

**An Urban Planning approach for Squatter Developments.  
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## **Preface.**

The purpose of this paper is to review non traditional approaches when facing projects for improving urban conditions in squatter developments, based upon experiences achieved through the implementation of projects located in the periphery of Venezuelan cities.

During the last twenty years Venezuelan national, regional and local plans promoted the visualization of cities as a whole. No distinction was made in the approaches to marginal areas other than considering them with other types of areas (such as historical, environmental) as part of special developmental plans. These plans applied the same functioning rules and ideas for development regardless of the areas characteristics. This vision resulted in a fiasco that required destroying an existing order to create a totally new one.

A squatter development or barrio is a group of sectors of progressive development, without planning, initiated from an illegal occupation of private or public land. Projects for squatter developments, sponsored by two government agencies, the National Housing Council (CONAVI, Consejo Nacional de la Vivienda), and the Institution for Community Development (FUNDACOMUN, Fundación para el desarrollo de la Comunidad), have tried to introduce a change in planning approaches. Actions have been directed towards achieving the same urban conditions as in the formal city. Satisfying the goal of equality between squatter developments and the formal city usually produced adverse impacts inside the social cohesion and morphological unity of the settlement, diminishing the sustainability of interventions.

The belief that traditional urban interventions searching for quasi-formal city conditions would stimulate squatter developments to evolve and acquire the characteristics of formal areas has failed. Instead, plans that propose partial or pinpoint changes as initial stages of an urban process, capable of generating a continuous evolution towards formal city conditions are visualized as a new feasible and required approach.

Government planning agencies are becoming aware that city planning for squatter developments must evolve further than trying to achieve formal city conditions. Experiences in proposals for squatter developments evidenced the need to reinforce projects with studies addressed to identify thresholds for change while adjusting the goal of equivalence between barrio and formal city. A different approach is required in order to allow the desired change to happen within the context of sustainability.

New renewal plans must search for a threshold that frames urban interventions. The capacity for change has to be determined through a detailed review of urban form, identifying the permanent and untouchable structures that have become expressions of the settlements character and identity and which remain appreciated by the community.

In the plans presented as examples of a different approach, sustainable restructuring and renewal interventions were based in actions that reinforced the underlying urban order while providing aesthetic sensitivity and historic references to the communities.

The threshold for increasing life quality was established preserving public space with a minimum of expropriations and improving the urban fabric without producing a rupture within the established order.

In settlements with a complex urban form product of topographic conditions and high density occupation conformed by groups of piled up buildings, proposals for change are strongly limited in order to maintain the sustainability of urban interventions.

Studies supported in a new vision of urban analysis are required to establish the capacity for change. Restrictions for change are related to urban form and to the subjacent urban order that guides community life and ties.

## **1.- Venezuelan Policies for Urban Development.**

The periphery of Venezuelan cities located in mountainous areas are susceptible to be illegally occupied because of their adjacent location to the formal city. These areas generally have geographical difficulties such as steep slopes and have been growing into very dense settlements, where dwellings are piled up in an indivisible mass.

In flat terrains, large vacant lots in the periphery of the city distant from employment centers are also illegally occupied. Restrictions for development in flat lands are minor, and traditional planning some times can succeed.

Venezuelan architects, urban designers and planners embedded in the search for an adequate urbanism for squatter areas, are provided by development agencies with recipes, indicators and traditional methods that usually apply numerical indexes to measure life quality. Proposing a new urban aesthetics and sustainable interventions requires an urban professional free from this traditional vision of the utilitarian per se. Imagination is a required ingredient to search for a popular quality urbanism. Beauty must be included as a basic need that must be satisfied in development proposals and existing vernacular order must be appraised as a community gain.

Investment restrictions in popular urbanism and its correlation with a utilitarian approach, has produced a lack of projects for civic elements since they do not match with the concept of utilitarian. National development programs for squatter developments, currently addressed towards providing solutions to problems of urban order and function, need to request for solutions strongly related to morphology and the conformation of public space, in order to jump from a utilitarian towards a quality urbanism and from disruptive towards sustainable interventions.

The solutions offered generally are framed within a tendency of rationality and order, using physical and numerical standards typical of traditional cities, mistaken in its conception and unfeasible in its application.

Experiences developing projects for squatter development improvement has led me to the conclusion that the search for public land that represents one of the major problems must be

solved without affecting or affecting in a minimum the built environment. It is necessary to develop non traditional solutions that fit within the built environment in a friendly way, without producing massive physical disruptions, and pursuing the aesthetical goal strongly related to a quality urbanism. Consequently there is a need for reviewing existing notions that appear as definitely accepted, and include new concepts and ways of understanding these settlements.

Illustration 1 shows an example of a scale aggressive intervention in Barrio La Vega, Caracas, Venezuela.

**Illustration 1**



The new ways include invention of solutions, for problems that appear as unsolvable, unless radical changes are made. A new conceptual city planning approach requires to give up standards established by planning agencies and to arrange for physical and cultural sustainable proposals.

### **1.1.- New Policies for Urban Development: Plans for Urban Pieces.**

The late nineties brought a change in the way our cities were planned. City planning evolved from laws for organizing urban territories, with a unified view towards a consideration of plans for pieces, where squatter settlements of the periphery, were viewed as special urban units (J.Baldó, F.Villanueva, Un Plan para los Barrios de Caracas, 1995). Within this concept of belonging to an urban unit, possibilities for integration of squatter development in their respective fragment appear more feasible and consequently more favorable for the process of improvement or qualification.

Large areas of squatter developments representing sometimes more than 60 % of a specific urban area are planning challenges difficult to confront. Government planning agencies aware of the need for a change when approaching the task of city planning, have promoted new types of plans supporting the idea that non traditional urban problems require special approaches.

### **1.2.- Designing Plans for different scales.**

Different levels of city planning for squatter developments have been approached during the last six years, with a hierarchy and scale that depend on the complexity of the problem.

According to these levels, the following plans have been established (CONAVI, 2002): Plans for Urban Sectors (Planes Sectoriales), Plans for Planned Physical Units (Planes para Unidades de Planificación Física), Plans for Urban Design Units, (Planes de Unidades de Diseño Urbano), Integral Plans or Projects (Proyectos Integrales) and Condominium Structures (Estructuras Condominiales).

Plans for Urban sectors are directed to squatter development areas located in cities. Plans for Planned Physical Units, include relatively continuous settlements of squatter developments with similar physical problems. Urban Design Units are conformed by one or squatter areas or barrios, with limits generally identified by citizens. A group of Urban Design Units constitutes a Planned Physical Unit.

Several Plans for Urban Sectors, for Planned Physical Units and for Urban Design Units have been completed, but Integral Plans and Condominium Structures are new experiences actually being developed by CONAVI and FUNDACOMUN.

The Integral Plans or Projects cover the influence area of a main public work built by the planning agencies. This area is considered a sector unit within the settlement, but the variations on the public works that can be the center of these sectors, leave a scale unattended.

The Condominium Structures are groups of dwellings sharing a common public space, provided with an organized community association (asociación de vecinos) and social linkages between their residents.

Planners and urban designers are suffering the intermediate information required in order for the Urban Design Units to establish previous subdivisions that depend on common goals and space sharing, before limiting the condominium structures.

The Urban Design Units are the basic planning units according to the national planning system. Agencies like CONAVI and FUNDACOMUN have promoted several competitions open to all urban professionals, for Urban Design Units located in different cities of the country.

### **1.3.- Planned Physical Units: Inserting squatter developments in the urban structure of cities.**

Planned Physical Units include groups of squatter developments that share a common location, but can be individually recognized by name and physical limits. Insertion of squatter developments within the urban structure of the city has been approached as a group insertion of the so called Planned Physical Unit. The main purpose of this approach is to establish the adequate functional and formal relations between the squatter developments and the formal city.

Squatter developments are in general spatially disconnected and formally differentiated from the city. Connections to the road network of the city are weak or inexistent. This

condition plays a key role in maintaining social differentiation, preventing their inhabitants to consider themselves as part of a city and exacerbating individual commitments towards the interior life of the barrios. Sharing goals and commitments with the formal city requires as an initial step, the establishment of strong spatial connections that provide an adequate insertion in the urban structure.

Inserting Planned Physical Units within the urban structure requires changing the conditions of the relation with the city from marginal (understood as a lack of membership) to being part of an urban fragment of the whole urban area.

When carrying out site analysis, the insertion of barrios within the urban structure has to be seen as the first step of a sequential system of relations that begins with the adjacent environment, followed by the nearby surroundings, until reaching relations with areas where urban scale facilities are located.

## **2.- A New Planning Theory for Urban Design Units.**

The basis for the theoretical proposals reviewed in this paper is a product of five years of experience developing projects for improving squatter settlements through plans for Urban Design Units. Urban Design Units are generally conformed by a group of squatter developments or barrios tightly related, due to their morphology or functional characteristics.

Plans for Urban Design Units evidenced the need for developing improvement programs that go beyond utilitarian achievements such as function and cleanness, that consider aesthetics as a need for a healthy community, and overall that represent sustainable urban interventions.

To achieve aesthetic goals, proposals required the improvement of urban leftovers such as Interstices and unfinished and abandoned spaces and building, so frequent in these settlements and responsible for the unattractive appearance and insecurity of the urban space. A global improvement of urban space was addressed, including as part of the system all vacant residual space and abandoned buildings.

The proposals faced with the lack or shortness of public space and trying to avoid expropriations, considered a priori as not sustainable, concentrated efforts in identifying and evaluating the possibilities for using leftovers. Using urban residues as an alternative way to deal with the question of urban spaces appeared to be an effective tool for providing a civic network within the undifferentiated system of open spaces.

Urban Projects developed constitute sustainable urban interventions and examples of how to approach problems that at first glance appear as requiring radical changes in order to provide improvements. Solutions were supported on new creative ideas, distant from the tendency of rationality and order, and from the physical and numerical standards typical of traditional cities.

In general, improvement sustainability was based in interventions to reinforce underlying urban order while providing simultaneously aesthetic sensitivity and historic references to the communities.

### **2.1.- Variations of urban intervention policies: Renewal and Restructuring versus relocation.**

In Venezuelan squatter settlements policies for intervention moved from the radical policy of removal and relocation of population, towards the improvement policy of renewal and restructuring. These policies have been promoting the articulation of the settlements to the formal city as indivisible units, diminishing functional and formal unbalances without affecting the social unity of the community. These types of interventions have also promoted an increase in life quality approaching formal city conditions and maintaining population in their habitat.

Proposals for improvement, appraise urban facts and the traditional and cultural structure, so change has to be done within a view of conservation. Even though improvement has given great importance to urban events and to the traditional cultural structure of the communities, the need for the presence and incorporation of civic elements in the urban space, with interventions favoring its embellishment and improvement, has not been established as a goal.

From the standpoint of environmental and esthetical considerations, the possibility of considering the creativity of the population of the squatter developments is commonly excluded from the renewal upgrading goals. There is no doubt that goals for upgrading must be embedded into the overall urban planning and policy making process, but complemented with a distinct view that recognize values and significances in the development, allowing the connection between form and society. Consequently, squatter developments have to be visualized as an ingenious and very efficient response to the unfavorable conditions to which the poorest groups of the society are relegated.

### **2.2.- An Urban Policy of Pinpoint and Partial Modifications: The Initial Stage for Improving Urban Poverty Conditions.**

Policies for improving the quality of life in habitats affected by poverty have relied for a long time in radical modifications of the built environment with complete population dislodging. Such practices tend to generate social unbalance and economical expenditures that exceed the monetary resources of most local governments.

New tendencies proposing partial or pinpoint changes as initial stages of an urban process constitute feasible and sustainable actions. This requires visualizing the built environment as a resource directly linking the sustainability of interventions with the current land use established by the population of the area.

Illustration 2 is an example of a partial intervention to recover an abandoned building for community use.

## Illustration 2



Existing urban scene

Proposed urban scene

Public works seeking to minimize habitat poverty and elevate the quality of life in a particular location, must try to maintain as a priority, the existing settlements that do not represent evident environmental risks. This preserves in the community a sense of belonging and territoriality, securing the relationship between the population and the formal environment, while protecting existing dependency links such as employment. In order for public works to become successful sustainable interventions, there is a need for a friendly incorporation within the existing built environment.

A new approach to public planning is required, one that eliminates the direct connection between poverty and poverty of ideas and modifies the outdated utilitarian vision. Modern city infrastructures require public projects that seek to enhance urban aesthetics in the face of habitat problems.

### **3.- New ideas and concepts for Site Analysis to include in Plans for Squatter Developments.**

The search for new ideas must be supported mainly in an overall site analysis that exceeds classical land use studies and reviews of building conditions, and include inhabitant's referential structures and identification and consideration of the sense of belonging or territoriality. This sense of territoriality in this case is defined as the physical and social knowledge that the inhabitants have, not only of their nearby environment but of the surrounding context where they daily move in to access urban services.

New ideas and concepts must reflect the understanding and appraisal of the environment built by initiative of vernacular groups or individuals. To cope with this need, a review and a thoroughly reading of squatter developments morphology with an identification of the social linkages associated and dependant on the characteristics of the urban occupation are required.

To accomplish a valid morphological reading it is of great importance to meticulously study urban fabrics, since squatter developments evidenced as a common feature, the predominance of the residential urban fabric with an absence of urban structural elements. This condition produces the homogeneity of the urban form and the appearance of chaos that makes orientation for foreigners difficult.

The need for supplying the absent structural elements that provide the civic web requires the identification of the structuring potential the site has, expressed through natural or built landmarks not perceived by foreigners but easily recognizable and used as address reference by the inhabitants.

The development of territoriality and familiarity studies, fundamental for understanding the essence of the urban order, support and complement the search for landmarks.

### **3.1.- The study of Urban Fabric.**

A general definition of fabric refers to elements associated with other elements by proximity or by horizontal or vertical clustering. Within this concept a group of buildings conform an urban fabric due to there adjacencies or their attachment.

Squatter developments located in mountainous areas follow an interwoven pattern of growth that evolves from an initial stage where buildings can be singled out towards a pile type group or cluster of buildings, very different from the formal city which is built locating dwellings or buildings on a pre established web.

On flat lands these settlements have the tendency to establish grids to locate buildings in a similar way to the image provided by the city. The grid in some cases of mountainous areas is adapted to terrain irregularities; also frequently the lanes are very narrow in order to favor an increase in the size of adjacent lots.

The proximity and interweaving of buildings produces a sense of collectiveness in the high density informal occupations, which is diminished or lost when informal occupations are, disperse.

Illustration 3 is an example of the difference in urban fabric between a formal development and a high density informal occupation.

**Illustration 3**



Above La Urbina, Below Barrio Petare, Caracas Venezuela.

### **3.2.- Residential Fabric and Social Fabric.**

A group of dwellings adjacent or attached to each other, conform a residential fabric. A group of inhabitants conform a social fabric when they identify and relate with each other, sharing a public space and functional problems of their urban area.

Residential fabric and social fabric are intimately related in squatter developments, whereas in the formal city the situation is completely different, consequently urban interventions that modify or disturb residential fabrics, impact the social structure of the community.

In squatter developments located in areas of irregular topography and high concentration of buildings, where establishing land property and air rights demand urgent regulations, defining the social fabric is a complex problem.

In this case, social fabric appears as independent from the residential blocks or clusters and dependant on the public space limited by the built form.

### **3.3.- The underlying urban order.**

Squatter development residents using a minimum of resources and a vernacular interpretation of the formal city codes, build their habitat resembling the image of the adjacent city. The image can appear as disorganized and sometimes chaotic, but there is evidence of an underlying physical and social order within this built form.

Physical order subjacent and unidentified at first glance includes the built form, the way it grows horizontally and vertically and the public space they limit and contain. It is mainly provided by the network of physical relations conformed by the pedestrian circulation system understood clearly by the inhabitants and those built elements relevant because their civic role, their dimension or the history associated with them.

The social order conformed by community ties that has no physical evidence. The knowledge that dwellers have of each other and the common use of small scale public space support community ties and provide a sense of territoriality to the group. In complex developments coincidences between social form and physical form do not exist.

The subjacent network of physical and social relations that the inhabitants share and understand is difficult to be perceived by foreigners but easily understood and used as address reference by the inhabitants. Working with community groups has shown the importance of considering the determinism of the underlying physical and social order as a priority goal.

The underlying physical order has not been a priority goal and experience with community groups have shown the importance of this subjacent network of physical and social relations that the inhabitants share and understand.

### **3.4.- The Physical group and the Social group: Basis of the underlying order.**

Existing physical grouping and social grouping are the basis of the underlying order. Identifying and defining the groups will establish the framework for sustainable decision making.

In massive constructed squatter developments, the physical group or built group is conformed by aggregated and piled up dwellings that share structural elements such as columns and slabs and dividing walls.

Social groups or condominiums are small groups of dwellers that share a public space, and recognize each other as belonging to the group. Shared access elements in this case include stairs and common entrances to the buildings.

A social group has the capacity to manage and maintain their habitat and to promote and support plans provided by planning agencies.

In these complex built areas, physical groups are not coincident with social groups. Relations and structural ties, typical of the physical group occur inwards, while social relations and ties occur outwards.

Illustration 4 is a typical example of a massive physical group of dwellings in a dense squatter area.

**Illustration 4**



Elements shared in a non personalized way such as common structural elements, can shelter families belonging to different condominium structures. Sharing access is a characteristic of a common condominium that establishes personal ties.

### **3.5.- Searching for a threshold for urban interventions**

Identifying the threshold for urban interventions becomes a search for the underlying physical and social order.

The positioning of the key elements within the urban space is fundamental to be preserved. Once this position and the spatial relations are modified interventions are non sustainable, since the inhabitants lose the orientation and understanding of their built environment.

Up to what extent can position of key element can be modified, is a question regarding levels of perception and territoriality. Since squatter developments are generally well defined units, the relations within the unit are in certain ways untouchable. But once the territory is classified as surroundings or in their own words “los alrededores”, positioning of urban elements is irrelevant for the inhabitants of the settlement, except for certain places or landmarks that identify the entrance to their habitat, functioning as Urban Doors, and enhanced by their vernacular design. These places have a character of untouchable since they are the visible elements of the underlying order

A sustainable approach for improving life quality must be based in a morphological study that allows the understanding of the order within the chaos and a philosophy of pinpoints and partial modifications that clarifies and reinforces whatever order the inhabitants perceive.

Maintaining and reinforcing urban order includes residential fabric and civic web. The residential fabric order becomes a major problem since the fabric in its way is already structured and consolidated.

As a previous conclusion it can be said that: The threshold for urban intervention is exceeded when a rupture with the established order happens, so it is fundamental to avoid interventions on the morphology that affect the social and physical organization associated with the urban form.

### **3.6.- Establishing a limit for renewal interventions: A border line for sustainability.**

Urban interventions in squatter development are directed towards the improvement of the physical conditions in order to increase life quality. Additional to promoting physical improvement, planning agencies have been concerned with the definition of social units or condominiums that constitute the basis for community organization, and are approached through the projects called Condominium Structures.

Where is the border line for sustainability when improving life quality in squatter developments? The border line even though ambiguous is a condition within which the main guidelines of the underlying urban order continue to function as a referential system for the daily life of the community. A solid referential system is part of the level of quality life desired by the communities.

When developing proposals for very complex and dense settlements, with situations of apparent chaos, evidence was found that introducing radical modifications in the underlying order, affected sustainability, so establishing a limit for interventions is a key planning problem.

### **3.7.- Interventions within and underlying urban order.**

The built expression of squatter settlements that generally appears as disorganized and chaotic is inexplicably understood by the residents. The internal physical relations between the pieces that constitute what we can define as a vernacular underlying order is fully perceived by the residents of the area. Unless analyzed in detail, internal relations are difficult to perceive by non residents.

There is also a social order conformed by community ties, supported by the knowledge that dwellers have of each other and by the common use of small scale public space, that provide a sense of territoriality to the group. Social order is not evidenced physically, and in complex developments coincidences between social form and physical form may not exist.

Renewal interventions for improving life quality can proceed until standard indexes are reached, but when planning for non formal areas, sustainability reaches a threshold previous to reaching the standard conditions of life quality required by formal city planning.

## **4.- Proposals for Change: The real challenge for Squatter Development Plans.**

When proposing urban changes in squatter development, mainly those that have a very complex morphology, the physical subjacent order becomes a barrier for interventions difficult to eliminate. Plans must be supported in an urban analysis that understands the internal physical relations between the pieces that constitute the underlying order.

### **4.1.- How much change can urban fabric support?**

Thresholds for change have to be established in order to maintain the sustainability of urban interventions. Studies to determine capacity for change are based upon a detailed review of urban form, which allows the identification and limits of physical units or clusters.

Physical changes that disrupt the urban fabric of the barrios appear to have the greater impact in the community.

### **4.2.- A Sustainable change: Framing renewal interventions.**

The process of change has a dual and contradictory task, preserving social units and trying to keep at least in general, the built form. The barrio of Petare is an example of how the

built form expressed through physical clusters of dwellings is independent from the boundaries of condominiums or social units.

The technical team in the Barrio of Petare identified sector boundaries in an intricate built form, evidencing how dwellings that have an access through a common space are the ones that belong to a social unit or condominium, even though dwellings that share partition walls or structural elements and are evident physical units, belong to a different condominium because they are accessed from a different public space.

Sustainability regarding the urban fabric in squatter developments with a complex built form is Topology related, but regarding urban structure it is geographically related.

Two types of geometry support sustainability: Euclidian geometry for urban structural elements and a topological geometry for urban fabric.

Hence, the sustainability for renewal interventions is supported in maintaining the topology of the urban residential fabric and the geographic position (or geometric relations: distances and angles) of the civic or public elements..

## **5.- Searching for public land: A goal of the New Plans for Squatter Developments.**

The functioning of the city favors zones susceptible to be illegally occupied, mainly as a process of a collective action.

Once the process starts conducted by an organized group, each participant builds its dwelling as a response to the so called individual freedom, changing the initial collective action, predominantly social and with shared objectives of conquering land, into a physical intervention of private individuals.

When collective goals are subordinated, interventions by private individuals are expressed in settlements where public space is minimized and limited to narrow lanes or connection roads necessary to access the barrio from the city, and leftover areas because their difficulties for urban occupation.

Once the settlement is established and a precarious shelter is provided, interests of the occupants change, and a search for land to locate public activities begins. In the initial stages reserving land for communal use does not become evident as a priority need, since each family is trying to consolidate their private space, but once individual needs are satisfied, communities cry for urban facilities and demand infrastructure.

This search for public land constitutes the major problem that impoverished neighborhoods face, aggravated and becoming severe when the site has topographic limitations and the settlement has a high density occupation.

## **5.1.- Supply and arrangement of public space: Where to look and what to find.**

To satisfy the demand for public land in squatter developments implies expropriations since solutions provided, generally tend to establish a rational order using physical and numerical standards suitable for the traditional city, but mistaken in its conception and non feasible in its application.

Developing projects of improvement for impoverished neighborhoods lead to the conclusion that the search for public land in these settlements must be solved without affecting or affecting a minimum the built environment. To achieve this minimum impact, it is necessary to provide non traditional solutions that allow a friendly insertion of urban elements or activities without massive physical disruptions.

It is required then to build within the built and to establish new forms of land property (condominiums) and regulations regarding use and property of the vacuum, empty space between buildings (mainly from the first floor and up).

Looking for public space supply requires identifying within the settlement, the existing interstices, the unfinished and the abandoned spaces and building and evaluating the possibilities for their use.

Building within the built are the cases of Petare and Los Claveles, where the lack of available land for locating community facilities, produced solutions based upon extensions (where possible) and vertical growth of the existing buildings. This type of intervention provides a perfect fit between the built environment and proposed actions, avoiding the civic monumentality that substitution solutions can produce in the urban fabric of small pieces that characterizes barrios.

## **5.2.- The Interstice, the unfinished and the abandoned: possibilities for public use.**

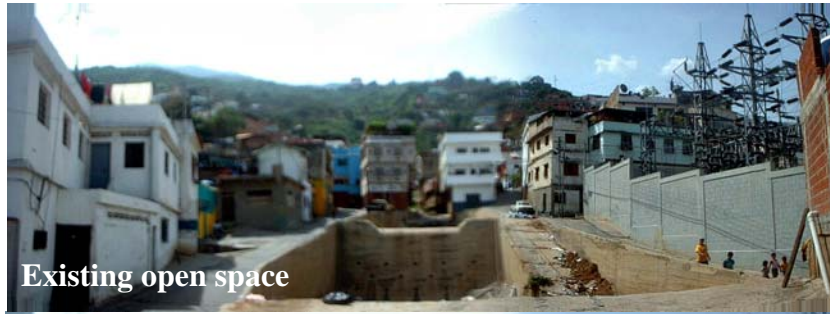
The interstice or spatial residues are produced and abandoned by the urbanization process that develops when the informal occupation takes place. This interstitial space underrated mainly because their physical difficulty for being urbanized, offer the possibility to become a new type of urban uninhabited.

The urban uninhabited landscape becomes a resource of public land, that calls for approaches to urban intervention that focus less on imposing order than on inserting in the existing built form, punctual public activities.

Inserted objects include urban furniture and referential and symbolical elements (urban sculptures, urban doors).

Illustration 5 is an example of a proposed urban door in an inhabited landscape.

### Illustration 5



Existing open space



Proposed urban door

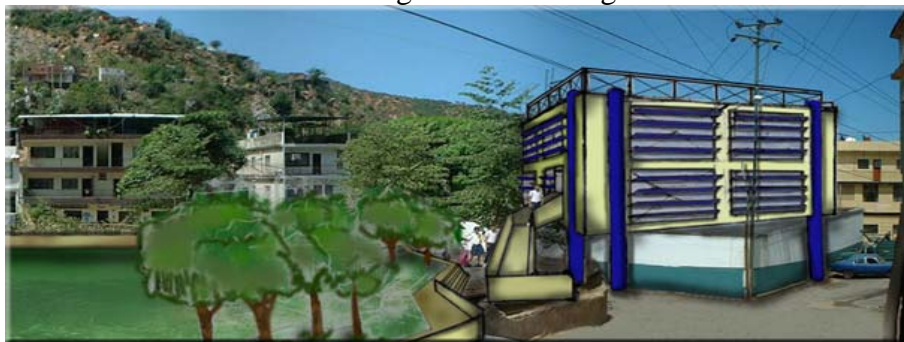
Other urban residues, such as unfinished, abandoned or ruined buildings or constructions, once rescued and improved, become pin point interventions.

Illustration 6 is an example of the rescue for community use of a ruined building. These ruins of a community building were the remainings after a major landslide occurred in 1999.

### Illustration 6



Existing ruined building



Proposed building (developed on top of the ruins)

### **5.3.- Creating a web of public space from leftovers.**

The idea of using urban residues as an alternative way to deal with the question of urban spaces in the context of transformation and ambiguity that characterizes slum areas appears to be an effective tool for providing a civic network within the undifferentiated system of open spaces.

An example of civic elements developed in spatial residues or obtained through refurbishing ruins or abandoned buildings were proposed for Barrio Piedra de Moler in the State of Vargas. In this case urban interstice in residential areas was identified and new uses were proposed.

Illustration 7 is an example of the use of urban interstices to locate community facilities.

**Illustration 7**



Once the civic network is identified, the urban facades that contain connecting public space should be refurbished. The underestimated make-up of the public façade is usually mentioned by the community as a need, that once provided will promote the use of the space they define. As a conclusion urban make-up can become a tool for improving public space.

### **5.4.- Renewal Plans supported in Special Regulations for Public Spaces in Squatter Developments.**

The irregular ways buildings pile up, and the inexistence of a lot in high density developments require a regulation that introduces new concepts for establishing property lines such as the virtual lot, defined through imaginary projections of one building over the other, or considering in some cases roofs as lots.

In high density slum areas projections and cantilevers over public space must be regulated establishing restrictions in dimension in order to allow natural lighting during daytime. Dimensional restriction depends upon the width of the pedestrian path or stairs characteristic in this type of development.

## 5.5.- Novel solutions for unsolvable problems related to public space.

Problems classified as unsolvable, are those that require radical modifications and disruption, and consequently do not meet the requirements of a policy of conservative view of the built environment. Two of the most common unsolvable problems that usually arise are those related to the access space to the barrio from the formal city and the supply of infrastructure. Both cases require non traditional and non standard proposals that must be evaluated considering the increasing quality effect they provide to the settlements.

Solutions were provided in the barrio of Petare to solve the problem of access to the development and of the water supply and drainage system. The pedestrian system of stairs and sidewalks was improved and extended including new elevated side walks that allow pedestrians to circulate next to the adjacent highway, main access to the neighborhood.

Illustration 8 is an example of the solutions provided to access areas of Petare that seemed very difficult at first glance.

**Illustration 8**

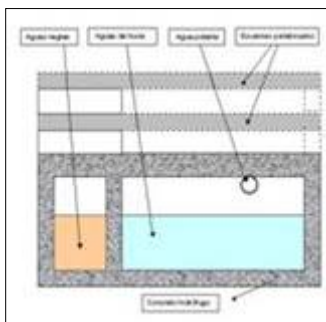


For barrios located in the periphery of Caracas, an infrastructure box with a top used as a sidewalk was designed for pipelines and drainage, producing savings in space that allowed a better pedestrian circulation.

Illustration 9 is an example of an integrated infrastructure box.

### Illustration 9

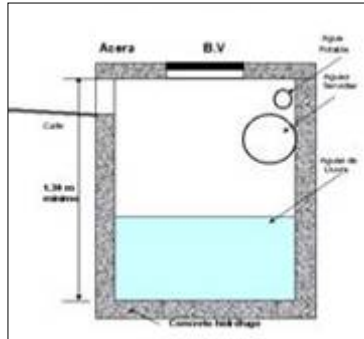
#### EXISTING SOLUTIONS FOR PIPELINES



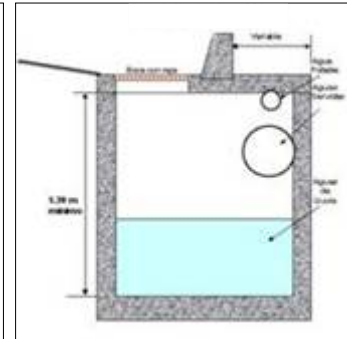
CHANNEL ON STAIRWAYS

#### PROPOSED SOLUTIONS TO SAVE SPACE

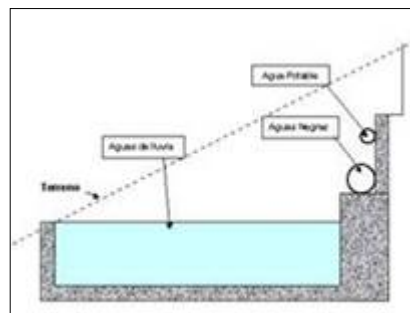
##### CHANNEL AT BOTH SIDES OF THE ROAD



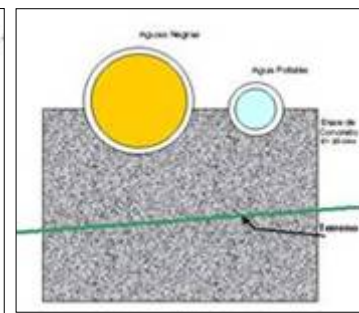
OPTION 1: ON SIDEWALKS



OPTION 2: ON PAVED ROAD



SIDEWALK-CHUTE



DOMICILIARY PIPELINE

## 6.- Absence and weakness of Memories in squatter developments: a common condition.

When referring to Venezuelan cities, the changing morphological condition becomes a relevant aspect. Caracas that appears as a city in permanent demolition is a vivid example of permanent change. This condition produces a weakening of the collective memory of the city.

The changing morphological condition of the capital city, is reproduced all around the country even though efforts have been made in the largest cities to protect referential values, mainly historical and architectural. In the case of squatter developments the common condition is the lack of elements with historical or architectural values. This condition evidences the need to discover new significances within what appears as insignificant and to study in depth the identification of patterns of urban space organization, patterns for building aggregation and disposition, peculiar pedestrian routes or paths such as stairs or walkways and any existing singularity, natural, cultural or social, all who have in common the condition of permanency.

Transforming the urban fragments in centers with their own significance will provide the required structure to the informal periphery (WAISMAN M. (1995).

### **6.1.- The language and semiotic codes of the barrios.**

Slum areas can not be visualized as an event isolated from the city development, since they are part of the same cultural body, therefore in their construction they use directly or indirectly depending on site restrictions, the same linguistic and semiotic codes provided by the city, vernacularly interpreted. When these codes don't come from the immediate city, they are re interpreted from events that live and function within the city.

When facing improvement actions, in general illegal settlers feel agencies are obliged to use the language of the adjacent formal city, but differences in land occupation patterns and available land, become barriers for using the same language codes.

Urban professionals trying to use formal city codes supported by agencies and communities can produce the destruction of the existing and some times subjacent cultural structures that have to be reconstructed probably in a way foreign for the illegal settlers.

Reinforcing identity evidences the impossibility to resemble to the models and images of the adjacent city, so urban professional must be aware that it is impossible to destruct the traditions inside which "public opinion" think, block the path to modernity.

New and creative solutions will open the path to modernity that rules and developing standards successful in the formal city block when applied in slum areas.

## **8.- Conclusions.**

Based upon experience in Urban Design Projects developed for squatter developments in Venezuelan cities, the main aspects to be considered are: the design of a plan that covers an intermediate scale between the Urban Design Units and the Condominium Structures, and the establishment of a set of goals that provide sustainability to the proposals, whatever scales the plan include.

### **8.1.- Design a Plan for an uncovered scale.**

The definition of a Plan that approaches the scale between the Urban Design Units and the Condominium Structures is required. This plan must be directed towards establishing subdivisions within an urban design unit, based upon physical and social ties.

Integral Plans or Projects can fill this role when the public work that becomes the center for establishing the ties between the dwellers is a civic activity or a public space. Cases where the public work can be a stair that becomes an access for more than one community does not provide the required information to limit subdivision supported on strong physical and social ties. Intermediate information to define subdivisions must go further than establishing an influence area around a public work, even thou this work is socially oriented.

## **8.2.- Set of goals that provide sustainability to Plans for Squatter Developments.**

The following studies and additional goals have been identified as required to be included in Plans that approach renewal interventions, independent of the scale of the proposals:

Site analysis must include special studies of the urban geometry of the settlements. Experienced evidenced that sustainability for renewal interventions is supported in maintaining the topology of the urban residential fabric and the geographic position (or geometric relations: distances and angles) of the civic or public elements.

Consider the underlying physical order as a priority goal. Urban interventions must reinforce the underlying urban order (supported in the urban geometry) if sustainability is to be achieved. The underlying order perceived by the inhabitants of these developments, go from the so called Condominium Structure to the relations with the surrounding formal city established by the Planned Physical Units.

Consider the urban uninhabited landscape, the leftover urban vacuum or urban ruins as the first source for supplying land to locate urban services. These pieces of land will allow the insertion of small projects of civic importance (urban furniture and referential and symbolical elements such as urban sculptures, urban doors) without affecting the urban order. These elements will satisfy the need for a memory and consequently a history for the community within an already established urban fabric.

Establish a threshold for urban interventions. If urban interventions produce a rupture with the established order thresholds are exceeded. Interventions for improving life quality can proceed until standard indexes are reached, but when planning for non formal areas, sustainability reaches a threshold previous to reaching the standard conditions of life quality required by formal city planning.

Aesthetic goals must be considered as a need for a healthy community. Plans for Urban Design Units evidenced the need for developing improvement programs that go beyond utilitarian achievements such as function and cleanness. In order for urban interventions to be sustainable, aesthetics is considered a required goal.

Design Urban Regulations that build a framework for sustainability: The design of new regulations must be framed within the sustainability context provided by the geometry of the void and the built surroundings. Urban interventions that modify the geometry must be analyzed in detail. Scale, represented by the relation between height and width can accept variations up to 20%. Exceeding this percentage produces radical changes in the spatial perception of the enclosure. Widening should also be restricted when the surrounding built form is composed by dwellings piled in a compact way, since eliminating pieces or units can collapse the ensemble.

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