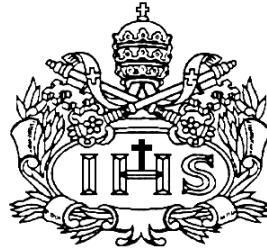


RISCHIO AMBIENTALE E PROGETTO URBANO
Un progetto per Bosa, Bogota



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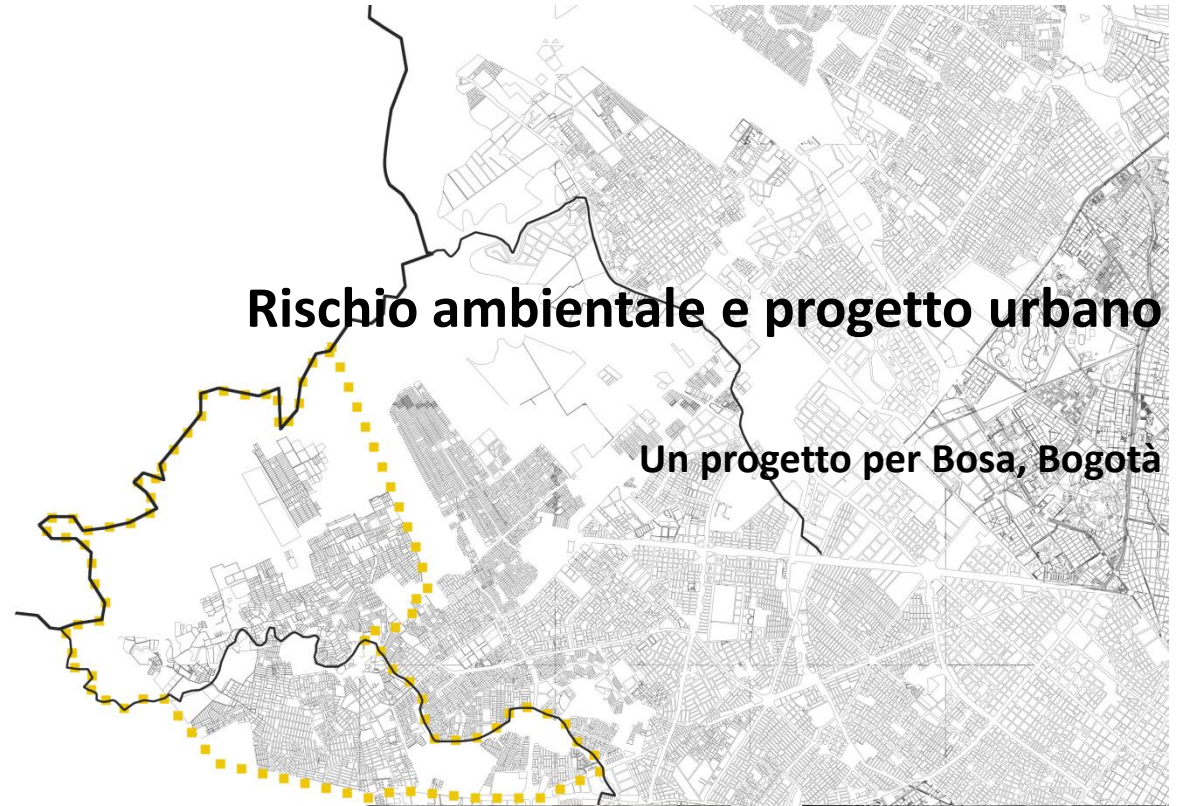
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Rischio ambientale e progetto urbano

Un progetto per Bosa, Bogotà





Politecnico di Torino _ I Facoltà di Architettura
Corso di Laurea Magistrale in Architettura (Costruzione, Città)

Rischio ambientale e progetto urbano

Un progetto per Bosa, Bogotà

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Introduzione

Il rapporto tra rischio ambientale e progetto urbano descrive un particolare ambito operativo dove persistenti condizioni di insicurezza o effetti di eventi catastrofici che hanno messo a repentaglio o danneggiato l'ambiente fisico, infrastrutture urbane così come alcune sue reti sociali e culturali, si pongono come il principale riferimento dell'azione progettuale.

Le città che fanno esperienze di rischi ambientali dominano le notizie quotidiane. Distruzioni di parti di città, edifici o eventi traumatici mostrano il senso di ciò che è un impatto immediato e improvviso. Ma come rileggere le condizioni di rischio e le conseguenze di eventi traumatici in termini di progetto per la città? Qual è la risposta della disciplina alle condizioni di rischio e post-traumatiche? Spesso, da un lato si tenta di restaurare e recuperare ogni cosa danneggiata o persa, dall'altro molte esperienze progettuali recenti provano a rileggere la città soggetta a rischio come uno spazio "resiliente", costantemente in bilico su nuove potenzialità. Mentre riparare e ricostruire sono riflessi automatici, definire forme del progetto in termini di adattamento e resilienza richiede una profonda comprensione degli effetti di un trauma sulla città.

Questa tesi prova a guardare, criticamente, al secondo atteggiamento progettuale, osservando esempi di progetti e contesti post-traumatici con l'obiettivo di definire i termini di un particolare ambito del progetto per la città. Le vicende traumatiche, o di crisi, non possono più essere considerate episodi singolari. Alluvioni, frane, smottamenti, terremoti, conflitti di varia natura, pongono lo stato di crisi come uno dei contesti operativi principali del progetto per la città



L'urbanistica post-traumatica non è l'eccezione ma una condizione sempre più presente.

Lo tsunami sul Pacifico, gli uragani Sandy o Katrina a New York e New Orleans, i terremoti de L'Aquila, Shenzhen, Haiti e Sendai, sono solo alcuni fenomeni recenti che hanno catturato l'attenzione pubblica. Eventi che pongono domande su forme e ruolo della progettazione urbanistica in un momento in cui l'attenzione del progetto urbano è rivolta prevalentemente verso la dimensione estetica del progetto della città.

La rilevanza che oggi assume la riflessione sul progetto per la città post eventi traumatici, richiede l'apertura di un campo di riflessioni che oggi forse viene ancora condotto in maniera sfocata, opaca, ricondotto entro l'ambito delle riflessioni più tradizionali come episodi solo troppo connotati.

Un'indagine sul rischio ambientale non è da intendersi in termini morali, messianici o apocalittici. Non si tratta di ragionare in termini di aiuto umanitario, *conflict-solving*, emergenza. Occorre un'indagine non sentimentale sulle condizioni del rischio, un'inchiesta che non cerca di motivare l'azione con la produzione di paura.

Che significa mettere insieme i termini urbanistica e rischio?

Urbanistica è una parola che negli ultimi anni è stata associata a parole come riforma, infrastruttura, paesaggio, sostenibilità, innovazione. Ognuna di queste associazioni ha posto domande diverse e ridefinito le questioni prioritarie secondo cui riorganizzare le città.

Mentre è possibile immaginare una disciplina chiamata *infrastructural urbanism* o urbanistica sostenibile, è difficile pensare ad un'urbanistica del rischio dal momento l'evento traumatico è ciò che eccede la sistematizzazione, la regolazione. In particolare il termine trauma è per definizione un'eccezione, una collezione di singolarità. Quali questioni emergono associando i due progetto e rischio? Per riflettere su questo occorre una definizione del rischio che esca dalla dimensione psicoanalitica per entrare in quella urbana.

Il nostro modo di abitare lo spazio e la città è spesso basato su abitudini, sulla ripetizione di pratiche ordinarie. Ogni giorno sorgono piccoli problemi e modificazioni che impongono un graduale adattamento. Un'accumulazione lenta di fatti ed impressioni che modifica la concezione dello spazio e il nostro ruolo in esso. Una logica evolutiva che modella la nostra disposizione verso lo spazio. Che radica atteggiamenti in maniera conservativa.

Il rischio, l'evento traumatico è lo spazio o punto cieco davanti a cui l'esperienza recede. C'è un altro nome per descrivere questa condizione: il nuovo. Si può dire che un evento traumatico è eccessivamente nuovo. Guardare agli effetti di un disastro ambientale significa pertanto ragionare in termini di conseguenze di ciò che rimane di un evento scomparso. Come riesce un sistema a metabolizzare un'esperienza che eccede la sua capacità di integrazione?

Dal momento che la ricognizione è solo retroattiva, il processo di reintegrazione dell'evento, della sua metabolizzazione, comincia quando iniziamo a vagliare l'evidenza, a costruire una storia plausibile, una narrazione che definisce nuovi paesaggi e

forme dell'esperienza urbana. Il rischio è il dramma dove storia e futuro sono in gioco, le carte da gioco sono state lanciate ma non ancora toccano il tavolo. Qui si mette in scena il punto in cui un sistema deve reimmaginarsi o perire.

Il termine resilienza può essere introdotto per discutere delle possibilità d'azione in questo particolare contesto.

Tra i due poli continuità/ripetizione e discontinuità/trauma, la resilienza descrive la capacità di muoversi tra entrambi. Resilienza è la capacità di un sistema di assorbire e riprendersi dopo uno shock. Il recupero tuttavia non è il ritorno allo stato precedente il trauma ma si esplorano nuove configurazioni di stabilità. In questo concetto è presente una qualche idea di continuità (non si tratta della *tabula rasa*). Resilienza non è il ritorno ma neanche una rottura completa, è un salto sull'interruzione; porta con sé la continuità di una carica storica che contiene capacità adattativa.

Ragionare sul rischio in termini di progetto urbanistico significa quindi porre maggior rilievo su discorsi basati sul concetto di crisi come adattamento e resilienza. Una città resiliente è una che si è evoluta in un ambiente instabile e che ha evoluto adattamento verso quell'ambiente.

La città del rischio è pertanto quella che inventa nuovi dispositivi urbani, nuove e più complesse scale e temporalità dove dimensioni passate e future si mescolano e dove piccoli traumi improvvisi (ambientali, climatici, violenze sociali) si affiancano ai caratteri "glaciali" dell'esistente.

L'urbanistica del rischio indica che noi sappiamo qualcosa in più di un contesto quando questo va in crisi, quando si allontana dal suo supporto invisibile ed entra nell'ambito di quelle cose che possono essere interrotte, messe alla prova e distrutte.

L'attenzione al rischio evidenzia inoltre la dimensione parassita del progetto urbano verso la crisi. La crisi è produttiva, minaccia condizioni stabilizzanti e produce immaginari nuovi. Con Friedrich Nietzsche potremmo dire (*La Gaia Scienza e Idilli di Messina*, Milano, Adelphi, 1992, afor.283,

Case sul Vesuvio, pp.203-204),: "Vivete pericolosamente! Costruite le vostre città sul Vesuvio! Spedite le vostre navi in mari inesplorati! Vivete in guerra con i vostri simili e con voi stessi!".

Questa tesi affronta il rapporto tra rischio ambientale e progetto urbano in un particolare contesto, l'abitato di Bosa, a Bogotá. Si tratta di un quartiere abitato da popolazioni a basso reddito a ridosso delle rive del fiume Tunjuelito, un affluente del fiume Bogotá. In questo quartiere condizioni di insicurezza ambientale e precarietà degli spazi dell'abitare si associano a forme di degrado urbano, povertà di spazi pubblici e collettivi ed emarginazione sociale. Fenomeni che connotano buona parte dei quartieri abitati da popolazioni a reddito basso e che pertanto legittimano una specifica riflessione progettuale su questi.

La tesi di seguito presentata è pertanto articolata in tre parti.

La prima parte, “Costruzione del problema” tenta di definire i termini del rapporto tra progetto urbanistico e emergenza ambientale presentando criticamente alcune recenti esperienze di progetti che si sono confrontati con questo tema. Obiettivo di questa parte è definire il rapporto tra rischio ambientale e individuare alcune strategie principali, che oggi si stanno definendo nei discorsi di gestione e governo del rischio ambientale alla scala urbana.

La seconda parte “Bosa/Bogotà” descrive ad una scala ravvicinata il contesto urbano con cui il progetto si confronta. Bogotà negli ultimi anni è stata soggetta ad importanti trasformazioni che hanno migliorato il funzionamento e l’immagine di molte parti della città. Esperienze importanti come quella del nuovo sistema di trasporto pubblico di massa “Transmilenio” o l’istituzione di reti di ciclabili “Ciclovias”, celebrate e premiate in tutto il mondo, si sono mostrate capaci di ridefinire il senso e l’immagine dello spazio pubblico alla scala dell’intera città. Tuttavia molte di questi progetti urbani recenti, promossi da una serie di

sindaci illuminati come Antanas Mockus e Enrique Peñalosa hanno guardato ai temi del funzionamento, qualità e rischio ambientale dello spazio urbano in maniera residuale o come solo elemento tecnico. Soprattutto non hanno colto l’opportunità che esiste nel rapporto tra forme del progetto in condizioni di rischio e invenzione di nuove forme di spazi e forme dell’abitare, spazio pubblico, spazi di coabitazione e condivisione alla scala collettiva.

Nel caso di Bogotà i temi del rischio corrispondono prevalentemente a fenomeni di inondazione delle parti basse della città, frane ed erosione dei *Cerros*, i versanti montani che definiscono i margini orientali della città, e inquinamento atmosferico e delle acque superficiali.

Questa riflessione critica su progetti e trasformazioni recenti di Bogotà permette di collocare meglio il caso dell’abitato di Bosa, i suoi rapporti con il resto della città e descrivere i principali problemi ambientali e dell’abitare che questo quartiere oggi presenta.

La terza parte, “Un progetto per Bosa”, descrive nel dettaglio le strategie progettuali e trasformazioni proposte.

Il progetto per il ridisegno degli spazi residenziali, verdi, agricoli e naturali della parte di Bosa rivolta verso le rive del Tunjuelito è articolato in cinque elementi.

Il primo sono nuovi spazi residenziali di tipo modulare posti su un nuovo suolo sollevato da terra e poggiante su palafitte. I moduli sono disposti in filamenti perpendicolari al fiume attestati su una nuova arteria stradale progettata su iniziative del Comune. Il secondo elemento corrisponde all’invenzione di una rete di “arroyos” o vie-canalì che, da un lato articolano e connettono il nuovo spazio residenziale con il resto del quartiere, dall’altro funzionano come spazi verdi capaci di raccogliere e convogliare le acque verso un sistema di “estanques” o vasche di laminazione (il terzo elemento) che funziona, durante le alluvioni, come spazio di espansione delle acque del fiume e come spazio verde e spazio pubblico nei periodi di secca.

Il quarto elemento corrisponde ad una serie di nuove superfici agricole poste a ridosso e al di sotto del nuovo suolo residenziale. La presenza di queste superfici riprende, da un lato, alcune pratiche d’uso agricolo delle rive del fiume oggi esistenti che è utile conservare per via dell’alta qualità ecologica che questi spazi presentano, dall’altro è risultato della necessità di individuare nuovi spazi di condivisione per la comunità di Bosa che non corrispondano a spazi pubblici di tipo tradizionale che, in questi contesti, spesso riprendono soluzioni di tipo europeo come piazze o corsi che non corrispondono alle forme d’uso degli spazi aperti che qui oggi si danno. Il suolo agricolo è spazio produttivo utile all’integrazione dei redditi delle famiglie che lo lavorano, spazio di condivisione di merci, attrezzature, tempi. Infine il suolo agricolo funziona come una spugna che assorbe durante le inondazioni del Tunjuelito. Dopo l’alluvione il rilascio dell’acqua verso il fiume avviene in maniera graduale, producendo un particolare paesaggio umido che rafforza al tempo stesso le ecologie del fiume e del quartiere.

Il quinto elemento infine è una rete di nuove attrezzature e servizi alla scala di prossimità che funzionano come dispositivi di interfaccia tra spazi residenziali e spazi verdi, naturalistici e agricoli.

Questo progetto nel suo complesso rilegge criticamente alcune esperienze progettuali moderne e tardomoderne degli anni '50 e '60 costruite secondo un atteggiamento "modellistico". Un esempio è la città agricola di Kisho Kurokawa o la Brasilia di Lucio Costa. Il richiamo a queste esperienze è utile perché ha permesso di individuare spazi dell'abitare e soluzioni insediative innovative tentando di superare discorsi di matrice puramente ecologica o estetica che connotano le attuali pratiche di progetto ambientale e urbano. Allo stesso tempo guardare a queste esperienze permette di rileggere il carattere "modulare" che la crescita della città latinoamericana da sempre possiede. Una modularità, che anche nelle sue parti informali, è basata sulla ripetizione di spazialità molto semplificate che oggi occorre ripensare progettualmente.

Problem Construction

Case studies

STREETS AND PATHWAYS ARE FLOODED AFTER THE PASSING OF HURRICANE TOMAS IN GONAIVES, NORTH OF PORT-AU-PRINCE, HAITI.



<http://www.flickr.com/groups/floods/>

DELTA CITIES IN ASIA

The best water-based planning case studies are those of delta cities. Delta cities are cities that are located at the intersection of terrain and a body of water, are dependent on this body of water to exist, and always end up modifying the water system to suit their needs (Shields, 2008, p. 82). Bogota is not the only city in the world experiencing environmental problems

This land reduction can be caused by anything from dredging of wetlands, overdevelopment, or just natural land erosion. In fact, all delta cities are known for their instability, isolation, and extreme vulnerability to flooding (Shields, 2008, p. 80).

The case studies of Bangladesh, Shanghai, Phnom Penh and Bangkok in Asia are important examples to look at in order to realize how increased development can further hurt the delta, by negatively affecting the environment of the surrounding wetlands and the sanitation of the city.

The delta cities in Asia are unique because they have only recently experienced western style development, and some still interact with the environment in the same way they did when they were settled, while others are encountering new problems with their environments due to overdevelopment and sanitation issues. Bangladesh is important to consider, because the whole country is a deltaic environment.

In addition, Shanghai is one of many delta cities in Asia that has undergone significant environmental changes. Phnom Penh, Cambodia and Bangkok, Thailand are also experiencing issues related to their location. Despite the similarities in their settlement patterns, each has taken a different approach to deal with their problem.

Bangladesh

“the annual floods are the lifeblood of the country’s 120 million people”





<http://www.flickr.com/groups/floods/>

In Bangladesh, until recently, almost no planning was done in regards to flood protection. Of all of the delta cities, Bangladesh is the most untouched by technology and engineering. So, Bangladesh reflects what Bogota would be like if no water protection measures were implemented. Even though very few flood protection measures have been put into place, flooding is a common occurrence in the country, because 80% of the country is floodplain, and half of the country is less than 25 feet above sea level (Chowdhury, 2000, p. 26).

This situation was caused by monsoon rains that washed sediment down from the Himalayan Mountains, resulting in yearly flooding over thousands of years (Chowdhury, 2000, p. 26). In fact and the rivers that feed the delta are always changing the direction and the paths they flow through, much like the Bogota River would like to.

This constant flooding and path changing affects the livelihoods of the country's residents. Since Bangladesh is largely made up of farmers and fishermen, "the annual floods are the lifeblood of the country's 120 million people" (Chowdhury, 2000, p. 26). Too much water can destroy the

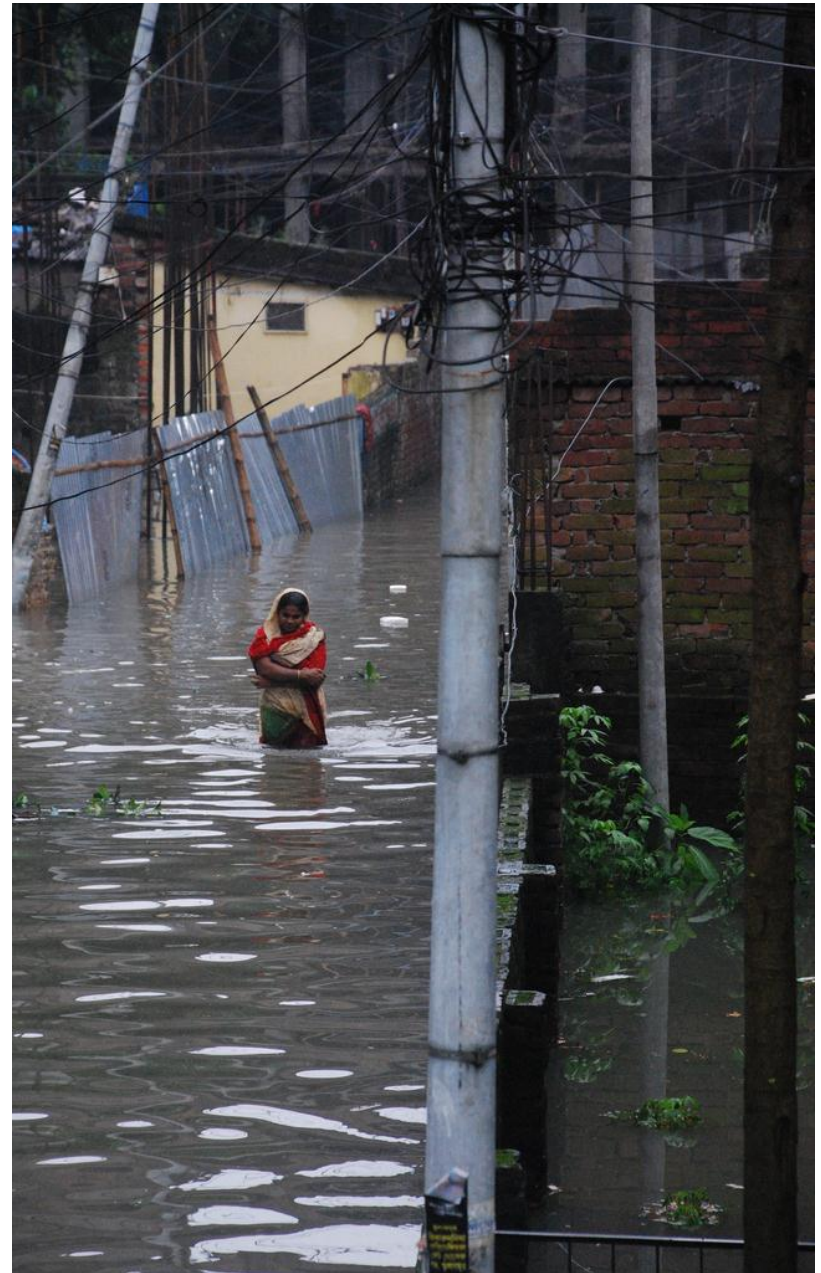
farmers' crops, while too little water can deeply hurt the fishing industry.

After dealing with annual flooding for hundreds of years, "in 1965, a long-term master plan was undertaken by United Nations Development Program (UNDP) to solve the flooding problem" (Chowdhury, 2000, p. 26). A number of levees and polders were built, but the plan was ultimately too costly and the infrastructure that was put into place was ineffective (Chowdhury, 2000, p. 26). The biggest problem the country has is protecting agricultural land and outputs, but the flood prevention infrastructure in place has not helped with agricultural production (Chowdhury, 2000, p. 30).



The country has held many international conferences in order to come up with flood protection solutions, and in 1989 the World Bank drew up a Flood Action Plan. This plan still has not solved many of the issues, however, as the dams and embankments put into place do not adequately protect from the floods.

One of the big problems is that canals and diversions in India are stopping water from flowing into Bangladesh, effectively drying it out. It seems that India and Bangladesh need to work together to protect against floods, because if India stopped building dams and diverting water, the ecosystem of Bangladesh would be saved (Chowdhury, 2000, p. 35). In the same way, the city of Bogotá need to work together, if the city creates a clean path, and generate a clean process by the path of the Bogota river, and also develop a canal to transport residual water, it will be the beginning of a process that will help to finish with a lot of social problems. Bangladesh is a prime example of a delta that has been neglected at the community and the country level, and the negative affects this negligence has on the country's industries, and in turn, its people.



Phnom Penh, Cambodia

Traditionally settled, at the intersection of four rivers in Cambodia.



PHNOM PENH: HOUSES ON THE BANK OF THE TONLE SAP RIVER



<http://www.tropicalisland.de/cambodia.html>

Phnom Penh is an example of a delta city that has coexisted quite well with its environment, but very recently, corruption and overdevelopment have begun changing the face of the city and hurting its surrounding environment, just like corruption and overdevelopment made Bogota vulnerable to flooding during the rains. Until a short time ago, Phnom Penh remained as it was traditionally settled, at the intersection of four rivers in Cambodia.

This intersection has the highest ground of the area, while still allowing access to the rivers for transportation and other uses. This placement is similar to that of Bosa, because the union of two big rivers. Specifically, Phnom Penh is located in the southern center of Cambodia, where the Mekong, Bassac, and Tonle Sap Rivers meet, Phnom Penh was originally built to organically and naturally coexist with the four rivers that intersect it. At first, it was a small city with residential uses located on the edge of the rivers, but now it “is on the verge of succumbing to the same pressures of rampant urban development that have turned so many other cities in Southeast and East Asia into copycat worlds of high rises, shopping malls, and global chains” (Cybriwsky, 2009, p. 9).

The overdevelopment in Phnom Penh is occurring for many reasons. First, Phnom Penh has been at the forefront of many global initiatives. Like many cities that have succumbed to man-made disasters, Phnom Penh has received an influx of international aid. In fact, “more than any capital city in the world, the Phnom Penh landscape is one of foreign aid projects, NGO offices and their activities, and various other forms of philanthropy, social work, and reconstruction” (Cybriwsky, 2009, p. 12).

Global initiatives in Colombia have been never done. Firms don’t cover this kind of investigations and solutions are always the same. It is not just the global initiatives that have brought change to Phnom Penh; it is also “poverty, weakly-developed civil society, and high levels of corruption in both local and national government” that cause the city to be “especially vulnerable to profit-driven urban development projects” (Cybriwsky, 2009, p. 9).

So, like Bogota, it's corrupt government and non-participatory planning strategies have rendered Phnom Penh especially vulnerable to bad environmental practices and overdevelopment. In fact, Shields asserts, "parochial social relations of domination, racism, and corruption are rooted in the interfacial conditions of the delta" (Shields, 2008, p. 89). In a setting where some can live safely on high ground, while others are relegated to unsafe areas, it seems that just the physical characteristics of these cities cause them to be at risk for corruption and injustice.

An example of an unplanned development that changed the character of Phnom Penh's waterfront was Naga World, a casino that was built in 2003 (Cybriwsky, 2009, p. 14). The construction of Naga World "came about because of insider connections between business entrepreneurs and the top levels of national government" (Cybriwsky, 2009, p. 14). The casino not only changed the face of the waterfront; but also created problems with injustice, as it "is pitched for a market of foreigners and local elites, denies entry to curious locals, and occupies land that once housed squatters" (Cybriwsky, 2009, p. 14). So, the casino changed the character of the waterfront, and took land from

the residents of Phnom Penh, while also denying them access. In addition to being exclusive, Naga World was not constructed properly, and its pilings fall far short of the depth required for safety (Cybriwsky, 2009, p. 14).

This could cause safety issues as climate change causes the water levels to rise, as the casino could be destroyed by flooding. Phnom Penh's casino was erected in a similar fashion to New Orleans's Harrah's Casino, which was built in order to attract tourists, without input from the residents of the city or the planning commission.

Shanghai, China old Shanghai

The Asian city that interacted the most with the water surrounding it when it was originally settled.





<http://www.flickr.com/photos/fdecastrob/>

The city of Shanghai is an important case study, because it is arguably the Asian city that interacted the most with the water surrounding it when it was originally settled. Looking at the original Shanghai could help planners see how a city could most organically interact with its environment, instead of fighting it. Shanghai is situated on the Yangtze Delta and, like Italy's Venice, the city was initially made up of a network of canals and creeks, with the water used for "transportation, drinking, cleaning, drainage, fire fighting and so on" (Wu, 2008, p. 37).

The original settlement of Shanghai was made up of farms, with creeks used for irrigation and runoff. Like many cities, when the needs of the residents changed, the land uses and infrastructure of the city changed as well. When Shanghai became a larger town, the residents "widened and deepened the larger canals for transportation, and the smaller ones were used for urban drainage and everyday life" (Wu, 2008, p. 42-43).

The city existed as a natural part of the delta's canals and creeks until the mid 16th century, when the threat of a Japanese invasion caused the city to erect a wall (Wu, 2008, p. 37). The construction of

the city wall was followed by the construction of the first floodgate in 1598.

Whenever the creeks became dirty or clogged, the city would take the time to dredge the creeks, investing financial resources and manpower into keeping the infrastructure in working condition (Wu, 2008, p. 47-48). The work and funds required are much like those needed by the Army Corps of Engineers, who use pumps to keep the city clear of water, like Shanghai's government used dredging to make room for the canals and creeks. Wherever it is located, maintaining the infrastructure of a delta city can be quite costly, and requires government support and guidance.

Looking at old Shanghai versus new Shanghai underlines the differences between a public water management system and a system given over to private interests. Shanghai kept its original canal and creek system until it began to be influenced by western cultures, and, like many cities in China, the city's "patterns of urban construction have changed considerably" (Wu, 2008, p. 55).

As the city modernized, access to running water was obtained, and new ideas about sanitation learned. Soon, the creeks became less functional and seen as places of filth and disease. The city also became less rural and more urban, and the creeks lost their original utility, and instead were coveted for personal use (Wu, 2008, p. 43-44).

Private developers began singling out previously public land for development, and the creeks were no longer under the purview of the government. In Shanghai's case, making the water management system private made it become nonexistent. In a similar way, Bogota city, used to use natural water sources for the community service and the clean river used to irrigate agricultural fields.

Further, in the early twentieth century, as transportation on roads became more popular, and irrigation was no longer an important facet of life in Shanghai, the creeks "were filled up one after another and wide roads were built on top of them" (Wu, 2008, p. 37). Thus, the main mode of transportation in the city became roads, streets and lanes, as opposed to canals and creeks. In the same manner, roads and highways became more important than streetcar and river transportation.

In addition, the creeks in Shanghai were seen as viable areas for development, and "the government took the initiative to turn them into urban construction lands, leading to a remarkable transformation in creek use patterns" (Wu, 2008, p. 51).

The city moved from a more natural one made up of water, to a modern one, filled with pavement and construction projects. In the same way, the government in Bogota made dredging and building on the wetlands more important than keeping that ecosystem vital.

The change in land use in Shanghai led to increased sanitation problems, ones that plague the city to this day. Ironically, the canals and creeks that were filled in as a way to make the city more sanitary served to cause increased filth in the canals that remained. This filth was caused by the blocking off of the canals, which were unable to flow and runoff into open spaces like they had previously.

Unlike Bogota, the problems in Shanghai stem mostly from sanitation issues. However, similar to Bogota, ignoring the natural environment in favor of development has hurt the city's ecosystem. In fact, what has occurred in Shanghai proves that planners and developers should take the ecosystem and environment of the entire region, not only the city, into account when building new projects (Wu, 2008, p. 55). This statement could be applied to any delta city, in China, in all of Asia, and worldwide.



Bangkok, Thailand

Its having the most issues with climate change and flooding of all of the delta cities in Asia





<http://www.tourismthailand.org>

The city of Bangkok in Thailand is having the most issues with climate change and flooding of all of the delta cities in Asia, due to long-term neglect of water management strategies. Like most delta cities, Bangkok was originally settled to be in league with the natural environment (Thaitakoo, 2008, p. 30).

But also like most delta cities, recent development has ignored the natural environment. Similar to New Orleans and Shanghai, Bangkok was originally developed to be mainly agricultural, and was comprised of fruit orchards. Located on the Chao Phraya River delta, Bangkok was settled in the fourteenth century, and made up of small towns connected by waterways (Thaitakoo, 2008, p. 33).

These waterways served as a mode of irrigation for the orchards, and worked well with the natural ebbs and flows of the surrounding water (Thaitakoo, 2008, p. 33). Flooding was not seen as a negative event, and was soaked up by the fields and helpful to the orchards (Thaitakoo, 2008, p. 33). In the 19th century, the city incentivized the development of canals as an addition to the waterways between settlements (Thaitakoo, 2008, p. 33). Giving incentives to developers was a good

way to get the canals Bangkok Floating Market, built quickly, but it also left them vulnerable to unplanned changes. Similar to other cities, the development of the city was left to the whim of developers, who are easily influenced by changes in funding and design.

After World War II, the style of development in Bangkok drastically changed, becoming more land-based, “at the expense of cultivated land and its former hydrological matrix” (Thaitakoo, 2008, p. 33). In the vein of Shanghai, New Orleans and Bogota, many of the canals were covered and became roads, or stagnated in gutters and trenches (Thaitakoo, 2008, p. 33). Eventually, almost all of the canals were covered, and roads became the best way to access the city.



In addition, because of “seasonal monsoon rains and daily fluctuations, greater Bangkok now faces the threat of catastrophic flooding each year,” just like Bogota (Thaitakoo, 2008, p. 34). In fact, the city was plagued by ongoing floods from July to October of 2011, with many residents forced to evacuate. The government is currently being criticized for doing little to help, and Bangkok may soon see the influx of planning and resources seen after disasters in Bangladesh and New Orleans.

Present, is not the only problem the city faces, as it also has to deal with “an increasing urban heat-island effect, drought during the dry season, loss of land due to coastal erosion, and land subsidence due to groundwater withdrawal,” all of which will be exacerbated by climate change.

Thaitakoo and McGrath warn that if the natural cycles of the water and seasons continue to be overlooked, and no heed is paid to the original methods of coexisting with the environment, the city could be severely damaged (Thaitakoo, 2008, p. 34). Therefore, in order to survive the city needs to revert back to the original modes of settlement and development, by coexisting with the water in a more natural and adaptive way. Fortunately, urban planners are coming up with new ideas for

Bangkok, which are based on a complete change in thinking in regards to urban planning and design. This new way of thinking moves away from “the solid-state view of waterscape urbanism” (Thaitakoo, 2008, p. 30). They call this new view “the watershed view” and point out that it focuses on more methodical, small-scale private methods (Thaitakoo, 2008, p. 32-33). In other words, small adaptations to the water made at all levels will be more successful than large development projects and infrastructure. Still, the changes made will be more natural and organic by adjusting to the environment. This new practice will “emphasize change, adaptation, and the continuous reproduction of locality as a cultural practice” (Thaitakoo, 2008, p. 30). So, all areas of the city will be given similar importance, and similar tasks in order to adapt more easily to the deltaic environment.

The watershed view contains multiple strategies, including raised homes, sporadic flooding of low-lying areas in the city, and adaptable dams (Thaitakoo, 2008, p. 34). These strategies would work well in any delta city, especially those at risk of extreme flooding, like in Bosa, Bogota.

Thaitakoo and McGrath assert that this new approach “will provide a better basis for resilience and adaptation than hard solutions based on protective engineered systems” (Thaitakoo, 2008, p. 34). In other words, the technological structures designed to keep the water out do not adapt well enough to the changes in water level the city experiences.

Since the floodwalls and pumping stations in Bangkok are not adaptive enough to truly protect the city from serious flooding, a new strategy is required. This new strategy is especially important, as “climate change is beginning to demonstrate that even the most local of sites is vulnerable to global as well as regional processes and events” (Thaitakoo, 2008, p. 34).

Therefore, even areas that aren’t low-lying or near the water could be damaged by an extreme weather event such as a hurricane. Changing the water-based strategy in Bangkok will not be easy, however. Like all major changes in urban design, residents of the city will need to be convinced to change their outlook toward development and living, and “trade their ‘solid-state’ perceptions of home and neighborhood for a more multiscalar,

liquid perception” (Thaitakoo, 2008, p. 32). Once the residents of Bangkok begin viewing their city in a more adaptive, water-based way, much like the original settlement, they will be rewarded with a “resilient urban ecosystem” that can withstand whatever problems climate change might bring (Thaitakoo, 2008, p. 34). Changing residents’ view of their city through public campaigns is perhaps the most important way new infrastructure can be put into place. Perhaps if the residents of Bosa or Bogota are able to change their perceptions, that city can become more resilient as well.

Bangladesh, Shanghai, Phnom Penh, Bangkok, have all dealt with water differently, but many lessons can be taken from these delta city case studies and applied to Bogota.

The delta cities in Asia show the effects that inequitable and unplanned water management strategies can have on a city, and what occurs when overdevelopment and top down solutions are used against disenfranchised groups. Also, even when resources are channeled into these cities after disasters, they have the opportunity to alter these strategies, but the fundamental change needed rarely occurs.

Bangladesh is the first example of the Delta cities in Asia. Is the most untouched by technology and engineering . The most important aspects of this city, are the development of programs performed by the United Nations (1965), and the World Bank (1989). Where approaches and projects were executed without consulting the people who live in the place. Those solutions never work well, because they didn't know that as the water is the problem for the community, it is also a way of life.

Too much water can destroy the farmers crops,

while too little water can deeply hurt the fishing industry.

on the other hand, we must emphasize the importance of unifying two countries to try to solve the same problem, the union of Bangladesh with India demonstrates commitment to the community to solve flooding problems.

In Phnom Penh, the overdevelopment, its corruption government, and non participatory planning strategies, have rendered the city specially vulnerable to bad environmental practices. It seems that no matter where they are located, delta cities are especially at risk for developments at odds to the residents' needs, and without thoughtful planning. Phnom Penh shows us that when designing a water management strategy, it is important to think about political and economic interests, or the city could be left with inequitable and unsafe development.

The Asian city that interacted the most with the water surrounding it when it was originally settled. Looking at the original Shanghai could help planners see how a city could most organically interact with its environment, instead of fighting it.



Bogotá Change

The transformation of the city in the last 15 years

The climate change had increase the water level in much of the cities in the country. There had happened different damages in the communities, erosion, flood, and also damages in the property.

The response to these damages and the climate change had been different countywide. The cities had respond in such different ways and also try to adapt to the floods one way or another, they raise the houses, constructed some barriers and also flooded rural areas so that they could stop the entrance of water in the urban area.

Even though, the water levels continue increasing and such the climate patterns are erratic, because of this, the response to the floods had turn dangerous ineffective.

Without a change in the intervention strategy of the natural risks, Colombian cities will continue reporting deaths, infrastructure damage, and also contaminations will continue increasing in the cities. In this way, the planners try to respond climate change by exploring diverse strategies related with water management.

However, when making changes in cities plan, the

planners does not take into account how does this modifications can affect the communities and their lifestyle.

The planning projects are general, seen by the top of the plans, but without thinking on the repercussions that the implemented changes can affect the inhabitants, and also their ideals and principles, and the most important thing, the way the inhabit the space. These interventions generate the community to loss its identity, make society fractionate and have unjust policies.

To implement good strategies related with water management, planners have to think in the inhabitants that might be transfer, also create programs for citizens' participation in design of new homes. This might have some identity and sense of belonging in the community.

Most of the cities have had some problems with hydric resources, storm water and effluent. Bogotá is in constant risk because of the Bogota river and its affluent rivers inside the capital. Some dykes and treatment plants have been constructed, and some rural areas have been designated to turn into lakes so that the cause of the river is controlled.

After the rainy season that Bogota suffered in 2007, the flood problems had been increasing each year, the affected population raises without finding any solution to this huge problem.

Most of the cities of the world are experiencing problems because of the climate change of the last years. The climate in Bogotá had turn into in important factor that is in constant change.

Temperatures vary in an altered range so that the inhabitant does not know how to act because of this phenomenon. There are some areas of the city, which are directly affected by the climate change, the rain and de overflow of the rivers.

Stagnant polluted water in the people lower-income house is an urgent issue to solve. Bosa is a suburb of the city of Bogota, located on the perimeter of the capital, close to the Bogota river where it passes Bogotá and one of its tributaries Tunjuelo river. This part of town is the one most affected by the floods specially because there are respiratory diseases and the emergency continues.

In 2008, the */Fenomeno de la Niña/* strongly beat the southwestern part of the city. Chaos and

confusion occurred all over four thousand homes that were affected and about 12,000 people without a place to go, completely loosing their sentimental and material goods. Government helps never arrived to solve the problem. Most of the population had been transferred to other places trying to resolve the problem, or just waiting for the flood to decrease its leavel of water so people can go back to their homes.

We are not searching for real solutions, the proposal of the government is to create new places for these people or communities to stay when the storm comes, leaving their homes and all their stuff in the flood.

We need to search for newer solutions, look around the world and see how other countries and cities attack or solve this problem. the natural resources are sources of life, and we most protect and preserve them.

Investing in citizenship and urban mobility

The transformation of Bogota in recent years, concentrating on urban mobility. Despite the deep economic crisis and violence that Colombia continues to experience, the spatial, social, political, and economic structure of its capital city has undergone important changes. The first part presents the work of the administration of Mayor Antanas Mockus, who promoted a culture of citizenship. This resulted in a concentration on the analysis and understanding of problems and programs that made citizens reflect on the importance of changing their attitude and behavior in the urban setting.

The second part deals with the administration of Mayor Enrique Penalosa, which was characterized by a high rate of investment and the rapid completion of an important number of infrastructure projects. These projects challenged the traditional city model. The last section offers considerations regarding the future of urban mobility, transport, and public space.

Despite the deep crisis in the construction sector, the following physical aspects of Bogota have changed substantially: pedestrian zones, road infrastructure, especially the implementation of paths reserved exclusively for bicycles, the revitalization of parks and sidewalks, and the implementation of the Transmilenio bus rapid transit system. This system, which has improved commuting for 10% of users of public transport, involves lanes dedicated exclusively to buses; new buses; and permanent, easily recognizable stops.

The Transmilenio was created with public revenues, centralized control and infrastructure construction, and contracts with private companies. It has made urban transport during peak hours more agile, thereby reducing congestion and average commuting times. The “pico y placa” (“peak times and license plates”) program greatly restricts the use of private automobiles at peak times.



Social segregation

Bogota is a city unlike other places in Latin America such as Sao Paulo, which has organized its urban space limiting the contact between neighborhoods. The organization by social classes, which originally was intended to be only administrative, erected in practice speeches separation and distinction between different social classes. "Spatial segregation does not have to do exclusively with a distribution of urban land, but involves putting into practice the social and cultural patterns of social differentiation and the order maintenance".

The rise on the residential neighborhoods of Bogotá led new practices and ways of relating with urban space by the middle and upper classes. Many of these practices were not limited to the living space of these groups, but moved to the labor area, to recreation and education. This areas of daily life, the security discourse as a countermeasure to the violence risk, takes the form of security guards, restricted entrances, security cameras and some other devices which lattices isolation and segregation.

Based on the concept of Beck (1999) *Risk Society*, refers to a real situation to events or processes that are happening in the present, but whose future is

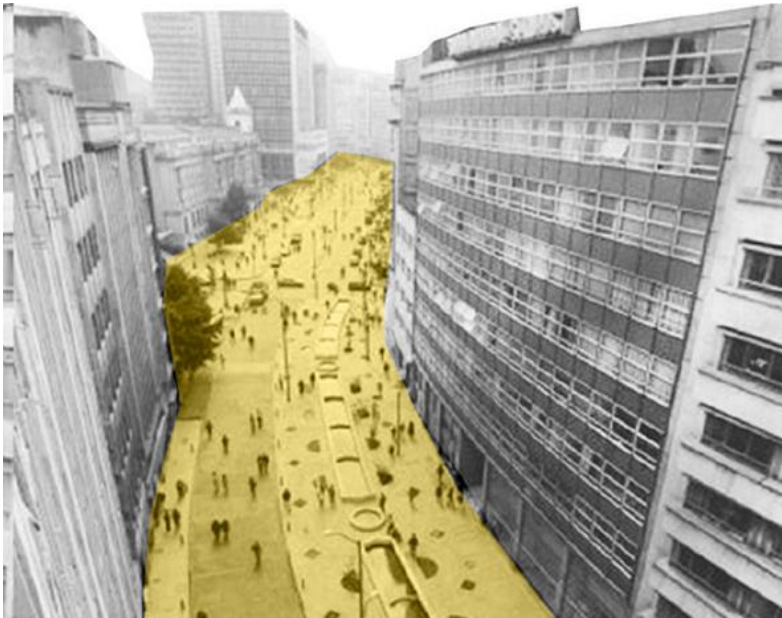
at risk. The risk poses a probability rather than danger. That latent risk is perceived as a threat that must be controlled and the best way to achieve it is by security. Insecurity does not fight as one might think at first, but it prevents something is supposed to happen.

"It is necessary to reverse the processes of social segregation in this field, but not sufficient. Step in the spatial reconfiguration through a process of collective construction allowing the area to become a place of convergence that reflects the realities of heterogeneity of identities of people in that environment".

Teresa Caldeira (2007)

Architect Ángela Lara "La segregación social, configuración urbana y espacio público en el entorno de la ronda del Ramarguillo" (Sevilla)

<http://www.laciudadviva.org/blogs/?p=3749>



“las curvas asphaltadas de la Avenida Jiménez de Quesada invocan en silencio el sepultado río San Francisco, o como lo llamaron los primeros habitantes de Bogotá (los muiscas), Viracachá, que quiere decir el resplandor del agua en la oscuridad”._Rogelio Salmona



EJE AMBIENTAL_AV. JIMENEZ_2000

Asse ambientale_Rogelio Salmona
 320m di lunghezza
 Ricupero del fiume San Francisco
 Percorsi pedonale_strada privata per trans-
 milenio



Economy

Revenues and public investment went up under Mayor Mockus and Mayor Penalosa. In the last years of the 1990s, Bogota doubled its tax revenues, credit qualifications for internal debt improved considerably, and internal debt also doubled. Between 1997 and 2000 total public sector income increased from 1.883 to 3.692 trillion pesos (US \$1.255 billion to US \$2.461 billion).

The strengthening of public sector revenue was the result of an increase in the gasoline tax, the application of an enforcement campaign to reduce tax evasion, updating information for real estate taxes, simplification of some taxes, raising real estate tax assessments to reflect the benefits from public infrastructure investments, and readjustment of public service tariffs.

In addition, the national government paid 52% of the costs of building and operating the Transmilenio bus system. Increasing the gasoline tax from 14% to 20% generated 30 billion pesos (US \$20 million) annually, providing funds for investment in transit (road networks and public transport).

The successful enforcement campaign against tax evasion raised revenues by 62 billion pesos in 1999 and 70 billion pesos in 2000 (US \$41 million and US \$46 million). Updating the real estate tax system increased the real property tax base by 40% in two years.

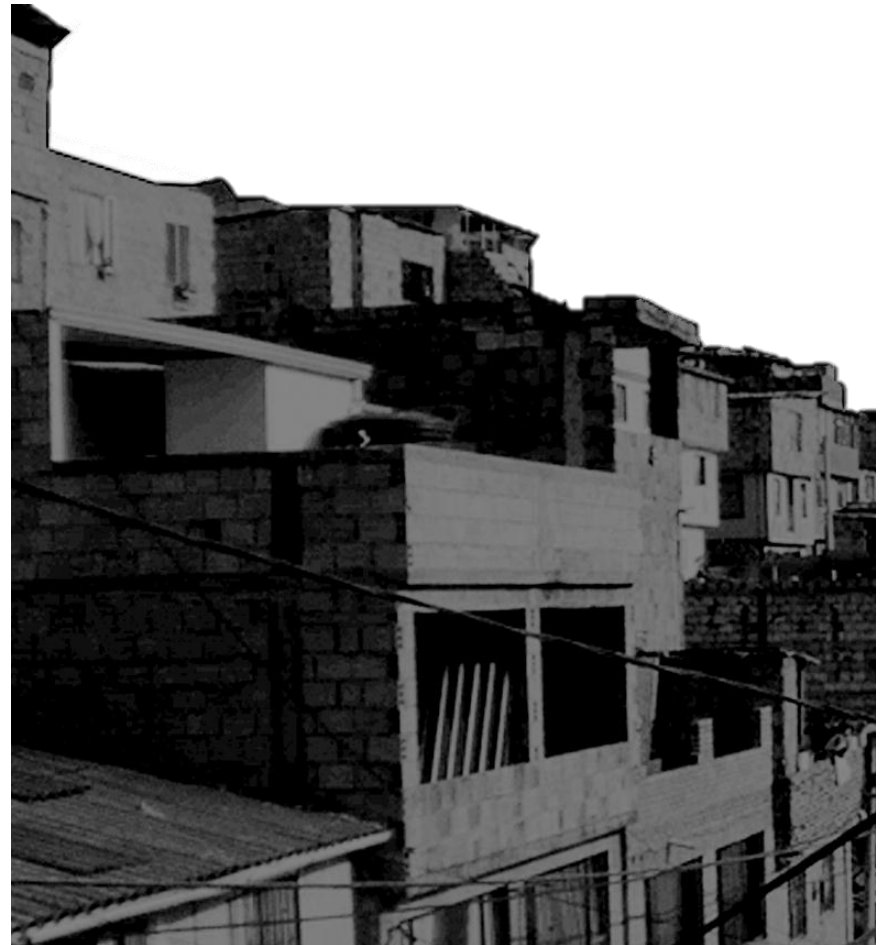
The municipality received an additional 970 billion pesos (US \$646 million) by reducing capital in the Empresa de Telecomunicaciones de Bogota (Telecommunications Company of Bogota). One of the main successes of fiscal management was the substantial reduction in operating costs that provided the municipality more money for investment.

Until 1994 more than 45% of the municipal budget was used for operating costs, and in 1992 it was 52%. This number began decreasing in 1995, and in 1999 it was down to 20% of the total budget. On the other hand, capital investment rose from 30% of the municipal budget in 1992 to 75% in 1999.

Society

Bogota has experienced important recent social changes. Coverage of public domestic services (water, electricity, telephones, and gas) has increased and efforts have been made to include the poorest neighborhoods. The administration of Enrique Penalosa (1998-2000) formalized the provision of water, electricity, and paved roads to 316 mostly low-income neighborhoods, and invested 1.3 trillion pesos (US \$800 million) which benefited 650,000 marginalized persons. Resources for public education doubled and the number of youth attending school rose by 140,000 students, a 30% increase. Regarding safety, the number of violent deaths fell by 42%.

This is one of the most important successes of the municipal government because it was achieved primarily through education, not through repressive policies of “zero tolerance.” Further, the administration of Antanas Mockus (1995-1997) changed the mentality of the population and created a culture of citizenship, enabling the subsequent Penalosa administration to enforce measures like the obligatory use of seatbelts and restrictions on automobile usage.



Bogotá change

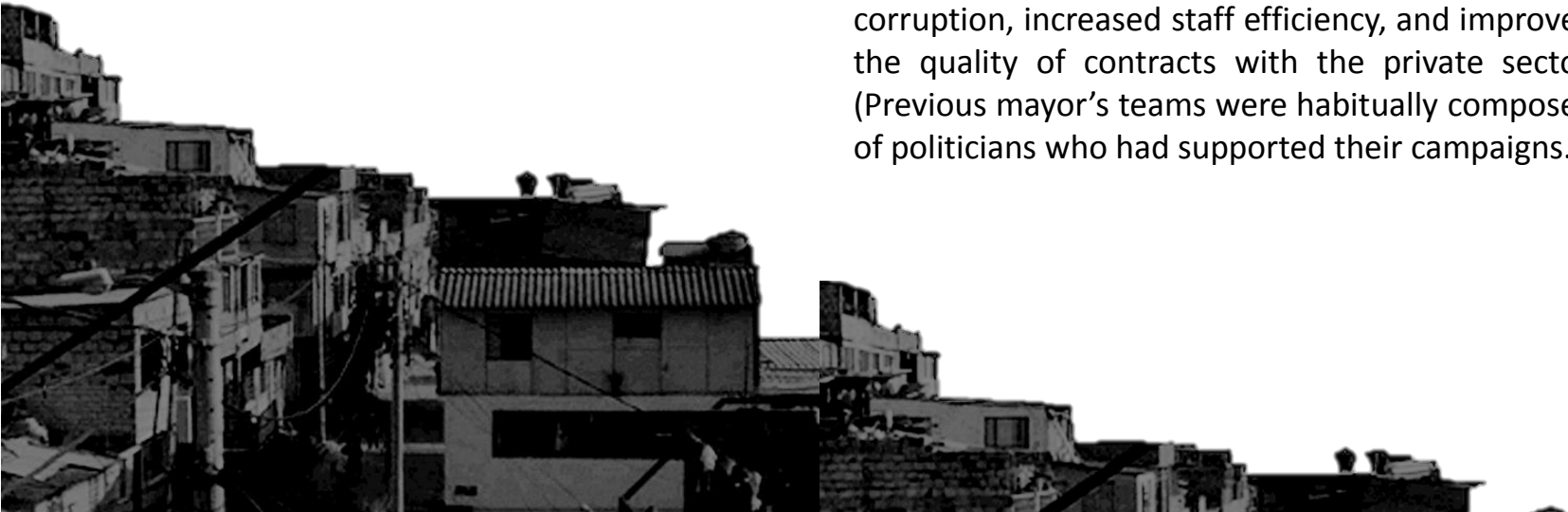
Politics

In the political sphere, the important changes took place in the behavior of both voters and elected officials. Voters showed their impatience with the traditional political class and bipartisan politics in municipal elections by casting votes for alternative candidates.

Mayor Mockus and Mayor Penalosa found themselves in a situation conducive to important changes in the political sphere. The administration prior to Mayor Mockus had succeeded in improving the finances of the city and most importantly, changed the city charter to give more independence to the mayor.

The charter of Bogota, designed by Mayor Jaime Castro (1992-1994), made the mayor less dependent on the city council, which had traditionally acted as co-administrator of the city government. Further, because Mayor Mockus and Mayor Penalosa came from non-traditional parties, they had complete freedom when choosing members of their administrations, enabling them to choose the people they felt were best qualified.

Their teams were made up of a high percentage of young academics and professionals, including many women, moving from a politically motivated, clientelistic scheme to a much more ethical and professional way of working. This reduced corruption, increased staff efficiency, and improved the quality of contracts with the private sector. (Previous mayor's teams were habitually composed of politicians who had supported their campaigns.)



*Bajo el Cielo de Bogotá, Invadido de edificios,
Que señalan como dedos, el universo infinito,
En esa Bogotá enorme, como un laberinto, de
puentes serpenteantes y autopistas como
rios._Jean Paul Sauman*



Culture and education for citizenship, 1995-1997

On October 30, 1994, Antanas Mockus was elected mayor with 64% of the votes (492,389), easily defeating his main opponent, Enrique Penalosa of the Colombian Liberal Party, who received 30%.

Antanas Mockus, a Colombian of Lithuanian ancestry, was 43 years old when he became Mayor on January 1, 1995. As an academic with master's degrees in mathematics and philosophy, he had no experience as a politician. The premise of his campaign was "No P" — no publicity, politics, party, or "plata" (money). This eccentric campaign was the cheapest ever in Colombia; it cost a total of US \$8,000.

The Mockus administration's Plan of District Development for 1995-1997, "Formar Ciudad" (Educate the City), emphasized the following:

Culture of citizenship

Public space

Environment

Social progress

Urban productivity

Institutional legitimacy

Mayor Mockus defined the culture of citizenship as "the sum of habits, behaviors, actions and minimum common rules that generate a sense of belonging, facilitate harmony among citizens, and lead to respect for shared property and heritage and the recognition of citizens' rights and duties." This theme was the main focus of Mayor Mockus' administration, which sought to bring about a new urban culture based on mutual respect between citizens through educational programs.

These new programs used symbolic, provocative, and humorous actions to teach citizens to reflect on the consequences of their behavior in urban life. These programs were often quite unpopular particularly those that sought to reduce violence related to alcohol consumption, and injuries caused by fireworks. New laws prohibited the sale of alcoholic drinks after 1:00 am and the manufacture and commercialization of explosive powder for fireworks. There were campaigns to discourage gun ownership. These initiatives received approval ratings of 81%, 77%, and 92% for the restrictions regarding gunpowder, alcohol, and guns, respectively.







*“El sector mas peligroso de la ciudad de Bogotá, la plaza de San Victorino, lugar de drogas inseguridad, insalubridad, debía salir del centro de la capital colombiana.”
Enrique Peñalosa*



Mayor Mockus reduced corruption in policing the transit system by transferring this task from the police reporting to the Secretary of Transit and Transport and shifting the responsibility for transit security to the Metropolitan Police, which depend directly on the National Police. A full 71% considered this to be the right decision and thought that the new institution was less corrupt, better organized, and more effective. The Mockus administration also undertook the important task of cutting the clientelistic relationships that had always existed between the legislative and executive branches in Bogota.

In March 1996 a telephone referendum showed that residents did not favor automobile restrictions, leading the administration to refrain from such measures. Paradoxically, traffic congestion was considered the city's worst problem in the mid-1990s. One might consider this plebiscite a serious mistake, considering that the objectives of the restrictions were not properly explained. Moreover, citizens in most cities around the world generally do not vote to restrict their use of automobiles.

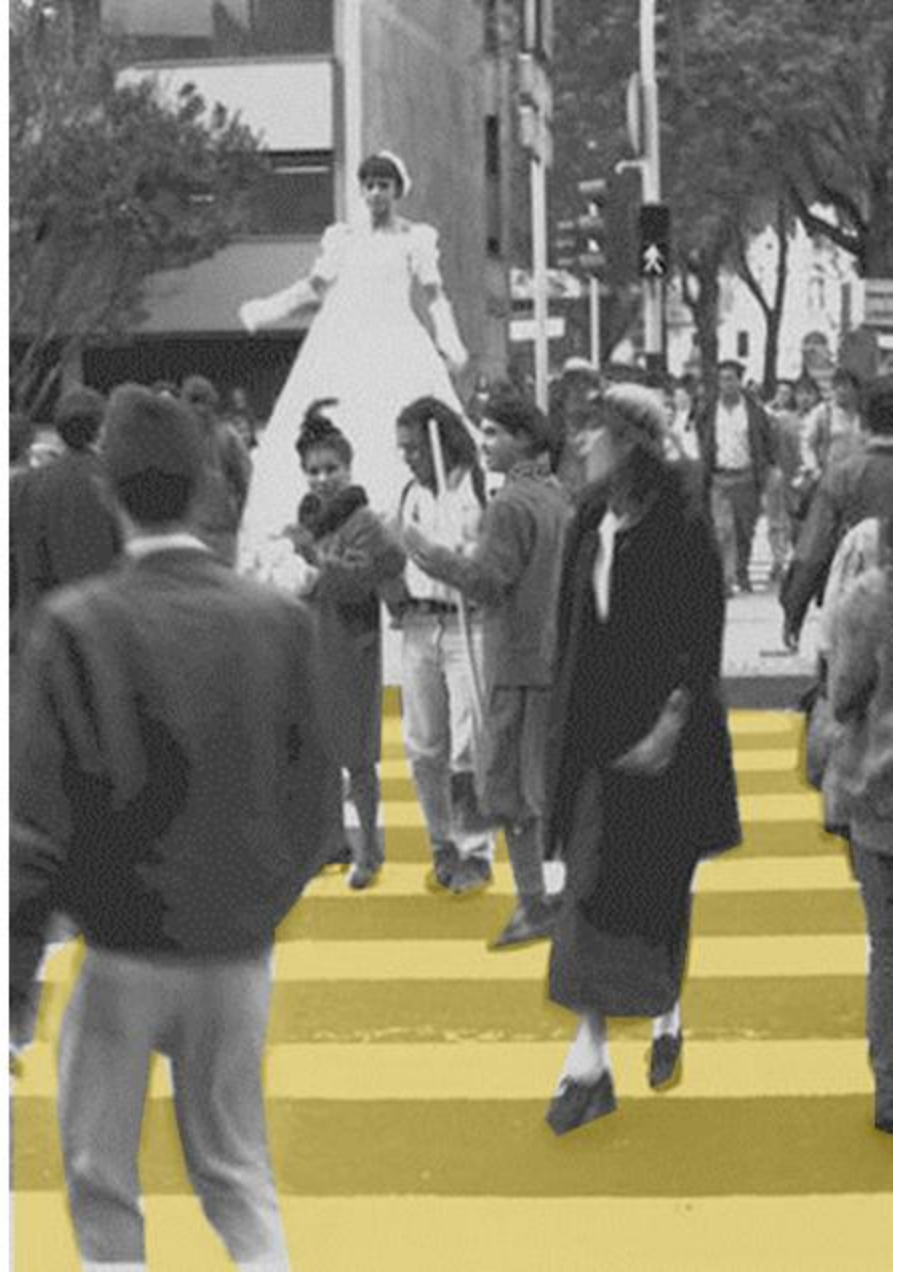
Lastly, two studies on transport in Bogota, one by the Japanese agency of technical cooperation (JICA) and another by the consortium Ingetec S.A., Bechtel y Systra, were completed in 1997. The study by the Japanese agency proposed solutions completely mismatched to the economic realities of Colombia and placed emphasis on automobile transport, with plans for elevated, multilevel roads.

The French-Colombian consortium recommended an integrated subway and bus system, but the proposed routes did not follow the main traffic arteries. The goal of this study seemed to be to justify the marketing of costly infrastructure. Although neither plan was implemented, both helped inform Mayor Penalosa's administration in configuring the Transmilenio.

Mayor Mockus' reputation suffered when he resigned one year before the end of his term to run for President of Colombia. Residents of Bogota felt betrayed by this political action, and when he resigned, 74% of Bogota citizens surveyed said that life in the city had not significantly improved under his leadership.

Mayor Mockus used educational group games as the main tool to establish a culture of “self-regulation,” consideration, and urban citizenship. These included: Cards, red on one side and white on the other, distributed among citizens and used as in football (soccer) games to show approval or disapproval of actions — particularly of car drivers
 Mimes in the streets that taught automobile drivers to respect pedestrian crossings, to use seatbelts, and to minimize the honking of horns
 Actors dressed as monks encouraging people to reflect on noise pollution, Mass initiatives to promote tourism and proper payment of taxes





Bogotá change

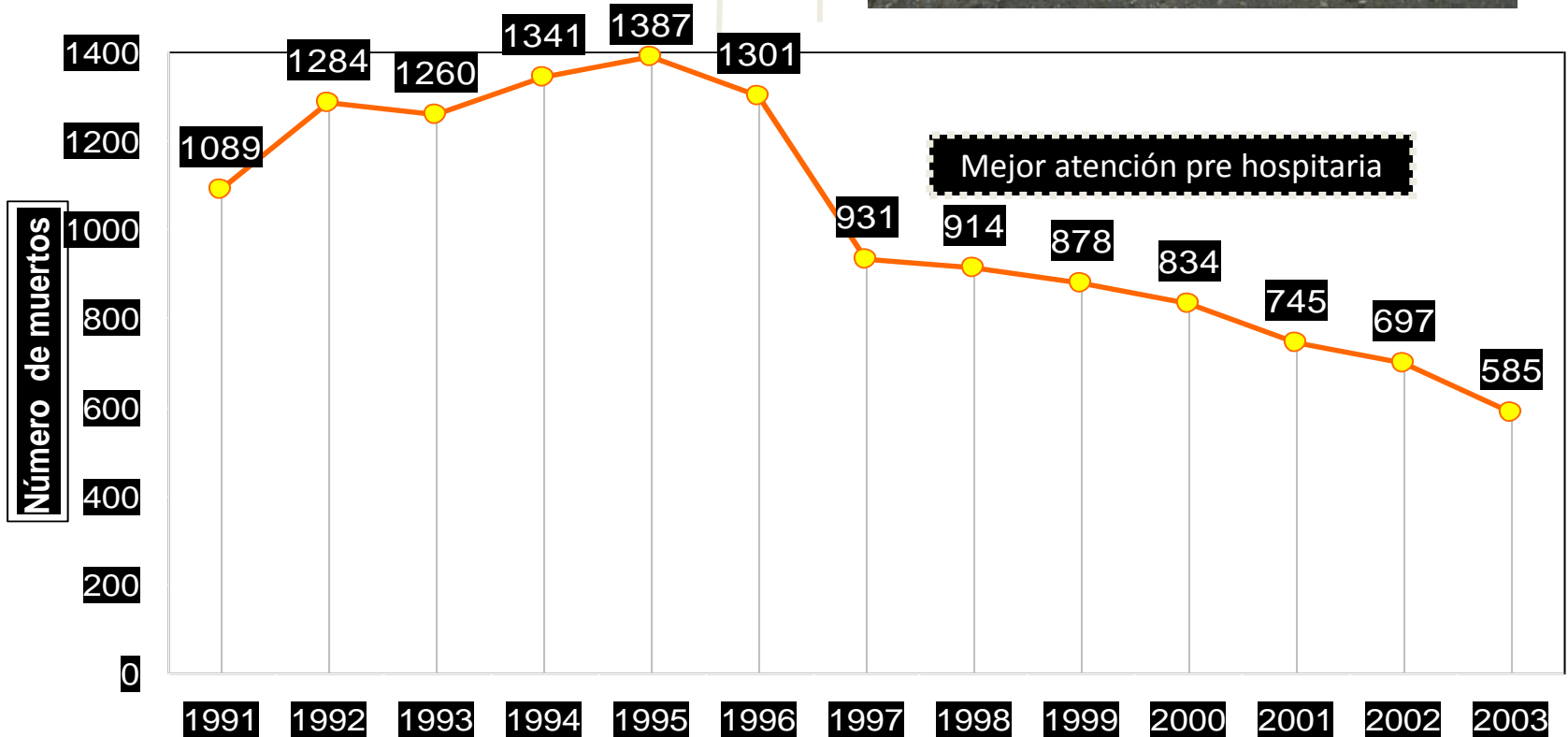


Protection of life

Strongest argument of campaign

CAMBIO POLICÍA

IMPLANTACIÓN «LEY ZANAHORIA»



investment in large public works, Enrique Peñalosa, 1998-2000

In 1997 Enrique Penalosa won 48% of the votes (619,086), beating the populist Carlos Moreno De Caro, who received 31%. Enrique Penalosa ran as an independent candidate. He was 43 years old when he became mayor. His political background included representing the Liberal party in the assembly of Cundinamarca (Bogota's province); serving as an economic secretary to Colombia's President Virgilio Barco (1986-1990); serving as a congressman (1990); and running for mayor in 1995. His election as mayor in 1997 can be interpreted as a vote against the populism of his opponent.

Enrique Penalosa had studied economics, history, and public administration and had worked both as an academic and as a director in the US consulting firm of Arthur D. Little. His corporate management style of delegating projects to his young team (which included many women) facilitated their rapid completion.

Mayor Penalosa's plan of District Development for 1998-2000, "Por la Bogota que Queremos" (For the Bogota We Want) prioritized the following

De-marginalization (Inclusion of low-income and informal workers and residents)

Social integration

City on a human scale

Mobility

Urbanism and services

Security and harmony among citizens

Institutional efficiency



The Peñalosa administration emphasized several major public investment projects

Integration of the mass transport system

Construction and maintenance of roads

Improvement and expansion of the municipal park system
Improvement and expansion of the municipal library system.



Mayor Peñalosa invited residents of Bogotá to imagine a different city, “a city that today seems utopian, with trees, bicycles, beautiful sidewalks, full of parks, with clean rivers, lakes, libraries, clean, egalitarian...” Although the mayor told the inhabitants of Bogotá that they could build whatever they imagined, residents remained skeptical until the projects were completed.

Public space and transport were the main priorities of the Peñalosa administration. Mayor Peñalosa’s notion of an egalitarian city where citizens enjoy high quality public space seemed impossible even in 1999. Many of his projects, such as the installation of barriers designed to stop autos from parking on the sidewalks, received strong opposition. This parking practice was customary throughout the city, and it made life extremely difficult for pedestrians. Store owners, who saw the sidewalks as parking spaces for their businesses, reacted violently to the barriers and Mayor Peñalosa was almost impeached. Mayor Peñalosa’s popularity rose as his major public investment projects were implemented, and at the end of his term, a poll by the newspaper *El Espectador* reported that 40% of Bogotá residents surveyed rated his administration as “excellent.”

No other administration in the 20th century worked as much on mobility and public space in Bogota. Mayor Peñalosa's main actions addressing these issues were designed to:

- improve public transport
- restrict private automobile use
- expand and improve bicycle paths
- enhance public space

The majority of the projects initiated by Mayor Peñalosa were completed, started, or contracted during his term, 1998-2000. Indeed, the Peñalosa administration claimed to have completed most of its original development plan. One of the few exceptions is the project for a city subway system. Mayor Peñalosa's Integrated System of Mass Transport included both "rigid" (subway) and "flexible" (Transmilenio) elements.

The Peñalosa administration had a clear goal regarding public transport: a new system by December 31, 2000. Mayor Peñalosa created a team external to his administration and obtained resources through the United Nations Development Program (UNDP) to help create an investment fund.

The goal of the Transmilenio bus rapid transit system was to provide a well-organized, efficient means of public transport: an alternative to the chaotic independently operated bus service that dominated the city. These are often operated by overworked drivers, inefficient due to disorganization, and emit excessive amounts of exhaust, polluting the air. The municipality created the company Transmilenio S.A. to plan, organize, and construct the transportation infrastructure, as well as to supervise the bus service. The buses and drivers were contracted to private firms, though the revenues and finances are managed by Transmilenio S.A. The revenues are distributed as follows:

- 65% operators of the main artery
- 20% operators of the feeder routes
- 11% fare collection and banking
- 3% operating costs of Transmilenio S.A.
- 1% investment fund



Modelo de sistema de transporte. Publico a nivel mundial, un medio donde la interacción entre la sociedad es equitativa_ Enrique Peñalosa



TRANSMILENIO _ 2000

84 Km. di strade
663 Km. di bus / Alimentadores /
114 stazioni (funzionamento)
32 stazioni (costruzione)
1.700.000 utenti al giorno



The Transmilenio follows the model of Curitiba, Brazil, and Quito, Ecuador, with main arteries and feeder routes. On the main arteries, riders pay for access to an elevated platform, and on the feeder routes riders pay once they reach the main artery. Stations are fixed and 500 meters apart. With the new bus system, the municipality went from a passive position regarding public transport to a proactive one.

The Transmilenio is widely regarded as an excellent bus system, providing well organized, fast, and comfortable service. In the Integrated System of Mass Transport, the Transmilenio covers the entire city, linking with subway and bicycle paths. Construction of the Transmilenio has six phases, and in January 2003 work on phase 2 was underway.

The Peñalosa administration outlined a clear position regarding private automobiles; it regarded them as “the worst threat to quality of life of this city.” One of Mayor Peñalosa ’s main aims was to get automobile drivers and riders to use public transport. The “pico y placa” program considerably reduced congestion at peak times with a 40% reduction in private automobile use. Twice a week,

private automobiles were prohibited from circulating: license plates ending in 1, 2, 3, and 4 were prohibited to circulate on Monday; 5, 6, 7, and 8 on Tuesday; 9, 0, 1, and 2 on Wednesday; 3, 4, 5, and 6 on Thursday; and 7, 8, 9, and 0 on Friday.

In addition to this measure, the Peñalosa administration invited Bogota residents to imagine how the city would be without cars. On February 29, 2000, Bogota held its first (and the world’s largest) Car Free Day. It proved to be so popular that citizens voted in a citywide referendum to make it an annual event.

Mayor Peñalosa ’s Master Plan of Bicycle Paths was originally going to be 350 kilometers long. Approximately 270 kilometers were completed by January 2003. This is the largest network in Latin America and the developing world. The cost (more than US \$46 million through 2002), was high, but the technical achievements were impressive; most of the 105 kilometers completed during Mayor Peñalosa ’s administration were built on difficult terrain.



“Una ciclovía es un poderoso símbolo de equidad, pues muestra que un ciudadano en una bicicleta de 30 dólares tiene la misma prioridad que otro en un auto de 30.000 dólares” Enrique Penalosa



CICLORUTAS _ 1999

313 Km. piste ciclabile
120 Km. in costruzione
800.000 utenti al giorno



No car day, political campaign celebrating the wetland day.



Public space was greatly improved from 1998-2000. It went, according to Mayor Peñalosa, from “being nobody’s place, without serious attention of the administration, appropriated for anyone’s private use and without any consideration for human beings, to become the space *par excellence* of the city”. The Defense of Public Space office was created to recover space that had been illegally occupied, and space for pedestrians was substantially renovated through improvements in sidewalks, traffic signals, lighting, and the planting of trees.

This included the recovery of 338,297 square meters, and the construction of 147,000 square meters, of space under bridges (these spaces previously had been badly planned and inhospitable) and 432,000 square meters of sidewalks — a total of approximately 917,000 square meters of public space. The Peñalosa administration restored, improved, and maintained 1,034 parks, or 54% of the green space in the city. For a cost of 212 billion pesos (about US \$100 million) the city government planted almost 70,000 trees, installed 183,651 planters, and added greenery to 202 kilometers of roadsides and 280 hectares of parks.



The challenge to balance transport

Consolidating a multimodal transport system for the metropolitan region represents one of the largest challenges for Bogota. The elements of such a system include:

Subway

Transmilenio buses

Non-motorized transport

Regional trains

Public space

Automobiles

Although there is an average of one bicycle per three families, bicycles have been absent from transport studies of Bogota. Residents currently use bicycles frequently for leisure, especially on Sundays during the “ciclo-via,” when many roads are closed to motorized vehicles. Although this event is the largest of its kind worldwide and often attracts more than two million participants, when it comes to commuting to work, residents perceive bicycles as a less important mode of transport and a sign of economic destitution. Recent educational campaigns to change this perception have had important effects and must be continued to reach more of the population. Only when members of all social classes use bicycles will the notion of the bicycle as a step below motorization (a common

idea in the developing world) be erased. When Mayor Peñalosa and members of his administration periodically rode bicycles to work, they helped to de-stigmatize the bicycle to a large degree. As the failure of bicycle lanes in Paris and other cities in the 1980s has taught us, the same investment made in infrastructure must be made in education, supervision, and safety.

A regional inter-urban commuter train system is currently being studied, and this is an excellent opportunity to articulate a solid metropolitan plan of transport. The city of Bogota should support this effort since it is an opportunity to organize the many bus lines of surrounding cities that pass through the capital.

The renovation and building of sidewalks in Bogota was an important achievement of Mayor Peñalosa’s administration, and the process of recovering space for pedestrians must continue throughout the city, in favor of the person, not the automobile. Not only sidewalks and parks, but also highways, roads, and parking spaces must be considered for potential use by various modes of transport (automobile, bicycle, walking). Proper reflection and action regarding public space requires a multidisciplinary approach.

The automobile is a necessary evil for all cities, and it is important to remember its advantages and disadvantages in the urban setting. Because the car is not convenient for commuting during peak times, its use must be rationalized. The environmental damage of automobiles provides

Reflection, action, and continuity for further change

The success in Bogota can be attributed in part to the synergy between the educational campaign of Mayor Mockus and the action of Mayor Peñalosa. However, Mayor Peñalosa almost entirely eliminated the programs of social education initiated by his predecessor, despite the desire of the population to maintain them — 91% according to one poll. The rupture between reflection and action was intense, and both administrations could be criticized in these respects: Mayor Mockus, for excessive reflection and too little action; and Mayor Peñalosa for too little reflection on his many actions.

The great achievements of both mayors were the result of a new kind of government centered on issues rather than party politics or ideology. Both leaders acted ideologically as right, left, and center,

compelling logic for further rationalization, particularly in the case of Bogota, where the high altitude — 2600 meters above sea level — impedes the efficient functioning of internal combustion engines.

and at times went to extreme positions. Antanas Mockus and Enrique Peñalosa transformed Bogota, one of the most chaotic cities in the world, to a model of urban development and transport. Various agencies in the United Nations have recognized the vast improvements in infrastructure and administration and the reduction in violence. United States and Swedish international development organizations gave prestigious prizes to the public library system and the Transmilenio bus system, respectively. Residents feel a new sense of ownership, belonging, and pride in the city, and manifest this in events such as “ciclo-vía nocturna” (night ciclo-vía), an evening in December 2002 when more than 3 million people celebrated in the streets.



Bogotá change

Bogota awards

Bogotá is a city that has experienced a huge transformation in the last 10 years. and has earned numerous awards, among which are:



Music City. Member of the Creative Cities Network of UNESCO. 2012.
Bogotá promote music as a tool for socio-economic progress and cultural diversity.



World Book Capital 2007 by UNESCO recognition granted to Bogotápor multiple programs to promote book culture



Golden Lion for Best City 2006: Bogota received this award for the tenth edition of the Venice Biennale, for its innovative solutions for mobility, social inclusion and public space



City with a Heart 2005: this award from the UN emphasizes volunteer work as a force contributing to urban development at the community level in Bogotá



Active Cities - Healthy Cities 2005: recognition and Recreovía bikeway program promoted by the Institute of Sports and Recreation in Bogota, for his contribution to the development of alternative and inclusive physical activity for all citizens



Digital City 2004: this award is recognition of digital government initiatives



Cities for Peace 2002 award from UNESCO initiatives to build social cohesion and spirit of urban living in Bogotá



Access to Learning-2002: Recognition of the Bill and Melinda Gates to efforts by bringing in Bogotá citizens to the information you need in a quick and effective



Stockholm Challenge 2000: This award recognized the "Car Free Day" in Bogotá como an innovative proposal for urban mobility

Additionally, some of the most important international media have also warned the amazing renovation of Bogota.

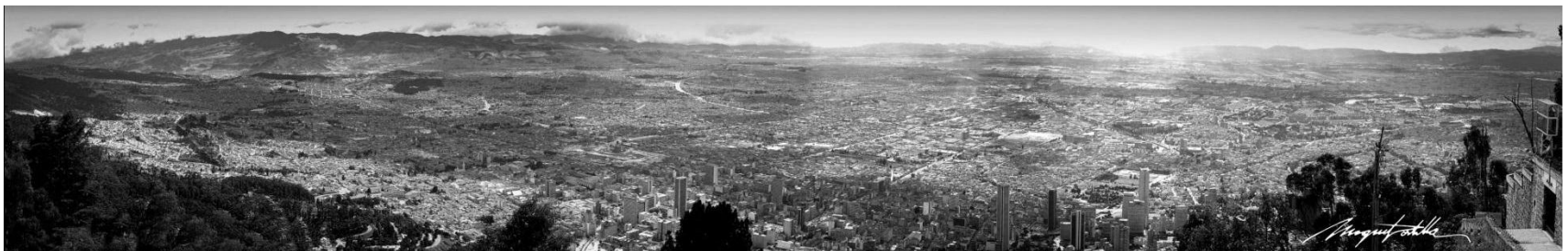
Bogotá, the fourth largest city in South America, with seven million people, has numerous and varied restaurants, world-class museums and a magical colonial area. It is the country's capital and intellectual center, a city lit and friendly to pedestrians has 75 miles of track every Sunday is dedicated to the exclusive use of cyclists and walkers. Additionally, the climate is mild, with maximum temperatures of 60 ° F throughout the year. **Seth Kugel, The New York Times**

Bogotá, which was once a capital disorderly, is now a city model. The visionary leadership of the last three mayors is reflected in the positive conversion

of the city. The improvement of public finances, reduced congestion and insecurity, the numerous infrastructure and increasing vehicular traffic have ordered Bogota a livable city again, which become interested and expert planners around the world.

Chris Kraul, Los Angeles Times

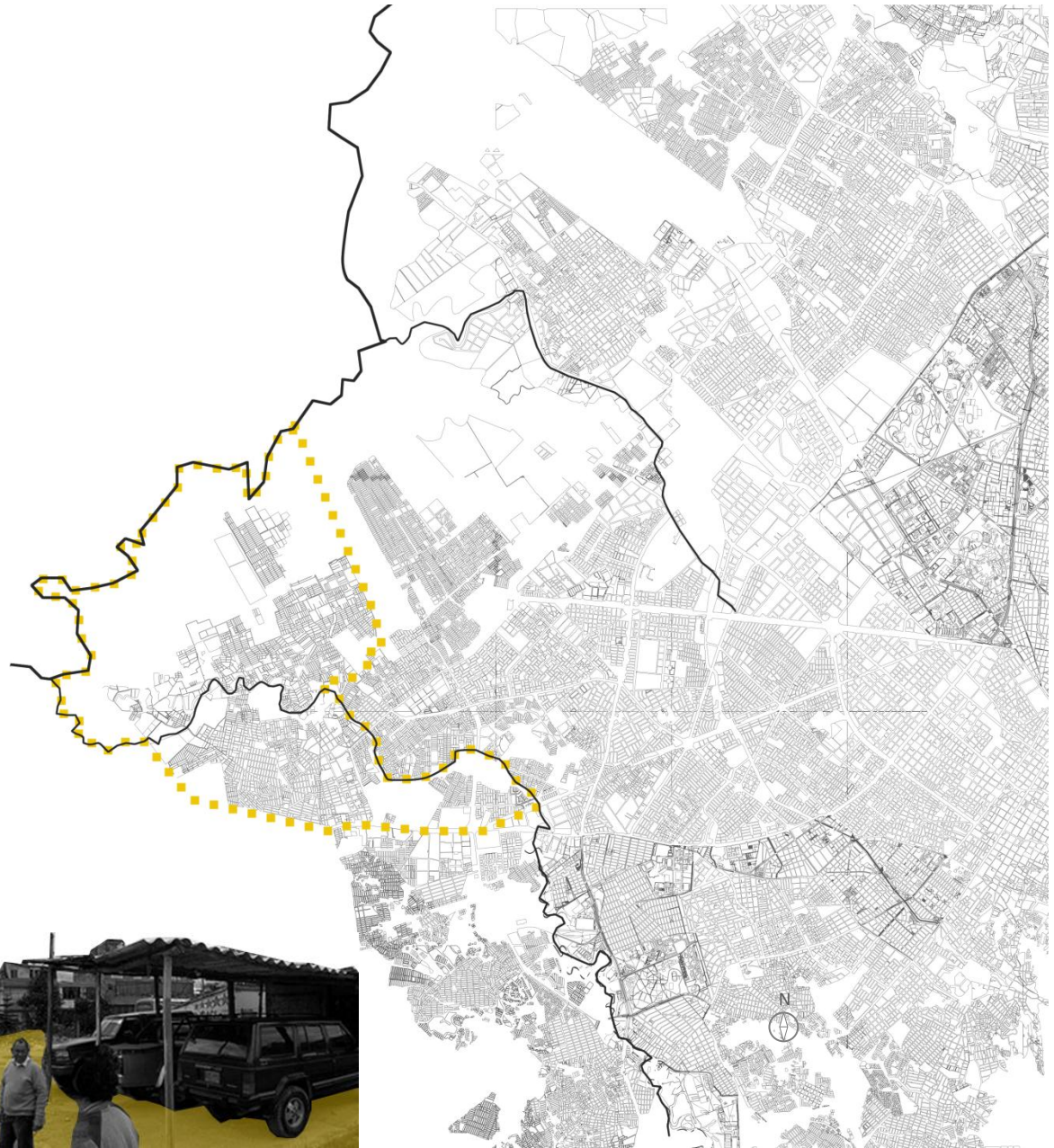
Bogota, the capital, is a faithful reflection of Colombia: a city with futuristic architecture, a vibrant cultural and intellectual dynamic and diverse, splendid colonial churches and brilliant museums. **Lonely Planet**



Bogotá change

Bosa / Bogota

Urban context



South west of the city
Total extension 2.391.58 ha.
Urban floor 1.929.20 ha. (230.22
es área protegida)
Expansion 462.39 ha (223.69
esta protegida)



This project focuses the problem of environmental pollution and how it is directly related to the population. It occupies on a vulnerable area, which government discriminate because does not invest in it and it is increasingly forgotten. An area on the outskirts of the Colombian capital, where it is clear that there is social inequality in the city. The problems that arise and the solutions proposed a heartless government.

Water, is as an essential element for life. Is an important natural resource, the community seeks only to get away from their surroundings and sees it as an unsolved problem. A source of life totally abandoned which receives society's wastes, which reflects how society does not think on the water as a resource such as a source of life.

The upper basin of Bogotá has been abused, and the District has moved behind the river. It has been drying its wetlands and forgetting its also a source of life. In this way the river is consider as a tube, as nuisance, like a sewer. Society does not recognize its complex system including its wetlands; download areas, moors generators and also its function to protect forests.

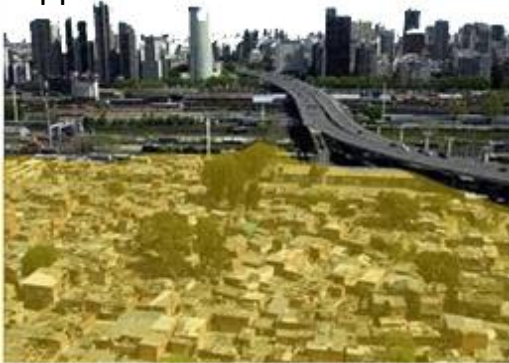
Water is seen only for their mirrors visible on the surface, but its important to remember that water has a cycle that is directly related with the weather (rain and drought, wind and temperature) and their specific and complex dynamics between soil and groundwater.

Rethinking on a new river system involves thinking as networks effects that society's decisions on the use of the surface of the place to inhabit. Conserve and use water well, is society responsibility to make people to have options in the future in the city of Bogotá and its highlands.

Childhood demands a well manage environment and that a substantively modification of the relationship with water. If the city continues its current growth rate, in a few years this society have serious problems of water supply.

Segregation and predation go together. The city forces the poor people to occupy the basins of the rivers, hillsides and live in high-risk city. Economic inequalities accentuate segregation. Boys and girls that were born in poor households have fewer opportunities than others because of the non-development opportunities of the sector.

Comparing worldwide, social mobility Bogota is low. To change this, structural barriers must be broken such as the income-related access opportunities.



Bogota is a city unlike other places in Latin America such as Sao Paulo, which has organized its urban space limiting the contact between neighborhoods. The organization by social classes, which originally was intended to be only administrative, erected in practice speeches separation and distinction between different social classes. "Spatial segregation does not have to do exclusively with a distribution of urban land, but involves putting into practice the social and cultural patterns of social differentiation and the order maintenance".

The rise on the residential neighborhoods of Bogotá led new practices and ways of relating with urban space by the middle and upper classes. Many of these practices were not limited to the living space of these groups, but moved to the labor area, to recreation and education. This areas of daily life, the security discourse as a countermeasure to the violence risk, takes the form of security guards, restricted entrances, security cameras and some other devices which lattices isolation and segregation.

Based on the concept of Beck (1999) *Risk Society*, refers to a real situation to events or processes that are happening in the present, but whose future is

at risk. The risk poses a probability rather than danger. That latent risk is perceived as a threat that must be controlled and the best way to achieve it is by security. Insecurity does not fight as one might think at first, but it prevents something is supposed to happen.

"It is necessary to reverse the processes of social segregation in this field, but not sufficient. Step in the spatial reconfiguration through a process of collective construction allowing the area to become a place of convergence that reflects the realities of heterogeneity of identities of people in that environment".

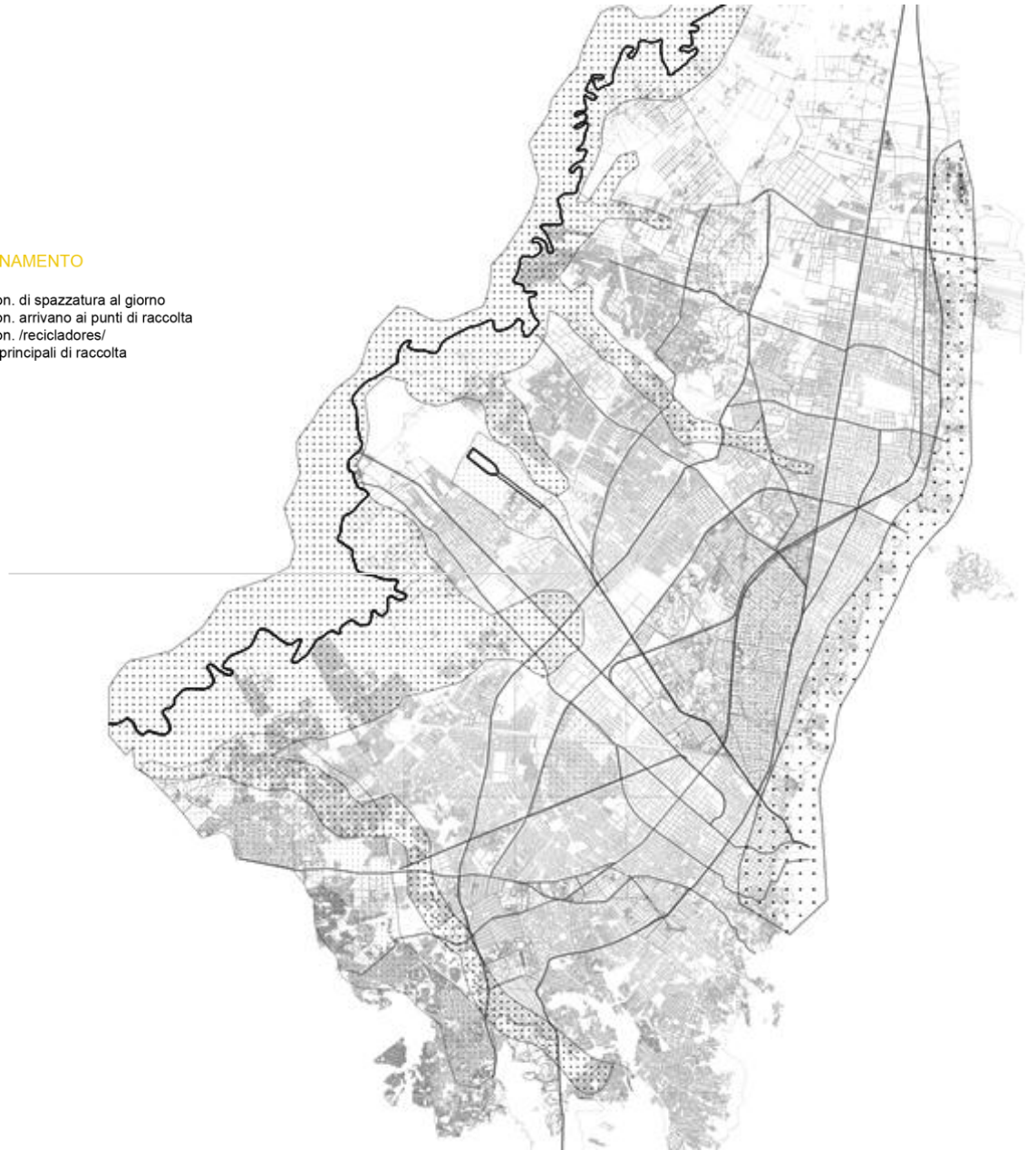
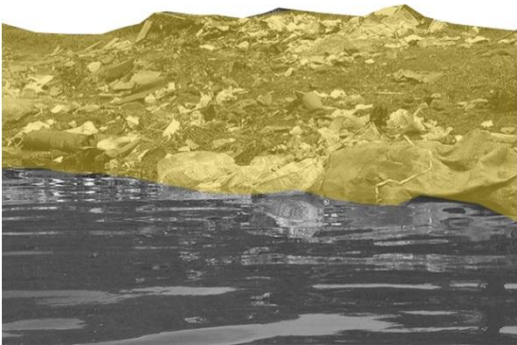
Teresa Caldeira (2007)

Architect Ángela Lara "La segregación social, configuración urbana y espacio publico en el entorno de la ronda del Ramarguillo" (Sevilla)
<http://www.laciudadviva.org/blogs/?p=3749>



INQUINAMENTO

8000 Ton. di spazzatura al giorno
6300 Ton. arrivano ai punti di raccolta
1700 Ton. /recicladores/
2 punti principali di raccolta



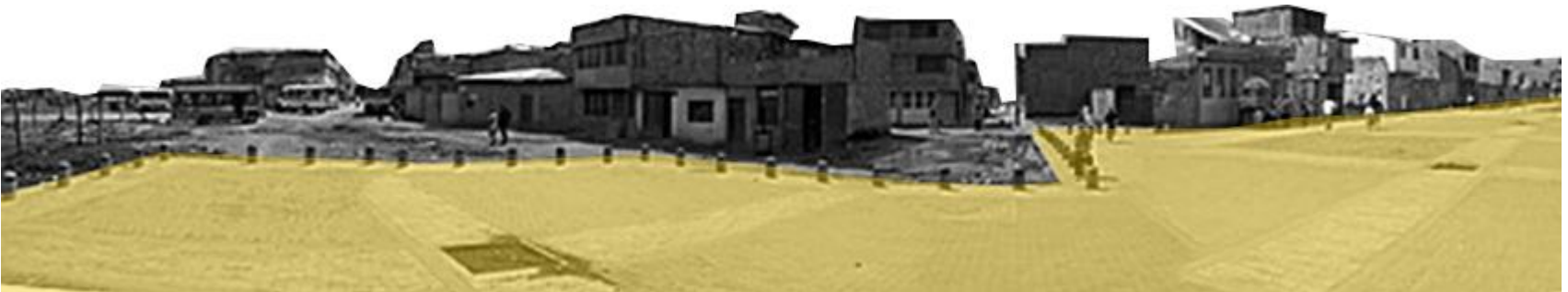
Urban growth

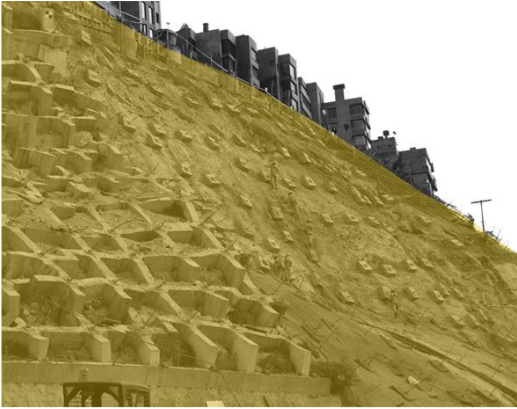
In the periphery of Bogota, the neighborhoods of social housing have also effects on urban growth. Its construction by individual initiative and private estates of various shapes, sizes and locations, consolidated deficit periphery equipment and public space and a lack of trails and roads leading to these new settlements in the city.

The space is materialized because of the suburbs that begin to arrange the edge of an unplanned city. The lack of public spaces, ecological structure and equipment that help integrate the community and create opportunities for the society. The services (water, electricity, telephone, gas). Missing good infrastructure roads and pedestrian networks that ensure the connection and articulation of the city with all the downtown areas.

Since the Forties, most of population was unable to be housing applicants because of the low-income. In this way this part of the society have resolved their housing needs through self processes in underground areas. Areas with out the possibility to raise living conditions.

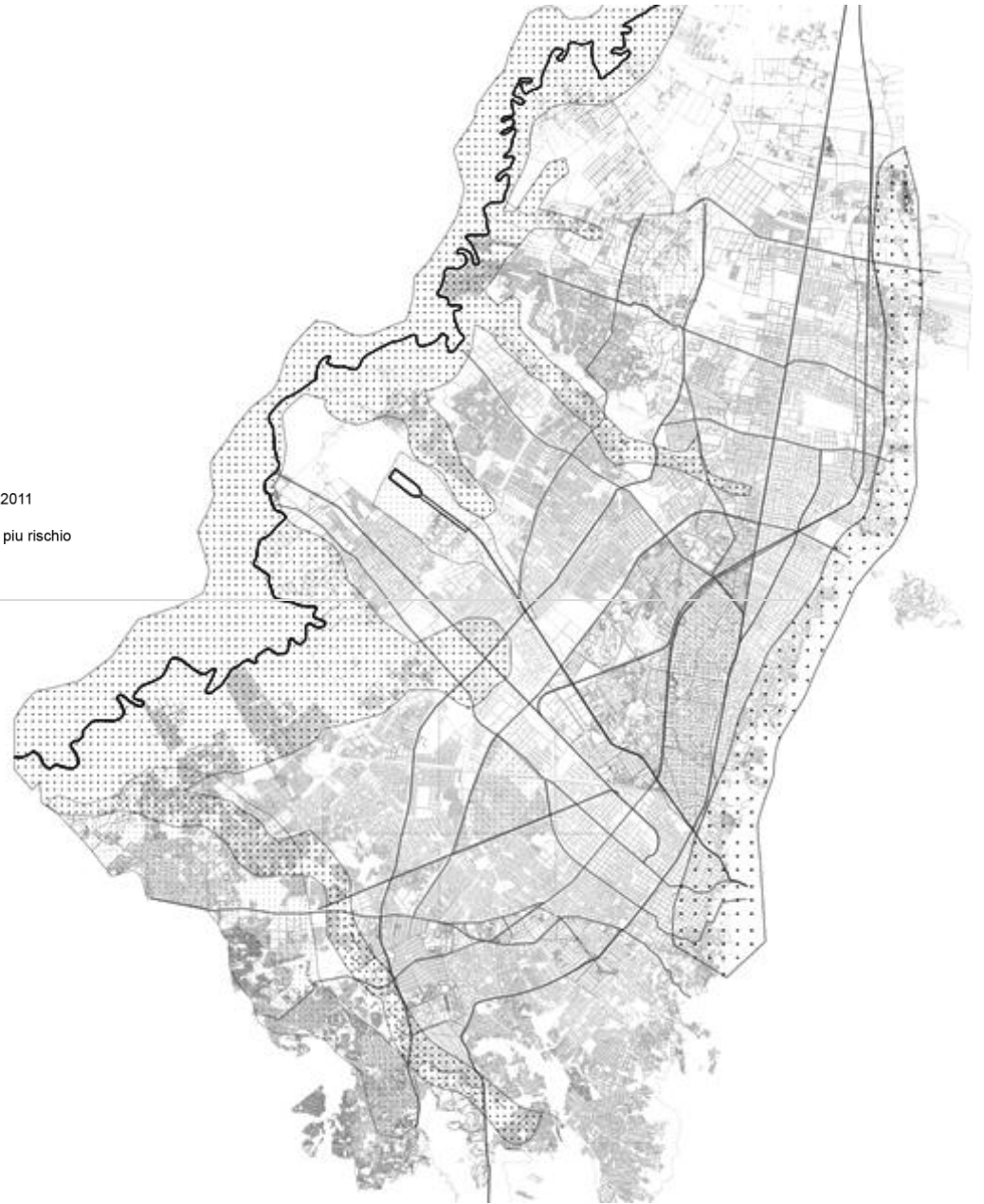
This is a way of solving the problem of housing in big cities, but has been a solution that requires State interventions because of the investment it has to do. The State has to provide public services and also in infrastructure as the granting subsidies to improve housing condition thinking on the architectural and urban scale reviews.





FRANA

740 famiglie colpiti _ 2011
340 frane _ 2012
Usme_Suba e Usme piu rischio



General idea and objective

It is essential to maintain spaces within the high environmental and landscape value, free of occupation and disruption. It's also important to avoid occupation of areas under different physical threats and reserve space, required for the development of systems that provide essential services. Natural resources must be converted in the hub and heart of the city, helping improve the distribution and quality of life for its inhabitants. Water sources, rivers and wetlands, are an essential part in the planning and development of the city.

First, the densification will be without segregation. Second, the densification will be green. The green densification without segregation and

preparedness for climate change by reducing the production of greenhouse gases, which requires rethinking urban and transport projects that exclude the other and that does not take advantage of new technologies. The various forms of segregation are expressions of contempt for others and the inability to accept differences. Downtown's revitalization is a privileged expanded to show the possibilities of a new model of urban renewal inclusive and recognizes the difference.

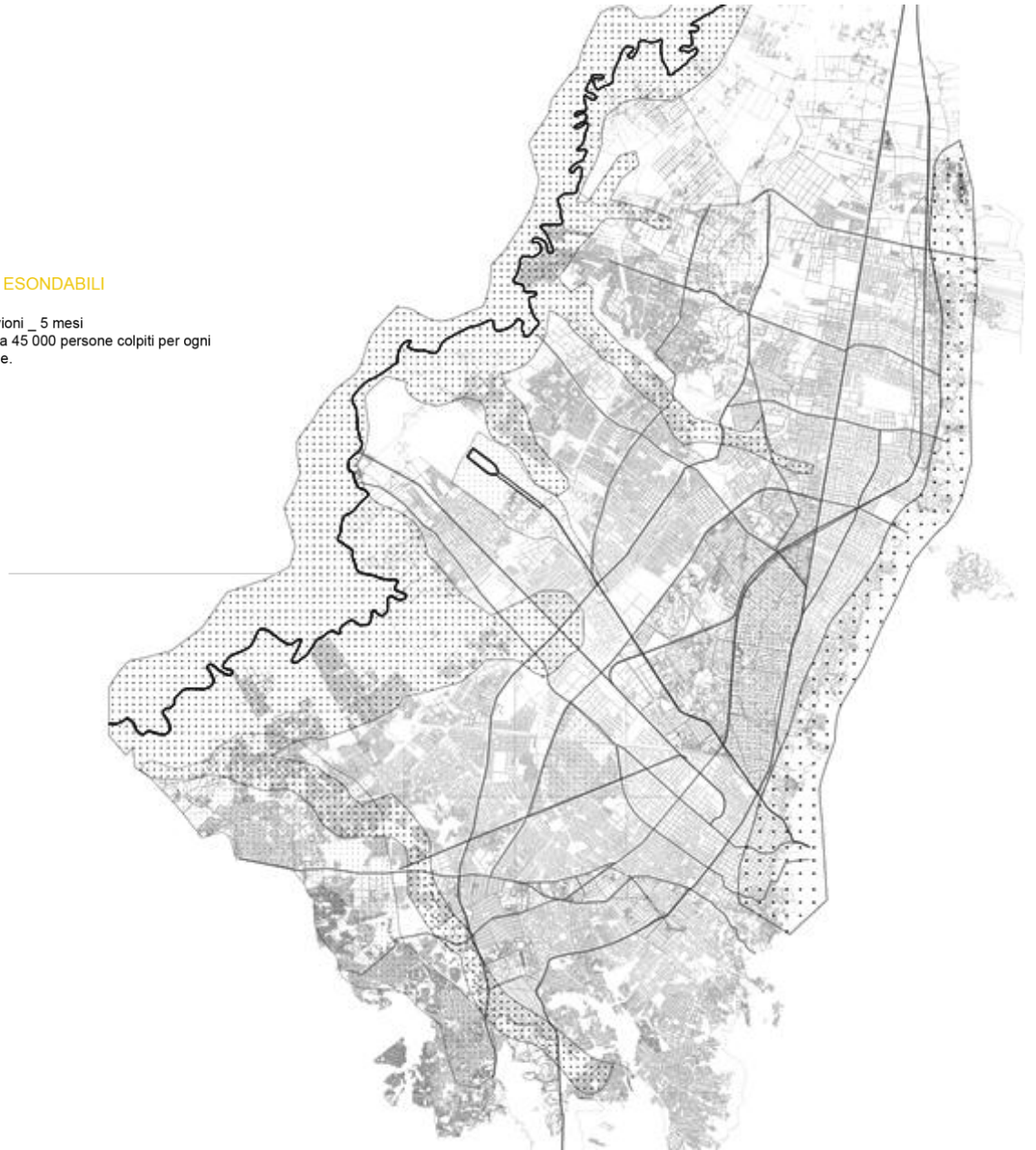
The green densification without segregation involves universal access to facilities and social services. Schools, parks, hospitals, cultural and sports centers, will be distributed so that everyone will have the same access to the citizens.





ZONE ESONDABILI

15 alluvioni _ 5 mesi
40 000 a 45 000 persone colpiti per ogni
alluvione.



Intervention

But this intervention of type of solutions becomes superficial as it tries to clog past mistakes and leaves aside. It does not give the necessary importance to the conservation of public spaces, green areas, integration, and citizen participation in the city. The Government's actions have become a job of plugging flaws that show there was no a previous plan.

“These two ways of formal and informal production shaped the urban growth reflecting the predominance of a rationality based on individual utility of both markets. This has adversely affected the habitability and the living conditions of most urban population. However, the recent claim of the urban policies focuses on a new era of urban planning through the *Land Management Plans*. By understanding the territory as a factor of development, the role for architecture and urbanism goes in terms of correcting the negative aspects of the patterns that have bound forms of urban growth in last years”.

The intervention area is located in the southwest of Bogota. On the outskirts of the capital where one of the branches of the Bogota river, Tunjuelo river, runs through the middle of the town of Bosa, creating a path of contaminated water throughout the whole city. Pitifully an area with wastes.

In Bosa there are clearly two types of housing. The social housing; homes built by private entities seeking to "solve" the problem of housing for the poorest. Their other type are self-construction houses; houses built by their owners and that tend to grow as the family itself. This last type of homes does not achieve the minimum requirements of auto resistance NSR98.

They also lack the provision of public services such as water and gas, light, and some others. The 75% of this type of housing is illegal in neighborhoods that are shaped without any regulation issued by the State.

The water treatment of Bogota is governed and determined by the lack of common sense of our leaders, citizens and private firms, who see in Bogota River and its tributaries, the toilet of the city. With anger and pain, I see that future plans to start solving the water pollution are proposed but they are not developed.

How is it possible that since 1993, the current mayor issued a project to decontaminate the Bogota River, which consists in placing three treatment plants along the path of the river in the city, more exactly in the confluences of the rivers Salitre, Fucha and Tunjuelo with the Bogota River, and it has been nearly 20 years, and only one of the three plants has been constructed, and the work done was insufficient, inefficient and banal?

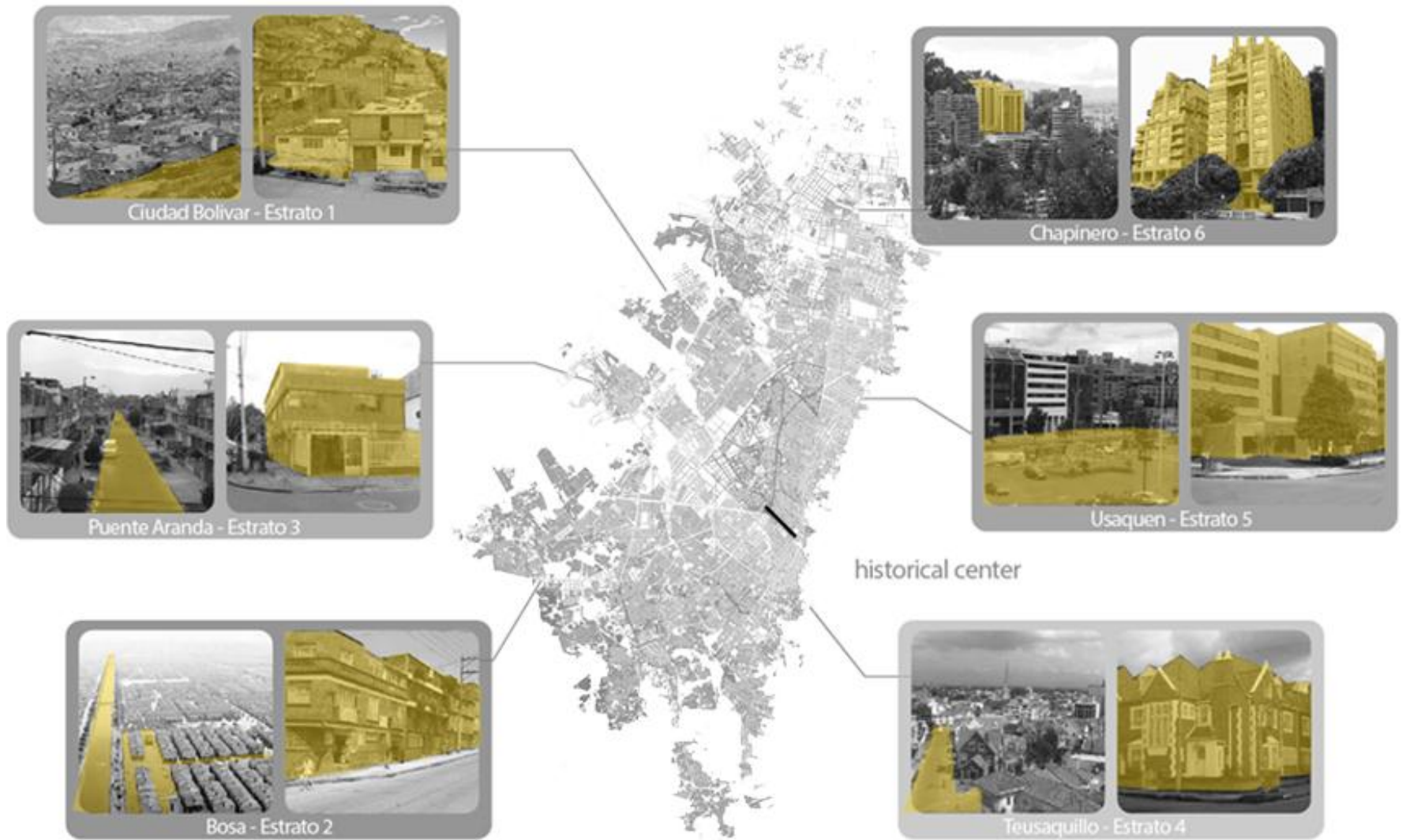
The river at that point drags about 14 or 15 cubic meters per second and the treatment plant can only treat 4 cubic meters, which some meters further are poured in the same polluted waters of the river. After an investment of 2 billion dollars, only 4 cubic meters are decontaminated and then dumped again to same polluted river, it is impossible to think that in this way there has been done something to help the decontamination of

the Bogota River.

The Bogotá River is the most important resource of the Colombian capital, its polluted waters travel across the capital territory, reaching alarming levels of pollution which are then "deposited" in the main river that runs through much of our homeland, the Magdalena River, which then flows into the Caribbean Sea. The Magdalena River receives per year about 70,000 tons of household waste and other 70,000 tons of industrial waste, all thanks to the contribution made by the polluted waters of the Bogota River.

It is unthinkable that it is possible to drink water in Guachique the river's spring, and 6 kilometers after its contamination process has already begun and also that in its waters the possibility of finding aerobic life is so low that it is unlikely to find an alive fish over 15 kilometers after the birth of the Bogota river.

Bogota, Social strata



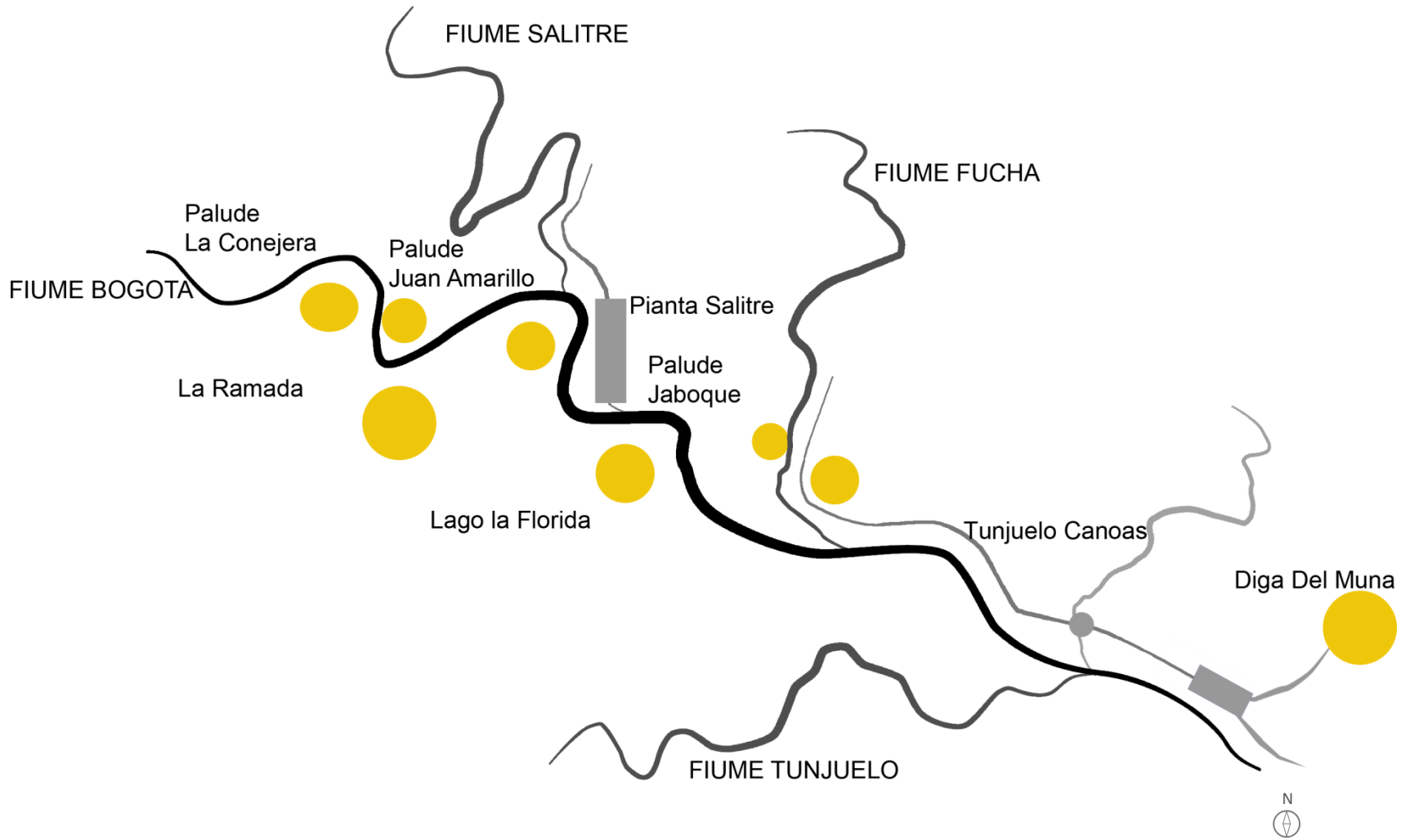
The Salitre's water treatment plants, has the capacity to undergo a decontamination process up to 4 cubic meters of water per second, taking into account that the water flowing through the channel of the river is about 14 cubic meters of water per second, the work of the plant is insufficient and inefficient. This "decontaminated" water is discharged a few meters further on the same totally polluted riverbed. It is amazing that there is an operating treatment plant of contaminated waters that cost about 2 billion dollars, which manages to decontaminate 4 cubic meters of water per second and let pass 10 cubic meters per second of totally contaminated water, and as well then pour these 4 cubic meters of water per second in the same river a few meters ahead.

The other two treatment plants were never built. The Fucha River junction, which pours the largest quantity of industrial waste into the Bogotá River and the Tunjuelo River junction which pours into the Bogotá River the remains of another ridge area located in the San Benito neighborhood and also collects the sediments of mining works in the periphery of the city, were overlooked and their constructions never materialized.

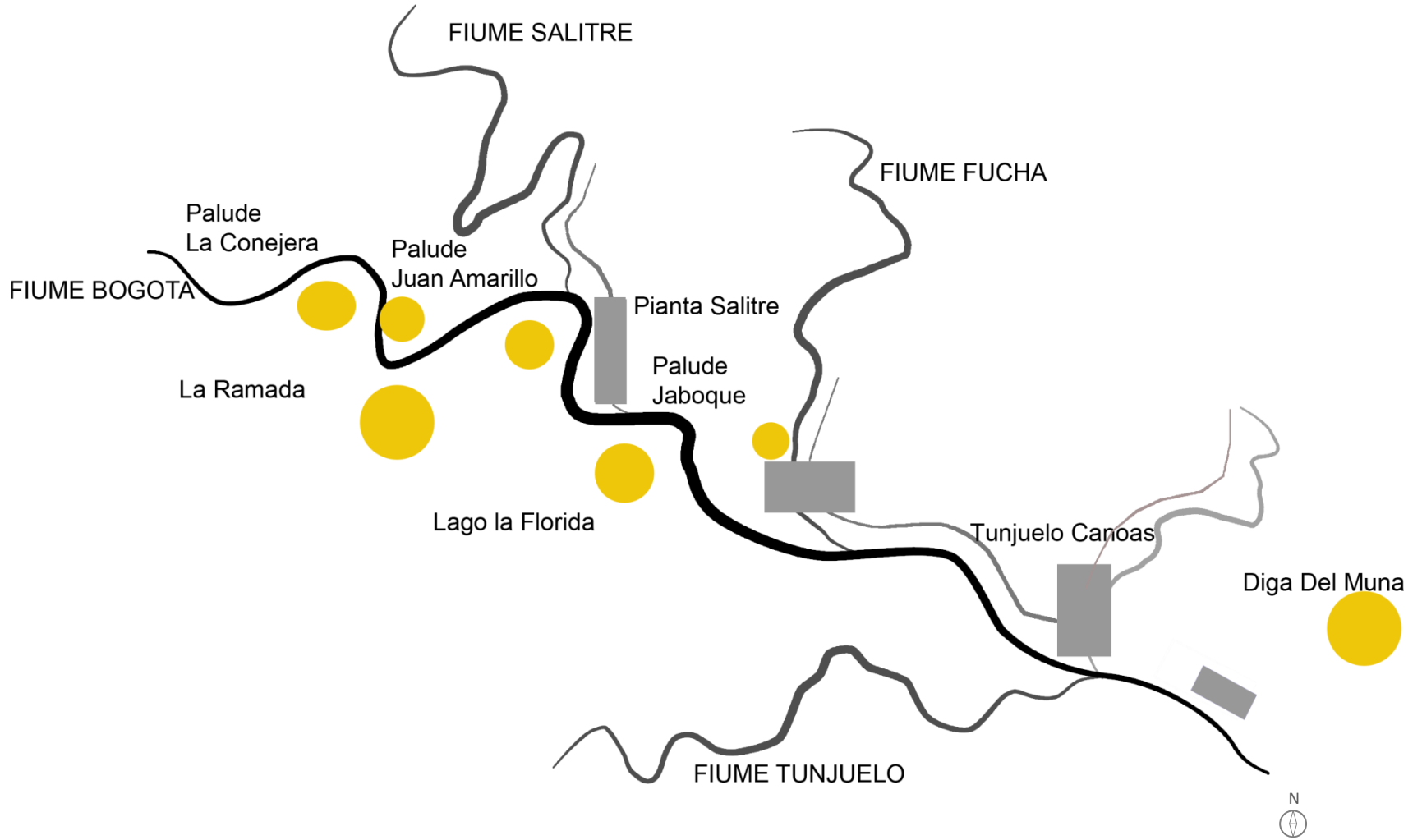
It is very difficult to heal the Bogota River, if our "leaders" continue to look first to their particular interest and leave aside the public interest in a society that deserves a better life. The corruption in our country and in our city is making us lose our source of life and to leave an uncertain future to the following generations.



Concept of the Bogota river



Concept of Bogota river spected



A project for Bosa

Project strategies and transformation propose

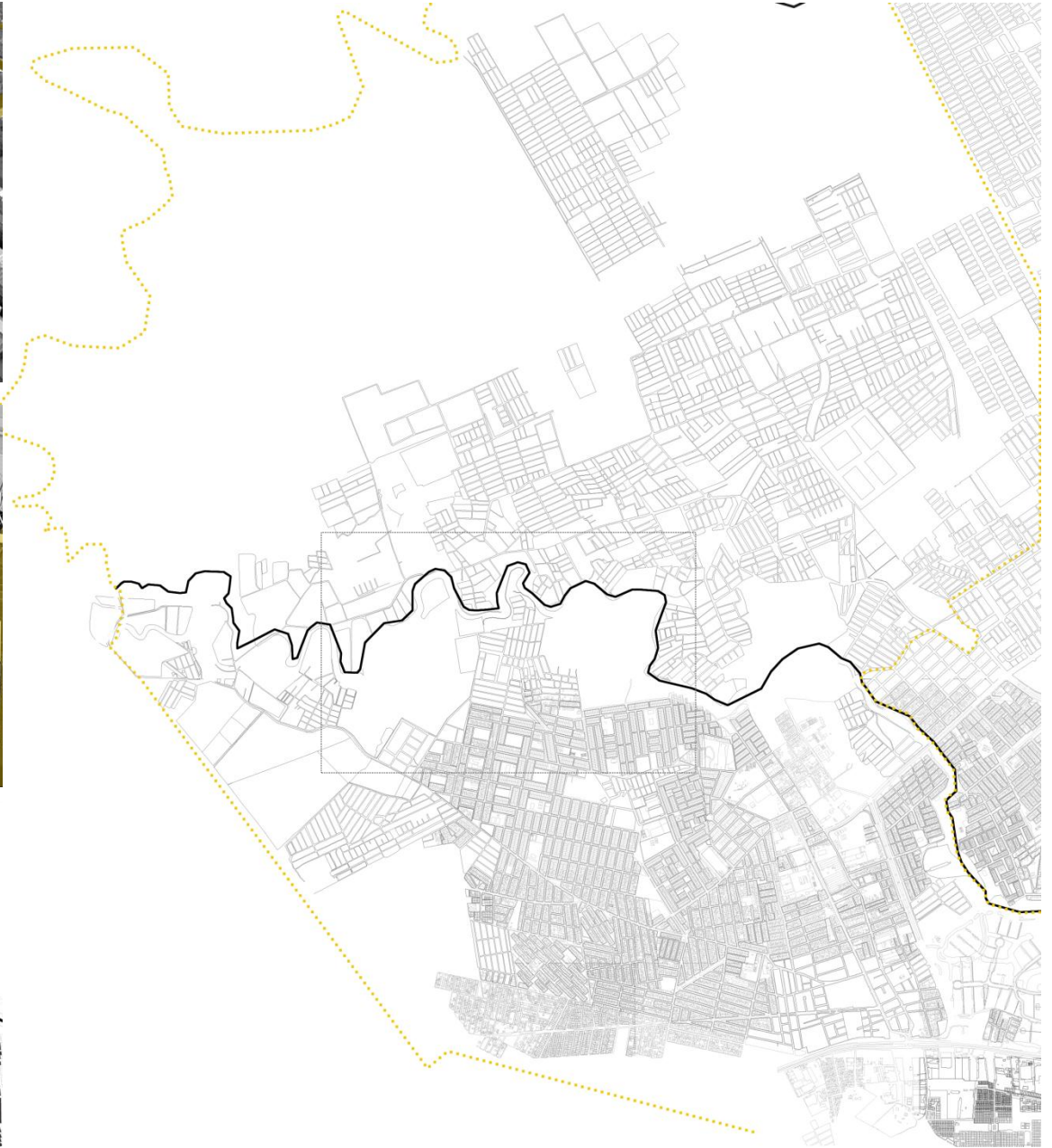
Local plan of Bosa 2009-2012

"The development plan "Bosa cultural y productiva, participa por una Bogotá positiva " seeks to strengthen a locality where everyone lives better a life. In which the quality of life of the population is improve and the human and environmental rights are recognize, protect and restore with criteria of universality and comprehensiveness, becoming a land of opportunities that contribute to the development of the family, especially children and girls in their early childhood. It is adopted by the Local agreement 03 of 2008. To comply with these fundamental objectives, the Local administration must articulate all its actions around intersectoral programs contained in structuring objectives, among which are the following environmental action programs:"

It is pertinent to quote the further information that has been provided by the Mayor of Bosa: Juan Carlos Castellanos, because it allows to prove the importance of the environmental aspects for the proper development of the Locality and even more when they seek to be linked with the health area to solve a specific social problem. It should be noted that for the suitable function of the Locality it should have a close relationship with their immediate and non-immediate environment to generate comprehensive humane conditions.

Such a way that locality act, since it is a container of important water bodies, as a starting center for improving the environmental conditions based on the decontamination of these water bodies. For this reason it is important to recall the Local Environmental Plan.

"The Local Environmental Plan, is conceived as a set efforts make by the administration in order to improve relations between the local community and its environment, and this way ensure the possibility that current and future generations meet their comprehensive human needs. In the same way that urban management plan, the local environmental management plan is to bring together local actors to face a common overall objective, and seeks for the generation of agreements. Taking into account the existence of different evaluation criteria and interests, operating elements are consider for the environmental management, the process of resolving environmental conflicts joins the local environmental management plans. It also includes a social process aimed at mediating environmental conflicts where latent conflicts present in the locality involve citizens in a building process, managing a local environmental agenda."



Project

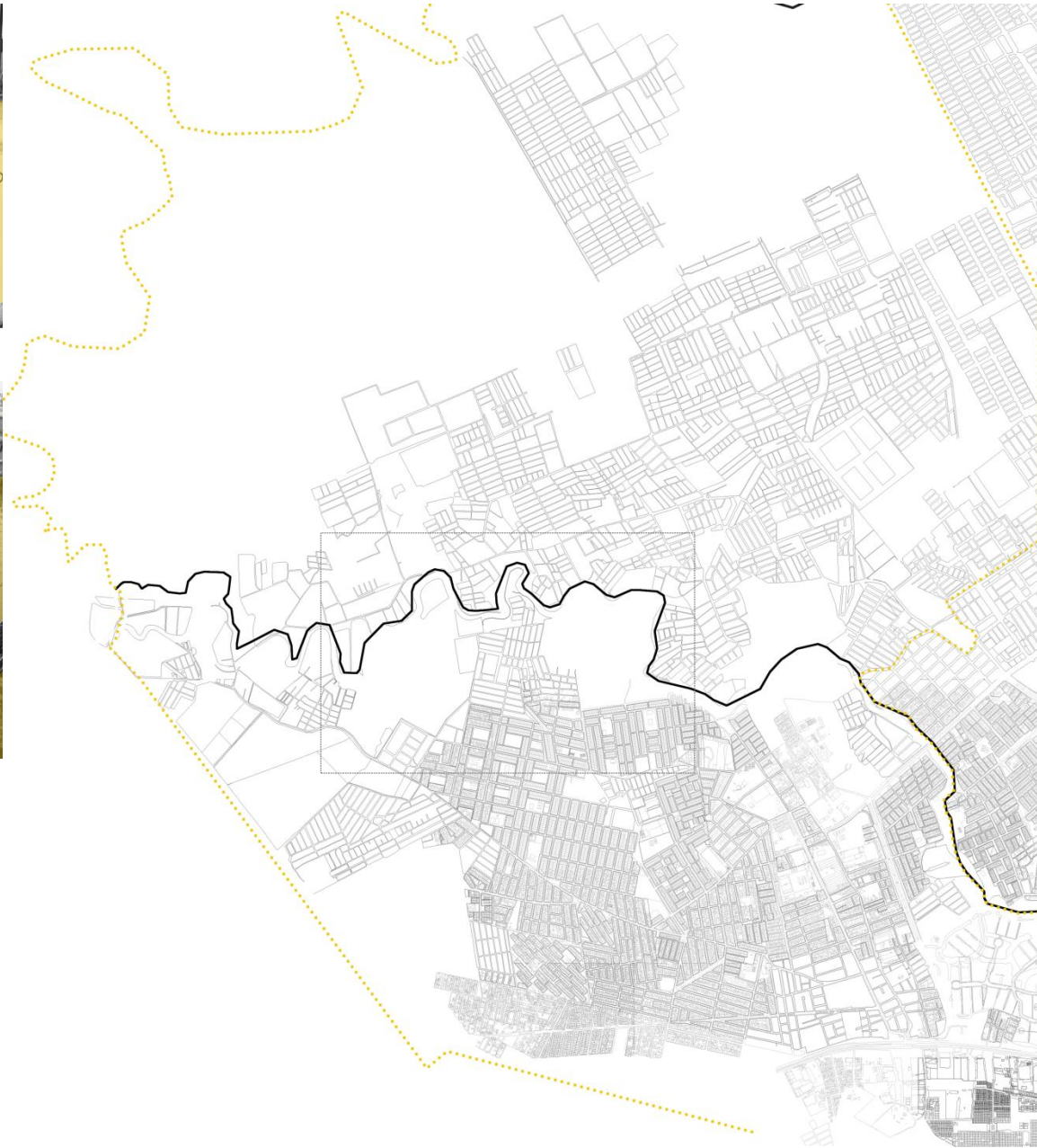
Bogotá reflects the social difference that exists in Colombia, the economic, social and opportunities differences are clearly seen in every corner of the city and as predominant factor is the lack of interest of the people in solving such problems. The segregation of neighborhoods, lack of services and the community itself are responsible for isolating the most affected, leaving them on the outskirts of the city, where the lack of opportunities is the daily life of its inhabitants.

Community's indifference to the resolution of social problems is immense. There are few people who care about the general welfare rather than for the common good. This is represented in the neighborhoods of the city. The lack of ownership generates insecurity, and this insecurity creates fear and uncertainty in the sector.

The deterioration of the area, makes the government instead of acting positively for the reestablishment of the neighborhood, choose to invest less in place and forget slowly the area. The poorest areas of the city receive lower amounts of

government investment. So there is a saying that says "the poor are poorer and the rich richer." But why work with the town of Bosa, located away from the city, and that has no connections with the center of the Capital? For that very reason it is a town that is completely disjointed with the center of the capital, the public transport service is very poor compared to the same city service, given that the mass transit system that connects all the Capital still does not work in this locality.

It was its history and its growth what made this town a secluded area, where a great part of the forced displacement victims arrived and where never was thought of a development plan for the growth of the locality. There is a great difference in economic investment, public investment and cultural interest in the lower strata of the city of Bogota in comparison of the wealthy, where it could be seen an investment in the same aspects what shows social inequality and lack of awareness.



How can a city be articulated when it exist such a great socio-cultural difference?

It's hard to level the social classes of a city that has so much economic and cultural difference. This where to look for points of interest to society, and are found as an essential issue, which generates benefit to the entire community, the environmental axis, the rivers, its waters and the natural resources. These ones are of equal value to every citizen, spaces can be generated around the and the purification of the water, helps to create a cultural bond and generates a sense of belonging to every citizen, regardless of social class and their monthly income. It is here, when a city can offer sharing spaces, spaces for people, where everyone can come together to enjoy, leaving behind the thought of inequality.

An environmental factor influences, not only the sector where the project is developed, but it spreads like the river through the entire city and goes into a city full of prejudice. This is a point to begin a project that seeks the articulation of a forgotten area of the city, and allows to see how this river enters the public (rather than in the center city). It aims to understand, how a project on the banks of a river can change the activities and relations between social classes, how it can be created spaces of sharing to society and how the project can begin to heal the city.

The qualitative deterioration of architectural and urban spatiality of housing aimed at low-income sectors in Bogotá makes reflect on the patterns that shape it, in order to provide guidelines for the design and regulation aimed at improvement and correction.

This is part of a comparative approach between forms of urban growth, according to urban processes planned and unplanned, and that had consolidated these patterns on the outskirts of Bogota for the past twenty years. Thus, it examines various categories of analysis such as connections, plots, urban characteristics, building types and architectural features, and their relationship with the regulations and provisions of planning.

The interest in developing this work is based on recognizing problems related with the deterioration of social housing quality and of natural resources produced in recent years in Bogota.

The main factors that determine this problems are: the neglect of reflection on housing and town planning, the assignment of the state to the private sector of production and housing finance

mechanisms without quality control, failure of a large segment of the population to access formal housing schemes and spontaneous rapid urban growth.

This article summarizes the approach and the main results of research planning, *Patrones Urbanísticos y Arquitectónicos en la Vivienda dirigida a los Sectores de Bajos Ingresos en Bogotá*, financiada por la Pontificia Universidad Javeriana, el Instituto Colombiano para el Desarrollo de la Ciencia y la Tecnología -Colciencias-, el Banco Interamericano de Desarrollo -BID.

Justification

The consolidation of living spaces and preservation of natural systems are critical to prolonging life. Provide environmental goods and services to the community that provide invaluable resources, conserving biodiversity and the landscape and making a physical connection of ecological processes throughout the District territory, mitigating the negative environmental impacts generated by the activities in the City and its peripheries.

Once you zoom to the locality of Bosa, one of the main questions that arises is: what will happen to the future of all its inhabitants if it remains a locality with a population affected, due to the number of diseases and infections mainly caused by pollution of the river that surrounds it, Bogota River and the river that runs through it, Tunjuelito River.

This is where it is important to pause and wonder about the importance of architects in a city, and in this specific case, within a locality. Realize that it is in the hands of the architects to change this reality, through a urban proposal and through the design of spaces (equipment) adequate to provide to Bosa

fit places for a good living. But for this is fundamental to identify the factors that are affecting this population especially those related to health and environment, seeking to eliminate the problem at its root, and therefore begin to provide health not only to the residents but also to the landscape.

Constantly Bosa population must face health problems because water bodies rather than being a potential are providing problems to the locality, not only pollution but also floods that affect not only health but also have a socio-economic impact. This leads people to be confronted daily with a critical situation that seems without solution because they have neither the means nor the appropriate spaces in which to lean.



Consequently people have been threatened by pollution and disease and this does not seem to have a solution, appears to be no possibility of progress on the options of having health and a clean environment. The road network of locality is highly deteriorated which contributes to pollution and as well to diseases that suffers its inhabitants. Having identified the flaws that are making the Bosa population unhappy, in a certain way abandoned, and worst of all a weak population, one wonders which are the feelings of these human beings, how it is their daily life, which necessities they have, which pains, which sufferings... and thousands of more feelings and sensations. Many problems can arise if you zoom versus their reality.

This is why it is important to act immediately, in order to do this raises the idea of developing a decontamination plan for water bodies, and rounds of the rivers to give to the community a clean and natural landscape, a landscape that influence and improve quality of life of the inhabitants, which functions as a landscape retainer of water, and generate spaces for local amenities. Where is generate an area of integration, fun, learning and integration of the city.



Urbanism

Bosa is a locality with an urban land very fertile, but due to the illegal settlements has not been given a good treatment to the land. The temperature of the place is cold and it is considered an area with a high rate of flooding. From the mobility point of view it is important to take in account that Bosa lacks of routes for public transport, and also the existing routes are in a bad state because of the type of vehicles that transit through them. There is a problem with public space because the vendors have taken over this reducing the circulation spaces. Moreover the water bodies have not been integrated to the urban landscape and as consequence they are not benefiting the population, on the contrary they have become a source of contamination and even more when there are overflows.

Architecture and technology

The housing in this locality is also a concern, as the majority is popular housing, with the exception of the proposal given by Metro Vivienda, it is not a decent housing. There are homes with materials such as cement, bricks and zinc tiles, and are not usually built under rigorous calculations, structural calculations are applied without prior or adequate

knowledge.

Another problem identified is that most of the housing in Bosa is illegal therefore this does not allow the development of the locality, let alone of not having the basic services such as garbage collection and urban infrastructure.

The land is very unstable due to the extraction of soil and building elements. Near this locality is an operating point for mining, which is one of the biggest problems that the town has to face.

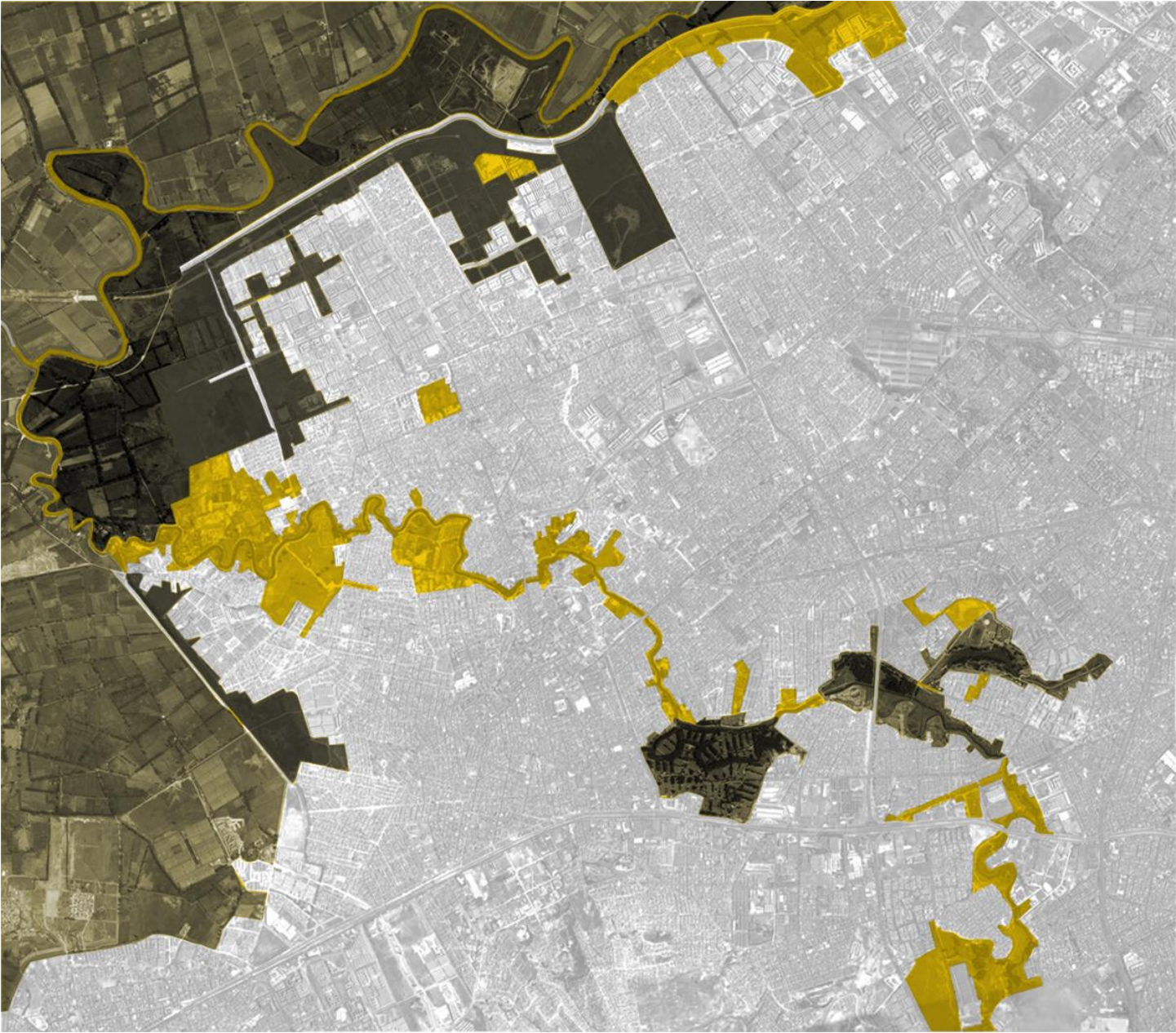
The mining takes place without any governmental monitoring, and thanks to their work the basins of the Bogota and Tunjuelo rivers have changed their course, which is why the floods in the localities of Bosa and Kennedy causes such many tragedies, since the round of rivers has disappeared and this lose their course and completely flood the localities in the perimeter of Bogota.

Another problem is that many of the houses are in the vicinity of the river, and when it rains, these homes are the first affected by heavy flooding and diseases, that these contaminated waters bring to the Locality of Bosa.

For this part of the process is crucial to have a critical and perceptive view of the place, so it is important to get involved with the community, to visit the locality and go through it to identify the customs and ways of life of its inhabitants. Once the locality is located is essential to conduct an analysis of the social and urban SUSTAINABLE HEALTH, therefore it must be analyze the behaviors of the inhabitants to in this way it is possible to identified their customs and ways of living in the space.

For queries is important mainly to be close to the people of Bosa because in this way it is possible to recognize their tastes, weaknesses, dreams, goals, desires, needs, habits, thinking, among others. While it is important to identify the type of entities that would be interested in participating actively in the project and its implementation

RIGHT TO THE CITY	BOGOTÁ ESPACIO DE VIDA (Bogota space of life)	Heritage and cultural landscapes (Patrimonio y paisajes culturales)	Promote the ecotourism base on the cultural roots of the ancestral Muisca community of Bosa.	Conducted promotion programs
RIGHT TO THE CITY	BOGOTÁ ESPACIO DE VIDA (Bogota space of life)	Heritage and cultural landscapes (Patrimonio y paisajes culturales)	Develop a study for identify the touristic, ecological, architectural, patrimonial and cultural attractions and implement touristic routes in the locality.	Study developed and touristic routes implemented.



A project for Bosa



From Architectural and Health point of view

With regard to housing is clearly important to improve the infrastructure and construction of houses. But not only are the homes that need a restoration process is also important to carry out an urban redefinition in the search of the improvement of the mobility system, the public space, the infrastructure and others. This is why it is important a governmental backing for the project to be viable and thus improve the conditions of the locality by providing decent housing and adequate equipment to potentiate the activities carried out by the inhabitants.

In the facilities or entities that have been identified as providers of health services, is essential to improve their facilities and infrastructure. It is also important to construct more centers thus that it can be generated a health network in a Locality as important as Bosa, since this network would not only benefit the locality itself but also its immediate context that are the localities of Kennedy and Ciudad Bolivar.

From Environmental and Social point of view

On the other hand the environmental aspect is crucial in this locality given that, as mentioned before, it has to major bodies of water and also with Tibanica wetland. This water and natural resources are being misused and are causing problems to the community due to the contamination of the rivers because of trash, wastes and fecal matter they received, which is causing diseases and infections to the population. Moreover when floods occur thanks to the lack of treatment and the canalization of the river, it overflows and repeatedly destroys homes that are on its round. As well this contamination doesn't allow grow of good vegetation, which could be possible since the soil is very fertile. This only will not only serve to grow vegetation but also it could be used for farming, as at some point was made when the locality was in hands of natives.



Management

Moreover, the project is a very tentative proposal because if it is possible to improve the conditions with respect to environmental pollution, it would be giving a step to prevent diseases. This benefits the health field and can reduce expenses caused by the existence of a vulnerable population.

To ensure that people have a sense of belonging within what is being proposed is important to have them involved in it. Therefore, it is necessary to identify the strengths of the inhabitants and create a planning process to achieve a community organization and provide them the opportunity to participate actively in the project; from its construction until of being part of the program of equipment.

Participatory Design

Participatory design becomes a crucial factor in the moment of the creation, generation and promotion of the sense of belonging of the place among its inhabitants. Achieving a sense of belonging implies that its inhabitants are willing to work for the good of the community resulting in a better place to live, thanks to sentimental attachment they have with the place.

Citizen participation in large-scale urban projects helps to clearly identify the real needs of a society that everyday lives with different difficulties. The knowledge of these people gives as a great starting point, given that their experiences in the area are key points to consider when implementing a project.

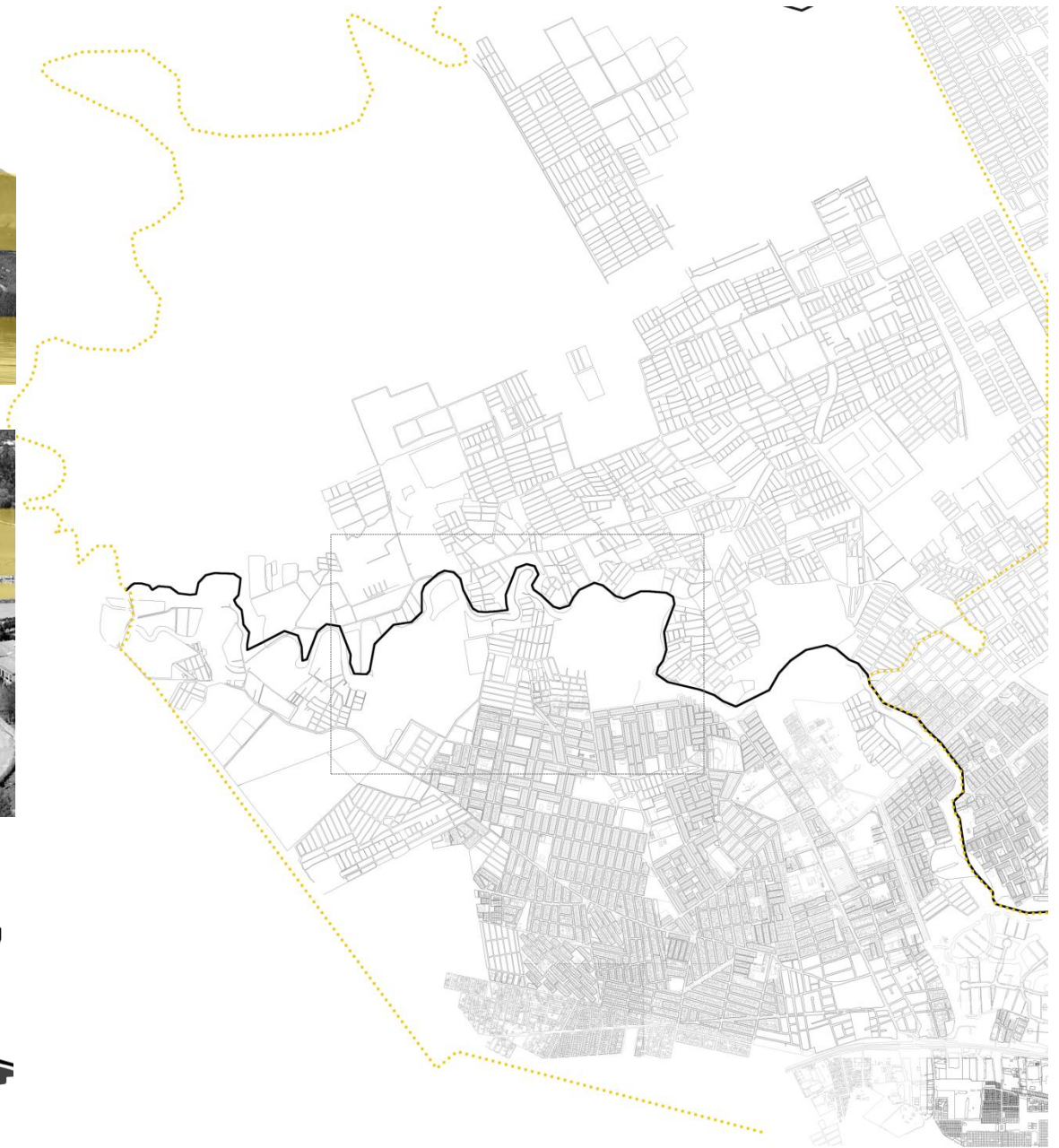
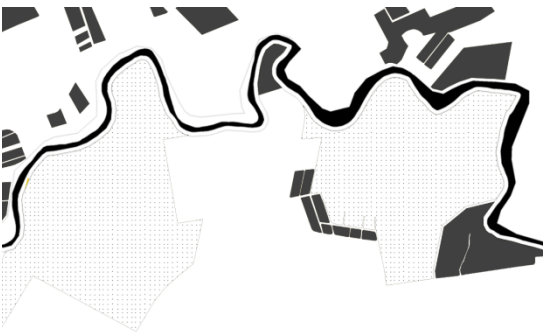
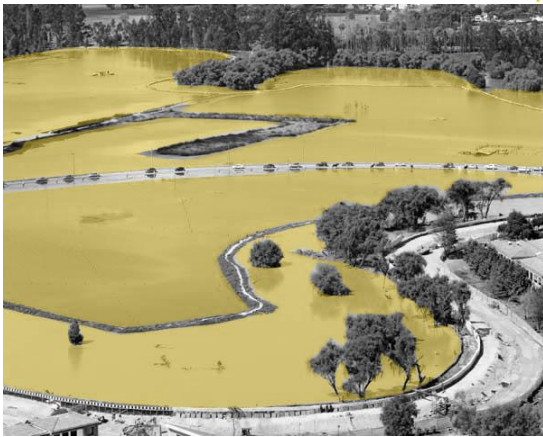
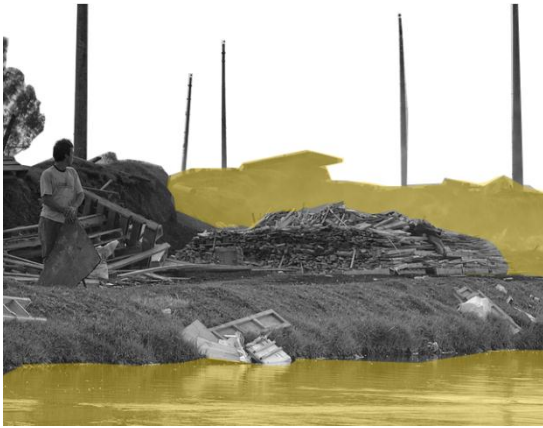
What does the participatory design search?

Participatory design seeks through stories, pictures, comments or sketches that the community tells their experiences, needs and strengths of where they live or want to live. It seeks to involve the community in the proposal of new projects to create identity and ownership of the place on the physical, personal and sentimental levels. Having the community involved in a project of great impact to the city's urban level, ensures a good foundation for the initiation of project based on experience and feedback from people who already live in the area.



"The beauty of nature and the beauty of the cultural environment created by humans are obviously both necessary to maintain the health of the soul and spirit of man."

Konrad Lorenz

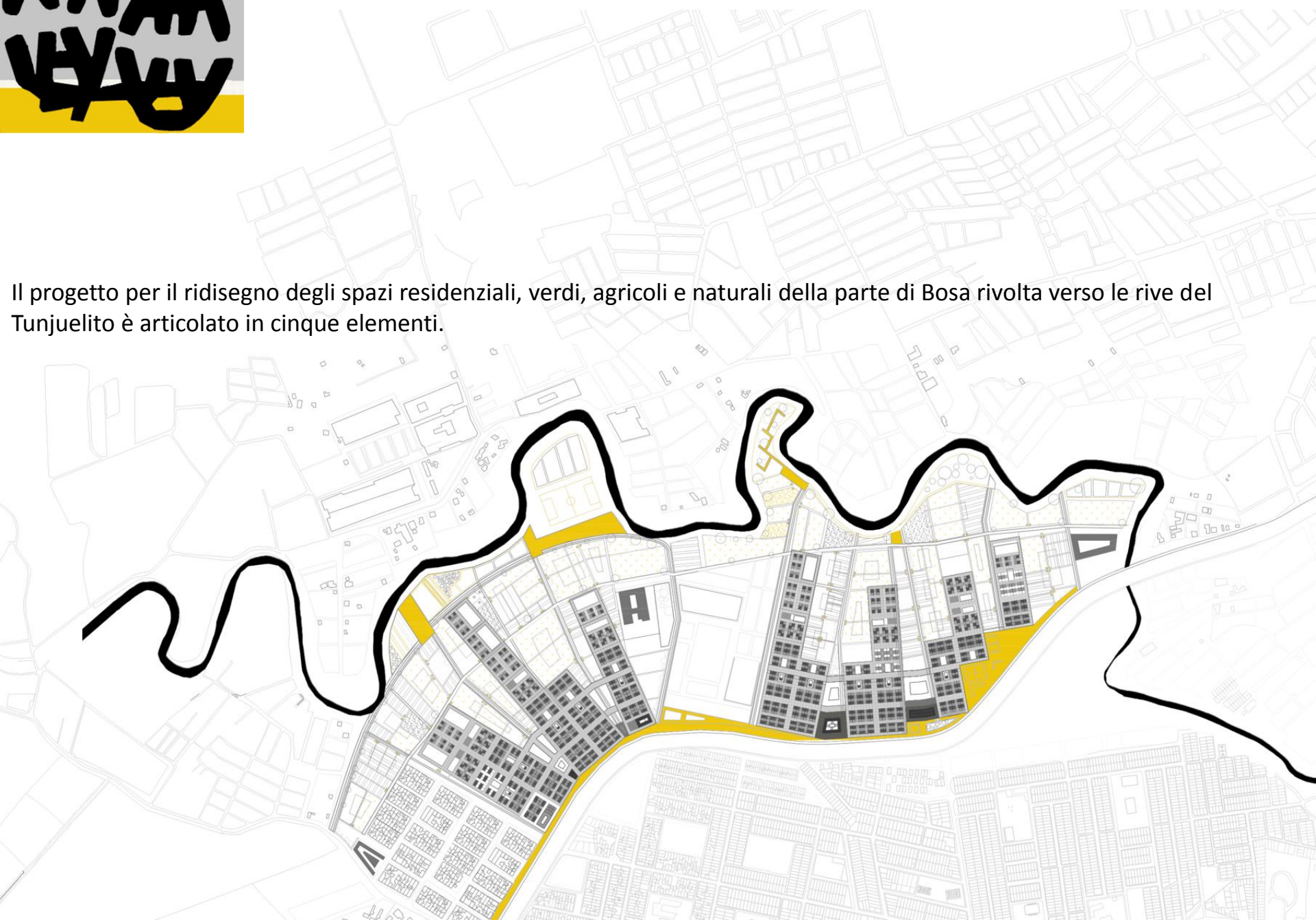




Urban design
Environmental risk project and modular urbanism

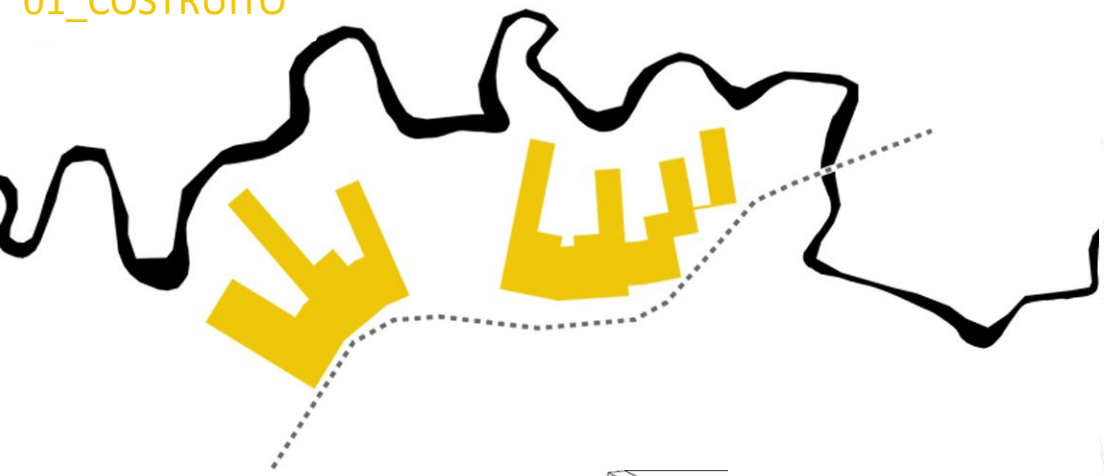


Il progetto per il ridisegno degli spazi residenziali, verdi, agricoli e naturali della parte di Bosa rivolta verso le rive del Tunjuelito è articolato in cinque elementi.

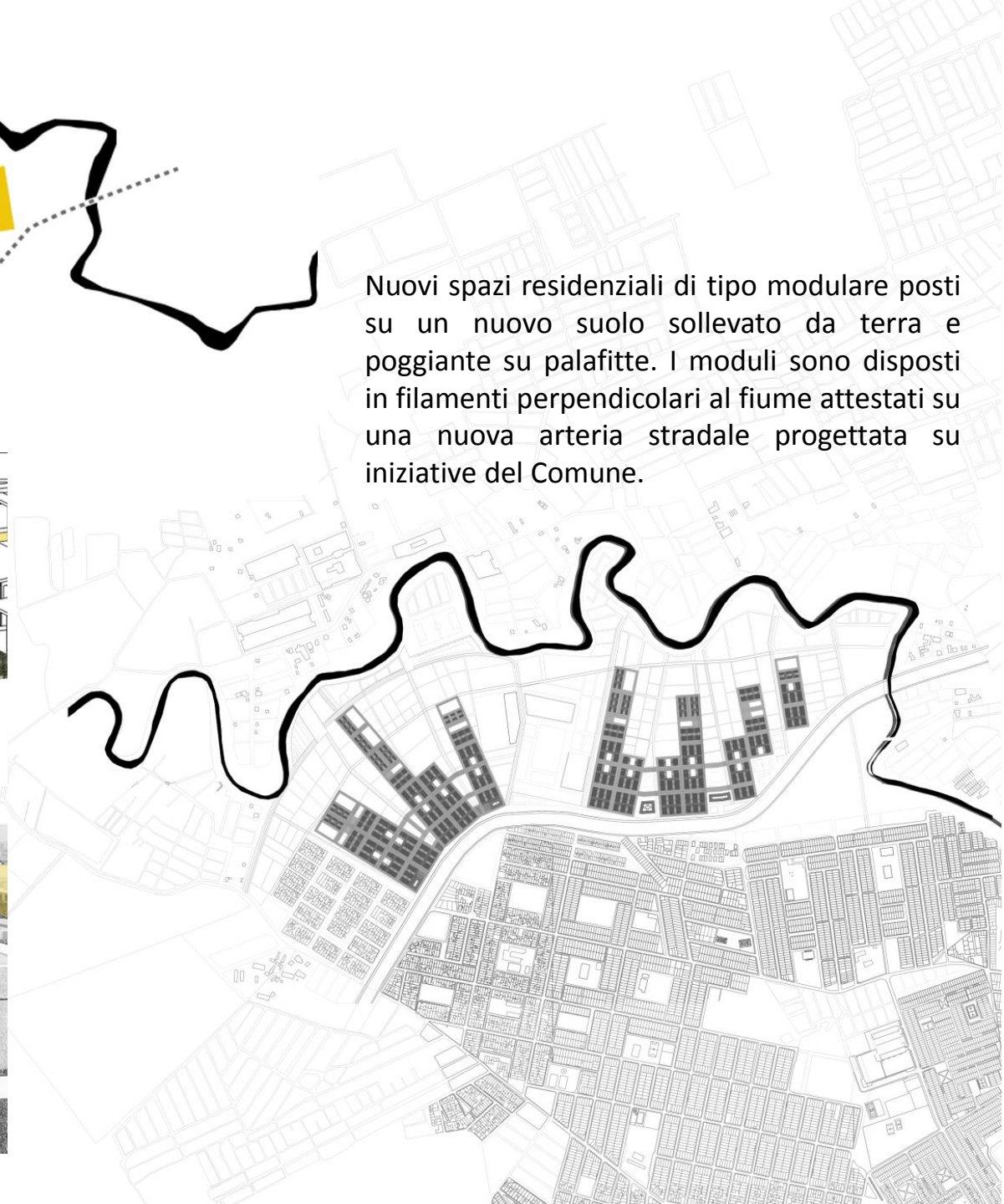
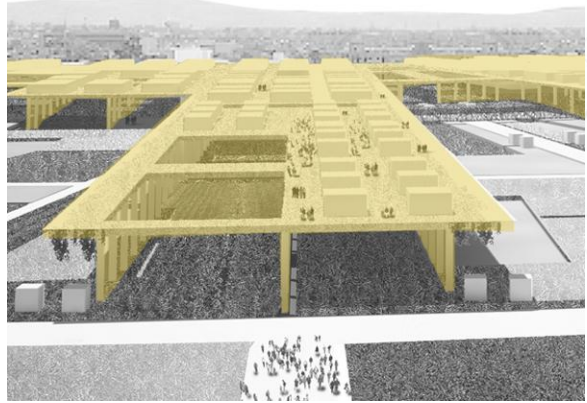
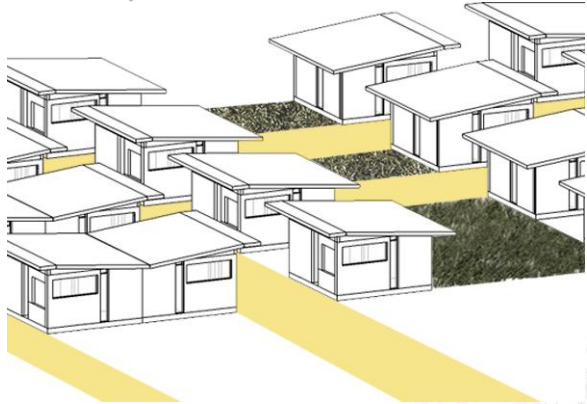




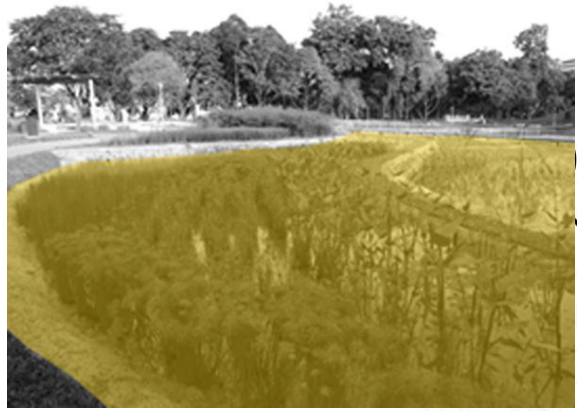
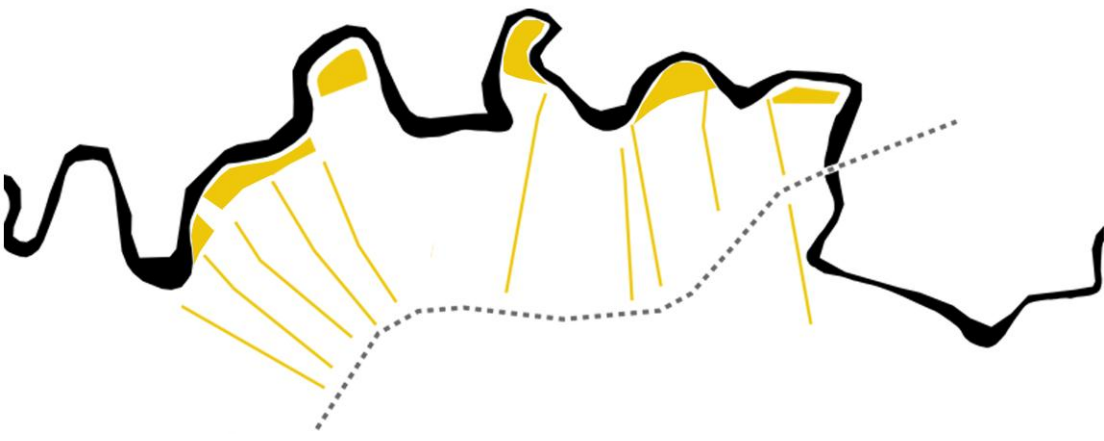
01_COSTRUITO



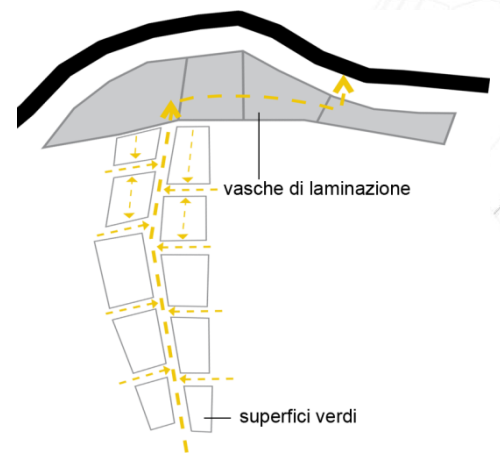
Nuovi spazi residenziali di tipo modulare posti su un nuovo suolo sollevato da terra e poggiante su palafitte. I moduli sono disposti in filamenti perpendicolari al fiume attestati su una nuova arteria stradale progettata su iniziative del Comune.



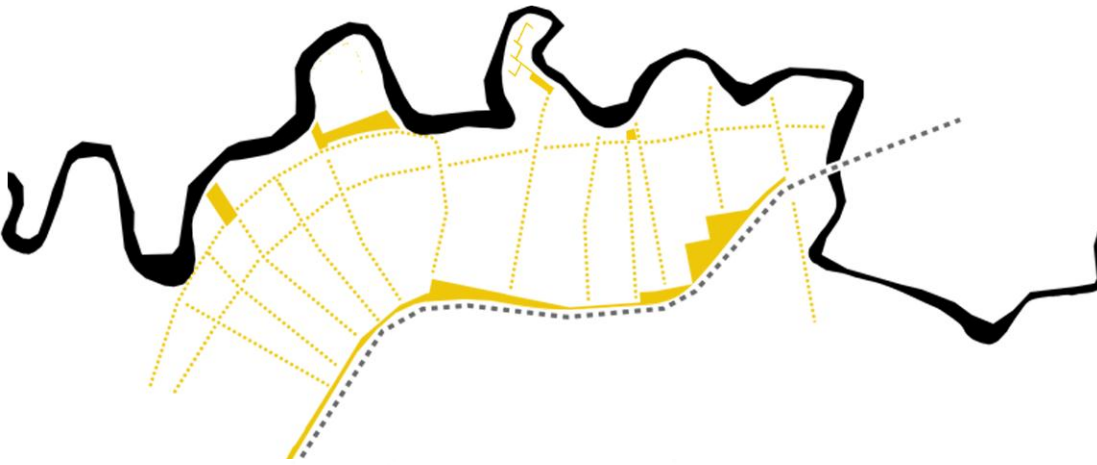
02_ARROYOS_VASCHE DI LAMINAZIONE



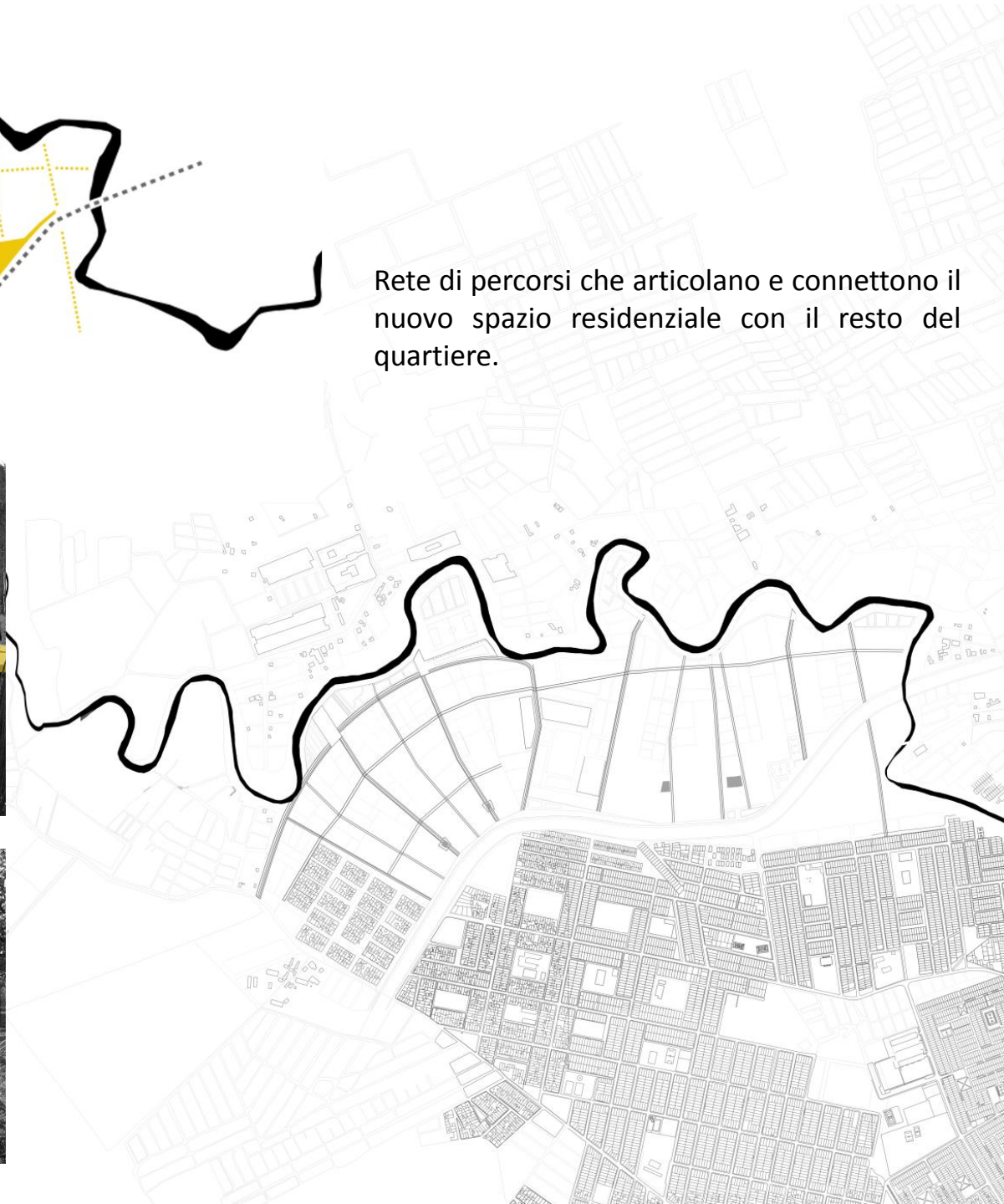
Sistema di arroyos e vasche che da un lato articolano e connettono il nuovo spazio residenziale con il resto del quartiere, dall'altro funzionano come spazi verdi capaci di raccogliere e convogliare le acque verso un sistema di "estanques" o vasche di laminazione (il terzo elemento) che funziona, durante le alluvioni, come spazio di espansione delle acque del fiume e come spazio verde e spazio pubblico nei periodi di secca.



03_PERCORSI_SPAZI PUBBLICI



Rete di percorsi che articolano e connettono il nuovo spazio residenziale con il resto del quartiere.

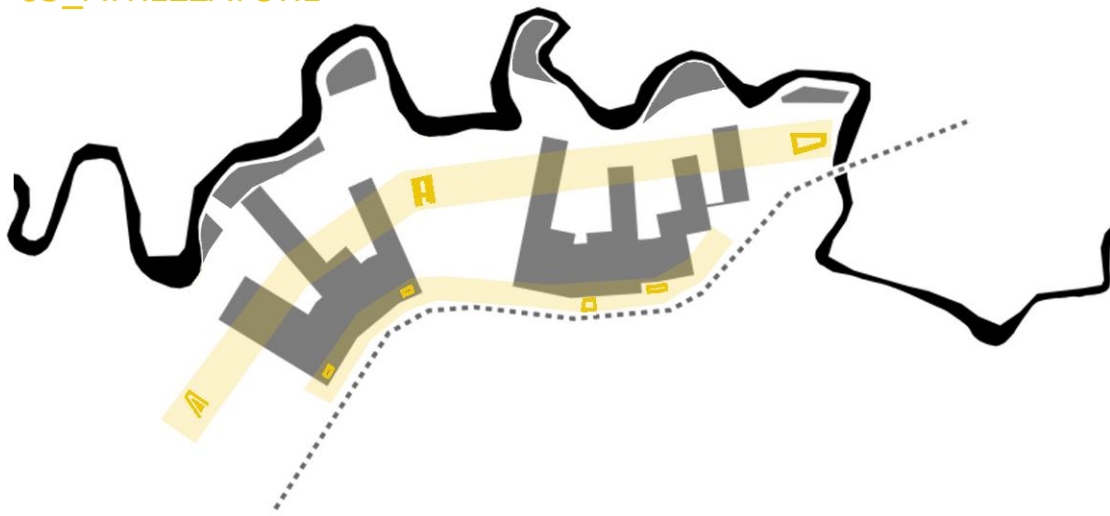


04_SUPERFICIE AGRICOLE

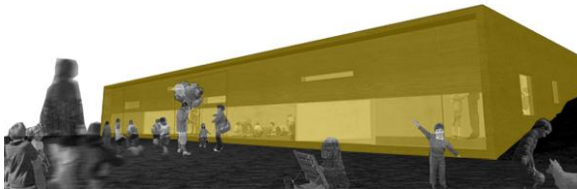


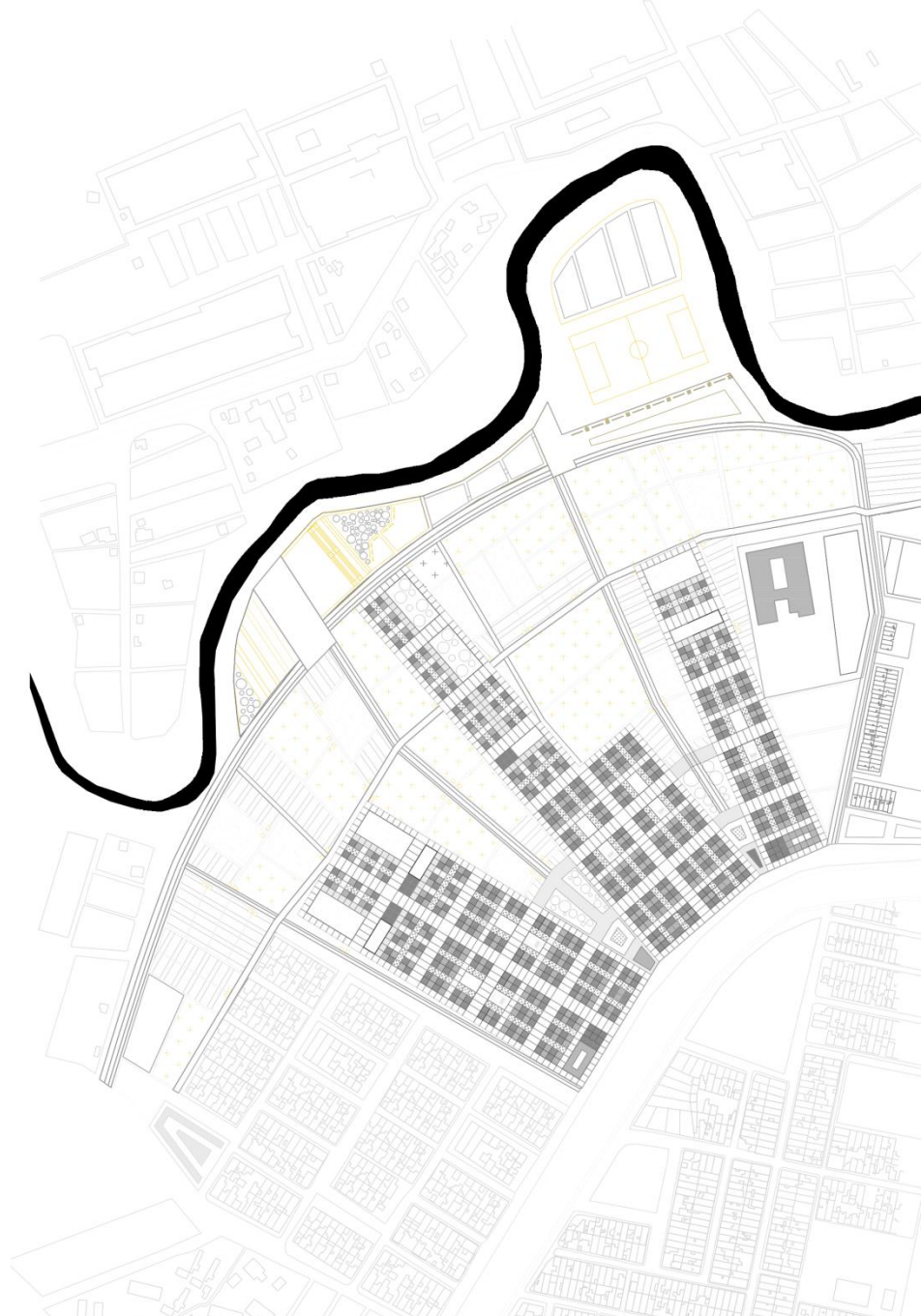
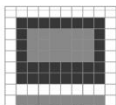
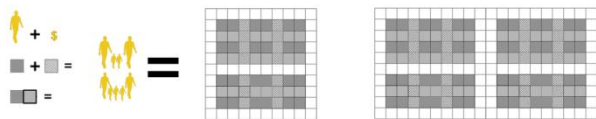
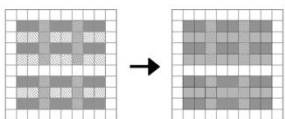
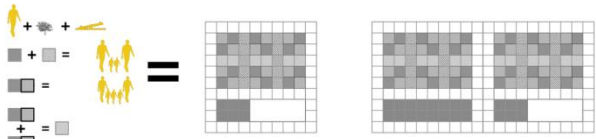
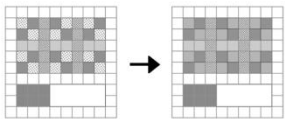
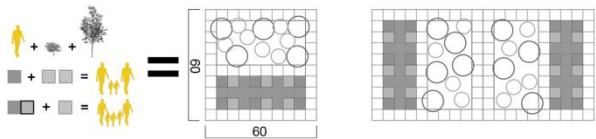
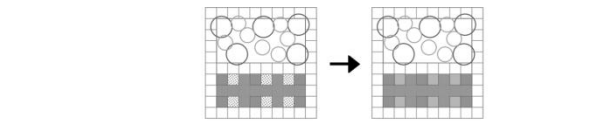
Nuove superfici agricole poste a ridosso e al di sotto del nuovo suolo residenziale. Il suolo agricolo è spazio produttivo utile all'integrazione dei redditi delle famiglie che lo lavorano, spazio di condivisione di merci, attrezzature, tempi. Infine il suolo agricolo funziona come una spugna che assorbe durante le inondazioni del Tunjuelito. Dopo l'alluvione il rilascio dell'acqua verso il fiume avviene in maniera graduale, producendo un particolare paesaggio umido che rafforza al tempo stesso le ecologie del fiume e del quartiere.

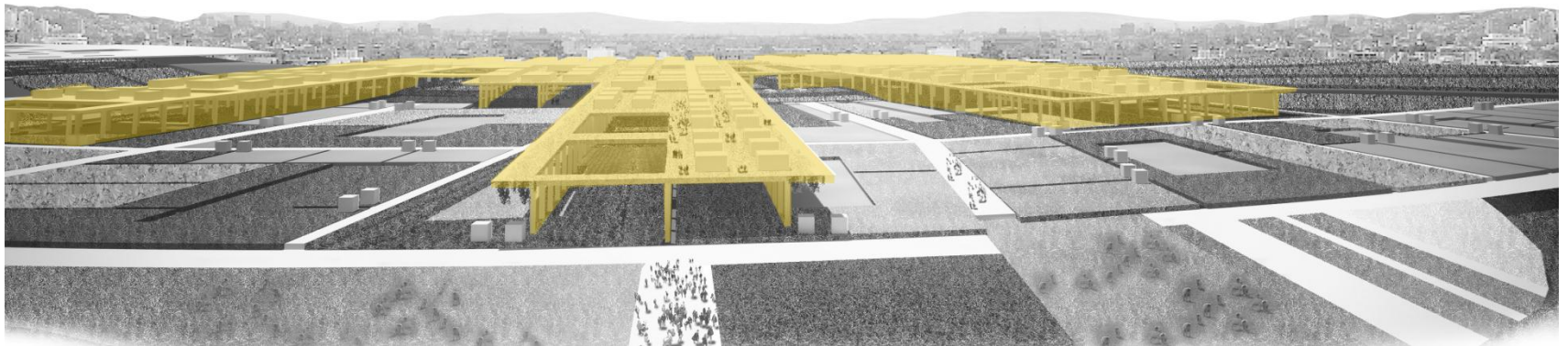
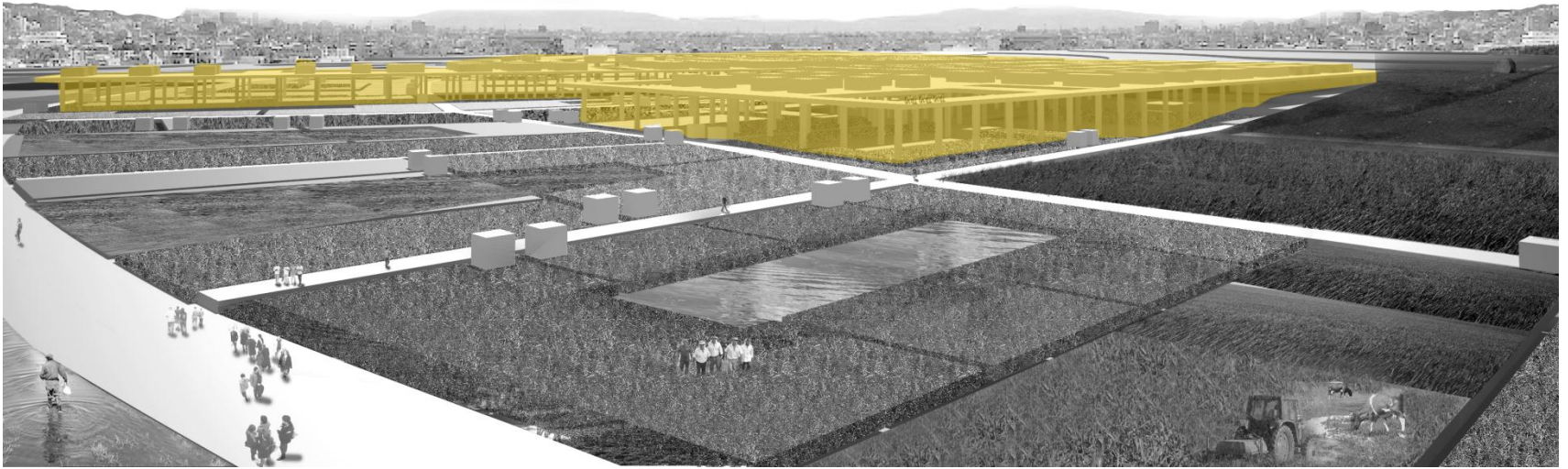


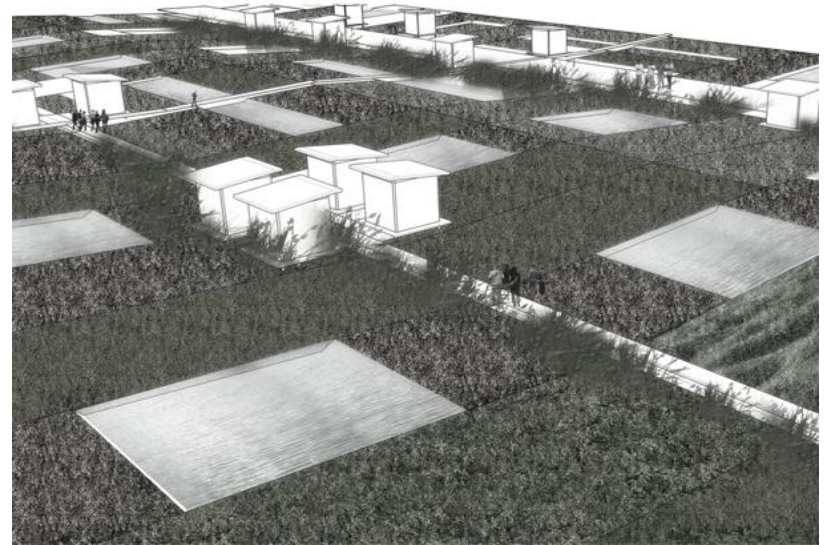


La rete di nuove attrezzature e servizi alla scala di prossimità funzionano come dispositivi di interfaccia tra spazi residenziali e spazi verdi, naturalistici e agricoli.









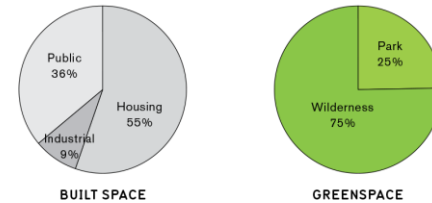
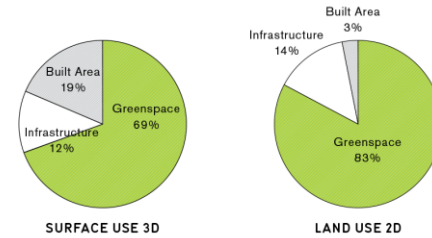
Referents

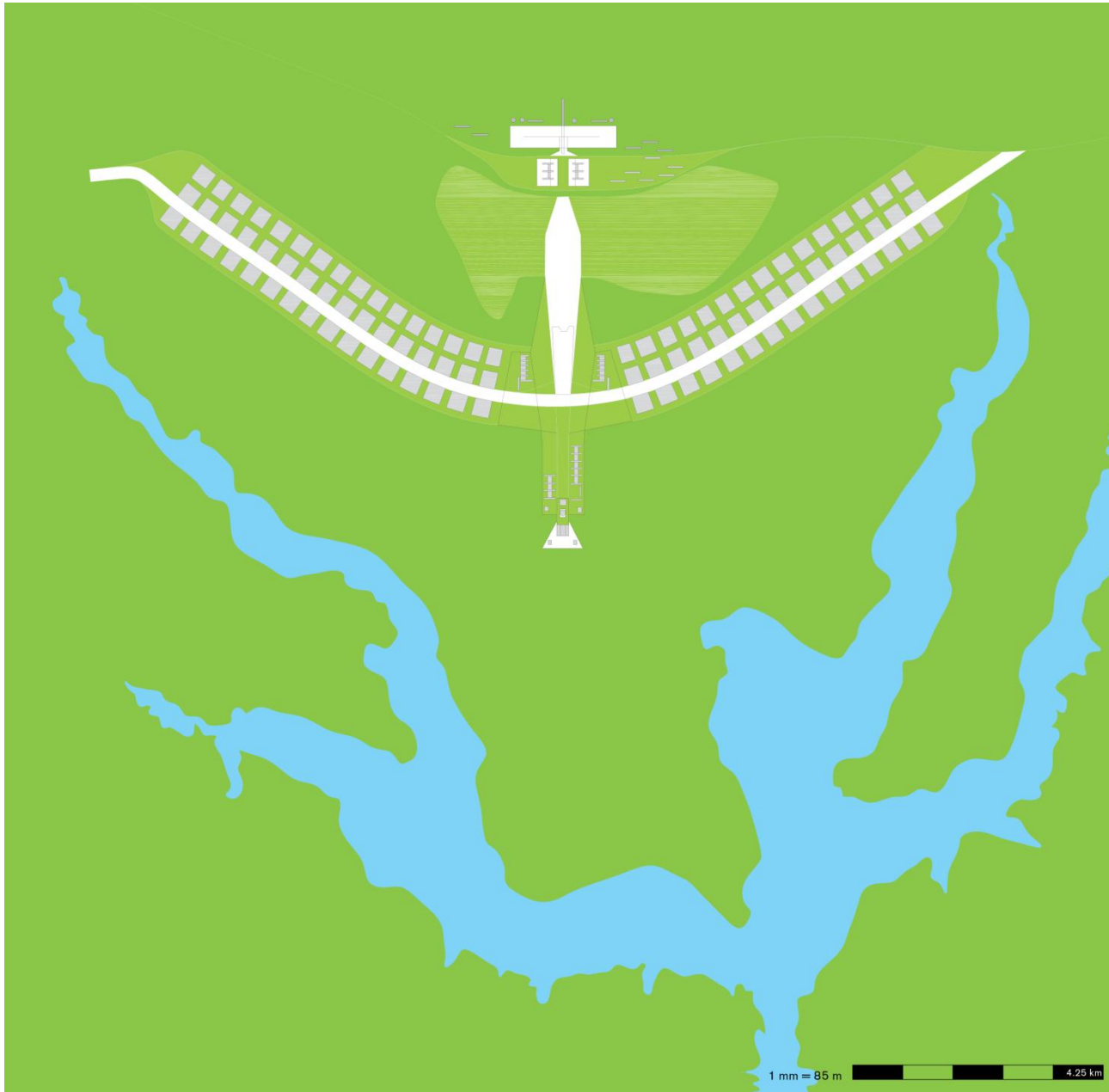
BRASILIA

BRAZIL, 1957 LUCIO COSTA

Lucio Costa and Oscar Niemeyer's Brasilia was constructed from 1956 to 1960 as Brazil's new capital city, in attempt to rectify regional inequalities. Closely following the principles of the Athens charter, the radiant city – inspired plan was superimposed on the jungle landscape in the shape of an open winged bird. The north-south monumental administrative axis at the center of the city was flanked on either side by residential blocks. These subdivisions, known as *superquadras*, uniformly contained several modernist mid-raised apartment building slabs, local commercial enterprises like cinemas and shops and public amenities like schools.

3D DENSITY RANKING	FAR RANKING	GREENSPACE RANKING	POPULATION RANKING	3D DENSITY RANKING
43/49	33/49	12/49	17/49	37/49





Urban referents

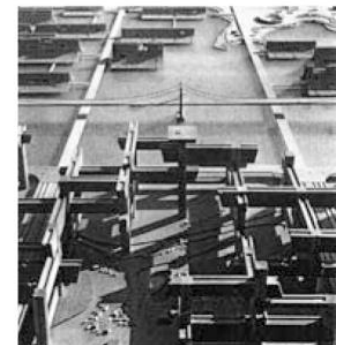
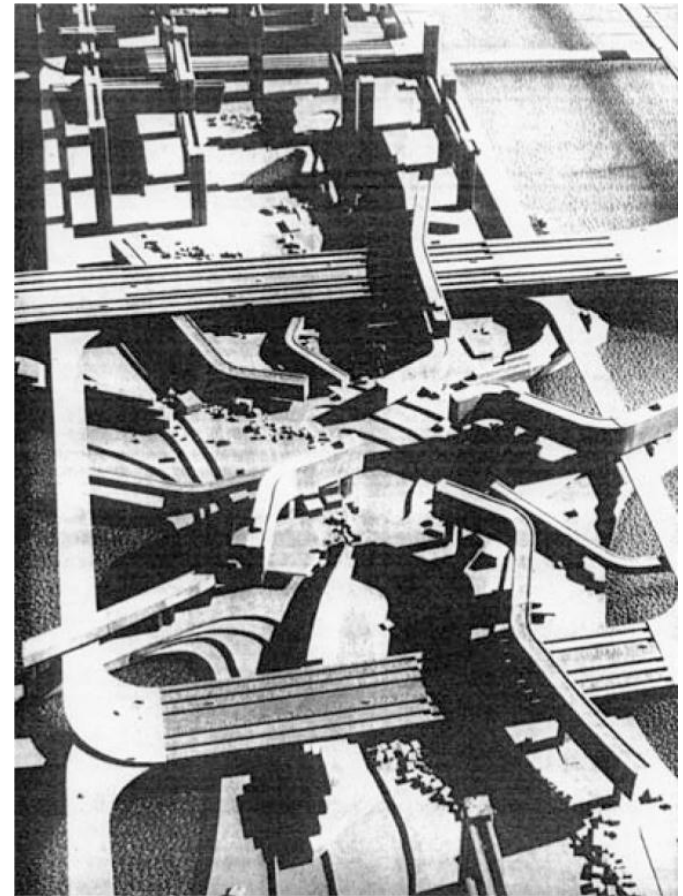
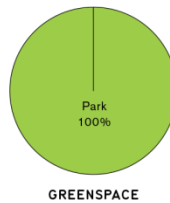
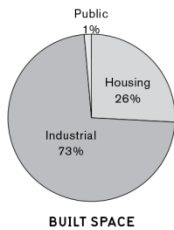
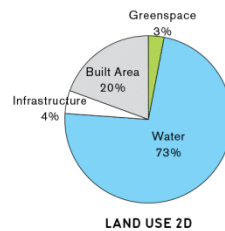
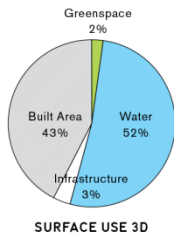
TOKYO BAY

TOKYO 1960 – KENZO TANGE

Kenzo Tange’s massively – scaled plan for expanding Tokyo along metabolism principles centered on creating an enormous central, infrastructural spine jutting into Tokyo bay. This spine will contain a civic axis of governmental and business districts and would grow the city in a line out from the existing urban agglomeration. The spine would be flanked by high speed roads without intersections , and the islands themselves would feature buildings on pilots, to allow the ground plane to be use communally.

Housing brunches would extend at 90 – degree angles from the central spine, and be connected to the core by a monorail system. Industrial areas would be created on landfill near the existing shoreline. Like most other Metabolism projects, the Tokyo Bay expansions could accommodate the addition of both individual units and large sectors in a “tree” – like manner.

2D DENSITY RANKING	FAR RANKING	GREENSPACE RANKING	POPULATION RANKING	3D DENSITY RANKING
27/49	30/49	43/49	3/49	28/49



Urban referents



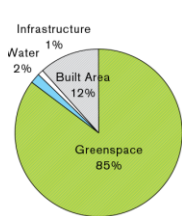
Urban referents

HELIX CITY

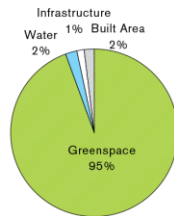
URBAN 1961 – KISHA KUROKAWA

Kisho Kurokawa's Helix City was one of a number of metabolism urban visions that was to grow from an existing city outward on the surface of a body of water. The helical mega structures comprising the city allow for a plug-in style occupation of their levels; the city expands both by adding units within each helixes were proposed to be completely covered in gardens, allowing for a maximal green surface.

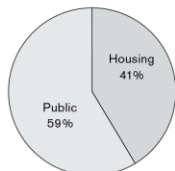
2D DENSITY RANKING	FAR RANKING	GREENSPACE RANKING	POPULATION RANKING	3D DENSITY RANKING
20/49	2/49	38/49	13/49	45/49



SURFACE USE 3D



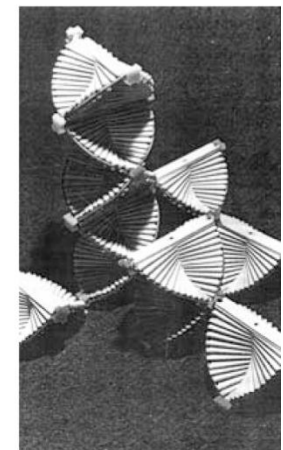
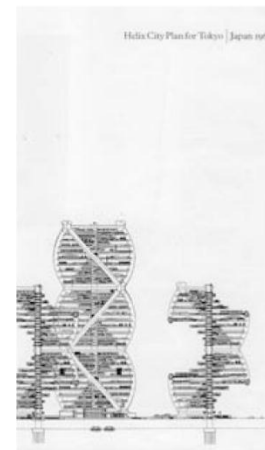
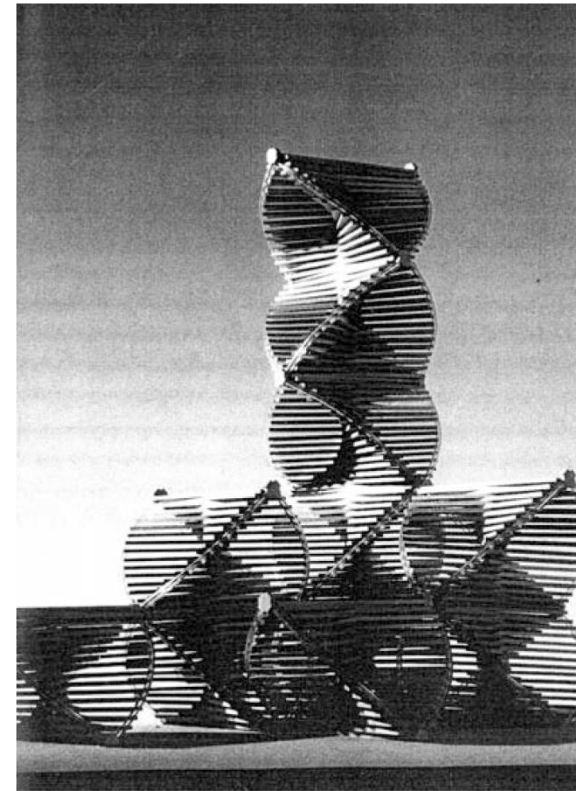
LAND USE 2D

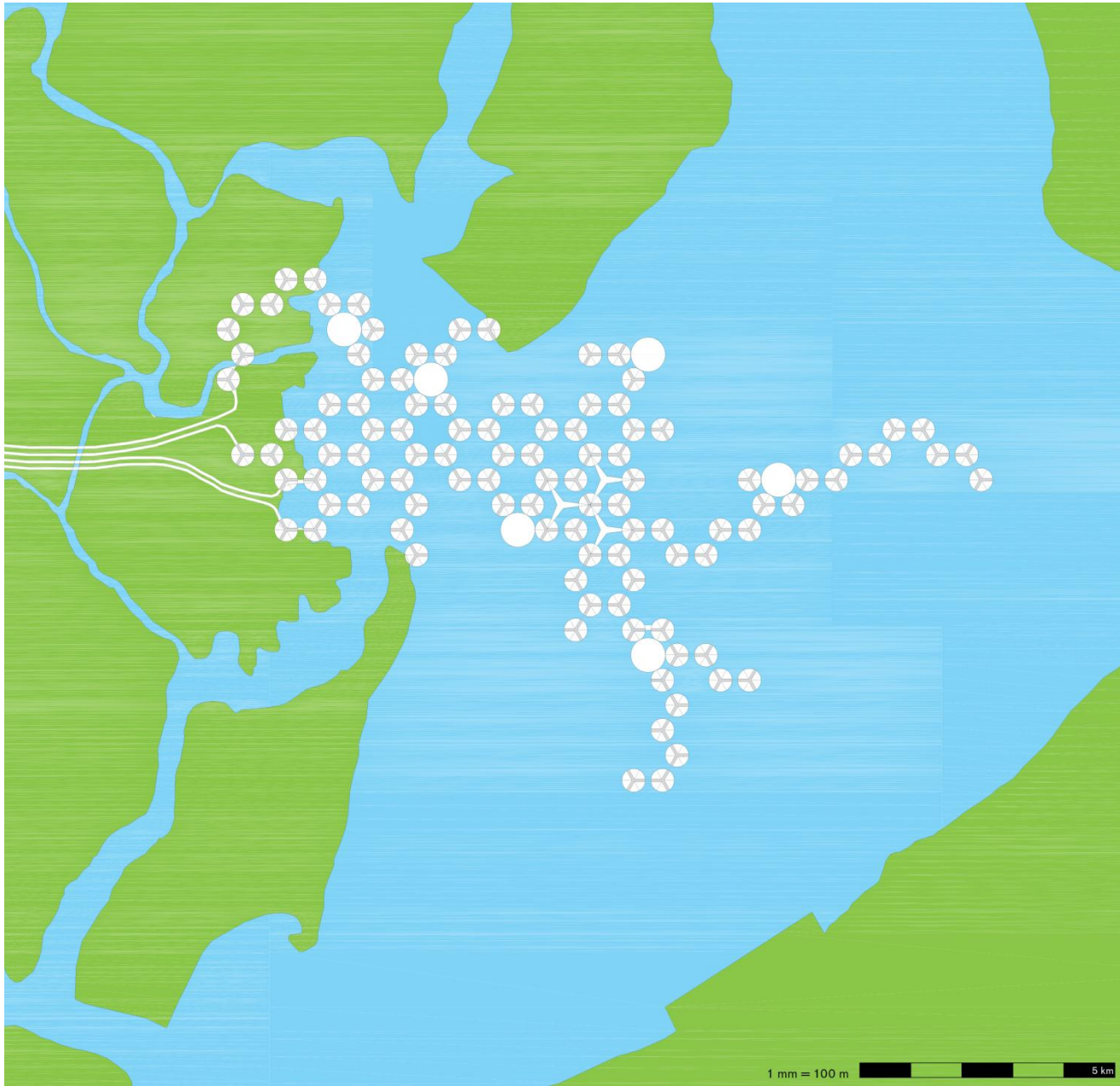


BUILT SPACE



GREENSPACE





Urban referents



Concept references

Environment is dead in this place, the idea of reviving the environment and that will happen when we revive it's elements (human – plants – Animals) and provide them with the necessary power to live.

Power: Using the garbage as seeds buried underground and life comes out of it (bringing the good of the garbage out of it) and it will be used to generate Biogas, electricity and fertilize.

Human: changing the society point of view towards the homeless people by making them helpful and productive to the community and this will happen by rehabilitate their lives and then by giving them the opportunity to be a real humans, make them

ready to lots of available jobs and works varying from farming, animal husbandry and the completion of life elements.

Plants: The Seeds of Life skyscraper have lots of green slabs coming out of it, providing the tower with lots of organic elements, making the tower self-sufficient and to reduce the pollution.

Birds: Opening holes in the form of the skyscraper to put in some bird nests for some kind of birds that lives in this area.The bad image of the city will be rotated to make the idea of the skyscraper.



The Treehouse _ Baumraum _ 2012



The Flemish Forest and Nature Agency and the commune of Hechtel-Eksel, were quickly sold on the idea to create this project on their premises and enthusiastically embraced the concept.

All with one vision: environmental quality and social responsibility for the benefit of people, planet and prosperity. THE TREEHOUSE helps to bridge the gap between economy and ecology.

the treehouse isn't just any treehouse. It's a small architectural wonder equipped with state-of-the-art eco facilities located in the forests of Hechtel-Eksel



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