is to establish how the property fulfill its social function in the way that guarantees access to serviced urban land and regularized it and to recognize to all citizen right for dwellings and urban services⁸⁷.

5.2.1. Instruments for land regularization.

Land regularization is a public intervention process in urban areas occupied by informal settlements. This process has a juridical dimension related to entitlement of land which is articulated to urban and environmental dimensions focus on regularization of land plots and it use parameters and land uses.

The *City Statute* has institutionalized several instruments for implementing land regularization such as: *right of use special urban*, *special use concession for dwellings purposes* (individual or collective) and *special zones of social interest* (ZEIS).

The Social Interest Special Zones – ZEIS based on successful experiences on cities such as *Recife*, *Belo Horizonte* and *Porto Alegre*. The *City Statute* has introduced this instrument. It is defined by the *City Statute* as areas designated primary for production and maintenance of social interest housing, and to incorporate spaces of clandestine city such as *favelas*, slums or squatter settlement among others into the legal city.

The ZEIS has been classified in accordance to the occupation characteristics as follows⁸⁸:

- **Public land or private land** occupied by *favelas* (slums) by low income groups or similar settlements that are part of the public interest in promoting a juridical **regularization** of land possession.
- Irregular settlements that are part of public interest due to its characteristics for promoting a juridical regularization process for plot divisions, and complementation of urban infrastructure and community equipments, as well as, **environmental improvement**.
- Empty urban land or sub-utilization of urban development those are necessary for implementing **social interest housing** programs.

In addition, the Social Interest Special Zones ZEIS can delimit areas occupied by low income groups in an informal way for implementing land and housing regularization programs, establishing special land uses norms, occupation and constructions. It can be done in accordance to their culture, regularization instruments, social interest housing programs and participation for inhabitants living in this areas” (*Plano Diretor na Amazonia*, 2006).

⁸⁷ Ministry of Cities, 2001, *Plano Diretor Participativo, Guia para a Elaboracao pelos Municipios e Cidadaos*, Brazil, Translated into English from *Introduction*, Page 15.

⁸⁸ Ministry of Cities, 2001, *Plano Diretor Participativo, Guia para a Elaboracao pelos Municipios e Cidadaos*, Brazil, Translated into English from *Plano Diretor and Land Regularization*, Page 83.

5.2.2. Risk areas for human settlements

Environmental risks are one of the priority topics in the formulation process of the *Plano Diretor*. The objective of the Plan is to reduce risks generated by flooding, erosion and contamination. Thus, the Plan can establish Special Zones for areas with these characteristics. The *Plano Diretor* can delimit Special Zones in areas that presents “*risk for human life or health conditions for inhabitants, areas subject of flooding or landslides*”. The objective for this delimitation is “*to establish solutions for population living in risk areas in order to prevent them from the risk*” (*Plano Diretor na Amazonia, City Statute article 4, 2006*).

During the fieldwork period the researcher had the opportunity to attend the capacity building workshop⁸⁹ related to what is and how should the *Plano Diretor* be formulated with a strong emphasis on citizen’s participation carried out by civil servants of the Ministry of Cities of Federal Government of Brazil. During the sessions, it was possible to have a short conversation with one of them. The persons who attended the questions was a lady who works for the Ministry, and she answered about the question of how it is possible to manage squatters settlements in flood prone lands when in the Amazon the river has a hydrological cycle which flooded the water front area? She said: “*it is not possible to allow inhabitants to settle on flood prone lands if the life of the inhabitants are at risk. The Law is clear on that point, the Municipalities has to relocate inhabitants who are living on high risk areas. But, if the risk is mitigated until the point that inhabitants will not be under risk it would be possible to find alternatives on it*”⁹⁰.

5.2.1. An interview with the Infrastructure Secretary of Tabatinga Municipality

During the visit to the twin cities it was possible to visit twice the Infrastructure Secretary of Tabatinga which is the planning department of the Municipality as well. At the beginning he went straight to the point: “*we have had informal discussion with Leticia government, including ministries such as Environment and Foreign Affairs. However, when Tabatinga and Brazil government are ready to put our part for a common project always Leticia says that they do not have financial resources. Therefore, it is not possible to work with them. Tabatinga is not going to put all the resources*”.

When he was asked about inhabitants living in flood prone lands, we was very emphatic: “*we have to relocate this inhabitants, they are living in high risk areas and it is not allow to permit inhabitants to settle in a range of 30 meters close to rivers, the law is clear*”. And talking about Guadalupe neighborhood, he added: “*We are going to relocate those inhabitants on the north part of Tabatinga city, we have some land there for them, but, we are going to relocated only Brazilian citizenships, Peruvian and Colombian illegal must go back to their home countries*”.

Regarding urban planning and management instruments, he mentioned that now they are working on the *Plano Diretor*, which is compulsory for Tabatinga Municipality in order to receive financial resources from the Federal Government. However, the City Statute and its main planning instrument the *Plano Diretor* is a new plan to carry out for the local government, thus the knowledge about what is it exactly is very low. Therefore, the official invited the researcher to

⁸⁹ Workshop developed by civil servants from the Capacity Building Office of *Plano Diretor* Campaign during 25th, 26th and 27th of July in Tabatinga. *Plano Diretor Participativo Cidade de Todos*. Ministry of Cities. Federal Government. Brazil.

⁹⁰ Interview carried out during the capacity building workshop on *Plano Diretor Participativo*. Tabatinga July, 2006.

the capacity building workshop with the staff of the Ministry of cities which was held in Tabatinga, in order to know more about the future *Plano Diretor* of Tabatinga.

5.3. Frontiers and integration policies between Colombia and Brazil

The study is complemented by a review and assessment of the current policies that rule border issues between both countries, but focused on the case of the twin cities of Leticia and Tabatinga and squatter settlements on flood prone lands. In addition, the review looks for key elements that can be used by local governments of Leticia and Tabatinga towards a cross border integration or cooperation for managing common and shared problems related to squatter settlements on borders.

5.3.1. Significant elements of the Colombian frontiers policy

Since 1991 an article of the National Constitution has ruled the frontiers Colombian policy. The article 289 says *“for mandate of this law, departments (states) and municipalities located in frontiers zones will be able to advance directly with their counterpart territorial entity from neighboring country, at equal level, cooperation and integration programs, directed to promote community development, to supply public services and environment preservation”*⁹¹.

The mentioned article is relevant for the thesis because the National Constitution is the main legal framework in Colombia for all laws, decrees and policies at national, regional and local levels. In addition, in the case of the San Antonio’s ravine basin community development, for supplying public services and environment protection are bi-national needs found in the two squatter settlements studied. Moreover, as is clear that a cross border approach is a necessity at local level, it is clear that the main law support this kind of initiatives. However, it is important to see how this constitutional mandate it is implemented.

The Law 191 of Frontiers of 1995 is the main legal framework in borders issues in Colombia. After its expedition, the national government issued the Decree 569 of 2001 which created the Inter-sector Commission for Frontiers Development – CIIDEF, *“for superior coordinating and orienting management and execution of the frontiers policy in all those aspects that are related with the promotion of development in frontiers zones and its integration with the neighboring countries in topics such as economical, social, norms, culture, environmental, scientific and infrastructure, which attended peculiar issues that those zones presents”*⁹².

The Decree established the following key functions for the CIIDEF that are relevant for the study⁹³:

- *“To formulate the National Programme for Integration and Frontiers Development based on a CONPES document”*.
- *“To promote and coordinate the required actions in order to fulfillment of commitments established on the Amazon Cooperation Treatment – TCA”*.

⁹¹ National Constitution of Colombia, 1991 Article 289.

⁹² Decree 569 of 2001, *“Por la cual se crea la Comisión Intersectorial de Desarrollo Fronterizo - CIIDEF”*, Article 1, Presidencia de la República de Colombia.

⁹³ Translated into English from the Article 1st, Decree 569 of 2001. Ibid.

- *“To study recommendations coming from the Integration Commissions and Neighbor Frontiers Commissions, and when it would be, to promote its fulfillment”.*
- *“To evaluate and propose programs, projects and activities those are propitious, within the frontiers policy framework, integration and cooperation with neighboring countries”.*

Likewise, the CIIDEF has the commitment *“to promote strategies, plans, programs and projects of social, technological, scientific, cultural, on infrastructure and transport, commerce development; sustainable development, national security, territorial and community strengtheners”*⁹⁴.

As is discussed earlier, the CIIDEF has the commitment to formulate in a CONPES (National Council of Economic and Social Policy) the National Programme for Integration and Frontiers Development. Therefore, the CONPES No. 3155 *“Guidelines for developing the Integration and Frontiers Development Policy”* was issued in 28th January of 2002. In this document the Municipality of Leticia was classified into two groups due to its border condition. First, as a Frontier Zone – ZF, which is defined as *“those municipalities.....adjoining within Republic of Colombia limits, and those municipalities in which economic and social activities is noticed direct influence of frontier phenomenon”*⁹⁵. Second, Leticia was classified as a Special Unit of Frontier Development – UEDF, which was defined as *“those municipalities.....belonging to the ZF in which is indispensable to create special conditions for economic and social development through facilitating of integration with frontiers communities of neighbor countries, to establish productive activities, interchanging of goods and services, and free mobility of persons and links”*⁹⁶.

However, the CONPES 3155 includes an additional figure or regime for border municipalities, which is called Frontiers Integration Zones – ZIF. The ZIF are *“those areas in the frontiers Departments (States) which geographic, environmental, cultural and/or economic characteristics, advised conjunct planning of frontiers authorities, on those that of common agreement with neighbor country will carry out actions that convenient for promoting its development and strengthens bilateral and international interchange”*⁹⁷.

The CONPES has defined strategies for its implementation between which is the improvement of living conditions. It focused on water supply and sanitation services in order to reduce poverty and unsatisfactory basic needs – NBI of local inhabitants. In addition, the strategy looks for bi-national agreements for interchange of goods and services between neighbor regions and countries on *building materials*. The objective is to offer Colombian products on competitive prices in the market (*CONPES 3155, Pages 15-16*)

However, the CONPES is still a document that has to be implemented, in terms of Beatriz Calvo a official of the Ministry of Foreign Affairs of Colombia *“the CONPES has had low implications, I think that it is still being developed”*. In addition a functionary of the same Ministry who is part of the *Vicinity Commission* between Colombia and Brazil added: *“Tabatinga is still a small city and it is not at the same level of Leticia in political and administrative terms. The*

⁹⁴ Translated into English from the Article 4th, Decree 569 of 2001. Ibid.

⁹⁵ CONPES 3155, 2002, *Ámbito territorial de aplicación de la política de integración y desarrollo fronterizo*, Page 3.

⁹⁶ Ibid. Page 3.

⁹⁷ Based on the decision 501 of August of 2001 by the Andean Nations Community – CAN.

*decentralization in both countries is different and the decisions in Brazil Amazon area taken in Manaus which is the capital of the Amazon Federal State*⁹⁸.

There are two main petition bi-national conformed by decision makers of both countries. First, the *Mix Technical Scientific Commission Colombia – Brazil*, which discusses technical issues for programs projects on going between both countries. Second, the *Vicinity Commission Colombia – Brazil*, which discusses political issues in order to have a common agreement between national governments, promoting integration and joint planning of projects in conjunct. Based on this information, we can conclude that the *Mix Technical Scientific Commission Colombia – Brazil* is a technical petition in which projects and proposal are discussed and are implemented; while the *Vicinity Commission Colombia – Brazil* is a political petition in which national governments with participation of other agencies, regional and local authorities, takes decisions and promote integration, in which local and regional initiatives are discussed as well.

However, during the interview with civil servants of the Ministry of Foreign Affairs in Bogotá it was clear that local initiatives that deal with special problems for both countries are welcome to discuss within the *Vicinity Commission Colombia – Brazil*, even more, the mentioned: *“we have a ongoing project but with Peru, a Rainforest Management in Tarapacá (Amazonas), in which the CAF is giving financial resources. Both countries agreed on the area for developing this project; while ministries of foreign affairs are doing auditory, environmental agencies from both sides are implementing the project*⁹⁹.

At the end of the interview both officials agreed that they are interested on the output of the present thesis, according to them: *“I think that if you can come up with an appropriate approach bridging legal instruments in order to show how the process should start, it can be presented to the Vicinity Commission Colombia – Brazil. Moreover, if the proposal should come from the local level it would have more relevant and interest by national governments*¹⁰⁰.

5.3.2. Significant elements of the Brazilian integration policy

In Brazil the borders has been a national security and defense issue. Just to mention the main legal support the National Constitution of 1988 in the article 20 says: *“to strengthens that returns are indispensable for defense of borders in benefit of the Union”*. In addition, the article 21 says: *“to keep as competence of the Union not only to execute services of defense and police in borders defense, also direct exploration by authorization, concession or permission, services of railroad and fluvial transport between Brazilian ports and national borders”*. Moreover, the article 91 says: *“to consider criteria and conditions of use indispensable areas for security reasons in domestic territory and to think on its effective use, especially in border fringe and related ones as preservation and exploration of any kind of natural resources”*¹⁰¹.

Nowadays there is a switch on borders approach in Brazil because the concept of frontier has had changed towards a border's fringe. It is important because the Ministry of Integration of Brazil

⁹⁸ Interview carried out with *Beatriz Calvo* and *Sergio Daza* in Bogotá during fieldwork period, both are functionaries of the Frontiers Coordination Department of the Ministry of Foreign Affairs of Colombia.

⁹⁹ Ibid.

¹⁰⁰ Ibid.

¹⁰¹ National Constitution of Brazil, 1988, Articles 20, 21 and 91, 1988.

has restructured the *Development Program of Border's Fringe*, which is on program of the Secretary of Regional Programs at mentioned Ministry. The program was restructured in terms going beyond a sovereignty and territorial occupation issue on the Brazilian borders, it is to constitute a priority regional development slope and articulation with other countries of South America (*Programa de Desenvolvimento da Faixa de Fronteira, Ministério da Integração Nacional, Brasil, 2006*).

The Development Program of Border's Fringe has identified a group of sub regions and a group of *twin cities* in which the first stage of the program should be carried out. Tabatinga was selected as one of the pilot projects of *twin cities*, within the *sub region IV*, in accordance to the following criteria¹⁰²: *potential for a new strategy of Lula's government: "regional development, citizenship and integration of South America". Insertion in priorities spaces of regional development programs. Strategic poles for international relationships. It should have an impact potential in the short run. It has 1 pilot in each arc (North – Central – South), and two additional with MERCOSUR.*

Currently the Ministry of Integration is working on an inter-ministerial group – GTI coordinated by the Presidency Civil House, in which 21 Ministries of the Federal Government work in actions for transversal interventions in the borders fringe territory (*Development Program of Border's Fringe, 2006*).



Map 14. Border's fringe and Twin Cities Map. Restructured Development Program of Border's Fringe. Ministry of Integration. Federal Government of Brazil. Source: http://www.integracao.gov.br/programas/programasregionais/faixa/cidades_gemeas.asp

The main principle actions lines of the *Twin Cities strategy* are¹⁰³: *economic dynamics, economic infrastructure, social infrastructure and social and institutional organization.*

In addition, the proposal for development program of border fringe includes an instrument in order to concretize the cross border integration and cooperation in twin cities. The proposal of

¹⁰² Ministry of Integration, Federal Government, 2006, *Restructured Development Program of Border's Fringe, Twin Cities Strategy Actions*,. Brazil.

¹⁰³ Ibid.

creating Frontiers Integration Zones – ZIF (cross border integration areas in twin cities), which is a tool already proposed within the Andean Nations Community – (CAN) in order to establish an special cross border regime for commerce, economic development, exportation among others. Therefore, the figure or regime of ZIF is a common point between the Development Program of Border Fringe in Brazil, and, the CONPES 3155 “*Guidelines for developing the Integration and Frontiers Development Policy*” of Colombia.

The Brazilian development program of Border fringe says that the proposal for a ZIF should be established as follows¹⁰⁴:

- *It must be a result of a “bottom up process”, in which the Frontiers Committees and Sub-regional Forums are discussion spaces.*
- *It has to be articulated to the Frontiers Integration Plans.*
- *The ZIF has to be decided in Brasilia.*
- *It has to be a Special Tributary (Taxes) Regime.*

The program mentioned that Twin Cities and ZIF can be differentiating between each other in accordance to cities and border characteristics. The ZIF is a possibility to articulate the borders and twin cities to the international and regional markets and commerce networks.

5.3.3. *The foreign affairs representation point of view.*

The main cross border flow between the cities of Leticia and Tabatinga are the inhabitants. The “24 hours open border” as the Brazilian consul called it during an interview during the fieldwork visit in the Twin Cities. Currently one of the main concerns in the bilateral agenda between both countries has been security, drug traffic, commerce taxes, cross border products interchange and illegal population migration. For the Brazilian consul it is clear that Tabatinga is a periphery municipality without autonomy for cross border agreements because it is not a capital of one federal state as its counterpart Leticia. He says: “*Leticia is the capital of the Amazonas Colombian Department in Colombia, Tabatinga is not!. Every bureaucratic issue must past through Manaus which is the capital of the Amazon Brazilian State before to arrive to Brasilia. On that sense Leticia has a direct communication with Bogotá while Tabatinga does not*”¹⁰⁵.

However, the vice consul affirms that it is necessary to defend the idea of Twin cities because the integration is a fact in the reality but in legal terms is very weak. In addition, he affirms: “*Brazil and especially Tabatinga is receiving hundred of inhabitants from Peru illegally, and they are willing to work in the hardest jobs in different sectors more than Brazilians. Likewise there is a big flow of inhabitants from Colombia which are displaced persons from the violence due the internal conflict*”¹⁰⁶.

In addition, the official talked about cross border cooperation in urban management aspects, and he said: “*both cities with the support of different agencies, institutions of both national and local governments were discussing about a common project for Final Disposal of Solid Residues which*

¹⁰⁴ Ibid.

¹⁰⁵ Interview carried out with Mister Vice Cónsul of Brazil in Leticia, during fieldwork period in the twin cities. Leticia, July, 2006.

¹⁰⁶ Ibíd.

would provide services for inhabitants of both Municipalities. However, after the meetings and minutes signed, a concept based on international law about solid waste management established that it is not allowed to send toxic residues between countries”¹⁰⁷. However, in terms of squatter settlements and risk areas management the urban legal framework of both countries have already common points as it was discussed earlier.

Finally, the vice consul mentioned: “There are two important legal instances in order to talk shared problems between both countries. The Frontiers Committee is the space where consuls can discuss common issues which must be informed to the Embassies in both capital cities, Bogotá and Brasília. Then, The issue can be communicated to the Neighboring Committee which is the main instance for talking common issues and to establish political and foreign affairs decisions”¹⁰⁸.

On the other hand, the new Colombian vice consul in Brazil in an interview during the same fieldwork period mentioned: “The main functions of the Colombian Consulate in Brazil are foreign affairs relationships, VISA issues, stamp of entry and exit of cross border flows of inhabitants and special documents”¹⁰⁹. When the consul was asked about urban planning and management instruments of both cities and possibilities for cross border cooperation he added: “the territorial planning plans of both cities are not part of my functions, it would not influence in anything and it is not part of my competence”. His main concern about the cross border interaction between both cities is: “we are in a unique border situation because people mobilization is completely free from any control, and everything that is happening is illegal which means that the informality of the situation has been assumed by both cities, but without any agreement on it between both countries”¹¹⁰.

In addition, when the official was asked about main points of the binational agenda and on going aspects of cross border cooperation, he explained: “there is not a bilateral agreement that permits free transit, there are inhabitants working on one city and living in the other one. There are only Good intentions Agreements between both countries but it does not mean a formal and legal support. Recently we had the meeting the presidents Uribe (Colombia) and Lula (Brazil) in Leticia in which both governors agreed important points for bilateral relationships and it is only competence of the Foreign Affairs Ministries of both countries”¹¹¹.

The Brazilian Consul has been working for more time in the twin cities than the Colombian one, which is evident on the interviews, especially about the knowledge on background cross border cooperation issues and the political agenda of both countries.

5.3.4. La Unión neighborhood inhabitant’s perception.

During the visits to the housing units in the neighborhood was possible to ask about the border as one of the main issues for this *borderlanders*. When they were asked about how often they cross the border between Leticia and Tabatinga, 39% said everyday, 30% said often, 17% sometimes,

¹⁰⁷ *Ibíd.*

¹⁰⁸ *Ibíd.*

¹⁰⁹ Interview carried out with the Mister Vice Consul of Colombia in Tabatinga, during the fieldwork period in the Twin Cities. Tabatinga, July, 2006.

¹¹⁰ *Ibíd.*

¹¹¹ *Ibíd.*

while 9% said that never cross the border. In addition, within the group that crosses border, 57% said that they do it for shopping purposes, 21% for job reasons, 5% for other reasons and 2.30% for study reasons.

Regarding cross border family ties, 60% of interviewed said to have relatives in the neighbor city, while 37% left said that do not. Moreover, 89% of persons said to do not have any kind of property in the neighbor city while 2.30% answered that they have it. On the other hand, interviewed were asked about cross border services, 59% said that are not receiving any service from the neighbor city. However, 20% mentioned that are receiving health and education services, 17% health services and 2.30% electricity.

On the other hand, inhabitants were asked about intentions to move to the neighbor city or to request help from the neighbor city. The 73% answered that does not have thought to request support to the neighbor city, while 20% answered that they have thought it. And, the 64% answered to have not thought to move to the neighbor city, while 34% said that have thought some times to move it. Finally, the 93% of persons interviewed replied YES when were asked if both cities should work together in order to improve life conditions on the neighborhood.

5.3.5. Guadalupe neighborhood inhabitant's perception.

In Guadalupe when inhabitants were ask about how often they cross the border between Leticia and Tabatinga, 29% said everyday, 18% said often, 29% sometimes, while 18% said that never cross the border. In addition, within the group that cross border, 70% said that they do it for shopping purposes, 2% for job reasons, 10.8% for study reasons and 5% for other reasons (e.g. stroll).

Regarding cross border family ties, 55% of interviewed said to have relatives in the neighbor city, while 45% left said that do not. Moreover, 97% of persons said to do not have any kind of property in the neighbor city while 2.70% answered that they have it. On the other hand, interviewed were asked about cross border services, 78% said that are not receiving any service from the neighbor city. However, 8.11% mentioned that are receiving health and education services, 10.8% education services and 2.70% post services.

On the other hand, inhabitants were asked about intentions to move to the neighbor city or to request help from the neighbor city. The 94% answered that does not have thought to request support to the neighbor city, while 5% answered that they have thought it. And, the 86% answered to have not thought to move to the neighbor city, while 13% said that have thought some times to move it. Finally, the 94% of persons interviewed replied YES when were asked if both cities should work together in order to improve life conditions on the neighborhood.

Chapter 6 Conclusions and recommendations

6.1 Summary, findings and conclusions

The thesis has proven that the twin cities of Leticia and Tabatinga are integrated by squatter settlements on border's fringe. With the main aim and determining the appropriate cross border approach for managing the squatter settlements located on the San Antonio's ravine basin between the twin cities of Leticia and Tabatinga, the research has developed two main approaches. First, the main output of the study is a bottom up approach through which the two squatter settlements are analyzed based on symmetric and asymmetric issues found taking into account the inhabitant's socioeconomic, physical characteristics as well as their opinion and perceptions of daily life on the borderland. Secondly, the study has reviewed the current urban and frontier policies of Colombia and Brazil that applied in the case of Leticia and Tabatinga twin cities for cross border cooperation.

The symmetric issues and asymmetric issues are considered at the same time for an appropriate approach but are tackled in different ways. An appropriate approach must take into account the symmetric issues in such way to set up processes for setting up solving processes jointly. For asymmetric issues it is necessary to prevent it in the other side and to start processes for solving it where it has been occurring. Symmetric issues are problems, which are present in both neighborhoods and are at the same level and gravity. Asymmetric issues and problems found only in one of the two neighborhoods and are of different gravity (E.g. socio and cultural backgrounds); the issues can be worse or more intensive in one settlement or less in the other. Moreover, the asymmetric issues can be found only in one squatter settlement and do not in the other side.

In order to answer the main research question, the findings of the research are summarized; recommendations for short and long-term approach are then given. Finally, emerging issues and their implications are given.

6.1.1. Key symmetric and asymmetric findings between both squatter settlements for an appropriate cross border approach

6.1.1.1. Socioeconomic characteristics

Table 6. Socioeconomic Characteristics Squatter Settlements

Symmetric issues	Asymmetric issues
<ul style="list-style-type: none">• Both squatter settlements are immigrant's clusters in different stages of consolidation.	<ul style="list-style-type: none">• <i>La Unión</i> used to be a "Peruvian cluster" while <i>Guadalupe</i> is a "Cocama indigenous cluster".
<ul style="list-style-type: none">• There is a correlation between income generation activities and squatter settlements location respect to both cities. Income generation activities in both settlements are related to informal economies.	<ul style="list-style-type: none">• Income generation activities of <i>La Unión</i> inhabitants are more diverse than <i>Guadalupe</i> inhabitants who are more focus on agricultural activities.
<ul style="list-style-type: none">• There are several cases of squatter settlements inhabitants that have lived in neighboring	<ul style="list-style-type: none">• <i>La Unión</i> inhabitants present more people with diverse background, while <i>Guadalupe</i>

countries.

inhabitants are mainly Brazilians indigenous.

- The major range of income in both neighborhoods is U\$84 – 93\$ per month. It is very low taking into account that Colombian Minimum Legal Salary is U\$171 per month and the Brazilian Minimum Legal Salary is U\$162.
- Both squatter inhabitants have cross border occupation and activities in the twin cities, mainly in the informal economy.
- *La Unión* inhabitants have more range of income with higher levels than Guadalupe inhabitants. While Guadalupe inhabitants have just three levels of income but they it is more equal distributed. Thus, in La Union there are more income differences than in Guadalupe.
- *La Unión* inhabitants have more variety occupation and activities while in Guadalupe inhabitants work mainly in agricultural activities. Thus income ranges are very different between both squatter settlements.

Based on the above symmetric and asymmetric findings between both squatter settlements the following can be concluded:

- It is a fact that migrations are one of the causes of squatter settlements formation in the twin cities. Especially in *La Unión* neighborhood which used to be a *Peruvian cluster* in Leticia, and *Guadalupe* neighborhood is currently a *Cocama indigenous cluster* in Tabatinga. Therefore, the background of squatter inhabitants in terms of culture, activities, needs, and community organization must be part of an appropriate approach whether implementing a resettlement project, a risk mitigation or slum upgrading process.
- The immigrant population coming to the twin cities from different parts of Colombia, Peru and Brazil is a fact in the formation of these two squatter settlements. Therefore, migration continues is one of the main characteristics of integration of the twin cities.
- Any approach in order to manage these squatter settlements must take into consideration the requirements of these inhabitants to be accessible to their main source and livelihood.
- Any approach in order to manage *La Unión* and *Guadalupe* neighborhoods have to deal with social services necessities of this population on one hand, and to formulate an appropriate housing policy between both cities that work in order to decrease land and building materials prices for affordable housing for low income groups.

6.1.1.2. Housing characteristics

Table 7. Housing Characteristics Squatter Settlements

Symmetric issues	Asymmetric issues
<ul style="list-style-type: none"> • Both squatter settlements are located on flood prone lands, in the San Antonio’s ravine. And the majority of squatter settlements inhabitants have made by self built process their permanent housing structures. 	<ul style="list-style-type: none"> • <i>La Unión</i> neighborhood presents three different sectors and three different adaptations to flood prone lands respectively. While <i>Guadalupe</i> presents two sectors with different adaptations to flood prone lands.

- During the 1990's decade both squatter settlements grew receiving several new dwellers. It is the decade with the highest growth tendency.
 - Both squatter settlements present an informal housing and land market.
 - The majority of Housing units on both squatter settlements has been built on wood structure.
 - Both squatter settlements dwellers have a sense of ownership on the house and the land. But in both squatter settlements households do not have a formal title deed.
 - In both squatter settlements households do not pay property tax, but the majority pays for at least one public service (water supply).
 - Both squatter settlements have access to water by the local water supply companies.
 - Both squatter settlements have as their final disposal for residues the San Antonio's ravine. It is an unhealthy and polluted environment carries illnesses among children.
 - In both neighborhoods children are using outdoors as a toilet.
 - Both settlements have been constructed by self built housing units.
 - For squatter dwellers the process of acquiring building materials has been very expensive. For those who has bought land or a house the prices has been high.
 - In both neighborhoods the main reasons to settle in the neighborhood has been: job opportunities, children studies, access to a house and to the city.
 - *La Unión* neighborhood is a more consolidated squatter settlement than *Guadalupe*. Moreover, *La Unión* neighborhood does not have more available land. Thus, *La Unión* presents a decreasing occupation while *Guadalupe* shows an increasing occupation process.
 - *La Unión* has a more consolidated on going informal housing and land market process than *Guadalupe* which has a more recent informal housing market.
 - *La Unión* presents a more consolidated part in which housing units are built on bricks and cement. While *Guadalupe* presents boat houses floating on the Amazon river.
 - *La Unión* has been recently a renting market neighborhood while *Guadalupe* has been characterized more by family ties connections for new dwellers coming into the settlement.
 - The majority of housing units connected to electricity in *La Unión* neighborhood do not pay for the service. But the majority of the 37 housing units of *La Unión* located in Brazilian territory are paying for it.
 - *La Unión* has free access to "drinking" water with the Electric plant. But, the water supply service on Brazil presents lower prices than in Colombia.
 - Leticia sewage has the San Antonio's ravine as the final disposal of residues.
 - *La Unión* has more housing units with a toilet inside the house because it is a more consolidated neighborhood than *Guadalupe*.
 - *La Unión* neighborhood has wood bridges connecting several housing units while *Guadalupe* neighborhood does not have housing units connected with bridge
- In *La Unión* there are several cases of inhabitants that moved to the neighborhood for avoiding paying rent in other places in Leticia. While in *Guadalupe* there are several cases of inhabitants moving to the neighborhood for having a place to live coming from rural areas.

Based on the above symmetric and asymmetric findings between both squatter settlements the following can be concluded:

- Every appropriate approach to manage these squatter settlements should take into account self-building growth stages processes, traditional Amazon techniques on wood structures, and an extension at the back for services.
- Highlighted the issue on lack of security of tenure of these inhabitants, due to their location on high risk areas for flooding. However it is collectively known that the inhabitants interviewed own the house and perceive that they own the land as well. Even if they do not have a formal title deed. In addition, inhabitants in *La Unión* are not improving their houses since they are waiting for resettlement project announced by the Municipality. Based on the study results, it is necessary to guarantee to the households a legal security of tenure which can permit them to invest in housing improvements. But, this situation would only be possible for those housing units that can be mitigated from the risk of flooding in accordance to the risk study. However, inhabitants that cannot stay in the area for risk study results will need a secure tenure in another area.
- The water supply situation in both squatter settlements is unsustainable as the study shown. Therefore, any approach in order to be appropriate should start with a risk study which can prove what risk can be mitigated, and what can be prevented. Then it will be possible to determine to which housing units is possible to improve the water supply services.
- The sanitation conditions in both neighborhoods is critical, with high environmental problems due to the San Antonio's ravine has been the open sewage for both squatter settlements, as well as, sewage disposal from Leticia Municipality. At housing level, the toilet used by several households on of very low standard conditions. These unhealthy conditions are among reason why municipalities plan to relocate these squatter settlements inhabitants. Therefore, any approach in order to be appropriate on this area must start a treatment of the final disposal sewage, and control of sewage and garbage disposal for the two settlements.
- The use of the housing for income generation activities in *Guadalupe* neighborhood is due to the indigenous background of the inhabitants, where agriculture, fishing and handicrafts activities are part of their daily life. In the neighborhood *La Unión* the current unhealthy and overcrowded conditions do not made possible to have agriculture activities as it used to be. Therefore, any approach in order to be appropriate have to considerate the needs for inhabitants to have agriculture activities in rich nutrients areas such as "*várzea*"¹¹² or flooding land, or, on the other hand, a plot of land in rural areas which guarantee alimentation and income activities for households.
- The housing typologies in both squatter settlements have similarities and differences. The housing typology 1 in *Guadalupe* neighborhood has been developed on the high part of the neighborhood in wood structures above the ground with metal roof. The Housing Typologies 2 and 3 in *La Union* presents the same elements. However, in *Guadalupe* there are no wood bridges connecting the housing units as in *LA Union*. But, *LA Union* sector 2 and 3 has been

¹¹² Please see chapter 2 for definition of "*várzea*" concept.

growing in a more spontaneous settlement way while Guadalupe has had a more organized and clear settlement pattern.

- The housing typologies have some similarities. In the most consolidated part of La Unión the housing typology 1 has been built on large plots of land. Thus, this housing unit has been extending towards the back. At the same time, the housing typology 1 in Guadalupe has the same growing process towards the back. The difference is the plots of lands in Guadalupe have a space between each other. The study has shown that this two housing typologies are a good lessons to learn by local governments in future housing solutions.

The presence of squatter settlements in both cities has shown the lack of an appropriate housing policy in the twin cities. Thus, in order to manage squatter settlements located on the border's fringe, the twin cities have to formulate an appropriate housing policy dealing with land and rent markets, building materials prices in order to provide affordable housing for all different groups. Moreover, the housing policy has to increase security of tenure conditions of city's inhabitants, in order to improve the property tax ratio which is one of the most important financial resources.

6.1.1.3. Risk and resettlement issue

The study has shown that although inhabitants in the squatter settlements inhabitants have somehow adapted to the flood prone lands they are at risk during flooding periods. In *La Unión* this feeling is higher due to housing units are located in the low parts of the San Antonio's ravine. And there is a high expectation to be relocated from the neighborhood by public authorities looking for better housing conditions. However, during flooding periods *La Unión* inhabitants are evacuated and are provided temporally shelter by the Municipality, as well as, food and support from other sources in Leticia.

On the other hand, *Guadalupe* inhabitants do not evacuate the settlement during flooding periods. They have adapted somehow in their environment by a bridge in order to connect the settlement to the city. In addition, they build another floor in order to avoid the water and by using boats for mobility. Although these risk prevention actions developed by Guadalupe inhabitants, they feel under risk during flooding periods and the major complaint is that without a bridge they are completely disconnected and isolated from Tabatinga.

Table 8. Risk, Flooding Periods And Resettlement

Symmetric issues	Asymmetric issues
<ul style="list-style-type: none">• The resettlement process for both squatter settlements is a political decision already taken by Leticia Municipality, and it will be the same decision by Tabatinga Municipality.	<ul style="list-style-type: none">• <i>La Unión</i> inhabitants have the resettlement as a hope for better life conditions, 86% of interviewed said that there is a possibility to be relocated. While in <i>Guadalupe</i> the 64% of inhabitants interviewed said that they do not think that there is a possibility to be relocated from that place.
<ul style="list-style-type: none">• In both squatter settlements during flooding periods there are collective actions in order to build bridges.	<ul style="list-style-type: none">• A big percentage of <i>La Unión</i> inhabitants go out of the neighborhood. While Guadalupe inhabitants stayed at home during flooding periods.
<ul style="list-style-type: none">• In both squatter settlements during flooding periods there are Collective actions in order to	

clean the neighborhood after the flooding period.

- In both neighborhoods there are pollution, bad smell, and garbage problems during flooding periods.
- Guadalupe inhabitants build a second floor, uses boats and bridges for mobility during flooding periods. While *La Unión* inhabitants build shelters close to the neighborhood, improve bridges and receive support from the Municipality.

The thesis recommends carrying out a risk study in order to define clearly the levels of *hazard vulnerability* and *response capacity* of squatter settlements inhabitants. Each one of these levels can determine the *risk assessment* needed in the area. The study can come up with zoning of areas under risk and treats and then what of those areas can be mitigated and what is not. Based on these results, the areas occupied by families, which can be mitigated, can be part of a slum upgrading process, while those that cannot be mitigated have be part of a resettlement process.

However, in both cases the process only cannot be a technical approach. It is necessary to take into account the social process. Therefore, an appropriate approach has to involve the communities in a participation process towards an improvement of their life conditions. Therefore, an appropriate approach for either a successful resettlement or a slum upgrading processes should take into account socioeconomic and physical characteristics of the inhabitants.

6.1.2. Common and significant elements from both instruments urban policy

As already pointed out in the research the urban policies of Colombia and Brazil have common elements and similarities such as the *social function of the property* part of the aim of these two national policies. The two urban policies has established as the main instrument for planning urban areas a Territorial Plan for Municipalities within a decentralized political structure that exists in both countries. In Colombia it is the *Territorial Planning Plan* POT while in Brazil it is the *Plano Diretor*.

In addition, both Plans are juridical planning instruments in which social, economical and territorial dimensions are included. During formulation, approval and implementation processes citizenship participation is fundamental for a successful performance of the Plan. At the same time, the Plans are made for long-term periods involving several administrations looking for long-term goals as well.

It's an advantage for Leticia and Tabatinga twin cities to have urban policies with similarities that can give the possibilities of cross border approaches between local governments. However, as it was already shown in chapter 2 and 4 the Colombian urban policy made it at power centers of the country have been applied with several difficulties in the Amazon context. The lack of knowledge about local cultures in the Amazon human settlements has been one reason for these difficulties. Therefore, the present thesis advocates for an input from the local context towards a change in local urban policies such as the case of twin cities squatter settlements on border's fringe.

Likewise, as it was already discussed in chapter 5, both planning instruments have key elements that can be take into account by Leticia and Tabatinga twin cities for the case of La Union and Guadalupe neighborhoods. First, the POT has the city planning units (partial plans) as a planning instrument for setting up special norms, programs, projects and actions for risk areas for human

settlements and slum upgrading process among others in a clear mark area in urban land. Second, the *Plano Diretor* has the special interest zones ZIE as a planning instrument for selecting and mark risk areas for human settlements and for slum upgrading (ZEIS) processes.

On one hand, as it was discussed in chapter 5 the National Government of Colombia is implementing a National Plan for risk reduction and disaster prevention which looks for introduces these key aspects into the POT. Leticia has been selected as one of the pilots in the country for receiving this capacity building and technical assistance support due to squatter settlements located on flood prone lands.

On the other hand, the *Plano Diretor* has had a useful input for slum management, which is the *Social Interest Special Zones – ZEIS*, which has been a result of successful experiences in other Brazilian cities. The *Plano Diretor* includes as one of the most important planning instruments for slum upgrading and regularization the ZEIS. In addition, the *Plano Diretor* has the Special Interest Zones ZEI as another key element for identification of risk areas for human settlements in urban land. This identification can lead towards actions to improve those areas in terms of risk mitigation and prevention.

Therefore, it can be concluded that the *Special Interest Zones* and the *Partial Plans* from both urban policies have the same principle, to define a clear urban area in which a special norms, programs, projects and actions can be implemented as a unit. In addition, the twin cities of Leticia and Tabatinga can be beneficial to the Colombian national program of Risk Reduction and disaster prevention introducing in their own local policies short term actions for the San Antonio's ravine area.

Finally, for an appropriate approach to manage squatter settlement in flood prone lands, the study has shown that it is possible to take advantage of the best lessons and instruments from each country. On one hand, the ongoing process of risk reduction in Colombia, and, on the other hand a large slum management experiences in Brazil. Therefore, a cross border approach in the twin cities if Leticia and Tabatinga should take advantage of these two mentioned significant planning instruments.

6.1.3. Key findings for Leticia and Tabatinga cases from frontiers and integration policies between Colombia and Brazil

Based on the findings in both countries is clear that in both legal frameworks is already a concern regarding integration, cooperation and cross border projects. The National Constitution of both countries takes into consideration the border issue, but in the Colombian case it is clear with it the mandatory for municipalities located in borders to establish with a neighbor municipality from other country cross border cooperation and integration. In addition, the CONPES documents and National Government Agencies in Colombia have clear guidelines for implementing cooperation and integration processes in already identified municipalities. However, it is more of a top down approach which it has not real impact at the local level.

On the other hand, the Brazilian case is different in terms of the approach to the border as a development area. The Re-structured Proposal for Development Program of Border Fringe of the Ministry of Integration is looking at the borders in terms of a space or fringe not as a limit. In addition, the clear identification of twin cities of the best place for integration and cooperation and commerce development is clearly an interesting approach for cross border cooperation. Therefore it is possible to affirm that Leticia and Tabatinga have an advantage in terms of legal

support towards cross border cooperation local initiatives based on the legal framework of both countries.

Table 9. Cross border Cooperation Elements Colombia - Brazil

COLOMBIA	BRAZIL
BILATERAL PETITIONS	
<i>Vicinity Commission Colombia – Brazil</i>	
Currently it is the most important space between both countries as a political discussion petition.	
NATIONAL LEVEL	
Ministry of Foreign Affairs National Planning Department – DNP	Ministry of Integration Federal Government and a GTI with 21 Ministries.
CONPES 3155 “Guidelines for developing the Integration and Frontiers Development Policy”	Re-structured Proposal for Development Program of Border Fringe
REGIONAL LEVEL	
Frontiers Committee <i>Proposed by the Frontiers Law and the CONPES 3155.</i>	Frontiers Committee <i>Proposed by the Re-structured Proposal for Development Program of Border Fringe</i>
LOCAL LEVEL	
LETICIA - <i>Amazonas</i> Department South Colombian Amazon Frontiers Zone - ZF	TABATINGA - Federal State of <i>Amazonas</i> High <i>Solimoes</i> Sub region Twin Cities Strategy
Frontiers Integration Zone – ZIF The ZIF has been a common agreement within the CAN, however taking into account the similarity with the Brazilian side proposal; it makes sense in a case such as Leticia and Tabatinga twin cities. Vice consul of Colombia in Tabatinga	Frontiers Integration Zone – ZIF The ZIF is one border special regime proposed by the Development Programme of Border Fringe in order to consolidate the Twin Cities Strategy. Vice consul of Brazil in Leticia
Local Public Policies The Territorial Planning Plan PBOT of Leticia is the best planning instrument for long run which can adopt and introduce the instruments explained above looking for a cross border cooperation and integration with Tabatinga.	Local Public Policies The Plano Diretor is the future planning instrument for long run in Tabatinga which can introduce since the beginning the instruments explained above looking for a cross border cooperation and integration with Leticia.

Finally, the local governments of Leticia and Tabatinga could inject in their local policies a link with these national government initiatives in order to be involved in the process with the participation of local population. The *Territorial Planning Plan POT* and the *Plano Diretor* are the best local policies and planning instruments in which both Municipalities can start the first steps towards a cross border approach for the twin cities.

Given the context of the research the following section will explain how the steps towards an appropriate cross border approach for managing the San Antonio Ravine’s basin, especially the squatter settlements on flood prone lands, can be developed taking into account the elements already identified in the Colombian Urban Policy, the Brazilian Urban Policy, the Frontiers Policy of Colombia and the Border fringe Development Program of Brazil.

6.2. Recommendations

6.2.1. An appropriate approach in the short term for managing squatter settlements in flood prone lands in border's fringe

An appropriate approach in a context such as the twin cities it is necessary to take into account symmetric and asymmetric findings in both squatter settlements. Based on these findings it is possible to continue a bottom up approach, which is the most appropriate for a cross border process for these squatter settlements. The symmetric issues founded in the squatter settlements of *La Union* and *Guadalupe* should be an input for both local government policies. The advantage of these symmetric findings is that both local governments can define cross border cooperation actions together using the same tools and instruments in their *territorial planning plans* the *POT* and the *Plano Diretor*.

On the other hand, the asymmetric issues founded are equally significant as an input in the local urban policies. However, the cross border cooperation in this case can be based on lessons that can be learned from the twin counter part. In addition, it is recommended that asymmetric issues should be tackle by both local governments but with different tools and instruments. Based on this inputs for local policies plus symmetric and asymmetric issues already identified, the study developed an appropriate bottom up approach which is explain as follows.

An approach

The short term process developed is shown in the diagram below. It includes the outputs explained earlier in succession of steps that can be followed by local governments of Leticia and Tabatinga. These actions are recommended to the local governments in order to develop an appropriate approach for setting up the process for solving a shared problem as it is the two squatters settlements located at the border.

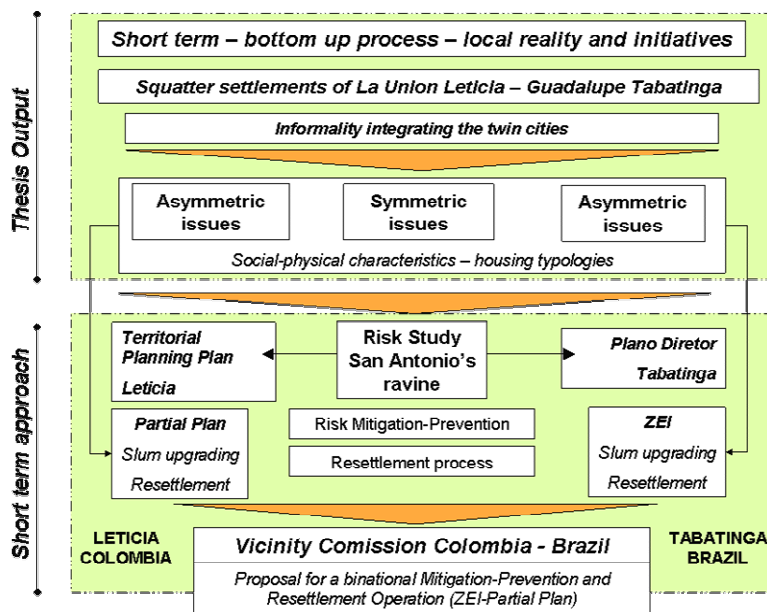


Diagram 4. An Appropriate approach for managing the San Antonio's ravine basin squatter settlement.

Step 1 technical

The first step is to carry out both local governments a technical zoning of risks in the shared basin of San Antonio's ravine area for having a diagnostic of *hazards, vulnerabilities* and *response capacity* of the squatter settlements. This process can be done with the technical assistance and support from the National Government of Colombia in the framework of the National Program for Risk Reduction in which Leticia is involve right now. The diagnostic is the first step for assessing the *risk* in the area. On this context, there are two possibilities regarding identification of risk areas: those that can be mitigated and those that cannot be mitigated based on the hazard level. The inhabitants occupying areas with high hazards have to be relocated, while those that are located on areas with low hazards and be part of a slum upgrading process in which is necessary to develop a technical proposal that can mitigate the risk. In both cases it is recommended to take into account the socioeconomic and physical characteristics of squatter settlements inhabitants founded in the thesis.

Parallel to this actions, Leticia Municipality have the opportunity to develop a revision and adjustment process of its Territorial Planning Plan PBOT based on the Decree 4002 of 2004, which permits municipalities to make a revision of the Territorial Planning Plans for risk reduction reasons and disaster prevention purposes. This process permits to the Municipality to introduce the socioeconomic and physical characteristics of the present study for an appropriate approach to manage the San Antonio's Ravine area. Likewise, Tabatinga Municipality can introduce the diagnostic results in the formulation process of the *Plano Diretor*. This process permits to the Municipality to start an appropriate process for formulating appropriate programs and actions to manage San Antonio's Ravine area.

Step 2

It is recommended for both local governments to carry out a joint *risk study* of the San Antonio's ravine area. This technical assessment based on the diagnostic developed in the step 1 can feed with the definition of areas where the risk can be mitigated and areas where it cannot be mitigated. The areas in which it is possible to mitigate the risk can be part of a slum upgrading project in which actions such as engineer works for water supply and sanitation are the priorities, and water management. The areas in which it is not possible to mitigate the risk have to be part of a resettlement project for inhabitants settled in these areas.

For both municipalities it is possible to mark and delimit the San Antonio's ravine basin as a special urban land for a common operation within their respectively **PBOT** and **Plano Diretor**. In Leticia's case the most recommended planning instrument is the *Partial Plan* for defining with a clear framework the area. For Tabatinga case the most recommended planning instrument is the *ZEI*. It can be divided into two parts; the first part can be defined as a Special Interest Zone for environmental protection for those areas where it is necessary to relocated squatter settlements inhabitants. The second part can be defined as a *Social Special Interest Zone* ZEIS for those squatter settlements that can be part of a slum upgrading project as part of the risk mitigation works.

Both processes can be developed in a parallel way by both municipalities. It is recommended to define an urban management person in charge of the parallel processes in both cities in order to bridge and synchronized it with the local policies.

Step 3

When both parts of the puzzle are already formulated, can be presented to the *Vicinity Commission Colombia – Brazil* in order to define the San Antonio's ravine a common planning area in which will be define a joint planning process based on both legal figures: the *Partial Plan* and the *ZEI* of both local urban policies. This process is a bottom up process of a local initiative that can be discussed in a political petition place as the mentioned Commission. Likewise, the *Partial Plan* and the *ZEI* must take into account for both projects: the mitigation and prevention works and the resettlement project, the socioeconomic and physical characteristics described in the present study. Moreover, it is recommended to carry out a more complete census in which all housing units must be visited including information of all households, not only the head home.

The housing typology study developed in the thesis is important as well. For the mitigation works it is necessary to respect socioeconomic and physical characteristics, traditional building techniques, and to establish in the special urban norms for this area that it is possible to develop housing units in accordance to Amazon context “*várzea*” culture. This can be useful for households because they can continue improving their housing units in a self built process. And with a technical input which establish the minimum settlement norms in order to reduce risks and hazards and to prevent disasters in the future. These special urban and building norms have to be based on indigenous techniques knowledge. In the resettlement project the housing typology is a special issue due to a new development cannot imposed a different housing solution that does not belong to the local culture and especially to the households of flood prone lands. Therefore, the resettlement project has to take into account the housing typology described in the present study in order to design an appropriate design proposal for a new development.

Step 4

Finally, the joint proposal for managing the San Antonio's ravine basin squatters settlements already included in both Municipality Plans, the PBOT and the *Plano Diretor*, can be presented for the *Vicinity Commission* in order to define the financial resources from the national governments, regional governments, local governments, private sector and the community of both neighborhoods. The advantage of carry out a parallel process for defining actions within each municipality planning tool is that can be develop a joint process which is the appropriate or separately but with same objectives and strategies with a clear risk and hazards zoning areas in San Antonio's ravine basin. However, as this thesis already proved that the squatter settlements are a shared problem, even more are integrating the twin cities in an informal way, the most recommended approach is to start a process for solving the problem and to prevent it in the future setting up cross border cooperation between Leticia and Tabatinga twin cities.

6.2.2. Long term

For the long run, the study of squatter settlements on flood prone lands on twin cities has two main recommendations for urban studies in the Amazon region. First, to take the case of Leticia and Tabatinga as a pilot for a cross border cooperation case within a cross border regime based on the legal framework of Colombia and Brazil frontiers and integration policies respectively. Second, it is recommended to develop further urban studies on human settlements and flood prone lands towards a change in the urban policies of both countries that cannot really deal with this urban issue. Perhaps in the future will be possible to formulate a Amazon Urban Policy in accordance to local reality and cultural patterns.

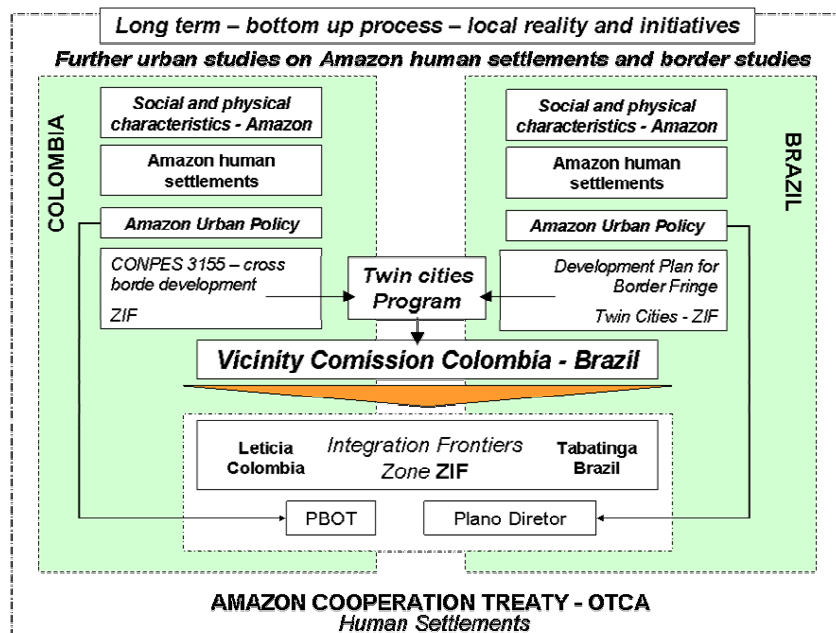


Diagram 5. A Long term approach. A long term recommendation for further urban studies in Amazon Human Settlements which can continue a bottom up approach in order to give an input for a future Amazon Urban Policy in accordance to the local context and culture.

The long term approach has two recommendations. On one hand, it is recommended to carry out further urban studies in flood prone lands on human settlements in the Amazon. Based on this research findings will be possible to have a clear layout of settlements patters in the region taking advantage of flood prone lands without risk for their occupants. In the specific case of Leticia and Tabatinga twin cities the short term recommendations already discussed is a first step towards a future cross border regime on the twin cities interaction area. It can be an *Integration Frontiers Zone ZIF* which is considered by the two countries as an instrument for cross border cooperation on the frontiers Colombian policy and the integration Brazilian policy.

6.3. Emerging issues and implications

6.4.1. Squatter settlements and urban policies in the Amazon context

Informality is the expression of the inhabitants who wants to have the same right to the city as those who live in the formal city. Even more, migration in the Amazon is lead by people looking for better life conditions, job opportunities and study offers on urban areas. However, Amazon human settlements have been experiencing squatter settlements formation as shown in this thesis. The occupation of flood prone lands has been a traditional settlement patters in the Amazon developed by indigenous groups in order to take advantage of these areas for agricultural activities and fishing. However, the urban policies of countries such as Colombia and Brazil has not taken into consideration that urban reality in the Amazon is quite different. The urbanization process in the Amazon needs further urban studies in order to find clear solutions that can be introduced on urban policies towards sustainable human’s settlements as indigenous groups have done it.

Urban public policies in the Amazon needs to be rethink in terms of a new urban policy for human settlements which include a new chapter dedicated to the flood prone lands and traditional type of settlements. In addition, the urban public polices should be based on local characteristics, determining the ways on how can the flood prone lands be occupied in a formal way as part of cities without risks for it population. This is a new field that needs more research due to several human settlements occupying flood prone lands, as a result of indigenous influence.

6.4.2. Twin cities and borders in the Amazon context

It is remarkable the discussion about twin cities in a world where borders are becoming more important due to migration, commerce, and inhabitants flows and informality networks around it. In addition, the *disfunctionalization* of borders materialized on twin cities is becoming an interesting research field and area. The borders cannot be seen as a single line of limits or periphery any more. In addition, twin cities are becoming the best place towards cross border cooperation between countries due to are the places with more cross border flows and interactions. Thus, public policies on twin cities need to be rethinking based on a new borders conception of social construct. Twin cities can be symmetric and asymmetric, and it is an important step towards an appropriate approach to the topic. Twin cities and its borders lines needs to be seen not as mirror spaces, needs to be seen as symmetrical or asymmetric meetings points between inhabitants where there are no limits for languages, identities, communication and flows.

Bibliography/References

Becker, B., 1995, Undoing Myths: *The Amazon - an urbanized forest*, Man and Biosphere Series. Vol.15 UNESCO

Browder, John O. & Godfrey, Brian J. 1997, *Rainforest Cities, Urbanization, Development, and Globalization of the Brazilian Amazon*, Columbia University Press.

Church, A., Reid, P., 1996, *Urban Power, International Networks and Competition: The Example of Cross-border Cooperation*, Urban Studies, Vol. 33, No. 8, 1297± 1318.

Dominguez, Camilo, 2002, *Zonificación, Ordenamiento, Ordenación Territorial*, Universidad Nacional de Colombia, Sede Leticia.

Ehlers, N., Buursink, J., Boekema, F., 2001, *Introduction: Binational cities and their regions: From diverging cases to a common research agenda*, GeoJournal 54: 1 – 5.

Goodno, J.B., Aug/Sep 2003, *Hands across the border*, Planning, Vol.69, Iss. 8; pg. 20, Chicago, USA.

Giraldo Isaza, Fabio, 1999, *Ciudad y Crisis*, Tercer Mundo Editores

Grisales, German, 2005, *¿Does the Colombia, Brazil and Peru common borderland needs an integration border regime?* Aldea Mundo • Revista sobre Fronteras e Integración. Año 10, No. 18 / Mayo 2005 • ISSN 1316-6727.

Gutiérrez Rey, F., Acosta Muñoz, L.E., Salazar Cardona, C.A., 2003, *Perfiles Urbanos en la Amazonia Colombiana: un enfoque para el desarrollo sostenible*, Instituto Amazónico de Investigaciones Científicas, SINCHI.

Gutiérrez Rey, F., Acosta Muñoz, L.E., Salazar Cardona, C.A., 2003, *La Amazonia Colombiana, II Workshop, Relações Campo-Cidade e Identidades Regionais nas Amazônias: Tendências do Desenvolvimento e Opções Políticas numa Perspectiva Comparativa*.

Hurtado Gómez, L.M., 2004, *Pobreza y Marginalidad Urbanas en la Amazonia. Un estudio de caso de los asentamientos ubicados en zonas inundables*, Tesis de Maestría en Estudios Amazónicos, Universidad Nacional de Colombia, Sede Leticia.

Machado, L.O., 1998, *Limites, Fronteiras, Redes, Fronteiras e Espaço Global*, AGB-Porto Alegre, Porto-Alegre, p.41-49.

Martinez Muñoz, Luis Roberto, 2004, *Instrumentos de Ordenamiento Territorial y Urbano Conceptos, Proceso Legal y Articulación*, Universidad Nacional de Colombia.

Leticia Municipality, 2002, *Territorial Planning Plan PBOT of Leticia*, Municipal Council of Leticia, Amazonas, Colombia.

Ministerio de Ambiente Vivienda y Desarrollo Territorial, 2005, *Guía Metodológica 1. Incorporación de la Prevención y la Reducción de Riesgos en los Procesos de Ordenamiento Territorial*. Seria Ambiente y Ordenamiento Territorial.

Ministry of Cities, 2001, *Plano Diretor Participativo, Guia para a Elaboracao pelos Municipios e Cidadaos*, Brazil

Ministry of Integration, Federal Government, 2006, *Restructured Development Program of Border's Fringe, Twin Cities Strategy Actions*, Brazil

Navarro, Rachelle G., 1994, *Improving sanitation in coastal communities with special reference to Puerto Princesa, Palawan Province, Philippines*, Msc. Thesis, Mc Gill University, Canada.

National Congress of Colombia, 1997, *Law 388 of Territorial Development*, National Congress of Colombia.

National Congress of Brazil, 2001, *Estatuto da Cidade - Law 10.257 of 10th of July*, National Congress of Brazil.

National Planning Department DNP, 2004, CONPES 3305 “*Guidelines for improving the Urban Development Policy 2004*”, National Council of Economic and Social Policy of Colombia.

National Planning Department DNP, 2002, CONPES 3155 “*Guidelines for developing the Integration and Frontiers Development Policy*”, National Council of Economic and Social Policy of Colombia

OEA Comisión Mixta de Cooperación Amazónica Colombo – Brasileña, 1989, *Plan Modelo para el Desarrollo Integrado del Eje Tabatinga-Apaporis*, Secretaria Ejecutiva para Asuntos Económicos y Sociales, Departamento de Desarrollo Regional, Washington, D.C.

OEA, 1993, Programas Binacionales de Cooperación Fronteriza - *Un Modelo para el Desarrollo de la Amazonía*, Secretaria General de la Organización de los Estados Americanos Secretaria Ejecutiva para Asuntos Económicos y Sociales Departamento de Desarrollo Regional y Medio Ambiente, Washington D.C.

Peña, Sergio, *Cross-border Planning, What is it? Implications for the U.S.-Mexico Border*.

Programa Calha Norte, Prefeitura de Tabatinga, Fundação Getulio Vargas ISAE, 2001-2004, *Plano de Desenvolvimento Local Integrado e Sustentável*, Prefeitura Tabatinga.

República de Bolivia, República Federativa del Brasil, República de Colombia, República del Ecuador, República Cooperativista de Guyana, República del Perú, República de Suriname, República de Venezuela., 1978, *Tratado de Cooperación Amazónica*, Bogotá Universidad Nacional de Colombia..

República de Bolivia, República Federativa del Brasil, República de Colombia, República del Ecuador, República Cooperativista de Guyana, República del Perú, República de Suriname, República de Venezuela., 2004, “*Declaración de Manaos*”, VIII Reunión de Ministros de Relaciones Exteriores de los Estados Miembros de la Organización del Tratado de Cooperación Amazónica. Manaos, Brasil.

República de Bolivia, República Federativa del Brasil, República de Colombia, República del Ecuador, República Cooperativista de Guyana, República del Perú, República de Suriname, República de Venezuela., 2004, *OTCA Strategic Plan, 2004 – 2012.*, VIII Reunión de Ministros de Relaciones Exteriores de los Estados Miembros de la Organización del Tratado de Cooperación Amazónica. Manaos, Brasil.

Riaño Umbarila, E., 2003, *Organizando su espacio, construyendo su territorio, transformaciones de los asentamientos Ticuna en la ribera del Amazonas Colombiano*, Universidad Nacional de Colombia, Sede Leticia.

Rincón Patiño, A., 2005, *Legalidades colectivas: Historia de los espacios urbanos no consentidos, Espacios Urbanos No Con-sentidos, Legalidad e ilegalidad en la producción de ciudad*, Colombia y Brasil. Universidad Nacional de Colombia, Sede Medellín, Alcaldía de Medellín, Área Metropolitana del Valle de Aburrá.

Roberts, J.T., 1992, *Squatters and Urban Growth in Amazonia*, American Geographical Society, Geographical Review, Volume 82, Issue 4, Pages 441-457.

Sadek, Maria Tereza, 2000, *Constitutional engineering in Brazil: the politics of federalism and decentralization*, Rev. bras. Ci. Soc., vol.15, no.42, p.153-154. ISSN 0102-6909.

Sierra, 2006, *Las Fronteras de Colombia*, El Tiempo, Junio, Informe Especial.

Steinman, Rebeca, 2002, *A Geografia das Cidades de Fronteira: Um Estudo de Caso de Tabatinga (Brasil) e Letícia (Colômbia)*, Dissertação Submetida ao Corpo Docente do Programa de Pós-Graduação em Geografia da Universidade Federal do Rio de Janeiro como requisito parcial para obtenção do grau de Mestre Em Ciências (M. Sc.).

SUSAM, 2003, GT 3: *Políticas públicas e planejamento regional na Amazonia*, Workshop, Moderacao: Bertha K. Becker, Neli de Mello.

Torres Ribeiro, A.C., 2005, *Dimensiones Culturales de la Ilegalidad*, Espacios Urbanos No Consentidos, Legalidad e ilegalidad en la producción de ciudad, Colombia y Brasil. Universidad Nacional de Colombia, Sede Medellín, Alcaldía de Medellín, Area Metropolitana del Valle de Aburrá.

Vargas López de Mesa, 2004, *Fronteras: espacios conceptuales y materiales en el contexto de la geografía*, Fronteras Territorios y Metáforas, Instituto de Estudios Regionales, INER, Universidad de Antioquia., Colombia.

Special Administrative Unit of National Natural Parks, 2001, *Parks with Inhabitants*, Public Policy of the UAESPNN, Bogotá, Colombia.

UN HABITAT, 2000, Millennium Development Goals MDG, Goal 7, Target 11.

UN HABITAT, 2003, *The Challenge of Slums*, Global Report of Human Settlements, UN HABITAT.

UN Millennium Project, 2005, *A Home in the City*, Task Force on Improving the Lives of Slum Dwellers.

Wamsler, C., 2006, *Integrating Risk Reduction in Housing and Human Settlements Development Planning*, Lecture at HDM, Lund University

www.amazonia.org, accessed 19/5/2005, *Municípios do Amazonas pedem recursos do Ministério das Cidades para elaborar Plano Diretor*, Amazonia.

www.uni-tuebingen.de/egwinfo/susam/index.html, accessed 2006, *Sustainable Amazonia Structural Change and Policy Options in Rural and Urban Areas*, SUSAM is an EU-financed project, carried out by a multilateral and interdisciplinary network of academic institutions and non-governmental organisations from Brazil, Bolivia and the EU.

www.citiesalliance.org/index.html, accessed 2006, Cities Alliance Web Page.

Annex 1. Interviews

In Bogotá D.C

- *Miss Lina Maria Hurtado, Consultant for the Amazon Region, Territorial Development Department, Ministry of Environment Housing and Territorial Development, Colombia.*
- *Mister Carlos Alvarado, Consultant Risk and Disasters Management, Territorial Development Department, Ministry of Environment Housing and Territorial Development, Colombia.*
- *Mister Rodolfo Cano, Sustainable Territorial Development Department, National Planning Department DNP, Colombia.*
- *Mister Jose Alejandro Bayona Chaparro Sub-director of Housing and Urban Development, National Planning Department DNP, Colombia*
- *Mistress Beatriz Calvo and Mister Sergio Diaz, Frontiers Coordination Department, Ministry of Foreign Affairs, Colombia.*

In Leticia and Tabatinga

- *Mister Edgar Sepulveda, Secretary Planning Office, Municipality of Leticia.*
- *Mister Walmir Olima, Head of the Infrastructure Office, Prefeitura Municipal of Tabatinga.*
- *Professor German Ochoa, IMANI – Amazon Research Institute – National University of Colombia – Leticia.*
- *Don Nubes, President of the Community Based Orgazanition - La Union neighborhood.*
- *One local leader of Guadalupe neighborhood.*
- *Consul of Colombia in Tabatinga.*
- *Consul of Brazil in Leticia.*

Annex 2. Brief historical background of the Twin Cities of Leticia and Tabatinga

The formation process of the nowadays called “Amazonian Trapeze” of borders; first between Spain and Portugal and then between Colombia, Peru and Brazil; is very relevant in order to understand how the cities of Leticia and Tabatinga became cross border cities or twin cities after the foundation of both urban areas.

During the occupation period by the Spanish and Portuguese of South America the Amazon was a remarkable example of differences of the access to the Amazon basin. For Spanish the access was very difficult because they were settled on the Andean mountains and the possibilities to go down towards the occupation of the Amazon were extremely difficult due to geographical characteristics. On the other hand, for Portuguese the access to the Amazon basin was easily due to they controlled the mouth of the Amazon River on the Atlantic coast and thus the fluvial network in the region (Zarate, C. 2001).

The foundation of both cities has a difference of one century, between the XVIII century in which Tabatinga was founded by the Portuguese and the XIX century in which Leticia was founded by the Peruvian during the process of formation of borders between the nation states of Colombia, Peru and Brazil after the Portuguese and Spanish occupation. Tabatinga was founded in 1766 as a Portuguese military settlement by *Domingos Franco* in order to move the military forces located in *San José do Javari*, and on the orders of the *Pará State Governor*¹¹³. Likewise, the foundation of Tabatinga was part of the foundations of several towns in the Amazon by Portuguese who were trying to establish a military control in the region and the expansion of Portuguese occupation limits towards the west (Zarate, C. 2001).



Map of the foundations during the XVIII century in current Triple Frontier Region. Location of *Tabatinga* (1766) and *Nuestra Señora de Loreto de Ticunas* (1760). At this moment *Leticia* had not been founded yet. Source: Carlos Zarate Botia. “The formation of a non limits frontier”. IMANI MUNDO. National University of Colombia, Leticia. 2001.



Map of the Current Human Settlements in the Triple Frontier Region. Location nowadays of *Leticia* and *Tabatinga* in the region. Source: Carlos Gilberto Zarate Botia. “The formation of a non limits frontier”. IMANI MUNDO. National University of Colombia, Leticia. 2001.

¹¹³ Amazonas, Lourenco, da Silva Araujo e. Dicionario Topográfico, Historico, Descritivo do Alto Amazonas. Manaus, GRAFIMA, 1984. Reproducao fac-similada da edicao de 1852, impresa em Recife por Typografia Comercial de Meira Enriques. Page 194.

The town *Nuestra Señora de Loreto de Ticunas* was founded in 1760 six years before Tabatinga, and it became the capital of the Loreto District during the XIX century. The Loreto town was the residence of the Governor and the Brazil's Consul at the end of the XIX century¹¹⁴. It is not clear why *Loreto de Ticunas* disappeared between the XIX and XX centuries, especially if it was the capital of the district, but probably we could say that Leticia replaced it as the main town in the ex-Spanish region.

During the period of time where the *Ildefonso* Treaty established the Border Commissions in 1778 in order to define the limits between Spanish and Portuguese occupation. The Spanish expedition departed from Quito, while the Portuguese one traveled along the Amazon River. The Spanish commission had several disadvantages in terms of less military support had an impact on defining the limits because Portuguese took advantage of the situation subordinating Spanish in some decisions due to an inferiority condition (*Zarate, C. 2001*).

Likewise, it was not possible for the Spanish commission to take back Tabatinga as a Spanish settlement because the Portuguese requested as a payment back for a building that belonged to the *Compañía General del Pará*, and the military Spanish fortifications on the Negro River. (*Requena 1991 [1782]*). In addition, Portuguese were taken Spanish settlements and growing their influenced area with a few presences of Spanish in the area. As a result, Portuguese got their objective which was to achieve the penetration process on the Amazon basin and to have the fluvial control over the whole region (*Zarate, C. 2001*).

After this period, the new nation states were confronted with the same ambiguous situation about the limits between each other, but with the fact the Brazil already had the control and occupation that Portuguese had before. Peru and Brasil defined the *San Antonio's Ravine Basin* as the official limit between each other, which was a small affluent river of the big Amazon River, in the Convention agreed the 23rd of October 1851 (*Zarate, C. 2006*).

The foundation of Leticia has different versions which determine that the origin of the city is unclear yet. However, several research studies developed related to the formation of the triple frontier between Colombia, Peru and Brazil such as the research project of the professor Carlos Zarate¹¹⁵ has come up with the most important versions. Therefore, the following information is the result of different interviews that I had during the fieldwork period in Leticia with the professor at the Amazon Research Institute IMANI in Leticia.

On one hand, one version says that Leticia was founded as a military fortification as part of the Peruvian expansion on the Amazon. The name of the new town was "*Gran Mariscal Ramón Castilla*", and the place was selected because its strategic location in a curve of the river where it is possible to have control view towards Brazil and Peru, and the possibility of building the town on a flat area of the high lands (*Zarate, C. 2006*).

On the other hand, another version says that Leticia was founded in 1867 as part of a Peruvian expansion process on the Amazon just in front of the limit agreed with Brazil the *San Antonio's Ravine Basin*, the main idea behind the foundation was to set up a Port on a strategic location for fluvial communication and to have a presence in front of the Brazilian limit when the rubber's boom had a tremendous impact on the Amazon basin as part of the international commerce of this

¹¹⁴ Wilkens de Mattos, *Diccionario Topographico do Departamento do Loreto na Republica Do Perú, Pará, 1874*. Page 98.

¹¹⁵ Currently the professor Carlos Zarate is carrying out a PhD research Project on the process formation of the triple frontier between Colombia, Peru and Brazil, in the framework of the PhD on History offers by the National University of Colombia, Bogotá. D.C.

product. Likewise, the city of Leticia was the first human settlement with a clear grid as urban pattern in the region and its foundation took place on the flat area in the high lands (*Raymondi, 1868-69*).

After this period, in 1900 was the re-foundation of Leticia as a Port town well located in the Amazon River, just in front of the Brazilian Town called Tabatinga. After this period Leticia started again a growth process becoming a consolidated port town for the Peruvian interests, especially for the rubber's world trade commerce which had a big impact in the region having Brazil and Peru as the main leaders in the Amazon region.

On the other hand, in the XX century the Peruvian expansion had the Colombian opposition due to Peru had limits agreements with Brazil increasing their control on the Amazon in detriment of Colombia. Leticia was given to Colombia in order to have an agreement between Colombia and Peru, however Peru attacked the city during the 1920's which led two countries in a war period. As a result of the confrontation between both countries in 1930, Colombia finally received Leticia as part of their territory, and at the same time, the limits between Colombia, Peru and Brazil were defined, establishing the so called "Amazon Trapeze" which is considered the only access that Colombia could have on the Amazon River.

Based on the short historical description is it possible to realize that Leticia and Tabatinga were founded with a common idea behind, to have presence on the territory by the Peruvian in the first one and by the Portuguese in the former. Therefore, it is possible to affirm that the twin cities were founded before to define the limits between Colombia and Brazil as Nation States. Nowadays, both cities are a conurbation area conforming a city region in terms of fluvial and air transport, with a big impact on the hinterland surrounded it, and as an attractive urban area for study and job opportunities for the three countries giving an impulse to a non-stop migration process in the region along the region, having a common necessity of land for future urban expansion, in the triple frontier.

Annex 3 Data collected in *La Unión* neighborhood (Leticia).

Social characteristics

The study is focused on social characteristics of the “head home” persons who answered the questions during the visits, thus the social characteristics data collected during the fieldwork gives information about the “head home” person or in some cases his wife. However, during the interviews was possible to realize that social characteristics of La Union are dynamics in accordance to people’s generation. Especially with Peruvians persons that have settled in the neighborhood illegally some years ago, and their son and daughters have gained the Colombian citizenships which is one of the objectives of illegal Peruvian immigrants¹¹⁶.

The 80% of interviewed were born in Colombia, 14% were born in Peru and 3,45% in Brazil. The 86% of people interviewed have Colombian citizenships, the 10% has Peruvian citizenships, and only the 2% has Brazilian citizenship. Regarding ethnic origin, the 36% of people are half-breed, 21% are indigenous *Tikuna*, 20% are indigenous *Cocama*, 8% are indigenous *Uitoto*, and 6,90% are “*colonos*”¹¹⁷. Likewise, the 86% of the interviewed said to feel more identified with Colombia, the 8% with Brazil while just the 3.45% with Peru.

The 80% of people interviewed said that has not been always living in the neighborhood, while the rest 20% said that they have always living there. Within the 80% of people who has not been living always in *La Unión*, 74% has lived in other neighborhoods in Leticia, 14% have lived in Brazil, and 6% have lived in Peru, before to come to the neighborhood. In addition, the 41% of people said have lived in a neighbor country, within this group, 20% has lived in Brazil and 5% in Peru. However, this kind of question were not easy to answer for interviewees due to the Leticia’s Municipality position regarding the resettlement project, because the local government said that only people who is living in Colombian territory and have Colombian citizenship can be relocated¹¹⁸.

Regarding the level of studies, the 94% of the interviewed said to have had opportunity to study. However, the 33% of people have done basic school and incomplete, while only the 23% have completed the basic school studies. The 19% of persons said to have finished the secondary school, while the 10% said to have not done it. Finally, the 4% said to have an university diploma and 1.16% a technical diploma. On the other hand, the 81% said to have studied in Colombia, and the 13% in Peru.

About occupation there are a very diverse kind of occupation among the population interviewed and the information that mentioned about their relatives. The majority of women 44% have as a main activity to stay at home taking care of children and home tasks. In addition, 4% of women are working at the domestic service in Leticia, and 3% as sellers. On the other hand, the majority of men 16% interviewed are working with the construction sector; with an average of 1% are mailman, fisher man, sellers, commerce businessman, professor and private guard. Moreover, 57% are working in Colombia, 21% in Brazil, 10% in both countries, and 10% in Peru.

¹¹⁶ Informal conversation with Peruvian people who has been living in *La Unión* many years ago said for instance: “*Now I can apply for a subsidy or to Colombian government programmes because my sons and daughter are Colombians, thus my family is Colombian!*”

¹¹⁷ “*Colono*” are persons that came from other parts of the country with the idea to set up farms and agricultural activities in the region.

¹¹⁸ During the interview to the Planning Secretary of Leticia, he mentioned that this is the government position about resettlements project of *La Unión*.

Regarding income, the 50% of the people interviewed has an income between US\$1 – US\$84 dollars per month, 19% has an income between US\$84 – US\$210 dollars monthly, 4.60% an income between US\$210 - US\$420, 1,15% an income between US\$420 - US\$840, and, 3.45% an income between US\$840 - US\$1680.

Housing characteristics

Of the 87 housing units visited during the fieldwork 84% were built permanently and 98% are located on flood prone lands. The neighborhood has had two main periods in which the majority of its inhabitants settled; first, 1994 seven (7) housing units were built while in 1999 were twelve (12) housing units. 32% of the interviewed answered that the main reason to settle in *La Unión* was to do not live on renting any more due to it is very expensive, especially in a city like Leticia. Moreover, 75% of the housing units are self built units while 24 % were bought or received as a place to keep by the owners.

The 22% of people answered that their main reason is because they did not have any other place to live in the city, while 20% of respondents said that they came to the neighborhood because they bought the plot of land¹¹⁹, or it was received as a gift from one relative. Finally, 17% of respondents mentioned that they came to live in the neighborhood because they already had relatives living here that gave them the chance to come.

From the total of housing units visited 37% of the housing units has 4 rooms or more, 25% 3 rooms, 18% 2 rooms 19% just 1 room. On other hand, 36% of the housing units 2 person sleeps in one room, 32% with 3 persons in one room, and 31% with 4 or more persons sleeps in the same room. On the other hand, 55% of the housing units have an exclusive room for cooking, while 44% do not. In 28% of the housing units people are cooking in a room and 16% outside of the house. Finally, 91 % of the housing units have walls made on wood, 96% with the floor made on wood and 98 % with the roof made on zinc's tiles.

Secure of Tenure

The 78% of the people interviewed answered that they own the dwelling while 21% of the families interviewed are living in other condition, which are 11% on renting, 4,6% in their parents house, and 6,9% taking care of the house or other conditions. Only 29% of the households said to have a formal title deed while 58% mentioned to do not have it. In addition, regarding land tenure conditions, 74% of families own the land where the house was built, while 25 % replied to do not. However, only 33% of families said to have a formal title deed while 62% to do not.

In *La Unión* neighborhood the topic of a resettlement has becoming a big issue due to the Mayor of Leticia has promised to relocate the neighborhood in another part of the city because the houses are located on a high risk are for flooding. Therefore, it was necessary to clarify during the fieldwork that the study is just for academic purposes. However, in every visit or interview the resettlement issue always came up, especially for those who are living in Brazilian territory because the Mayor and the President of the Community Based Organization have said that only people settled on Colombian territory will be relocated.

The 41% of interviewed said to have an agreement that protects them for a legal resettlement process, while 52% said do not have it. Within the 41% that have an agreement, 25% of the interviewed have an agreement with the Municipality, 10% with the Community Based Organization, and 1% with the Brazilian Army. About if there is a possibility to be relocated,

¹¹⁹ One person mentioned that in 1994 the plot of land where was built their house did cost \$ 300.000 pesos, which nowadays is like US\$100 dollars.

68% said NO, while 28% answered YES. Within the former group of 28%, the 25% answered that they could be relocated by public authorities while 2.30% said that it would be by the landlord.

However, all of the interviewed when they were asked about if they think that can be relocated from the neighborhood 86% replied YES while only 12% said NO. The following are some reasons that interviewed mentioned supporting that they can be relocated: *“because the pollution, garbage, and children are sick the whole year, the bad smell, and mosquitoes. It is not a healthy place to live in”* and 40% of the people said that they are living on a *“high risk area”*.

Access to Water and Sanitation

Regarding access to water 80% of the housing units are receiving water supply services from the Municipal Water Company of Leticia EMPOLETICIA, 9.20% are using the water source provided by the Electric Plant, 5.75% are using rainwater and 2,30% a public tank. But, the main source of drinking water is the Electric Plant provision located on the corner of the 11th street, which is used by 98% of the housing units visited. Only 54% of the housing units have a water tank in the house. Regarding the 80% of housing units that area receiving water supply services from EMPOLETICIA, the price range of it service is as follows 24% are paying between US\$4 and US\$ 8 dollars per month, 21% a range between US\$12 and US\$24 dollars monthly and 8% are not paying for the service.

The 60% of the housing units visited has private toilet, 16% a public toilet, 13% a latrine and 9,30% are using outdoors as a toilet. Likewise, the 77% of the toilet sent the residues to the San Antonio's ravine, 9% of the latrines are connected to a septic tank, and 8% of the latrine sent the residues to the San Antonio's ravine. In 26% of the housing units 4 people are using the same toilet, in 6.90% of the housing units 3 persons used the same one and in the 3.45% 5 or more person used the same toilet. When people were asked about if they are content with the sanitation services in general, the 63% answered NO and the 32% replied YES. Finally, 47% of persons interviewed mentioned that have seen children of the neighborhood using outdoors as a toilet, while 51% of person have not.

Use of the Housing

Regarding the use of the housing the 91% of the units are used only for dormitory purposes, and 8.3% of it has an economic activity within it. Within this 8.3% of housing units, 71% of it has a shop, 14% rental rooms and 14% belongs to the government *Family Wealth Home* programme. Moreover, for 42% of the housing units this economic activity is the main income for the households, while for 57% it does not.

Alimentation

The 11% of the households in the neighborhood has a plot of land for agricultural purposes. With in it, the 2.30% have banana cultivation, 2,30 have fruit tree cultivation, and 15% have corn cultivation. In addition, 8% of the households have a plot of land for agricultural purposes outside the neighborhood, in rural areas as a *“chagra”* which is a traditional name for this kind of agricultural areas in the jungle. The 8% of his plot of lands are in Colombian rural areas, 3.45% in Peruvian rural areas, and 2.30% in Brazilian rural areas.

Annex 4 Data collected in *Guadalupe* neighborhood (Tabatinga).

Social characteristics

The study is focused on social characteristics of the “head home” persons who answered the questions during the visits, thus the social characteristics data collected during the fieldwork gives information about the “head home” person or in some cases his wife. However, during the interviews was possible to realize that social characteristics of Guadalupe neighborhood has a common thing, the majority of people are indigenous *Cocama* from rural Brazilian indigenous communities, especially the *Sapotal Community* located in Tabatinga rural area. Recently some Peruvian and Colombian have been settling in the neighborhood as part of a new informal housing market process.

The 81% of interviewed were born in Brazil, 10% were born in Peru and 8.11% in Colombia. The 81% of people interviewed have Brazilian citizenships, the 10% has Peruvian citizenships, and the 8.11% left has Colombian citizenship. Regarding ethnic origin, the 65% of people are indigenous *Cocama*, 8% are indigenous *Tikuna*, and, 16.22% are half-breed. Likewise, the 83% of the interviewed said to feel more identified with Brazil, the 10.8% with Colombia while just the 2.70% with Peru.

The 90% of people interviewed said that has not been always living in the neighborhood, while the rest 9.52% said that they have always living there. Within the 90% of people who has not been living always in Guadalupe, 76% has lived in other neighborhoods in Tabatinga and the majority in rural areas in Brazil. The 19% has lived in Colombia, and 4.76% have lived in Peru, before to come to the neighborhood. In addition, 29% of people said have lived in a neighbor country, within this group, 21% has lived in Colombia and 10% in Peru.

Regarding the level of studies, the 64% of the interviewed said to have had opportunity to study. However, the 33% of people have done basic school and incomplete, while only the 8% have completed the basic school studies. The 11% of persons said to have finished the secondary school, while the 9% said to have not done it. Finally, the 2% said to have a technical diploma. On the other hand, the 56% said to have studied in Brazil, the 16% in Peru and the 5,41% left in Colombia.

About occupation there are a very diverse kind of occupation among the population interviewed and the information that mentioned about their relatives. The majority of women 22% have as main activity agricultural activities, and to stay at home, probably the possibility to have a plot of land for agriculture at the back of the house permits it to them.

Moreover, several interviewed are at the same time handicraft man, commerce man, fish man and sellers combining with agricultural activities, which is understandable because the neighborhood has several plantations. And, this agricultural facility permits them to sell different kind of products as an income activity.

Regarding income, the 67% of the people interviewed has an income between US\$1 – US\$93 dollars per month, 24% has an income between US\$93 – US\$234 dollars monthly, 5.41% an income between US\$234 - US\$468.

Housing characteristics

Of the 37 housing units visited during the fieldwork 89% were built permanently and 10,8% were built temporally. The totality of the neighborhood is located in flood prone lands. The neighborhood has had two main periods in which the majority of its inhabitants settled; first, 1995

six (6) housing units were built while in 2000 were four (4) housing units. Nowadays there is a growing tendency since 2003 until 2006 in which eight (8) houses has been built.

The 27% of the interviewed answered that the main reason to settle in Guadalupe was for job opportunities and to give education to their children. Another 27% said that they did not have a place to live in, while a 21% of the interviewed mentioned that they came to the neighborhood due to the had relatives living there. The 18% said that they came to the neighborhood looking for better life conditions.

The 86% of the houses are self built while 13% were bought already built or are living on renting. The 32% of the housing units have 3 rooms; the 29% 2 rooms, 21% have 4 or more rooms while 16% have just one room. In addition, in the 43% of the housing unit are sleeping 3 persons per rooms, in 37% of the housing units 4 or more persons are sleeping in the same room, and in 18,92% of the houses has 2 persons sleeping per room.

The 59% of the households have an exclusive room for cooking while 40% do not have it. With in this 40%, 32% of the households cooks in a room, 5.41% does not cook, 2,70% cooks outside of the house. The 94% of the housing units have the walls made on wood, the 100% have the floor made on wood; and, 97% have the roof made on zinc tiles while 2,70% houses have the roof made on palm leaves.

Secure of Tenure

The 83% of the interviewed answered that they own the dwelling while 16% did not. About this 16%, 5.41% of households are living in the parents in law house, 2.70% on rent, and 8% on other condition, such as taking care of boats in the river. But, when they were asked if they have a formal title deed 83% answered that they do not have it, and, the 8% replied that do they have it. It is remarkable that some of the respondents of this 8% mentioned that one relative gave them the title or the Brazilian Navy which is the landlord of this area.

Regarding to land 78% percents of the respondents said that they own the land where the house was built, while 21% did not. But, when they were asked if they have a formal title deed 89% answered that they do not have it, and, 8% replied that they do have it. In addition, in the 94% of housing units the households does not pay property tax, but 81% are paying for public services. At the same time, only 5% of the households are paying property tax, while 18% are not paying for public services.

The respondents were asked about the resettlement issue, 59% said that there is the possibility of being relocated from the neighborhood, while 37% mentioned that it is not possible. Within the 59% that said yes, when they were asked by whom would be they relocated, the 45% said by the landlord, 37% does not know and 10% by public authorities. When people were asked about why they think that there is a possibility to be relocated some of them answered: *“Because the Navy Army says that it’s dangerous for children to live here”*, or *“Because here is a land reserved for the Navy Army and it belongs to the Capitania dos Portos”*, or in the case of illegal immigrants they just said: *“because I am a foreigner, I am Colombian”*. However, some of the people that answered no mentioned: *“the navy said that we can live here as long as we want”* (open questions, questionnaires, fieldwork, July, 2006).

Access to Water and Sanitation

Regarding access to water 86% of the housing units are receiving water supply services from the Municipal Water Company of Tabatinga COSAMA, 5.41% are using a public tank, 5.41% rain water, and 2.70% surface water as a source of water. At the same time, the main source of drinking water is provided by COSAMA, by 78% of the housing units, while 16% uses rain

water, and 2% the public tank. Regarding the 86% of housing units that area receiving water supply services from COSAMA, the price range of it service is as follows 67% are paying between U\$3 and U\$ 5 dollars per month, 5.41% a range between U\$1,5 and U\$2,8 dollars monthly and 27% are not paying for the service.

The 45% of the housing units visited has private toilet, 40% are using a public toilet, 8% a latrine and 5,418% are using outdoors as a toilet. Likewise, the 60% of the housing units with toilet and latrine sent the residues to the San Antonio's ravine, 24% of the latrines are connected to a septic tank. In 67% of the housing units 4 persons are using the same toilet and in 27% of the housing units 5 or more person used the same one. When people were asked about if they are content with the sanitation services in general, the 54% answered NO and the 45% replied YES. Finally, 59% of persons interviewed mentioned that have seen children of the neighborhood using outdoors as a toilet, while 29% of person have not.

Use of the Housing

Regarding the use of the housing the 62% of the units are used only for dormitory purposes, and 37% of it has an economic activity within it. Within this 37% of housing units, 85% of it has handicraft and food selling as an economic activity, and 14% a shop. Moreover, for 42% of the housing units this economic activity is the main income of the households while for 42% it does not.

Alimentation

The 48% of the households in the neighborhood has a plot of land for agricultural purposes. With in it, the 35% have corn, yucca and cane cultivation, 5.41% only corn cultivation, and 8% have other type of cultivation. In addition, 27% of the households have a plot of land for agricultural purposes outside the neighborhood, in rural areas as a "*chagra*" which is a traditional name for this kind of agricultural areas in the jungle. The 18% of his plot of lands are in Brazilian rural areas, 5.41% in Peruvian rural areas, and 2.70% in Colombian rural areas.

Annex 5 Questionnaire No. 1 Codes Book No. 1

No.	Variable	Value	Code	Type
HOUSING CHARACTERISTICS				
x1	1. Housing	Temporal Semi permanent Permanent missing	1 2 3 -999	Discrete
x2	2. The Housing is located in flood prone land?	Yes No	1 2	Discrete
x3	3. Housing Type	Semi Flood Flood Over flood Float Other:	1 2 3 4 5	Discrete
X4	4. On what kind of structure is the housing unit built?	On Land Wood Structure Concrete Structure	1 2 3	Discrete
x5	5. When did you come to live in this neighborhood? Year:			Text
x6	6. What were the reasons to come and settled in this neighborhood?	To not live paying rent any more we did not have a place to live in Buy or received the plot children or job opportunities Familiar ties or close connection with neighborhood better life conditions other	1 2 3 4 5 6 7	Discrete
x7	7. Did you built by yourself this housing unit?	Yes No	1 2	Discrete
x8	8. Where did you get the building materials?	Bought the materials Other	1 2	Discrete
x9	9. How many rooms does the housing unit has?	1 2 3 4 o more	1 2 3 4 o more	Discrete
x10	10. What are the rooms?			Text
x10a	10a How many persons sleep per room?	2 or less 3 4 or more	2 3 4	Discrete

x11	11. Does the family have a exclusive room for cooking?	Yes	1	Discrete
		No	2	
x12	12. (If not) Where the family cooks?	In a room	1	Discrete
		Outside the house	2	
		Does not cook	3	
x13	13. In what kind of material are the walls made?	Wood	1	Discrete
		Bricks	2	
		Mix	3	
		Other	4	
x14	14. In what kind of material is the floor made?	Ground	1	Discrete
		Wood	2	
		Cement	3	
x15	15. In what kind of material is the roof made?	Zinc	1	Discrete
		Tiles	2	
		Wood	3	
		Other	4	
SECURE OF TENURE				
HOUSE				
x16	16. Do you own this dwelling?	Yes	1	Discrete
		No	2	
x17	17. (If not) In what of the followings terms does the households live?	Rent	1	
		Parents House	2	
		Parents in Law House	3	
		Other	4	
x18	18. (If yes) Do you have a formal title deed?	Yes	1	Discrete
		No	2	
x19	19. Do you have an agreement that protects you and your family for a legal resettlement process?	Yes	1	Discrete
		No	2	
x20	20. From whom?			Text
LAND				
x21	21. Do you own this land?	Yes	1	Discrete
		No	2	
x22	22. Do you have a formal title deed?	Yes	1	Discrete
		No	2	
x23	23. (If yes) Who issued the formal title deed?			Text
x24	24. Do you pay property tax?	Yes	1	Discrete
		No	2	
x25	25. Do you pay municipality taxes? And for Public Services?	Yes	1	Discrete
		No	2	
x26	26. Do you pay for Public Services?	Yes	1	Discrete
		No	2	
x27	27. Do you pay rent for this dwelling?	Yes	1	Discrete
		No	2	

x28	28. Do you think that there is a possibility that you could be evicted from this dwelling without due legal process?	Yes No	1 2	Discrete
x28a	28.a.(if yes) by whom?	Public Authorities Landlord	1 2	Discrete
x29	29. Have you ever been evicted, in your life?	Yes No	1 2	Discrete
x29a	29. a.(if yes) by whom?	Public Authorities Landlord	1 2	Discrete
x29b	29. b. when?	Year		Text
x30a	30. Do you think that you can evicted from this neighborhood?	Yes No	1 2	Discrete
x30a	30.a. Why?			Text
ACCESS TO WATER				
x31	31. What are the sources of water for members of your household?	Piped Water Unprotected Well Protected Well/Borehole Surface Water Rainwater Tanker truck Electric Plant	1 2 3 4 5 6 7	Discrete
x32a	32. What is the main source of drinking water for members of your household?	Piped Water Unprotected Well Protected Well/Borehole Surface Water Rainwater Tanker truck Electric Plant Other	1 2 3 4 5 6 7 8	Discrete
x32b	32.a. How frequently is drinking water available from this source?	Usually always available Several hours per day Once or twice a week infrequently Does not Know	1 2 3 4 5	Discrete
x33	33. Do you have at least one water storage tank or any kind of container?	Yes No	1 2	Discrete
x34	34. Cost of drinking water per liter/gallon/cubic meter (BRAZIL)	0 reales 1 - 2 reales 3 - 6 reales 7 - 10 reales	0 1 2 3	Discrete
	34. Cost of drinking water per liter/gallon/cubic meter (COLOMBIA)	0 pesos 1 - 20000 pesos 30000 - 60000 pesos 70000 - 100000 pesos	0 1 2 3	
ACCESS TO SANITATION				

x35	35. What kind of toilet does the members of the house use?	private toilet/household Latrine public toilet use outdoors or other places other	1 2 3 4 5	Discrete
x36	36. (In case of latrine) What kind of latrine is it?	Unimproved pit latrine Improved pit latrines Pour-flush latrines connected to rivers Pour-flush latrines connected to septic tanks Others	1 2 3 4 5	Discrete
x37	37. How many households use the same toilet?	2 3 4 5 or more	1 2 3 4	Discrete
x38	38. Are you content with the level of sanitation services in general?	Yes No Does not Know	1 2 3	Discrete
x39	39. Do your children use outdoors as toilet?	Yes No Does not Know	1 2 3	Discrete
x40	40. Do children in the neighborhood use outdoors, as toilet?	Yes No Does not Know	1 2 3	Discrete
USE OF THE HOUSING				
x41	41. Is the housing unit used only for dormitory purposes?	Yes No	1 2	Discrete
x42	42. Is the housing unit used for economic activities?	Yes No	1 2	Discrete
x43	43. Both uses	Yes No	1 2	Discrete
x44	44. What kind of economic activities are develop in the housing unit?	Shop Fish storage Rental units Family Wealthy Home (ICBF)/Government Program Handicrafts and Food	1 2 3 4 5	Discrete
x45	45. Is the economic activity the main source of the family?	Yes No	1 2	Discrete
x46	46. Does the economic activity offers services to the neighbor city?	Yes No	1 2	Discrete
DURABILITY AND QUALITY OF HOUSING				
x47	47. Permanency of structure (by the researcher	Yes	1	Discrete

	assessment)	No	2	
x48	48. Compliance with building codes (by the researcher assessment)	Yes	1	Discrete
		No	2	
ALIMENTATION				
x49	49. Does the family has a plot of land for agriculture purposes in the neighborhood?	Yes	1	Discrete
		No	2	
x50	50. (if yes) What kind of products does the family plant?	Corn	1	Discrete
		Cane	2	
		Yucca	3	
		Banana	4	
		Fruits Trees	5	
		Other:	6	
		More than 3	7	
x51	51. Does the family have a plot of land in rural areas for agricultural purposes?	Yes	1	Discrete
		No	2	
x52	52. (If YES) In which country is it located?	Colombia	1	Discrete
		Brazil	2	
		Peru	3	

Annex 6 Questionnaire No. 2 Codes Book No. 2

No.	Variable	Value	Code	Type
SOCIAL CHARACTERISTICS				
x1	1. Where were you born?	Colombia	1	Discrete
		Brazil	2	
		Peru	3	
		Other:	4	
x2	2. What is your nationality?	Colombian	1	Discrete
		Brazilian	2	
		Peruvian	3	
		Other:	4	
x3	3. Do you have any other nationality?	Yes	1	Discrete
		No	2	
x4	4. Which other nationality do you have?			Text
x5	5. Which country do you identify more with?	Colombia	1	Discrete
		Brazil	2	
		Peru	3	
x6	6. What is your ethnic origin?	Half-breed	1	Discrete
		Colono	2	
		Tikuna	3	
		Uitoto	4	
		Cocama	5	
		Other:	6	
x7	7. What languages do you speak?	Spanish	1	Discrete
		Portuguese	2	
		Other:	3	
		Both	4	
x8	8. Have you always lived in this neighborhood?	Yes	1	Discrete
		No	2	
x9	9. (If not) Where did you live before to come to the neighborhood?			Text
x10	10. (If yes) What were the reasons to move into this neighborhood?			Text
x11	11. Have you ever lived in one of the neighborhood countries?	Yes	1	Discrete
		No	2	
x12	12. (If yes) Where and How long?			Text
x13	13. To which of the following countries do you think that your family belongs to?	Colombia	1	Discrete
		Brazil	2	
		Peru	3	
LEVEL OF STUDIES				
x14	14. Have you had a formal education?	Yes	1	Discrete
		No	2	
x15	15. (If yes) What kind of level of formal education do you have?	Basic (completed)	School 1	Discrete

		Basic (incomplete)	School 2	
		Secondary (completed)	School 3	
		Secondary (incomplete)	School 4	
		Technical studies	5	
		University studies	6	
		Postgraduate studies	7	
x16	16. In which country did you study?	Colombia	1	Discrete
		Brazil	2	
		Peru	3	
		Colombia Brasil	4	
x17	17. In which language did you studied?	Spanish	1	Discrete
		Portuguese	2	
		Both	3	
		Other:	4	
OCUPATION AND INCOME				
x18	18. What kind of occupation do you have?	Principal Activity		Text
		Secondary Activity		
		Other Activity		
x19	19. In which country has ever worked or do you work for?	Colombia	1	Discrete
		Brazil	2	
		Colombia and Brazil	3	
		Peru	4	
		Neither	5	
x20	20. (If YES) In what kind of activity do you work in the neighborhood country?			Text
x21	21. In which currency do you received your income?	Reales	1	Discrete
		Pesos	2	
		Reales y Pesos	3	
		Nuevos Soles	4	
x22	22. What is your average income per month?	0 - 200	1	Discrete
		200 - 500	2	
		500 - 1000	3	
		1000 - 2000	4	
		2000 - 4000	5	
x23	23. What is the currency that does you using more often?	Reales	1	Discrete
		Pesos	2	
		Nuevos Soles	3	
		Reales y Pesos	4	
x24	24. In what kind of transactions do you use more often this currency?	Shopping	1	Discrete
		Selling	2	
		Both	3	
x25	25. In your opinion which one is the currency with	Reales	1	Discrete

	<i>more advantages and why?</i>	Pesos	2	
		Reales y Pesos	3	
		Nuevos Soles	4	
		No difference	5	
FRONTIER				
x26	26. How many times do you cross the border between Colombia and Brazil?	everyday	1	Discrete
		often	2	
		sometimes	3	
		once a month	4	
		never	5	
x27	27. What are the reasons for crossing the border and visiting the neighbor city?	Shopping	1	Discrete
		Studies	2	
		Job	3	
		Other	4	
x28	28. Do you have relatives in the neighbor city?	Yes	1	Discrete
		No	2	
x29	29. Do you have properties in the neighbor city?	Land	1	Discrete
		House	2	
		Land for agriculture	3	
		Does not have	4	
		Land and House	5	
x30	30. What are 3 main advantages and 3 main disadvantages for living in this side of the border?			Text
x31a	31.a. 3 advantages			
x31b	31.b. 3disadvantages			
x32	32. Do you receive one of the following services from the neighbor's city?	Health	1	Discrete
		Education	2	
		Health and Education	3	
		Post Services	4	
		Fluvial Transport	5	
		Fligh Transport	6	
		Nothing	7	
x33	33. Do you consider difficult to cross the border between Leticia and Tabatinga?	Yes	1	Discrete
		No	2	
x33a	33.a. Why?			Text
BORDER AND POLICIES				
x34	39. Have you ever been a beneficiary of a program, project or decision taken by the government of the country or city where do you live?	Yes	1	Discrete
		No	2	
x34a	34. a. (If yes) What kind of benefits have you received?			Text
x35	35. Have you ever been a beneficiary of a program, project or decision taken by the government of the neighbor's country or city?	Yes	1	Discrete
		No	2	
x35a	35.a. (If YES) What kind of benefits have you received?			Text
x36	36. Have you ever been affected by a program, project	Yes	1	Discrete

	<i>executed by the government of the neighbor country or city?</i>	No	2	
x36a	<i>36.a. (if yes). What kind of program/project</i>			Text
x36b	<i>36.b Which ones were the negative aspects?</i>			Text
x37	<i>37. What government (country or city) have offered more programs/ projects that benefited the neighborhood?</i>	Leticia / Colombia	1	Discrete
		Tabatinga / Brazil	2	
		Neither	3	
x38	<i>38. Have you ever thought in requesting support to the neighborhood city in order to improve your housing conditions?</i>	Yes	1	Discrete
		No	2	
x39	<i>39. Have you ever thought in going to live to the neighborhood city looking for better opportunities?</i>	Yes	1	Discrete
		No	2	
x39a	<i>39.a. (If YES), What are the reasons?</i>			Text
x40	<i>40. Do you think that both cities should offer joined programs in order to benefit the inhabitant's neighborhood?</i>	Yes	1	Discrete
		No	2	
x40a	<i>40.a. Why?</i>			Text
MANAGEMENT				
x41	<i>41. Does the neighborhood changed a lot during the flood period?</i>	Yes	1	Discrete
		No	2	
x41a	<i>41.a. (If YES) What are 2 main changes?</i>			Text
x41b	<i>41.b. What are the main changes in the activities of the neighborhood during the flood period?</i>			Text
x42	<i>42. Do you feel under risk during the flood period?</i>	Yes	1	Discrete
		No	2	
x42a	<i>42.a. (If YES) What are the actions that do you carry out in order to feel more secure?</i>			Text
x43	<i>43. Does the community based organization developed collective actions during the flood period?</i>	Yes	1	Discrete
		No	2	
x43a	<i>43.a. (If YES) What kind of activities are developed?</i>			Text
GOVERNANCE				
x44	<i>44. Have the candidates during elections period ever promised actions in order to solve the problems of hte neighborhood?</i>	Yes	1	Discrete
		No	2	
x45	<i>45. Have the candidates ever carried out these actions as Mayor or Prefeito?</i>	Yes	1	Discrete
		No	2	
x46	<i>46. (If YES) How have they carried out these actions?</i>			Text
x47	<i>47. Have you ever or a member of your family participated in a creation of programs or plans for the improvement of the neighborhood?</i>	Yes	1	Discrete
		No	2	
x48	<i>48. Have you ever or a member of your family worked in creating solutions for the neighborhood joined with the Municipality Authorities?</i>	Yes	1	Discrete
		No	2	
x48a	<i>48.a. (If YES) In what kind of programs or actions?</i>			Text