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Global Challenges and Local Identity: Integrated Transformation of Informal Areas as a Basis for Social Inclusion

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The correct management of water resources, above all in urban environments, is a prerequisite for both guaranteeing the right to water and improving environmental quality. On the contrary, the processes of urbanisation and unplanned occupation of cities, such as in Brazil and the majority of the global south, have compromised existing water resources and the environment, thereby, accentuating social issues linked to poverty and exclusion. The need to resolve problems linked to the absence of basic infrastructures (drinking water, sewers, land drainage, etc.) becomes both an opportunity to reflect on environmental quality and an instrument to build social inclusion. This article presents the results of the research project entitled "Participatory Plan of Water Management and Valorisation of the Water Resource of Cajazeiras V, Salvador, Brazil" which, through the involvement of the local community, created a project to transform an informal settlement on the periphery of the Brazilian metropolis. The resulting solutions became the basis for an international cooperation project involving Italian and Senegalese partners.

Access to water and social exclusion

Social exclusion in the metropolises of the global south is manifested in many forms, the most evident being difficulty of access to the majority of basic urban services such as water, lighting, transport, education and health services. In particular, access to water and the correct management of its entire cycle (disposal and treatment of sewage waters, land drainage, collection and disposal of solid wastes) are essential conditions to guarantee environmental health and the consequent health of the population. Unfortunately, spontaneous, heavy urbanisation has seriously compromised the environmental systems of the immense peripheries of the global south and harmed the health of the thousands of people who reside there (Davis 2006, UN Water 2008). In Brazil, more than eighty percent of the population lives in urban areas, fifty percent of which is not served by any type of sewage water disposal and treatment system1. Beyond the environmental disaster that this situation is causing, what is more worrying is the lack of interventions that both move in the direction of improving infrastructural aspects and that use an integrated approach in the defining of transformations needed to improve the quality of life of inhabitants in the peripheries (Barbosa 2008, Teixeira Guerra 2011). The creation of social inclusion policies is currently the most complex challenge in the management of Brazilian metropolises (Ministry of Cities 2004); beginning with the difficulty of defining what inclusion means in contexts where poverty is measured on multiple levels including economic, social, environmenta[1], educational, etc. Certainly, it is necessary to integrate environmental policy, urban planning and the creation of policies that reconcile social demands with the guarantee of a healthy environment and the participatory management of the area. Civil society can give a strong and real contribution to the determining of such effective instruments and policies. The research[2] presented here intends to be an example of this contribution of civil society (Ribeiro de Queiroz 2004).

In fact, the subject of this article is the creation of an analysis and intervention methodology founded on the participation of the local community with the objective of guaranteeing both the sustainable management of environmental resources and the valorisation of social resources. The starting point of the research is the conviction that environmental issues cannot be dissociated from social issues and that an integrated and participatory approach is necessary for any type of urban requalification action and environmental management that wishes to be effective[3] (Barbosa 2008, Rolnik 2009).

Local context: Oasis and the periphery of Salvador

Thanks to its topographical characteristics, which include very rugged outcroppings, and its high humidity, the city of Salvador, capital of the state of Bahia, has an extensive hydrographical network with rivers of considerable length and discharge. The area, which was almost completely covered with the vegetation of the *Mata Atlântica* [Atlantic Forest], has undergone a rapid process of urbanisation, most of which took place spontaneously and without the installation of a basic structure for the disposal and treatment of sewer water and waste. This has polluted almost all of the city's natural water system and many rivers and lakes are now in an advanced state of eutrophication, having lost most of their biological diversity, and have become vectors of diseases (Moreira de Carvalho, Pereira 2006).

The urban area known as Cajazeiras is located on the extreme periphery of the city of Salvador. It has a population of about 600,000 inhabitants and covers an area of 1,600 hectares. Until the late 1970s, it was a rural area covered with the virgin vegetation typical of the *Mata Atlântica* and dotted with several farms. The

1 Data source is the IBGE [Brazilian Institute of Geography and Statistics], which is online at: http://www.ibge.gov.br.

2 The research, which was funded by the University of Firenze, the Water Right Foundation and the *Circondario Empolese Valdelsa* from 2008 to 2011, was coordinated by Professor Raffaele Paloscia and carried out by Dr. Elena Tarsi M.Arch. with the collaboration of the Bahia State University and the "Casa do Sol" Community School in Salvador.

3 UN-Habitat programme entitled "Participatory Slum Upgrading Programme" at: http://www.unhabitat.org/categories.asp?catid=592.

Integrated Cajazeiras Project, which was developed by the Government of the State of Bahia in the early 1980s, was part of a policy for the construction of popular housing[4] and began with the objective of intensifying occupation in the central area of the metropolitan region of Salvador (CONDER 1985). Its characterising element was its low-density housing that was chosen primarily due to the topography of the area, which is a series of hills and valleys crossed by watercourses[5]. In fact, the project was structured considering that occupation would only be on the hilltops and not on the slopes (with an incline greater than 20%) or in the areas surrounding the watercourses. This occupation model was more economically advantageous, as it would require fewer reinforcement and excavation works (CEDURB 1977, SEPLAM 1980).

A direct consequence of the urbanisation of such a large area was the illegal occupation of the surrounding lands, which grew to a settlement that was six times larger than the initial project. Clearly, this gap between the project and reality was manifested in the inadequacy of the services planned with respect to the increase of the population and has contributed to creating both social and environmental problems. The watercourses have been permanently compromised by the pollution load, which is discharged by the improvised sewer system without any prior treatment. The poorest areas have become the perfect places for the development of organised crime and the total absence of the state has transformed Cajazeiras into one of the districts with the highest degree of social exclusion in Salvador (Gordilho Sousa 2008).
The district known as OASIS was occupied by a group of local inhabitants in the late 1980s. It has an area of about one hectare and stands on a steep slope, which has an incline of over 45% in several points. Over time, this has created many problems linked to the natural drainage system of the area and to mobility within the slum. Even though the settlement is fairly consolidated, having houses built with reinforced concrete structures and brick walls, the conditions of the basic infrastructure are very precarious, above all regarding the sewer system and the paving of the internal streets. According to the only available data[6], OASIS has a population of about 700 inhabitants, thirty percent of which are children. Forty percent of the adult inhabitants are unemployed, while the occupations of the remainder are mostly informal activities. The widespread poverty, the lack of opportunity and the apathetic attitude of many families creates a favourable environment for the spreading of organised crime linked to drug trafficking, which can easily involve the local youth. The result is widespread violence with frequent shootings between the police and drug traffickers, of which the district's population is often the victim.
It is important to underline the presence of area near the settlement that is unoccupied due to it being entirely covered by dense vegetation, which is the last surviving stand in the entire area of Cajazeiras[7]. Various

4 The main elements that characterised the urban expansion of Salvador between the 1970s and 1980s were the *Conjuntos Habitacionais*, which were large housing complexes created to respond to a massive lack of housing caused by an increase in the capital city's population. These programmes saw the investment of public resources in areas that were generally lacking in infrastructures and services, thereby creating the urbanisation of new city spaces. (Mendoça 1989, Gomes Do Espirito Santo 2002).

5 From a hydrogeological point of view, all of the area involved in the Cajazeiras project is part of the upper basin of the Rio Jaguaribe. From a geomorphologic point of view, it is located in the upper crystalline of Salvador formed by metamorphic rocks, the fracture system of which modelled the landscape and formed a plateau from 50 to 70 metres high with steep slopes. Another characteristic resulting from the fracture system is the presence of rounded knolls and hills from 20 to 30 metres high. It is important to underline that the current morphogenetic dynamic was strongly influenced by anthropogenic actions and, consequently, many of the raised forms are the result of embankments, excavations, demolitions and other works of engineering (Muricy de Abreu 1989).

6 There are no precise data regarding the socio-economic situation of the inhabitants of OASIS. The only data available are those collected by the public health system through the SUS – *Sistema Unico de Saude*, which sent a health agent to do periodic visits to families and fill out forms with their data.

7 There are two main reasons for the survival of the natural area. The first is linked to the presence of an old leprosy sanatorium that covered a large part of the area, which is now a renowned centre for skin diseases. The second is related to the dynamic of the informal occupation of Cajazeiras, which was concentrated in proximity to the main streets leaving the central areas like Cajazeira V less dense.

species of flora and fauna are able to survive this area thanks to the presence of a river with a series of waterfalls. Even though the watercourses are completely polluted, this area is of inestimable importance thanks to its environmental system and its social value.

Figure 1 | Oasis

The Research-Action process with the inhabitants

The Regulatory Plan of Salvador (PDDU) considers OASIS to be a ZEIS – *Zona de Especial Interesse Social* [Area of Special Social Interest] – which is an urban planning instrument that allows for the requalification of areas that have been identified as being particularly problematic (PMS 2008). The institution of the ZEIS is part of the urban policy promoted by the *Estatudo da Cidade*, the formulation of which began during discussions at the Forum for Urban Reform and continued with the democratisation process of the country that began in 1985 and was approved in 2001 with the objective to construct more sustainable and fair cities. The fact that OASIS has been recognised as a ZEIS provides for, amongst other things, the community participating in the creation of the area's requalification project, which should be provided for in the municipality's housing policy of social interest. Unfortunately, the interventions promoted with these characteristics have been few and have not had a cohesive vision. Therefore, the fieldwork concentrated on involving the inhabitants in the study of the district and the defining of a possible intervention.

The Research-Action activities involved a group of teenagers that had been participating for many years in the educational programmes of the Casa do Sol, a community school and point of reference in the district. On the one hand, this group had a strong identity of belonging to their *bairro* [neighbourhood], which also made it a high-risk category for involvement in drugs. On the other hand, working with those teenagers was an effective way to gain access to the district and to carry out the research, as well as being an opportunity for their growth and training. The process of analysis of the district was based on several preliminary training activities to give the teenagers the skills necessary to work on the study of the area. Lessons on how to use maps and cameras and how to build a three-dimensional model of the district were the basis for their understanding of the situation and for highlighting both the potential and the problems present. An important moment for the teenagers was a visit to the district and the nearby waterfall, during which they used cameras to capture the uniqueness of the place. Moreover, the teenagers interviewed the first inhabitants of OASIS to reconstruct the history of the place and its inhabitants. To stimulate the teenagers' attention towards the themes of ecology and respect for the environment, a visit was organised to the "Environmental Education Centre" – PANGEA in Salvador where, thanks to an excursion in the Urban Park of Pituaçù, the teenagers were made aware of what constitutes an environmental conservation area. The process of the Research-Action began with having the teenagers reflect on how they wished that their district could be transformed. To which they responded by proposing the creation of an ecological park in the area adjacent to the intact vegetation. Therefore, the activities were then orientated towards the study of OASIS and its

surrounding area and the creation of a project that would both improve the quality of the settlement and conserve and valorise environmental quality.
The study work with the young people of OASIS was also fundamental in involving a group of adults in the discussion and analysis process regarding the potential and the problems of the district. Achieving that type of contact and trust was not a simple process for many reasons. The first being the inhabitants' strong feeling of disappointment regarding the promises of change and transformation. The trusting relationship evolved gradually through the support of the parents of the teenagers in the group and through the field visits and the interviews. A series of meetings were set up to discuss such topics as the management of the area and the corresponding legislation and to create a shared transformation project. Use of the (paper and plastic) materials created by the teenagers allowed for a simple visualisation the area and facilitated the critical discussion.

Figure 2 | Participatory model of the district

The transformation plan - an ecological "OASIS"

The last phase of the participatory process was to define an intervention project to transform the area, which had the dual purpose of stimulating the population with respect to improving their habitat and of being a shared basis for a potential intervention project with support from Italian partner institutions. The project began from the need to deal with the problems determined by the study and participatory activities with the population and from the knowledge of the potential benefits on both a social and environmental level. The objective of the interventions was to stimulate the valorisation of the environmental quality still present and at the same time to improve the infrastructural and socio-economic situation of OASIS's inhabitants. The proposal was, therefore, composed of four interventions of varying types that reflected an integrated approach to the transformation of the area and the valorisation of its uniqueness.

The OASIS requalification plan

Water is supplied to almost all of the houses in OASIS through the EMBASA [Bahia Water and Sanitation Company], which is Salvador's water management company. However, there is an important aspect on which to intervene: many families are hooked up illegally to the distribution system through what is commonly called a *gado*, which is an improvised and unregulated connection to the network set up directly by the

inhabitants[8]. The greatest problem linked to this situation is the possible contamination of the water due to the precariousness of the hook-ups, to which must be added the possibility of large loses of the resource. The project calls for the water distribution network to be regulated by the EMBASA and the application of a minimum contribution per family for the service. From an infrastructural point of view, the greatest problem is the lack of a sewer system. With respect to the many areas of informal occupation in the city of Salvador, OASIS's situation is not one of the worst, as the inhabitants were able to create a temporary pipeline network in time to avoid having wastewaters running along the streets in the open air. The precariousness of this system is evident in many places, it causes mobility problems and, above all, risks contaminating the drinking water pipes. As there is no sewer treatment system present, the polluting load is discharged directly into the watercourses. One way to resolve this situation would be to create a wastewater treatment system using marine plants, which has the added value of being an ecologically sustainable technique. Moreover, the morphology of the area would permit the installation of a system in the valley below the settlement where treated water could be reused for the development of urban vegetable gardens.
To complete the urbanisation work of the district, it would be necessary to intervene on the paving of the main internal streets. Given the steep incline of the terrain on which the settlement stands, most of the streets would actually be stairways[9].

Urbanisation of the area considered in the participatory project
The lack of spaces dedicated to both socialising and the development of educational or recreational activity is a characteristic common to all peripheral areas of the city of Salvador. The need to address this problem is particularly felt by youth, who are also the category at greatest risk of involvement with organised crime. In fact, the majority of the population expressed the need for a public hall to be used for various activities of interest to the community (training, assemblies, work cooperatives, etc.). Moreover, they planned for the building of a play space for children and an open area to be used for environmental education.

Valorisation of the waterfall and creation of an environmental education centre
From the very first meetings with local community groups, there emerged a particular attention to the environmental aspect originating from the physical characteristics of the area in which OASIS stands. Given its nearness to the settlement and extreme ease of access, the natural area in question, part of which is still free from the occupation, can be considered pertinent to the transformation project. Moreover, the inhabitants of OASIS have always had a special relationship with the river and the waterfall, which, according to the stories of the first occupants, was still an uncontaminated place up to the early 1990s. The waterfall, which is reachable by a long trail that leads up from the river and winds through dense, shady vegetation, is easily accessible and crossable thanks to many rocky outcroppings along its upper part on the hilltop. In the valley below, there is a large, deep natural pool, which is accessible from small lateral beaches. The causes of the abandonment of the waterfall were first the pollution of the river, and then, the consequent use of the forest as a perfect hideout for local organised crime. Today, despite all of this, the local community feels that this natural resource, which is still wild and thriving despite being subject to numerous risks, belongs to them. The area runs the risk of being slowly deforested and occupied by informal urbanisation causing it to lose any possibility of being conserved as an environmental protection area[10].

8 This practice is very common in informal occupation areas, as it is a type of emergency access to basic services (it also happens with the electricity supply) that then becomes the norm.

9 Over the years, the inhabitants have been able to obtain sufficient funding for the materials needed for several of these stairways through the support of several city councillors. While this improved the physical conditions of the district, it was the result of a client-type attitude, which does not encourage the community to mobilise for recognition and affirmation of their rights.

10 Brazilian federal legislation provides for the institution of Permanent Protection Areas, which are defined in the *Código Florestal* (Law 4.771 of September 1965) as "Forests and other forms of natural vegetation located along watercourses up to their highest levels, the width of which will be a minimum of thirty metres and a maximum of

Figure 3 | The OASIS project

There is every possibility of creating an ecological trail that crosses the vegetation and leads up to the waterfall, which could be used for environmental education. To this end, it would be advantageous to build a real centre that can host educational activities regarding the environment that can be used by all the schools of Cajazeiras. The design of the new buildings would be inspired by the principles of sustainability and bio-architecture: from the use of local materials and traditional building techniques, to the use of techniques for saving energy and treating sewer waters. It could be a real ecological centre that can serve as an example of good practices in environmental management and in the defence of the area's resources.

six hundred metres depending on the width of the rivers."

Development of training activities for women and children and support for the creation of work cooperatives

From a social point of view, the greatest difficulties are faced by youth and women. The former are rarely able to continue their studies or have other opportunities to develop their abilities, while the latter bear the weight of poverty while caring for their children, in most cases as single mothers, and, therefore, have great difficulty entering the labour market. The economic aspect is also fundamental if there is to be an effective intervention in the development and improvement of the living conditions of this community. Two reasonable solutions for the district would be to design training for the women and children and to encourage the organisation of small production cooperatives through microcredit programmes.

Success and failure

The transformation project created by the youth of OASIS became the basis for the creation of an international cooperation project that had requested and obtained funding from the EuropeAid programme of the European Union. The project was sent to a call for proposals for the development of competences of local authorities through multi-country collaboration[11] and aimed to contribute to the achievement of the Millennium Development goals regarding the improvement of living conditions of the poor in cities (MDG 7 – Target 7D). For this reason, an international network was created, which involved local administrations, universities and Brazilian, Italian and Senegalese NGOs, to create effective methodologies and competences for the integrated requalification of the peripheries with particular attention to environmental issues. The recognition by the European Union of the value of a bottom-up approach in the construction of innovative policies was a success for the research and confirmed the importance of involving inhabitants in the creation of methodologies that both permit effective and widely shared urban transformation projects and contribute to building social inclusion. Even though the EU demonstrated interest in the project by bestowing funding grants[12], the local government, which was the official project leader, did not keep its commitment to the other partners and to the community directly involved in the proposed works. In fact, the director of the institute who should have coordinated the project decided unilaterally, and without sharing their choice or reasons, to refuse the funding. The failure of this experience offers an opportunity to reflect on the importance of political will in overcoming the complex challenge of fighting urban exclusion. Local administrations must move away from their focus on political power and elections and begin acting effectively for the good of society in order to find sustainable alternatives and, above all, to valorise and support local talents in their vision of the future, in Brazil as in the rest of the world.

11 Local Authorities in Development - Objective 1: Actions in Partner Countries (multi-country). Reference: EuropeAid/129200/C/ACT/TPS

12 The three-year project entitled "*Fortalecimento das capacidades de Gestão de Políticas de Requalificação Integrada e Saneamento Ambiental Participativo: Ações Piloto no Brasil e Senegal*" obtained 1.5 million euros in funding from the EU in 2010. The project coordinator was the INGA - *Instituto de Gestão das Águas e Clima* [Institute of Water and Climate Management] - of the Government of the State of Bahia.

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