

Macao

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From the Editor

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Macao skyline
by Macaulink

Futuristic architecture rising out of a historic city

In every corner of Macao, the city pulses with life. From the more than 180 *pátios*, small spaces between homes used by local communities, to the magnificent casino structures designed by international architectural stars, Macao is a city where the blend of cultures, of old and new, is at its strongest. You can see it in the striking mix of buildings that surround us and taste it in the varied cuisine of our restaurants. You recognise it in the faces that pass you on the streets every day – this is the soul of Macao.

In this issue, we delight in the modernity of Macao with a look at the buildings that have remade Macao's skyline over the last quarter-century. From the bold World Trade Center building (1995) to the surreal majesty of the Grand Lisboa (2008) to the compelling contradictions of the Morpheus Hotel, set for completion this May – experience Macao's modern gems through the eyes of an architect.

Far from these towering giants, tucked away between our houses, we rediscover a space so often overlooked in

our increasingly hectic lives: the *pátios* of Macao. A recent exhibition shined a spotlight on this centuries-old hidden world, sharing their locations and the stories behind these unique spaces so emblematic of the close-knit communities central to the place we call home.

We also move beyond the city to explore a very different community: the mangrove forests. A researcher guides us through this highly specialised ecosystem, explaining how it works and the crucial role it plays within the larger ecosystem of Macao. Highlighting Macao's mangroves forests and the measures currently being undertaken to conserve them is part of our efforts to raise awareness regarding important environmental issues.

In such a compact city, we must recognise how all of these elements – the people, the architectural environment and the natural one – have undergone tremendous change in the past few decades. Fortunately, in Macao, finding a new balance in the face of change is a strength developed over centuries.

Gonçalo César de Sá
Editor-in-Chief

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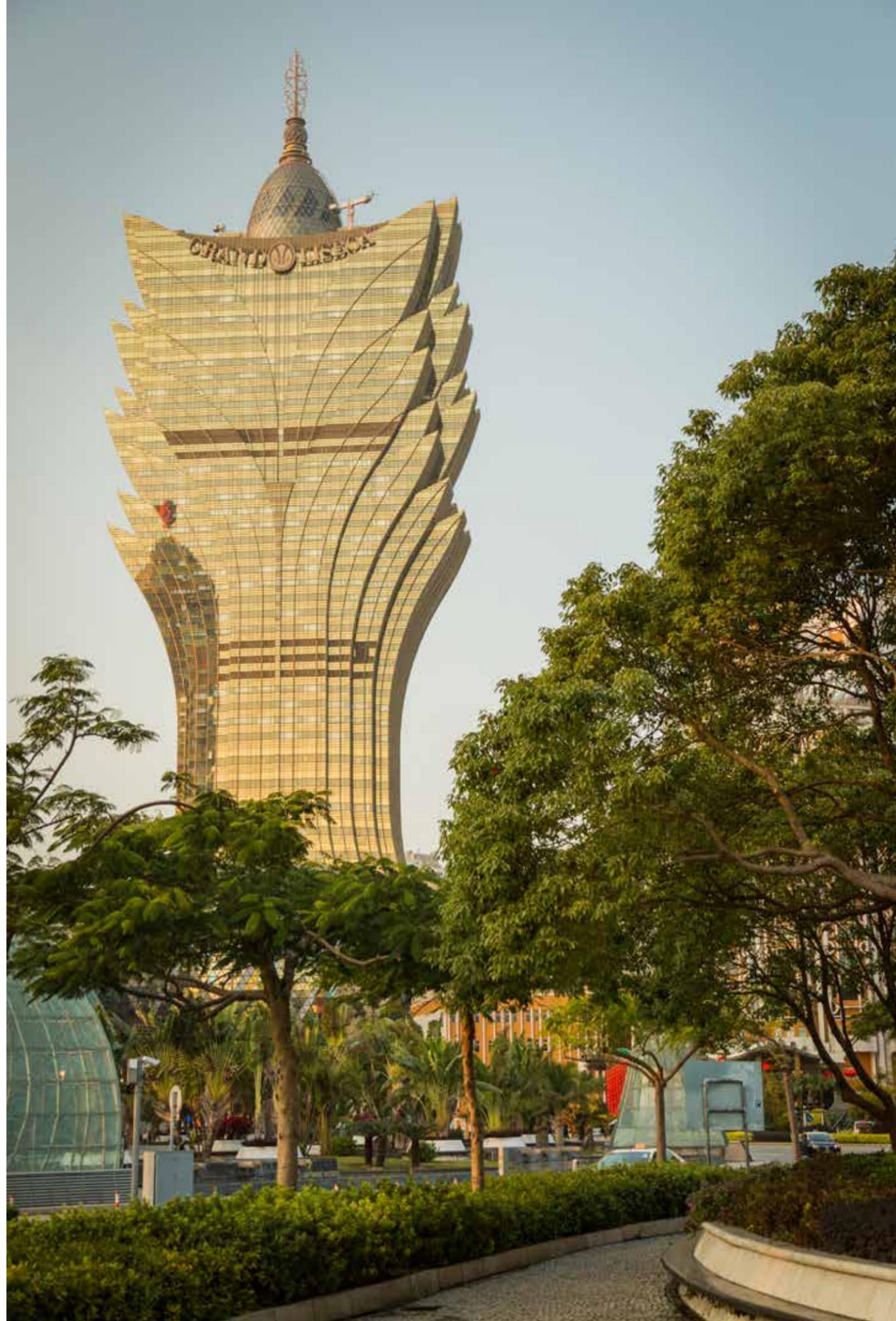
Social Affairs

MACAO, COTAI, AND THE NEW ARCHITECTURE

Text **Tiago Saldanha Quadros**, architect
Photos **António Sanmarful**

**A space ripe for experimentation
and open for innovation.**

Grand Lisboa on Macao Peninsula



Western media often connect the term “future” to the word China, to such a degree that there is an urgent need to ask people who work in China today if, from the standpoint of age-old Chinese philosophy, they see time as “a notion of processes and revelations whose opportunity and duration are not consistent with categorisation in a common and comprehensive concept.” In this regard, Wang Weijen, the head of the Architecture Department of Hong Kong University, whose investigative work focuses on the transformation of patios, of public areas and a city’s urban fabrics in modern and historical Chinese cities, explained:

“The Europeans or the Americans – or the West in general – see China as almost equivalent to the future or to opportunity and that is probably the case for many Chinese architects today. It’s more or less a given fact that for Western architects it is a borderland and place for experimentation. When they arrive, they can do things they’re not allowed to do in their own countries. Of course, for many architects whose education was based on building utopias – starting with Le Corbusier (Swiss-French architect Charles-Édouard Jeanneret) – China is a marvellous and fantastic place.”

Wang identified two aspects significant to this trend: a highly expedited process for getting new projects off the ground and a plastic environment, largely unburdened by concerns for maintaining existing structures and communities. The situation is very different in Europe, Wang noted:

“Everybody knows that history plays an important role and, from Lisbon to Amsterdam, it is vital to progress.” Yet the “elementary respect for the physical fabric and artefacts” in these contexts is so deeply rooted that it places a chokehold on creativity and innovation. Not so in China.

Early pioneer shapes architectural landscape

The maximum expression of the pop world of Portuguese architect Manuel Vicente can be found in Macao’s World Trade Center. A vibrant red exterior serves as a base for the initials that characterise, and to some extent define, the building: WTC. The use of typography, colour and graphics – and the respective scale here – transform this building into an exercise of outlines, modules, and rules. Fellow Portuguese architect Manuel Graça Dias reflected on the charm of Vicente’s work in *Plot and Emotion* (2011) by João Afonso et al.:

“That’s what is beautiful about Manuel Vicente: the almost childlike passion whereby he defends change, adheres to transformation; his readiness to take part in building the future, the non-nostalgia he is capable of in his visionary anticipation of the new. In the tremendous willingness and intent for what’s urban, learned, referenced, intelligent, poetic and useful, which he spreads over the project, projecting his agreement, but returning it as another, and richer; richer in hypotheses and possibilities and places for life.”



World Trade Center

Completed in 1995, four years before the handover to China, the WTC building marked his last major work in the territory. But Vicente, who passed away in 2013, left a lasting mark on Macao, inspiring the city as it took on the architectural and urban planning challenges presented by the development of new reclamation zones.

A new reality

The Cotai isthmus, officially called the Cotai Landfill Zone, is a narrow strip of land belonging to the Macao Special Administrative Region. The name combines the first syllables of the two islands connected by the reclamation, Coloane and Taipa. A 2.2-metre causeway, opened in 1968, marked the first physical connection between the two and remained for decades before a series of landfill projects in the 1990s widened the isthmus.

In 1999, after the handover, work started on major landfills to expand the narrow isthmus to its current area of around 5.2 square kilometres; the road was also reworked and widened. The construction of hotels, luxury resorts, and large casinos began on the isthmus in 2003, spurred by a new law opening up Macao's gaming industry to foreign investors. Once a narrow tract little wider than the causeway it supported, the Cotai isthmus quickly began to transform into Macao's own version of the Las Vegas Strip.

Today the Cotai Strip marks a new reality – a holographic world suspended over the real world. We let ourselves be infused by the overwhelming presence of electronic signs and neon shine and moving images, as if we were characters in a videogame. Spatial three-dimensionality is converted



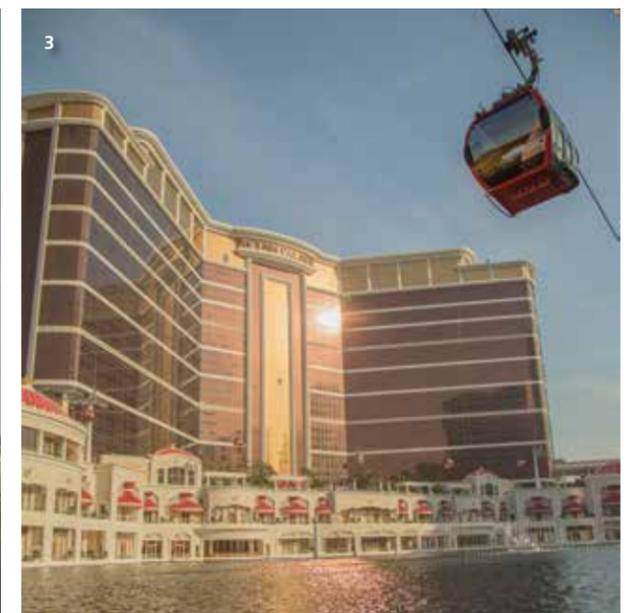
occupying shifting positions within our individual and cultural existence. They pulsate over the course of time, forming new configurations in specific historical dynamics, shifting in relation to one another. When one component's relevance seems weakened, the other develops; conversely, when one is imposed oppressively, the other contracts.

That's why Macao is a good example of how the present has continually pulsed with opportunities, and how the opportunities blur into memories of bygone years until new opportunities arise. Buildings such as the World Trade Center (Manuel Vicente, 1986–1995), StarWorld Hotel (Rocco Yim, 2003–2006), Grand Lisboa (Dennis Lau and Ng Chun Man, 2004–2008), Morpheus Hotel (Zaha Hadid, 2013–2018), and the MGM Cotai (Kohn Pedersen Fox Associates, 2014–2018) serve as proof of that potentiality.

1. Cotai (Studio City, Parisian and Four Seasons)
2. Grand Lisboa Palace 3. Wynn Palace

into semiotic surface – of a screen, for example – and that dimensional loss transforms the spatial world into a setting, like a simulation or theatrical representation of reality. It becomes a realm of signs, in which the structure of what's real can be read in its inscriptions, and is frequently reduced to them.

In a world dominated by imagery, British architect Neil Leach warns that the aesthetics of architecture threatens to relegate its content to oblivion, leaving architects numb to the realities of everyday life. But Macao isn't being made just with forms from the past – here, past and present are complementary components



StarWorld Hotel



Early stars on the peninsula

In the early years of liberalisation, however, few realised the true potential offered by the reclamation zones. As outside investment flooded into Macao in the early 2000s, many operators chose to simply mimic or directly copy existing structures in the West.

North of the strip, on the Macao Peninsula, is the StarWorld Hotel. Only the third integrated casino resort completed after liberalisation in 2001, the StarWorld Hotel was conceived as a counterproposal to the plan then under way for the buildings that now dominate the Outer Harbour reclamation area. The concept championed by Hong Kong architect Rocco Yim found its greatest challenge in the prevailing notion of division of space built in horizontal rectangular sections limited in perimeter and height.

The interlocking rectangular forms diverge from the expected relation, introducing a fluidity to normally static construction. Yim toys with these opposing dynamics, as well as transparency and opacity, stability and dynamism, elevating familiar elements into something new. The proposal seems to suggest the urgent need for new kinds of urban architecture to eventually be found via forms of growth horizontally interconnected in the air.

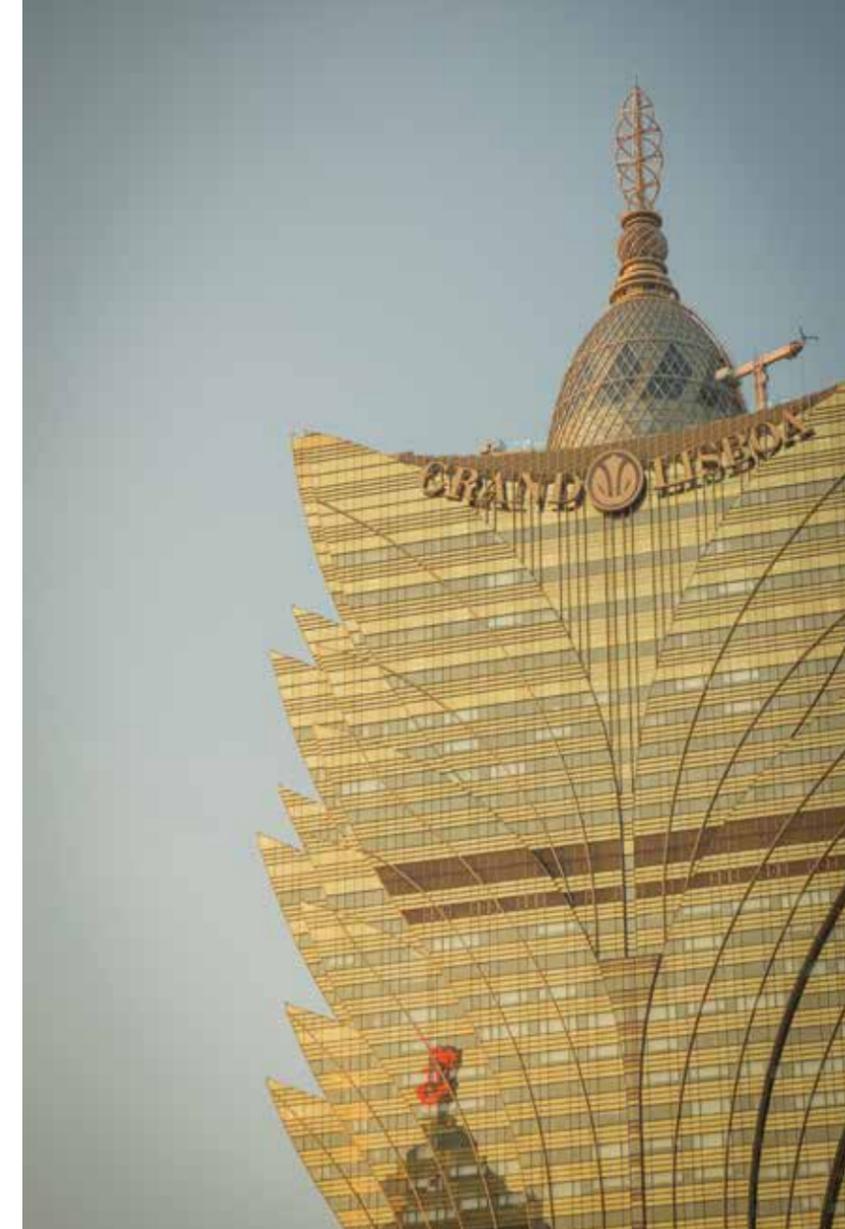
The alternative to the system, which seems to cloak the action of Yim, looks to divide the construction area into common grids and plant the tall building in a limited space. A new kind of urban architecture, buildings raised and interconnected above ground level, in an attempt which from an abstract standpoint – and in light of past utopian experiments – could be systematically enlarged.

Grand Lisboa breaks the mold

While the StarWorld Hotel liberated the box from its standard conception, one of its contemporaries eschewed rectangular forms entirely. SJM (Sociedade de Jogos de Macau), Macao's oldest casino hotel operator, envisioned a truly extraordinary structure that embodied the strength and spirit of Macao. Breaking from the dominant "veneered box" template, the Grand Lisboa reaches 258 metres into the sky, cresting waves of golden steel recalling the towering plumes of a Carnival headdress or the opening petals of a lotus. At its base sits a smaller ovoid structure, its glittering, intersecting spiral pattern and cantilevered golden petals clearly evoking the lotus flower that symbolises Macao.

The hugeness of the construction accentuates the clash of human and architectural scales, creating an almost surreal out-of-sync effect. This work by the Hong Kong-based architects Dennis Lau and Ng Chun Man enjoys an architectural freedom grounded in a design rooted in iconography and sufficiently sustained by a very bold structural solution. At night it comes alive, a LED lighting system transforms the golden structure with a dazzling array of colourful lights.

For all its grandeur, deliberately ostentatious and streamlined, this iconic structure nonetheless connects at a human level, reflecting a strong conviction regarding the importance of design in the structuring of an architectural object. Such a daring building on the peninsula set the stage for a reimagining of gaming facilities in the territory more broadly, rejecting the uninspired recitation of Las Vegas in favour of



Grand Lisboa

cultivating a playground for daring, innovative architects keen to utilise cultural influences in creating postmodernist delights.

Realising the complex reality of simplicity

For the New York- and London-based architecture studio Kohn Pedersen Fox Associates, initial drawings are an essential means to develop an intuition, considering the underlying mathematics only account for a small aspect of the relationship between reality and its model. Their design for the MGM Cotai, which opened on the

Such a daring building [Grand Lisboa] on the peninsula set the stage for a reimagining of gaming facilities in the territory more broadly, rejecting the uninspired recitation of Las Vegas.

strip in February 2018, presents strong geometric elements liberated from a predictable context into a space of contradictions. When the complex opened this spring, we were confronted with a building of considerable size and imposing, yet delicate, appearance.

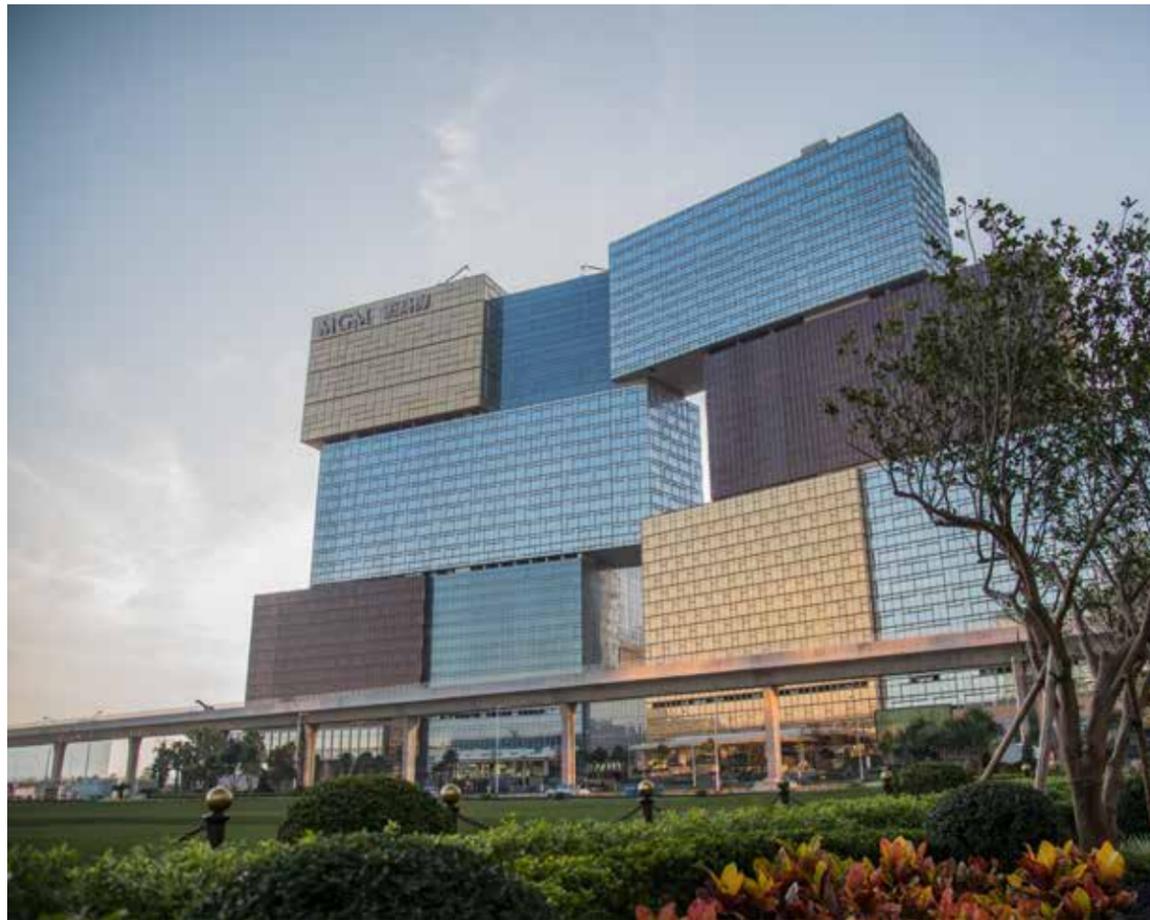
Two towers of tri-coloured boxes, artfully arranged and cantilevered into a single sculptural form, recall Chinese jewellery boxes. An integrated lighting system of roughly 60,000 LED lights spans four levels, highlighting the metallic shimmer of the boxes and lending a delicate luxury to the massive profile.

Located at MGM Cotai, the Spectacle offers “an innovative, multidimensional sensory experience” to visitors as they stroll more than four storeys below an expansive, undulating diagrid roof. Natural light filters through the rolling latticework of metal and glass, this curving structure allowing the roughly 100-metre long roof to stand without support beams.

A remarkable engineering feat and, perhaps, an icon for the new local and global architecture. The aim is clear: to establish a direct connection, eliminating any possible separation between the building’s envelope and its interior. We thus stand before a building where all tensions are absorbed by the very “singularities underlying a material continuum.”

New expression of dreaming

The late Iraqi-born British architect Zaha Hadid took experiments involving facade surfaces to the limit early in her career, and broke the bounds of architectural geometry with her bold designs. For the Morpheus Hotel, scheduled to open in May



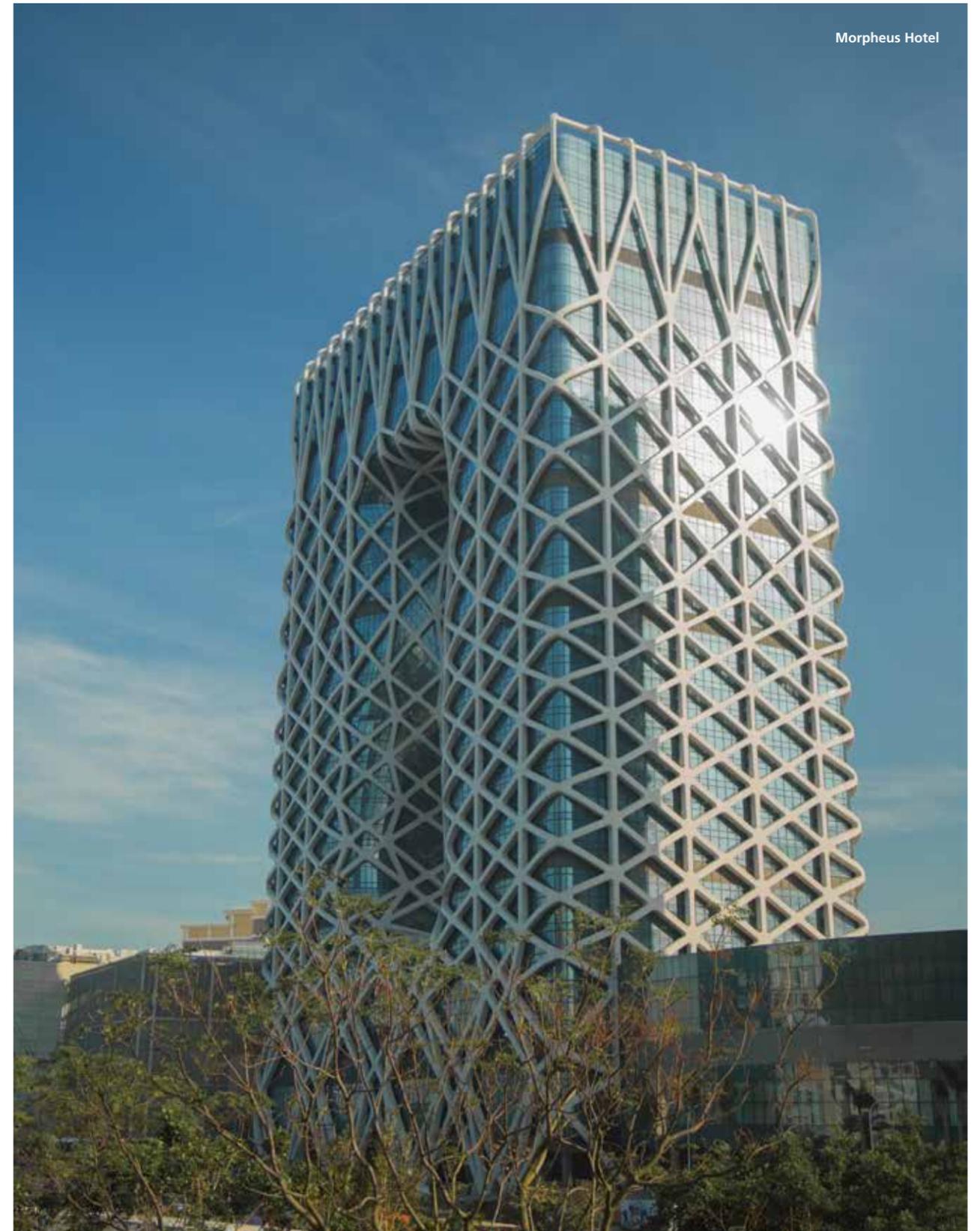
MGM Cotai

2018, the result is a structure almost like a marine encrustation caught in a net’s strong mesh.

Rising from a shared podium, the two towers pull apart and twist back together seemingly at random, forming multiple openings in the face of the building. Inside, the continuity of the cage-like structure generates elevations and window insertions only in some cases and apparently randomly, revealing the construction concept used. Filtered and compressed light disseminates from irregular voids that frame the glass facade with continuous diagonal lines, translating into organic crystalline forms that elevate the grand 40-metre tall atrium into a natural cathedral.

Jade artefacts provided inspiration for the sculptural form with its multifaceted interior and groundbreaking free-form steel exoskeleton, both among the most elaborate in the world. A fitting achievement for what would be one of Hadid’s final projects before her passing in 2016.

Just as Manuel Vicente’s decades of work throughout Macao shaped the city’s urban development as it entered the 21st century, perhaps innovative designs like those discussed here – be it the captivating steel curves of Hadid or Yim’s utopian rectangles – will provide inspiration as yet more opportunities arise with the newest collection of reclamation zones. ●



Morpheus Hotel

A city with soul: interview with **Carlos Marreiros**

Text Mariana César de Sá

Photos António Sanmarful and courtesy of Architect Carlos Marreiros
(MAA - Marreiros Architectural Atelier)

Carlos Marreiros sits at the head of the meeting table in his office within the beautiful Albergue - he speaks quickly, mindful that he needs to leave soon to attend the opening of the MGM Cotai, a new addition to the architectural landscape in Macao. Cigarette in hand, he takes us on an architectural journey through the decades in Macao.

Marreiros, a trained architect and city planner, founded MAA Marreiros Architectural Atelier Ltd. in 1999. Not content to limit his passion and creativity to architecture, Marreiros is also a university professor, painter, writer, poet, and government consultant for the city's heritage preservation and urban planning committees.

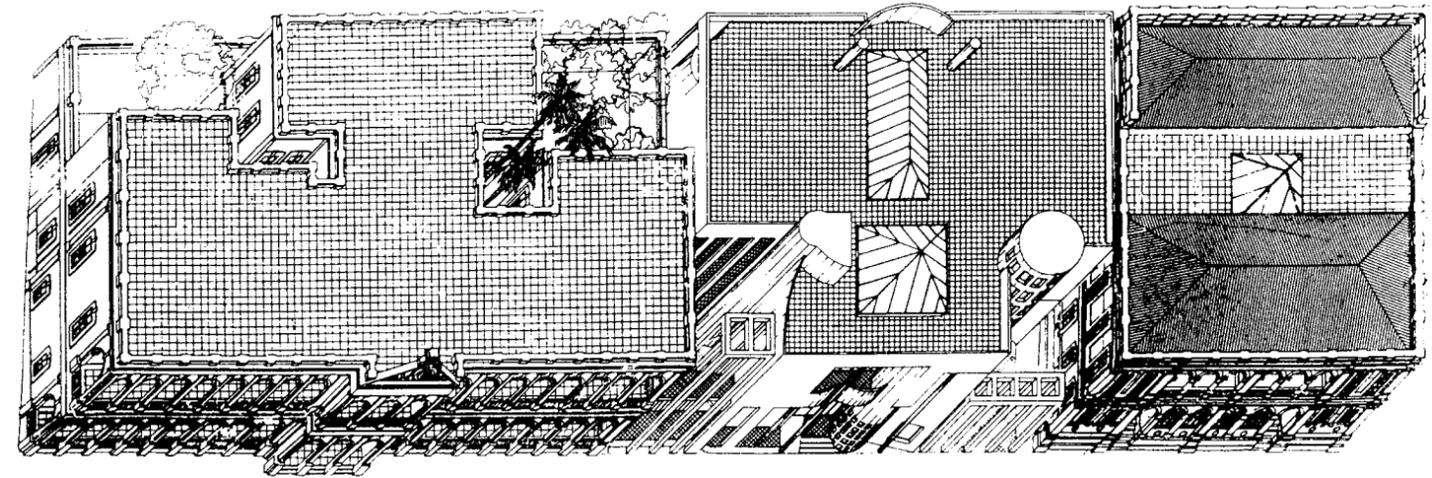
Over the years, he has been awarded numerous distinctions for his work, including the title of Great Official of the Order of Prince Henry by then president of Portugal, Jorge Sampaio, in 1999, and the Medal of Professional Merit of Macao in 2002.

While his architectural work can be found throughout Macao, Marreiros is most proud of Tap Seac Health Centre (1991), Tap Seac Square (2007), and the Macao Pavilion at the Shanghai World Expo 2010.





Elevations before and after the construction of the Tap Seac Health Center



Axonometric

How would you describe Macao's architecture pre- and post-1999?

The construction boom in Macao started in the '70s. At the time, there were one- and two-storey buildings and villas with gardens all along the riverside of Praia Grande, and even in the inner part of the Macao Peninsula. These were not only houses for rich families; they were for middle class people.

So when buildings started to be six-storeys high, it was already impressive. Then the Rainha D. Leonor building was completed in the 1960s, this very elegant 12-storey building with duplexes, located in the centre of Macao. It became a landmark, a delicate blade imposing itself on the tranquil urban profile of the peninsula. It appeared in all of the photos and postcards of Macao from the '60s, but today, it's completely obscured by surrounding buildings.

So there was a shift in scale?

Definitely. The demography was changing; the population grew and their purchasing power increased. That was the very beginning of the first construction boom of Macao, and it intensified over the next two decades.

Naturally that meant buildings got even taller in the '80s and '90s – some as many as 40-storeys high – changing the city's landscape. Some of the bigger venues, such as the Macau Cultural Center and the Macao Museum of Art on the new reclamation area of NAPE, were built in the last decade or so before the handover.

After 2004, with all of the investment brought in by the gaming liberalisation, Macao changed dramatically in terms of both money and scale. The money flooding in kicked off a second

construction boom, altering Macao's profile completely. Such growth was inevitable; however, it could and should have been managed through a master plan.

Before, the Macao Peninsula was dominated by the Hotel Lisboa, completed in 1970. Its architectural features were so specific, so unique, that nobody could date it – it could have been of the '50s or even the '30s. After its completion, some traditional Macao souvenirs opted for depictions of the hotel instead of the iconic Ruins of St Paul's, adopting the new hotel-casino complex as a symbol of modern Macao. The first Macao-Taipa bridge, designed by Edgar Cardoso, was also considered a symbol of modernity.

At the time, Taipa and Coloane were the future of Macao in terms of urban expansion. Cotai – a combination of Coloane and Taipa –

Tap Seac Health Center main façade view from the north



was designed in the '90s to house a satellite city of about 200,000 people. Although many were sceptical, I defended it as the future of Macao. Today, that land is the goose that lays the golden eggs.

We also have the old peninsula with the main historic centre and other sites that are not yet part of the UNESCO World Heritage List, but are worth being defended and inscribed, like the Inner Harbour or the area of São Lázaro and Tap Seac.

Today, when you approach the Macao Peninsula from the sea, you will see the Macao Science Center – a building from after the handover – and then the Grand Lisboa, which is a striking building. Again, difficult to date with its strange morphology, but no one can be indifferent when looking at that building. It is iconic by its eccentricity. Then you have the MGM, One Central up to Our Lady of Penha Chapel, where you still have a backdrop of some heritage in the romantic Praia Grande Bay.



Reclaiming land is in the DNA of Macao; it's been part of the city since the very beginning.

Carlos Marreiros

technology available, and it will still lack soul until people create it.

The soul of Macao has been consolidating for over 450 years. People are sometimes shocked with the unbalanced massing of the buildings and the difference of scales, yet Macao is still a vibrant city with a strong identity.

Do you believe the lack of space in Macao will pose a problem for future architectural projects?

In Macao's future plans there are 350 hectares to be reclaimed on both sides of the river, on the peninsula's southern edges and the northern part of Taipa, as well as the artificial island, where the Hong Kong-Zhuhai-Macao Bridge lands before reaching Macao. In the beginning, a lot of people were against this land reclamation. I stand for it because reclaiming land is in the DNA of Macao; it's been part of the city since the very beginning.

Even the old settlement of Macao was consolidated on the mud within the Inner Harbour. Think of Rua da Praia do Manduco and all that area from Rua de Cinco de Outubro to Rua dos Fatiões - it was all consolidated by bamboo and timber piles before the embankment.

this balance has not been reached because the land is too expensive and the lots are too small; there isn't always a good return on investment. This leads many to maximise the area of construction, resulting in buildings that are too compacted and tall. Despite these contrasts, I still think Macao is a city with soul, and that is the most important thing for a city to have.

You can have a beautiful city like Brasilia in Brazil, designed by two of the best international architects using the best knowledge and

Some of the structures you just listed are on the UNESCO World Heritage List while others are very modern. Do you think they're compatible with each other?

Yes, they are compatible. As you know, I'm a heritage preservationist; I've dedicated all my life to heritage preservation. But heritage is not static, it must coexist with contemporary architecture. You can see this all around the world, historical and modern in balance with one another.

In Macao, there are areas where

Do you see any other potential roadblocks?

We have to cultivate the right environment to develop good architecture. Before the handover, you had big investments in cultural, social, and infrastructure projects in Macao - the port of Macao, the government hospital, social housing, schools, cultural centre, and so on.

After the handover, there's still investment in social and cultural construction, but the quality of design and construction have gone down. For architecture to be considered notable, it's not only the question of budget but also elements such as functionality, sustainability, urban contextualisation, and the innovative use of design and technologies.

The current architecture has to meet community needs, to be more than just a building, but without the type of budget found in the gaming industry. We need talented local architects and designers to do it well. Unfortunately, the current architectural design doesn't offer much in the way of the so-called signature design architecture.

For a place - a city, a region, a country - to have good architecture, you need a tripod of elements. The industry has to be composed of good architects and engineers - if you don't have good designers of the related disciplines, you don't have good architecture - and you must have good developers and contractors, as well as good clients to accept innovative approaches. Lastly, there are official licensing departments for building and construction authorities that must respond competently to this process. If one of these legs is missing, the whole structure falls down.

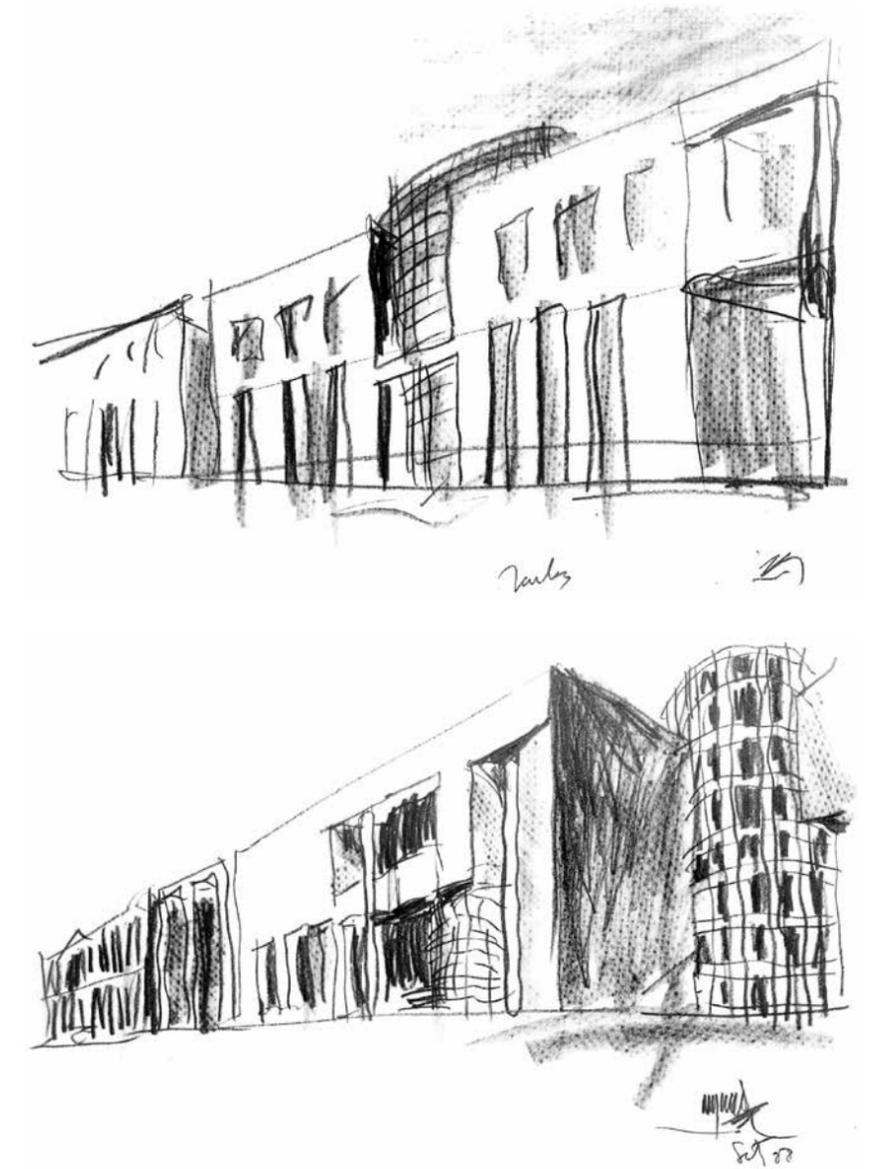
To some degree, we also rely on the user as well, and the people of

Macao are good. If you explain it well, with honesty, they may have some complaints but will largely accept new ideas and experiences.

Do you think it's worth developing architectural tourism in Macao?

Not yet. In terms of heritage, of course, it has been successfully developed but always in the shadow of the casinos.

Hopefully now that Macao is a UNESCO Creative City of Gastronomy, more people will take in the city's food and heritage offerings as well as the casinos. Even before the title, Macao had been a paradise of food for a long time. People from Japan, Hong Kong, and mainland China came to Macao for food all the time. This new title is an opportunity to build on what we have, to take



Sketches and tentative ground-floor plan of Tap Seac Health Center

on a more visionary approach by incorporating the urban architectural heritage, gastronomy and, I hope, other ways of culture into tourism promotion.

So you think the heritage is ready for that kind of tourism but in terms of contemporary architecture, it's not ready?

In terms of contemporary architecture tours, not yet. There are cities that many people visit solely for enjoying contemporary architectural tours, but Macao is far from reaching that level. Right now you have some contemporary buildings which people might be interested in visiting: the Zaha Hadid building at

City of Dreams is definitely the most exciting for me, and there's the new MGM Cotai, StarWorld or Altira in Taipa. These are very well-designed buildings, but not enough to bring people to the city.

My great hope is to also see local architects designing buildings that are of higher quality, advanced in technology and with identity. Globalisation is fantastic – bringing people together, in real-time information, with real-time solidarity – but at the same time, we have to be careful about making the world too much the same. For example, there are some fashion brands whose corporate image building is beautiful and very well designed. But it's the same in Tokyo, in Hong Kong, in Shanghai, in Milan, in New York – that's boring!

In the past, high-quality architecture – simple, innovative works, often achieved without a big budget – was produced in Macao. You had Júlio Alberto Basto, a very modern Art Deco architect working from the '30s up to the '60s, and Chan Kuan Pui and José Lei Meng Kan, modernists as well. Then with the boom in the '60s and '70s, you had Raúl Chorão Ramalho or even Manuel Vicente, a young architect at the time, then José Maneiras and others.

So you think that Macao needs more quality in the design of everyday architecture?

Yes. Buildings used by residents – whether for leisure, culture, sports, education, or social gatherings – should be original and

environmentally friendly, even on smaller budgets. Excellent designers from abroad could team up with local firms, updating local designers' skills and creating new high-quality architecture for Macao. Likewise, we should expand the more cutting-edge architectural and urban experiences beyond buildings associated with gaming to include some facilities which serve the community.

But for Macao to become a true city of contemporary architecture, it must also invest more in the quality and quantity of urban spaces. It's too crowded. Moving towards more open and covered urban spaces, interconnected with pedestrian bridges, greenery and related infrastructure, will make the city more inviting and balanced.

Money from gaming changed the architectural practice in Macao a lot, but the industry also introduced a more organised administrative process and a new culture of construction. You see it in the construction sites: they're clean and well organised. You didn't have that before. The organisation of the process – taking the project from schematic to development and construction to works in progress on site – is a great achievement for Macao brought by the gaming industry.

But in terms of contemporary and cutting-edge architecture, what was brought by gaming is not yet the best, with a few exceptions. We should invite more innovative thinkers, planners, designers of the most avant-garde structures, to design projects in Macao. We also need to involve the local firms, giving them more opportunity to get in touch with top designers and even exchange experiences abroad. This is what China has been doing in the last few decades with great success. ●

Macao Pavillion at the Shanghai World Expo 2010



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Into Macao's urban fabric

Text Cathy Lai Photos António Sanmarful and courtesy of JWCC Architecture

Traditional Chinese settlements *pátios* serve as valuable heritage enriching Macao's cultural identity.



Architect Jimmy Wardhana was wandering around the old district near the Ruins of St. Paul's, when he discovered an inconspicuous Chinese doorway that led into a quiet alleyway no more than three metres wide.

Crossing the threshold into the alley, he found a red shrine of Tudigong (Lord of the Soil and the Ground) with coil incense hanging from the ceiling. He continued to explore further inside, appreciating the Chinese vernacular dwellings with gray brick walls lining either side. Some were vacant, deteriorated while others showed signs of occupancy. The adventure was a short one, though, as he soon found himself arriving at a dead end.

"I am surprised to discover such an enclosed residential space in Macao. The architectural characteristics reminds me so much of the hutongs in Beijing," said the Chinese-Indonesian Wardhana, who obtained both a Bachelor and Master of Architecture at the University of New South Wales in Australia.

After a quick internet search, he realised that he had wandered into one of Macao's unique urban fabrics: *pátios* (圍, meaning an enclosed area), the Chinese settlements mostly built between late 19th and early 20th century outside the boundaries of the Portuguese city centre, when the city had developed into layers of dense fabric connected by streets and lanes.

Wardhana shared this intriguing discovery with his wife, Christine Choi. Originally from Macao, Choi also attended the University of New South Wales, where she earned both a Bachelor and Master of Architecture, as well as a Master of Commerce. The couple established the architecture firm JWCC Architecture in 2010. They share a passion for blending culture into their design projects, which they view as a way to "restore Macao's identity."

To probe possibilities for reviving these forgotten community spaces, they quickly set up a four-person team within the company to look into Macao's *pátios*, gathering information about their history, location pattern, and physical condition.

The project started off without an immediate goal, but a few months later, in July 2017, JWCC Architecture was invited to submit a proposal for the Macao exhibit in the Shenzhen and Hong Kong Bi-City Biennale of Urbanism/ Architecture (UABB). The exhibition would offer the perfect platform to raise public awareness around this fading heritage by translating their findings into a compelling sensory experience.



Pátio do Espinho, one of Macao's largest urban villages



Jimmy Wardhana and Christine Choi at the office of JWCC Architecture



Photos of *pátios* submitted by Instagram users



Restoring a fading urban identity

The UABB is recognised as the only exhibition in the world that explores the issues of urbanisation and architectural development. The 7th edition of UABB opened at Nantou Old Town in Nanshan district in December 2017. With the theme of “Cities, Grow in Difference,” it sought to embrace diversity at different levels of society and champion inclusion in an effort to create a more robust urban ecosystem.

The Cultural Affairs Bureau (IC), in cooperation with the Architects Association of Macao and the Macao Urban Planning Institute, held a contest to select the Macao representative for the exhibition. The proposal submitted by JWCC Architecture, entitled *City Magnified: Re-discovering of a Diminishing Urban Identity*, took the top prize.

“The judging panel chose our proposal because the characteristics of *pátios* fulfilled the theme of the exhibition, being an urban village that survived through centuries amid modern development and urbanisation,” Wardhana explained.

The concept of sustainability provided the basis for their proposal, comprised of four pillars: social equability, economic prosperity, environmental sustainability, and cultural vitality.

“In some European countries, artists and architects make use of the abandoned spaces to host cultural events and performances, which has drawn a lot of visitors and injected new lives to these spaces,” noted Wardhana. “I think we can do the same thing for Macao’s forgotten *pátios*, to transform them into retail galleries or exhibition spaces to promote art and culture.”

They also stressed that *pátios* represent an irreplaceable element of Macao’s cultural identity, serving as a close-knit community space in the past. Choi emphasised this point: “The most important aspect of a culture is about its people. *Pátios* represent a healthy neighbourhood in which people knew each other so well they would even leave their doors open. Such connection between people is nowhere to be found in modern apartment buildings.”

From concept to creations

With the subsidy of MOP480,000 (US\$59,534) granted by the IC following the announcement of their victory in August, JWCC Architecture had less than four months to prepare the Macao exhibit for UABB, where they would showcase their creative installation alongside more than 200 award-winning exhibitors from 25 countries.

According to Wardhana, it was a whirlwind preparation process in which everyone in the company, including researchers and designers, were involved on different levels. In just a few months, they spoke with people living near or inside the *pátios*; interviewed experts of heritage preservations for professional opinions; launched MacauPatio.com for promotion and sharing; and published a small booklet documenting all the work done for the exhibition as a gift for visitors.

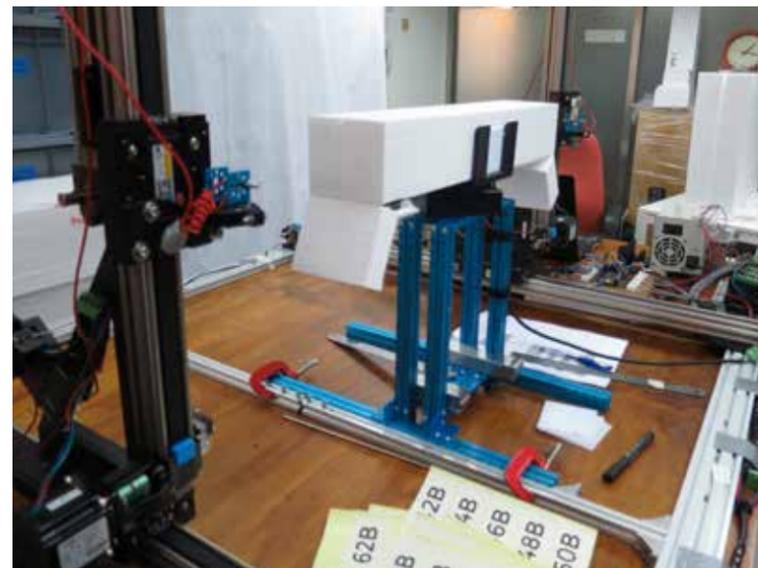
To understand general perceptions on these fading heritage spaces, the team also leveraged social media, encouraging users on Instagram to submit photos of *pátios* with captions. They received over 100 photos within the first two weeks. “Macao has more than 180 *pátios*



Installation showing *pátios* locations

identified on the map, but the photos we received documented only 20 *pátios*,” Wardhana noted. “This shows that many *pátios* in Macao still remain unknown to the public.”

For Choi and Wardhana, the most challenging part was finding a way to convey their ideas through creative installations that would leave a lasting impression on audiences. “The scale was so big as we were talking about all *pátios* in Macao. Even the judges were worrying about us,” smiled Wardhana.



Format 5-axis hot wire cutter



Polystyrene protrusions



Guided tour provided by JWCC Architecture



JWCC booklet on *pátios*



1. Pátio de Claridade 2. Pátio do Mungo
3. Shrine of Tudigong 4. Pátio do Amparo
5. Traditional dwelling

To present the historical urban fabric of Macao to audiences in Shenzhen, the team wanted to create a map of *pátios* in Macao with polystyrene protrusions, but it required a very delicate cutting device to achieve the perfect shape.

“Just when we were worrying about where to find the machine, we were introduced to Victor Leung,” Wardhana recalled. Leung, an architect based in Hong Kong, built a large-format 5-axis hot wire cutter with adjustable heat settings that was “perfect” for creating the polystyrene forms needed for the display. “We had the entire cutting process completed in Hong Kong, before delivering the products to the exhibition venue.”

The finished product inverts established maps of Macao, as buildings and major roads disappear and the humble *pátios* extend out

toward the viewer. Each of the stark, white protrusion reflects the shape of a particular *pátio*, many capped with photographs taken from different spots within the *pátio*. These pictures are tiny – scaled down to just 1.5 cm wide – far too small to appreciate with the naked eye. Visitors used magnifiers to view them, encouraging greater engagement and focus while also alluding to how small, and often overlooked, the *pátios* are in real life.

With the help of a local design company, the team also employed augmented-reality techniques in the exhibit, which allowed visitors to see the 3D version of the *pátios* enriched with recreational facilities such as open air cinemas, social club houses and art installations, as they scan the polystyrene protrusions with iPads provided at the exhibition.

“By leading them on a ‘rediscovering’ journey through these special viewing methods,” Choi explained, “the visitors can have a better understanding of the conceptual plans we proposed to revive these *pátios*.”

The next step

Welcoming thousands of visitors per week, the Macao exhibit has not only provided a new perspective on the city, but it may also have inspired curious visitors to turn their next trip to Macao into an urban heritage adventure.

“Because in their mind, Macao was very small and they only knew the mainstream attractions like the Venetian and the Ruins of St. Paul’s,” Choi explained. “When they found out that there were so many hidden wonders to discover in

such a small city, they were really surprised and intrigued.”

Throughout the exhibition period Choi and Wardhana also organised several rounds of guided tours for people with different backgrounds such as architects, design students and participants who submitted *pátios*’ photos, an arrangement endorsed by the IC in the hope of drawing more people from outside the architectural field to participate in UABB.

They also provided guided tours to students from local highschools in order to foster greater awareness around architecture and its relationship with local culture and history. “We hope to start from the young people. It’s important to enhance their interest when they are in high school already because it’s time for them to choose what to study,” Choi explained.

With the 7th UABB closing on 17 March, the team is now planning to host a second round in Macao, as a continuation of their UBAA exhibit. But not a carbon copy, Choi noted: “We don’t want to just move everything from Shenzhen to Macao. We want to add more artistic and cultural elements to the second exhibition in Macao, to offer a deeper perspective to visitors.”

A challenge worth taking

Amid the fascinating churches, busy largos and plazas, the *pátios* hidden within the meandering streets and alleys of the historic districts are easy to overlook, even for Macao locals.

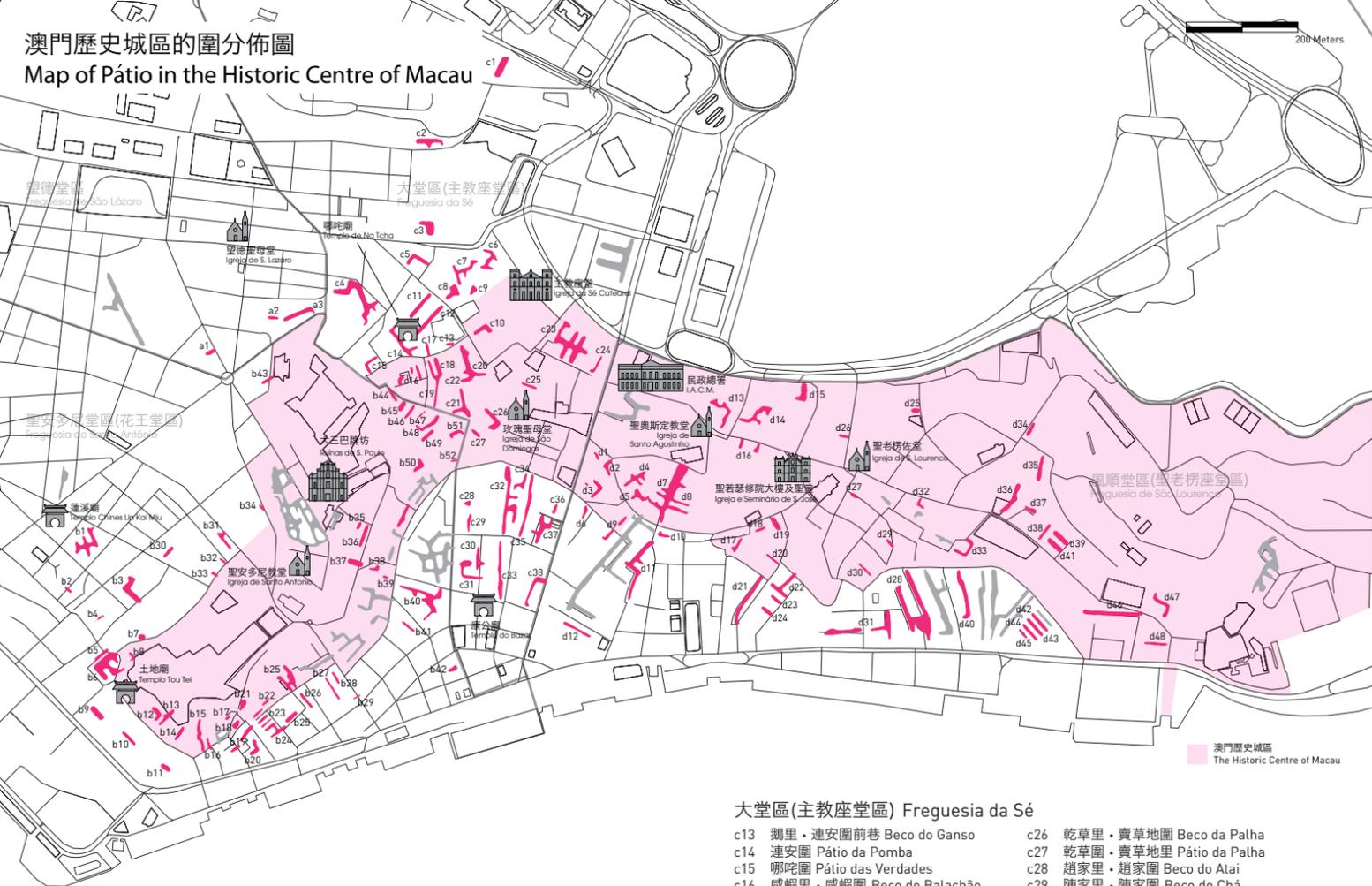
According to *Regenerating Pátio – Study of Macao’s Historical Urban Fabric* published by IC in 2010,

“

When they found out that there were so many hidden wonders to discover in such a small city, they were really surprised and intrigued.

Christine Choi

澳門歷史城區的圍分佈圖 Map of Pátio in the Historic Centre of Macau



望德堂區 Freguesia de São Lázaro

- a1 新勝里 Beco de Tomás Vieira
- a2 瘋堂里 Beco de S. Lázaro
- a3 瘋堂圍 Pátio de S. Lázaro

聖安多尼堂區(花王堂區) Freguesia de Santo António

- b1 馬里 Beco do Cavalto
- b2 青草里·青草圍 Beco da Erva
- b3 福安台 Pátio da Harmonia
- b4 競走者圍·騎樓里 Pátio do Corredor
- b5 鮮魚里 Beco do Peixe
- b6 銀針里 Beco da Agulha
銀針圍 Pátio da Agulha
- b7 耕里·耕圍 Beco da Lavra
- b8 石版里 Beco da Lage
- b9 土地廟里 Beco do Pagode do Patane
- b10 廢廖圍 Pátio da Tranca
- b11 沙離圍 Pátio das Narcejas
- b12 紅雀圍 Pátio do Sairro
- b13 鳩里 Beco das Rolas
- b14 海蛤里 Beco da Concha
- b15 蚌里 Beco do Dragão
- b16 珊瑚里 Beco do Coral
- b17 高圍里·高圍圍 Beco da Cacatua
- b18 匙羹里 Beco da Colher
- b19 橫樑里·橫圍 Beco da Trave
- b20 祿號里·祿號圍 Beco da Carapinha
- b21 黎地里·Beco do Leite
- b22 眼鏡里·倒裝二圍 Beco dos Óculos
- b23 錦葵里·倒裝一圍 Beco da Malva
銀和里 Beco da Prata
- b24 蠔殼里·蠔殼圍 Beco da Adufa
木匠圍·木匠巷 Pátio do Carpinteiro
- b25 何林圍·何林里 Pátio de Além-Bosque
- b26 花園圍·叢慶坊 Pátio do Jardim
- b27 工匠圍·居安里 Pátio do Socorro
- b28 竹里·竹圍·海田圍 Beco do Bambu
- b29 煩恣圍·煩恣里 Pátio do Desgosto
- b30 硯圍 Pátio do Tinteiro
- b31 柚圍·柚果里 Pátio da Toranja
- b32 鞋里·儒履圍 Beco do Sapato
- b33 瑰花里 Beco da Roseira
- b34 順成圍·順成里 Pátio da Águia
- b35 棕櫚菜圍·敦善里 Pátio das Palmas
- b36 日頭圍·日頭里·大三巴太陽里 Pátio do Sol
- b37 富連台 Pátio Fu Van
- b38 廣富圍·廣富里 Pátio do Arco
- b39 內裡圍 Pátio das Escondidas
- b40 蠔里·果欄尾 Beco da Ostra
- b41 果欄圍 Pátio da Terceira
- b42 美基內市場圍·咪機市 Pátio do Mercado Interior de Miguel Aires
- b43 炮兵里 Beco dos Artilheiros
- b44 鷹圍 Pátio do Milhafre
- b45 豬里·史山豬圍 Beco do Porco
- b46 蔡記里 Beco do Craveiro
- b47 豆醬里·豆醬圍 Beco do Missó
- b48 刀里·昇發圍 Beco da Faca
- b49 幸運圍·華里 Pátio da Fortuna
- b50 李家圍 Pátio da Mina
卜圍 Pátio da Adivinhação
- b51 銅鑼圍·居仁里 Pátio da Báttega
- b52 鹽埗里·鹽埗圍·椰子巷 Beco do Cego

大堂區(主教座堂區) Freguesia da Sé

- c1 隧道圍 Pátio do Túnel
- c2 東望洋圍 Pátio da Guia
- c3 昇平圍·昇平里 Pátio do Comprador
- c4 景觀里·見眼圍 Beco da Boa Vista
- c5 竹圍圍 Pátio do Rochedo
- c6 聖方濟各里·玻璃樽圍 Beco de S. Francisco
善慶圍 Pátio do Banco
- c7 連丁里·連丁圍 Beco da Carpadeira
- c8 龍安圍 Pátio da Lenha
- c9 天神里·打鐵圍 Beco dos Anjos
- c10 仁安里 Beco da Arruda
- c11 余敦善堂里·余敦善堂私家圍 Beco de Hu Ton Sin Tong
- c12 柯傳善堂圍·柯傳善堂里 Pátio de Hó Chin Sin Tong

大堂區(主教座堂區) Freguesia da Sé

- c13 鵝里·連安圍前巷 Beco do Ganso
- c14 連安圍 Pátio da Pomba
- c15 哪咤圍 Pátio das Verdades
- c16 咸蝦里·咸蝦圍 Beco do Balachão
- c17 永安圍 Pátio da Canja
- c18 大炮台下圍 Pátio de Santa Filomena
哪咤廟里 Beco das Verdades
- c19 大樓圍 Pátio do Manto
- c20 板樟堂圍 Pátio de S. Domingos
- c21 草地圍 Pátio da Cabaia
- c22 德香里 Beco da Romã
- c23 大堂圍 Pátio da Sé
- c24 大堂里 Beco da Sé
- c25 大堂新圍 Pátio do Poeta
- c26 乾草里·賣草地圍 Beco da Palha
- c27 乾草圍·賣草地里 Pátio da Palha
- c28 趙家里·趙家圍 Beco do Atai
- c29 陳家里·陳家圍 Beco do Chá
- c30 馮家圍 Pátio do Serralheiro
- c31 手肘里·左堂欄尾 Beco dos Cotovelos
- c32 吉慶巷·吉慶里 Travessa dos Becos
吉慶一圍 Pátio do Mestre
吉慶二圍 Pátio do Adem
- c33 老人圍 Pátio dos Velhos
丁香圍·中和里 Pátio do Cravo
- c34 門官圍 Pátio do Mercado
- c35 鍾家里·鍾家圍 Beco das Caixas
- c36 平線里·平線圍 Beco do Paralelo
- c37 教師里·林家一圍 Beco do Professor
- c38 打纜圍 Pátio da Cordoaria

風順堂區(聖老楞座堂區) Freguesia de São Lourenço

- d1 轉角圍·大鵬橫巷 Pátio das Esquinas
- d2 天通里·天通圍 Beco da Cadeira
- d3 染師里·營地一圍 Beco do Tintureiro
手肘圍·德隆新街 Pátio do Cotovelo
- d4 志圍·志里 Pátio do Gil
- d5 蓬萊里 Beco do Mistério
- d6 吳家圍 Pátio do Abridor
- d7 常春藤圍·永樂里 Pátio da Hera
家神圍·長樂里 Pátio dos Penates
富蒲圍·慶樂里 Pátio da Espadana
- d8 社福圍·社福里·吉祥里 Pátio da Capoeira
洗衣匠圍·青雲里 Pátio do Mainato
吉力圍·聚龍里 Pátio dos Cules
- d9 枯仔里·枯仔圍 Beco do Matapau
填地圍·福壽里 Pátio do Aterro
- d10 福隆里 Beco das Galinhas
- d11 夜嗎里·深巷仔 Beco do Gamboa
- d12 暗圍 Pátio da Dissimulação
- d13 新維里 Beco do Cisne
- d14 巴掌圍 Pátio do Pagode
- d15 南灣里 Beco da Praia Grande
- d16 東慶里 Beco Escuro
- d17 戲院里 Beco do Teatro
- d18 蕉園圍 Pátio da Pedra
- d19 三巴仔圍 Pátio da Cadeira
- d20 三巴仔里 Beco do Seminário
- d21 菜園圍·木字里 Pátio da Horta
- d22 馬忌士圍·馬忌士里 Pátio de Lourenço Marques
- d23 陳樂圍·陳樂里 Pátio de Chan Loc
- d24 何智英東圍 Pátio Leste de Hó Chi Ieng
- d25 何子英西圍 Pátio Oeste de Hó Chi Ieng
- d26 山水圍圍 Beco do Bom Jesus
- d27 卑第圍 Pátio do Padre Narciso
- d28 下環圍 Pátio da Casa Forte
- d29 鹽里·爛花園 Beco do Sal
- d30 馬子里·馬子圍 Beco dos Cavaleiros
- d31 聖祿杞里·打鐵圍 Beco de S. Roque
- d32 木瓜圍 Pátio da Papaia
- d33 高樓圍 Pátio do Padre António
- d34 南巫圍 Pátio do Bonzo
- d35 竹室圍 Pátio da Boa Vista
- d36 西望洋圍·三間里 Pátio da Penha
- d37 龍頭里·龍頭巷 Beco do Lilau
- d38 亞婆井圍 Pátio do Lillau
- d39 天台圍 Pátio do Terrado
- d40 媽閣里 Beco da Barra
- d41 偶像圍 Pátio da Estátua
- d42 媽閣台 Pátio da Barra
- d43 聖尼各老圍·仁厚里 Pátio de S. Nicolau
- d44 阿宋生圍 Pátio da Assunção
- d45 聖柯奴非圍·福星里 Pátio de Santo Onofre
- d46 阿宋生里 Beco da Assunção
- d47 如意圍 Pátio da Prosperidade
- d48 港務局里 Beco da Capitania dos Portos
鹹魚里·鹹魚圍 Beco do Peixe Salgado



MacauPatio.com

Source: JWCC Architecture

Macao's *pátios* were mostly built outside the Portuguese city centre, particularly to the west facing the Inner Harbour.

Design of the dwellings inside was based on traditional Chinese techniques involving “two parallel masonry load-bearing walls on the long side of the house, pitch roof of timber purlin with ceramic tile, and windows or door openings on the building facade facing the *pátio*.” A small shrine for Tudigong is still a basic component for *pátios*, with residents sharing the responsibility for daily maintenance and worshipping, making *pátios* an important platform for strengthening community ties.

While most of the *pátios* are more than a century old, many have been at least partially rebuilt in the last 50 years. Today, only around 20 *pátios* in Macao still retain historical significance, and less than 200 historical buildings survive in the *pátios*.

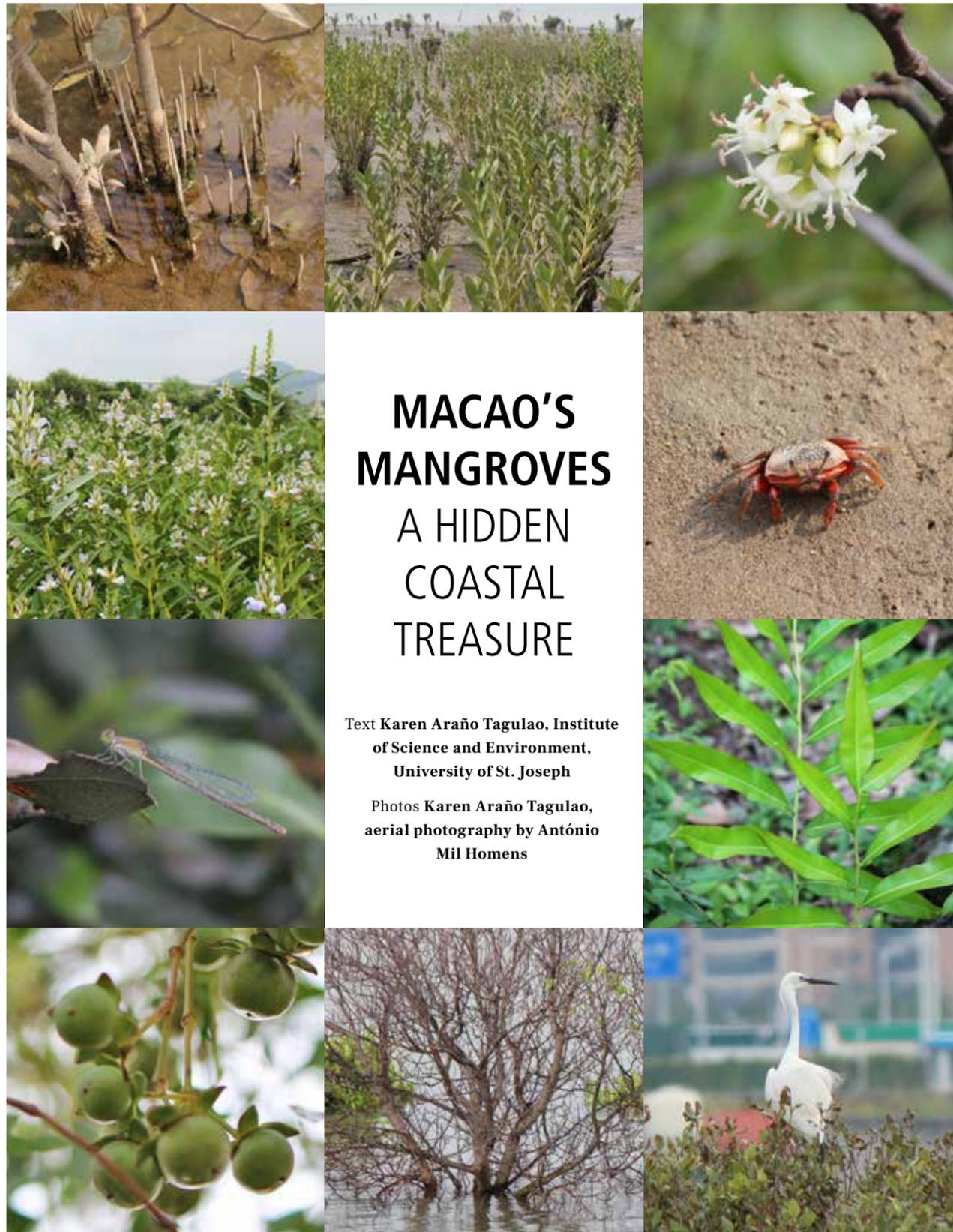
The *Pátio da Eterna Felicidade*, located a few blocks away from the Ruins of St. Paul's, is one of the best-preserved *pátios* of Macao, complete with intact Chinese dwellings that incorporate characteristics of wealthy households such as arches and courtyards. *Pátio das Seis Casas*, located near the Mandarin's House, takes its name from the six traditional dwellings that surround it, some of which are still occupied by elderly people. Former residents include renowned Russian painter George Smirnoff who lived there during the Second Sino-Japanese War.

Despite challenges in navigating issues around property rights in *pátios* and protecting the living spaces of the remaining residents, proactive efforts have been made by the IC to preserve these fading heritage spaces: plans have been formulated to transform *pátios* with historic value into cultural and creative zones, and restrictions imposed on their reconstruction, such as maintaining its height and facade.

With skyscrapers rapidly changing the urban landscape, residents and tourists will long for these quiet, original spaces that offer a moment of tranquillity, and an important opportunity to learn about the history and the identity of the city. The *pátios* have huge potential to become a significant part of Macao's historic centre, and may one day inspire locals and tourists to step off the beaten path for an adventure of discovery. ●



Pátio das Seis Casas



MACAO'S MANGROVES

A HIDDEN COASTAL TREASURE

Text **Karen Araño Tagulao**, Institute of Science and Environment, University of St. Joseph

Photos **Karen Araño Tagulao**, aerial photography by **António Mil Homens**



Mangroves serve as roots of the sea, they protect our shorelines and are a nursery ground for our biodiversity.

Take a trip along the bicycle track areas on the Taipa waterfront on Avenida dos Jogos da Ásia Oriental or the Lotus Cycling Track along Avenida Marginal Flor de Lotus in Cotai, and you're sure to spot the clusters of trees and other plants along the coastline. You may not know, however, that these are mangrove forests, one of the most ecologically valuable ecosystems in the world. Join us for an exploration of this local treasure, and uncover a world full of mystery and dynamics, the world of mangroves!

The word mangrove originates from the Portuguese word *mangue* or Spanish word *mangle* meaning "tree" and the English word "grove" for a group of trees. Known in Chinese as 紅樹林 (red forest), mangroves are a special group of trees, shrubs, and other plants that thrive in coastal saline and brackish waters, particularly along the fringes of estuaries and lagoons. This means that the mangroves are able to tolerate salty water brought about by fluctuations in tides and river flow, ranging

from being partially submerged during high tide to exposed at low tide. Other plants would struggle to survive in such a harsh and changing environment, but mangroves have developed many physiological (functioning) and morphological (physical) adaptations that make them quite unique.

These physical adaptations tend to be the most distinguishing features for ordinary people first encountering mangroves. Each forest is a maze of roots and branches wriggling out of very soft, and sometimes smelly, mud. To survive in the changing water conditions along the coast, mangroves like those in Macao have developed "breathing roots" called pneumatophores, which look like fingers protruding above the soil surface. Other mangroves have prop or stilt-like roots which not only allow for "breathing" but also provide support from the impacts of tides and waves.

We don't often think of plants as needing to breathe, but plant roots need oxygen for



Pneumatophores – the “breathing roots”

respiration to stay healthy. This is difficult in a mangrove forest where the soft, water-saturated soil limits gas exchange, making the soil oxygen poor. Pneumatophores allow mangroves to get the oxygen they need, and the widely spread horizontal roots they grow, help anchor the plants in unstable mud.

That mud may not smell very nice – many liken it to the smell of rotten eggs – but it’s natural and temporary, not at all a cause of worry. The smell is from sulphur dioxide produced by the anaerobic bacteria that decompose the dead plants and animals in the anoxic, or oxygen poor, soil.

Mangroves have also developed strategies to deal with the salt in their environment. For most plants, even the relatively lower

salinity of brackish water would reduce growth at best, and kill at worst. Not mangrove species! They can excrete salts from their leaves or exclude salt from entering their roots when taking in water – some do both. While mangroves would happily grow in fresh water, their ability to tolerate salt gives them a competitive advantage over other types of plants.

Another very interesting adaptation of some mangroves species is the ability of seeds to germinate while still with the parent tree, called vivipary. These candle or pen-shaped seeds can float and attach to sediments, taking root where water is shallow enough. This process helps mangroves propagate and survive in the very unstable intertidal environment.



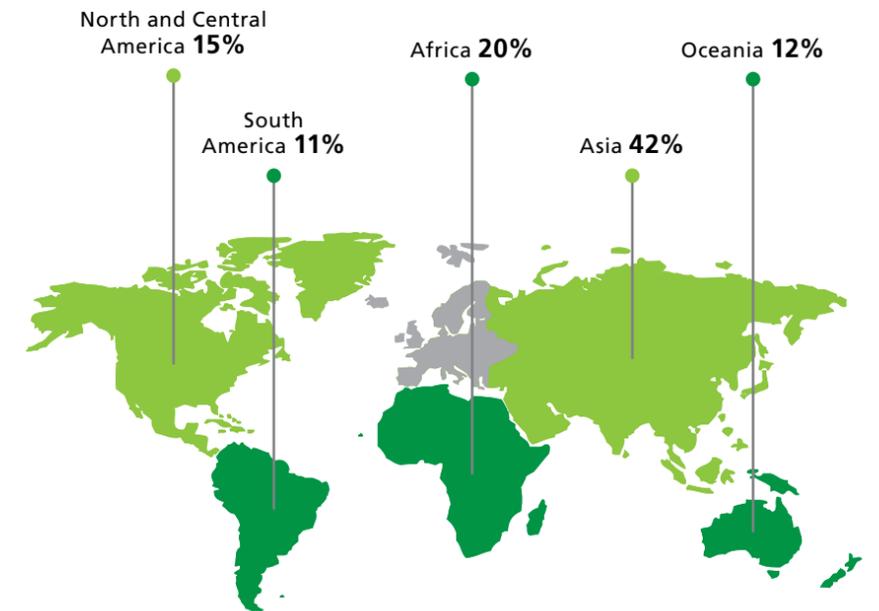
Viviparous propagules of *Kandelia obovata*

Global forest, local flora

These remarkable adaptations allow mangrove forests to grow in sheltered tropical and subtropical coastal areas in 123 countries and territories around the world. Did you know that most mangroves – 42 per cent – are found in Asia? The rest are in Africa (20 per cent), North and Central America (15 per cent), South America (11 per cent), and Oceania (12 per cent). Macao, despite its small size and highly urbanised environment, is home to a healthy stand of mangrove forest along approximately four kilometres of the Taipa-Coloane coastline. The majority of these mangroves grow within the 40-hectare Ecological Zone II in Cotai managed by the Environmental Protection Bureau. Some patches can also be found in a small protected area in the eastern side of Coloane as well

Where mangrove forests are found

Over 40% of the world's total are in Asia



Source: Giri et al, 2011; UNEP • World Conservation Monitoring Centre and International Society for Mangrove Ecosystems NGM Maps

as Macao Peninsula. It is quite amazing to see an ecosystem like mangroves growing alongside the glitz and glamour of a city like Macao.

But why is the whole 50-kilometre coastline of Macao not covered with mangroves? It is because not all coastal areas are a good fit for these forests. Mangroves can only grow in areas protected from high-energy waves, but they need some tidal activity to bring in nutrients, aerate the soil, and stabilise salt levels in the sediment. That’s why we don’t see mangroves on the beaches of Hac Sa or Sai Van or along the rocky shores in Coloane.

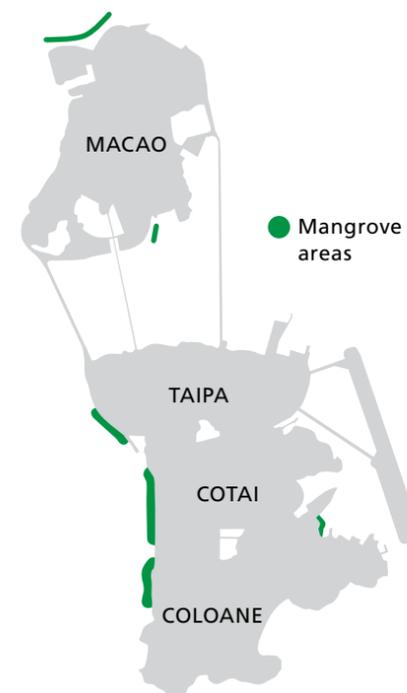
Now that we know what mangroves are and where we can find them, which species grow in Macao? Mangrove plants are taxonomically diverse, meaning they are not necessarily closely related or belong to the same family, but share similar

functions and adaptations. There are more than 70 mangrove species worldwide – each suited to different biogeographical regions, estuary locations, and intertidal positions – and six species right here in Macao.

The smallest of these is the mangrove fern, *Acrostichum aureum*, which is very sparse and mostly found closer to the land than the sea, together with other mangrove associates. One of the most dominant landward species is *Acanthus ilicifolius*, a shrub commonly referred to as sea holly because of its spiny stems and serrated leaves. In springtime, these shrubs blossom into a beautiful field of purple and white flowers, a rare natural delight in a city like Macao.

So why are mangroves known as “red forests” in Chinese? Some say that the name originates from the red dye once made from the aptly-named red mangrove,

Mangroves in Macao





Acanthus ilicifolius flower



Mangrove roots



Red bow fiddler crab (Uca arcuata)



Aegiceras corniculatum flower



Mangroves at high tide

Rhizophora. Although *Rhizophora* is not present in Macao, the city is home to *Aegiceras corniculatum*, commonly known as the river mangrove, which has a reddish petiole or leafstalk. There are also grey mangroves, exemplified by *Avicennia marina*, a very common species that can be seen from the mid- to seaward mangrove margins in Macao.

Kandelia obovata and *Sonneratia apetala* are both easily propagated, making them popular for mangrove restoration projects. Have you ever seen a plant with long candle or pen-like structures hanging from its branches? This is *K. obovata*, known locally as “water pen,” and its viviparous seeds. While the *K.*

obovata and the other species are native to Macao, the mangrove apple, *S. apetala*, is another story. Originally from Bangladesh, it came to Macao by way of mainland China. Its resiliency and fast growth rate make the mangrove apple well-suited to restoration, but there are concerns because it is also invasive and might outcompete native species in the area.

Beneficial ecosystem

So what if there are mangroves here in Macao? Why should we care? Well, for a long time, people didn't care. The soft mud and sulphurous smell gave mangroves a bad reputation; many labelled them “wastelands” of little or no value. But over the years, researchers have shown that mangroves provide a wide range of benefits to the ecosystem and to humans.

The mangroves of Macao contribute significantly to local biodiversity. How can that be with only six plant species? For one, mangroves provide homes and shelter to many plants and animals, both terrestrial and aquatic. Local birds live there, and many migratory birds, including the endangered black-faced spoonbill, winter in the mangroves. They also serve as breeding and nursery grounds for various aquatic animals including fish, crustaceans, and molluscs.

But mangroves do more for humans than provide a great bird-watching experience. They also help make Macao a cleaner, safer environment. Because of its geographic location and hydrographic processes in the area, pollution of the coastal waters can be an issue in Macao. Mangroves, sometimes called “natural wastewater treatment facilities” due to their ability to filter

Mangroves, sometimes called “natural wastewater treatment facilities” due to their ability to filter pollutants, help improve the quality of coastal waters.

pollutants such as heavy metals, help improve the quality of coastal waters. They trap sediments, leaving water clearer, and uptake nutrients. Their ability to trap pollutants helps protect adjacent areas, lessening the damage to marine life.

Mangroves, together with seagrasses and salt marshes, are also receiving more attention worldwide because of their role in climate change mitigation and adaptation. In a coastal city like Macao, vulnerable to impacts of storm surges, mangroves can help physically protect the coastline by acting as a “green wall,” buffering the impact of strong waves. This helps prevent and reduce coastal erosion while also providing a

measure of protection to people and property in coastal areas. We need only look back on the devastation wrought by flood waters during Super Typhoon Hato last year to see the value of investing in a natural barrier against storm surge.

Moreover, because of their unique root system and soil conditions, mangroves far outpace terrestrial forests in their ability to capture and store large quantities of carbon. Much of this carbon is stored belowground in the soil and dead roots, minimizing their carbon release into the atmosphere. They also filter air pollution, which can be an issue in Macao, and supply oxygen for the city.

Aerial view of Ecological Zone II in Cotai; mangroves acting as a “green wall” protecting Macao’s coastline



Mangroves at low tide



Mangrove saplings planted along the coast of Taipa

Habitat under threat

Despite their proven value, mangroves have long been marginalised and face constant threat worldwide. More than 35 per cent are already gone, and an estimated 1-3 per cent of global area is lost each year. This is primarily attributed to human activities such as the clearing of mangrove forests for aquaculture or the impact of rapid development in coastal areas. But there is cause for hope.

Researchers have estimated that rates of decline in some areas in the world have recently lessened because of improved conservation measures, and many communities are investing in restoration. What about Macao and its mangroves? For those who lived here before the rapid modernisation, you may remember how Taipa looked when mangroves occupied the now freshwater wetland in front of the Old Taipa Houses-Museum. During the reclamation, the mangrove plants were transplanted from that area to their current home, Ecological Zone II in Cotai. Our forests are generally in good health, but still vulnerable to pressures from the rapid and massive development adjacent to where they live.

How can we help? We can prevent further destruction of mangrove forests by not polluting their habitat and restoring mangrove forests by planting nursery raised seedlings.

Some parts of the coastlines in Taipa and Coloane are being planted by the government, but there are still other potential sites for restoration around Macao, Cotai, and Coloane. There is hope, that through scientific research, public education and awareness, as well as cooperation of both the government and the local community, Macao’s mangroves will continue to thrive and expand.

The next time you visit Macao’s coastline, remember these remarkable mangroves and how much they give back to us – and consider what you can do to help protect these natural treasures for years to come. ●

Loreto Mijares Jr., at Barra where he rescued local citizens from drowning during Typhoon Hato



And the award goes to

The 2017 Decorations, Medals and Certificates of Merit Awards were given to 42 individuals and organisations in January

Text Cathy Lai Photos António Sanmarful and Government Information Bureau

Loreto Mijares Jr. becomes the first non-resident to receive the Honorific Title – Prestige after rescuing three lives from massive flooding.

Born in 1987, Loreto de Guia Mijares Jr. was about 16 years old when he nearly drowned while swimming in a lake with his cousin in his hometown, Catarman, Philippines. Although he was rescued in time, he swore off water activities completely. 14 years later, when catastrophic flooding threatened to take lives in front of his eyes, Mijares gathered the strength to overcome his ultimate fear.

Mijares and his wife live in the Barra area near Rua da Praia do Manduco. The couple were at home when Super Typhoon Hato, the strongest storm in more than 50 years, struck Macao on 23 August 2017. He was preparing lunch while his wife, Jhunnafe Mijares, was by the window filming the rising waters with her phone.

“The wind was so strong and water kept flooding into the street. In less than a few minutes, the flood had already gone up from knee to shoulder level,” she recalled. “I noticed an old couple trapped in the deep water and I started to scream.”

Her fear multiplied when she turned her head and realised that Mijares had disappeared from the apartment. She looked out of the window again, and found that her husband was already in the water.

“I didn’t think too much; I just ran down to the ground floor,” Mijares explained. “I knew I had to do something about it, so I asked God to give me strength when I jumped into the water.”

Mijares swam across the swirling water, just in time to grab hold of the husband who was about to drift away. Meanwhile, people living in the surrounding buildings began throwing lifebuoys to him, which he immediately threw to the old couple and a man who was floating on the water with a piece of wood.

One by one, he pulled them toward the top of a nearby vehicle. The wind continued to rip through the street, so he embraced the old couple with a lifejacket, which was also thrown down by the neighbours. The three clung to each other for 15 minutes before the strong wind subsided. Afterwards,

neighbours helped them get into a nearby building.

Mijares’s heroic act was captured on video by his worried wife watching from their apartment above; it quickly went viral on social media. People started greeting him on the street, praising him for his courage and kindness. Some requested to take pictures with him, and his compatriots called him “our Filipino hero.”

They were not alone in recognising Mijares’ heroism: various news outlets lauded the rescue and he received a number of awards. One of the most prestigious came this January when the Macao government awarded him the Honorific Title – Prestige, making Mijares the first non-resident to receive the title. He called it a “big honour” for him, and for the Filipino community.

Having come to Macao in search of a better living more than a year ago, the couple now work as housekeepers in local hotels. Mijares, whose background is in security, admitted that it has not been easy for him to adapt



I didn’t think too much; I just ran down to the ground floor. I knew I had to do something about it, so I asked God to give me strength when I jumped into the water.

Loreto Mijares Jr.

to the hotel industry, which has measurable standards to follow at all times. “There is so much to learn,” he smiled.

Since that terrible August day, however, unexpected friendships and happy developments have made them feel more connected to their new home.

“The man and the old couple we rescued treat us like family now,” said Jhunnafe Mijares, “and because we live near the old couple, every time we run into them in the food market, they give us a lot of food as gifts. We are so overwhelmed.”

The Mijares’ family is changing in other ways as well. The couple had been trying to apply for a visa for their 2-year-old daughter, who is now in the Philippines. “Everybody told us that it wouldn’t be easy, because she was not born in Macao,” she explained, “but after we submitted the award certificate to the immigration, we quickly received a call from them, saying that the visa had been approved.”

The couple are also expecting a baby girl in July. They look forward to growing their family in Macao, not only with a second child, but also with the dear friends they have made here in the city.



Loreto Mijares and his wife, Jhunnafe Mijares

The top honours

The 2017 Decorations, Medals and Certificates of Merit Awards Ceremony of the Macao SAR of the People's Republic of China was held at the Macao Cultural Centre this January. The highest honour awarded this year, the Golden Lotus, went to Choi Lai Hang, who served as the first director-general of the Macao Customs Service. Lei Loi Tak, registered auditor and chairman of Associação Budista Soka Gakkai Internacional de Macau, and Vong Kok Seng, vice president of the Board of Directors of The Macao Chamber of Commerce, were awarded the Silver Lotus.

Heroes who saved lives and protected property during Super Typhoon Hato were also recognised during the award presentation ceremony. Mijares, for his daring rescue of an elderly couple and another man from the flood waters, was awarded Honorary Title – Prestige, Certificate of Merit. The Medal for Distinguished Service – Medal for Bravery went to members of four government entities heavily involved in the response and recovery effort: the Diving Team of the Macao Customs Service; the Special Patrol Group of the Public

Security Police Force; the Special Rescue Squad of the Fire Services Bureau; and the Centre for Disease Control and Prevention of the Health Bureau.

In addition to Medals for Distinguished Service and Certificates of Merit, there are seven types of Medal of Merit. These are awarded to individuals and entities that have made significant or excellent contributions in the fields of industry and commerce, culture, education, professions, philanthropy, sports, and tourism. Of the 42 individuals and organisations recognised this year, there were 22 Medals of Merit, 11 Medals for Distinguished Service, 6 Certificates of Merit, and 3 Decorations of Honour awarded.

Choi Lai Hang
 Decoration of Honour – Golden Lotus

Choi Lai Hang served as the first director-general of the Macao Customs Service, and was appointed to a two-year term as coordinator for the Security Forces Co-ordination Office in 2015. In a career that spans 30 years, Choi has received public recognition awards six times, including the Medal of Professional Merit in 1998.

Upon receiving the Golden Lotus award, Choi thanked the former Chief Executives of Macao SAR for their trust and support. He also paid tribute to his former colleagues from the Marine and Customs Police and its successor, the Macao Customs Service, who have supported him throughout his challenging career.

Born in Macao on 28 September 1965, Choi joined the Marine and Customs Police in 1987, completing the Police Officer Training Course and the Course for Commanders in 1995 and 1998 respectively. Between 1995 and 2014, Choi served in a number of leadership positions in the security force, including Head of the Supervision Division of Macao, Director of Operations Management Department, Deputy Director of Marine Inspector, Head of the Operational Management Department, and Commander of the Marine and Customs Police.

Choi was appointed as the first director-general of the Macao Customs Service when it was officially inaugurated in 2001 as a replacement for the Marine and Customs Police. He has long been commended for his effectiveness in coordinating different departments to continuously improve the civil protection mechanisms of Macao.

Vong Kok Seng
 Decoration of Honour – Silver Lotus

As a vice president of the Board of Directors of the Macao Chamber of Commerce Vong Kok Seng has been devoted to promoting Macao's business and commercial sectors for years. He also plays an active role in various government committees.

Upon receiving the Silver Lotus award, he thanked his friends and colleagues for giving him support and guidance throughout the years, which has greatly motivated him to follow the path of community service. He believes that the award has further encouraged him to make continuous contributions to Macao and other areas.

Prior to the Silver Lotus, Vong received the Medal of Merit - Industry and Commerce in 2003 for his outstanding achievement in the field.

Lei Loi Tak
 Decoration of Honour – Silver Lotus

Registered auditor Lei Loi Tak was a key member of Tung Sin Tong Charitable Society and Chao Zhao Natives Association Macau for years. He was also the chairman of local Buddhist group Associação Budista Soka Gakkai Internacional de Macau.

In an interview after the award presentation ceremony, Lei expressed gratitude to the collaborative effort from different social sectors in making Macao a harmonious and prosperous city. He also took the occasion to encourage young people to enrich themselves through embracing different challenges, and contribute to the stability and prosperity of the city.

For his long-term commitment to promoting peace, culture, charity and education, Lei was awarded the Medal of Merit – Culture in 2006.

Lei passed away on 21 February at the age of 76. ●

Award recipients at the ceremony also include:

Medal of Merit – Professions

- João Augusto Gonçalves Gil de Oliveira
- Zhao Guoqiang
- Iau Kam Hoi
- He Haiming

Medal of Merit – Industry and Commerce

- Tai Fung Bank
- Kee Kwan Motor Road Co., Ltd (Estrada para Veículos Ki-Kuan, Limitada)
- Fong Son Kin

Medal of Merit – Tourism

- Lawrence Ho Yau Lung
- Luís Lui
- Lam Chan Kuok

Medal of Merit – Education

- Lei Heong Iok
- Vong Chuk Kwan
- Lo Sio Va

Medal of Merit – Culture

- Pen of Macau
- João Vicente Botelho Guedes
- Chou Cheong Hong
- Poon Kam Ling

Medal of Merit – Philanthropy

- Social Welfare Bureau
- Fu Hong Society of Macau

Medal of Merit – Sports

- Macao Dragon and Lion Dance Team
- Macau Karate-do Federation
- Eduardo Armando de Jesus Júnior

Medal for Distinguished Service – Medal for Bravery

- Diving Team of the Macao Customs Service
- Special Patrol Group of the Public Security Police Force
- Special Rescue Squad of the Fire Services Bureau
- Centre for Disease Control and Prevention of the Health Bureau

Medal for Distinguished Service – Medal for Dedication

- Supervising Team of Food Safety Centre of the Civic and Municipal Affairs Bureau
- Sou Tim Peng
- Lao Wai Han

Medal for Distinguished Service – Medal for Community Service

- Association of Rehabilitation of Drug Abusers of Macau
- Young Men's Christian Association of Macau
- Sheng Kung Hui Macau Social Services Coordination Office
- Choi Chun Heng

Honorary Title – Merit

- Cheong Heong San
- Lam Kai Heng
- Chan Sio Man
- Chau Hou Tin
- Pui Ching Middle School team, which took part in the "International Science and Engineering Fair 2017"



The Grand Lotus; the Golden Lotus; and the Silver Lotus awards





Prawns Piri-Piri

2018 – Macao year of gastronomy

Text Ana Isabel Dias

Photos Macao Government Tourism Office and Macaense Cuisine published by the International Institute of Macau

Macao is now the third Chinese city to join the UNESCO Creative Cities Network, along with more than 180 cities from 72 countries.

On a sunny January day, crowds gathered at Sai Van Lake square for a ceremony that marked the culmination of a years-long process for the Macao government, working with academic institutions and professional associations, to put Macao on the map as a Creative City of Gastronomy.

The designation, formally announced last November, recognises the many cuisines associated with the city – from international fare to traditional Cantonese to the unique Macanese cuisine that combines a global array of influences – and offers a framework for preserving this important piece of cultural heritage. It also brings Macao into the UNESCO Creative Cities Network (UCCN), a collection of hundreds of cities around the world, committed to promoting and preserving particular aspects of local culture.

Becoming part of the network promises Macao support and collaboration with fellow cities, while also making demands on the city to follow through on its four-year action plan and comply with the goals laid out in the UN 2030 Agenda for Sustainable Development. Meeting these specific targets over the next 15

years won't be easy, but Macao stands ready to meet the challenge head on, strengthening their commitment to many areas addressed in the agenda. Culture, which the UN considers vital to sustainable development, took centre stage on 17 January with the kick-off of 2018 Macao Year of Gastronomy.

Alexis Tam Chon Weng, secretary for Social Affairs and Culture and chairman of application committee that secured the UCCN designation for Macao, presided over the ceremony. Among the crowd gathered in the shadow of Macau Tower were a number of key figures from the Macao and Chinese central governments, as well as Deputy Director-General of UNESCO Getachew Engida and Chan Chak Mo, president of the United Association of Food and Beverage Merchants of Macao.

The ceremony also kicked-off three days of promotional and educational events, including the Macao Gastronomy Carnival and the International Gastronomy Forum. Organised by the Macao Government Tourism Office (MGTO), the forum drew local and international experts, top UNESCO representatives, and more than 300

delegates from UNESCO Creative Cities. Authorities plan to make the forum an annual event, providing a valuable platform for exchange between Macao and fellow Creative Cities of Gastronomy, as well as professionals and academics working in the field.

A collective effort

Macao is the third Chinese city to join the UCCN, following Chengdu in 2010 and Shunde in 2014. More than 180 cities from 72 countries belong to the network, which covers seven creative areas: Crafts and Folk Art, Design, Film, Literature, Media Arts, Music, and Gastronomy. Created in 2004, the purpose of the UCCN is “to strengthen cooperation with and among cities that have recognised creativity as a strategic factor of sustainable development as regards economic, social, cultural, and environmental aspect.”

Beyond displaying cultural heritage and creative assets relevant to a given area, candidate cities must submit an application illustrating their willingness and capacity to contribute to UCCN objectives and comply with the UN 2030 Agenda for Sustainable Development.



Official Macao gastronomy website



2018, Macao year of gastronomy



Alexis Tam Chon Weng (left) and Getachew Engida (right)

As part of the application process, the Macao government created multiple working groups comprised of representatives from relevant government entities, academic institutions, organisations, and associations. Maria Helena de Senna Fernandes, director of the MGTO, characterised it as “a collective effort of many parties,” noting the support of local gastronomic associations such as the Brotherhood of Macanese Gastronomy (CGM).

Luís Machado, president of the non-profit association, recalled how two CGM representatives on the committees secured the “unconditional support” of the European Congress of Oenogastronomiques Brotherhoods (CEUCO). Support that would prove valuable when the president of CEUCO, Carlos Martín Cosme, “promptly wrote a letter of endorsement addressed to the director-general of UNESCO, Irina

Bokova, who certainly contributed to the recognition and attribution of this title for Macao.”

Influence in the mainland also played a role; the application received support from a number of key representatives from China.

Recipe for success

Beyond the efforts of the working groups and application committee, the key to Macao’s successful bid lay in the cuisine itself. Getachew Engida, the deputy-director general of UNESCO, emphasised: “What makes Macao special – it’s a fusion between East and West, different cultures coming together and naturally creating a special type of food. And the way it’s presented, the way it’s cooked, and the way the spices are used makes it special.”

Since its establishment as a Portuguese trading post in 1557, Macao has reflected this blending

of cultural influences in everything from architecture to gastronomy. Macanese cuisine – one of the first fusion cuisines – combines south Chinese and Portuguese cuisines, with a smattering of Indian, Malay, and African influences mixed in to create a cuisine wholly unique to Macao. Macanese families have kept this important cultural legacy alive for centuries through traditions and recipes passed down from generation to generation.

The threat of losing this type of intangible cultural heritage looms large for people like CGM president Luís Machado. Part of the four-year plan submitted for UCCN membership focuses on institutionalising preservation efforts through developing a multilingual database of Macanese recipes, specialised culinary training, and more. Machado pointed to his own organisation as a powerful partner in achieving these goals:

“Our chefs will contribute to the transmission of knowledge passed on by their mothers and aunts, old family recipes – some just through oral communication making it hard to put into practice – old recipes that require a lot of experience and where only our chefs are able to pass it on to the young students of IFT [Institute for Tourism Studies].”

Machado also cited the addition of Macanese recipes to restaurant menus, and the creation of a centre for the promotion and support of Macanese gastronomy under management of IFT, as benefits of the Creative Cities designation.

According to the plan, the Education and Youth Affairs Bureau will build a technical-professional training centre in Seac Pai Van, and set up an international cooking area to provide culinary skill training. IFT, in addition to opening the culinary centre, will be in charge of

creating the database for Macanese cuisine. It will serve as a platform to track the history, recipes and cooking styles of Macanese cuisine, while also creating objective standards and conditions to carry on the centuries-old culture and tradition.

Moving beyond the kitchen

Many of the initiatives outlined in the four-year plan bring in other sectors – particularly tourism, a major economic force in Macao – and include the full range of Macao gastronomy.

The city boasts more than 2,200 restaurants, cooked-food stalls, and food and beverage establishments. They serve everything from Asian food to Western fare, in establishments ranging from noodles and congee shops to upscale Michelin-starred restaurants. Cantonese cuisine dominates in Macao,

unsurprising in a heavily Chinese city nestled between the sea and Guangdong (formerly Canton) province. The booming gaming industry gave rise to the city’s 19 Michelin-starred restaurants, most of which are linked to hotel complexes owned by casino groups.

For decades, tourism in Macao centred on the gaming industry. Now the city is trying to diversify the sector, encouraging cultural tourism through the leveraging of landmarks like the Ruins of St Paul’s and the Historic Centre of Macao, inscribed as a UNESCO World Heritage Site in 2005. Becoming a Creative City of Gastronomy offers another draw for visitors, particularly as Macao increases promotional activities and develops new tourism products around gastronomy.

New culinary routes will guide visitors on a gastronomical adventure around the city, while greater promotion of relevant events will provide a one-stop shop for culinary delights. Everything from events organised by local associations such as the Macao Food Festival and Macao Gastronomy Carnival, to the next two editions of Asia’s 50 Best Restaurants, will receive added backing. And efforts to promote the local catering industry will enhance Macao’s positioning as the regional leader in MICE (meetings, incentives, conventions and exhibitions) venues.

The plan also pulls in other creative industries, pushing for greater cross-field cooperation, in part through incorporating gastronomy into major events ranging from the Chinese New Year parade to the 3rd International Film Festival & Awards Macao. “We have to make Macao a Creative City,” Secretary Tam said,



Dag Hartman, coordinator for the UNESCO Creative Cities Gastronomy Group

noting that Macao must invest in developing a broad-base cultural industry sector, from gastronomy to literature, in combination with technology and innovation. "That is what we are doing and working on."

Harnessing culture to reinvent Macao

More than half of the world's population live in cities, and that number is expected to hit two-thirds by 2050, putting cities like Macao and the other members of the UNESCO Creative Cities Network (UCCN) at the vanguard of the fight to end all forms of poverty, fight inequalities, and tackle climate change.

The 17 Sustainable Development Goals (SDGs) laid out in the UN 2030 Agenda for Sustainable Development take a comprehensive approach to addressing the greatest issues facing humanity, breaking down each area of concern into a number of specific goals and targets for completion. While considerable challenges lay ahead, UCCN

members already have one thing working in their favour: culture.

According to the UN, "culture is an enabler of the economic, social, and environmental dimensions of sustainable development," a perspective reflected in the SDGs: more than half directly refer to the

role of culture in reaching their targets. In mobilising the network, the UN hopes to leverage the assets and investment of member cities to achieve the SDGs by 2030.

A long road lies ahead for Macao as it seeks to preserve the past while innovating toward a brighter, more sustainable future. Director Senna Fernandes of the MGTO proclaimed that now is the time for the city as a whole to work together, noting that "the goal is not only what we can benefit, but also what Macao can contribute to this network and globally for everyone."

Dag Hartman, coordinator for the UNESCO Creative Cities Gastronomy Group, agrees: "We have a commitment... it's not just highlighting yourself, you are supposed to bring something to the world, making it better, more sustainable. It takes some time, but I think that slowly but steadily your city changes in different ways."

With everything the city is working towards, this year the spotlight is on the unique and delightful gastronomy of Macao. ●



Macao style egg tarts



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Tradition

60-year-old almond cookies shop passed down through generations

Text Mark O'Neill Photos António Sanmarful

Pastelaria Chui Heong opened in 1958 and is the last shop of its kind in Macao.

At ten o'clock each morning Lee Chi Yung opens the shutters of the almond cookies shop, which his father founded 60 years ago. It will remain open until seven, although Lee stays much later, not leaving until eleven o'clock at night. Long days, especially for a shop that is open 365 days a year. Yet even before Lee opens, a small group of customers have already formed a queue, eager to place their orders as early as possible.

Welcome to the Pastelaria Chui Heong (最香餅家), which in Chinese means "bakery with the tastiest cookies", located on the narrow Rua do Gamboa, close to the Inner Harbour. The well-established shop relocated there in 2008, after its original premises in Rua do Barão were demolished. A new location, but with the same traditional recipes and production process employed by Lee's father, Lee Gai

Yuk, when he opened the business in 1958. That means whole almonds, vegetable oil, white sugar, and mung bean flour with fresh pork as its meat filling. Staff grill them over charcoal, giving the cookies a fresh, rich flavour and crunchy texture.

But that high quality comes at a price: Pastelaria Chui Heong is the last shop of its kind in Macao. The government has stopped issuing new licences for shops that use charcoal ovens on their premises. While this forced the Lee family to move some of the production process off-site, they continue to do part of the process on the premises.

The shop remains popular with Macao residents, some of whom have patronised Pastelaria Chui Heong for decades, as well as with buyers from the mainland, Hong Kong, Taiwan, Japan, South Korea, Singapore and the West, especially the United Kingdom.



Lee Chi Yung, second generation in the family taking care of Pastelaria Chui Heong

Building a family business

When Lee's father arrived in Macao from mainland China, he had no occupation so he studied the skill of making almond cookies. He opened the shop in 1958 and worked there until his death in 1985, at which point the business passed to Lee, one of his five children. Pastelaria Chui Heong remains a family business today, with multiple generations helping around the shop, doing different tasks. Lee himself started working there as a boy.

In the beginning, Macao residents accounted for nearly all of the shop's customers. But the business diversified as the tourism industry in the city expanded, attracting visitors from

Hong Kong, the mainland, and countries in Asia.

Despite expanding their customer base, the business remains relatively small. The current site, similar in size to the Rua do Barão premises, is an intimate little shop where customers can observe each step of the cookie-making process.

"We thought of buying a second or third shop, but rents are high and it is hard to find workers for a job like this," Lee explained. "Local people do not want to do it." Only half of the shop's six-member staff are from Macao, the other half come from the mainland.

Holidays make for the busiest times of year at the shop. "People need to buy gifts," Lee said, noting that for some, his shop's almond



Pastelaria Chui Heong on Rua do Gamboa

The almond cookie came to Macao from the mainland. Invented by a baker in Zhongshan city, Guangdong province in 1918, it quickly spread to Macao.

cookies have become something of a family tradition. “Some of our customers have come here for 50 years. Sometimes, they send their children to buy for them.”

Happy moments from that long history decorate the walls of the small shop, photographs of film and music stars that came to buy the cakes. The darkest moment came in August 2017, when Super Typhoon Hato slammed into Macao, destroying in hours what had taken a lifetime to build.

“We lost all our stock and equipment. We had to replace everything. The losses totalled MOP300,000. We got MOP50,000 patacas in compensation from the government.

Following in his father’s footsteps, Lee, 54, has no plans to

retire. His only child, a son in his 30s, does not wish to take over the business; he works in property. It will remain in the family, though, passing to his brother’s son who has worked in the shop for several years.

Creating a new tradition

Like the elder Lee, the almond cookie came to Macao from the mainland. Invented by a baker in Zhongshan city, Guangdong province in 1918, it quickly spread to Macao, Hong Kong and other cities, becoming a traditional food of Cantonese people.

Starting in the 1920s, a handful of big companies were set up to produce the cookies, such as Yeng Kee Bakery and Choi Heong Yuen Bakery, as well as many family



manufacturers. Initially, the shops sold simple cookies and cakes with basic flavours to local residents who bought them as snacks or as gifts.

As more tourists came to Macao, many of them from Hong Kong, their enthusiasm for the delicious cookies prompted shops to expand their offerings. Now more than 300 different kinds of specialty foods are available in shops – but almond cookies remains the king.

It has since spread to other cities in the Chinese-speaking world, including Taipei and cities in North America with a large Chinese population, but remains strongly associated with Macao. While production is not restricted to the city, the almond cookies has become famous here, making it a must-buy for thousands of tourists, and a popular gift for family and friends.

The different steps in preparing the almond cookies, from the mixing of the ingredients to the final baking using charcoal





King of tasty souvenirs

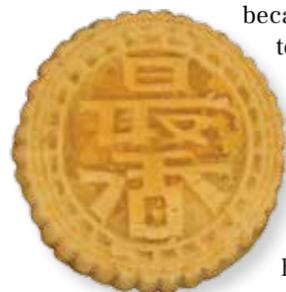
The market leader is Koi Kei, which has 23 stores across Macao, employs around 500 people and according to their website, represents 75 per cent of the pastry souvenir market.

Founder Leong Chan-kuong doesn't fit the same profile as Lee and others who run the traditional family businesses here. Leong migrated to Macao with his parents and two brothers in 1979. He started as a hawker, selling ginger sweets and crunchy peanut candies from a cart.

Then, in 1997, Leong put all of his financial

resources into opening the first Koi Kei Bakery on Travessa do Matadouro; he was just 28 years old. His family warned him against the move, believing it too risky, but Leong's gamble paid off beautifully.

The key to his success lay in China's decision to give short-time travel permits Chinese citizens to visit Macao. Leong targeted this new group of customers by setting up a branch near the Ruins of St. Paul's, the city's top tourist destination, in 2002. Koi Kei quickly



Chui Heong almond cookie

became the brand of choice for tourists from the mainland and Hong Kong. It spends heavily on advertising and its shops all over Macao, as well as in Hong Kong. Together Macao and Hong Kong have nearly 30 chain stores.

While Lee is too polite to compare his cookies with those of Koi Kei or other brands, he does take pride in the family business that has become his life's work. He worked every day of the year in 2017, save for two short holidays in Thailand and Taiwan.

As large companies increasingly replace small businesses, swapping out time-consuming hand preparation and charcoal grilling for mass production and electric stoves, Pastelaria Chui Heong preserves a tradition passed down through generations. Lee remains committed to continuing the business started by his father more than half a century ago, providing delicious almond cookies for dedicated locals and curious tourists eager to take home a taste of Macao. ●

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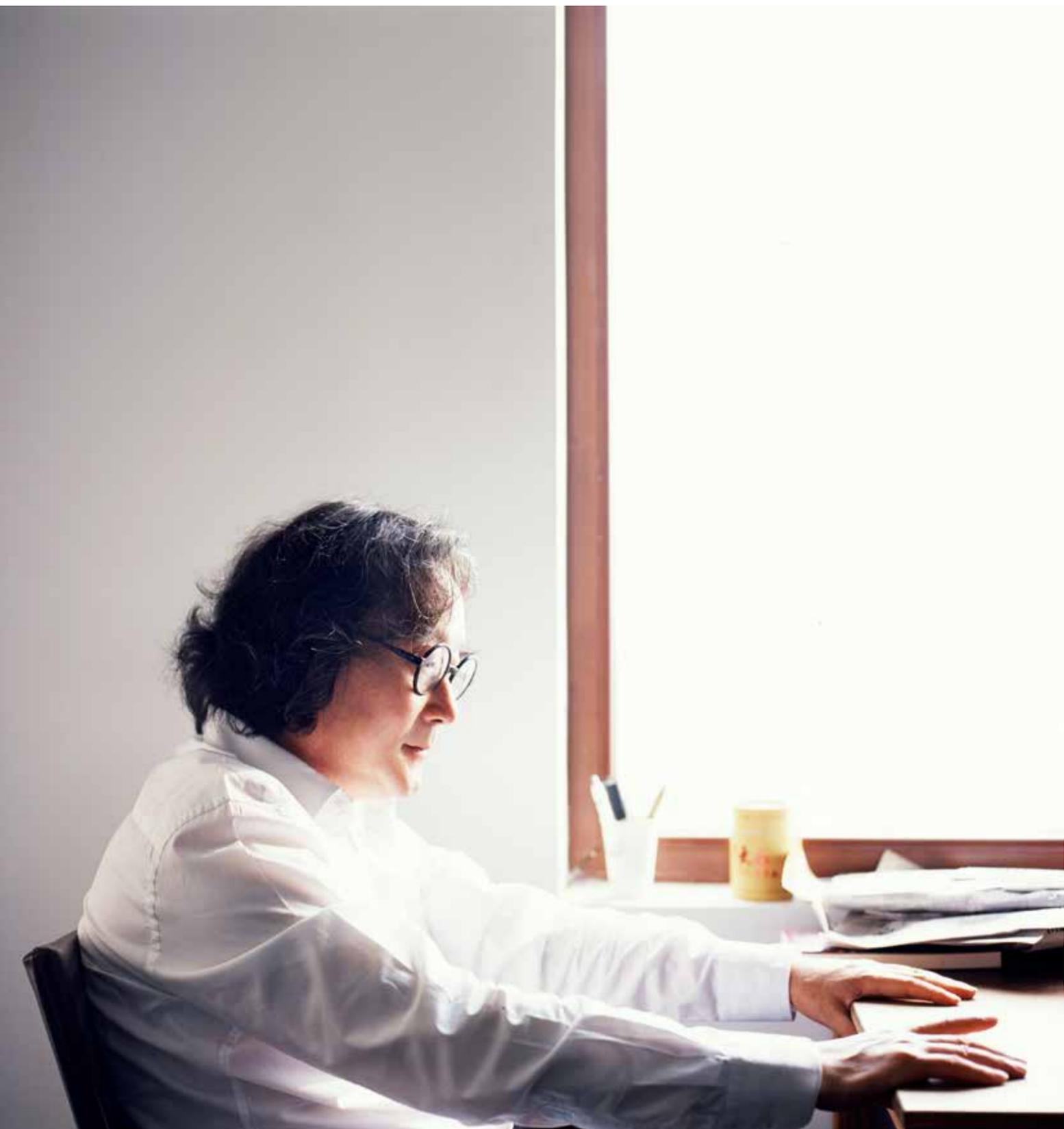
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Culture

Macao Museum of Art welcomes pioneering Chinese artist, Xu Bing

Text Mark O'Neill Photos António Sanmarful and courtesy of Macao Museum of Art

Black ink on brown paper, the sure strokes of an experienced calligrapher rendering one of the oldest written languages in the world. Or is it? Closer inspection reveals the characters are in fact Portuguese words, Roman letters reconfigured and rendered so that each word takes the appearance of a Chinese character. Fitting imagery for an excerpt from *Viola Chinesa* by Camilo Pessanha, a Portuguese poet who spent much of his life in Macao, itself a compelling blend of Chinese and Portuguese influences.

Hung on the wall of the Macao Museum of Art (MAM), the piece was one of the many striking compositions that made up *The Language and Art of Xu Bing*. Over its four-month run, which ended 4 March, the exhibition attracted more than 34,000 people to marvel at the monumental installations, early printmaking, and intimate glimpses into the artistic process of this pioneering figure in Chinese contemporary art.

"They had never seen this kind of work," said Ng Fong Chao, exhibition project planner; Feng Boyi and Wang Xiaosong were invited to curate the exhibition. "This was the first time that Macao hosted an exhibition on the works of Xu Bing. His is a special kind of modern art. He is a conceptual artist."

Immersed in characters

Xu was born in Chongqing in 1955, the third of five children. He grew up in Beijing University, where his mother taught and his father chaired the history department. The university and its library was his world – he studied and played there, practised calligraphy, and learned ancient texts and poems.

Xu grew up immersed in the world of Chinese characters – their shape, design, meaning, and resonances – an experience few could claim, and one that would greatly inspire his life's work.



Ghosts Pounding the Wall (1990)



Ng Fong Chao, exhibition project planner

But this idyllic childhood would not last; Xu was still in primary school when the Cultural Revolution began in 1966. In 1974, he was sent to a tiny village in a mountainous area of north China where he spent the next three years working on a farm along with four other students. They spent long hours working in the fields, but found the time to produce a cultural magazine, *Brilliant Mountain Flowers*, and printed 500 copies to give out to the farmers.

This simple, if exhausting, rural existence left its own mark on Xu's work, influencing his imagery and conception of language. The skill demonstrated in *Brilliant Mountain Flowers*, as well as many banners and posters produced during this period, earned Xu a place at the Central Academy of Fine Arts (CAFA) in Beijing, where he completed a

bachelor's degree in printmaking in 1981. He stayed on at the academy as an instructor, earning his Masters of Fine Arts (MFA) in 1987. At CAFA, he mastered the style of Socialist realism that dominated during the Maoist era.

Then he began to create his own works, complex large-scale installations inspired by the short-lived '85 New Wave movement that ushered in Chinese contemporary art. Two of the best known are *Book from the Sky* (1987) and *Ghosts Pounding the Wall* (1990).

For *Book from the Sky*, he invented 4,000 characters which he hand-carved into wood blocks. He then used the blocks as movable type to print volumes and scrolls, which were laid out on the floor and hung from the ceiling. These large, orderly texts with their traditional style appear to convey ancient wisdom but are in fact unintelligible.

When he unveiled the work in October 1988, seeing so many Chinese characters – the foundation of Chinese culture for centuries – transformed into something meaningless elicited unease and obsession, as some viewers spent hours searching in vain for a readable character. A subsequent showing in 1989 brought more attention to the piece; many artists and critics consider it the definitive work of the period. His work also drew scrutiny from the authorities who suspected it of criticising the government. In this difficult atmosphere, he decided, like many of his contemporaries, to go abroad. In 1990, he moved to the United States, where he was invited to work at the University of Wisconsin-Madison.

He held his first US exhibition the same year at the Elvehjem (now Chazen) Museum of Art on the UW-M campus. Simply titled *Three Installations by Xu Bing*, the



Xu Bing writes calligraphy

exhibition presented *Book from the Sky*, *Ghosts Pounding the Wall*, and *Five Series of Repetitions*, the work that earned Xu his MFA.

Ghosts Pounding the Wall, a massive 32-by-15-metre work, began while Xu was still in China. Working with a team, it took 24 days to complete the ink rubbings of one section of the Great Wall, and another six months for Xu to stitch together the pieces for display.

An earthen grave mound sits at the base of the "wall," a haunting allusion to the millions who died in the centuries-long construction of the actual Great Wall.

In 1994, he began developing a writing system he called "square word calligraphy." Like his earlier work in *Book from the Sky*, the seemingly familiar Chinese characters appeared nonsensical to Chinese people – but for English-

-speakers, there was meaning to be found. Each block organises the English letters of a word into structures that resemble Chinese characters. Xu produced a guide to this square word, or New English, calligraphy and gave lessons in how to write it.

Xu quickly rose to prominence on the strength of his innovative, thought-provoking work. Major art museums and institutions around the world have displayed his pieces, which have also appeared in two editions of the Venice Biennale, 1993 and 2015, as well as those of Johannesburg (1997), Sydney (2000), and São Paulo

(2012). Over the years, Xu has received numerous international accolades, most notably the coveted MacArthur Fellowship, more commonly known as the MacArthur Genius Grant, in 1999, and the Fukuoka Prize for Arts & Culture in 2003.

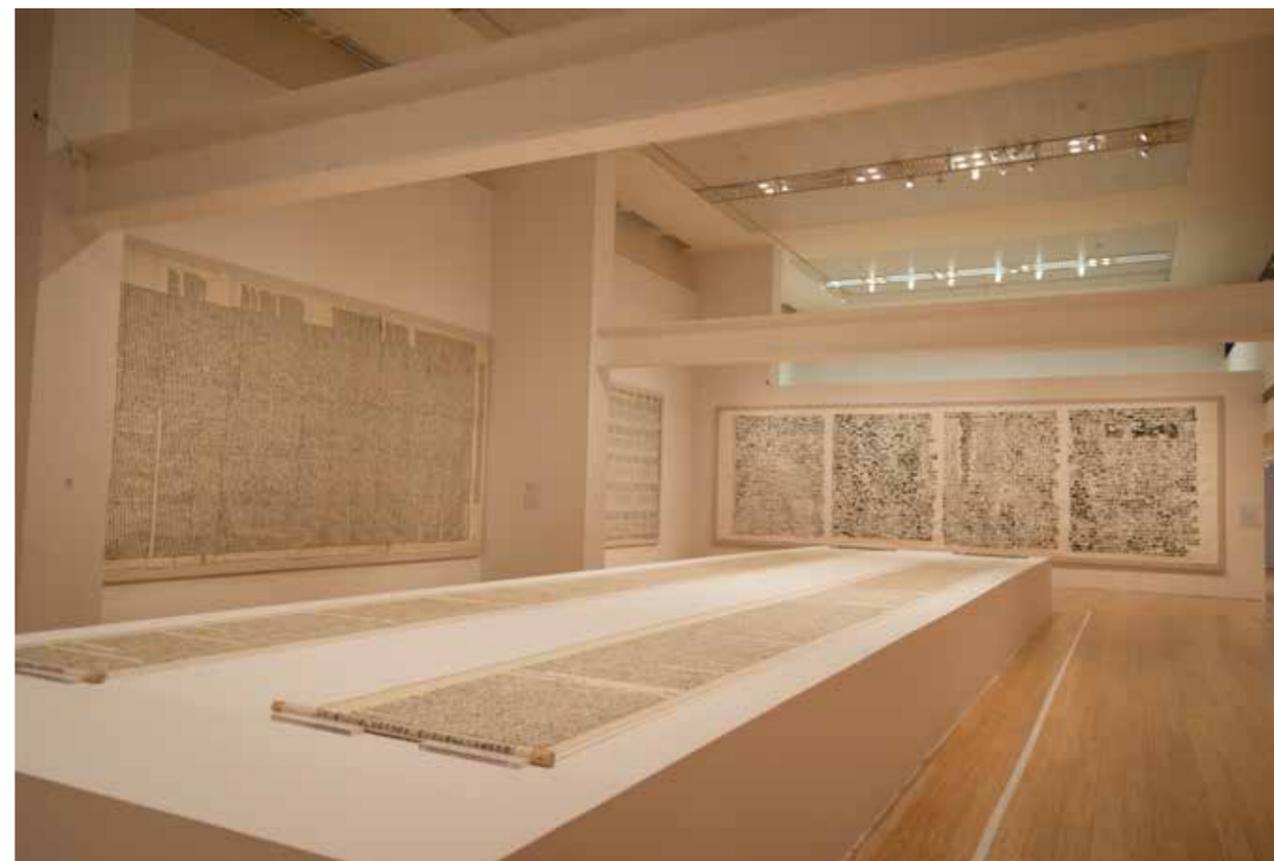
In 2008, after nearly two decades in the US, Xu returned to China. He became vice president of CAFA, a post he held from 2008 to 2014. Since then, Xu has worked as a professor at the academy and advisor to its PhD students. He remains an active artist, creating new works and holding workshops in his two homes, Beijing and New York.

Coming to Macao

The role of the Macao Museum of Art, according to curator Ng Fong Chao, is to show many different kinds of art. “On the fourth floor, we have traditional art from the Palace Museum. Last September, we had calligraphy from the Ming and Qing dynasties. Modern art is also an important part of our mandate.

“In this field, there is too much choice – Macao, mainland, and international artists. Each year we choose a Chinese artist who is internationally famous. Xu Bing is not a typical painter. He is an artist of concepts, who shows a different aspect of modern art,” explained Ng.

Planning for the exhibition began in 2016 with the museum contacting two people very familiar with Xu’s work. “He was very interested and came last year to our museum. This was his first exhibition in Macao. At 63, he is very experienced and knew what he wanted to show.”



“Viola Chinesa
 Ao longo da viola morosa
 Vai adormecendo a parlenda.

 Mas que cicatriz melindrosa
 Há nele, que essa viola ofenda
 E faz que as asitas distenda
 Numa agitação dolorosa?

 Ao longo dessa viola, morosa...”
 Viola Chinesa de Camilo Pessanha,
 escrito por Xu Bing, na ocasião do
 centésimo quinquagésimo aniversário do
 poeta português.
 Pequim, Outubro de dois mil e dezassete.

“Chinese Viola
 To the tune of slow viola / idle-chatter goes
 to bed / This heart – what faint scar does
 it bear / that melody provokes, / to make
 those tiny wings / stretch in restless dolor? /
 Slowly, to the tune of a viola...”
 Chinese Viola by Camilo Pessanha, written
 by Xu Bing on the occasion of the 150th
 anniversary of the birth of the Portuguese
 poet. Beijing, October, 2017)



Book from the sky (1988)





Landscape (1999)

The exhibition consisted of 30 pieces, including two of his most famous works, *Book from the Sky* and *Book from the Ground*, as well as the experimental trials and rough sketches he produced in the process of creating them. The new Pessanha work marked Xu's first use of Portuguese in a career defined by a penchant for playing with the plasticity of language. Specially

created for the exhibition, it also served as a tribute to the beloved poet on the 150th anniversary of his birth.

The exhibition, spread out over an area of 1,350 square metres on three floors of the museum, made a strong visual impact and gave visitors the opportunity to see the variety in Xu's work. A reading area offered more than 20 publications related to Xu's exhibitions, research and

writing. The museum also arranged a series of talks, demonstrations and workshops, enabling visitors to gain a deeper understanding of his complex conceptual works. There were guided tours on weekend afternoons and public holidays after 18 November.

As of 21 January, roughly three months into its run, a total of 34,807 people had visited the exhibition. The majority, 60 per cent, were local while the remaining 40 per cent came from outside the city. As of that day, the 65 guided tours had attracted 1,068 individual visitors and 38 school groups totalling 1,777 student and teachers.

Animal disturbance

Best known for his printmaking and calligraphy, often displayed in monumental installations, Xu has also ventured into the world of performance installations. In 1994, he created *A Case Study of Transference*, in which an audience watches as two pigs mate in a pen

Book from the ground (2014)



littered with books. Roman letters decorate the boar while the sow appears to bear Chinese characters, but in fact, the symbols are gibberish devoid of any meaning.

It appears a desecration: animals rutting amid the scattered symbols of civilisation - books, language itself - their bodies seeming to sully the text, rendering it meaningless. Originally titled *Rape or Adultery?*, the piece questions the nature of this base act: is it a violation of the sow with her seemingly Chinese markings, or a welcome betrayal of something else?

In 2017, the Solomon R Guggenheim Museum in New York City selected the piece for *Art and China After 1989: Theatre of the World*, an exhibition of nearly 150 works from more than 70 Chinese artists. Unwilling to admit live pigs to the museum, they chose instead to use a video of the 1994 performance in Beijing. But intense pressure from animal rights groups, including explicit and repeated threats of violence, led the museum to withdraw Xu's piece, along with two others featuring live animals, before the opening in October.



By the time the Guggenheim decided to pull the works, an online petition condemning the exhibition had collected over 550,000 signatures. It accused the museum of including "several distinct instances of unmistakable cruelty against animals in the name of art," taking particular issue with another piece which simulated aspects of dog fighting.

"We usually regard the United States as the country of creative freedom," Ng said. "Many artists opposed the decision of the museum."

The video did appear as part of the MAM exhibit; Ng reported that he had heard no such criticism from the visitors to the Macao exhibition. "No one was against it." ●

History

Macao: 100 Years of Photography

Text Natasha Pereira Lubaszewski Photos José Goulão



Photos showcased at the exhibition depict Asian communities' customs and traditions beginning in 1844.

A century of the social and political history of Macao, vividly portrayed through 220 photographs, was on exhibition at the Museu do Oriente (Museum of the Orient) in Lisbon until 7 January 2018. The images on display illustrated the evolution of the city and daily lives of its people, as well as some of the most remarkable episodes in the history of Macao. According to the president of the Orient Foundation, Carlos Augusto Pulido Valente Monjardino, “it is not the photographic arts that stand out here, but rather what the images document about the city, about the particularities of the Asian

territory, about the customs and traditions of its communities, their daily lives and even their environmental conditions. The exhibition, assembled from private and institutional collections scattered throughout the world, is a journey through the history of Macao beginning in 1844.”

Most of the images included in the exhibition belong to the collection of the Documentation Centre of the Museu do Oriente, considered one of the best public collections of the region's imagery in Portugal. Rogério Beltrão Coelho, the exhibition commissioner and a journalist with experience in Macao, secured additional images from third parties to reach his goal: exposing the many facets of Macao during the first hundred years of photography. For the famed hub of East-meets-West, Coelho chose images that illustrate the coexistence between its communities, its customs and traditions, as well as the growth of the city, the architectural heritage still



Jules Itier, French photographer

preserved today, and the natural disasters that haunt its territory. The exhibition was, according to museologist of the Museu do Oriente, Sofia Campos Lopes, the result of a meeting of common goals between the commissioner and the Orient Foundation.

From the selections made by the commissioner emerged a clear division of the exhibition into three categories: everyday experiences, demonstrating the traditions and customs of their communities; great events, both local and national; and architecture, particularly buildings and neighbourhoods that disappeared or were deeply altered. The work of Jules Itier, whose 1844 daguerreotypes

represent the earliest preserved images of Macao and China (then known as the Middle Kingdom), serves as an introduction to the larger exhibition.

The first half of the exhibition focused on everyday experiences, offering an impressive record of traditional professions and customs. Images documented the process of making sweet chicken soup, as well as the manufacture of *balichão* (fermented shrimp sauce) and *panchões* (firecrackers). There were also pictures of hairdressers working on the street and traders selling dried fish, of funeral cars and the wedding of a Catholic and Chinese couple.

Several notable figures appeared among the many

depictions of Macao residents. There's famed painter Fausto Sampaio teaching in 1947, and international film figures such as Orson Welles and Clark Gable photographed during visits to Macao. Political figures also made an appearance. There's Henrique Galvão and General Manuel Gomes da Costa, pictured in a mandarin dress while in Macao for a troop inspection in 1923. Lopes described the image, with its mix of Chinese and Portuguese elements, as emblematic of the larger exhibition.

Photographs from the 4th Centennial of the Discovery of the Maritime Route to India in 1898, recorded by Macanese Carlos Cabral and published in



1. Museu do Oriente exhibition
2. Photos on display
3. Rickshaw drivers, circa 1930
4. Macao scouts, circa 1925 (photo by José Neves Catela)
5. Hairdresser, circa 1930 (photo by José Neves Catela)



1. General Manuel Gomes da Costa, wearing mandarin attire, at José Vicente Jorge's home, 1923 (photo by José Neves Catela)



2. Actor Clark Gable (centre) in Macao, circa 1954



3. First airplane trips between Lisbon and Macao

Jornal Unique, marked the first major historical event in the exhibition. Such great events were spread across in the exhibition, appearing in both the daily life and architecture sections. The daily life section also included images of the inaugural Industrial and Commercial Fair of 1926, the first airplane trips between Lisbon and Macao (1924 and 1931), and the hangar of the Macao Naval Aviation Centre in the Outer Harbour in 1940, five years before it was destroyed by the Americans during the Pacific War.

The tragic explosion of Flora's arsenal in 1931, and the resulting fire that devastated the palace and the surrounding buildings, appeared in the architecture section. Entitled "From Bamboo to Reinforced Concrete," this half of the exhibition highlighted the main architectural transformations of the city, the building of new institutions such as National Overseas Bank and Casa Garden, and the devastating effects of typhoons in the territory. The section began with an enlarged version of a work from

Afong, owner of one of the largest photographic studios in Hong Kong. The original postcard of Macao, itself of uncommon format, was sent by mail in 1902.

It continued with the relevant work of John Thomson, the first Western photographer to enter the Chinese territory and widely credited with laying the foundation for modern photojournalism. His photographs from Macao, published in four volumes in 1873-74, include common people, Praia Grande, and the Military Band (now Military Club) under construction.

For the exhibition commissioner, Thomson stands out for his ability and pioneering work capturing much of China on film.

The architecture section ended with an unusual mixture of photographs: images of Casa Garden and Rua da Felicidade taken by one of the greatest Chinese photographers, Man Fok; documentation of the damage caused by several typhoons; and the intimate work of Heinz Von Perckhammer, author of the first book of artistic nudes of Chinese models, Perckhammer found many of the subjects for his 1928 book in Macao. The final day of the exhibition saw a screening of the earliest documentary about the city. *Macao - Progressive and monumental city*, a six-minute black-and-white film released in 1935, provides a snapshot of everyday experiences and activities in the city.

The Museu do Oriente immediately followed up the

exhibition with another project linked to the city. Organised by journalist and film critic Maria do Carmo Piçarra, *Cinema Macao. Past and Present* presented a plurality of perspectives on Macao during the 20th century, as well as after the handover to China. The seven thematic sessions, held between 7 January and 18 February, took

audiences on a journey from that early black-and-white short to the critically acclaimed 2016 film *Sisterhood* by Macao native Tracy Choi. With nearly 20 films screened and six directors in attendance for various sessions, the free cinema programme provided audiences with a rich exploration of Macao through film. ●



Rua da Felicidade, circa 1900 (photo by Man Fok)



Ruins of St. Paul's

Portuguese-speaking countries

Promising future for Portuguese language in China

Text António Bilrero Photos Cheong Kam Ka

After centuries as the hub connecting China to the Portuguese-speaking world, Macao views language as the next frontier for exchange between the two worlds. Three institutions – University of Macau, Macao Polytechnic Institute, and the Instituto Português do Oriente – stand at the heart of this effort, providing Portuguese language training in Macao and support to the Economic & Trade Cooperation and Human Resources Portal, a valuable tool facilitating economic and trade cooperation between China and Portuguese-speaking countries (PSC).

Speaking in separate conversations, the relevant directors from all three institutions agreed: the Portuguese language has a promising future in China and will play a crucial role in consolidating relations between the world's second biggest economy and the eight countries (in addition to Macao) that make up the Portuguese-speaking world. In China, interest in learning Portuguese has exploded like no other language in recent years. As the home of Portuguese in the East, Macao has a central role to play in this growing trend – even more so if Portuguese-speaking people seek

to learn Chinese, the most widely spoken language in the world.

Although each framed the language's recent growth in different terms, Professor Yao Jing Ming, head of the Portuguese Department of the University of Macau (UM); Professor Carlos Ascenso André, director of the Portuguese Language Teaching and Research Centre at Macao Polytechnic Institute (IPM); and Dr. João Laurentino Neves, director of the Instituto Português do Oriente (IPOR) share an optimistic outlook on the future of Portuguese in the Far East.

Rise of Portuguese in China

For Dr. Neves, one of the decisive vectors for strengthening and expanding Portuguese in the Far East centres on the role of local authorities in its dissemination.

“Today more institutions are offering Portuguese, there are more conditions for learning Portuguese in Macao, and above all there's a lot of support from the authorities for learning,” he said. “Altogether this has had a major impact on teaching the language.”



University of Macau library building

Professor André recognised in turn that the Portuguese language “still has a lot of room to grow” in China, although he did acknowledge “from a realistic standpoint” that “Portuguese will always be a minority language for teaching in China, after English, Russian or Japanese.”

“However,” he added, “I believe that Portuguese can one day reach the level of 10,000 higher education students in China [current numbers are around 4,000].” André sees public demand in higher education as a primary driver for adoption of Portuguese language programmes at the secondary school level. He noted that “there are nearly 200 university professors working in the area in China – six years ago there were less than 20.”

“Portuguese is currently studied in all provinces on the Chinese coast. Of course, there are differences. There's no symmetry: it's studied in universities, public and private institutions and schools. But it's studied in the country from north to south.”

He therefore believes that “in China no language will grow so much as Portuguese.” Such growth, he added, “is quite unprecedented in the world, so suddenly, in less than ten years.”

This rapid growth in interest and institutional support lead Neves to conclude that this is a “good time” for the Portuguese language in the Far East.

“The talk in favour of Portuguese teaching, of strengthening the Portuguese language in state organisations, schools and multilateral institutions, that political aspect up to the local authorities has had a major impact” on the increased interest in learning the language, he argued.

He therefore sees no major reason to doubt that a “lot of

leeway will be given to Portuguese language learning.”

“The indicators tell us that on the one hand there is demand for Portuguese as a language of communication and on the other that there is very strong demand for a language used in specific areas, namely the world of business and administration,” he explained. “All this gives us an idea that the Portuguese language's vitality is very strong and that it is apparently rooted in the major activity sectors of a community like Macao.”



I believe that Portuguese can one day reach the level of 10,000 higher education students in China [current numbers are around 4,000].

Carlos Ascenso André

Building bridges for cultural exchange

The political support touted by Dr. Neves, while crucial to success, is not enough on its own. Fully realising the potential of Portuguese language learning in China will require the development of relationships across borders, connecting teachers and students with the opportunities and support they need.

Professor Yao emphasised the importance of first-hand experience for students, noting that “to learn a language well you have to be familiar with its culture.” To this end, the University of Macau signed

agreements with universities from Portugal, Brazil, and other Portuguese-speaking countries that afford its students the opportunity to study abroad. That cooperation, he said, “aims to be consolidated in the near future.”

The university hopes “to create a mechanism allowing students to obtain their *licenciatura* (Bachelor) degrees in Macao, and then go on to universities in Portugal and Brazil to continue their studies at master's level,” he revealed.

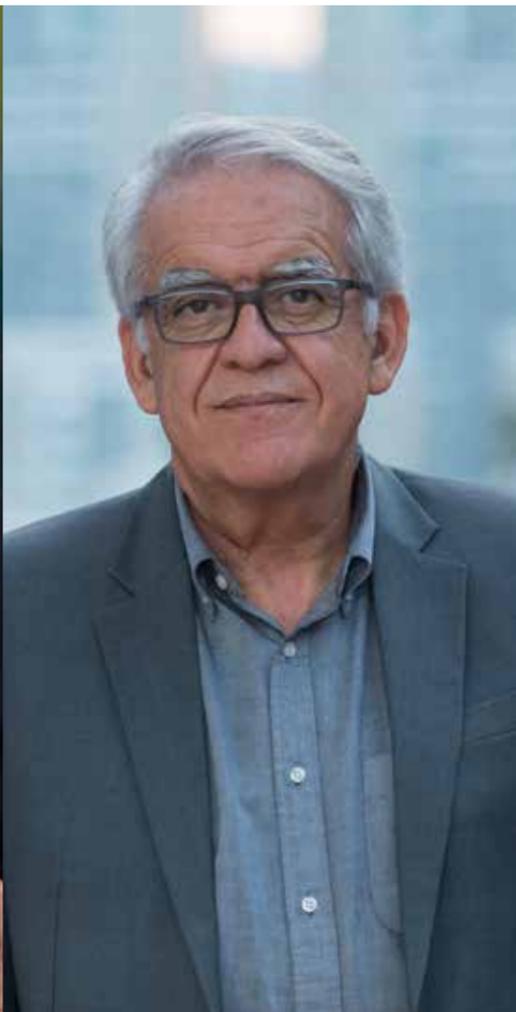
For Yao, creating this educational pathway means that “the master's degrees in Portuguese-speaking countries will be very effective for students, and very attractive for those who want to learn Portuguese and Portuguese-language culture.”

Professor André focuses more on teachers and building connections with mainland China in his role as director of the Portuguese Language Teaching and Research Centre at Macao Polytechnic Institute.

The recent boom in Portuguese language learning in China – now offered at 35 Chinese universities, versus barely a half-dozen a decade ago – proved difficult to keep pace with, as André explained: “There were and are some problems in recruiting teachers and with material and inter-institutional relations, and dialogue with the Portuguese-language countries.”

“When it all began there were only three or four universities; there was no way to produce professors who could support that growth.” Of the 200 current professors, 140 are Chinese, while the rest are mostly Portuguese along with several Brazilians.

Such a limited pool of candidates, André noted, created issues: “Those teachers are very good at speaking Portuguese, they have excellent



João Laurentino Neves, director of the Instituto Português do Oriente

Carlos Ascenso André, director of the Portuguese Language Teaching and Research Centre at Macao Polytechnic Institute

Yao Jing Ming, head of the Portuguese Department of the University of Macau

proficiency, unparalleled generosity, huge amounts of enthusiasm... but speaking Portuguese well does not make you a good foreign language professor.”

To improve their efficacy as educators, “these young Chinese needed support. And that support means training.” Providing this type of ongoing teacher training is a central focus of IPM’s Portuguese Language Teaching and Research Centre – and its “biggest asset,” according to André. “We don’t train people to become teachers, we provide training to actual teachers.”

Centring Macao

Despite centuries of Portuguese rule before the handover in 1999, little Portuguese is spoken on the streets of Macao; less than 10 per cent of the population claim fluency in the language. Neves downplayed this, noting that the goal of the efforts to promote Portuguese language teaching is not to reproduce here “the situation of a country where Portuguese is the official language.”

“It’s unreasonable to think that way,” he argued. “What’s

fundamental is the Portuguese language’s presence in strategic sectors of activity of the society, economy, and administration – and yes, that’s a concern. We would like the Portuguese language to be present for whoever wants it, so that any citizen can have access to it.”

Yao countered that this emphasis on Portuguese language training – appropriate given the much larger population of Chinese speakers – should not preclude efforts to engage the rest of Macao.

“Bilingual training cannot be just for the Chinese. Our view on

this matter has to be expanded. It has to evolve to bring Portuguese and Macanese into the bilingual training plan,” he said. “They also live in this bilingual environment.”

That’s why Yao believes the government should create a plan that would “include Chinese heading to Portugal and Brazil, for example, while also encouraging Portuguese and Macanese to learn Chinese in mainland China, Taiwan, or Macao.”

He considers it vital to motivate “Portuguese and Macanese to learn Chinese.”

“That is the way to effectively create more bilingual personnel, making Macao the hub for that training. In other words,” he explained, “an action line in both directions and with three actors: Chinese, Portuguese and Macanese.”

The primary focus, however, remains on the Portuguese language, and how accelerating dissemination in Macao, and China more broadly, serves long-term political and economic goals.

“If Macao is effectively able to play the role reserved for it by the central government” – to be a platform connecting mainland China and PSC – “then it will have a more brilliant future, because many people who want to learn Portuguese will choose to do so here.”

Neves concurred: “Macao should serve to anchor Portuguese language training in the Asia-Pacific region,” he said, recalling that in the Belt and Road political initiative “there’s also an aspect associated to the Portuguese language.”

Portal supports Portuguese language training

All three institutions University of Macau, Macao Polytechnic Institute, and the Instituto Português do Oriente are developing the necessary capacity to facilitate the expansion



Instituto Português do Oriente at the Portuguese Consulate

of Portuguese language learning. Meanwhile, the Economic & Trade Co-operation and Human Resources Portal serves as a useful hub for connecting and promoting bilingual speakers in Macao, China and the Portuguese-speaking countries.

Launched in 2015 by the Ministry of Commerce of the People’s Republic of China and by the Secretariat for Economy and Finance of the Macao government, the portal is coordinated by Macao Trade and Investment Promotion Institute; Forum Macao serves as the special cooperation organisation for the project.

It operates as a tool for economic and trade cooperation between China and Portuguese-speaking countries, providing a broad range of information services. Among them, the “Bilingual Personnel Database” and “Professional Service Providers” serve as a platform for companies to gain quick access to information about bilingual

professionals with different areas of expertise such as translations, public relations, legal, accounting tourism and exhibition. Information of the service providers such as education backgrounds and current residency are also provided in the databases.

Meanwhile, bilingual professionals who wish to join the database are required to fill out the application form online in three languages: Chinese, Portuguese and English. Until now, the database has accumulated nearly 1,000 registrations from service providers based in mainland China, Macao and the PSC. The



Economic & Trade Co-operation and Human Resources Portal



Macao Polytechnic Institute

platforms created by the portal make it possible for quick pairings between clients and service providers, ensuring that language is no barrier to prospective partnerships and investments.

Companies can also access information through the portal on relevant countries, updates on conventions and exhibitions, as well as information on trade legislation, public relations, banking, and public works.

The origins of the portal project date back to the 4th Ministerial Conference of Forum Macao, held in November 2013 in Macao. Speaking at the conference, Chinese Vice Premier Wang Yang announced eight new measures to strengthen Macao's positioning as a trade platform. One of the measures called for the creation of the Economic & Trade Co-operation and Human Resources Portal, to serve as an information-sharing platform for bilingual professionals and business cooperation, exchanges, and interaction between China and PSC. ●

Confucius Institute opens in Macao

In addition to its efforts to build exchanges with institutes in Portuguese-speaking countries, the University of Macau is set to host a local branch of the Confucius Institute. Scheduled to open in the first half of this year, the institute will be headed by Hong Gang Jin, current dean of the university's Faculty of Arts and Humanities.

Establishing a Confucius Institute in the territory will help Macao assert its position as an international platform for promoting Chinese language teaching abroad, especially in PSC.

The institute aims to leverage the advantages offered by Macao's location, its status as a special administrative region, and its linguistic diversity to become a platform for Chinese language teaching. Promoting student exchanges with PSC will also be one of the goals of the Macao branch.

In creating the Confucius Institute project, China drew on the experience of countries such as the UK (British Council), France (Alliance Française), Germany (Goethe-Institut), and Spain (Instituto Cervantes), all of which seek to promote their respective languages and cultures in the world.

Established in 2004, the Confucius Institute is a non-profit educational institution based on the principle of cooperation between the People's Republic of China and friendly countries and partners, with a well-defined objective: to disseminate and improve understanding of Chinese language and culture.

Confucius Institutes around the world:

- 170 branches in 21 countries in the Americas, with 110 in the United States. At more than 500 classrooms, the US hosts more branches of the institute than any other country.
- 160 in 41 European countries. The UK hosts the most at 29, followed by Germany (19), France (17), and Russia (17).
- 115 in 33 Asian countries, with 23 located in South Korea.
- 48 in 32 African countries, with 5 branches in South Africa.
- 18 in 3 countries in Oceania, with the majority (14) in Australia.

With multiple branches in both Portugal and Brazil, recent years have seen the Confucius Institute expand into a number of Portuguese-speaking countries in Africa. In Mozambique, Zhejiang Normal University partnered with Eduardo Mondlane University in Maputo in April 2012 to establish an institute.

A partnership between Harbin Normal University and Agostinho Neto University in Luanda brought the first Confucius Institute to Angola in February 2015. It also marked the first branch sponsored by a Chinese company, state-owned investment giant CITIC Group. In December 2015, the University of Cabo Verde in Praia joined with Guangdong University of Foreign Studies to bring the project to the small island nation.

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35 years of co-operation between China and Angola

Text Paulo Figueiredo

Photos Xinhua News Agency

After reconstruction comes economic diversification.

By the time the peace treaty was signed in February 2002, more than a quarter-century of nearly uninterrupted civil war had left Angola a ruined country. Most of the infrastructure from colonial times – roads, bridges, railways – had to be repaired or rebuilt, making travel between most provinces exceptionally difficult. There was an urgent need to build schools and hospitals.

That wasn't all. For a poor country like Angola, it was nearly impossible to obtain financing and only by paying exorbitant interest rates. For reconstruction on the scale that the country needed, occasional financing and the few bilateral credit lines then available would not be enough. The financing conditions imposed by the International Monetary Fund were also very strict.

The Chinese solution arose



Angolan President João Lourenço (right) meets with Chinese Foreign Minister Wang Yi in Luanda (January 2018)

within this context: a large volume of loans guaranteed by future oil exports for turnkey projects with short completion deadlines, meant to restore the country's infrastructure in a few short years. New infrastructure such as dams would endow the country with conditions for economic growth and development. The China Construction Bank and Exim Bank of China opened the first credit line for Angola that same year, according to Sino-US Energy Triangles: Resource Diplomacy Under Hegemony.

The reconstruction projects enabled Angola to embark on a phase of accelerated growth. By 2006, GDP growth was 20.7 per cent and in 2007, growth hit 22.6 per cent. The rise in oil revenue led to budget and external account surpluses.

China committed to the relationship with Angola

In 2006, China's premier at the time, Wen Jiabao, travelled to Angola to take a closer look at ongoing projects. The words remarked by Angola's then President José Eduardo dos Santos were historic: he praised the "mutually advantageous," "pragmatic" relationship marked by no "political pre-conditions."

"China played a particularly significant role in supporting those efforts," wrote Indira Campos and Alex Vines in a study entitled "Angola-China: A Pragmatic Partnership," published in 2008. According to their research, Chinese technical and financial assistance helped launch more than 100 projects in the areas of energy, water, health, education,

telecommunications, fisheries, and public works.

China and Angola established the strategic partnership in 2010. In 2014, Chinese Premier Li Keqiang made an official visit to Angola, and in June 2015, then President José Eduardo dos Santos met with Chinese President Xi Jinping in Beijing. In December of the same year the two heads of state held a bilateral meeting on the sidelines of the Johannesburg Summit of the Forum on China-Africa Cooperation (FOCAC).

In statements made to Macao Magazine, researcher and diplomat Loro Horta highlighted the strategic importance of the bilateral relations that gave Luanda "an opportunity to negotiate with the Western powers a favourable and relatively strong position," adding that "the strong Chinese presence forced many Western countries to treat Angola with more respect." Of Timorese origin, Horta was educated at the National Defence University of the

Chinese People's Liberation Army and now serves as the ambassador for Timor-Leste in Cuba.

In addition to the strategic benefit, he explained, Chinese support in the area of transportation infrastructure helped revive internal trade and boost contacts between Angola and neighbouring countries.

"The economic impact of cooperation with China was very deep. But Chinese support also positively impacted the life of common Angolans. Projects such as the construction of thousands of low-cost homes, as well as hospitals and schools, benefited the less fortunate," Horta explained.

Angola was surprised by declining oil prices in 2014 and is currently seeking to diversify its economy. For this phase, Horta recommended that the future priority of bilateral relations should be projects that help "reduce its high dependence on oil and other mineral resources," adding that "agriculture,

tourism, and manufacturing are promising areas."

Lessons must also be learned from experience, especially since 2002. For Horta, the most important is that Chinese companies should be more sensitive to local realities and "increase the involvement of Angolans in their activities and projects."

The future of bilateral relations

Eugénio Costa Almeida, an Angolan researcher from the Centre for International Studies of the University Institute of Lisbon (CEI-IUL) highlighted as future cooperation areas the exploitation of mineral resources such as iron and gold, which "can be important for an increasingly thriving Chinese industry," as well as industrial projects in Angola, particularly the "assembly and production of Chinese vehicles in Angola, with the country serving as a hub for exports to the West.

Xi Jinping visits a housing project near Luanda constructed by Chinese company (November 2010)



Premier Li Keqiang (centre) in Angola (May 2014)



“China has been the top builder and restorer in the area of national infrastructure. Roads, bridges, viaducts, railways, airports and hospitals, schools and government infrastructure were mostly, if not almost entirely, built by Chinese companies or under Chinese coordination and supervision,” he told Macao Magazine noting that even “the stadiums built for the 2010 Africa Cup of Nations were of Chinese design and construction.”

The fact that a new president has taken office in Angola may provide new impetus to bilateral relations. “Everything depends on how João Lourenço’s government will maintain cooperation with China. Maybe everything will become clearer if he meets with President Xi in September during FOCAC 2018 in Beijing.”

Along with the continuity of Chinese financing for Angola, Costa Almeida also noted the important agreement to facilitate ordinary passport visas signed during Chinese Foreign Minister Wang Yi’s recent visit to Luanda. His two-day visit in January 2018 marked the first by a head of Chinese diplomacy to the country in 16 years.

In late 2016, the China-Angola Investment Forum held in Luanda resulted in the signing of 48 agreements on intended investment worth a total of US\$1.2 billion.

Winds of change

Relations between Angola and China were established in 1983, and the two countries began an ongoing and continual trend of rapprochement in 2002. Back then, Angola was a country with infrastructure necessities; today, it is suffering the effects of a prolonged economic crisis and needs to rapidly expand its production base. The election of João Lourenço in 2017, following 38 years of government by José Eduardo dos Santos, has also opened a new cycle in Angola. Absolute top priorities for 2018 are improving the business environment and attracting foreign investment.

More Chinese private investment in the Angolan market, specifically the sectors of agriculture, industry, human resources and health, was in focus during the meeting between Angolan President João Lourenço and the Chinese ambassador in

Ambassador Cui Aimin



Angola, Cui Aimin, last October. In late 2016, the China-Angola Investment Forum held in Luanda resulted in the signing of 48 agreements on intended investment worth a total of US\$1.2 billion.

For Manuel Arnaldo de Sousa Calado, president of the China-Angola Chamber of Commerce (CAC), 2017 was a negative year in terms of bilateral business relations despite the opening of a Bank of China branch in Angola. But the new year and new cycle have better prospects, as he stated in a recent interview with Angola’s Novo Jornal.

“Regarding new investments, I can say that we are excited. We’ve got a different political vision, new leadership and, obviously, renewed hopes. I can even say that I can’t recall a politician who has infused as much hope as President João Lourenço is doing now. Having political confidence is therefore a motive for all of us to be optimistic about the future,” Calado said.



Chinese workers training local builders

On Angola’s part, he said, the foreign exchange question has to be ironed out as well as the matter of financial transactions, so that capital repatriation can be viable. Another question to resolve is the bureaucracy: “If we are able to at least reduce excess bureaucracy in our institutions we will surely grow a great deal from the standpoint of foreign investment. Our economy will be strengthened.”

As for more involvement of Angolans in Chinese projects, Calado called attention to the opening of Chinese training centres in Angola, the cases of CITIC and ZETC. “That means we’ll soon have more Angolan personnel in Chinese companies.”

At the peak of economic relations between the two countries some 200,000 Chinese workers were employed in Angola, a number that now stands at about 50,000, and nearly 500 Chinese companies were established in the country, Xu Ning, head of the Angola-China Chamber of Commerce and Industry, told Bloomberg last April.

Chinese loans to Angola exceed US\$60 billion

In “A New Journey Begins in the Strategic Partnership between China and Angola,” an opinion piece published in the Jornal de Angola a few days before the foreign minister’s visit to Luanda, Ambassador Cui stated that “in the face of changes in the international situation” the two countries “have sped up the pace of internal reform, opening new perspectives” for bilateral relations.

“A thousand-kilometre journey cannot be completed without taking many small steps. The last 35 years [of bilateral relations] are a proud and memorable story and have forged the basis for the long term development of China-Angola relations,” explained Cui.

The FOCAC meeting scheduled for September will “consider the future development plan with the African partners, working out new measures, creating new priorities and reaching a new level in terms of Chinese-African cooperation.

Given the desires of the African countries, the Chinese side would like to couple the Belt and Road initiative more closely to Africa’s Agenda 2063.”

The second session of the Orientation Commission for Economic and Trade Cooperation between China and Angola is now being prepared, along with agreements on visas, investment protection, avoidance of double taxation and currency exchange. The diplomat stated that today “China-Angola relations are at the best level in history, an example of cooperation with mutual benefits and common development between China and the African countries.”

China is currently Angola’s top trade partner, while Angola is China’s second-ranked trade partner and top supplier of oil in Africa. According to Cui, since diplomatic relations were established China has granted Angola loans totalling more than US\$60 billion, meant to help build numerous infrastructure projects including power plants, roads,

bridges, hospitals and homes, “thereby stimulating economic development and improving the life of the Angolan people.” With the aim of helping build personnel capacities in various areas, the Chinese undertook to train more than 2,500 Angolan civil servants in different areas, in addition to providing 300 study grants. Since 2009, China has sent four medical teams comprising more than 60 professional medical personnel who provided more than 200,000 free consultations for Angolan citizens at Luanda General Hospital. The hospital, completed in 2005, was donated by the Chinese government and is also Angola’s best integrated health unit to date.

Other Chinese donation projects are also moving forward, including an agricultural technology demonstration centre and the new Instituto Superior de Relações Internacionais, the Chinese diplomat explained.

The agreement to streamline visa-processing mechanisms signed during the Chinese minister’s visit mainly addresses businesspeople, academics and researchers from different knowledge areas, high-level competitive athletes, cultural agents and citizens needing medical treatment. The two countries have already signed an agreement to end the need for visas in diplomatic and service passports, still in force.

Foreign Minister Wang reiterated to the Angolan president China’s readiness to boost support for Angola to speed up the economic diversification process. “It’s up to the Angolan authorities to make proposals so that China can study them.”

The Chinese authorities have pledged to support, encourage, and create facilities for Chinese



Meeting between the outgoing Angolan ambassador in China, João Garcia Bires, and the Chief Executive of Macao, Chui Sai On in January 2018

companies to invest in Angola and thereby help develop Angolan industry. “Chinese companies have the capabilities and conditions to supply equipment and technologies to re-launch industry in Angola,” Wang said.

“I will inform President João Lourenço that in so far as we are strategic partners, China supports all Angolan efforts to seek suitable paths for development, according to their conditions, and we will support the economic diversification strategy, train Angolan personnel, and help create skills.”

Wang called attention to significant figures resulting from Chinese reconstruction projects in Angola: 20,000 km of roads, 2,800 km of railway lines, more than 100 schools and more than 50 hospitals, as well as housing for thousands.

For the diversification projects, Angola also counts the support of the Macao Special Administrative Region, manifested during a January 2018 meeting between the outgoing

Angolan ambassador in China, João Garcia Bires, and the Chief Executive of Macao, Chui Sai On.

At the meeting in Macao, the two men discussed efforts to boost cooperation and exchanges, in the context of Macao’s position as a platform for business and cooperation between China and the Portuguese-speaking countries.

The Angolan diplomat expressed gratitude for the commitment shown by Macao’s government at a time when the Angolan government aims to attract foreign investment to the country to help diversify economic activity.

The Macao Chief Executive spoke of the importance of improving relations between the two sides and also invited Angola to join the Belt and Road initiative proposed by President Xi in 2013, which is meant to strengthen economic ties between Asia, Africa and Europe, with investments amounting to billions of dollars in infrastructure. ●

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Innovation push elevates Guangzhou's role in Greater Bay Area project

Text Ou Nian-le Photos Xinhua News Agency



The centre for technology innovation in China, Guangzhou is moving into a leadership position in the Guangdong-Hong Kong-Macao Greater Bay Area project.

As Guangzhou intensifies its coordinated efforts to establish itself as the centre for technology innovation in China, it also moves into a leadership position in the Guangdong-Hong Kong-Macao Greater Bay Area project, a major national initiative taking shape in the coming decades.

In his annual government work report at the National People's Congress last March, Premier Li Keqiang outlined his vision for the Greater Bay Area, comprised of Hong Kong, Macao, and nine cities in Guangdong province: Guangzhou, Shenzhen, Zhuhai, Dongguan, Huizhou, Foshan, Zhongshan, Jiangmen, and Zhaoqing.

According to the timeline, a globally competitive cluster of metropolises in the Greater Bay Area will be almost fully established by 2020, while by 2030 it will become a global first-class bay area and city cluster, as well as a global advanced manufacturing, innovation, international shipping, financial, and trade centre. It will also play an important role in implementing the Belt and Road (B&R) initiative.

In 2016, the combined GDP of the 11 cities reached RMB9.35 trillion (US\$1.44 trillion). Despite having only about five per cent of the population and occupying less



Guangzhou Library

than one per cent of China's land, the cities collectively contributed about 12 per cent to the national economy.

Liu Yuelun, chairman of the Guangzhou Committee of the Chinese People's Political Consultative Conference (CPPCC), said, "Guangzhou ranks first in its capacity for research and development [R&D] and basic education among cities in Guangdong province. It is the transportation hub in South China and positioned as one of the five central cities across the country. In short, Guangzhou will play a

core role in the construction of the Guangdong-Hong Kong-Macao Greater Bay Area."

Last December, the city hosted the 2017 Fortune Global Forum and the inaugural Fortune Brainstorm TECH International, a conference dedicated to exploring the innovation revolution unfolding in China. The concurrent events attracted more than 760 distinguished guests and nearly 400 prominent enterprises. Among them, key industry leaders, and chairmen, presidents, CEOs, and leading partners from more than 120

Cluster, considered Guangzhou's Silicon Valley, and to cutting-edge 3D bioprinting company Medprin Regenerative Medical Technologies. Attendees also enjoyed a spectacular performance as more than 1,000 Chinese-made drones took to the sky, moving in formation with multicoloured lights that dazzled against a backdrop of the city's sparkling skyline and Canton Tower.

The three-day dual-event drew considerable international attention to the city, showcasing Guangzhou as an emerging global city keen to transform itself into an innovative, high-tech industry centre,

Solid foundations

With a population of 14.04 million people in the city, Guangzhou is not only the most populous city in Guangdong province, it ranks among the 10 largest cities in the world. In 2016, it had a GDP of RMB1.98 trillion (US\$304.64 billion), an increase of more than 8 per cent over 2015.

The service sector accounted for 68.6 per cent of GDP, followed by manufacturing at 30.2 per cent, with agriculture and forestry at 1.2 per cent. Eight core industries within manufacturing – automotive, electronics, petrochemicals, electrical and thermal energy, electrical appliances and machinery, general and specialised equipment, rail/ship/aviation/aerospace equipment, and pharmaceuticals – expanded, now accounting for 70.9 per cent of the total GDP.

In terms of both passengers and cargo, Guangzhou Baiyun International Airport ranks as the third busiest in China and among the top 20 busiest in the world. In 2016, nearly 60 million passengers came through the airport, which serves 100 domestic and over 50 foreign destinations. As the capital



MAIN ECONOMIC DATA 2017

GDP
RMB2.15 trillion
US\$339 billion

Foreign capital utilised
US\$6.29 billion,
up 10.3% from 2016

Total imports and exports
RMB960 billion
(US\$151.65 billion),
up 12% year-on-year

Industrial output of artificial intelligence and biomedicine
RMB520 billion
US\$82.14 billion

Industrial output of new materials and new energy sectors
RMB360 billion
US\$56.8 billion



INNOVATION

Guangzhou will develop information technology, artificial intelligence, biomedicine and new energy and materials industries, generate five industry clusters with annual industrial output reaching RMB100 billion each and build 10 innovation parks

of Guangdong, Guangzhou sits at the centre of a dense network of roads and railways. It aims to connect all major cities in the province within one hour's train time of Guangzhou.

Historically, it marked the starting point of the Maritime Silk Road and during the Qing dynasty (1644–1912), it was the sole city authorised to handle foreign trade and to allow foreigners to live there. The establishment of Hong Kong as a British colony following the First Opium War (1839–1842) opened up a new path for foreign trade into China. But in the late 20th century, highly concentrated investment along the road and rail corridors to Guangzhou turned the area into the “factory of the world.”

Leveraging the existing base

Manufacturing remains strong in Guangzhou even as it has developed a more diverse economic base. According to the Guangzhou Municipal Statistics Bureau, in the first 10 months of 2017, its industrial output was RMB1.63 trillion (US\$251.27 billion), an increase of 2.8 per cent year-on-year. Trends among the three pillar industries were more mixed: automotive output grew 19.1 per cent, while electronics grew 3.5 per cent, and petrochemicals fell 9.9 per cent.

Advanced medical equipment and specialised machinery production saw the fastest growth, both over 14 per cent year-on-year, while output of photo-electric goods and liquid crystal displays (LCDs) grew 69.7 per cent and 18.1 per cent respectively.

The city's foreign trade for the 10-month period reached RMB813.96 billion (US\$125.24 billion), up 17.3 per cent, compared to the national figure of 15.9 per cent. Exports rose 14.9 per cent



OPENING-UP AND INTERNATIONAL EXCHANGES

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INFRASTRUCTURE

Guangzhou Baiyun International Airport launched 12 new international air routes in 2017 with a flight network covering 220 destinations. Passenger throughput of Guangzhou Port posted 590 millions in 2017; container throughput; 20.35 million TEUs

Guangzhou opened 4 metro lines in 2017, adding to a total number of 13 and mileage to 400 kilometres

Source: China Daily

to RMB490.17 billion (US\$75.42 billion) and imports rose 21 per cent to RMB323.79 billion (US\$49.82 billion).

While neighbouring Shenzhen managed to knock Guangzhou from its long-standing position as the third highest GDP in China in 2016, it may struggle to maintain its edge. According to Lin Jiang, the deputy director of the Free Trade Zone Integrated Research Institute at Sun Yat-sen University, Shenzhen is facing a crisis because of its limited land area. At 7,434 square kilometres, Guangzhou is more than three times the size of Shenzhen, and increasingly open to experimenting with innovation.



Guangzhou city

Developing future industries

High and new technology enterprises are on the rise in Guangzhou with 2,998 businesses certified in the first half of 2017. The number of invention patents applied for and granted in the city increased by 29.8 per cent and 29.7 per cent respectively. During that period nearly 800 new market entities emerged in the city each day.

Zhang Xiaobo, director of industry and information technology commission of Guangzhou, said: “Guangzhou will facilitate the development of the new generation of information technology, artificial intelligence,

and biological medicine – known collectively as IAB – improve industrial quality and efficiency, and set up a new system of industrial parks.”

The IAB initiative, launched in March 2017, seeks to both develop the relevant industries and to apply those gains to existing industries in Guangzhou. According to Doranda Doo, senior vice president of iFlytek, one of the world's top AI system developers, the city's long history of business and commerce offers a wealth of data and resources for building smarter industry.

In April last year, Guangzhou became a demonstration city for Made in China 2025, an initiative

to comprehensively upgrade Chinese manufacturing through the application of information technology tools to production. Li Danrong, deputy inspector of industry and information technology commission of Guangzhou, said he is eager to accelerate the development of the real economy, especially the manufacturing sector, as it needs to improve its modern industrial structure and set up more innovation centres. “We will also work to help manufacturing enterprises reduce their costs by about 15 billion yuan [US\$2.31 billion] annually,” he said.

Increased automation is part

of that effort. In 2016, Guangzhou produced more than 2,200 industrial robots, a 31.7 per cent rise year-on-year. That growth generated around RMB49 billion (US\$7.54 billion), roughly half the RMB100 billion-goal set by the city. Guangzhou-based GSK CNC Equipment, China's largest manufacturer and designer of computerised numerical control (CNC) systems, is one of the only companies in the country able to operate without imported components. Other major players in robotics and smart equipment located in the city include Guangzhou Risong Technology and Sinomach Intelligence. With Siasun

Robot & Automation locating its South China base in Guangzhou, the city is primed to become the largest base of robot production in the country.

“By 2019,” Zhang said, “Guangzhou will become an innovation base for high-end equipment manufacturing, a model area integrating intelligent manufacturing and services, and a crucial pivot for the Belt and Road Initiative.” By 2020, the city aims to have automated more than 80 per cent of manufacturing production, and expects total output value of IAB industries to reach RMB1 trillion (US\$153.79 billion).

Major investments

Even as many initiatives look to the future, several major projects are already underway in Guangzhou. The Foxconn 10.5-generation panel plant and the Cisco (Guangzhou) Smart City project, both currently under construction, will greatly increase production of photoelectron components and mobile communication base station equipment.

The Foxconn project marks the biggest ever foreign investment in Guangzhou. With an investment of RMB61 billion (US\$9.39 billion) from Foxconn subsidiary Sakai Display Products, the factory will produce 10.5-generation panels, substrate glass and related product lines, serving as a major supplier for Japanese TV set maker Sharp Corp, also owned by Foxconn. Construction began in March 2017. When completed, it will be the largest and most advanced 8k-resolution factory in the world.

“It will not only be a panel-processing factory but a concept of building an ecological town featuring high-end technology



Shami island - Guangzhou

in the city of Guangzhou,” said Terry Gou Tai-Ming, CEO of the Foxconn Technology Group, at the groundbreaking ceremony. “The 8k-resolution technology will be widely used in TV displays and medical treatment, traffic control and smart homes, helping to build a healthier living environment featured by high-end technologies.” It is expected to create more than 15,000 jobs and generate RMB92 billion (US\$14.16 billion) in production value each year.

In April 2017, Cisco broke ground on an internet R&D and intelligent operations centre, the first concrete step in the Cisco (Guangzhou) Smart City project. With an investment of RMB20

million (US\$3.08 million), it is the US firm’s largest internet R&D project outside North America. Cisco plans to work with its global partners to develop technology related to the Internet of Things (IoT), the network formed by internet-enabled devices, and create an IoT cloud platform to serve industry.

Speaking at the ceremony, Cisco CEO Chuck Robbins said: “Cisco and China have partnered together for over 20 years to create an environment that embraces innovation to drive growth and digital transformation. Today marks an important moment in our history. Cisco will fully utilise its rich experience in smart manufacturing

and deliver the opportunities of digitalisation.”

Two other projects will fuel the growth of IAB industries in the city. In March of last year, BeiGene finalised an agreement Guangzhou Development District (GDD) and Guangzhou GET Technology Development Co Ltd, establishing BeiGene Biologics, a joint venture to build a cutting-edge biologics manufacturing plant in the city. GE Biotechnology Park, a mega biopharmaceutical project covering 35 million square metres in its first phase, broke ground in June 2017.

With a total investment of US\$800 million from the GDD, General Electric and other

companies who plan to operate at the site, it is expected to generate US\$4-8 billion in production revenue in the future.

“The project is also expected to play a big part in the economic development of Guangzhou,” added Vice Mayor Chen Zhiying, “which is making its top priorities to develop information technology, artificial intelligence, and biopharmaceutical industries.”

GE senior executive Jan Makela said: “Guangzhou is GE China’s south region headquarters and an important sourcing hub for our multiple businesses. We are very pleased to extend our partnership to life sciences and bio-manufacturing. Guangzhou is a pharmaceutical



By 2019, Guangzhou will become an innovation base for high-end equipment manufacturing, a model area integrating intelligent manufacturing and services, and a crucial pivot for the Belt and Road Initiative.

Zhang Xiaobo

export hub for China, hosting a great deal of biotech and healthcare-related industry companies. In the 13th Five-Year Plan, the biopharmaceutical industry has become one of the strategic emerging industries and a key development area for Guangzhou.”

Outside investment and broad government support for innovative technologies is already paying off: high-tech products accounted for nearly half of manufacturing output in 2016, reaching 46.4 per cent. And it shows no signs of slowing down. The establishment of new transportation links – including the Hong Kong-Zhuhai-Macao Bridge and high-speed rail to Hong Kong, both set to open in 2018 – promise to strengthen regional ties and create new economic opportunities. As the Greater Bay Area comes together, Guangzhou stands poised to play a central role and become a leader in cutting-edge technology in the decades to come. ●



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Zoom

A spotlight on Macao's architectural landscape

Photos Donl Lao

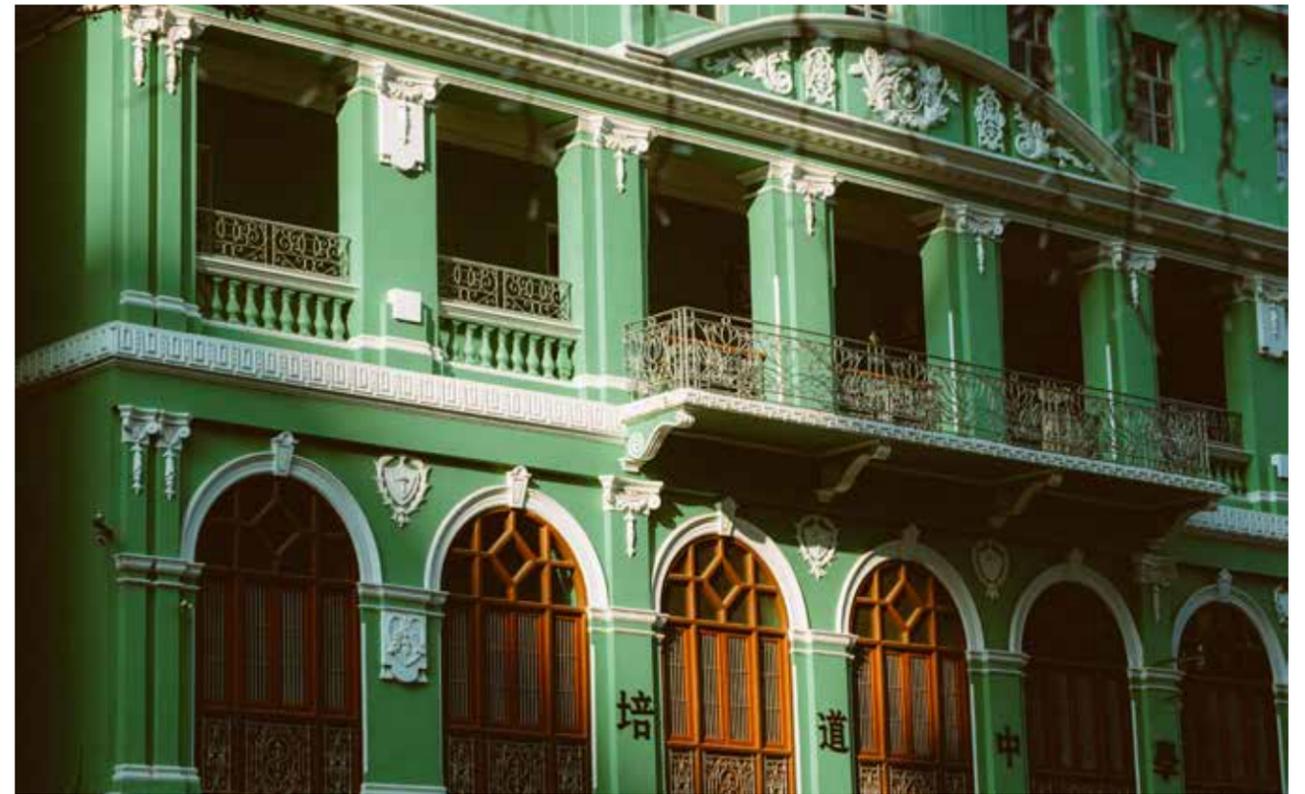
Macao has a diverse urban landscape that sees a complex mix of old and new, East and West. To Donl Lao, a local young photographer in his 30s who has just returned from travelling across the globe, such uniqueness is nowhere to be found in the rest of the world.

In 2016, he embarked on a 400-day journey that took him to 23 countries in three continents; some countries included Mexico, Peru, Iran and Georgia. In Zoom, we follow

Lao's camera and discover how his exposure to different countries and their cultures have influenced his perception of Macao .

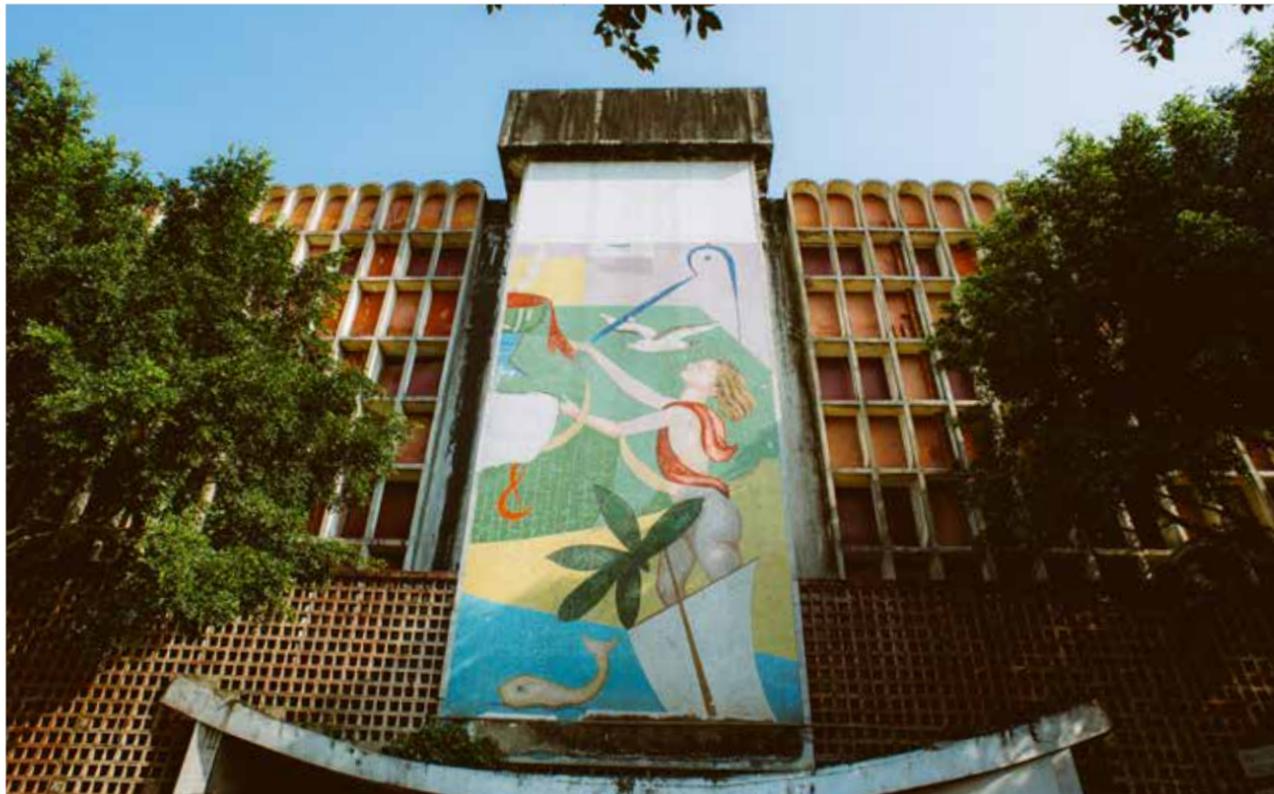
Lao became a full-time photographer in 2011. His speciality is his ability to capture emotion with his camera. His main photography projects feature the ceremonial events in life, such as pre-wedding and new-born celebrations. He has also worked for the Cultural Affairs Bureau to take photos for the Macao International Parade between 2013 and 2015.













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