

# Learning Alliance Highlights

Learning Alliance on Climate Resilient Cities

Week Nine



# ELLA

Evidence and lessons  
from Latin America

Based on successful Latin America practices in low-carbon transport, energy efficiency and waste management, experts from Africa, Asia and Latin America discussed the current state low carbon development strategies in their cities, and the need for further actions.

## LOW CARBON DEVELOPMENT STRATEGIES

### SUMMARY

This discussion, moderated by low-carbon expert Enrique Rebolledo, from Bajo Carbono, Mexico, focused on city level low-carbon development initiatives. Participants looked specifically at Bus Rapid Transit (BRT) transportation, energy generation from solar panels and landfills that convert methane into energy. Enrique Rebolledo focused the discussion around how to build a business model that would encourage uptake of clean technologies and developing public-private partnerships (PPP). Participants shared information on initiatives from cities in their countries that aim to reduce GHG emissions while producing other co-benefits for society, and analysed the barriers that have prevented their cities from taking more significant action.





## Key Conclusions

Online learning space discussions suggested the following key conclusions related to low-carbon urban development strategies:

- Public-private partnerships have created the enabling environment for investment in, and the success of, urban emissions reductions programmes that also improve quality of life of urban inhabitants
- Many cities have made pledges on paper, which in reality continue to fall short of the mark
- Switching to a BRT system is complicated due to the financial loss that will be felt by those currently providing public transport (mini-buses and taxis), and due to the negative perception that many people have of public transport
- Using biogas digesters to create energy from waste is a process which requires a certain level of sophistication in waste disposal and collection, as such several steps need to be taken to make this system viable

## CONTENT

**Discussion: Low Carbon Development Strategies**

[Page 3](#)



## Discussion: Low Carbon Development Strategies

---

### Learning Focus

The discussion on low-carbon development strategies enabled online participants to share information about existing projects, and analyse the value of, and barriers to investing in technology that reduces greenhouse gases (GHG) while simultaneously improving quality of life. In cities, low-carbon development can come in many forms, although arguably the most common initiatives are related to transportation, energy production/efficiency and waste disposal. For this reason three Latin American case studies were shared, namely Bogota's Bus Rapid Transit (BRT) system, Belo Horizonte's solar power legislation, and Monterrey's (Mexico) waste-to-energy project. These examples show that low-carbon development is attractive to a broad array of stakeholders due to the ability of this type of infrastructure to offer favourable investment opportunities, to contribute to emissions reductions, and to facilitate sustainable development. Participants explained some of the reasons why programmes such as those shared in the Latin American case studies have not yet been possible in their countries, but also mentioned many promising signs that their governments are trying to move towards developing such systems.

Discussion 9 was guided by the following three questions:

1. To what extent are you seeing low-carbon development initiatives taking place in your cities? Please share any innovative cases studies with us.
2. Do you feel that any of the Latin American initiatives might be successfully adapted for implementation in your city? If so, how might you overcome any potential barriers?
3. Do you think that the business model suggested by Enrique Rebolledo in the waste-to-energy brief might encourage actors in your city to employ low-carbon technologies

### Latin American Case Studies

Three Latin American cases were shared with the participants for this week's discussion, relating to transport, renewable energy and waste-to-energy:

- Information was shared on the very famous BRT system in Bogotá, Colombia, which successfully reduced travel time, emissions and road traffic accidents. Bogotá's BRT uses much of the city's previously existing infrastructure and was developed through public-private partnerships that have enabled the system to turn a profit and become self-supporting, no longer relying on local government funding.
- The case of Belo Horizonte, Brazil, was shared to give an example of how city authorities can encourage the use of solar energy generation at household level
- The case of Monterrey, Mexico, demonstrates how waste-to-energy projects in developing cities can gain access to international carbon finance, reduce emissions and improve the health of urban inhabitants, while generating energy and a profit. Public-private partnerships were also a key ingredient to Monterrey's success, and the energy generated from the landfill gas is now used to power street lighting, the metro system and some municipal buildings.



## Discussion Participation

Thirteen countries were represented in this discussion, with contributions from 26 participants in total.

## Summary

In this discussion some participants described low-carbon development programmes that exist on paper and to some extent are being put into practice on the ground, while other participants explained that these actions are insufficient in their countries cities and debated why more is not being done. Additionally participants considered whether or not BRT, waste-to-energy and renewable energy generation would be feasible in their cities given existing social and political norms.

Many participants agreed that more efforts need to be made to reduce the carbon footprint of activities supporting urban life.

*“The environmental impact of modern cities has been serious and grave. Whatever the lip service, any contribution has been mostly miniscule. The demand on energy over carrying water from long distances, energy extensive ways of treating waste water, finance intensive centralised systems of transport and solid waste treatment and the pattern of land use makes our cities and its way of life an environmental disaster in waiting.”*

*- Sameer Unhale, India  
Government*

These views were echoed by participants from Ghana, Peru, South Africa and Zimbabwe. One participant from Peru explained that the most significant low carbon actions are implemented in the capital city Lima, stating that this could be due to the higher population density or because capital cities are more visited and more people will see the fruits of investments in sustainable development. Another Peruvian participant from a smaller city complained that while a detailed waste plan had been developed on paper, it had not led to any real action as of yet. Many participants felt that significant efforts to reduce emissions and improve quality of life are in progress, with several plans having been drawn up and projected to be put into action in coming years.

Manas Dwivedi from India explained that a recent survey showed that low-carbon development is in the best interest of the country, and is compatible with poverty eradication efforts. It seemed that in India there is good understanding that the utilisation of low-carbon technologies would give India a competitive advantage, putting them one-step ahead of countries that employ old ‘dirty’ technology, creating jobs, reducing emissions and increasing energy security. On the other hand, a participant from Nepal said that because the country does not emit a high volume of GHG, little action is being made to mitigation emissions. In this sense, low-carbon development is perceived as something that might disadvantage a growing economy.



*“Several pieces of work have focused on perceived and real risk of these sorts of investments. Multilateral banks have aimed at removing institutional barriers, but very few resources have been devoted to reducing the associated cost of capital, and improving sources of revenue at the local level. As we know, climate financing is still falling short, not only in grants, but also in lending. If we really want to see a transition to a low-carbon economy in our countries this will have to come from within our organisations and governments.”*

*- Enrique Rebolledo, Mexico  
Low-carbon Development Analyst*

The issue of finance was brought up many times throughout this discussion, as many participants felt that it was the lack of capital that prevented their cities from embarking upon a pathway towards a green economy. Actions that significantly reduce GHG are extremely capital intensive, and given other development goals such as poverty eradication, it is hard for municipal governments to justify such spending. In order to attract private investors, as demonstrated by the Latin American case studies, an attractive return on investment must be offered.

*“The biggest barrier with most low carbon technologies in our context is the financial implications of high capital costs, the need for attractive returns and the consequent high tariffs imposed on the end user. In a society where more than 50% of people live in poverty these challenges can be very difficult to overcome... If these technologies lead to increased service charges which exacerbate poverty and inequality then we have a very interesting problem since unmitigated climate change will also have a similar or worse outcomes on the poor.”*

*- Riaz Jogiat, South Africa  
Government*

The business model suggested in the Latin American case studies was that of a public-private partnership. Many participants felt that such an approach could potentially be adapted to their local realities. Especially in the case of energy generation from waste or renewable sources, which instead of being sold back to grid, could potentially be used by the municipality to power street lighting or other public services. In fact, we heard that some cities in Ghana, South Africa and Zimbabwe already power streetlights with solar energy.

## **Transport**

When looking specifically at the applicability of the BRT system, participants from some Indian and South African cities explained that the system is in place and it working relatively well. Riaz Jogiat from South Africa expressed the concern that in some cities the cost that is passed on to BRT users is too high. Other social issues that participants felt were barriers to the development of BRT systems relate to the perception that city dwellers have of public transport. Thuy Duong Pham from Vietnam explained that public transport in Ho Chi Minh City has a very bad service history, with most people choosing to use personal motorbikes, which would make investment in public transport very risky. For different reasons a participant from India explained why urban dwellers prefer not to use public transport.



*"In most of the Indian cities, except for a few metros, public transit is not very popular and we Indians feel proud to own a personal vehicle (usually a two-wheeler in the past, and four-wheelers more recently). We feel ashamed if at some point of time we are forced to stand in a queue and board a public transport to travel within our city. This is a general psyche of the Indian public."*

*- Sandeep Narulkar, India  
Academia*

Participants from Africa voiced other technical and political challenges to the implementation of BRT systems.

*"There has been an attempt to introduce mass transportation by replacing 14-seater minibuses with 60-seater buses through a public-private partnership between the city authority and a local private bus company. This however, lasted only about 2 years as the buses got grounded about 3 months ago over technical issues around the need for special lanes for the buses; the company's concern over non-profitability; disagreements over taxation; and also issues around how the contractor was selected and persistent existence of the minibuses."*

*- Godfrey Oluka, Uganda  
Government*

A similarly challenging effort was said to have been piloted in the cities of Accra and Kumasi in Ghana. One of the main challenges was to get the existing mini-bus owners and drivers to agree to the scheme and to receive some sort of compensation or employment alternative from the larger bus companies.

## **Waste**

Discussions around the viability of waste-to-energy programmes were very interesting with some participants believing that the model described in Monterrey might work well in their cities, and others feeling that such an initiative would be unviable. Samuel Adobe from Ghana explained that cities in Ghana are yet to develop a separated waste collection system, and when all waste arrives at landfill mixed-up attempts to collect landfill gas are less efficient. Godfrey Oluka from Uganda described how feasibility studies in the city of Kampala in 2009 concluded that such a programme was not recommendable due to insufficient economies of scale. Experiences from South Africa also showed that such projects would only be economically viable when handling the waste of populations in excess of one million. Willem Colenbrander from Zambia gave details of decentralised composting and biogas digesters. Enrique Rebolledo analysed some of the challenges in turning a profit from small-scale decentralised composting, which included: 1) low return on investment; 2) only small profits can be made on small-scale production; 3) the absence of formal compost markets makes it difficult for growth in such activities; and 4) the cost of, and emissions from, transporting the waste and compost may render the activities unprofitable.

## **Key Lessons:**

- In many cases, good low carbon development plans have been documented but have resulted in few concrete actions. It is possible that in coming years significant advances will be made, but the determinant of that will be down to the motivation for drawing up such plans in the first place. Where city governments and





stakeholders feel that low-carbon pathways align with development goals and poverty alleviation, success may be achieved. On the other hand, where plans and small visible actions are taken to pay lip service to GHG reduction, advances are less likely. In some cases, it is still felt that the cost of low-carbon development outweighs the advantages for nations with high poverty rates or low emissions.

- The issue of how to finance low-carbon technologies in cities in developing economies is complex. For example we saw that efforts to improve urban mobility, while cutting GHGs, through the implementation of a BRT system, may exacerbate poverty because the price of such a system is passed on to the end user. Public-private partnerships to fund transitions towards a green economy can prove extremely successful.
- BRT systems are extremely successful in some cities, but this does not mean that they can be successful in all cities. Aside from the financing and pricing challenges outlined above, many social issues make the implementation of such a system extremely challenging. Inhabitants of cities with a history of inefficient public transport will likely hold a very negative perception of it, and resist adopting a new means of public transport. Resistance may also come from those currently providing transportation services in urban areas. Such systems should be carefully planned with the involvement of all stakeholders, and appropriate compensation for those who will lose employment.
- Waste-to-energy programmes although potentially profitable, are difficult to implement in cities that do not have a sophisticated separation and collection protocol. In order to turn a profit, economies of scale are crucial.

## Supplementary Materials

Participants were provided with the following resources in preparation for this discussion:

- [ELLA Brief: Turning Waste Into Resources: Latin America’s Waste-to-Energy Landfills](#)
- [ELLA Brief: Capitalising on Public Transport: Reducing GHG Emissions](#)
- [Bogota, Colombia: Bus Rapid Transit: Energy Efficient Cities Initiative](#)
- [Belo Horizonte, Brazil: Solar Energy Legislation](#)

### CONTACT [SSN](#)

To learn more about the Learning Alliance on Climate Resilient Cities, or any of the specific themes raised in the Learning Alliance Highlights, contact the author and Learning Alliance moderator, Charlotte Olivia Heffer, ELLA Brazil Project Coordinator at the Environmental Laboratory at the Federal University of Rio de Janeiro (UFRJ), at [charlotte@lima.coppe.ufrj.br](mailto:charlotte@lima.coppe.ufrj.br).

### FIND OUT MORE FROM [ELLA](#)

To learn more about climate change, disaster risk management and governance in Latin America’s cities, visit the [ELLA website](#), which has a full list of the knowledge materials available on these topics. To learn more about other development issues, browse other [ELLA Themes](#).



ELLA is supported by:

