# NS-127 - Colombia TOD NAMA

## Colombia

### NAMA Seeking Support for Implementation

| | A Overview |
|---|---|
| A.1 Party | Colombia |
| A.2 Title of Mitigation Action | Colombia TOD NAMA |
| A.3 Description of mitigation action | Across Colombia, city planners and policy makers are realizing the need for a new model of sustainable urban development to accommodate a growing, wealthier population within a future carbon-conscious global economy. They want to stop current land use trends of accelerating new development on city outskirts and increasing amounts of abandoned or underutilized land in central city areas, and instead promote more compact transit oriented mixed use neighborhoods.<br><br>Transit Oriented Development is an energy efficient, high quality-of-life urban form that combines walkable public spaces, mixed use buildings and public transit in compact neighborhoods within a city matrix. Creating true TOD requires the efforts of politicians, urban planners, architects, real estate developers and others to be directed toward a common goal. There are many barriers for each of the players that must be overcome; sometimes even if many groups are aligned, one issue can stop progress toward TOD and divert energy and investment in another direction.<br><br>This very ambitious NAMA aims at creating a mechanism through which city or site-specific barriers can be overcome one by one. The institution will then harvest and nurture the experience gained at the specific level to design local models and national policies and interventions which can be deployed throughout the country. The successful local examples and new national policies will create momentum for TOD within the pilot cities and in other metropolitan regions. We believe that given Colombia's motivation and experience with transforming their transit systems, this NAMA will provide what is needed to take the next step toward a new 21st century urban growth paradigm.<br><br>The goal of this NAMA is to trigger transformational change of the urban template of Colombian cities and continue providing long-term, low-carbon results for years to come by constructing long lasting infrastructure and buildings that will lock in efficient land use and travel patterns. These new patterns will require less transport energy for households and businesses to achieve their daily tasks, because destinations and origins are brought closer together and non-motorized and transit modes are easier to use. The NAMA will also generate co-benefits in the areas of quality-of-life, economic development, social equity, preservation |

of natural habitat, reduced risk, and energy independence. Individuals will enjoy better neighborhoods, lower costs of transportation and less pollution. Businesses will see new markets and employees within easy access. Governments will see economic benefits from reduced infrastructure costs per capita and increased revenues per unit area.

This NAMA takes a structured approach by addressing each level of the process. It starts with a national policy integration aspect, moves on to locally identified technical assistance in planning, market research, architectural design and PPP development, and then offers financial mechanisms for public and private funding of TOD related construction. All the assistance is coordinated through the CIUDAT staff, who also provide a liaison for integrating across sectors and between governmental levels.

| | |
|---|---|
| A.4 Sector | ☐ Energy supply<br>☒ Residential and Commercial buildings<br>☐ Agriculture<br>☐ Waste management<br>☒ Transport and its Infrastructure<br>☐ Industry<br>☐ Forestry<br>☒ Other Urban Development |
| A.5 Technology | ☐ Bioenergy<br>☐ Energy Efficiency<br>☐ Hydropower<br>☐ Wind energy<br>☐ Carbon Capture and Storage<br>☐ Land fill gas collection<br>☐ Cleaner Fuels<br>☐ Geothermal energy<br>☐ Solar energy<br>☐ Ocean energy<br>☐ Low till / No till<br>☐ Other |
| A.6 Type of action | ☒ National/ Sectoral goal<br>☐ Strategy<br>☒ National/Sectoral policy or program<br>☐ Project: Investment in machinery<br>☐ Project: Investment in infrastructure<br>☐ Project: Other<br>☐ Other |
| A.7 Greenhouse gases covered by the action | ☒ CO2<br>☐ N2O<br>☐ PFCs<br>☐ CH4<br>☐ HFCs<br>☐ SF6<br>☐ Other |

B National Implementing Entity

| | |
|---|---|
| B.1.0 Name | |
| B.1.1 Contact Person 1 | Sandra P. Bejarano |
| B.1.2 Address | Calle 103 no. 19-20, Bogotá |
| B.1.3 Phone | +57 1 623 0388 X 1211 |
| B.1.4 Email | sbejarano@findeter.gov.co |
| B.1.5 Contact Person 2 | Steve Winkelman - Center for Clean Air Policy |
| B.1.6 Address | 750 First Street NE, Suite 940, Washington DC, 20002 |

| | | |
|---|---|---|
| B.1.7 | Phone | +1.202.408.9260 |
| B.1.8 | Email | swinkelman@ccap.org |
| B.1.9 | Contact Person 3 | Rodrigo Suárez Castaño - Ministry of Environment and Sustainable Development |
| B.1.10 | Address | Calle 37 no. 8-40, Piso 2, Bogotá |
| B.1.11 | Phone | +57 1 332 3400 X 2411 |
| B.1.12 | Email | rsuarez@minambiente.gov.co |
| B.1.13 | Comments | The implementing organizations are FINDETER (financial cooperation) and CCAP (technical cooperation). FINDETER is the national development bank of Colombia. CCAP is an international climate policy think tank headquartered in the United States. Both implementing agencies will partner with the Ministries of Transport, Housing, and Environment and the National Planning Department. The partnership will take place through CIUDAT, (Centro para Intervenciones Urbanas de Desarrollo Avanzado hacia el Transporte). CIUDAT consists of a Board, an Advisory Committee, a Director and a staff of technical and financial experts in transit oriented development (TOD) planning, design, project structuring finance, implementation, and evaluation. While CIUDAT (its Director and staff) will function within FINDETER's headquarters, CIUDAT will be independent and shall have administrative, financial and policy autonomy, although it will operate in accordance to the provisions dictated by the CIUDAT Board.<br><br>CIUDAT staff, along with contracted Colombian and international experts would conduct national policy analyses and provide policy recommendations to the National Government via the CIUDAT Board. A key goal of this technical cooperation is to provide the cohesive "glue" to connect national and local policies on transport, land use, housing and climate change with private sector TOD efforts. Examples of the areas of effort include guidance on TOD public-private partnerships, developing a CONPES document and/or Decrees on TOD, integrating national policies and plans with local government instruments and developing a financial sustainability plan. CIUDAT Board meetings and Advisory Committee interactions provide a forum for input from the partner organizations. |

C Expected timeframe for the implementation of the mitigation action

| | | |
|---|---|---|
| C.1 | Number of years for completion | 4 |
| C.2 | Expected start year of implementation | 2015 |

D Currency

| | | |
|---|---|---|
| D.1 | Used Currency | AED<br>Conversion to USD: 1 |

E Cost

| | | |
|---|---|---|
| E.1.1 | Estimated full cost of implementation | 14700000 |
| E.1.2 | Comments on full cost of implementation | This is the budget for technical and financial components. |
| E.2.1 | Estimated incremental cost of implementation | |
| E.2.2 | Comments on estimated incremental cost of implementation | |

F Support required for the implementation the mitigation action

| | |
|---|---|
| F.1.1 Amount of Financial support | 15 |
| F.1.2 Type of required Financial support | [X] Grant<br>[ ] Loan (sovereign)<br>[ ] Loan (Private)<br>[ ] Concessional loan<br>[ ] Guarantee<br>[ ] Equity<br>[ ] Carbon finance<br>[ ] Other |
| F.1.3 Comments on Financial support | See Annex TOD-NAMA Budget and Financial component Log-Frame.<br><br>Under the NAMA, CIUDAT will guide and focus strategic investments in catalytic transit oriented neighborhoods, concentrating first on a small number (perhaps 3) of catalytic transit districts in key Colombian cities.<br><br>The intent is to focus resources on a small number of pilots that can have a significant influence as examples for replication. CIUDAT will strive for diversity of interventions (types, city sizes) to increase the value of the lessons learned to inform effective model policies and methodologies to address common barriers.<br><br>NAMA support will be used to leverage the best finance mechanisms for implementing the catalytic pilot projects, including high-quality design, market analysis, project preparation, pre-construction planning and construction of key infrastructure pieces (transit stations, pedestrian and bicycle amenities, public space, etc.). Funding will also be available for:<br><br>• Private-sector partnership design. Using the new public-private partnership law, develop and evaluate RFPs for projects, and collaboration agreements on TOD implementation;<br>• Finance development. Developing and packaging project funding proposals for domestic and international investors or donors.<br><br>In addition to the local and national assistance activities, the NAMA has incorporated an institutional sustainability task to ensure there will be an institutional structure in place for continuity of CIUDAT functions at the end of the NAMA facility funding period. Finally, Measurement and Evaluation (M&E) will be an integral part of all activities. |
| F.2.1 Amount of Technological support | |
| F.2.2 Comments on Technological support | |
| F.3.1 Amount of capacity building support | |
| F.3.2 Type of required capacity building support | [ ] Individual level<br>[ ] Institutional level<br>[ ] Systemic level<br>[ ] Other |
| F.3.3 Comments on Capacity Building support | |
| F.4 Financial support for implementation required | [ ] |

| | |
|---|---|
| F.5 Technological support for implementation required | ☐ |
| F.6 Capacity Building support for implementation required | ☐ |

G Estimated emission reductions

| | |
|---|---|
| G.1 Amount | 3.6 |
| G.2 Unit | MtCO2e |
| G.3 Additional imformation (e.g. if available, information on the methodological approach followed) | The TOD NAMA will reduce private vehicle GHG emissions by creating compact urban environments that provide alternatives to automobile travel. This allows people to reduce their total vehicle kilometers traveled (VKT) in private vehicles by substituting non-motorized trips, increasing their share of transit trips and driving shorter average trip lengths. Fewer VKT translates directly to lower GHGs. Since the exact nature and location of the specific interventions is going to be dependent upon the proposals received, it is not possible at this time to determine the direct effects based on the precise number of TOD projects completed, trips shifted or other metrics. The methodology discussed below is aimed at evaluating the overall impact of the NAMA and does not differentiate between direct and indirect effects per se. Over the course of the interventions it will be possible to separate out the direct and indirect effects more easily as the measured effects of individual projects become available.<br><br>Colombia's GHG emissions in 2010 were estimated at 154 MMT CO2e. On-road transportation made up about 12% of the total emissions. That percentage is expected to grow as rising incomes contribute to an increasing motorization rate in the nation. Some sources have estimated that by 2040 the number of automobiles in Colombia could more than triple, from 3 million to 10 million and the number of motorcycles could grow to as high as 27 million. The University of Los Andes projects that on-road CO2 emissions will triple by 2040, while CO2 emissions from private vehicles will increase more than six-fold.<br><br>The first phase of the CLCDS was projection of sectoral emissions scenarios, identification of sectoral mitigation actions and assessment of costs and abatement potential of various options. The transport sector is 4% of the national GDP and is the sector with the highest energy consumption in Colombia, demanding 35% of the total oil derivates (373,000 TJ in 2009). In terms of GHG emissions, the sector contributes 12% to the national inventory (20 Mt in 2009).<br><br>By changing land use and travel patterns the NAMA will cut driving growth by 25%-36%, improve air quality and reduce annual GHG emission **by 3.6 to 5.4 MMTCO2 by 2040**. It will also have environmental benefits by reducing the urban footprint of future growth. To be conservative, we also assumed a 25% reduction in CO2 emissions per kilometer for all vehicle classes to reflect potential energy efficiency improvements. If market or regulatory forces do not yield such an improvement then the |

CO2 savings from the NAMA would be up to one-third higher. This methodology yielded an estimated urban passenger transport emissions total for future years as shown in the table below.

GHG reductions were calculated based on studies of differences in levels of driving (VKT) between TOD and more conventional urban form at the neighborhood, city and regional levels. The Growing Cooler study reviewed empirical measurements and modeling analysis and found that people drive 20-40% fewer miles in transit neighborhoods in the US due to increased use of transit, walking and cycling and shorter trip lengths for cars.5 Data from Washington DC Metropolitan region show that people in transit neighborhoods such as (Arlington Virginia and the Colombia Heights neighborhood of Washington DC) drive 30-70% less than the regional averageLatin American data follows a pattern similar to numerous studies in other nations. A study of the transit-oriented city of Curitiba, Brazil found that people drive 50% less each year than the auto-oriented Brasilia, even though Curitiba has a higher median income. A 2009 IADB study on Curitiba found that private cars in Curitiba emit 50% less CO2 per vehicle than those in Brasilia due to more efficient land use patterns. And a 2009 University of the Andes study estimated that a package of transit investment and land use policies could reduce GHG emissions in Bogotá, Colombia by 33% compared to the base case.

These Latin American studies indicate a range of 30-50%. It would not be prudent at this point to expect high penetration and performance in all locations. Thus we assume a range of VKT reductions for different city types, with declining reductions by city size -- with a maximum reduction of 40% -- yielding a national weighted- average of 20-30% VKT reduction (See table below). Note that these are average values, so that some cities would over-perform and some under-perform these estimates.

## H Other indicators

### H.1 Other indicators of implementation

The goal indicators are:
#1. Number of TOD neighborhoods initiated in Colombia both inside and outside pilot cities
#2. Difference between TOD neighborhoods and control neighborhoods in the trend of Annual GHG transport-related emissions per person
#3. Difference between TOD neighborhoods and control neighborhoods in the trend of transport costs per person (e.g., as % of household budget)
Goal indicator #1corresponds to the mandatory indicator for transformation. It shows not only that the urban form in Colombia is changing with the interventions, but also the extent that the change is replicating around the country. It is expected that the rate of increase will grow larger over time.
The mandatory indicator for GHG reduction, direct and indirect, is measured in Goal indicator #2 as the per capita GHG

| | |
|---|---|
| | emissions difference between TOD and non-TOD neighborhoods. It is quite difficult to separate direct from indirect effects of TOD itself but at the output level our plan does measure multiple causal variables of GHG such as vehicle ownership, NMT mode share and trip length. We use control neighborhoods rather than a counterfactual because there are many exogenous variables that will affect transport emissions, so a hypothetical BAU projection will very likely be wrong after a period of a few years.<br>Goal indicator #3 was chosen as a proxy for a range of co-benefits. Although it does not coresspond to a mandatory indicator, travel cost is correlated with multiple economic and equity effects, (it may not capture certain co-benefits such as health.)<br>The long term goal indicators are further complemented by the mid-term progress indicators created for measuring project outcomes.<br><br>The outcome indicators are:<br>• Pilot City Level (TOD vs control sites)<br>• Level of investment in TOD areas vis-à-vis traditional BRT station areas (buildings, infrastructure, public space)<br>Travel data trends in:<br>• Vehicle ownership /capita<br>• VKT / capita<br>• Average trip length<br>• Transit and NMT mode share<br>The mandatory indicators for both “public finance mobilized” and “private finance mobilized” in TOD areas versus other BRT station areas are here measured and compared directly. |

I Other relevant information

| | |
|---|---|
| I.1 Other relevant information including co-benefits for local sustainable development | • Risk of TOD market demand not materializing: Developing countries in Latin America have in the past aspired to a US model of auto oriented sprawl. If economic growth is high and energy costs are low there is a danger that this desire will overwhelm the market for housing and TOD will not be in demand. The other side of this risk is that the cost of TOD housing will be higher than the market can bear. In some cities there is already identified oversupply of housing and commercial establishments. Building additional units could shift the real estate market and even promote sprawl. (Risk: low)<br>• Risk of public or private sector not pursuing TOD: While related to market demand there may be other reasons for not pursuing TOD, such as financial risk perception, limited technical capacity or political uncertainty. It is possible that private developers will continue to invest in known products. The public sector may have political reasons for supporting other types of development. The local government could also be adverse at implementing innovative value capture mechanisms at the risk of losing political capital and/or public support. (risk: Low-medium) |

Risk of CIUDAT being incapable of accomplishing goals: If the interventions that are required exceed the budget of CIUDAT, or they are otherwise unable to hire or contract with experts who can carry out the needed activities, the project could be less than fully successful. A related risk is that a particular intervention succeeds in moving the TOD implementation process forward, but that momentum is lost later on and the TOD neighborhood is not ultimately completed. (Risk: low-medium)

- Risk of political change or instability: Continued engagement of Ministries will be required over the course of the NAMA. If changes, in national or local administrations result in lack of support for the project, it could become less effective. A perception of security risk due to instability would also affect the confidence of private and international investors, leading to reduced interest in the project. (Risk: low)

• Barrier 1: Un-coordinated policy, planning and regulation

There is inadequate policy integration and institutional coordination among sectors and governmental levels. Integration of transport, land use and housing policies remains low at national and local levels. Overlapping jurisdictions and "silo" behavior result in conflicts and inefficient solutions rather than coordinated projects that take advantage of synergies between sectors. Public housing projects are not well coordinated with transportation planning and are often build where land is cheaper. Zoning and redevelopment plans are not always comprehensively created through public processes.

Cities may lack urban planning instruments to create "articulated densities" and promote good urban design for walkability. Policies, strategies and regulations to create higher densities along transit corridors and high-quality pedestrian environments may conflict with outdated regulations that support less efficient urban form.

• Barrier 2: Gaps in public infrastructure to support private development

Investment gaps at the local level for planning, designing, financing, and implementing TOD projects and policies, leading private money to seek returns elsewhere. Different public investment is needed to support mixed use TOD projects than for single use transit adjacent projects. Infrastructure to support TOD may cost more per unit area leading public entities to seek short term savings without considering the overall revenue implications, which emperical studies indicate can be more favorable than for conventional development.

• Barrier 3: Limited design and market risk experience

Government agencies, financial institutions and private developers lack experience with large scale transit oriented development projects. They are less likely to consider TOD because they are not familiar with successful design solutions and how to analyze the market risk of such

projects. Because TOD is more complex and may have differing rates and timing of financial returns it is easier and safer for them to replicate more conventional projects. Funders are reluctant to invest in pre-feasibility needs of untried proposals.

• Barrier 4: Inadequate value capture, PPP, finance and incentive mechanisms

There are limited successful examples of value capture and finance mechanisms to fund public transit and public space infrastructure from capitalization of accessibility and urban renewal benefits; (e.g. land-value capture, road pricing, TIF, CEPAC, BID fees.) These mechanisms must be carefully calibrated to provide incentives to both the government and the private land owners that are paying for improvements.

Public-Private collaboration experiences have been limited. Developers and government agencies implement TOD together. Policies and regulation must align with site-specific considerations and market demand. The private sector requires regulatory certainty and continuity across local administrations for TOD investments; they need consistent "rules of the game". Public-private-partnerships are one way to document the responsibilities of all parties, but they must be carefully written and supported by a rigorous framework of law and policy.

## J Relevant National Policies strategies, plans and programmes and/or other mitigation action

### J.1 Relevant National Policies

Colombia has positioned itself as a leader in the development of climate change mitigation and adaptation actions. These efforts go back as far as 1994, when Colombia joined the UN Framework Convention on Climate Change. Since then, the nation has developed an increasingly sophisticated approach towards the issue, culminating with the development of the Colombian Low Carbon Development Strategy (CLCDS), a comprehensive national plan to address climate change. In general, the nation's approach to climate change has integrated a long-term effort in its CLCDS with near-term opportunities to promote and develop high-potential NAMAs.

In addition to the creation of the CLCDS, the institutional structure addressing climate change underwent a major overhaul in 2011. This reform moved the Climate Change Mitigation Group (CCMG)—Colombia's main body for coordinating and articulating the nation's climate actions—from the Ministry of Environment and Sustainable Development (MADS) to the National Planning Department (NPD). The move had wide ranging implications for the authority of Colombia's climate initiatives, and indicated the government's stance that an effective climate change strategy should involve a whole-of-government approach.

MADS and the National Planning Department (DNP), together designed the Colombian Low Carbon Development Strategy (CLDCS), through which inter-sectorial efforts aimed at de-coupling economic and GHG growth have been coordinated since 2011. The goal of the CLCDS is to design and implement policies, programs and actions in each productive sector, that improve efficiency and competitiveness, reduce environmental impacts and provide significant integral benefits to Colombians.

This NAMA will have direct linkages with other climate change financing

operations and multilateral financial institution loans in the transport sector. In particular, the Colombia's CTF Investment Plan, approved in 2010, includes US$100 million of concessional loan resources for sustainable urban transport. The first CTF transport project was approved to support four sustainable transit projects of four medium-sized cities (Armenia, Pasto, Popayan, Santa Marta) with $ 20 million USD of CTF funds blended with a US$ 300 million loan from the IDB (CTF funds will be directed to non-motorized infrastructure). Another IDB loan operation is being prepared (with $40 million USD of CTF funds) to promote hybrid bus technology. The remaining $40 million USD of the CTF will be applied (based on the revised CTF Investment Plan) to a select group (one or two) of Colombia's largest cities as a way to accelerate the implementation of Integrated Public Transport Systems (SITP, by its Spanish acronym).

FINDETER has a Sustainable and Competitive Cities program which is making decisions about how to allocate a $500 million USD investment portfolio. This TOD NAMA is an outgrowth of that initiative, which is currently investing in assessment, action planning and implementation for medium-sized cities. FINDETER has been also investing in the Vivienda program to construct 100,000 new housing units. The private sector is the implementer of

social housing projects as well as being involved in many of the catalytic neighborhoods. The TOD NAMA will help FINDETER focus resources toward TOD. It will also work closely with the private sector and government ministries to provide the "glue" to make PPP deals happen around TOD.

The NAMA has aroused additional interest in financing Transit Oriented Development opportunities in Colombia. KfW is exploring an additional $100 million credit line with FINDETER that would focus on sustainable urban development. FFEM (Fonds Français pour l'Environnement Mondial), the French global environmental fund, is undertaking a process to provide a grant of €1.5 million to support TOD NAMA implementation in Cali's Green Corridor, developing national policies for replication and launching M&E efforts.

Since 2005, the IBRD, IDB and CAF have supported the implementation of SITM and SETP by providing almost $1 billion dollars of investment loans. The IBRD is supporting the SITM for the cities of Bogotá, Bucaramanga, Barranquilla, Pereira, Cartagena and Medellín. Likewise, the IDB supports the BRT system in Cali. These loans have been focused on the infrastructure components with a limited definition of "eligible investments" (mainly the trunk BRT lines and station infrastructure). The incentives to finance or to include in the SITM or SETP programs a good quality urban design for public space, bicycle and pedestrian access facilities for a good TOD standard has not been present in the current policy framework. CTF, NAMA and other operations are expected to leverage some of this investments and targeted to TOD interventions. For the period 2014-2016 the total public investment (national and local) for the eight SITM projects is about US$1.5 billion. Likewise, for the seven SETP projects the public investment for the same period is about US$450 million. Nonetheless, after 13 years of successful BRT experience no unambiguous TOD projects or planning practice is taking place in Colombia. This NAMA will change that situation.

J.2 Link to other NAMAs

## K Attachments

K Attachments

| Title | Description |
|---|---|
| 20140108 Transport SMAP.docx | The Transport Mitigation Action Plan, developed under the Colombian Low Carbon Development Strategy, prioritize groups of policies, programs and actions. One of the programs prioritzed is the Creation of CIUDAT: Center of Urban Interventions for the Advanced Development towards Transport. |
| FC_Log-Frame_2014_08_27.docx | Log Frame FC |
| TC_Log-Frame_2014_08_27.docx | Log Frame TC |
| UN_Registry Budget.xlsx | Fc and Tc Budget |

K.1 Attachment description

K.2 File

Browse...

## L Support received

L.1 Outside the Registry

€354,000 ($USD 449,580) (National Planning Department(DNP) Ministry of Environment and Sustainable Development (MADS) The Ministry of Transport (MoT) , The Housing Ministry (MoV) ) match €27,000 ($USD 34,290) Findeter match € 1,500,000 ($USD 1,905,000) tentative from FFEM, Fonds Français pour l'Environnement Mondial): TOD planning in Cali, analyses for national replication policies, development and launch of M&E efforts.

L.2 Within the Registry

| Support provided | SupportType | Amount | Comment | Date |
|---|---|---|---|---|
| NAMA Facility | Financial | 18,500,000 | | 11/10/2014 6:01:43 PM |