

May 2015

Compilation of Existing Policy Frameworks

Policy Advocacy Network for Latin America
for Clean Brick Production
(PAN LAC)

[Also available in Spanish; Original: English]

May 2015



Terms of Reference:

Deliverables #6 of the Policy Advisory Network for Latin America on Clean Brick Production (PAN LAC)

Deliverable 6. Analyzing and compiling existing policy framework for brick-related industry in Latin American countries, based on previous findings from the first phase policy analysis of this initiative, and from current assessment in the region.

May 2015

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Context

As derives from the key objectives of the Climate and Clean Air Coalition (CCAC) in its recent 5-year plan, the central objective of the CCAC is to help avoid the *near-term impacts* of global warming over the next few decades through the reductions of short-lived climate pollutants (SLCPs) – most notably methane, black carbon and hydrofluorocarbons (HFCs). One of the focus industrial sectors identified by the CCAC to achieve SLCP reductions, is the **traditional brick manufacturing sector** due largely to its significant local impacts to air quality, health conditions of workers, and to the general *informality* of the sector, making it a significant policy and governance challenge to address. To this end, the CCAC enabled the creation of the Policy Advocacy Network for Latin America on Clean Brick Production (PAN LAC), a network bringing together public officials and brick sector experts across the region to discuss public policies that are available or that are needed to engage and address the social, economic and environmental impacts of traditional brick production.

One of the tasks of the PAN LAC is to *analyze and compile existing public policy frameworks for brick-related industries in Latin American countries, based on previous and current findings of the Bricks Initiative, and from current assessments being carried out in the region*. This document (the *Public Policy Framework Analysis*) is the result of this task, setting out the current state of the art of policy dedicated to (or applicable to) traditional brick production in the Latin America Region. Some of the background, sector characterization and strategic content of this document is taken from and/or derives from the *PAN LAC's Framework Strategy* document, which outlines the key public policy deficiencies and the principle strategic components of the PAN LAC. These documents are inter-related and should be considered in conjunction with one another, as together they conform the integral strategy of the PAN LAC in search of transformational change of the sector.



Black Carbon and other global green house toxic fumes are a common byproduct of inefficient brick production

Public Policy and Governance Characterization of the Traditional Brick Production Sector

Societies that still manifest significant existence of traditional brick kilns, generally have pockets or even extensive manifestations of focalized contamination. They may witness systemic labor law violations and other legal irregularities governing industrial sectors and activities. These societies are likely to have significant levels of informality in peri-urban areas, limited to poor regulatory control over industrial emissions, persistence of outdated and uncontrolled industries (particularly artisanal industries, such as artisanal mining), and poor compliance with labor standards. These are just a few of the characteristic governing the traditional brick production sector (more on this in the section below on Conclusions on Evolving Public Policy).

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Child labor and health impacting working conditions are common in informal traditional brick manufacturing.



Public Policy Gaps in Traditional Brick Production

Despite the very “visible” contamination produced in traditional brick manufacturing, the implicated health risks and many other negative social and economic impacts from traditional brick production, for the most part, this *persistent and systematic* industrial sector problem has been an “invisible problem” with respect to public policy.

That is, little or no public policy exists specifically to address the social and environmental risks and impacts to traditional brick production.

The reasons for this gap in public policy can be complex, but is *at least* and commonly due in part to the widespread informality of the sector, generally located at the informal outskirts of urban centers or in rural areas. Traditional brick kilns produce a lot of smoke and for this reason alone, growing social intolerance with their contamination has resulted in a physical push of kilns to the fringes, either at the outskirts of urban centers or in nearby rural areas, where informality is common.

The fact that these producers are not included in formal processes of State institutionalization (they generally have no license to operate as a commercial business, because they are generally not taxed, or because they are not controlled for worker conditions) implies that they are not likely to fall under the governance of a specific ministry or government agency. Other dynamics also are at play (including for example the inter-jurisdictional competency—municipal, provincial, federal, etc.)

making the regulation, control, and conversion of the sector to more efficient technologies, very difficult.

In some cases, it is not clear *which* government agency, ministry, or jurisdictions should govern traditional brick production. It may be a mining ministry (due to the clay extraction phase from the soil), a production ministry (because it is a commercial activity) or it may fall into the domain of a local government, simply because of land use dynamics. More recently, as social awareness and concern over environmental degradation has arisen around the world, brick kilns have come under the concern of *environment* ministries, seeking to address and improve *air quality* and reduce black carbon emissions. Other ministries, however, such as health and labor, have also identified the brick sector as a potential area for intervention, particularly due to recurring problems with labor code violations, health problems in the sector suffered by workers and nearby communities, or persistent poverty.

In some countries, such as China, government policy has recently banned traditional brick production, while in others, government regulations banning highly outdated and highly contaminating techniques (Colombia) have moved to close down the most contaminating brick kilns, while encouraging producers to introduce design changes to their kilns to reduce contamination (Peru). In some cases, certain steps have been taken to bring traditional brick manufacturing under normative ordinance. While in others, *most*, little or nothing had been done to reduce the social and environmental impacts of traditional brick production. It continues to be largely an “unaddressed” sector.

What is most important to understand is that the lack of clarity and association of the sector to specific public policy tools and actors, has created an “invisibility” and “intangibility” of the sector, making the development of public policy to address its impacts, an especially challenging task.

Brick Related Public Policy Evolution to Date in the LAC Region

This section is not an exhaustive list of existing public policy but rather treats some of the more salient *and known* examples of countries (through CCAC engagement) that have embarked on analyzing or addressing traditional brick production through national or local public policies. The source for this information includes research work conducted by the CCAC, implementing partner contributions (such as from Swisscontact) as well as the PAN LAC’s own consultation and input received directly from governments and experts.

Mexico

Mexico is a typical example of the state of existing and emerging public policy in regards to brick production in the Latin American region. It is also one of the most engaged countries in the Bricks Initiative, and as such, an analysis of the state and evolution of public policy in Mexico in of special interest to the Bricks Initiative.

Traditional brick production in Mexico is not a very significant portion of GDP for Mexico, available data suggests that 17,000 traditional brick producers are responsible for about 0.005% of GDP, however contamination from traditional brick production is very visible in peri-urban areas. Brick



production is deemed to have very low energy efficiency, but is high in terms of pollution generation. Neither federal nor local government have targeted policies to systematically and holistically address the sector or to specifically reduce emissions or lower other social or environmental impacts from traditional brick production however, Mexico's climate strategy makes reference to brick kiln contamination. In some cases, environmental authorities intervene in the brick sector when toxic fuels are used for heating kilns. The high mobility and informality of the sector presents further challenges for regulating the sector as producers can pick up operations and move to areas where they are not controlled in any way. Historically, there has been little or no focus or interest in addressing productivity of the sector as an incentive for transformation. This has begun to change with the collaboration underway between the CCAC and the Government of Mexico. Mexico is now embarked on a business model study of the brick sector, with a view to identify ways to increase efficiency and economic productivity of brick production.

Social pressure, particularly over the past two decades, in response to air pollution has been a key ingredient to mobilize governments to take action related to traditional brick production. Air contamination was a key concern in the late 1990s and early 2000s resulting in the removal away from Mexico City of a number of kilns. There is no data to confirm if *and where* these producers relocated. This tendency can be compared to actions taken in Santiago Chile, also to address severe air contamination also during the 1990s-2000s.

One positive anomaly in the sector involved a more holistic approach to traditional brick production taken in Guanajuato, offering an inter-ministerial approach to finding a solution to traditional brick production contamination. This involved strategic planning to address health, education, environment, and economics (including demand dynamics) of brick production. However, lack of economic resources have hindered final results of this initiative.

Except for some local regulations related to location in Guanajuato, traditional brick production in Mexico is not regulated as such, and simply follows regulations for other industries.

Federal authorities hope to develop inter-agency policy to address the traditional brick production sector, through cross cutting policies targeted at issues such as air quality standards, engagement with Mexico's national climate strategy, engagement with marginal/vulnerable groups, economic efficiency promotion, labor policy, education and social transformation, quality production and product specification/norms, etc.. A national government agency focusing on Ecology and Climate Change (INECC) is the driving government agency pushing for the development of public policy to address brick production and is the agency most engaged with the CCAC. The government has taken a vested interest in promoting and deepening a business model analysis of the sector, through which it hopes to have direct influence in promoting greener practices tied to economically sustainable solutions.

Peru

Peru's traditional brick production represents some 0.06% of GDP with about 70% of production centered in four regions (Cusco, Puno, Cajamarca and Arequipa). While there is no cumulative data on brick kiln emissions at a national scale, it is estimated for example, that bricks and tile production in Cusco is the major source of stationary contaminant emissions, representing 31.4% of the total CO emitted by all sources in 2004. Brick production regulation falls institutionally under the Peru's Production Ministry, while the Environment Ministry is charged with establishing guidance and regulations regarding emissions and climate change. Government regulations on



housing and construction also engage with the brick sector by setting construction standards for bricks.

As the government has identified brick production as a major concern for air pollution, the Peruvian national government has taken important initial steps at developing a brick sector strategy, starting with the development of an air quality standard for the sector (which is currently in design in a joint effort between the Environmental and the Production Ministries). A program called PRAL (Regional Clean Air Program) from 2006 to 2009, aimed at reducing emissions and improving energy efficiency of artisanal brick kilns in Arequipa and Cusco. Available data indicates that approximately 30% reduction in CO₂ emissions was achieved. Local PAN LAC research in the area indicates that one possible bottleneck for greater implementation of such initiatives is the lack of capacity and financing of local government to implement these types of national policies.

The National Environment Ministry with the help of UNDP is also engaged in the development of a NAMA (Nationally Appropriate Mitigation Actions) for the Construction Sector, which will include cement, steel and brick production (including the artisanal brick sector).

Regionally, three departments (Cusco, Puno and Piura) have come together to establish a technical multi-stakeholder forum (which includes municipal governments, academics, civil society and technical experts) for the brick sector, promoting more sound environmental production practices. This effort has also led to the development of regional policies, for example in Cusco, mirroring municipal efforts prohibiting the burning of toxic fuels (such as tires, bottles and other plastics).

In collaboration with civil society, the National Production Ministry engaged on a Guidelines of Good Practices for Artisanal Brick Production, which was approved at a ministerial level. These guidelines address energy efficiency, contamination, production techniques and product quality.

A national ministerial resolution, an Air Quality Standard set maximum permissible limits for emissions for the brick making sector. The Ministry of Production established specific regulations for brick sector. Also, brick maker associations have been promoted. Like in most Latin American countries, brick production is categorized as a productive sector, but regulated only by the environmental authorities (more recently) and primarily due to its air pollution.

Local governments have also engaged with the brick sector in Peru. For example, the Municipality of San Jeronimo (near Cusco) has passed a local ordinance that established a prohibition of burning highly contaminating materials such as tires and used oil as well as an ordinance mandating the use of aeration systems for kiln burning.

Table 1
Maximum permissible values of atmospheric emissions for the brick production activities in Peru (MINAM, 2012)

Pollutant	Fuel type		
	Gas	Liquid	Solid
PM		100	150
NO _x	320	460	650
SO ₂		750	300
CO	100	500	1000

Chile

Efforts and public policies to regulate air quality in the metropolitan area of Santiago in the late 1990s and early 2000s, placed regulatory strains on traditional brick manufacturing, particularly makeshift kilns with no chimneys. It is presumed that much of Chile's traditional brick manufacturing moved to regions such as Maule, further south.

In the mid 2000s, through a clean production agreement with artisanal brick-makers of the Santiago metropolitan area, the national government pushed to legalize the activity while improving living conditions of workers in the sector. This included introducing technological reforms in the sector to make brick production more profitable, increasing employment and increasing incomes of brick producers.

Industrial brick norm NCh169.Of 2001 set specification standard for industrial bricks, while norm NCh2123 established a standard for the design and construction specifications artisanal bricks.

More recently, and following the inaugural session of the PAN LAC held in Maule, Chile, the local, regional and federal government have collaborated to take concrete steps to address the brick production sector in the Maule region. Currently, brick kiln inventories are underway, as well as a characterization of the sector. A partnership with a local university has also launched a study to develop possible models of more sustainable ovens.

Colombia

An estimated 1,935 brick producers (including artisanal and industrial producers) exist in Colombia, a country characterized by its use of bricks in much of its social and industrial architecture.

Although not targeted for the brick sector per se, brick producers as well as industrial brick factories must comply with strict licensing for mining operations and for environmental permitting (including emissions regulations) for their activity, as well as land use regulations. Regulations establishing limits for emissions also directly affect the sector, including a 2008 regulation that caps limits for the ceramic and clay industries while another resolution from the same year establishes that brick kilns must have a chimney at a set height for the purposes of measuring emissions. These controls have had significant impacts on the sector. Some private sector initiatives have engaged the sector to focus on energy efficiency of traditional brick production.

In collaborative work with the CCAC, the government of Colombia and private groups like CAEM, are working to develop technologies and protocols to properly and precisely measure kiln emissions. This work will provide the sector both in Colombia, and around the world, invaluable information and techniques to better monitor and control the sector.

Ecuador

Ecuador has recently enacted national development plans that include stipulations on energy efficiency and housing that would affect the sector, while nascent municipal policy for the city of Cuenca has begun to engage and address the traditional brick sector on environmental contamination.



Honduras

In Honduras a national inter-ministerial climate change government committee has engaged into its planning technical improvements to the traditional brick sector, and would be affected by national climate policy in terms of land use and deforestation. Like in other countries of the region, applicable national air quality legislation governed by the Environment Ministry affect the sector, but to not directly target brick production.

Nicaragua

In Nicaragua, a local government ordinance for La Paz Centro, suspended all expansion or new installation of tile and brick production. National and local collaboration and delegation of authority (from national to local) of mining permits, directly engages the brick sector through use of land by artisanal mining operations (which includes mining for clay used in brick production). The locality of Yalaguina also has decreed municipal ordinances establishing land use impact regulations for the brick sector.

Argentina

Brick production falls under the Ministry of Mining in Argentina. Official estimates in Argentina report a very large number of traditional brick producers, 150,000. Efforts to date have been focused on bringing together representatives from a very diverse and unarticulated sector. National simplification and unification of tax categorization permitted the fiscal unification of the sector for taxation purposes. A sector study produced by the Mining Ministry is said to offer information about the sector, but this study has not been made public since it's publishing in 2012. Provincial efforts in collaboration with national authorities include the establishment of an industrial brick-makers park, which is designed to provide technical training to producers. Indications suggest that the park is not yet functional.

A provincial housing agency and a construction association in San Juan Province has established construction standards for bricks.

The National Labor Ministry, independent of the Mining Ministry has taken up activities to address labor standards, including child labor witnessed in the sector.

Bolivia

Bolivia does not have specific public policy directed to brick production, but like in other Latin American countries, policies governing air quality, environmental impacts and land use directly or indirectly affect traditional brick production. Current efforts in collaboration with civil society, including partners of the CCAC, are underway to generated brick-sector specific public policy.



National regulations exist for clay extraction, with local government granting monitoring and standard setting rights for environmental impacts (of rivers and basins) related to extraction. A new mining code which has still not been regulated, will also set regulatory specification for clay extraction activities.

Bolivia also has national construction standards which govern brick quality, while the Vice-Minister Small and Medium Enterprises Enterprise has approved a Clean Production Model for artisanal brick kilns. Local governments such as Cochabamba have also initiated efforts to regulate land use for non-metal mining activity (including clay brick production) aiming to improve conditions in the sector (focused on production techniques, transport, commerce and waste management) with the overall objective of reducing GHGs.

Civil society efforts (through CCAC partner work) have spawned academic studies focused on monitoring and measuring brick production GHG emissions. A technical forum has also been established to discuss related issues which includes municipal government representation from 6 municipalities and in some cases and issues, up to 16 municipalities.

Brazil

A very large country by comparison to other Latin American States, Brazil concentrates its traditional brick-producing sector in the poorer North East regions. Estimates indicate that some 7,000 producers exist in the country. Early phase CCAC contracted research did not identify any specific regulatory framework for brick production, which is categorized as a non-metal extractive activity and is only regulated as any other industry on environmental impacts the federal environmental authority and in terms of land use/location by provincial or municipal codes. Some private initiatives (including a national ceramics and business associations) are addressing micro-enterprise promotion in the sector focused on energy efficiency, product quality and environmental guidance.

Conclusions on Evolving Public Policy for the Traditional Brick Production Sector in Latin America

It is evident from the little available quantitative or qualitative information regarding the Latin American traditional brick production sector to date relative to public policies tools across the region that have been used *or that can be used* to address the various dynamics of the traditional brick production sector that:

- Except for very select cases, little or no public policy tools exist to date that are *specifically* targeted to traditional brick production. Generally, policies devised for broad application or for a given other existing sector (such as mining or environment) apply to traditional brick production;
- Brick production is oftentimes an informal, marginal or unmonitored activity and therefore may escape the reach of public policies, ministries and agencies that might otherwise address the sector;
- Brick production is usually classified as an *extractive activity* or other type of productive activity, and hence *may* be regulated (but not specifically as “brick production”) by *Mining Ministries* or *Production Ministries*;
- Some land-use regulations have been applied irregularly to the traditional brick production sector, usually to push the industry further and further away from populated areas; action

seems to be more a response to social pressure to exclude brick production from settled areas, than a response to strategic policy directed at the sector;

- Environmental Ministries have *in recent decades*, and particularly since the mid to late 1990s, recognized brick production as a key source of air pollution (particularly in large cities suffering from air quality issues), and due to an increased call for air quality standards (both from mounting social pressure and more recently due to the evolution and advent of climate change strategy priorities), Environment Ministries have in some cases taken steps to address air contamination in some urban or peri-urban environments by regulating air quality standards and/or pursuing contaminants, including brick kilns;
- Other potentially interested Ministries that may have stakeholder issues related to brick production (health, labor, poverty, informality, etc.), such as a Health Ministry, Social Development Ministry, or Labor Ministry, etc. have for the most part not engaged in brick production;
- Little or no *reliable and collective*/national data, exists quantifying or qualifying the existing number of kilns, location, type, ownership, worker composition and worker health and safety, emissions, migration, or other aspects of traditional brick production;
- While reliable data is unavailable, the sector visibly suffers from recurring illegal labor practices including, informality, undeclared worker, strenuous labor, child labor, etc.
- While reliable date is unavailable, the sector visibly suffers from negative health impacts to workers and communities living near traditional brick kilns;
- Little is known or has been quantified regarding kiln emissions, for reasons such as: 1) the lack of inventory data about kiln location; 2) lacking methodologies for emissions measurement at kilns with no centralized exit point (chimneys); 3) mandate, capacity and technical knowhow of public officials; 4) financing to invest in monitoring and measurement equipment;
- Steps to address air quality in large metropolitan areas from brick production have either transformed small brick producers into large brick producers (Brazil, Mexico, Chile, Colombia), or may have pushed or limited small artisanal producers to other regions (Mexico, Chile, Brazil, Colombia);
- While in some cases traditional bricks have an associated standard for construction quality purposes, the sector suffers from lacking strategic economic coherence, from a public policy standpoint. This is manifested by little or no public policy regulations for environmental standards, no green purchasing requirements for state agencies or other actors, no investment facilities or access to credit programs for technical innovation, no understanding of the sectors business model, no promotional programs for small producers, etc.;
- Very few or no production standards or kiln design (in terms of energy efficiency and emissions) or standards for production technique exist for the traditional brick sector.