

December 2015

Report and Regional Strategy

(deliverable 9)

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

[Also available in Spanish; Original: English]



The following document is the Report *and* Regional Strategy for the Policy Advocacy Network for Latin America for Clean Brick Production (the PAN LAC), comprised under the *Bricks Initiative* of the Climate and Clean Air Coalition.

Note: The original terms of reference for this strategy devised in 2014, specified that there should be a *Framework for the PAN LAC (cited as Deliverable 5)*, “including medium and long-term goals, which ensure the continuity of the regional network, and building on ongoing national efforts and engaging more countries to pursue key actions for Short Life Climate Pollutant reductions.” This Regional Strategy was built upon the initial content of the Framework. As such, the reader may find some repetition of content. This is intentional, as it is the substantive project content and strategic view that has survived from the original and foundational PAN LAC Framework Document.

This document deepens this objective and expands that original output of the PAN LAC Framework Document. It was developed following several gatherings in the region of policy experts, brick kiln technical experts, multiple government agency staff trusted with or interested in monitoring, evaluating and regulating, traditional brick production. The initial draft Framework Document (output 5) was circulated at the second policy training course held by the PAN LAC Network in April of 2015, and this *advanced* and edited Report and Regional Strategy (output 9) incorporating member and expert comments, was finalized in December of 2015. Concurrently, this document along with the Public Policy Course (output 7/8) shall inform a Regional Guidelines (output 10) which will present the subject matter in a prescriptive format for governments. The Regional Guidelines will be prepared in early 2016.

This is a working document that is subject to change. Inputs, suggestions, critiques are welcome and will be incorporated as is appropriate. This Regional Strategy for the Policy Advocacy Network for Latin America for Clean Brick Production, was authored by the Center for Human Rights and Environment (CHRE/CEDHA), project implementer for the PAN LAC.

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This document is structured in the following sections:

1. Context of the PAN LAC Regional Strategy
2. Characterization of the traditional brick production sector in Latin America
3. Principal Social/Economic/Environmental Dynamics and Barriers in the Brick Sector
4. Associated Public Policy
5. Actions in the Region Related to Policy Evolution and Transformation of the Sector
6. Strategic Policy Priorities for Brick Production Policy Guidance
7. Opportunities for PAN LAC Intervention
8. Medium and Long Term Goals for the PAN LAC
9. Time Frame for Framework Strategy Implementation
10. Complimentary Value of the PANLAC Experience with other CCAC Initiatives

I. 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). Many SLCP emissions can be achieved through quickly identified and rapidly implementable cost-effective solutions that also advance national development priorities such as growing strong economies, improving air quality, protecting public health or promoting food security.

The CCAC promotes the development and implementation of policies, regulations and practices of Partners and relevant stakeholders including catalyzing actions, building support, mobilizing finance and enhancing science, to address SLCP emissions. 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 of brick production 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.

Furthermore, while select groups around the world in places like Southeast Asia, China, and Latin America have taken notice of the contamination derived from traditional brick kilns and are even developing technologies to improve the economic efficiency of production (which may in turn have added environmental benefits—such as improving wood burning techniques to lower fuel costs), rarely has the issue been taken up from a *public policy* perspective.

This is why the CCAC has developed two regional networks **PAN LAC** and **PAN ASIA** (in Latin America and in Asia, respectively) to promote more government engagement and discussion to promote informational exchanges, share knowledge and debate ways forward to reduce deadly and dangerous emissions from brick production, and ultimately to improve public policy to induce sustainable change in the traditional brick production sector to reduce social and environmental negative externalities of traditional brick production.



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

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II. Characterization of the Traditional Brick Production Sector in Latin America

Bricks for household and commercial use have been produced for many hundreds, and even thousands of years. The process for producing bricks is rather straight forward and generally involves utilizing clay extracted from nearby land, molding the clay into the desired brick or tile form, drying the raw brick/tile under the sun or in ovens, and then cooking the brick in a makeshift temporary oven built of the same bricks being cooked (*clamp* or *scove* design), or in a permanent oven structure, utilizing available wood or other biomass as fuel. In certain cases, waste (including toxic waste such as car tires) is sometimes used as fuel.



- (1) Clay is extracted from land by hand or with mechanical machinery
- (2) Clay is mixed with water and other additives (sand, biomass, ashes, etc.)
- (3) Worker places clay into wooden or steel molds by hand and lays bricks behind on ground for drying
- (4) Bricks are left in the sun to harden for several days
- (5) Raw dried bricks are piled into a cubical or cylindrical structure leaving air tunnels below for burning fuel (this is the brick kiln, *or oven; clamp design*)
- (6) Workers obtain wood, waste or other fuel and ignite the brick kiln oven (*scove design with protective insulated cover of mud/bricks*)
- (7) Brick Kiln burns black and white smoke, emitting toxic fumes, black carbon etc.
- (8) Smoke contaminates local community and people nearby

Traditional brick production is also oftentimes a seasonal activity where land used for agriculture or for some other activity is temporarily used for brick production. Since brick ovens are built from the very bricks that are being produced and that will be sold to market, makeshift kilns can appear out of nowhere, and then dismantled immediately after cooking so that bricks can be sent off to

buyers. This dynamic adds to the difficult task of formally inventorying the number of kilns (which would help formalize the sector) or establishing the location of kilns, as they can only be counted when they are actually in production. Not all kilns are temporary in nature. More advanced designs introduce permanent structures. A single producer may construct anywhere from a few to dozens of kilns per week. When production is underway, a neighborhood may be overrun by kiln smoke from hundreds of kilns burning at once, whilst in non-production times, the skies might be crystal clear and no kilns may be in sight.

Since the mid 19th Century, this artisanal labor-intensive way of fabricating bricks began to give way to much more efficient and less contaminating industrialized methods, centralizing production into larger permanent ovens, greatly improving efficiency and largely reducing social and environmental impacts of brick production. Such changes have not occurred however, in all lesser-developed nations, or throughout each of these nations, where traditional production processes are still very much present and sometimes even still the dominant production form.



Traditional vs. Modern Technologies used to Set Bricks to Dry; Left: Chile, Right: Spain

Traditional brick fabrication methods can be improved with a view to reduce negative externalities and made more efficient (economically) with some minor changes that introduce improved raw material management, simple low tech machinery that improves production efficiency and brick quality, or design changes to the oven and to the burning process such as adding a chimney or channeling smoke through various oven chambers in order to capture black carbon or reusing emission heat for raw brick drying. More expensive structural changes are also possible for larger producers involving building larger brick kilns with mobile brick entry and exit and a much more efficient use of heat.

While more modern methods such as those displayed in the image above from Spain, generate brick industries that can produce many millions of bricks per month with only a handful of workers operating machinery, in general, in less developed countries with informal brick sectors and producers who may produce tens of thousands of bricks per week or month, job security and subsistence income consideration must be taken into account before presuming that such industrial sectors should be fully modernized.

Other improvements to the sector and to techniques used in brick production can effectively reduce environmental impacts, improve health and working conditions for workers and communities while improving social welfare and conserving productive employment.

As societies around the world begin to accept the need to address and mitigate climate change trends, they are beginning to tackle contaminating industries and traditional brick production is becoming a priority sector to address for many countries. The lack of data from the sector such as the number of kilns in operation, the number of people employed, the economics, the number and types of bricks produced, and the emissions and other impacts they are responsible for present enormous challenges for public officials ready to address policy changes in the sector.

III. Principal Social/Economic/Environmental Dynamics and Barriers in the Brick Sector

Societies which still manifest significant existence of traditional brick kilns which in turn display high levels of contamination, labor law violations and other legal irregularities are likely to have some or many of the following systemic governance weaknesses which lead to and continue to replicate unsustainable practices as well as the inability to address the problems of the traditional brick production sector:

- Significant levels of informality, permitting the establishment of traditional brick kilns in marginal or uncontrolled urban/rural areas near market outlets
- Lack of air quality laws/standards/regulations
- Lack of capacity of monitoring air quality standards (where they may exist)
- Technical complications of measuring air emissions from industry
- Poor labor practices including often, child labor or senior citizen labor in brick production
- Poor health conditions for workers and community living near brick kilns
- Lack of general knowledge of the sector (how many kilns, what type, producers, where, etc.)
- Ineffective or non-enforced land-use regulations
- Weak or no product quality standards
- Little understanding of business model of the sector
- Difficulty of small producers to market their product effectively
- Lack of knowledge or incentives for ways producers can improve product quality
- Lack of knowledge or incentives for ways producers can improve burning efficiency
- Lack of comparative knowledge of how bricks are made outside of locality
- Fear/resistance to change / reliance on traditional customs for production
- Dominance of market by larger producers or buyers (large commercial warehouses)
- Lack of access to credit for capital investments in the sector



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



IV. Associated Public Policy

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*, or what public policy may exist to address some of the witnessed problems, are not specifically designed with the sector’s dynamics and characteristics in mind.

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. The intangibility or transitional/temporary nature of the ovens also adds to the tendency of government agencies not to engage producers. Another element lending to lacking policy is the *fringe* nature of the production. Traditional brick kilns produce a lot of smoke and for this reason alone, growing social intolerance with air pollution from brick production 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 and where public agencies that might otherwise control brick producers may not have a strong presence or any presence at all, particularly for example, if the kiln site are just outside of municipal jurisdiction and no national or provincial agencies carry out control functions in the area.

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, traditional brick kilns have come under the concern of *environment* ministries, seeking to address and improve *air quality* and reduce black carbon emissions. The smoke from air pollution deriving from brick kilns does not stay in informal settlements, but rather contaminates the air all around the settlements, including in formal productive zones. This pushes national state agencies to *have* to address brick production as a collateral problem to their air quality. In a few cases, other ministries, 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, 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 have moved to close down the most contaminating brick kilns, while encouraging producers to introduce design changes to their kilns to reduce contamination. 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 and public programs to address its impacts, an especially challenging task.

V. Actions in the Region Related to Policy Evolution and Transformation of the Sector

As noted above, specific and targeted public policy to address the social and environmental impacts of traditional brick production has been limited. Some experiences can be highlighted but none have successfully addressed the sector as a whole, or have achieved sector-wide transformation. Policy has rather impacted the sector to relocate (Chile) or to address contamination (Colombia, Peru, Mexico). In some cases policy has crowded out small producers, spurring on a push to introduce larger production (Brazil). Few efforts have focused on integrating social programs to address labor conditions or worker health, although in some cases, child labor has been addressed (Argentina). In all of the cases examined, the inability to promote integrated public policies that consider economic, social and environmental dimensions, results in disjointed policies pulling or pushing the sector without achieving efficient transformation. This results in excessive fines, permitting hurdles or other administrative complications that are exacerbated by the failure of the sector to obtain the necessary financial investments to comply with changing code.

Civil society initiatives (for example, by CCAC implementing partner Swiss Contact) have surfaced in several countries to promote technological transformation, however like isolated efforts by governments, the changes that can in a handful of producers (or relatively few when compared to total producers in a given country) cannot be taken to scale if these efforts are not accompanied by efficient and systemic public policy changes. Scaling up transformation of the traditional brick production sector, needs intervention by public agencies, with appropriate public policy and laws to accompany this transformation.

Through the CCAC's [Bricks Production Initiative](#) discussions amongst policy setters at the national and local level, particularly those concerned over air quality and air pollution, as well as public agencies working on climate change strategies, in countries such as Mexico, Chile, Peru, Nepal, and others, are beginning to consolidate an understanding of the need to develop sector policies for brick production. The CCAC, and specifically the coordination to date of the PAN LAC project in Latin America (and the PAN ASIA in Asia), has approached the issue through the promotion of the idea to adopt *integrated and multi sector approaches* for cleaner brick production. The idea behind this effort is for the CCAC and its network of actors through member states, partners, etc. providing technical assistance to interested policy makers which assist governments to study, identify and implement alternative technologies, conduct market analysis of the sector to find ways to improve commercial efficiency, raise awareness, build capacity of public officials and producers, and through pilot exercises, implement programs on the ground to address traditional brick production.

In order to address lacking policy and specifically the invisibility of the sector, the CCAC's Bricks Initiative has generated several specific products to address this lack of information and need for policy guidance:

1. *Training Nodes/Training Manuals*

Technology training nodes are currently in design *or have already been piloted* in Colombia, Mexico, Peru and Chile and Brazil to develop a common understanding and comprehensive guidance on technologies that reduce SLCP emissions from brick kiln production. These nodes are an opportunity for brick producers, policy experts, and other actors in the brick

sector to see first hand, the technological evolution of the sector. This work includes the development of training manuals for both the Latin America and Asian region, based on feedback from the training nodes and with input from the initiative partners and technical experts from the countries participating in the project.

2. *Business Case for Brick Production*

This work involves the development of the business for the complete chain of artisanal brick production – from gathering raw materials, labor organization, production processes, and distribution channels, to the final sale. This program helps facilitate the acquisition of necessary tools to brick producers who use modernized production technology to improve their business and ensure economically feasible production. The CCAC envisions that it will be a fundamental piece to future engagement of policy actors to address the future of the brick sector.

3. *Market-Based Pilot Project*

This pilot program aims to implement an integral kit of policies, including command and control measures (relocation, emission standards, construction regulations, etc.) as well as economic instruments (social aid programs, credit, subsidies, technology transfers, fiscal exemptions, emission market schemes) and market instruments (labeling, certification, public information, public purchases). Pilot efforts would include working with city or local governments and private or industry sector entities to promote a cleaner production and possibly the certification of bricks.

4. *Climate Accounting/Measurement Tool*

The Assessment tool and Inventory taking place in Colombia will help characterize the brick-making sector at the country level, allowing policy makers to make first order assessments of problems related to brick production. This comprises conducting a national assessment and inventory of brick production, surveying five different regions of Colombia with the aim of identifying black carbon emission sources through a representative sample of the 5 regions. This activity includes a protocol for measurement black carbon in Colombia and an improved Inventory of the sector, which can be used in other countries.

5. *Policy Advocacy Network (PAN LAC and PAN ASIA) for Clean Brick Production*

The PAN LAC and PAN ASIA networks involve the establishment of a network of experts to advance science-based knowledge, policy development and implementation, and technology adoption, active in two key regions – Latin America and South Asia (with a third network planned for Africa). These globally unique networks are designed to enable cross-regional cooperation to assemble, improve and share understanding related to (1) the monitoring, measurement, and characterization of black carbon and other pollutant emissions from brick kilns; (2) regulations, incentives, financing, and other policy tools to promote cleaner brick production or use of alternative building materials; and (3) brick kiln technology alternatives and best practices for optimal black carbon mitigation in a given country or region. It is important to emphasize that aside from the work being undertaken by the CCAC in brick production, there is no other forum anywhere in the world

for policy-makers to address, development and study public policy to reduce negative externalities from brick production.

The PAN LAC

Created in 2014, the PAN LAC advocacy network develops and maintains a list of public policy contacts in the traditional brick sector, building on an already growing list of technical experts amassed by the CCAC as well as government contacts taking from CCAC members. The challenge was *and continues to be*, identifying the potentially interested public officials from ministries (such as Health, Labor, Mining, Production, and others), which are not generally associated to the brick sector and which would need to collaborate in order to develop effective public policies to address the complex and multi-sector dynamics of brick production and its related impacts. This list now includes some 100+ contacts in over 20 countries of Latin America, and is growing.

PAN LAC has also already begun efforts to bring together public officials from the region to launch debates on brick sector strategies and key issues. Some previous capacity building meetings focused on technical aspects of brick production had already been held (for example in Guanajuato México in 2013). The PAN LAC Network held its first “official” capacity building course in October of 2014 in Cuzco Peru as a “4th day” side event during a technical workshop on brick production organized by CCAC partner Swiss Contact. This event provided the opportunity for CHRE/CEDHA to develop Deliverable 7, the Draft Capacity Building Course focused on public policy training for the traditional brick production sector. We also mention this workshop because it is an indicator for this Strategy Framework showing how we can move from technical training on transformation to public policy formulation and implementation. It was clear from the first day of the Cuzco 3-day training, that by the end of this technical capacity building workshop, the public officials present wanted *and needed* to sit down to discuss how they could implement technological transformation through policy tools. That’s what the PAN LAC is all about.

It is also important to note the significance of the collaboration between different implementing partners of the Bricks Initiative (in this case Swiss Contact, CAEM, INNEC, CHRE/CEDHA) in creating space and interest for public officials to discuss public policy related to brick production. This is an important “Value Added” of the coordination of the Bricks Initiative of the CCAC.

The Cuzco workshop allowed us to produce a draft training course for policy training, which was piloted in draft form at that time. Following the Cuzco course, CHRE/CEDHA continued developing the draft course (deliverable 7) and proceeded to deliver a second capacity building course in Maule Chile in April of 2015 and used this experience to finalize the course design content (part of deliverable 8), with the added benefit of capitalizing on opportunity (and despite having funding for only one course) actually holding *two* courses (Peru and Chile) to inform the content of the capacity building course. That course design is available for consultation as a separate product called Capacity Building Course: Terms of Reference. It is available from the Secretariat.

Government officials from Chile’s Environment Ministry and from the Maule region, home to about 50% of Chile’s traditional brick production, thanks to the encouragement of the CCAC, have identified bricks as a significant problem for achieving improved air quality. They immediately

understood the value of holding a PAN LAC *capacity building course* in Chile, as a potential opportunity to bring knowledge, experts and gain expertise themselves to develop a strategy and program to address the negative impacts of brick production. The Maule, Chile capacity building course, like the event held previously in Cuzco, Peru, provided a space for public officials from countries throughout Latin America, to gather to discuss public policy barriers and opportunities to, learn of activities taking place in other parts of the region and to consider ways to address some of the more salient social, economic and environmental problems with traditional brick production.



Vice Minister of Environment of Chile opens the PANLAC *public policy capacity building course* in Maule, Chile. April 2015

Representatives from Mexico, Guatemala, the Dominican Republic, Colombia, Peru, Chile, Argentina, Paraguay, and Brazil, and from the several international agencies, including the World Bank, the Pan American Health Organization, the United Nations Coalition for Climate and Clean Air (CCAC) attended and directly engaged the capacity building course for public policy on traditional brick production. In addition representatives from key Chilean government agencies, including the Ministry of Environment, the Development Promotion Corporation (CORFO), as well as municipal and provincial authorities and NGOs as well as local brick producers and academic representatives were also present and actively participated in discussions.



Presentation at PANLAC's Inaugural Capacity Building Course discussed National Strategies, Health Impacts, Labor Codes, and Case Studies

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The two-day *capacity building course* included two site visits and several panel presentations to review the state of the art and evolution of brick production in several countries in the region, as well as diverse dynamics related to brick production including labor standards, health, finances, environmental, labor and other strategic public policy directed at addressing the various dynamic and impacts of brick production.



A two-day site visit allowed public officials to visit brick-producing localities and see first-hand how bricks are produced

Finally, the *capacity building course* also offered a space to discuss and propose ways to help Chile address its brick production impacts and develop a public strategy to address the sector as well as an opportunity for participants to contribute to a future strategy for the PAN LAC network and its Framework Strategy.

These PAN LAC gatherings have helped generate key inputs to the development of the Strategic Framework for PAN LAC.



First capacity building course of the PAN LAC in Cuzco Peru to discuss potential public policies related to the brick sector. October 2014

VI. Strategic Policy Priorities for Traditional Brick Production Policy Guidance

Gatherings held to date officially under the PAN LAC umbrella, or derived from interviews with partners indicate **several issues, governance gaps and priorities** that must be addressed in the region in order to develop effective sector policies for traditional brick production. These issues, gaps and priorities form the backbone of the PAN LAC Regional Strategy.

- The development of regulatory frameworks for air quality and emissions
- Developing best practice guidance for brick production
- Focusing on the informality of the brick sector
- Attention to land use in the sector
- Developing a multi-agency approach to intervening in brick production
- Producing more information and sector studies
- Capacity building and Awareness Building
- Attending the social dimensions (such as poverty/labor/child labor/health, etc)
- Focusing on improving the economics of brick production for small producers
- Regulating/monitoring/controlling air emissions

VII. Opportunities for PAN LAC Intervention

Addressing the negative externalities of traditional brick kilns from a public policy standpoint, despite the complexities of the sector, is a manageable task and can have many benefits, including climate benefits as well as social and economic improvements for brick producers, workers and the communities where they are located.

These can include for example, immediate reductions of toxic emissions, including black carbon which will both help address climate change and have a very positive contribution to reducing health risks and impacts to brick workers and local communities. Introducing efficiency gains in the production process can also have an immediate and direct impact on raising income and lowering poverty, since small changes to techniques can not only lower emissions (reducing income losses due to health illness) but also improve fuel efficiency and product quality, which in turn lowers the number of discarded bricks that cannot be sold, lowers expenses on fuel, and provides higher income from sales.

Just a few examples of simple, cost-effective and highly impacting interventions, which are all feasible in the sort activities promoted by PANLAC are:

- to design sector inventories and analysis to better grasp brick production dynamics
- to develop strategic plans to intervene in the sector
- to design basic air quality regulations and monitoring systems
- to build capacity on clay mixing
- to introduce basic mechanical improvements to burning techniques

- to introduce design changes to ovens
- to identify opportunities to reutilize heat from ovens for drying subsequent bricks
- to provide or facilitate small investments to upgrade infrastructure/technology

The *types* of foreseeable strategic interventions to promote policy change in the brick sector into the following categories or typologies can be divided into the following categories:

- (1) Regulatory Functions: eg. Policies/Laws/Standards/Monitoring/Multi-Agency Engagement
- (2) Information development or dissemination: Stock Taking / Inventories
- (3) Capacity building: Clay preparation / Brick Drying / Burning
- (4) Infrastructure innovation: Press/Cutter (Extruder)/ Burning Equipment / Kiln Design
- (5) Commercial: Market Model Analysis / Investment / Business model / Organization / Marketing
- (6) Social impacts: Labor standard/Human Rights Impact Assessment/Health

Recalling that the PAN LAC aims to act as a *catalyst* for change in the sector, and that its' principal instrument is *policy guidance*, and the bringing together of public officials, knowledgeable experts, and producers related to the brick sector, there are several ways in which the PAN LAC can harness already acquired knowledge (including in other Bricks Initiative work) as well as generate new knowledge and promote engaging transformational activities.

Strategically, the PAN LAC is poised to assist member countries in many different ways, utilizing tools already developed by the Bricks Initiative and leveraging its position *vis a vis* governments, experts and other actors it already engages with.

The PAN LAC can and should:

- Encourage political engagement of CCAC member States on brick policy transformation
- Capitalize and compliment CCAC's Bricks Initiative with other CCAC initiatives engagement
- Utilize its knowledge and links to experts to provide policy guidance to States
- Help engaged member countries to design inventories and characterize their brick sectors
- Help engaged member countries to identify priorities and possible solutions for the sector
- Help States develop local implementation programs for the traditional brick sector
- Ensure that we transfer knowledge learned in technical components already development (technical capacity/economic analysis/emissions measurement/regulations)
- Help identify and leverage finance for implementation of programs
- Provide technical assistance to implement programs
- Hold further policy awareness workshops to engage States
- Ensure that the CCAC Secretariat and the Lead Partners of the Bricks Initiative properly coordinate and inter-relate future activities of the Bricks Initiative

The PAN LAC has *and can continue to deliver effective results* in the following *five* areas:

1. *Policy Dialogues.* PAN LAC should continue to program and carry out policy dialogues (capacity building courses) similar to those already held in Cuzco Peru (2014) and Maule Chile (2015) at a steady and recurring rate of **one or two per year**. These *capacity building courses* serve to build public policy knowledge and visibility to the sector and to the aims of the CCAC to work to reduce emissions from brick production. It will have the added benefit of assisting governments to acquire ideas of how to design and implement policies in their home countries. It will also help sustain and strengthen the PAN LAC as a viable and recurring place for governments to find solutions to their challenges in the brick sector.
2. *Model Guidance on Public Strategy for Brick Production.* The PAN LAC should further develop its Regional Strategy document, producing a *Model Policy Guidance Document for the Traditional Bricks Sector*, which member States could use to sort out their thinking and preparation for the development of an intervention strategy for the brick sector. We should note that several governments requested such a guidance manual from the PANLAC.
3. *Assisting Member Countries Develop Intervention Plans and Strategies.* Identify member countries that wish to tangibly and strategically engage in addressing brick kiln contamination. The CCAC can identify and target willing governments for strategic assistance to address the brick sector. This will imply assisting governments in planning out a strategy and taking the initial steps to implement that strategy. The PAN LAC would ideally be working on **at least one and maybe two strategic plans** in specific member States per year.
4. *Assistance in Implementation.* Through the contacts and membership in the PAN LAC, the CCAC can help identify and coordinate experts to assist engaged States in the implementation of programs designed for the brick sector. This will imply offering technical expertise on issues such as regulation design, monitoring systems, technology, brick kiln design, market analysis, and finance. This work will be especially important to States at the initial stages of program design and launch.
5. *Economic and Scientific Studies.* The CCAC can further encourage the development of scientifically based and economic studies to underpin brick sector policy evolution.

VIII. Medium and Long Term Goals for the PANLAC (Recommendations)

The goals of the PAN LAC are associated to the areas of work listed above.

In the short and medium term, the PAN LAC must

- Establish itself as a source of information and guidance for evolving policy in the brick sector
- Achieve member State engagement in policy exchange and use of services and products
- Generate actions by engaged States in the development and implementation of policies and plans to address contamination of the traditional brick sector

In the long term, the PAN LAC must

- Result in the establishment and implementation of Traditional Brick Sector Strategies in countries of intervention
- Catalyze sector changes, including visible steps (such as, but not limited to):
 - advancements in measuring and quantifying emissions from the sector

- production of trustworthy sector data on number of kilns, location, emissions, etc.
- innovations carried out in techniques of brick production at participating kilns
- infrastructure investments made to reduce emissions at participating kilns
- measurable reductions in black carbon and other emissions at participating kilns
- reduction of informality of the sector where the CCAC has engaged
- improved working and health conditions for workers and communities
- improvements in economic returns of production where the CCAC has engaged
- improved energy efficiency of kilns where the CCAC has engaged

IX. Time Frame for Framework Strategy Implementation

The PAN LAC must envision a multi-year strategy (such as a 5yr plan), which can be tested and/or implemented in staged periods as financing is identified and becomes available. Local workshops such as the ones carried out in Cuzco and Maule can occur cyclically each 6-9 months with no specific end date determined. These can be repeated as needed and funding and political will permitting.

Strategic implementation periods in individual countries must adhere to the demand cycles generated by the PAN LAC. These periods must be determined by the likely time periods for intervention in engaged States to design and begin implementation of local plans (for instance 18 months). The implementation of such activity hence, and funding permitting, will likely be in yearly or 1.5 yearly cycles. The PAN LAC does not necessarily have to accompany the member State through the full implementation process, although monitoring and evaluation exercises at staged intervals are recommended.

X. Complimentary Value of PAN LAC Experience with other CCAC Initiatives

In the work to date by the PAN LAC, specifically in the engagement occurring with government officials in diverse countries (including Mexico, Peru, Colombia, Brazil, Chile, Bolivia, Ecuador, Paraguay, et.al.) it has become apparent that the same public officials that are expressing interest in the dynamics of brick production and in the negative externalities of the sector (particularly the environmental externalities such as air quality), are also interested *or could potentially be interested* in several of the other initiatives of the CCAC, such as the CCAC's work on Methane Emissions, Transport, Cook Stoves, Waste Management, etc.. In this regards, the methodology of intervention proposed for the PAN LAC could and should be studied and considered in work in other sectors. Furthermore, as PAN LAC engages public officials to work on reducing brick kiln emissions, the same public officials could be enticed to address other areas of contamination and governance within their sphere of influence.

Before After Potential



A typical traditional kiln vs. an inverted exhaust kiln



Labor-intensive produced tiles vs. mechanical production



Labor-intensive hand crafted bricks vs mechanical press producing hollow core (uniform and less material used)