

Towards an Inclusive Approach for Climate Change Adaptation Strategies: The Case of the Plan 4C in the City of Cartagena de Indias.

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Abstract

The formulation of strategies and policies to adapt to climate change are becoming a norm in both developed and developing urban areas around the world. The city of Cartagena, Colombia has recently identified its vulnerabilities to tackle climate change events framed in the Plan 4C, in order to formulate guidelines, to improve its competitiveness and adaptation to climate change in a city that is emerging as an international touristic centre and a national economic hub. However, much has been documented about the social and environmental realities of the city which contrasts with its economic outlook and image. This article aims to analyze such reality by taking into account social, economic and ecological factors based on documented data of the city. The analysis demonstrates that several urban zones require urgent sustainable intervention based on the context and by that, this article attempts to argue that the use of an integral and inclusive approach plays a critical role in this specific complex social, economic and environmental context if the strategies and plans of the city to adapt to climate change are to be met.

Keywords: Climate Change, Cartagena, Resilience, Social Exclusion, adaptation strategies, Inclusiveness, CBA

1. Introduction

Climate change has multiplier effects and impacts in both the global and the local level; based on this, it is possible to affirm that not all human settlements have the same resilience level to tackle their climate impacts neither strategies by which communities became resilient are clear (Leichenko, 2011). Climate change thus implies a complex phenomenon which source can tend to make difficult policy-making and a problem-solving due to four characteristics: it is global, it is in the long-term –because of the effects–, it is irreversible and it is uncertain (Wagner and Weitzman, 2015).

The global-local nexus and its complexity can be more pervasive if private, economic and political interest converge; however, when the solutions, at least in adaptation policy way, are addressed at the local level the differences between cases can be significant.

Because of that context, at the local level policies have emerged diverse areas of action related to the urban climate change adaptation, where stakeholders in public and private sectors along, aim to build comprehensive strategies within the resilience framework (Leichenko, 2011). Accordingly, it is key to emphasize resilience's concept from a transforming approach, where cities must be understood as living, dynamic and complex ecosystems (Doxiadis, 1970).

However, a comprehensive strategy is contested given such complexity as cities lie at the core of the economic dynamic of production and consumption leading to urban

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expansion and the emergence of issues such as inequality, environmental degradation, pollution, mobility, security thus challenging the capacity of cities to tackle climate change, especially in developing countries.

In that regard, a growing deal of studies examine the implications of unequal distribution of projected climate impacts taking into account equity and justice aspects for different structural and institutional capabilities when adapting to such impacts (Anguelovsky and Roberts, 2011).

The case of Cartagena, Colombia sheds light on how urban settlements face climate challenges in a complex context. The city was the first one in the country to elaborate the Climate Change Adaptation Plan called Plan 4C (2014), by identifying vulnerabilities and planning for adaptation based on vulnerability evaluations and social cost-benefit analyses of the indicators. In the Plan 4C the private and public sectors influence its strategies formulation based on their particular interests and that is particularly problematic as some stakeholders may be selectively included or excluded, given the difficulties when defining ‘community’ (Few et al., 2007 from Archer, 348).

The relevance of addressing urban vulnerability and climate change cannot be underestimated given the complexity of the system and its growing risks (Beck, 2010). In fact, the agenda is pushing forward for adaptation as means to face such a threat and to secure the cities socio-economic development when climate events such as flooding hit the economic benefits in a city that has experienced an economic boost in recent years driven by four main economic sectors: industrial, port, tourism and construction (Ayala and Meisel, 2017: 14).

In spite of Cartagena’s positive economic outlook, the economic gaps and the unequal social conditions found in recent studies and surveys, demonstrate how complex is the task to formulate integrative and inclusive urban policies in a city with a high percentage of its population living in informal settlements, lacking infrastructure, basic services, and insecure housing, increases the exposure to the impacts of climate change.

The formulation of strategic adaptation is especially critical for cities in the global South due to their disproportionate exposure to impacts, lower capacity to respond given their institutional weaknesses, relative concentration of low-income groups, fragmented governance arenas (Ayers and Dodman, 2010; Bicknell, Dodman, and Satterthwaite, 2009), alongside structural constraints to integrating adaptation into different urban agendas, bridging deficits in finance, staffing capacity, information, and local leadership (Carmin et al., 2013).

That opens a new challenge to infrastructure planning, emergency management, housing, and urban services are ever more evident in the context of increasing climatic uncertainty, leading the way to reshape socio-institutional relations (Archer et al, 2014: 350). However, local government policies are usually framed within hegemonic views of development, implying that strategic adaptation actions are often aligned according to a particular sectoral vision (Anguelovski and Carmin, 2011; Carmin, Dodman, and Chu, 2013). In that way, Cartagena is not an exception when applying top-down approaches which usually make “prospects of its socioeconomic and spatial restructuring prone to the creation of powerful regimes and interest groups that prevent cities from effectively accounting for collective wellbeing” (Brenner and Theodore, 2002: Chu et al, 379) integrating local-level actors in the process.

This paper aims to argue that the formulation of adaptation strategies in the case of Cartagena, need to adopt a comprehensive vision of resilience given the economic and social impacts of climate hazards. In order to achieve it, the role played by the private and public sector must be integrative and inclusive with the affected community based on a context-based and community-based approach that underpins long-standing capacity development, strong project implementation, and further sustainability of the climate adaptation strategies. The main objective is therefore, to determine the importance of the inclusive component of resilient to reduce contestations when formulating climate adaptation strategies for specific cities.

2. World Cities' Approaches to Climate Adaptation

As urban areas attempt to tackle climate change related events, public and private stakeholders are increasingly formulating local strategies towards sustainable ways to achieve resilience. However, given the multidimensional traits of climate change, the local climate impacts are sensitive to the context-specific nature of risks and vulnerabilities (Bicknell, Dodman, and Sattertwate, 2009 from Chu, 2015:2). Mainstreaming paradigms and one-size-fits-for-all approaches are increasingly contested in urban adaptation planning and the differentiated contexts of cities around the world, several studies show different ways to address this issue in relation to resilience and vulnerability in urban areas.

The first case is presented critically assesses the cities of Quito (Ecuador) and Surat (India), having both long histories in planning adaptation, policy making and implementation engagement of civil society, and addressing the question about the implications of those approaches in furthering equitable, just and inclusive adaptation outcomes. The study reveals that Quito relies on a broadly inclusive strategies while Surat builds targeted stakeholder partnerships to legitimize urban adaptation objectives and to institutionalize planning and policy making processes. In Quito's case, the approach is infused with a strong culture of grassroots representation and participation that values public engagement in local decision making, there is also a high environmental consciousness both in educated segments and marginalized communities in Quito, and the municipality has emphasized addressing spatial and social vulnerabilities (Chu, Anguelovski and Carmin:13)

The city of Surat's approach focuses on building targeted partnerships between key government, private and civil society actors to institutionalize robust decision-making structures and increase means to directly engage with local community and international actors. The article confirms that more inclusive planning process lead to greater recognition of equity and justice criteria, which are particularly important for the urban poor" (Chu et al, 2015).

On a different paper, Chu, Anguelovsky and Roberts examine Durban's plans to integrate adaptation into strategic ecological infrastructure, Indore's targeted approach to bring climate resilience into community development projects, and Medellin's strategic actions to reduce climate risks through spatial planning and greening projects. They argue that strategic adaptation actions can promote integration with urban projects, particularly those around land use, water and sanitation, and ecosystem services.

However, although strategic plans can promote leadership, resource support, and agenda awareness, the degree to which they trigger more equitable political economic relationships and catalyse more inclusive outcomes remains uncertain.

Another study explores the opportunities, benefits, and challenges to mainstreaming the Community-Based Approach (CBA) into urban climate governance, ‘in which public, private, and civil society actors and institutions articulate climate goals, exercise influence and authority, and manage urban climate planning and implementation processes’ (Anguelovski and Carmin, 2011:169).

The cases consider how urban communities can and have mobilized to pursue adaptation strategies, and how local governments and other actors have incorporated these experiences, priorities, and capacities (Archer et al, 2014:346) strategies of the urban poor in Korail slum in Dhaka (Bangladesh) to demonstrate that these strategies can be both preventative and impact-minimizing, but highlight the need to integrate local knowledge in pro-poor adaptation planning, while at the same time promoting democratic and accountable local governance structures to raise awareness of risks and ensure their integration into land use plans (Archer et al, 2014:347).

In the case of Indonesia, the city-level adaptation approaches demonstrate an opportunity to shape governance at different scales, by scaling up multi-stakeholder approaches to urban climate change planning from the cities of Bandar Lampung and Semarang, which developed through an inclusive, multi-stakeholder process building on vulnerability assessments (Archer et al, 2014: 350).

Moreover, conflicting planning priorities, for instance, pose constraints or opportunities with targeted adaptation actions in cities. Chu, Anguelovsky and Robert’s study (2016) raises the question, how strategic climate adaptation objectives are being treated into urban development? Which problematizes how adaptation interventions are “framed, implemented, financed and politically sustained” (Chu et al, 2015:15). The paper assess strategic climate adaptation actions in the cities of Durban (South Africa), Indore (India), and Medellin (Colombia), and examine different approaches to integrating emerging adaptation priorities into urban plans, programmes, or governance arrangements.

It compares these cases and highlight sources of planning tension as well as the prospects of strategic adaptation actions for facilitating inclusive development. When advanced with a focus on procedural alignment with development goals, we argue that strategic adaptation actions can promote integration with urban projects.

Furthermore, it is important to bring up one more case where the inclusiveness plays a vital role in the adaptation to climate change. The first case is the city of Rotterdam (the Netherlands), which has the ‘*Rotterdam Climate Change Adaptation Strategy*’ (RAS) that was approved in October 2013 and is one of the results of the ‘Rotterdam climate proof programme’. This happened after a detailed programming process that included vulnerability evaluations, social cost-benefit analyses of the 40 adaptations measures and the stakeholder’s participation.

The main goal is that “by 2025 Rotterdam will be well-prepared for the consequences of climate change, while at the same time reaping maximum benefits. If the situation is tackled effectively, adapting the city to climate change will also make it more attractive and economically and socially stronger.” (Rotterdam Climate Initiative, 2013:11). Needless to say, the role that communities play in this process, as it allows “to

implement their own initiatives, frequently in their won street or neighbourhood. This active participation not only improves relationships between people but also encourages mutual involvement with the environment.” (Rotterdam Climate Initiative, 2013:29).

In the Inclusive City from the German Federal Ministry for Economic Cooperation and Development and the Cities Alliance at the World Urban Forum 3. 21 June 2006. Has paved the way for a new drive forward regarding the international urban agenda in a world of rapidly growing cities. Just as the Habitat I Conference in Vancouver in 1976 placed local community concerns on the international agenda and highlighted the critical importance of inclusiveness.

The examples mentioned above are illustrative cases of the *inclusive city multi-dimensional approach*, given that it “moves beyond brick-and mortar interventions and includes all three dimension related to inclusive interventions –spatial, social and economic, in a single framework” (Sic.) (World Bank, 2015-a: 11).

The spatial dimension means access to land, housing and infrastructure, the social dimension refers to participation and the rights and the economic dimension mentions opportunities for all. It is mandatory to emphasise the existed interlinked in the three dimensions, they are “tightly intertwined, and tent to reinforce each other. On a negative path, these factors interact to trap people into poverty and marginalization. Working in the opposite direction, they can lift people out of exclusion and improve lives.” (World Bank-a, 2015:12)

3. Cartagena de Indias and climate change

Geography plays a key role when identifying vulnerabilities to climate change, and the geographical traits of Cartagena include sandy beaches, mangrove swamps, a wetland complex Marshes and coastal lagoons, dry forest relics, seagrass and coral reefs, ranging from continental to island areas (Plan 4C, 2014:31).

Cartagena as a tropical and coastal city, foresees heavy precipitation events thus suffering from flooding that disrupt public water supply and sewer systems, and adverse effects on quality of surface and groundwater, physical assets and damaging infrastructure: houses, public facilities, utilities (World Bank, 2011). This is especially problematic if the city concentrates most of the social and institutional groups and infrastructure associated with the region's industrial activities, ports, commerce and tourism ranking the city among the most important cities in Colombia.

The climate adaptation plan 4C states that by 2040 the areas surrounding Ciénaga de La Virgen, the tourist areas of the city (Bocagrande, Castillogrande, the Laguito, Historic Center) and the port and industrial area would be most affected by the floods or by rising sea level in Cartagena (Plan 4C, 2014).

Under such conditions, being prepared and adapted is an imperative for powerful private and public sectors in the city and it is seen as cost-efficient compared to costly and poorly planned emergency measures (O'Brien et al, 2006). For this reason, the Plan 4C for Cartagena is a roadmap for archiving a better city in resilient to be prepared and adapted to future climatic conditions based in competitive terms. This plan is also “a framework of planning and action to respond to development compatible with the climate, so the city understand that the future climate and prepare to face it may be more

competitive.” (Plan 4C, 2014).

Hence the overriding objective is to make Cartagena a competitive and climate friendly city according by means of three main axes which are concretized in strategies that materialize in programs and projects, result of the work with local actors. In this vein, the first one is “citizens and climate adaptation’ which strategy focuses on neighbourhoods adapted to climate change. The second one is ‘ecological restoration: water and life’, where the adaptation lies in the ecosystems. Finally, the third axis is the ‘adaptation integrated to the economic development of the city’, which is focused on three strategies: (i.) protection of historical heritage; (ii.) ports and industry compatible with the climate; and, (iii.) tourism sector committed to climate change” (Plan 4C, 2014:50)

The plan 4C addresses the issue of unplanned urban growth, where many vulnerable communities in Cartagena have settled in high-risk coastal areas, so it proposes that “these unplanned neighbourhoods must adapt their homes, equipment and public spaces to the effects of climate change in order to generate climate-friendly urban prosperity”. One of the main problem is that there are areas not only with high degrees of vulnerability, but with high population density as well, one example is the area surrounding ‘Ciénaga de la Virgen’ (Plan 4C, 2014:28).

In regard of the above, despite Cartagena having a Territorial Planning Plan (known in Spanish as POT), as a local planning instruments, it has not been updated since 2001 and it is currently undergoing a structural review process. At this point, it is necessary to define that the climatic variable should be the basis of the future POT to establish mitigation and adaptation conditions for the future projects in neighbourhoods under risks (Plan 4C, 2014:35).

The link between geographical areas and lower social conditions are illustrative of the climate impacts in Cartagena has seen an important increase in the frequency of floods in its neighbourhoods and roads; also leading to long periods of rationing of water and electricity, general deterioration in the city's infrastructure, increase in vector-borne diseases such as dengue, heat waves that mainly affect the health of the elderly and children, all of which affects tourism that seeks mainly to enjoy the sun and the beach.

The so-called "other Cartagena" for instance, is located in areas of high risk where the climate is especially important. According to indicators and socio-economic and environmental data projections, Cartagena will face the sea level increase in the bordering areas of the marsh of the Virgin, the tourist area of the city (Bocagrande, Castillogrande, El Laguito, Historic Center) and the port and industrial zone would be the most affected by the rise of sea level. The most exposed neighbourhoods are Olaya Herrera (39,649 inhabitants), Pozón (2,122), Manga (6,052), Bocagrande (13,296), Crespo (14,710) and Castillogrande (6,759). (Plan 4C, 2014:39)

Likewise, la Boquilla is considered one of the zones with high levels of vulnerability due to the scarce coverage of public services in some areas of the neighborhoods, and by the type of housing; la Ciénaga of the Virgen and El Pozón, which are exposed to floods, as much by the rise of the level of the sea as by the effect of the rains. In addition, they present a high socio-economic sensitivity due to their poverty conditions; whilst Bocagrande, Manga, the Historical Center and the Industrial Zone, include neighborhoods with good coverage of public services and high income level (Plan 4C, 2014:42)

4. Climate Risks and Social Exclusion in Cartagena

An important characteristic of Cartagena is the high vulnerability of the population to environmental risks living in coastal and swamp areas to environmental risks (Zamora, et al., 2014: 27). The city must prepare itself to face a phenomenon like climate change, considering the potential effects on the social, economic and environmental dimensions. Such condition it is not given for granted when 54% of the lower income population feel that they are at risk of flooding due to rain or overflow of drainage canals surrounding poor neighbourhoods of Ciénaga de la Virgen, while in the upper income areas this percentage reaches barely 9% (Ayala and Meisel, p. 28).

Vulnerabilities based on the social-economic divide is seen in as a pattern urbanization in South America, “high-rise condominiums for the rich have sprouted along the waterfront while poor settlements made up of squalid, informal dwellings have grown in areas prone to flooding” (Galarza, Marron Institute). Subsequently, the insecurity issue it is observed when violence has increased in recent years, since the homicide rate per 100,000 inhabitants increased from 18.5 to 27.3 between 2008 and 2015 (4C Plan). If this geographical pattern remains, the more vulnerable neighbourhoods will be, so that the quality of life of the population of scarce resources would worsen.

In economic terms, the benefits income generation in Cartagena have not been reflected in a significant improvement in relative poverty indicators. In 2015 Cartagena was the second city with the highest proportion of poor people among the 13 main Colombian cities and their metropolitan areas, with an average of 15% and 26.2% of its inhabitants living in poverty. The inequality in the distribution of the income of the homes of Cartagena is below the average of the main cities (Ayala and Meisel, 2017: 16-17)

There is a concentration of poverty in the neighbourhoods surrounding the Pie de la Popa, the Ciénaga de la Virgen and some neighbourhoods in the southwest of the city close to the industrial zone, which are characterized by a population that is recognized as an Afro-descendant population and has lower educational levels (Pérez and Salazar, 2007; Aguilera and Meisel, 2009). The cities accounts with the highest proportion of the population below the poverty and homelessness threshold. The city has not established as a priority the elimination of extreme poverty nor the allocation of its own resources to the most vulnerable areas (Ayala and Meisel, 2017)

Regarding the specific case of the Ciénaga de la Virgen, the pollution issues is due to several reasons: 1) it was for many years the receiving place of sewage in the city, 2) it has been invaded with illegal landfills for housing construction, and 3) the inadequate disposal of waste by the population living in the surrounding area (Corporación Autónoma Regional del Canal del Dique — Cardique, y Conservación Internacional Colombia, 2004). This area has been directly affected by the disorderly growth of the urban area as housing has been built in areas at risk of flooding, where the poorest population lives, known as subnormal neighbourhoods, due to poorly or non-existent planning making difficult to provide basic services such as drinking water and basic sanitation, construction of schools and hospitals (Ayala and Meisel, 2017).

Cartagena falls short in terms of coverage of basic public services, such as potable water and sewerage. The city is below the average of the 13 main cities in three of the four public services. The estimation of socioeconomic vulnerability in the different districts of

Cartagena, keeps reflecting that the greatest weakness is found once again in the neighborhoods surrounding the Ciénaga de la Virgen. In these places, much of the population is low-income, mostly Afro-descendant, with low educational level and unfavorable living conditions (Pérez and Salazar, 2007).

Other studies have found significant differences in the standard of living of those who identify themselves as belonging to an ethnic minority in Cartagena compared to the rest of the population, for example, in the indicator (“Which showed that they had not eaten any of the three meals on at least one day of the week prior to the census due to lack of money”) is precisely concentrated in the surroundings Of the Ciénaga de la Virgen and in the neighborhoods of the southwest zone, where the greater proportion of the inhabitants identify themselves as Afro. These neighbourhoods are also home to the highest number of homicides in the city (Ayala and Meisel, 2017:24).

In spite that the plan has an estimated budget of \$ 147,125 million (at 2014 prices), only \$ 7,000 million (4.75%) would be allocated to areas with lower socio-economic vulnerability such as the Ciénaga de la Virgen areas and the south east. There will be two projects, one for the island area and another for a planned neighborhood surrounding the Ciénaga de la Virgen. However, for the hotel industry and neighborhoods in the northern area, it is planned to invest close to COP 49,520 million (33.6%), more than seven times the amount allocated to the most vulnerable areas. In the historic center, the investments established in the plan amounted to COP \$ 41.18 billion (28%), justified by the historical and economic importance of this sector. In the industrial zone the investments will be of COP \$ 37,250 million (25,3%). The highest investment of resources is not targeted at areas of greatest socio-economic vulnerability, in fact, the greatest amount of resources will be invested in protecting the hotel zone of the neighborhoods from Marbella to El Laguito, where it is clear that the population does not have the highest socio-economic vulnerability indicators (Ayala and Meisel, 2017)

A recent citizen perception survey “Cartagena Cómo Vamos”¹ further corroborates the pervasive social exclusion of the city. The study by prioritize some subjects that are key to the approach of inclusivity. Firstly, the survey shows that 30% people in the city consider themselves poor is high compared to the other cities of the Como Vamos Network in Colombia; while the insecurity perception in their neighbourhood is 32% and in the city in general is 39%. On the other hand, the levels of satisfaction with the state of the roads and the satisfaction with public space, parks and green areas are only 30% and 29% respectively (Cartagena Cómo Vamos, 2016).

Furthermore, 50% consider floods as the natural disaster they are most exposed in Cartagena, are conscious that the factors that generate climate change are air pollution by use of vehicles, water pollution, inadequate management of solid waste, deforestation, burning of trees. Nevertheless, 56% do not recycle at all (Cartagena Cómo Vamos, 2016). In terms of participation in organizations and other networks over the last year, the 50% of respondents expressed that they have not participated in any religious organizations that carry out community actions; groups, clubs or sports or recreational associations, communal action boards or groups of neighbours (Ibid).

5. Urban Resilience as a Conceptual Approach

The IPCC (2007) defines resilience as “the ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity of self-organization, and the capacity to adapt to stress and change”. This capacity is achieved through a multidimensional fashion, in the political, social (including social capital) and economic level (including financial) considering vulnerability and risk factors (Patel and Gutman, 2016:1).

Consequently, institutions such as the “Rockefeller Foundation and Arup Group’s in “City Resilience Framework” (Rockefeller and Arup 2014, Appendix 2); the OECD’s “Guidelines for Resilient Systems Analysis” (OECD 2014); and, USAID’s “Framework for Analyzing Resilience in Fragile and Conflict- Affected Situations” (Bujones et al. 2013, Appendix 3) consider those dimensions. Other than that, there is an ecological dimension recognized as “Environmental” by USAID (Bujones et al. 2013), “Environment” by Rockefeller and Arup (2014), and “Natural” resilience by OECD (2014) (Patel and Gutman, 2016:6).¹

The urban dimension of resilience leads to the frame of the interacting agents systems of physical infrastructure and ecosystems; and formal and informal institutions (Archer, 347). Davis further describes urban resilience in fragile cities as “those acts intended to restore or create effectively functioning community-level activities, institutions, and spaces in which the perpetrators of violence are marginalized and perhaps even eliminated” (Davis, 2012).

This portrays local authorities and their capacity to exert influence may be particularly limited in fragile environments, therefore to policy recommendations to bolster resilience in urban environments, they may assume state capacities, authority, legitimacy that regularly do not exist in fragile cities (Nogueira, 2017; De Boer, 2015). Accordingly, agents of change or action are compelled to foster resilience and aims to strengthen those community level and social institutions that can compensate for reduced state capacities leading to the cooperative interaction between community/society and government and the strength of these relationships are key to resilience aiming to reduce risks and vulnerabilities in fragile cities. (Patel and Gutman, 2016:6)

Additional conceptualizations of urban resilience can also be understood as means “to the ability of an urban system-and all its constituent socio-ecological and socio-technical networks across temporal and spatial scales- to maintain or rapidly return to desired functions in the face of a disturbance, to adapt to change, and to quickly transform systems that limit current or future adaptative capacity.” (Meerow, Newell, and Stults, 2016:39).

There are two common denominators of the previous definitions. First of all, it is the importance of built capacity through local people and Institutions. And the capacity must be understood in this context as the resources and the individual and collective skills than can be used to anticipate, to answer or to recover and to adapt to any disturbance. In that sense, the *CAPFLO: Local resilience capacity building for flood mitigation*’ research

¹ The survey was conducted by Cartagena Cómo Vamos, within the Colombian network “Red de Ciudades Como vamos” (RCCCV) in order to generate reliable, impartial and comparable information on issues of city, quality of life and citizen participation.

project funded by the European Commission's Humanitarian Aid and Civil Protection department (ECHO) argues that "this capacity has to be tackled through: (i.) historical and technical knowledge; (ii.) motivation (for instance, as more knowledge people have as more motivated they will be to know what they have to do); (iii.) networks, which means levels of government, performance and autonomy; (iv.) financing, like insurances or funding innovation; and, (v.) participation in order to engaged the people". (Humanitarian Aid and Civil Protection, 2017)

The second one is associated to the qualities and Norris et al. (2008) bring up three key aspects about the resilience: (i.) it has to be robust; (ii.) it has to be redundant; and (iii.) it has to be rapid to mitigate the damaging potential of a given hazard. Now, for the practical purposes of this article, the Rockefeller Foundation and Arup Group (2014) give us the seven qualities to describe resilience in urban environments: reflective, robust, redundant, flexible, resourceful, inclusive, and integrated. Similarly, the World Bank Group's City-Strength Diagnostic Tool (World Bank, 2015-b) uses five qualities to describe resilient cities, including robust, coordinated, inclusive, redundant, and reflective (Patel and Gutman, 2016:7)

Similarly, the Agenda 2030 Sustainable Development Goal (SDGs) frames strategy options aiming "to build the resilience of the poor and those in vulnerable situations, and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters" (United Nations 2015). Goal 11 is specific "to make cities and human settlements inclusive, safe, resilient, and sustainable", and the number 13.1 aims "to strengthen resilience and adaptive capacity to climate-related hazards and natural disasters" (United Nations 2015).

Because of that, it is possible to say that resilience is a core goal for the UN's New Urban Agenda (UN-Habitat, 2016). In this regard, it is possible to analyse that resilience emphasizes the agency of communities in mitigating the damaging potential of natural hazards, resilience emphasizes self-help mechanisms and local capacities. SDGs are clearly illustrative and reflects on specific context which suggests to be effective at ensuring local capacity both to develop and use the indicator.

The inclusive and integrated components are functional for resilience in order to address vulnerability in specific context towards the climate adaptation strategies (De Boer, 2015) in those areas aiming to curb complexities and limitations of such framework. If urban resilience is to enter the discourse at the city scale, the capacity of city residents as well as officials to understand the implications of climate change and how to adapt to it, needs to be strengthened (Archer et al, 2014:352) by taking into account context specific factors (Patel and Gutman, 2016:9).

6. Inclusive and Community-Based Approaches to Adaptation

The improvement of urban resilience has inclusiveness as a core component, especially in highly urbanized areas with complex issues such as poverty, violence or climate vulnerabilities thus critical towards meeting the Sustainable Development Goals (Griggs et al, 2013). Previous studies also underscore the fact that there should be paid attention to those contextual factors, therefore adaptation actions need to be context-specific.

This is especially relevant in unequal cities of developing countries where large sections of urban populations are often poor, amidst other sections of more affluent and even rich people. This condition is also exacerbated by the influx of (mostly) very poor and marginal groups that are in need of jobs, shelter and basic services such as infrastructure, education and health care (Wilson, 2011). These issues in contemporary urban development strategies and policies need to be directed towards inclusion of the socially and economically weaker groups who need to benefit most from such interventions and other public investments.

This pervasive social exclusion conditions can take different forms, such as lack of access to power, knowledge, services, facilities, choice and opportunity (Long et al., 2002), therefore, is critical to highlight the role played by housing, access public services and health, and education to find the ability to include them in the agendas and identify collective preferences required for skilful coordination in cities dominated by fragmented interests and power (Chu et al, 379).

In such purpose, strategy must focus on neighbourhoods, the communities in vulnerable neighbourhoods to tackle climate events to adapt them. To accomplishing this, communities not only have to lead their own process of adaptation, but also, they will be able to mould comprehensive strategies and contribute to the well-being of its inhabitants. In that order of ideas, the diversity of actors becomes a major determinant of increased legitimacy and sustainability of adaptation processes (Chu et al, 2015:3)

The collectively generated criteria is also key to outline financial projections, to find synergies with other environmental and development projects with the potential to produce more information, political will, and more benefits to vulnerable peoples and reinforce institutional capacities (Chu et al, 2015:8), that ultimately means that the process contents legitimacy and that vulnerable citizens appropriate of the policy.

An emerging approach related the aforementioned issues is the inclusive city, which "values all people and their needs equally. It is one in which all residents—including the most marginalized of poor workers—have a representative voice in governance, planning, and budgeting processes, and have access to sustainable livelihoods, legal housing and affordable basic services such as water/sanitation and an electricity supply" (Douglas). Inclusive cities are thus closely linked to actions that can guarantee social justice and equity within cities (Balbo et al), and can be more relevant in unequal and exclusion contexts, given that its Indicators focuses in social inclusion approach to address resilience, in order to reduce vulnerability in communities prone to climate disasters.

For a comprehensive understanding of resilience in ways to enhance capacity-building in those communities, the Community-Based Adaptation (CBA) constitutes and key option, as integrates governance approaches and tools for participatory planning (Archer et al, 2014:345) including community groups, through inclusion of community voices in defining the problem and finding solutions. CBA in a broader definition "refers to the participatory identification and implementation of community-based development activities that strengthen the capacity of local people to adapt to climate change, and building on communities' expressed needs and perceptions to address local development concerns which underlie vulnerability" (Ayers and Forsyth, 2009; Reid et al., 2009). This adaptation approach presents an opportunity to address the social, economic, and

political drivers of vulnerability as part of broader development processes'', therefore in a multidimensional way (Archer et al, 2014:346).

Addressing and formulating climate change adaptation poses a challenge if aims to be comprehensive and cost-efficient and equitable results, then it requires bridging public and private interests, local and extra-local jurisdictions, and short versus long-term development timeframes (Chu et al, 379), those based on the physical and socioeconomic structures t considering how to improve the community's absorptive or adaptive capacities (Patel and Gutman, 2016).

7. Analysis

The cross-cutting nature of climate change as a multidimensional approach by the myriad of its impacts, should be considered for a deeper analysis if climate adaptation strategies are to be formulated. Based on previous papers that analysed context of cities in developing countries, standard policies and strategies formulated by international organizations, NGOs and other governance institutions tend to be problematic. Therefore, it is key to take into account the relevance to include the people living in those communities and its contextual factors. That settles the empirical validation to move towards an inclusive approach, highlighting key aspects such as citizenship participation thus taking a bottom-up approach for a truly inclusive and a community-based approach for adaptation.

Under that perspective, the CBA implies a more realistic view, and at the same time, it helps to re-created and re-constituted inclusiveness process through dynamic, interactive and social networking with the local people, whose knowledge is one of the most important aspects to cope with the climate change; and it will become even more important when is local or traditional knowledge because its operational, holistic (it is integrated in social, cultural and moral dimensions), purposiveness and reflects capability and competence of local community. There is no denying that these elements are essential in the development planning, and consistently in adaptation police where the objective must be to address local needs and reduce vulnerability to the climate change consequences. In the social and ecological systems in tackling environmental issues, we are all part of the problem, we are all part of the solution.

The 4C plan in Cartagena depicts the strategies falling short in this bottom-up approach, given the formulation process being concentrated in some powerful stakeholders reflected on the intertwined interests of the private and public sectors who are already partaking in the city's planning adaptation process, thus undermining urban poor's representations in future programs and projects. Proof of that is that despite the formulation of the Plan 4C addresses serious structural social, environmental and economic issues of the city, the participation and the inputs of affected communities are not taken in a broader perspective to strengthen the plan in long term.

By sidestepping the most vulnerable inhabitants of those neighbourhoods in formulation process, they will become in merely recipients of development if there is an actual plan, rather than participants whose inputs are key to a framed, contextual-based and sustainable strategic adaptation plan. In that regard, this paper has highlighted the potential of collective approaches that might seem to pose a challenge underlying

political and social structures, given that the economic approach and politics work within the established power relations, which leads to lower levels of flexibility given the influence exerted by powerful stakeholders and even external strategies, and this can be the case in Cartagena.

There is well-known that urban projects are always conditioned by the economic and political context. The aforementioned reflects the actual voids of the 4C plan might present in the long run, especially if competitiveness is their main focus on areas to intervene are coastal tourist and infrastructure-affected areas, and not on a broader spatial inclusion of the urban system of the city. That is also problematic when designing a budget for the plan as is unclear the finances and the objectives to intervene in specific vulnerable areas such as in the south east and the surrounding areas of Ciénaga de la Virgen.

In that order of ideas, if Cartagena aims to become a sustainable city it is imperative to overcome social gaps across urban planning; in other words, to achieve a real sustainability depends on the social justice and solidarity aspects. That being said, becomes an opportunity when mitigation and adaptation measures are being used as a way of re-distributing resources in cities, given the unbalanced budget estimations of the 4C plan. For example, people who might not previously were able to afford energy or may not have had access to water, might have the chance to be included in the projects that will build resilience under adaptations plans to face climate hazards.

In this sense, decision-makers have to find a way where all the vested interests that are playing a critical role can be channelled to promote inclusive development and thereby inclusive cities. In the Colombian case, as example, there is national legislation (Constitution and the Land Management Law -388/1997-) that provide legal framework for urban development “with significant amounts of power and instruments given to local governments to regulate land use and development through a master plans linked to capital investment programs.” (World Bank-a, 2015:15).

Despite this, Cartagena seems to prioritize on the 4C plan, interventions in the tourist development, the industrial zones, Ports and in the upper class residential areas, thus turning its back to the marginalization and vulnerable communities. It cannot be denied that the imbalance in financing is evident, thus undermining the principles of equity to face the challenges and complexities that contribute to deepen the problem without investing in the most vulnerable areas of the Ciénaga de la Virgen and without addressing vulnerability from an inclusive approach. In other words, there is a reinforcing of the exclusion factors presented by the city. Hence, because of this, the Plan 4C can be reformulated and turn it into a good opportunity to change those inequalities.

There is not mere chance when Archer argues that: “While inclusive deliberative approaches to urban climate governance are desirable, in practice their feasibility is constrained by capacity gaps, power relations, and politics, which may limit the transformative potential of such an approach in an urban context (Archer, 2014, 348).

Indeed, according to him “existing institutional structures may shape or prevent inclusive approaches or may be constrained by the lack of appropriate legal mandates to enable action” (Ibid, 353). And in this case, even though there are legal instruments it is in the practice or in the urban settlement where that instruments are becoming blurred. Why?

Perhaps because many strategic interventions are unable to further the overall equity and inclusiveness of adaptation actions vis-à-vis existing development interests (Shi et al., 2016; Sovacool et al, 2015; Chu et al, 2015).

8. Conclusions

Climate change in Cartagena –as in the rest of vulnerable cities– acts on different scales; and its impacts poses a threat for citizens in vulnerable areas which ultimately alter a larger socio-ecological system from the local level. By looking at Cartagena, it can be dubbed as urban paradigm of inequality, based on the remaining social and economic structural problems. Clearly, the differences with other cases can be significant and at the same time demonstrates its own complexities and the fragmented local governance based on participative citizenship. Moreover, it shows lessons on how the consequences of the climate events should not be seen from a particular vision of one or two sectors, on the contrary, it should include the work with community actors of the most vulnerable areas, so it averts the possible normalization of exclusionary ways in the formulation process.

By elucidating on the issues above, this paper underscore important to implement a real inclusiveness through CBA, while it is true that the global governance can set goals similarly as the SDGs, and the national level establish policies in order to achieve that, it is also that local governance and the community has to work toward enhancing access to equal opportunities and inclusive development.

Pathways to achieve it therefore is by using the local knowledge through participatory processes in social and environmental policy and planning -or in this case adaptation policy- can be the first step to implement it in Cartagena, because it facilitates a better understanding of all stakeholders, their needs, potentials and constraints. Consequently, it is also necessary to be clear that participation cannot be reduced to an administrative procedure.

Thus, it is key to empower citizens and giving instruments to those that have a higher vulnerability condition. In addition, making governance as commons works helps to improve the community capacity building. Certainly, there are many challenges to make of Cartagena a resilient society, but when the adaptive policies and institutional mechanisms are made with and for the people, the process could be more effective and efficient.

The formulation of the Plan 4C is problematic despite addressing serious structural social, environmental and economic issues of the city; it also states that it was formulated based on local actors but questions regarding on those how participated or even influenced in formulating the plan remain unclear. In this way, decision-makers can make a decision based on a reasonable processes involving, different interests, especially those that are usually marginal; and, according to the point of view of Agrawal and Gibson (1999) the performance of those who make decisions is periodically reviewed by those affected by decisions.

That said, it is necessary to acknowledge that there is no ‘one-size-fits-all’ solution, and in planning activities, it is important to be aware of local priorities. Consequently, it is important to think about alternatives that may reduce possible conflicts between the key

stakeholders that can be present in its development and for that reason, it is imperative to prioritize community needs according to vulnerability levels (location and incomes) in present and future terms.

A synergetic process among stakeholders through CBA should be explored and developed at a higher level in unequal and poor social contexts. The results can lead to a strengthened and more legitimized adaptation strategies in the long term. In that way, questions that remain unclear, arising problematic issues and new ways to look at the adaptation strategies when formulating them, require the exploration in each specific urban context.

Finally, (i.) inclusiveness reduces inequalities and enhances the resilience of the overall system; the more (ii.) resilient the more (iii.) adapted. A threefold condition to develop an urban sustainability.

References

- Agrawal, A., and Gibson, C. C. (1999). Enchantment and Disenchantment: The Role of Community in Natural Resource Conservation. *World Development*, 629-649.
- Archer, D., Almansi, F., DiGregorio, M., Roberts, D., Sharma, D., & Syam, D. (2014). Moving towards inclusive urban adaptation: approaches to integrating community-based adaptation to climate change at city and national scale. *Climate and Development*, 6(4), 345-356.
- Ayala, J., and Meisel, G. (2016). La exclusión en los tiempos del auge: El caso de Cartagena. *Economía y Región*, 10 (2), 7-43.
- Balbo, M, Jordan, R and Simioni D. (2003) La ciudad inclusiva. United Nations Publications.
- Beck, U. (2010). Climate for change, or how to create a green modernity?. *Theory, Culture & Society*, 27(2-3), 254-266.
- Carmin, J., Dodman, D., and Chu, E. (2013). Urban climate adaptation and leadership: From conceptual to practical understanding. OECD regional development working paper No. 2013/26. Paris, France: Organisation for Economic Co-operation and Development.
- Cartagena Cómo Vamos (2016). Resultados de la Encuesta de Percepción Ciudadana 2016. Retrieved from: <http://www.cartagenacomovamos.org/nuevo/wp-content/uploads/2017/02/Versi%C3%B3n-WEB-EPC-2016.pdf>
- Chu, E., Anguelovski, I., and Carmin, J. (2015): Inclusive approaches to urban climate adaptation planning and implementation in the Global South, *Climate Policy*, DOI: 10.1080/14693062.2015.1019822
- Davis, D. (2012). Urban resilience in situations of chronic violence. Final report. Cambridge, MA: United States Agency for International Development and MIT Center for International Studies.
- De Boer, J. (2015). Resilience and the fragile city. *Stability: International Journal of Security and Development*, 4(1).
- Doxiadis, C. A. (1970). Chapter One. The subject - human settlements. In C. A. Doxiadis, *Ekistics. An introduction to the science of human settlements* (pp. 21-42). Atenas.
- Griggs, D., Stafford-Smith, M., Gaffney, O., Rockström, J., Öhman, M. C., Shyamsundar, P., and Noble, I. (2013). Policy: Sustainable development goals for people and planet. *Nature*, 495(7441), 305-307.)
- Humanitarian Aid and Civil Protection. (2017). CAPFLO. Local resilience capacity building for flood mitigation. Retrieved from: <http://capflo.net/wp-content/uploads/2016/06/project-capflo-basics.pdf>
- Leichenko, R. (2011). Climate change and urban resilience. *Current opinion in environmental sustainability*, 3(3), 164-168.
- Long, J., Welsh, M., Bramham, P., Butterfield, J., Hylton, K., and Loyd, E. (2002) *Count Me In: The Dimensions of Social Inclusion through Culture and Sports*. London: Department of Culture, Media and Sport.
- Meerow, S., Newell, J. P., and Stults, M. (2016). Defining urban resilience: A review. *Landscape and Urban Planning*, 38-49.

- Nogueira, J. P. (2017). From failed states to fragile cities: redefining spaces of humanitarian practice. *Third World Quarterly*, 1-17.
- O'Brien, G., O'Keefe, P., Rose, J., & Wisner, B. (2006). Climate change and disaster management. *Disasters*, 30(1), 64-80.
- Patel, N. and Gutman, J. (2016) Report: Is better access key to inclusive cities?. Brookings Institution. Retrieved from: https://www.brookings.edu/wp-content/uploads/2016/10/global_20160104_inclusive-cities.pdf
- Pérez, G. and Salazar, I. (2007). La pobreza en Cartagena: Un análisis por barrios. Documentos de Trabajo sobre Economía Regional del CEER, 94.
- Plan 4C Cartagena de Indias Competitiva y Compatible con el Clima. 2014. Retrieved from: www.invemar.org.co/redcostera1/invemar/docs/12000063_Plan_4C_web.pdf
- Wagner, G., and Weitzman, M. (2015). Shock climático: consecuencias económicas del calentamiento global. Barcelona: Antoni Bosh editor, S.A.
- Wilson, W. J. (2011). When work disappears: The world of the new urban poor. New York: Vintage.
- World Bank. (2011). Guide to Climate Change Adaptation in Cities. Washington: The World Bank Urban Development and Local Government Unit.
- World Bank. (2015-a). Inclusive Cities. Retrieved from: <http://www.worldbank.org/en/topic/urbandevelopment/brief/inclusive-cities>
- World Bank. (2015-b). World Inclusive Cities Approach Paper. Retrieved from: <http://documents.worldbank.org/curated/en/402451468169453117/World-Inclusive-cities-approach-paper>