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Note from the Director

Institutional and governance issues in tackling climate change and natural resources have become more complicated than before, when there existed less information and capacity to address them. In other words, the conventional system, which relies on sovereign states, has begun to face challenges and reveal its limitations, especially in addressing environmental problems while ensuring sustainable growth.

For example, there has been an increased understanding on the importance of cities in curbing GHG emissions, which seem to represent a large portion, possibly 70 percent, of the total GHG emissions of the world. Cities are not necessarily under the full control of their central governments, and they may have the capability for developing and implementing policy measures to control emissions, based on the low emission development scenario. In a way, they could serve a complementary role to the already existing ones that are governed by central governments. In this sense, the first article of this volume well discusses how a decentralized climate change architecture can contribute both to addressing climate change as well as to pursuing a low emission development.

Furthermore, a low carbon development path requires innovation. R&D, and deployment and market developments of new green technologies are all required to realize a low emission development. However, in a situation where conventional energy sources such as coal are still available at a cheaper price, introducing new green technologies to a society can be of a challenge. A study on the Carbon Capture and Storage technology in the U.K. demonstrates such complex issue.

On the other hand, when it comes to the issue of resources, competition for sovereign claims seem to be more apparent, as they are discussed more in the context of sovereign state's resource ownership. Due to the pressure of securing necessary resources combined with developments in new technologies, states have explored more possibilities in exploiting natural resources in those

areas where the exertion of state sovereignty used to be neither apparent nor important. In this sense, it is noteworthy that both cases on the Arctic region and the maritime dispute in Southeast Asia demonstrate a new governance architecture based on soft and cooperative principles that may be a more feasible solution instead of the conventional Westphalian system.

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Climate Change Architecture and Decentralization: The Role of Cities and LEDS

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Abstract

Changing geopolitics, the emergence of new actors in multilateral diplomacy, governance issues, and new alternatives for effectiveness, are the fundamental variables that should be considered for a climate change regime. Therefore, this paper analyses a possible alternative for building a post-2020 climate change regime, which focuses on the significance of the participation of cities in developing countries, as a new actor in climate change governance; through the implementation of Low Emission Development Strategies (LEDS) as the method for addressing climate change mitigation.

In doing so, it explains why developing countries should be incorporated into the climate change regime, and how issues of national and supranational governance in implementing policies could be effectively addressed through decentralization. This demonstrates how the role of cities can be perceived as central for climate change mitigation from national and international perspectives. After that, it explains the method that cities can use for reducing GHG emissions, while maintaining economic growth, through the implementation of LEDS.

Finally, it shows how in the case of China a decentralized model of governance is utilized, where the State gives autonomy to cities to develop their own LEDS and promote their own diplomatic relations.

Keywords: LEDS, climate change, governance, decentralization, paradiplomacy, cities, developing countries, China

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1. Introduction

Due to the deficient results of the UNFCCC framework and the minimum impacts of the Kyoto Protocol to date, new approaches to effectively mitigate climate change are being discussed for the establishment of a post 2020 regime. On the one hand, these approaches contemplate how to include and commit developing countries in the global effort of tackling climate change; and on the other hand show new and different paths, than those included in the UNFCCC that the world could use to develop an effective regime.

Changing geopolitics, the emergence of new actors in multilateral diplomacy, and governance issues, are fundamental variables that shall be considered for a post 2020 regime. The epitome of this is the changing role of the State. The State is no longer the main actor involved in international relations, let alone, in the international regime for climate change. Furthermore, the State has failed to demonstrate that it can mitigate climate change through its own means, due to its inability to implement policies regarding climate change; demonstrating the weakness of the modern nation state in this area. Therefore, any attempt at regime building should incorporate new models of governance, and new actors in multilateral diplomacy, like cities, which not only represent their own interest in international arena, but also have the capacity to implement possible agreements, and effectively implement new methods for addressing climate change that include innovative ways to achieve economic growth with low carbon development.

This paper explains why developing countries should be incorporated into a climate change regime, and how they should address issues of governance for implementing policies effectively, through decentralization at the national and supranational level. Once that is clear, this paper analyses the role of cities as a main actor for climate change mitigation from a national and international perspective; and it explains the methods that cities could use for reducing GHG emissions, while maintaining economic growth, through the implementation of Low Emission Development Strategies (LEDS). Finally, it shows how in the case of China, a decentralized model of governance is utilized; where the State gives autonomy to cities to develop their

own LEDS and promote their own diplomatic relations. This will answer whether the implementation of LEDS in the cities of developing countries is a possible alternative for a post-2020 climate change regime.

2. Background

Driven by the international community since the first assessment of the IPCC ¹⁾report in 1990, and by the UNFCCC since 1992, discussions about how to build an effective international climate regime have been part of the international agenda throughout the last two decades. As a result, the international community agreed on the Kyoto Protocol to provide a tool to address climate change, binding developed countries to reduce GHG emissions through a set of targets, and three market mechanisms²⁾. Due to the minimal results of the first commitment period, which ended in December 2012, the 17th Conference of the Parties (COP 17) at Durban in 2011 decided to extend the Kyoto Protocol to a second commitment period. One year later, at Doha, the COP 18 decided to extend the new commitment period until 2020.

Although the Kyoto Protocol's second commitment period provides the bases for acting in the next eight years, critiques about its effectiveness imply that there is still a lot to do to tackle climate change, and accomplish the goal of reducing GHG emissions. Notwithstanding, there is not yet a constructive solution which creates an effective regime that involves all of the stakeholders for reducing GHG emissions. However, constructive critiques have opened the door for new methodologies to address climate change, which integrate more options and actions for mitigation, and provide an important role for developing countries that are not bound by the Kyoto.

One of those approaches is the low-emission development strategies (LEDS). The term first emerged under the UNFCCC in 2008, and has been mentioned in negotiating

1) The Intergovernmental Panel on Climate Change is the first governmental scientific based organization, created to provide scientific evidence on climate change.

2) The market mechanisms under Kyoto are Clean Development Mechanism, Emissions Trading, and Joint Implementation.

texts of the Copenhagen Accord in 2009, and the Cancun Agreement in 2010³⁾, as an instrument for planning that both developed and developing countries could use to achieve a sustainable low carbon growth, and GHG emissions reduction. Although there is not a consensus on the definition, not even a unique roadmap that details the path for implementation, there are currently some countries developing LEDS as part of their national policies. Some examples are South Korea, the UK, and Mexico. According to the OECD, at least 30 Annex I, and 16 non-Annex I countries have produced either a national climate change strategy or LEDS.⁴⁾

LEDS are occupying an important part of the discussions in the international agenda as an alternative for States to achieve economic growth, climate change mitigation, and sustainable development. However, the issue of governance -understood as the ability of the state to create and ensure the implementation of public policies within its territory- is a significant factor that constrains the effectiveness of national LEDS. In many cases, especially in developing countries, the State lacks the capacity to implement national policies, mainly due to the diversity within the territory, the ignorance of specific local needs, and the incompatibility of national policies with the local context.

Hence, this issue is demanding new perspectives to effectively address LEDS' implementation, which require considering new alternatives that move beyond the state's capabilities. Therefore, parallel to the UNFCCC scheme, which represents the primary global consensus on climate change regime, where national LEDS are being discussed, there are different running initiatives that show how the role of cities in the changing geopolitics landscape is crucial for implementing effective LEDS. Those initiatives, being developed all over the world, highlight the importance of including cities of developing countries in any future climate change architecture.

3) The Copenhagen Accord refers to "a low-emission development strategy" (Draft Decision/CP.15, Para. 2). In more detail, the Cancun Agreements stipulate that developed countries should draft LEDS and developing countries are encouraged to do the same (Decision 1/CP.16, Para.s 45 and 65).
4) Clapp, Christa Gregory Briner and Katia Karousakis, Low-emission development strategies (LEDS): Technical, institutional and policy lessons, OECD (2010), p.12-18

3. Why developing countries?

Today, most developing countries contribute only minor shares to global GHG emissions; however the continued growth of their economies will become a major sources of emissions, if they follow conventional economic growth patterns. This means, economic growth is correlated with more intense use of natural resources, which implies major GHG emissions. Figure 1 compares the pattern of GHG emissions from 1970 to 2005 of OECD countries, emerging and developing countries, indicating a remarkable increase in developing countries. Figure 2 shows a comparative forecast from 2010 to 2050 where it is evident that developing countries and advanced developing countries, or emerging economies, will emit more, while OECD countries will stabilize their emissions.⁵⁾

In this scenario, it is important to mention China, because it is still a developing country, and the world's major emitter of GHGs. According to BP's estimates, from 1990 to 2010 GHG emissions grew 339%⁶⁾, and the projections of economic growth imply emissions will continue to grow. According to the Guardian, China emits more CO₂ than the US and Canada combined, up by 171% since the year 2000, which accounts for 13.3% of world emissions.⁷⁾

The UNFCCC framework contemplates legally binding obligations to reduce GHG emissions that apply just to developed countries, or Annex I parties, as they are called in the original text. However, nowadays there is a debate that calls for developing countries, especially advanced developing countries, to assume more responsibilities in terms of the commitments⁸⁾. Unfortunately, the answers from those countries are not favorable and imply a lot of concerns in accepting legally binding obligations, mainly because they need to keep growing their economies, and the technology transfer and financing regulation that involve developed countries is still in an early stage.

Based on that outlook, the arguments imply the importance of incorporating developing countries in a climate change regime. Nonetheless, determining how

5) OECD, Green Growth and Developing Countries: A Summary for Policy Makers, (2012), p. 6-9

6) BP, Statistical Review of World Energy, (2011)

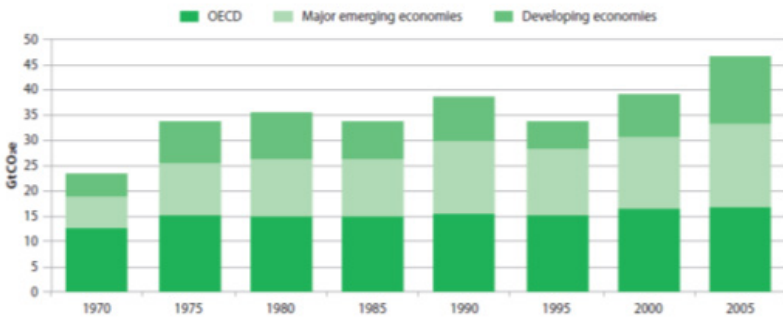
7) The Guardian, <http://www.guardian.co.uk/news/datablog/2011/jan/31/world-carbon-dioxide-emissions-country-data-co2#data> (visited on November 10, 2012)

8) Commitments refer to assuming responsibilities

to accomplish that is a difficult task, because developing countries have to sustain economic progress, and as the UNFCCC states, address climate change under the principle of common but differentiated responsibilities.

Therefore, this paper will try to provide the analysis of an alternative that could be incorporated into the climate change regime, as a solution for including developing countries, and at the same time for implementing effective strategies to reduce GHG emissions; which considers a specific actor within the state, and a methodology for low carbon development.

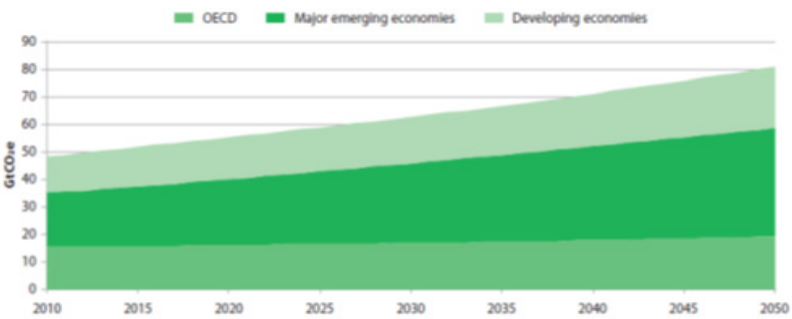
Figure 1. GHG emissions: 1970-2005



GtCO₂e = Giga tonnes of CO₂ equivalent.

Source: OECD, 2012, p.7

Figure 2. GHG emissions by region: baseline, 2010-2050



GtCO₂e = Giga tonnes of CO₂ equivalent.

Source: Ibid.

4. Decentralized governance for regime building

This section outlines decentralized governance, in order to provide an understanding of the current geopolitical environment that affects how a climate change regime is built. The analysis is developed from two different perspectives; the first, related to decentralized governance within a country, and the second, with the decentralized governance in international relations. Both are essential to the effective implementation of a climate change architecture post-2020.

4.1. Decentralized governance in developing countries

The variety of contexts within a country could be perceived in the diversity of nations, cultures, customs, languages, demography, economic development, even climate conditions. Because of the legacy of colonialism, and some other geographical and socio-cultural factors, developing countries concentrated its power, and development in just a few areas. That phenomenon influenced the urbanization process of cities, and at the same time the political and administrative systems that exist to date.

National governments have been the primary actor dominating the state. However, considering the mentioned conditions of diversity within a country, centralized policies have struggled with issues of effectiveness while implementing it because of the inability to accommodate the disparate local realities within its borders. The gap between national and local contexts and the ineffectiveness in delivering and implementing national policies has created a need for decentralization.

“Decentralization has been at the center stage of policy experiments in the last two decades in a large number of developing and transition economies in Latin America, Africa and Asia”⁹⁾ It emerged in the 1970s and 1980s, as a response to the ineffectiveness of the central planning and administrative structures. This process led national governments to transfer authority and responsibilities to local governments, with the objective of enhancing administrative and economic efficiency, as well as

9) Bardhan, Pranab, “Decentralization of Governance and Development,” *Journal of Economic Perspectives* Vol. 16, No 4 (2002), p.185

improving the implementation of development programs according to local needs.¹⁰⁾

Decentralization then appeared in the international discourses as a possible solution for governance issues in developing countries, because despite its smaller scale, local planning promoted better outcomes. This suggests that in adopting decentralization, governments are more responsive and efficient. “Many programs in developing countries have a large gap between a commitment of resources at the central level and delivery of services at the local level. Decentralization, by shifting control rights from the central bureaucrat (who otherwise acts like an unregulated monopolist) to a local government, typically tends to expand service deliveries as authority goes to those more responsive to user needs”¹¹⁾

However, although experiences of decentralization are a common denominator in Africa, Latin America, and South and South-east Asia they have all used different approaches that cannot be generalized.¹²⁾ This affirmation is an example of how locality can influence the way in which decentralization is developed, considering all the factors involved in a country due to the diversity, policies implemented at local level varies from one place to another.

From the perspective of the urban power structure theory, it has been necessary to construct other structures of power, which include municipal governance, to compensate for the limited authority of national governments. In that sense, “the various renditions of urban power structure theory hold in common the assumption that city governance can be explained by showing how the configuration of informal relations among significant actors shapes the process of political decision making.” “The political-economic environment of a city establishes certain parameters for local governing systems and the choices that urban leaders make.”¹³⁾

The importance of incorporating decentralization practices within a country is that it ensures an effective implementation of public policies. In this regard, cities and its administrative structures play a fundamental role.

10) Ingham, Barbara and A. K. M. Kalam, Decentralization and development: Theory and evidence from Bangladesh (1992), p.374

11) Bardhan, p.193

12) Ingham, Barbara and A. K. M., p.375

13) DiGaetano, Alan and John S. Klemanski, Power and City Governance: Comparative Perspectives on Urban Development, (1999), p.20

4.2. Decentralized governance of international relations

Contemporary diplomacy has given recognition to new actors and venues in international relations. Multinational corporations, civil society, NGOs, subnational actors and even individuals, make up the contemporary international community. These actors have been highly active and have interacted in many ways, which is reflected in agreements, common projects, international discussions and debates, along with numerous other examples, which have had an impact on sustainable development. Contemporary diplomacy thus evinces that states are no longer the primary actor in international affairs.

Within contemporary diplomacy, paradiplomacy theory is gaining especial attention, not only for its growing prevalence and prominence in international affairs, but also because it represents a new theoretical approach for international relations and political studies. “The study of paradiplomacy allows understanding the issues related to the interpretation of sovereignty and processes of decentralization that are taking place within modern states today”¹⁴⁾

Subnational governments are rapidly becoming more active in international relations, and this participative role is discreetly transforming diplomatic practices and foreign policy tools. “The most influential literature in the field has always concentrated specific attention on the way in which decentralization of international relations, as sub-state diplomacy implies, may affect conventional understanding of diplomacy as an exclusive dominion of sovereign”¹⁵⁾ Paradiplomacy is then the decentralization of international relations, that recognizes new actors other than the state.

Kuznetsov analyzes the concept of paradiplomacy from eleven dimensions to explain the influence of subnational actors in international affairs: constitutional, federalist, nationalism/cultural, international relations, area/border studies, regionalization/globalization, security, geopolitical, global economy, environmental,

14) Kuznetsov, Alexander, *Subnational Governments in International Affairs: A Study on Theory and Practice of Paradiplomacy*, Dissertation, IMT Institute for Advanced Studies Lucca, Italy, (2011) p.7-8

15) Cornago, Noé, “On the Normalization of Sub-State Diplomacy,” *The Hague Journal of Diplomacy* 5, (2009) p.11-36

diplomacy and separatist.¹⁶⁾ As a multidimensional level of analysis, paradiplomacy relates and explains issues in world politics from each one of those dimensions and includes all kinds of thematic areas from culture to environment. Climate change is not the exception.

Although the traditional studies of diplomacy do not recognize paradiplomacy, one can argue that from each of Kuznetsov's dimensions, cities and their respective administrative bodies are active participants in international affairs. Furthermore, cities influence the international arena and, for the sake of this paper, climate change architecture.

One example of this trend is that since there is an ever increasing relationship between cities and the climate change architecture, the IPCC is including an entire chapter dedicated to cities for the coming Fifth Assessment Report which will be published in 2014.¹⁷⁾

“Depending on the specific configurations of social sectors of each nation-state, different actors drive the decision-making process regarding the state's national position in international environmental negotiations as well as the domestic responses to an environmental treaty.”¹⁸⁾ Cities could be one of those actors because, as it will be explained in the next section, cities are the engine of development for nations, where economic, political and social interests converge.

“Thus, the analysis of paradiplomacy scholarship in the ecological perspective vividly shows that contributions of the regional governments in such spheres of the world politics such as sustainable development, climate change or nature conservation can be de-facto more crucial than the inputs of national authorities. Hence, it is not an exaggeration to say that paradiplomacy must be observed as a significant variable for understanding the balance of powers in global environmental affairs.”¹⁹⁾

This argument allow us to understand that in building a climate change regime it is important to consider the role of cities in international relations, as an active and determinant actor for the implementation, not only of national policies, but on the supranational level as well.

16) Kuznetsov, Alexander, (2011) p.101-107

17) IPCC, <http://www.ipcc.ch> (visited on November 12, 2012)

18) Fisher, Dana, National Governance & the Global Climate Change Regime, (2004)

19) Kuznetsov, Alexander, (2011) p.182

5. The role of cities in climate change governance

As mentioned in the previous section, decentralized governance could lead to an effective implementation of policies. With this realization, cities acquire an important role in the climate change governance by providing an effective means of including developing countries into a post-2020 climate change regime, for establishing and executing low carbon plans, and for reducing GHG emissions. It is in this regard that this section analyses the role of cities as an important actor in climate change governance from national and international perspectives.

5.1. Cities at the national level

The role of cities is of great importance for governance and development. Cities determine the economic prosperity of a country and at the same time make a significant contribution to the world's economic activity. Cities are the result of years of evolution in urbanization processes; it implies there is a correlation between urbanization and economic, politic, and social development. Figure 3 serves to explain the relation between urbanization and economic growth through the case of China and India from 1960 to 2005. "Urbanization can be a positive force for economic development, and also one that has desirable social and political outcomes; indeed, some of the world's fastest-growing cities are also among the best governed, and some provide the best quality of life in their respective nations."²⁰⁾

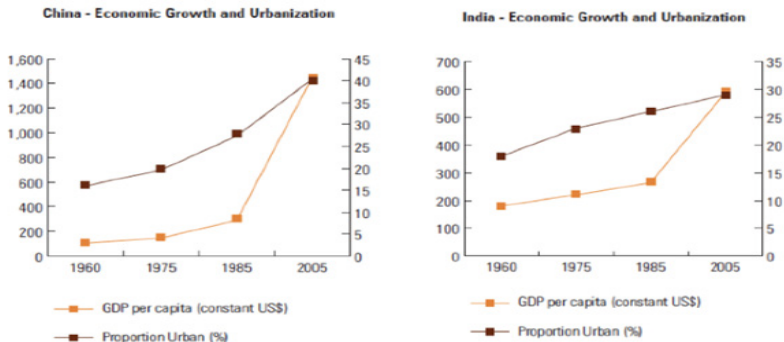
In the introduction of the UN report, "State of the Cities" in 2010, Secretary-General Ban Ki-moon stated "the emerging picture of the 21st century city fits many descriptions. Some are centers of rapid industrial growth and wealth creation, often accompanied by harmful waste and pollution. Others are characterized by stagnation, urban decay and rising social exclusion and intolerance. Both scenarios point to the urgent need for new, more sustainable approaches to urban development. Both argue

20) UN-Habitat, State of the World's Cities 2010/2011: Bridging the Urban Divide, (2010), p.7

for greener, more resilient and inclusive towns and cities that can help combat climate change and resolve age-old urban inequalities.” The same report highlights that the world is without doubt becoming urban, and by 2030 all developing regions, including Asia and Africa, will have more people living in urban than rural areas.²¹⁾

Urbanization and economic growth explain why cities are a major source of GHG emissions, and a major causative of environmental problems. However, at the same time cities have the potential to generate the most effective solutions that include local talent and expertise from many sectors, and the administrative structure to convert strategies into actions.²²⁾ Therefore, regarding the governance of climate change, cities in developing countries can play a determining role in the planning and implementation of strategies for tackling climate change, while promoting development. Given the characteristics of the cities that relate them directly with anthropogenic GHG emissions (growing population and urbanization, industrial development and energy demand), cities are the ideal place to accomplish what the earth summit suggested in 1992: 'think globally, act locally.' “Cities are increasingly recognized as significant producers and able managers of carbon emission. They have become the predominant source of anthropogenic carbon dioxide emissions; perhaps as much as 70%.”²³⁾

Figure 3. Urbanization and economic growth China/India



Source: UNDESA, 2007

21) UN-Habitat. (2010), p.v

22) ICLEI, “The Local Agenda 21 Planning Guide: An Introduction to sustainable development planning, International Council for Local Environmental Initiatives, (1996), p.3

23) Schroeder, Heike and Harriet Bulkeley, Global Cities and the Governance of Climate Change: What is the Role of Law in Cities? Fordham Urb. L.J. Vol. XXXVI, (2008), p.314

Although the current international climate change regime focuses on the state as the main actor for climate change mitigation, national governments cannot develop any policy without considering their cities. Table 1, explains the relation between population, GDP, and GHG emissions for 40 major cities, in which half are located in developing countries, and clearly evinces the necessity of including cities in any effort to tackle climate change. Combined, they are composed of 393 million people, a total GDP of \$8,781 billion, and emit 2.4 billion tons of CO₂e per year.²⁴⁾

It is clear that climate change is an important issue of increasing political and environmental significance in the world's major cities. However, there is not yet any clarity that suggests how cities will address climate change.²⁵⁾ There are different action plans that are being independently implemented by some cities.

Since developing countries are more likely to be affected by climate change, the main strategies developed by cities are focused on adaptation issues. Nevertheless from the mitigation perspective, based on previous arguments, cities can be a major focal point in addressing climate change while strengthening economic growth and promoting development. "Building cities that are green, inclusive and sustainable should be the foundation of any local and national climate change agenda. This requires better management of cities, mobilization of a global array of stakeholders, additional financing, and strengthened partnerships, as well as specific sector policy reforms such as urban transport policies, sustainable city planning, and enhancing city resilience and energy efficiency."²⁶⁾

This section provides further support for the main argument of this paper, which is the importance of the city in climate change mitigation. Cities are the drivers of economic development and major emitters of greenhouse gases, but at the same time they are also the proper place to implement policies of sustainable production and consumption, energy efficiency, sustainable infrastructure, and transportation; in other words, policies for climate change mitigation.

24) World Bank, *Cities and Climate Change: An Urgent Agenda*, (2010), p. 68

25) Schroeder, Heike and Harriet Bulkeley, (2008)

26) World Bank, (2010), p.v

Table 1. Population, GDP, and GHG emissions for 40 major cities

City/ Urban Area	Country	Population (Million)	GDP (USDbn)	Total GHG (MtCO ₂ e)	Total GHG (tCO ₂ e/cap)	GHG per GDP (MtCO ₂ e/USDbn)
Tokyo	Japan	35.53	191	174	4.9	146
Mexico City	Mexico	19.24	315	55	2.8	173
Mumbai	India	18.84	126	25 (est)	1.3 (est)	198
New York	USA	18.65	1133	196	10.5	173
Sao Paulo	Brazil	18.61	225	26	1.4	116
Delhi NCT	India	16.00	93	24	1.5	258
Jakarta	Indonesia	13.67	98	24 (est)	1.8 (est)	245
Buenos Aires	Argentina	13.52	245	52	3.8	211
Dhaka	Bangladesh	13.09	52	8	0.6	159
Shanghai	China	12.63	139	148	11.7	1063
Los Angeles	USA	12.22	639	159	13.0	249
Karachi	Pakistan	12.20	55	16 (est)	1.3 (est)	298
Lagos	Nigeria	11.70	30	27 (est)	2.3 (est)	893
Rio de Janeiro	Brazil	11.62	141	24	2.1	173
Cairo	Egypt	11.29	98	23 (est)	2.0 (est)	233
Beijing	China	10.85	99	110	10.1	1107
Moscow	Russia	10.82	181	167 (est)	15.4 (est)	522
Istanbul	Turkey	10.00	133	31 (est)	3.1 (est)	384
Paris	France	9.89	460	51	5.2	112
Seoul	South Korea	9.52	218	39	4.1	179
Chicago	USA	8.80	460	106	12.0	230
Lima	Peru	8.35	67	20 (est)	2.5 (est)	305
Bogota	Colombia	7.80	86	30 (est)	3.8 (est)	348
London	UK	7.61	452	73	9.6	162
Hong Kong	China	7.28	244	25 (est)	3.4 (est)	102
Bangkok	Thailand	6.65	89	71	10.7	799
Philadelphia	USA	5.36	312	60	11.1	191
Madrid	Spain	5.17	188	36	6.9	190
Toronto	Canada	5.16	209	60	11.6	286
Sydney	Australia	4.45	172	115 (est)	25.8 (est)	666
Houston	USA	4.39	235	62	14.1	263
Hanoi	Vietnam	4.22	28	5 (est)	1.2 (est)	178
Rome	Italy	4.00	123	37 (est)	9.3 (est)	303
Melbourne	Australia	3.71	135	96 (est)	25.8 (est)	708
Johannesburg	South Africa	3.44	79	34 (est)	9.9 (est)	432
Warsaw	Poland	3.35	48	35 (est)	10.5 (est)	730
Berlin	Germany	3.33	75	39 (est)	11.6 (est)	516
Caracas	Venezuela	3.30	28	27 (est)	8.1 (est)	949
Athens	Greece	3.25	73	34	10.4	463
Addis Ababa	Ethiopia	3.15	7	3 (est)	0.8 (est)	378

Source: World Bank, 2010, p.V

5.2. Cities at the international level

Cities are gaining a relevant position in international relations, and have become increasingly instrumental in global governance. New trends in governance advocate for the increasing responsibilities of cities in climate change. “The Environmental International Law has been facing the emerging global environmental issues in an innovating way, incorporating a new form of global environmental governance based on which new players are brought to the discussion and implementation of measures to face environmental problems. Among these players, we should highlight the subnational regional governments and their horizontal networks of actions and insertions in the decision making scenario.” “Initiatives by subnational governments to face global climate changes have been expanding the results of environmental

governance.”²⁷⁾

The first time that the role of the cities was recognized internationally in the environmental dimension was at the Earth Summit in 1992, where states developed a scheme to “think globally and act locally” regarding sustainable development. That scheme is known as Agenda 21; a document that compiles a set of goals for sustainable development, that should be led by local authorities, since the problems and solutions related to sustainability have their roots in local activities. After that, different worldwide cities’, from the developing and developed world, created initiatives that were international in scale. Local Government for Sustainability²⁸⁾ started leading technical and mobilization issues for implementing Agenda 21 right after the Earth Summit. This organization created an original infrastructure to promote international relations, and dialogue with cities regarding sustainable development. This organization is an actor in international relations, and it operates a network that manages protocols and international cooperation agreements for accomplishing goals. It works through the development of different strategies and agendas, including LEDES.

The C40²⁹⁾ initiative created in 2005 was an initiative of the Mayor of London to promote climate change mitigation in cities. It also worked closely with the Clinton Climate Initiative (CCI), which focuses on helping large cities reduce their carbon emissions. In the case of the United States, 1,017 cities have signed on to meet or exceed Kyoto Protocol targets to reduce greenhouse gas emissions.³⁰⁾

“Despite being formally created as mechanisms for exchanging information, techniques, practices and experiences in the measures adopted to face climate changes, these transnational networks end up playing a political role, particularly when they act

27) Cardozo, Fernando and Kamyla Borges, The Environmental Paradiplomacy in a new International Governance, Paper presented at First World Sustainability Forum, November 1-30 2011, in SCIForum.

28) ICLEI - Local Governments for Sustainability is the world's leading association of cities and local governments dedicated to sustainable development. 12 mega-cities, 100 super-cities and urban regions, 450 large cities as well as 450 small and medium-sized cities and towns in 84 countries, participate.

29) C40 is a global network of large cities taking action to address climate change by developing and implementing policies and programs that generate measurable reductions in both greenhouse gas emissions and climate risks.

30) World Bank, Cities and Climate Change: An Urgent Agenda, (2010), p.14

in a coordinated way in the international negotiation sphere.”³¹⁾ “Many World Bank client cities have a program of financial support and analytical services much larger than countries. São Paulo, Jakarta, Mexico City, and Cairo, for example, have World Bank partnerships as comprehensive as most country support programs.”³²⁾

There is already a legal basis for including cities into an international climate change regime but this has not been applied effectively. The Cancun Agreement (Decision 1/CP16-7), “recognizes the need to engage a broad range of stakeholders at the global, regional, national and local levels, be they government, including subnational and local government, private business or civil society” for reducing GHG emissions.³³⁾

The increasing interactions of cities in international affairs have led to the creation of administrative structures with professionals and experts responsible for attending the international agenda. That explains the trend of growing international relations offices within cities which function as a small scale ministry of foreign affairs.

Cities are definitely involved in international affairs. This leads to another important point of this paper, regarding the global framework for tackling climate change and its effectiveness. There is a need to incorporate cities within the UNFCCC framework, in a practical way, giving them responsibilities and a voice. Otherwise, the development of a paradiplomatic agenda for addressing climate change would be needed instead.

6. The role of LEDS in climate change governance: the method

This section explores general description of LEDS and how it could constitute a tool for cities to mitigate climate change.

31) Bulkeley, Harriet and Michele Betsill, *Cities and Climate Change: Urban Sustainability and Global Environmental Governance*, (2003), p.5

32) World Bank, (2010), P.27

33) UNFCCC, Cancun Agreements, http://unfccc.int/meetings/cancun_nov_2010/items/6005.php (Visited on November 1)

6.1. The concept of LEDS

Low Carbon Development Strategies, Low Emission Development Strategies or Green Growth, are concepts being used everywhere. Although there is no international consensus on the definition of the three concepts, OECD, UNEP, UNESCAP, EU and different governments among others international players, have started to include the terms within their discourses for referring to economic growth, climate change mitigation and sustainable development.

For the sake of this paper the term LEDS is used for describing the long term strategies that aim at incorporating low-emission and/or climate-resilient economic growth as part of the national economic development plan. Although those strategies can serve multiple purposes, they are created mainly to address climate change and development policy strategically.³⁴⁾

LEDS is closely related to NAMA which under UNFCCC refers to the development of nationally appropriate mitigation actions in the context of sustainable development in developing countries, aimed at reducing GHG.³⁵⁾ According to the International partnership on Mitigation and MRV, NAMA is an important tool for climate change mitigation because it provides an opportunity to design mitigation measures in accordance with national circumstances and priorities. Hence, through NAMA, developing countries can develop LEDS.³⁶⁾

Some scholars and experts in the matter have suggested LEDS as an alternative for including developing countries in a post 2020 regime.³⁷⁾ Although, this new approach offers enormous potentialities for development and climate change, it is not possible to talk about the effectiveness without mentioning the issues of governance. Therefore this is when, in the process of designing and implementing LEDS, cities play a significant

34) Clapp, Christa, Gregory Briner and Katia Karousakis, Low-emission development strategies (LEDS):

Technical, institutional and policy lessons, OECD, (2010), p.6

35) UNFCCC, Cancun Agreements, http://unfccc.int/meetings/cancun_nov_2010/items/6005.php (Visited on November 1, 2012)

36) International partnership on Mitigation and MRV, <http://mitigationpartnership.net/nationally-appropriate-mitigation-actions-namas-0> (visited on may 30, 2012)

37) Suh-Yong Chung, Post 2012 Climate Change Regime Building: An Advanced Developing Country's Perspective, Paper presented at International Expert Series on International Post 2012 Climate Change Regime Formation, October 23, 2011

role.

6.2. Implementation of LEDS in cities

As mentioned before, cities are the drivers of economic development and major emitters of greenhouse gases, but at the same time they are the proper place to implement policies of sustainable production and consumption, energy efficiency, sustainable infrastructure, and transportation; in other words, policies for climate change mitigation specifically related to LEDS.

Considering the aforementioned diversity of cities, the planning of this kind of mitigation strategies could vary depending on not only economic factors but also on the priorities of development, the geography, and so on. For example, the implementation of one of the components of LEDS, sustainable transportation, is not the same for a city located in a hilly area as it is for one located close to the sea. The one on the hills could opt for cable cars³⁸⁾, whereas the one close to the sea for bike lanes.³⁹⁾ For the sake of analysis, this paper provides some generalities of a roadmap that a city in a developing country can implement, based on some ongoing initiatives in China.⁴⁰⁾

The roadmap considers four basic steps: first, determining the city's carbon footprint; second, developing a vision for setting a low carbon target; third, implementing a low carbon city action plan; and fourth, carefully monitoring progress. Although all of them are very important and have their own methodologies, I will focus on the third, which is closely related to a sectoral approach, and key for the implementation of the LEDS. The basic components of the plan are 1) increasing energy efficiency in industrial processes; 2) restructuring the local economy to favor low carbon business; 3) including development of low carbon industrial parks; 4) making new and existing buildings more energy efficient; 5) making low carbon transport widely available and improving access to public transport; 6) increasing the

38) One example is the cable car systems in the city of Medellin, Colombia. It has 6 lines and constitutes a safe, environmentally friendly and convenient new public transport system that reduces GHG emissions and improves the air quality of the city.

39) Badhan, Pranab, "Decentralization of Governance and Development," *Journal of Economic Perspectives* Vol. 16, No 4(2002), p.185

40) World Bank, *Sustainable low-carbon city development in China*, (2012), p.65-72

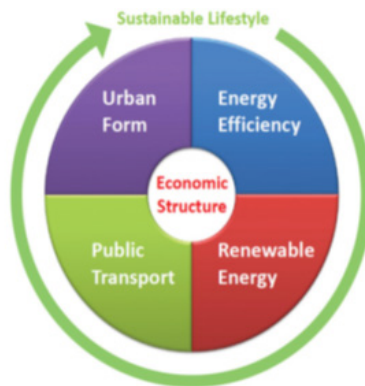
share of renewable energy generation; and 7) reducing the impacts of consumption. Figure 4, summarizes the key points for developing a low carbon city plan.

Cities have the capacity to involve different stakeholders when implementing LEDS. That is one of the main advantages not only for implementation but also for technical and financial support. In this regard, paradiplomacy is a vital tool for the involvement of international stakeholders in the implementation process.

On the other hand, once a city is on the path of LEDS, and knows its long-term vision, it can contribute with the registry of GHG emissions reduction to the post-2020 climate change regime, through possible provisions created through the UNFCCC, or any other international mechanism created to give voice and responsibilities to cities.

Some developing countries have interesting approaches to analyze. China is one of them. Through a decentralized model of governance that gives autonomy to cities to develop their own LEDS and encourage them to participate in international relations, China is on the path of climate change mitigation. This example constitutes a complementary approach to the current UNFCCC framework, which could be an alternative for a post-2012 regime.

Figure 4. Low Carbon City Roadmap



Source: World Bank, 2012, p.67

7. The case of China

China is the biggest emitter of GHGs in the world, however, because it is considered a developing country, it is not part of the UNFCCC's binding mechanisms. This implies that there is not an international regulation mechanism for constraining China's GHG emissions.

7.1. China's climate change mitigation approach

China has been conscious about the challenges it faces with its current economic model and its impacts on climate change. In this sense, the Chinese government has been developing a structural plan to reduce GHG emissions.

According to the World Bank, "China's 11th Five-Year Plan (2006–10) set specific targets, including a 20 percent reduction in energy use per unit GDP from 2005 to 2010, while doubling per capita GDP between 2000 and 2010. In 2009, prior to the COP-15 Climate Negotiations in Copenhagen, China expressed its intention to reduce the carbon intensity of its GDP by 40–45 percent by 2020 compared to 2005. The 12th Five-Year Plan (2011–15), for the first time, now contains explicit targets to reduce carbon intensity per unit of GDP by 17 percent, in addition to other targets to promote resource efficiency and environmental sustainability."⁴¹⁾ For implementing policies that contribute to the achievement of those targets, China is developing different strategies like LEDS.

7.2. China's decentralized approach for implementing LEDS

"Decentralization has been regarded as the major institutional framework for the phenomenal industrial growth in the last two decades in China, taking place largely in the non-state non-private sector."⁴²⁾

41) World Bank, (2012), Overview

42) Bardhan, Pranab, "Decentralization of Governance and Development," *Journal of Economic Perspectives* Vol. 16, No 4 (2002), p.185

Conscious of the diverse needs of Chinese cities, the national government is working through a decentralized model in order to implement LEDS. The methodology gives autonomy to the cities to develop their own low carbon path in accordance with their capabilities and local development plans. The first attempt started in 2010 when five provinces and eight cities (Tianjin, Chongqing, Shenzhen, Xiamen, Hangzhou, Nanchang, Guiyang and Baoding) were chosen by the national government as pilots. Along with the national plan, there are other local governments that have adopted actions outside the pilot cases, such as Wuxi, Chengdu and Jilin.

Table 2 summaries the contents of some of the LEDS in Chinese cities, including the sector where the strategies focus on. “Chinese cities have significant autonomy to implement policy directives and a track record of implementing ambitious policy agendas effectively and with agility”⁴³⁾

On the other hand, in relation to paradiplomacy, Chinese cities are participating in different international initiatives whose aim is climate change mitigation. For example, Shanghai, Hong Kong and Beijing are part of the C40 initiatives; Shenyang is a member of ICLEI.

Although they do not work exclusively in LEDS, they are important venues for exchanging technical and financial support.

43) World Bank, (2012), p.63-65

Table 2. LEDS in China's cities

City	Main sector	Low Carbon Approach
Dezhou	Renewable energy	Involves targeting energy use attracting solar power companies to the city and has also set up projects where solar power is used for heating water
Dunhuang	Renewable energy	will switch to and develop wind and solar power, two resources both in abundance there
Nanchang		Has set as targets a reduction of the city's carbon intensity of 38% by 2015, and further of 45–48% by 2020.
Xiamen	Transport, industry and construction	Aims by 2020 to have limited its CO ₂ emissions to within 68.64 million tonnes, with emission caps targeting 3 sectors.
Shenzhen		First low-carbon eco-demonstration city. The city is developing an indicator system for low-carbon projects, which will be integrated into the environmental impact assessment and approval processes for new projects.
Wuxi	Land-use planning, transport, energy and resource efficiency, green building.	Developing Wuxi Taihu Lake New City as a low-carbon eco-demonstration city. The planning area of the new city is 150 square kilometers, including the 2.4K ² Sino-Swedish Low-Carbon Eco-City. They have a Planning and implementation Indicator System. The targets are emissions per capita lower than 4.28 tons per year by 2020, and that the proportion of renewable energy reaches 20 percent.
Guiyang	Tourism, industrial structures, energy efficiency, energy supply structure, transport green building, and management of forests	Target to reduce the carbon intensity of GDP by 40–45 percent by 2020, compared to a 2005 baseline. The LCDS includes 10 areas. The government issued a series of preferential policies on capital investment, taxation, and market access to support the implementation of the action plan.
Baoding	Retrofitting buildings to meet energy efficiency, renewable energy, and greening of communities	Its LCDS aims to reduce the carbon intensity of GDP by 35% by 2015 and 48 percent by 2020, compared to a 2005 baseline. The city of Baoding, has since 2006 been a center for clean and energy-saving technology, including solar PV, wind, biomass, solar thermal, and energy efficiency.

Source: World Bank, 2012, adapted by author

8. Conclusion

There is a need to find new alternatives for climate change architecture post-2020 that include effective mitigation actions. LEDS implementation in cities in developing countries could be one alternative. However, there are a set of variables that should be considered for an effective regime.

First, since their economies will continue to grow, GHG emissions will grow as well, thus, including developing countries in the climate change regime is a necessity to ensure effectiveness, through new alternatives complementary to the UNFCCC framework.

Second, due to the weakness of the state for implementing public policies, decentralized governance at national and supranational level is essential to the effective implementation of a climate change regime. It means the state could provide autonomy to local governments and cities to develop and implement their own policies, as well as participate in international relations.

Third, the role of the cities as an actor in climate change governance is very important. From a national perspective, due to the convergence of social, political and economic characteristics in the city, cities are the proper place to implement mitigation actions; and from international perspective, cities are active participants in international relations. Therefore, there is a need to incorporate cities within the UNFCCC framework, in a practical way, giving them responsibilities and a voice. Otherwise, the development of a paradiplomatic agenda for addressing climate change would be needed instead.

Fourth, LEDS is a possible alternative for a post-2020 climate change regime that incorporates low-emission and/or climate-resilient economic growth as part of a long term plan. However, the actor that should work on it is the city, based on its local priorities and capacity for implementing the actions contemplated in the strategy. In the international environment, there are different initiatives that could work as mediators of technical and financial mobilization for supporting LEDS, as well as representatives of the cities of the world at international venues.

Finally, the case of China, a decentralized model of governance, is an example of

how it could be done; where the State gives autonomy to cities to develop their own LEEDS and promote their own diplomatic relations.

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