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PEEKING AT BRAZIL THROUGH A COBOGÓ

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Abstract

Architecture-focused tourism rarely accounts for the production processes behind the buildings it celebrates. The labour of artisans and some of the circular structures of local economies that have long underpinned the making of architectural components tend to remain invisible. This article proposes a different reading of Brazilian modernist architecture by following the full historical trajectory of the cobogó, a perforated modular block first produced in Recife in 1929. From its pre-colonial antecedents through its adoption as a symbol of national modernism, its redistribution through military censorship and working-class self-building, and its reinvention through participatory design and circular economy practices, the cobogó offers a way to think about how material culture generates identity. The article argues that recent projects, particularly those that turn local industrial waste into building components through artisan processes, point toward a model for rural and peripheral communities to produce design that is genuinely territorial and that can sustain a conscious, grounded form of cultural tourism.

Keywords: cobogó; Brazilian architecture; circular economy; craftsmanship; rural communities; cultural tourism; sustainability; participatory design; material heritage; colonialism; identity.

INTRODUCTION

Some design artefacts born to solve specific, contingent problems, tend to accumulate different meaning over time that their inventors could not have anticipated. One of these is the Cobogó, a perforated concrete block registered by

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patent in Recife in 1929. It was first conceived as a practical response to the needs of affordable tropical construction, but over the following century it became an emblem of Brazilian modernism, a material of the urban periphery, as well of the countryside, a medium through which working-class builders expressed formal preferences that no school of architecture had taught them, and, most recently, a vehicle for circular economy experimentation in communities far from the metropolitan centres where design culture is often produced.

The standard account of the cobogó is essentially an architectural history, organised around the architects who used it and the buildings in which it appeared, capturing the moments when it was prestigious enough to be documented, but leaves in shadow the more diffuse history of its popular use, which is where much of its cultural meaning was actually formed.

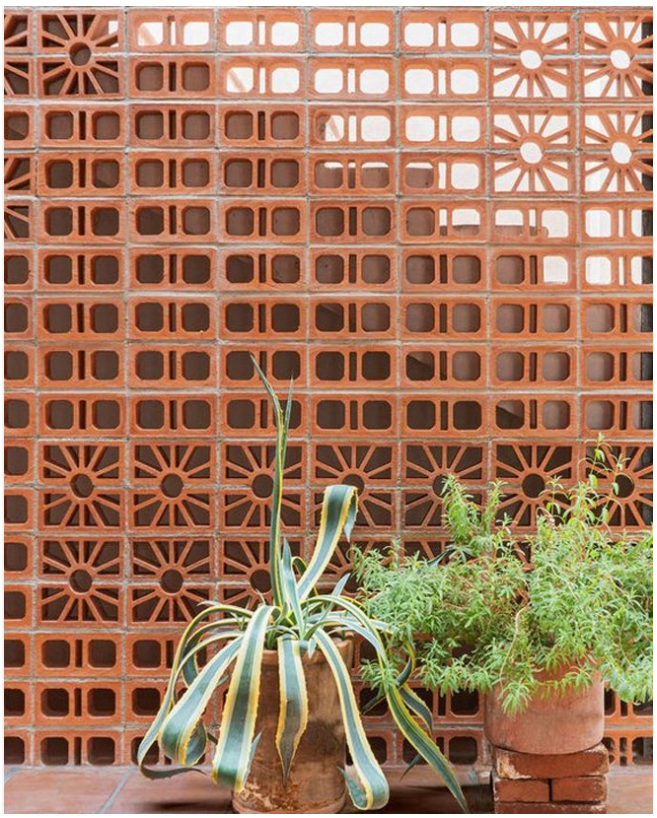


Fig. 1. Example of a terracotta cobogó application.[1]

The choice to examine this element through the lens of craftsmanship, material sustainability, circular economy and cultural tourism follows from the material itself. The cobogó's most compelling recent chapters are written in fishing communities in Alagoas and textile-producing cities in Santa Catarina, where the question being asked is not what the cobogó should look like in 2026, but what it can be made of when the available raw materials are shells or industrial fibre

waste. These projects, small in scale and far from what could be considered an actual industrial production, make a larger argument about how communities can use what they already have to produce something that carries cultural weight while generating economic value.

BUILDING FOR THE WRONG CLIMATE: PERNAMBUCO'S COLONIAL BACKGROUND

A Global Tradition of Perforated Surfaces

The use of perforated surfaces to manage light and air in hot climates is one of the main and most consistent threads in the history of building. In the rural dwellings of China's eastern coast, finely carved wooden lattice panels mounted on facades and internal partitions filtered sunlight and promoted ventilation while carrying symbolic content drawn from Confucian, Taoist, and Buddhist visual culture. Their shape, documented at least from the Ming dynasty, was one of geometric repetition where the precise use of the void spaces in between matter, was the primary compositional element.[2]

The Arab-Islamic world also developed a similar solution to mitigate the hot temperatures of their cities. The Mashrabiya, a projecting lattice screen of turned wooden elements, regulated the interior temperature through the pressure differential between the narrow shaded streets and upper-floor rooms, while encoding the local social norms around privacy and visibility. The term Mashrabiya derives from the Arabic verb for drinking, a reference to its original function as a shaded space for cooling water vessels, though its role expanded well beyond this into an architectural device with climatic and ornamental dimensions.[3]

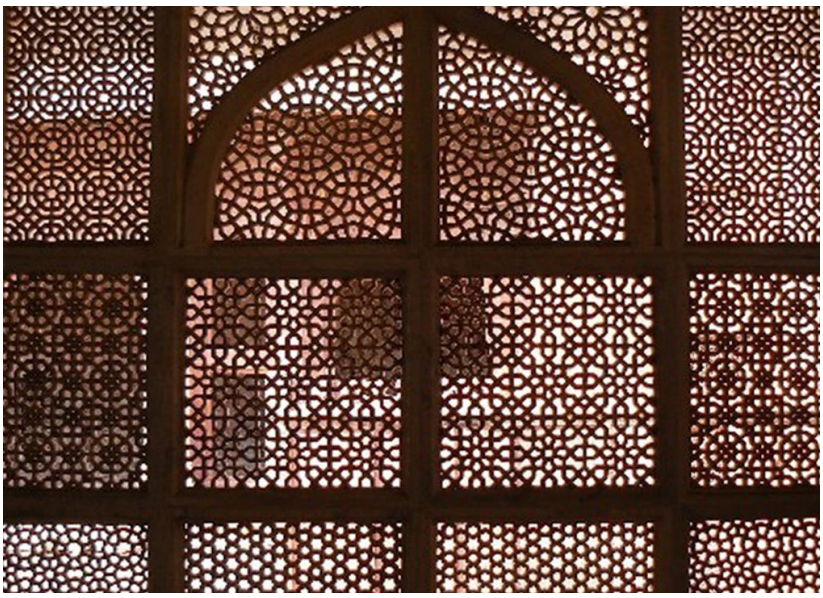


Fig. 2. *Salim Chishti* Tomb in Fatehpur Sikri, 2008.[4]

These traditions developed in geographic isolation from each other and from Brazil, but the similarity of their solutions suggests an instinctive knowledge around passive climate control in dense hot-weather settlements rather than any direct transmission. However, it reached Brazil through a direct application by the Portuguese. Arab building culture had been deeply embedded in Lusitanian architecture during the centuries of Moorish presence on the Iberian Peninsula, and Portuguese colonisers, together with an extensive library of architectural culture, carried its traces with them to the tropics during the colonization period.

The Outcomes of Portuguese Colonisation on Brazil's Material Culture

The colonial economy established in Brazil rested on slavery, agriculture plantation and export of raw materials to European markets. When slavery was formally abolished in 1888, over four million people were freed by the *Lei Áurea* but without any provision for economic integration or land redistribution, which overtime caused a persistency of the social hierarchy of the colonial period even when Brazil entered the twentieth century, with deep structural inequalities already in place.[5]

On the architectural side, the building strategies imported from Portugal's biggest cities, developed for a temperate climate, were ill-suited to the heat and humidity of the Brazilian coast. But where the official construction followed European models, informal and vernacular buildings started to be rise, creating hybrid solutions that absorbed what the colonial tradition had brought and adapting it to local conditions. Three wooden perforated elements characterise this period. The *rótula*, mounted flush with the facade and articulated in two sections, offered ventilation and privacy simultaneously. The *gelosia* projected outward from upper-floor windows as a cage-like screen, allowing occupants to observe the street without being seen. The *muxarabi*, the most direct heir of the Arab *mashrabiya*, was an overhanging balcony structure whose lattice cladding and roof integration produced a compact climatic unit particularly suited to narrow Brazilian street sections.[6]

These elements were effective enough that in 1809 the colonial authority issued a decree banning them, in favour of European neoclassical and industrial norms.[7] The creation of a decree implicitly registers that by 1809, Brazilian builders had developed an architectural vocabulary that was more efficient and compatible to the imported standard, and the colonial administration found it necessary to suppress it. The cobogó would inherit this situation when it appeared, a century later.

RECIFE, 1929

The Patent

The cobogó was registered by patent in 1929, after Ernst August Boeckmann, a German businessman who had come to Recife through the sugarcane machinery trade, met Amadeu Oliveira Coimbra, a young Portuguese man, during a stay in Germany. On returning to Recife, they entered a commercial partnership with Antônio de Góis, an engineer who served as mayor of the city between 1922 and 1935 and whose administration was defined by an ambitious programme of urban modernisation. Together they founded a brick factory and developed the perforated block that would take their initials as its name: Co(imbra), Bo(eckmann), Gó(is).

The original prototype was cast in Portland cement with a simple geometric perforation, conceived for affordable housing construction in a tropical climate, allowing air and light to pass, keeping out rain and direct sun. The block could be stacked in certain configurations without mortar, which made it accessible to self-builders. Its module was also simple enough that a pattern could be generated through the sole rotation and juxtaposition of the blocks rather than an entire custom production, qualities that would prove decisive for its popular spread.

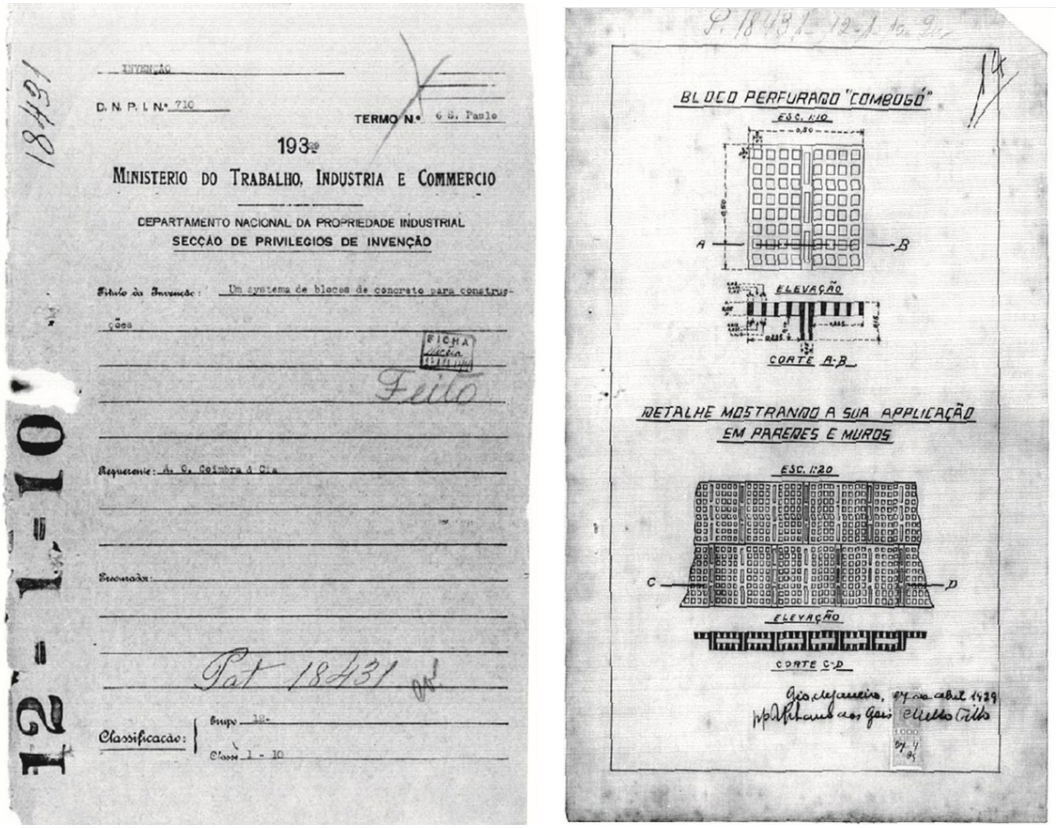


Fig. 3. 1929 Cobogó Patent document.[8]

Modernism in Pernambuco and the Weight of Colonial Culture

The cobogó appeared at a moment when Brazilian architects were beginning to develop a formal vocabulary that was modern, in the international sense, but rooted in local cultural conditions. This development serves as a reflection of Brazil's broader material culture, a complex stratification of heterogeneous influences shaped by indigenous knowledge, African traditions brought by enslaved people, Portuguese colonial practices, and successive waves of European immigration.

Establishing a clear and univocal genealogy for such cultural elements remains a significant historiographical challenge. Due to the scarcity of documentary sources and a long history in which entire segments of cultural production were systematically excluded from official records, the full narrative of Brazil's architectural development has often remained fragmented and difficult to reconstruct.

And the modernism that emerged in Pernambuco in the 1920s and 1930s was shaped by these same conditions. Unlike the Rio de Janeiro mainstream, which maintained close ties with European avant-gardes and with the cultural politics of the federal government, the Pernambuco architects worked in a regional context where the gap between imported models and local conditions was more acutely felt, making the cobogó a perfect fit for this context. It was made in Recife, from materials available on site, and it responded to the local climate in a way that the brise-soleil, the prestige solution of international modernism to similar needs, failed to adapt.

THE MODERNIST DECADES: 1930S TO 1960S

Luiz Nunes and the architectural cobogó

The architect who first gave the cobogó a properly architectural role was Luiz Nunes. Working in Recife in the mid-1930s under the progressive administration of the governor Lima Cavalcanti, Nunes incorporated the block into buildings that treated it as a very engineered design element. His Caixa d'Água de Olinda, a water tower completed in 1937, is the clearest demonstration of this. The structure follows Le Corbusier's five points of modern architecture with rigor, but replaces the rationalist brise-soleil on two of its lateral facades with screens built entirely in cobogó. Screens help protect the pipes and cistern from direct solar radiation, maintaining water temperature over the ninety-metre elevation. Ninety years after construction, the system continues to perform as designed.[9]

Nunes used the cobogó unfinished, without any surface treatment, and without disguising its grey and raw material nature. In doing so he established a way of thinking about the architectural envelope that would become influential,

where the wall served as a filter rather than a barrier, and the boundary between inside and outside became a zone of permeability. This was new in the Brazilian context, where the facade had previously been conceived as either solid wall or with glass.

There is a possible connection worth noting between Nunes's approach and that of Frank Lloyd Wright, whose textile block system, used in the Millard House of 1924, shares the cobogó's modular perforated-block logic and was also developed in response to a specific regional climate. Wright visited Brazil in the period before Nunes's experiments, and some scholars have proposed that the textile block influenced the way Nunes thought about the cobogó as a compositional system.[10] Whether or not the influence was direct, the parallel situates Nunes's work within a broader international investigation into modular climate-responsive surfaces that is not reducible to European modernism.

Rio de Janeiro and the National Stage

The cobogó reached Rio de Janeiro through the Ministério da Educação e Saúde, the building project completed between 1936 and 1943 that became the defining statement of Brazilian modernism. The design team, which included Oscar Niemeyer, Afonso Eduardo Reidy, and Carlos Leão under Lúcio Costa's coordination, initially worked with brise-soleil as the primary solar control device. When the brise-soleil proved too expensive and technically demanding for wider application, Costa developed a terracotta version of the cobogó, with more articulated and formally refined shapes than Nunes's Portland cement first version.[11]

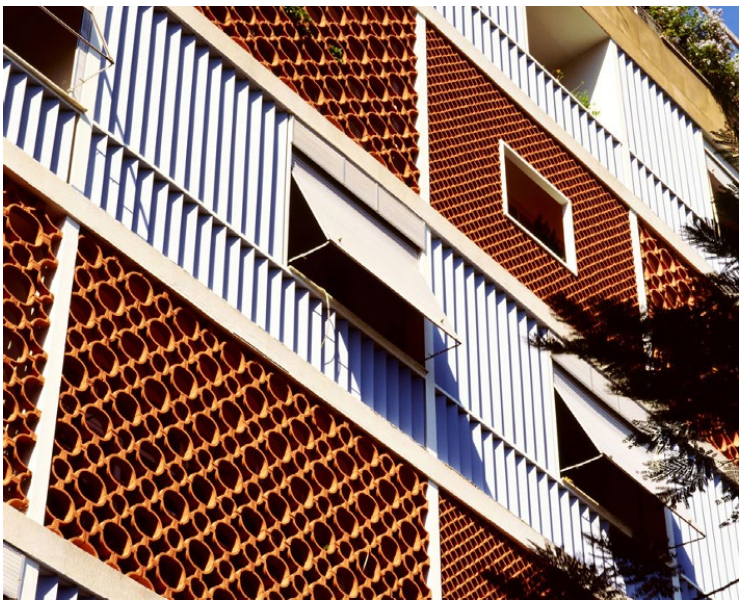


Fig. 4. Facade of one of the residential complexes of Parque Eduardo Guinle.[12]

Costa's terracotta cobogó appeared first in the Parque Eduardo Guinle residential complex in 1943,[13] where two different typologies were used on the same facade: a dense rhomboidal screen on bedrooms and a more open circular one on living spaces, with occasional window openings cut through the cobogó field to preserve views of the park. The combination of a variety of shapes and functions within a single building established the cobogó as something more than a practical device, a Brazilian compositional language.[14]

International recognition came the same year through the MoMA exhibition *Brazil Builds: Architecture New and Old*, 1652–1942. The exhibition curator, Philip Goodwin, was explicit about what had drawn American architects to Brazilian modernism. They wanted to understand how Brazilian designers managed sun screening and natural ventilation on large, glazed surfaces. Works by Luiz Nunes were featured with a description of the cobogó as "screen walls of cambogé, pierced concrete blocks half a meter square," giving the element its first international visibility.[15]

In the decade following the exhibition, the cobogó became a standard element of the architecture that was being called, not without controversy, the Brazilian Style. Oscar Niemeyer used it across a range of buildings and scales, from the Escola Estadual Professora Júlia Kubitschek in Minas Gerais (1951), where a concrete cobogó with elongated circular perforations gave the facades the appearance of lace panels, to the Edifício Eiffel in São Paulo (1953), where cobogó alternated with balconies and glazing in a rhythm that explicitly referenced the lightness of its Parisian namesake.[16]

Brasília and the Cobogó as Catalogue

The construction of Brasília after 1957 brought the cobogó to the new federal capital at a scale that made it an urban typology in its own right. In the *superquadras*, the large standardised residential blocks that Costa's Plano Piloto developed as the basic unit of residential life, the cobogó was systematically assigned to rear facades corresponding to the service areas and laundry zones, the *área molhada*. The placement reflected the climatic difference between Brasília's high-plateau winters and the coastal cities where the element had developed: full perforated facades were less appropriate where overnight temperatures could be significantly lower.[17]

The result was, despite this functional constraint, remarkable in terms of formal variety. Across the superquadras, more than fifteen distinct cobogó typologies were deployed, each assigned to a specific residential complex, each varying in geometry, material, and colour. The element that had started as a uniform practical solution had become a means of differentiating buildings that

were otherwise structurally identical.[18] By the twenty-first century, this variety had itself become a cultural document, frequently cited in promotional and documentary representations of the city.



Fig. 5. Six different types of the cobogós found in the superquadras.[19]

DESCENT FROM THE PEDESTAL WITH THE MILITARY DICTATORSHIP

Censorship in the Architectural Field

The military coup of 1964 that removed the democratically elected João Goulart opened twenty-one years of authoritarian rule in Brazil. The cultural consequences for architecture were significant, where architecture journals, public debates and conferences were cancelled, and the overall role of the architect in large public projects was progressively subordinated to that of the civil engineer, who was a more comfortable interlocutor for the military administration. Even Oscar Niemeyer, despite his already established notoriety, was interrogated and had projects blocked. The critical conversation that had sustained the development of a specifically Brazilian architectural culture was suddenly, and largely, shut down.[20]

The cobogó was not politically suppressed in any direct sense, but it lost the institutional support that had made it a prestige element. The revision of Brasília's building code removed it from the requirements for superquadra facades. Where roughly 65% of residential buildings in the capital had incorporated it during the 1960s, by the subsequent construction phase this figure had dropped to

approximately 2%.[21] Technical arguments were also advanced against it, since uncontrolled airflow was a comfort problem in colder months, elaborate three-dimensional typologies accumulated birds and insects, and expanding glass production offered a lower-maintenance alternative to the once undiscussed cobogó.

The Cobogó in the Peripherical Areas

What happened next is the part of the cobogó's history that the standard architectural account tends to pass over quickly. As it fell out of favour in prestigious construction, the element became more widespread in the informal and semi-formal building that was expanding rapidly on the edges of Brazilian cities during the same decades. Its low cost, by the 1970s the result of more than thirty years of mass production, made it an accessible material for self-builders, and its functional properties, thermal mitigation, some protection against intrusion, visual screening without full enclosure, were exactly what peripheral housing construction required. And unlike a simple wall, it gave a building a degree of formal character with almost no additional effort.[22]

In these contexts, the cobogó developed forms it had not previously attempted. People started to combine different typologies and geometries in the same wall, rotate blocks in unexpected orientations, used the element in configurations that had no precedent in the modernist literature. Some of these results were the product of necessity and limited supply; others showed a genuine spatial intelligence working without the framework of any formal design education.

This is the period in which the cobogó became, in the most literal sense, a popular element, used by people who had no particular interest in its modernist genealogy and who were not concerned with whether what they were doing was architecturally correct. The filmmaker Fernando Meirelles captured something of this world in *City of God* (2002), set in the Cidade de Deus housing complex on the outskirts of Rio de Janeiro in the late 1970s and early 1980s, where cobogó screens appear throughout as the unremarkable material of daily life in peripheral urban space, present precisely because they were practical and cheap.

Air Conditioning and the Class Divide

The rapid diffusion of mechanical air conditioning from the late 1960s onward created a divide that the cobogó registered clearly. Air conditioning became first a marker of prestige, then of domestic comfort among those who could afford it. As it spread through middle-class apartments, the cobogó's function as a passive climate management tool lost relevance for that segment of the population, and its associations shifted accordingly toward the lower end of the market.[23]

In Recife, as in other coastal cities, cobogó continued to appear on lateral and rear facades of residential buildings through the 1980s and 1990s, typically in service areas where ventilation was required but aesthetics were not a priority. The geometries used were the simplest available, chosen mainly for the airflow properties. The element had become more functional, but also ordinary and unnoticed.

REDISCOVERY AND REINTERPRETATION: THE COBOGÓ AFTER 2000

The rehabilitation of the cobogó as a culturally significant object was a gradual process that began in the late twentieth century and accelerated in the 2000s. Josivan Rodrigues's photographic project Cobogó de Pernambuco (2012) was among the first sustained attempts to document the element's presence in the built environment of the Northeast and frame it explicitly as heritage. Academic studies on modernist heritage in Recife and Brasília followed, situating the cobogó within the emerging historiography of Brazilian modernism's regional variations.[24]

Contemporary architects also reintroduced it into high-profile projects through the 2000s and 2010s, as a revival of the modernist movement and desire for a trully Brazilian architecture. Isay Weinfeld used it at the Casa Pinheiros in São Paulo in 2003 as a threshold between a corridor and an internal garden, and in 2008 proposed a scaled reinterpretation of Niemeyer's circular cobogó as exterior cladding for a temporary exhibition wing of the Museu da Imagem e do Som on the Copacabana waterfront.[25] The MK27 studio's Casa Cobogó (2011) introduced a three-dimensional sculpted surface by the Austrian artist Erwin Hauer, used here for the first time as an exterior element, creating a spa roof that appeared to dissolve into its own shadow geometry.[26]

The most territorially specific of these projects is the cobogó developed by Brasil Arquitetura for the Museu Cais do Sertão in Recife, commissioned in 2009 and inaugurated in 2018. The pattern was derived from the branching structure of the *caatinga*, the arid-zone vegetation of the Pernambuco interior, and from the cracked surface of its dry soil. Over 2,100 units, each one metre square and weighing approximately 140 kilograms, cover the building's facades entirely. The cobogó here is not an imported formal device adapted to local conditions; it is a surface that makes the landscape of the Sertão legible in the centre of a coastal city.[27]

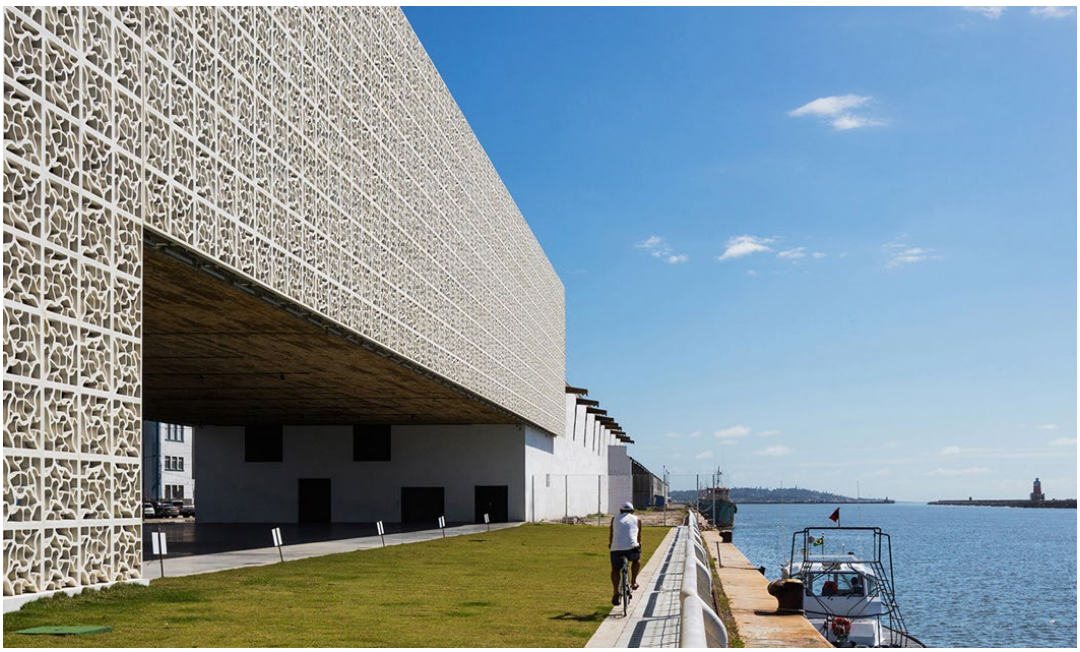


Fig. 6. Tailored Cobogó for the *Cais do Sertão* Museum in Recife.[28]

This shift from universal module to territorial surface is the conceptual move that matters. It makes the cobogó available for a kind of design thinking that is less concerned with what the element should look like and more concerned with what it can express about the place where it is made. The projects that follow this logic in the most sustained way are those that engage with local materials and local productive communities, and it is in these projects that the connection to sustainable tourism becomes most concrete.

In fact, by tracing the trajectory of this small device, one can gain an insight into Brazilian architectural culture whilst avoiding the typical divide between the modernist impulse and local building traditions. On the other hand, the subsequent developments, which we are now going to explore, also offer a glimpse into new approaches to sustainability, further broadening both the range of topics and the possible tourist routes

THE COBOGÓ AND THE CIRCULAR ECONOMY

The Non-Structural Advantage

The cobogó occupies a specific position in the building system that turns out to be relevant to sustainable material experimentation. Because it is a non-structural element, a screen, divider, or filter rather than a load-bearing component, it is subject to lower regulatory requirements in terms of compressive strength and structural durability. This makes it a suitable field for working with

materials that would be excluded from structural applications: biological by-products, agricultural residues, recycled industrial waste.[29]

The Life Cycle Assessment framework evaluates a product's environmental impact across the full chain from raw material extraction to end of life. For a cobogó produced from local waste, the most environmentally costly phases of extraction and primary processing are effectively bypassed. The resulting environmental profile is substantially better than for conventional terracotta or Portland cement production. Beyond the environmental argument, materials derived from local waste streams are territorial by nature. They carry the trace of specific productive cultures and ecological conditions. A cobogó made from fishing industry by-products encodes the relationship between a community and its lagoon in the surface of a building material, adding a further layer related to local communities to a possible touristic visit.

Mundaú: Fishing Waste in Alagoas

The Cobogó Mundaú is the clearest demonstration of what this logic can produce. Designed by the artisan Itamacio Santos in collaboration with the designers Marcelo Rosenbaum and Rodrigo Ambrosio, and produced by the ceramics company Portobello, the project emerged from fieldwork in the fishing communities around the Mundaú lagoon in Alagoas, one of Brazil's poorest states, located in the northeastern interior far from the centres where design is normally produced.

The Sururu is a small bivalve mollusc harvested locally. Its processing generates around 300 tonnes of shell waste per year. The waste accumulates near fishing communities without any established commercial use, producing pollution and persistent odour. The project transformed these shells through a process developed with community members at every stage, from the initial collection of material through the formulation of the composite mix to the production of finished blocks. Ground and processed, the shells replace sand in the concrete mixture, constituting 62.5% of the final material. The block takes its form from the profile of the Sururu shell itself, and its surface carries the violet and green iridescence of the original material.[30]

The project received the Prêmio Fundação BB de Tecnologia Social in 2021, the Casa Vogue Design Award in the same year, and the iF Design Award in 2022. These recognitions are significant beyond the validation they represent. A design produced in a peripheral fishing community, from waste material, through artisan processes, had been recognised as achieving the highest standards of formal and technical quality in international competition. The community and its productive territory had become, through design, a place worth visiting and writing about.

The participatory dimension of the Mundaú project is as important as its material innovation. The process did not arrive in Alagoas with a design already decided and ask local workers to produce it. It developed the design through working with local knowledge of the material, the tools available, and the practices already in place. The cobogó that resulted could only have been made there, from those shells, by those people. This is what makes it a model for the kind of cultural tourism discourse: tourism that encounters a living productive system rather than a representation of one.



Fig. 7. Cobogó Mundaú, made with waste from the fishing sector in the Alagoas region, 2022.[31]

Lança: Textile Waste in Santa Catarina

Lança, designed by Aline Siemenskoski Delgado and produced by Maski Revestimentos in Blumenau, Santa Catarina, won the iF Design Award in 2024. Where Mundaú draws on the waste of a traditional artisan industry, Lança addresses the residue of one of the most ecologically costly industrial sectors globally: textiles. The block is manufactured from 100% recycled industrial and urban textile waste, closing a material loop between two industries that have historically operated in complete separation in terms of recovery and reuse.

The resulting block is lighter than concrete or ceramic equivalents, reducing transport emissions and simplifying installation. It is mechanically resistant to impact. Its surface texture carries the fibrous quality of the raw material visibly, producing an aesthetic that no mineral material can replicate.[32] The formal result

is the direct consequence of the material choice, which is the consequence of the waste stream that existed in that specific industrial territory. The design is legible as a product of Blumenau in the same way that the Mundaú cobogó is legible as a product of Alagoas.

Further Experiments

These two projects sit within a broader movement of material experimentation with the cobogó format. The Food Cobogó, developed at the University of Barcelona from a composite of organic food waste including beetroot, coffee grounds, and spinach, bound with gypsum, is still at prototype stage but demonstrates that the formal logic of the cobogó can absorb material from almost any waste stream while producing a result whose colour and texture are direct expressions of its origin.[33] Forust, a Californian company, uses three-dimensional printing to convert sawdust, a by-product of timber processing, into a wood-composite block with improved mechanical properties over natural wood.[34] The formal and technical range of these experiments suggests that the cobogó is functioning as a research platform, a site where the question of what can be built from locally available residual materials is being answered in architectural form.

CONCLUSION: ARCHITECTURE, CRAFTSMANSHIP, AND CULTURAL TOURISM

The standard architecture tour engages with finished buildings and canonical architects. The cobogó's history suggests a different itinerary, one that moves between the building and the productive community that made it. What would it mean to visit Alagoas through the Mundaú project rather than or together with its formal monuments?

Linking, within a tour itinerary, the well-known buildings of Brazilian modernism, in which cobogó is used as a building material and as a symbolic element of the local architectural heritage, with the “new” cobogós resulting from research into the circular economy. This can shift the focus from specialised tourism, that centred on architecture, which is very popular in Brazil, to one more open to the phenomena of craftsmanship, environmental awareness and the circular economy, which represent a crucial issue and a pressing concern in contemporary Brazil.

It also enables the central and urban areas where these renowned buildings are located to be connected with the more remote and poorer areas where the processes and uses of “new-generation” cobogòs are found, opening up economic benefits and a form of tourism for these communities that is less reliant on folklore. In the latter, it also allows visitors to observe the process as well as the final result.

This is an advantage over both traditional visitor itineraries and current ways of experiencing craftsmanship.

For example, the Mundaú project, indeed, is still being made. The shells are still being collected, the community is still involved, and the productive process is ongoing. This is categorically different from heritage tourism, which encounters a past. It is an encounter with a culture in the present tense. A perforated block whose material encodes a local waste stream and whose form references a local species or landscape offers the visitor a way into the territory that a conventional museum object or visiting itineraries do not. It makes the connection between material culture and ecological condition visible and tangible.

If the Mundaú logic can produce this result from fishing industry waste in Alagoas, what are the conditions under which comparable projects could emerge from plantation residues, mineral processing by-products, or other territorial waste streams in other peripheral communities across Brazil and beyond? What role can design institutions play in facilitating these processes without appropriating them?

The answer seems to lie in effective storytelling that conveys both the exceptional nature and potential of projects such as the cobogò ones, achieved through sustainable materials and processes, and their deep connection with "mainstream" Brazilian architecture. Here too, thanks to architects such as Niemeyer, Costa and others, and to their public clients, the sense of a project that is right and socially effective is powerful and worthy of being conveyed alongside the charm of the forms.

Effective storytelling can easily be translated into tourist itineraries and experiences capable of 'bridging' the historical and long-standing dimension of traditional (colonial) architecture, that of 'redemption' and the modernist turning point, and the latest outcomes of alternative productions emerging from a new form of craftsmanship that is being applied to the building process.

An appreciation and understanding of the various design scales (architecture as a whole, building components and their associated production processes) enables visitors to move beyond the logic of authorship, to grasp the project's wider implications and the various stakeholders involved, and to explore less passive paths in their experience of the site as tourists.

Institutions and research centres can help to provide both the cultural tools to raise awareness of sustainability issues and the technical tools to manage tourist flows from a systemic perspective.

NOTES

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