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COVER IMAGE
Lo Heng Kong performs a tea ceremony at Chun Yu Fang Tea House. Photo by Denzel Calangi

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A photograph of a modern library interior. Tall, dark wooden bookshelves are filled with books. A desk with a chair is visible in the foreground.

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A photograph of a table tennis paddle (ping pong racket) lying on a blue surface. The paddle has a dark face and a light-colored handle.

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Colourful public parades, firework displays and traditional ceremonies welcome in the Chinese New Year.



COVID-19

Chasing Covid zero

The measures put in place by the Macao government since early 2020 – when the pandemic broke out – have resulted in very few Covid-19 cases and no deaths.

Text Miguel Luigi Enriquez

Macao has been fortunate not to experience a local outbreak, though it has come close on a number of occasions. This has been down to the work of local health authorities who have prevented the spread of the virus. In late February, after a frequent visitor from Tanzhou tested positive, 8,000 people who she may have come across during her trips underwent mass testing while 300 students and teaching staff living in Tanzhou had to switch to online classes.

STICKING TO COVID ZERO

The measures described above are part of Macao's "dynamic Covid zero" strategy, which combines systemic contact tracing, mandatory isolation, mass testing, border closures and targeted lockdowns to quash local chains of transmission. It has been key to keeping case numbers low in the city. In three years, only 82 cases have been reported (authorities no longer count imported cases) with no Covid-related fatalities.

More stringent measures are being added as we learn more about Covid-19. After traces of the virus were found on imported packages and frozen goods, incoming products from high-risk areas must now be thoroughly disinfected. Meanwhile, those working at parcel pick-up points (for items ordered from the mainland) must get tested weekly after being deemed at higher risk of contracting the virus.

The government has indicated that it will place the city on lockdown in the event of a local Covid-19 outbreak

Other countries that have had similarly strict measures before, such as Singapore, South Korea and Australia, have now adopted a “living with Covid-19” outlook, acknowledging that the coronavirus is simply here to stay. They have since opened their borders to certain vaccinated travellers and tried to reduce the impact of the virus on day-to-day life (by limiting school and business closures, for example).

These countries are now seeing surges in case numbers driven by the Omicron variant, but they have kept the number of deaths relatively low. Their success in reducing deaths can be credited to high vaccination rates, as studies have shown that the variant is much less likely to cause severe disease among those who have been inoculated.

In Macao, Chief Executive Ho Iat Seng continues to stand firm on the city’s current strategy. He reasons that doing so is imperative to keep Macao’s travel bubble with the mainland – its main source of tourism and gambling revenue – open. “We stay in line with the mainland [on Covid-19 policy] as we have over 350,000 people entering and exiting Macao every day,” he told reporters at an International Women’s Day event on 25 February.

Local health authorities argue that the city’s medical infrastructure in its current state will not be able to handle a mass outbreak. There are fewer than 2,000 hospital beds in Macao, of which only 266 are isolated and suitable for Covid-19 cases. Furthermore, Macao’s vaccination rate has not reached the same levels as the previously mentioned countries, which could spell trouble for the city should an outbreak occur.

THE GREAT VAX RUSH

Macao’s general vaccination rate (those who have received at least one dose) stood at 82.2 per cent as of 17 March. Roughly 50 per cent of the population has received two doses of the vaccine, while just 24 per cent have had a booster. In comparison, 87.8 per cent and 92 per cent are already fully vaccinated with at least two doses in the mainland and Singapore, respectively.

The Chief Executive has acknowledged that the government has not implemented “very tough” measures to push locals to get vaccinated. Vaccination is not mandatory by law and is not required to enter certain venues and facilities, for example.

The city’s general vaccination rate has reached 82.2 per cent so far

(Below) Authorities have implemented outreach programmes, including phoning the elderly, in order to promote the vaccine to demographics that have been reluctant to get inoculated



All images on this spread courtesy of Government Information Bureau

The city has not yet inoculated much of its elderly population, either. As of 17 March, government data show that 60.6 per cent of those aged 70 to 79 have received even just one dose. That rate plummets to just 33.7 per cent for those over the age of 80.

These low vaccination rates among the elderly suggest that Omicron could have devastating effects on the vulnerable if it were to spread here. Analysis from the Hong Kong Centre for Health Protection show that more than 91 per cent of

Covid deaths in Hong Kong were among the unvaccinated with those over the age of 60 particularly susceptible to severe disease.

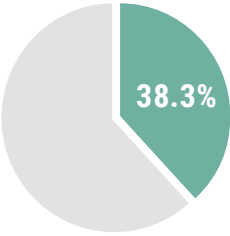
In response, the Macao government is targeting this demographic in its vaccination drive. The Social Welfare Bureau tasked over 200 private social service facilities to phone about 50,000 senior citizens or their relatives to encourage them to get jabbed. Unvaccinated visitors to elderly homes are also required to present a nucleic acid test from the past 48 hours, compared with the seven day validity period for those who are fully inoculated.

The Social Welfare Bureau’s Choi Sio Un said the campaign resulted in a 6 per cent rise in senior citizens who have received at least one Covid-19 jab within only a week. However, Choi said that although the increase was “encouraging”, the overall jab rate among the age group is still “not ideal”.

Local authorities are making a similar push amongst Macao’s youth with outreach programmes being expanded in kindergartens and primary schools. The jab rate among those aged from three to 11 now hovers at around 27 per cent, more than double from 11 per cent in February after the implementation of other measures, such as requiring schools to regularly ask parents if their children have been vaccinated.

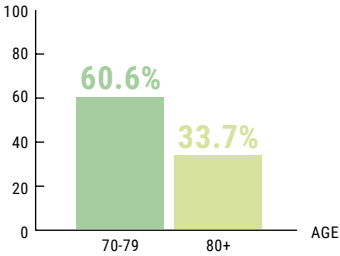
Civil servants have also been incentivised to encourage their parents and grandparents to get vaccinated by giving them the day off if they accompany their senior relatives to their appointments. The scheme already covered parents who went with their children for their vaccine appointments.

VACCINATION RATE
FOR AGES 3-11

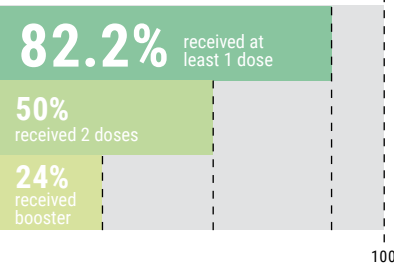


Note: All data as of 17 March

VACCINATION RATE
AMONG THE ELDERLY



TOTAL POPULATION
VACCINATION RATE



The private sector went one step further, with all six gaming operators offering an extra day off to staff so that they could take their elderly family members or children to get vaccinated. This follows existing incentives offered by some firms which include offering a free night’s stay at a hotel.

PLAN B

Despite many stringent measures, a local outbreak may still occur. To stay a step ahead of the virus, the government has come up with a contingency plan that will see a shift in the allocation of resources, which includes locking down the city and “implementing strict restrictions on social gatherings and activities”.

If cases climb to more than 100 per day, the government plans to transform the city’s largest sports facility, the Macao East Asian Games Dome, into a temporary treatment centre to provide an extra 1,400 hospital beds.

“When a large number of people infected with the new coronavirus appear, most of them are asymptomatic infections or mild symptoms based on the current vaccination rate in Macao. Therefore, large-scale isolation facilities

are required to treat mild or even asymptomatic infections,” said Health Bureau Director Alvis Lo at a press conference on 17 March.

Health authorities are also in contact with private companies to set up an open-air medical facility, also to be situated in Cotai. It will take up roughly 10,000 square metres of space and will add another 1,000 beds, increasing the city’s total capacity to 2,700. Once deployed, it will take a total of 10 days to complete.

Additional toilets, showers and changing rooms will be built in these temporary facilities to supplement existing ones. According to the Novel Coronavirus Response and Coordination Centre, the ratio of bed to amenities is better than the World Health Organization’s standard.

If Macao starts recording over 1,000 cases per day, more hotels will be repurposed as medical observation facilities. Home isolation may also be considered.

Currently, Macao has the capacity to process 340,000 nucleic acid tests (NATs) per day, which covers only half of the population. To address this, there is a plan to set up temporary testing stations in the form of vehicle



Xinhua News Agency

and air-inflated labs, which can add up to 1.1 million samples to the daily testing capacity.

Additionally, authorities plan on purchasing rapid antigen tests in bulk. Although not as accurate as NATs, rapid antigen tests provide results within 15 minutes, can identify highly contagious individuals and don’t require special facilities, since they can be administered at homes.

The city has already established a “Daily Living Support and Social Support Team” to ensure residents have ample supplies of daily necessities. Meanwhile, an emergency drug-selling registration system is in the works to prevent unnecessary hoarding of medicine and panic buying.

BRACING FOR THE WORST

Through tough measures, Macao has been able to stave off the city from Covid-19 but government leaders have acknowledged that our efforts could still be upended by the evasive virus.

In our October 2021 issue, we said that “vaccinations are the best way to reopen borders and revitalise the economy”. That statement rings truer than ever today. With an even more infectious variant at the doorstep, however, we must remember that success is not defined in economic terms alone. We must work together to protect the most vulnerable members of our society. ●

A contingency plan has been unveiled in case of a local outbreak which involves converting the Macao East Asian Games Dome into a temporary treatment centre for those infected



From left to right: Central People's Government Liaison Office in Macao Director Fu Ziying; Chief Executive Ho Iat Seng; Vice Chairman of the CPPCC National Committee Edmund Ho Hau Wah

POLITICS

Top officials lay out path for Macao's development and economic diversification

Macao must safeguard national sovereignty, security and development interests, say city leaders and central government representative.

Text **Christian Ritter**
Photos courtesy of **Central People's Government Liaison Office in Macao**

Macao must not let its guard down in its Covid-19 prevention and control work, and must safeguard the nation's sovereignty, security and development interests, Central People's Government Liaison Office in Macao Director Fu Ziying said in March.

Fu made the remarks during a meeting hosted by the Central People's Government Liaison Office at its headquarters about this year's "Two Sessions" – the annual sessions of the National People's Congress (NPC) and the National Committee of the Chinese People's Political Consultative Conference (CPPCC) in Beijing.

NPC deputies and CPPCC National Committee members from Macao as well as other community leaders and local and mainland officials attended the meeting.

In addition to Fu, Chief Executive Ho Iat Seng and Edmund Ho Hau Wah, Macao's first chief executive and now a vice-chairman of the CPPCC National Committee, also addressed the meeting.

In his speech, Fu made three key points. Firstly, Macao's civil society should deeply understand the historic achievements in the development of the nation and of Macao.

Secondly, Fu urged Macao to seize the major and important opportunities created by the nation's overall development.

Thirdly, he urged Macao's civil society to support the Chief Executive and his government in administering the city.

Director Fu Ziying also called for Macao's civil society to fight words and actions that endanger national security.

Fu said that the Covid-19 pandemic is a clear reminder of the various problems in Macao's economic structure, urging civil society to support the local government's work in amending Macao's gaming industry law.

The liaison chief also called for Hengqin Island to become a new platform for promoting the diversification of Macao's economy with the development of the Guangdong-Macao Intensive Cooperation Zone in Hengqin.

"Macao's development is closely interrelated with national development," he said, adding that a stable development in the nation's economy will create favourable conditions for Macao's socioeconomic development.

PATRIOTS ADMINISTERING MACAO

In his speech, Chief Executive Ho Iat Seng stressed that Covid-19 prevention and control work is an essential prerequisite for Macao's stable socioeconomic development.

He pledged that the local government will continue to learn from and sum up its experiences in Covid-19 prevention and control, and will not let its guard down in its Covid-19 work.

Ho Iat Seng raised four points for the local government following the recent completion of the "two sessions".

Firstly, Ho Iat Seng pointed out, the concept of patriots administering Macao has been mentioned in the central government's work report for the first time.

The Chief Executive pledged that the local government will continue to firmly implement the patriots administering Macao principle, according to which, he said, the local government will ensure that all the powers to administer Macao are firmly and solely in the hands of patriots.

The Chief Executive also said that the local government will adhere to its constitutional duty to safeguard the nation's sovereignty, security and development interests.

Secondly, Ho Iat Seng said, the local government will persevere with its successful Covid-19 prevention and control work while promoting Macao's socio-economic development.

Thirdly, the local government will continue to promote the development of the Guangdong-Macao Intensive Cooperation Zone in Hengqin and to further Macao's integration into the nation's overall development, the chief executive said.

Fourthly, Ho Iat Seng guaranteed that his government will stick to its "original intention" of improving residents' lives.

"The local government will continue with its various social welfare measures and strive to protect residents' employment," he said.

Ho also pledged that the government will strengthen its work on youth affairs, according to which the implementation of the 'One Country, Two Systems' principle will have qualified successors and "proceed steadily and go far".

Consequently, the Chief Executive said, the local government will cultivate a sense of belonging to the nation and developing international horizons among the younger generation.

EARNING CIVIL SOCIETY'S CONFIDENCE

Edmund Ho Hau Wah acknowledged during his speech that Macao's development is still facing difficulties and challenges resulting from the adverse economic impact of the Covid-19 pandemic that, he said, seemed "endless".

Despite Macao's optimistic economic prospects, Ho acknowledged, the downward pressure resulting from the local government's strict Covid-19 prevention measures is causing hardship to local businesses and residents' employment. As a result, Macao is currently susceptible to various social conflicts and issues.

The vice-chairman of the CPPCC National Committee called for Macao's civil society to remain confident in Macao's development prospects, based on the fact that Macao can always rely on the "great" motherland's backing.

Edmund Ho said he believed that three things, namely the central government's strong leadership and its support for Macao, the "strong vitality" of the 'One Country, Two Systems' principle with Macao characteristics and its institutional advantages, and the local government's timely measures to tackle residents' financial hardship and boost the economy, will enable Macao's people to overcome the ongoing Covid-19-induced hardship. ●



The zone is under the joint administration of the Macao government and Guangdong province, offering the city additional territory for developing business, academic and residential facilities with modern infrastructure connections.

During a visit to the island, which is adjacent to Macao, Ho underlined the importance of a dozen agreements on major projects such as integrated circuits, electronic information, biomedicine, traditional Chinese medicine (TCM), "big health" and modern financial services, which were signed between the two sides in December 2021.

The Chief Executive underlined four points regarding the zone's development:

- Those involved in the projects should focus on the zone's original development mission and optimise its initial concept. Ho underlined that Chinese President Xi Jinping has outlined a clear path for the zone's development through four strategic approaches:
 - A new platform for promoting Macao's appropriate economic diversification
 - A new area in which Macao residents can live and work
 - A new showcase to implement the 'One Country, Two Systems' principle
 - A new perspective to promote the development of the Greater Bay Area
- Develop the rules and mechanisms that connect Macao and the cooperation zone in Hengqin, ensuring that the respective advantages of each place can complement each other, and also to strengthen the regulatory systems. Ho noted that the zone's Executive Committee was already operating stably and smoothly. He said the next step should be to focus on research and a comparison of the regulatory systems in Macao and Hengqin.
- Fresh progress was required to attract more businesses and investment to the zone, as well as to promote the launch of new projects there. Ho said a first-class team was needed to work on bringing in businesses and to create a database for attracting large-scale business projects to the zone, in particular projects covering integrated circuits, biomedicine, new energies, and new materials. It was necessary, Ho argued, to accelerate key projects for the zone, such as building a computing platform, as well as establishing a technological innovation centre for TCM. Ho also urged increased efforts to attract a greater number of skilled professionals to the zone, while also meeting general manpower needs.
- Encouraging dynamism in the team working in the zone, and raising the efficiency of entrepreneurship there was critical. Implementation of the zone's policies depended on the people involved in it, Ho said. The Chief Executive also stressed that the Executive Committee must work in an environment of stability, cohesion and vitality. Hiring support staff should be based on individuals' ability and merit, and the need to encourage an imaginative approach, to create a pioneering atmosphere and promote efficiency, the Chief Executive said. Ho called on all the personnel working in the zone on secondment from the Macao government to learn from their Guangdong colleagues, and to publicise the regulatory advantages enjoyed by Macao, to promote the guiding principle of 'Mutual Discussion, Joint Construction, Joint Administration and Shared Benefits' for the zone. ●

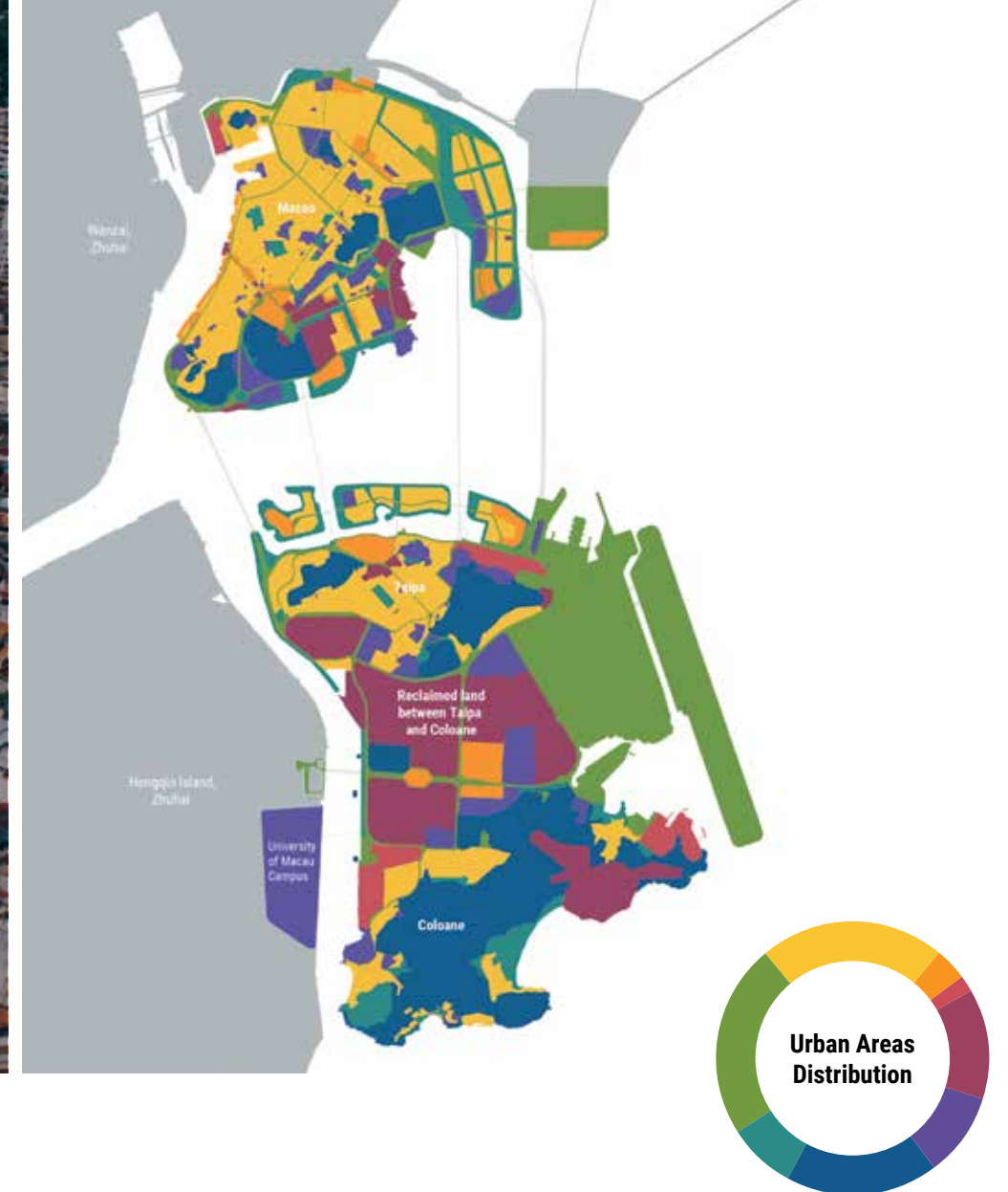
Advancing development in the Hengqin Cooperation Zone



An aerial view of Hengqin Island's financial and business district

(Opposite page) Chief Executive Ho Iat Seng meets with officials in the Guangdong province

Macao Chief Executive Ho Iat Seng reaffirmed in February that Macao will work closely with the Guangdong province to increase the number of innovative cooperation models and mechanisms, to speed up the achievement of the goals for the Guangdong-Macao Intensive Cooperation Zone in Hengqin Island.



- 23% Government Infrastructure
- 22% Housing
- 18% Green Areas
- 13% Tourism and Entertainment
- 10% Public Amenities
- 8% Public Spaces
- 4% Commercial
- 2% Industrial

SOCIAL AFFAIRS

CITY of the FUTURE

Macao has unveiled an ambitious 20-year plan for the territory’s redevelopment and growth, leveraging its place in southern China’s Greater Bay Area.

Text **Gonalo C sar de S ** and **Christian Ritter**

The Macao Special Administrative Region (MSAR) has undergone enormous development and transformation since its return to Chinese administration in 1999, a little more than two decades ago. Now the MSAR authorities have unveiled an unprecedented plan for the next 20 years, to meet the challenges of projected population growth, economic diversification and greater integration with the rest of China, among others.

The city’s government decided to re-categorise the territory’s urban areas with an ambitious 20-year plan to turn Macao into a “happy, smart, sustainable and resilient city”.

Macao’s government wants to rationalise social resources through urban planning to create a comfortable and peaceful community with improved quality of life.

The Macao Urban Planning Law, which was published in February, establishes urban

planning strategies to suit Macao’s characteristics and allow it to take advantage of wider regional and national opportunities.

Macao’s Urban Master Plan (2020-2040) provides for around three square kilometres of reclaimed land from the sea, creating new housing, commercial, tourism, green areas and public spaces.

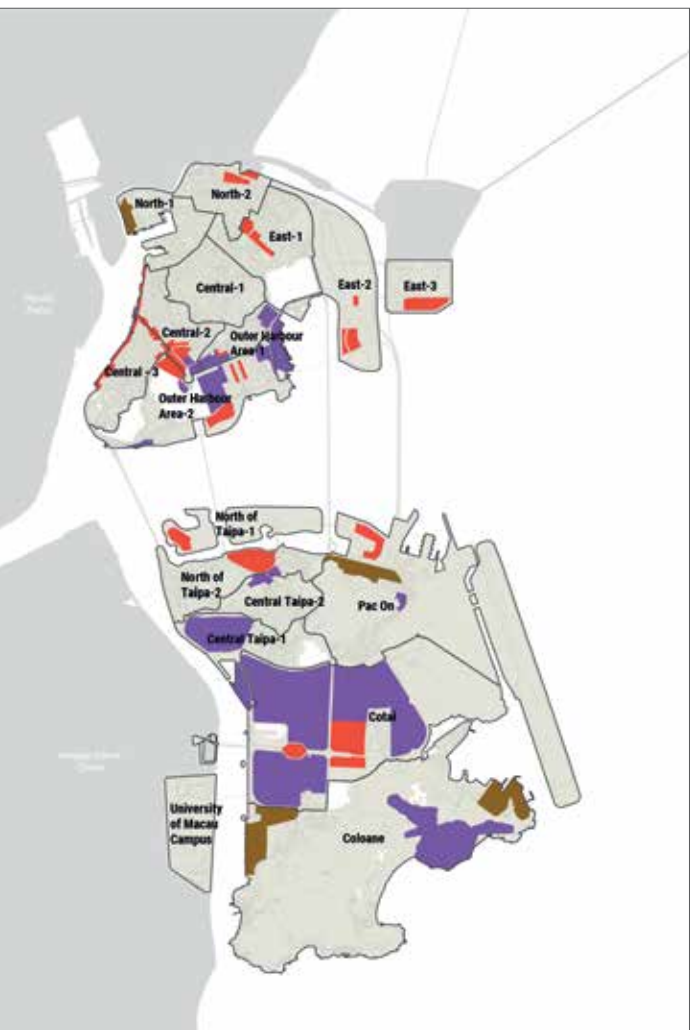
The plan assumes that by 2040 Macao’s population will have grown from today’s 680,000 inhabitants to 808,000 and its land mass from the present 33 square kilometres to 36.8 square kilometres.

“The master plan project foresees, in the long term, new reclaimed land as spaces for urban development and land reserve, to respond to future population growth and meeting future social and economic demands,” as well as reclaimed

land areas along the coast and another site for airport expansion, it reads.

The plan divides the city into 18 “sub-areas for planning”, which are categorised as either urban or non-urban areas. The long-term aim is to turn Macao into a world tourism and leisure centre and into a “beautiful home”. Non-urban areas comprise hills, reservoirs, lakes and wetlands, where any urban development is prohibited. This accounts for 18 per cent of Macao’s total land mass.

From the remaining 82 per cent, 22 per cent is dedicated to housing, 23 per cent to government infrastructure, 13 per cent to tourism and entertainment areas, 4 per cent to commerce, 2 per cent to industry, and the remaining areas to public spaces and green areas and public amenities.



Industrial Zones

- Commercial Areas
- Industrial Areas
- Tourism and Entertainment Areas



Transportation Plan

- LRT Route
- Roads connecting the Areas
- Main Roads
- Transport hubs for exiting Macao
- Main Transport Facilities

The Urban Master Plan sets out a raft of new commercial areas, such as around the Barrier Gate border checkpoint, the site of the former Lotus Flower checkpoint in Cotai, the original “Ocean World” plot in northern Taipa, and an area south of the Macao checkpoint zone at the Hong Kong-Zhuhai-Macao Bridge.

The government also plans to convert the industrial buildings along Avenida de Venceslau de Morais in peninsular Macao into office buildings. Industrial facilities, which are currently scattered across the city, will be concentrated in four existing industrial zones, namely the Zhuhai-Macao Cross-border Industrial Zone in Ilha Verde, the northern section of Pac On in Taipa, as well as Concordia Industrial Park and Ka-Ho in Coloane.

The plan emphasises the Light Rapid Transit (LRT) network that will eventually link the Gongbei border crossing from the mainland to Taipa island through an underwater tunnel, and also from Taipa to the Macao Inner Harbour, as well as from Taipa to Hengqin Island and Seac Pai Van Housing State in Coloane close to the future Islands Healthcare Complex. Aside from the Gongbei tunnel, the latter projects are due to be finished by 2023.

The Urban Master Plan also proposes the revitalisation of the Inner Harbour area with gardens, commercial areas, and maritime ‘blue projects’ to build new tourist attractions and promote the development of the concept of “Cooperation of one river and two banks” which refers to the Pearl River, and the adjacent cities of Zhuhai and Macao. ●

What the experts think



CHRISTINE CHOI
President of the Board of Directors of the Architects Association of Macao

Macao has a unique identity with specific urban planning issues. Some districts have undergone rapid development in recent decades, but others have remained static. The implementation of the master plan should drive rapid redevelopment especially in the Macao peninsula.

Many will argue about whether Macao should be divided into 18 districts as the master plan does. However, one benefit that I see with this approach is the ability to plan, implement and execute plans for each district.

The master plan has identified the primary land use for each zone, but flexibility is needed to adapt to future social needs. Utilising our land resources properly is the key.

I think two areas should be considered in the next phase of development.

First, is the consolidation of transport. Without a well refined transit-oriented development model, Macao will always have a transport problem.

Second, we need to set goals and requirements for the architectural development of Macao.

We need to clarify the minimum Green Building Rating for future architectural projects and set a percentage of urban facilities and infrastructure required for different zones to meet community needs. We can only build a better city with clear goals and rules.



Oswald Vas

JOSÉ LUÍS DE SALES MARQUES

President of the Institute of European Studies of Macao

Decades have passed since the first attempt to put together an urban master plan was initiated in the late 1980s, but good intentions were always blocked by the brick walls of private interest groups, unclear policies and political uncertainties.

Taken as a whole, the master plan is a useful instrument that will guarantee the right balance between public and private interest in urban development, with the final goal being the happiness of the people of Macao.

Notwithstanding the advantages, there are questions left unanswered and some issues in the process of the plan that require clarification.

Firstly, the plan incorporates principles and objectives that have already been determined

by Macao's role as a core city in the Greater Bay Area and, in particular, the implementation of the Guangdong-Macao Intensive Cooperation Zone in Hengqin. There is also the impact of Covid-19 and the new regulations on the gaming industry to consider. Should the master plan take into account the model implicit in the amended gaming law as well as land reserved for emergencies, such as those of makeshift hospitals and other public infrastructure required for acute health or similar crises?

The plan sets general guidelines that will have to be realised for each of the specific 18 territorially based operational units. How will these partial plans implement the general guidelines and what kind of urban quality will they promote?

The 18 planning units were designed according to a rationalist approach, but they don't necessarily follow the organic or historical growth of the city and its former civil parishes division. This principle is perfectly acceptable for the reclaimed areas and new urban communities, but do they fit the old and historic districts?

The plan contains several well-phrased and catchy goals. However, what is their real content, how are they to be reached, and what is the cost-benefit analysis to show their contribution to Macao's economy in general and economic diversification in particular?

The master plan raises Macao to a new level of modern urbanism, one that will give our citizens a much better quality of life and will assist integration into the Greater Bay Area. However, it is just the beginning of a process that will require increased efforts from the government as well as society in general.

RUI LEÃO

President of International Council of Portuguese Speaking Architects and President of Docomomo Macau

There are a series of topics in the master plan that charts a path for Macao.

Zoning: The master plan redefines zoning criteria, allowing a huge range of future design options. The first new zoning definition will allow for the integration of collective uses such as sports, culture, education, and health and government agencies. The Commercial Zone defines areas to develop as new centres integrating housing with other uses. This will allow a great reconfiguration of the city.

Transport: The master plan offers no long-term vision for the LRT network, nor a revision of the bus network. Public transport does not seem to be a priority, which is problematic, as the reduction of private cars and motorcycles is overdue. I believe that with some city-wide planning pedestrian areas in the centre could be expanded.

Heritage protection: The master plan, together with the 2013 Heritage Management Plan, recommends development restrictions for heritage areas. This is a great leap forward and will ease the pressure to develop and urbanise every square inch of Macao.

Housing: The new mixed-use definition for Housing Zones, permitting combined office and housing use, will



António Sanmarful

allow more interesting public housing developments.

Human density: Although there are some vague recommendations to reduce population density in the historic areas and northern districts, the master plan doesn't prioritise this.











Regional integration: Macao will be highly dependent on integration with the Greater Bay Area and the national economy but this will be implemented by the central government and Guangdong province, and so is beyond the scope of the Macao Urban Master Plan.

The master plan addresses other important fields, such as defining ecological reserves, environmental protection and territorial waters, but unfortunately it does not establish any vision for these areas.

THE URBAN MASTER PLAN (2020-2040) IS BASED ON SEVERAL DEVELOPMENT TARGETS:

 Improve the general quality of life for residents	 Optimise equipment for collective use and infrastructure	 Take opportunities provided by the Guangdong-Hong Kong-Macao Greater Bay Area	 Create a community environment with good living conditions and attractive to tourism
 Develop Macao as a smart, ecological and resilient city		 Integrate Macao with the national development strategy of the People's Republic of China	

 Expedite the implementation of urban renewal plans	 Use Macao as a platform to strengthen commercial cooperation between China and the Portuguese-speaking countries
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 Set out the development of suitable economic diversification	 Build a world centre of tourism and leisure	 Outline long-term policies for the maritime zones in the coastal areas	 Optimise the planning and distribution of physical urban space
 Satisfy housing needs	 Create a convenient transport network to aid travel	 Build a base for cooperation within the framework of Chinese culture	 Preserve the environment and natural resources
		 Promote cooperation, coordination and complementary links between regions	 Maintain the city's cultural and historical characteristics

ENVIRONMENT

Macao’s water, now and in the future

What everyone in Macao should know about the water they consume each day: where it comes from, how it’s treated and what innovations are coming down the pipeline.

Text **Gilbert Humphrey**
Photos **Lei Heong Jeong**

(Opposite page) Taipa
Elevated Water Tank

Every day, adults in Macao use around 160 litres of water. Put another way, that is about 193 Watsons water bottles per adult, per day.

Water is essential to human life and, in Macao, a city surrounded by the sea which depends on outside sources for almost all of its water supply, it is especially precious.

With World Water Day on 22 March shining light on the importance of

fresh water to societies everywhere, Macao has plenty of achievements to celebrate, but also many challenges left to solve.

Here is a look at the journey freshwater takes to reach us – from Zhuhai to Macao, from sprawling treatment facilities to tanks atop residential buildings – and what is being done to ensure the taps keep flowing in the future.

FROM THE MAINLAND TO MACAO

The bulk of Macao’s raw water – water that has not been treated, such as rainwater, groundwater or water from lakes or rivers – comes from the mainland. In fact, about 96 per cent of the city’s water supply is sourced from Zhuhai, according to SUEZ. The French-headquartered water treatment giant runs Macao Water, which provides the city with its clean water.

“We really depend on the mainland,” says Susana Wong, director of the Marine and Water Bureau (DSAMA). “Macao has very shallow water and the Pearl River leaves sand and mud in our water

area. Our seawater is polluted and has a lot of sediment,” she adds, underscoring just some of the vexing water security problems Macao faces.

To overcome its scarcity of freshwater sources, the city relies on four pipelines that run raw water from Zhuhai to Macao, where it is filtered, disinfected and distributed to consumers. Three of those pipelines supply Macao with raw water from reservoirs in the northern part of Zhuhai, while one funnels water from a Hengqin Island reservoir to serve the new Seac Pai Van Water Treatment Plant at the end of the Cotai Strip, which opened on 30 November 2021. The plant has since raised Macao’s daily treatment capacity from 390,000 cubic metres of water to 520,000 (1 cubic metre is equal to 1,000 litres). With the city’s population now at nearly 684,000, that supply will help meet Macao’s increasing demands for water for decades to come.

In addition to this sizable new facility, Macao has three other water treatment plants. Ilha Verde and Main Storage Reservoir, or MSR, both treat up to 180,000 cubic metres of water each day. The much smaller Coloane Water Treatment Plant (located on a hill between Hac Sa and Ka-Ho Reservoirs) contributes another 30,000 cubic metres to Macao’s daily supply.



HOW IT'S TREATED

The raw water from Zhuhai undergoes several stages of treatment before its distribution to consumers. For example, at the Seac Pai Van Water Treatment Plant, raw water coming in from Hengqin Island is mixed with a small amount of water from the Seac Pai Van Reservoir, which is located directly in front of the water treatment plant.

In a process called coagulation, highly charged molecules are added to this water to neutralise fine particles like gravel, sand, algae, clay, iron, protozoa and bacteria. Then a process called flocculation causes these particles to bind together and form large clusters, making them easier to see and remove.

From there, the plant filters the water and adds more coagulants to remove remaining particles, odour and micro-pollutants, as well as to reduce undesirable qualities, such as cloudiness. Finally, the water is disinfected and stored in water tanks, ready for distribution across Macao through the city's treated pipes.

According to Oscar Chu, deputy general manager of Macao Water, although few people in Macao drink directly from the tap, the company still guarantees the safety and quality of the water it distributes until it reaches individual buildings.

“Once the water goes inside a private property [within residential or commercial buildings], it really depends on the maintenance by the building management, whether they clean the building's water tank properly, inspect for leaks and [address] rust,” says Chu.

When it comes to water-related issues, most people in Macao are particularly concerned about limescale and the chlorine odour often found in water, both of which, Chu says, are “normal” and “not dangerous.”

Limescale, a sediment consisting mainly of calcium carbonate, often builds up at the bottom of kettles, boilers and hot-water pipework. “Most people find this annoying, but it's a normal thing. It's calcium carbonate. It's minerals. Even if it gets into your glass and you accidentally drink it, it will eventually come out of your system. It happens naturally ... Don't worry about it,” he says.

As for the chlorine found in drinking water, Chu insists that it is “good for disinfection and vital for our water distribution.”

“The closer you are located to our treatment outlet the higher the residual chlorine concentration, so there's a chance you will smell it when you [turn on] the water tap. But it's not dangerous, and in fact, it's vital [for drinking water].”



Image courtesy of Marine and Water Bureau

Main Storage Reservoir Water Treatment Plant

(Opposite page) Oscar Chu, deputy general manager of Macao Water, shares the the local water company's history



Macao Water currently distributes treated water directly into the units inside nearly 5,000 low-storey buildings without water tanks. The company also provides water to about 2,000 high-rise buildings. These towers have their own tanks, which are filled with water from the city's four treatment plants and then distributed to individual units in the building.

DIVING INTO WATER QUALITY

In order to maintain and improve the quality of the city's treated water, Macao Water regularly researches everything from water safety to pipelines leakages, virus particles and microplastics (plastic fragments smaller than 5 millimetres long, such as microfibrils from clothing and tiny bits of food packaging that pollute water).

Microplastics are found in a range of concentrations in marine water, wastewater, fresh water, food, air and drinking water – both bottled and tap. Although the World Health Organization, citing limited research, has said microplastics pose low concern for human health, a study published in the Journal of Hazardous Materials in 2021 indicates they can damage human cells.

“Because of the spread of Covid-19, we are developing a system to more quickly identify and analyse any virus, microorganism or bacteria [in the water],” says Jacky Lei, another deputy general manager of Macao Water. “We are also trying to develop the standard procedures for assessing the quantity of microplastics in both the raw and treated water.”



Jacky Lei, also a deputy general manager of Macao Water, shows how raw water is treated at Seac Pai Van Water Treatment Plant in Coloane

(Opposite page) Macao Water Executive Director Nacky Kuan at the Seac Pai Van Water Treatment Plant

Other research projects sometimes require more of a hands-on approach, including literal deep dives into Macao Water's 630-kilometre pipe network. "[Sometimes] we have to detect if there is leakage. It's not easy because the pipes are installed underground, so our detection teams must use sensors and listening sticks," says Lei.

"But our main challenge now is how we can move forward to a digitalised detection system using artificial intelligence (AI)," he says, explaining that the company plans to use existing data and AI to identify leaks more quickly. "That means saving more water, which means saving more energy and [lowering our] carbon footprint."

According to Lei, the rate of Macao's water loss due to leakage now stands at about 7 per cent, which he considers normal. In comparison, the mainland loses around 15 to 20 per cent of its water supply due to leakage, while

Hong Kong and Singapore lose 15 to 17 per cent and about 8 per cent, respectively, he says.

MOTHER NATURE POSES PROBLEMS

Leakage is just one of many problems Macao Water must account for – some of which, such as natural disasters, are unavoidable.

In 2017, Super Typhoon Hato left some areas of Macao without water supply for one to two hours after a power outage briefly disabled the city's water treatment plants. Two-metre-high flood water also crippled the Ilha Verde Water Treatment Plant for 36 hours. But the company has since developed solutions to safeguard the city's water network when a powerful storm inevitably strikes again.

"We quickly built a waterproof gate outside the [Ilha Verde] Treatment Plant [soon after the water receded].



But for long-term solutions, we are looking to install more generators across all the water treatment plants to prevent interruptions because of power outages," says Nacky Kuan, executive director of Macao Water.

A decade prior, the city experienced record saline levels in its drinking water as severe salt tides plagued the Pearl River Delta in the winter of 2005-06. The salinity level – the concentration of salt in water – reached 700mg per litre, far above the national standard of 250mg per litre.

Due to its location in the Pearl River Delta, Macao experiences high salinity in its water supply every winter, when the salt tides rise higher than the water level in the South China Sea. But Kuan recalls the salinity in the winter of 2005-06 being so potent that people could taste the salt in their tap water. As a reference point, the salinity at that time was roughly four times less than your average bowl of soup, which is 2,000 to 3,000mg per litre on average.

"The central government [had to supply] Macao, Zhuhai and Zhongshan with fresh water released from Guangxi" to meet water demands, she says, adding that while for most people it simply did not taste good, the salty water "might not be good for people with some health conditions."

After the same problem occurred in 2008, the governments of Macao and the mainland began cooperating more formally on water management practices. Since DSAMA started managing Macao's water supply in 2013, the city has not experienced any other extreme rises in salinity.

“
Everything should
be recycled,
including water.

– Susana Wong

RECYCLING IN THE WORKS

While the salinity crises of the past might linger in the city's collective memory, Wong says that desalination is not the answer to Macao's water security issues. “For a desalination project we need a big space,” which Macao lacks, she says. Instead, the city is moving forward with a water recycling project – one initially shelved by the local government eight years ago.

“They [local government] will re-study [water recycling]. They are doing some preparations for it, and

this recycled water will be used in the new reclaimed areas of Macao, starting with Zone A [the reclaimed land between Macao's main reservoir and the area where the Hong Kong-Zhuhai-Macao Bridge bus terminal is located],” Wong says of the proposed plan.

The project, she explains, will take waste water and recycle it to be used mainly for things like flushing the toilet or watering plants. “It's a new trend in the world. Everything should be recycled, including water,” she declares.

“We have to use a lot of communication and seminars to teach people that the recycled water can be safely used and [will be of] no harm if it comes into contact with our body. In Singapore, people already drink recycled water. In Macao, this concept is still very new.”



Image courtesy of Marine and Water Bureau

The Datengxia Dam in Guangxi, which is expected to be completed by 2023, will aid in better control of the water flow from the Pearl River

(Opposite page) Macao Marine and Water Bureau Director Susana Wong

(Inset) An image courtesy of the Marine and Water Bureau illustrates the journey Macao's water supply takes from the mainland

Water recycling is just one of many innovative projects in the pipeline. Two years ago, Macao Water started placing smart water metres inside residential flats in Ilha Verde, as well as some elderly homes and integrated resorts, to research water management and leakage at the household level.

Available in Chinese and English, the smart water metres measured water consumption for 24 hours; if they detected irregularities in water usage, the metres would automatically notify registered customers of a potential leakage via WeChat.

“A normal [person] doesn't usually use water after midnight because you're supposed to be sleeping ... When the metre detects a continuous flow of water coming from your unit, it means you may have some leakage,” says Chu, noting that the most common source of a leak in Macao households stems from problems with toilets.

Macao Water has laid the groundwork to expand the trial to other areas, with tentative plans to install smart water metres in housing units in Areia Preta's Lot P next year, followed by some government housing units in the Macao New Urban Zone A in 2024.

In a place where water must be imported, even small toilet water leakages can have a big impact. That makes outside water sources increasingly important, too.

According to Wong, DSAMA is working on several reservoir projects with the mainland that will offer Macao greater water security. As one example, DSAMA is currently funding RMB 800 million (MOP 1.01 billion) for the Dateng Gorge Water Reservoir in Guangxi – also known as Datengxia Dam – which began construction in November 2014 and is scheduled to be completed in 2023.

The reservoirs in Macao are mainly for emergency use only because the whole volume of all the reservoirs can only supply our city with water for seven days,” Wong says. “After Datengxia's completion, a better control of the water flow from the river will be set up in order to guarantee the security in water supply, whether it's the flooding season or dry season. If we don't have enough water, they the Guangxi province will release water down to the areas in the downstream of Pearl River.”

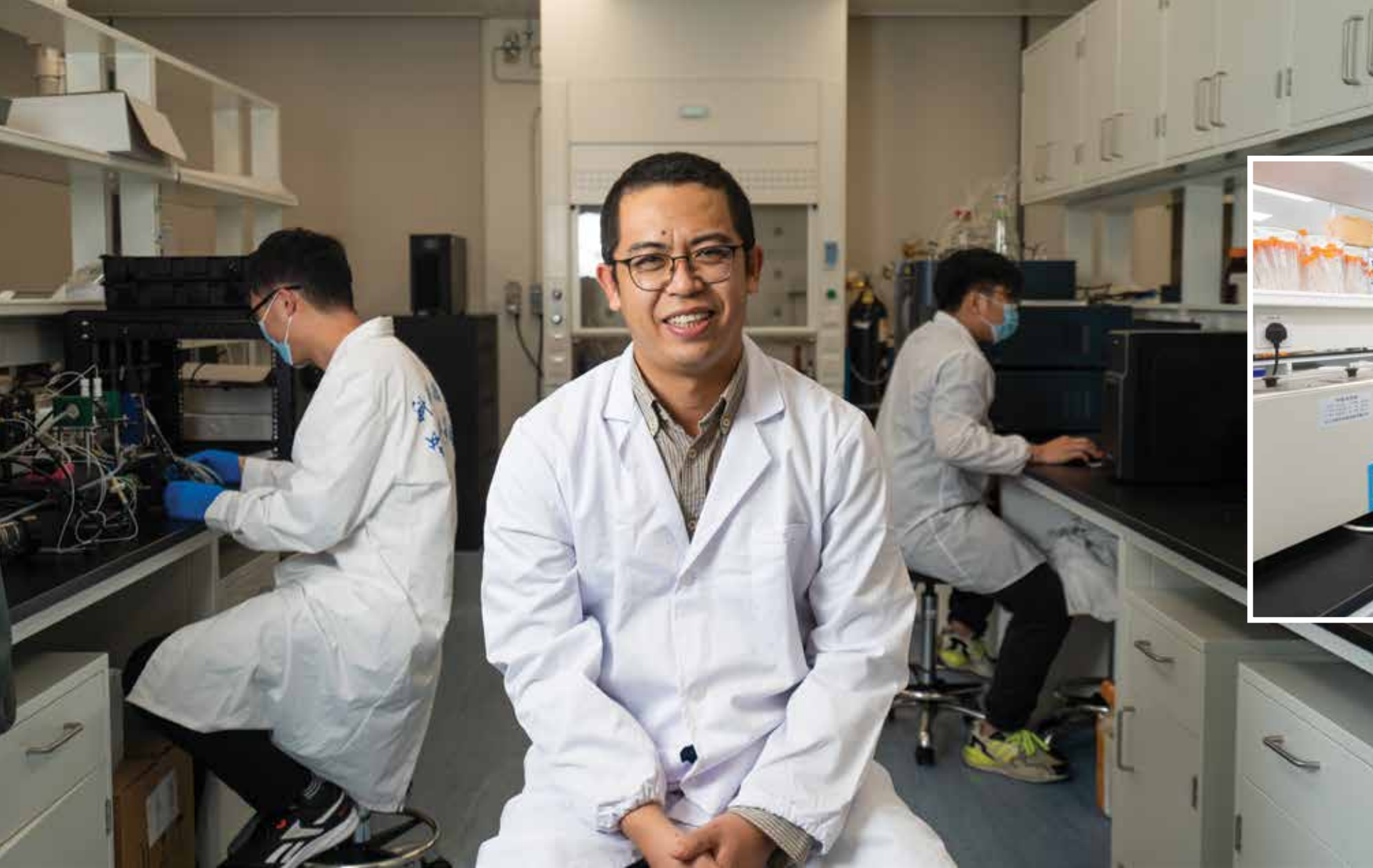
DSAMA holds regular meetings with relevant government bodies across Guangdong province, particularly before the seasons change, to discuss other ways to bolster water security. Currently, Zhuhai is working on more reservoir projects while plans to upgrade the Zhuyin Reservoir are well underway.

“Whenever Guangdong province has such plans or projects, they contact us and we contribute our share,” says Wong. “Recently, we have been cooperating with Zhuhai in the projects for securing the water supply in both cities. Zhuhai and Macao are always working together in the security of water supply for both cities.” ●



Denzel Calangi





ENVIRONMENT

The universities forming Macao’s environmental vanguard

From finding solutions for microplastic pollution to building eco-campuses, local universities are playing a leading role in Macao’s sustainability movement.

Text **Cathy Lai**
Photos **Denzel Calangi**

Tianwei Hao, assistant professor in the Department of Civil and Environmental Engineering at the University of Macau is also a member of the Centre for Regional Oceans

As you walk into the Centre for Regional Oceans (CRO) of the University of Macau (UM), you might feel as if you have stumbled upon a secret. Here, you will find three laboratories under one roof which form a de facto ground zero for Macao’s sustainability movement. Ground-breaking research accelerates Macao’s efforts to future-proof society, enhance infrastructure and cut carbon emissions.

Tianwei Hao, assistant professor in the Department of Civil and Environmental Engineering at UM, is hard at work in one of these laboratories, where dozens of 5-litre water tanks house bacteria called ordinary heterotrophic organisms that possess the power to purify polluted water. With the help of these microscopic critters, Hao hopes to identify the most effective bacteria and engineering conditions for removing harmful contaminants from water.

In another study, Hao and his team are exploring ways to reuse sewage sludge, a mud-like residue generated by wastewater treatment. According to the scientist, this residual material contains many natural substances that can help solve common problems. For example, sodium alginate, a glue-like substance generally derived from algae, and fucoidan, an ingredient in some dietary supplement products, can be used to repair cracks in historic buildings. Meanwhile, the remaining sludge can be used to produce biogas, a renewable fuel for generating electricity.

Increasingly, Macao universities and research institutes, led by academics like Hao, are playing a pivotal role in the city’s quest to create a more sustainable future. While much of the work occurs in the science lab, many developments are happening outside of it too, transforming campuses and, perhaps soon, all of Macao.

SAVING THE PLANET WITH SCIENCE

The scientific projects conducted at CRO are part of UM’s commitment to the Sustainable Development Goals (SDGs). Ratified by the United Nations General Assembly in 2015 as part of the 2030 Agenda for Sustainable Development, these 17 global goals aim to make the world a better place for everyone. The SDGs include ensuring access to clean water, sanitation, and affordable and clean energy for all; promoting responsible consumption and production; and conserving biodiversity, among others.



Sara Cardoso, a postdoctoral researcher at the University of Saint Joseph has been researching microplastics since 2019

(Opposite page) The Macao Institute for Tourism Studies has installed CO2 metres in their hotel rooms as a helpful reminder of guests' carbon footprint



Since UN member states adopted the SDGs, many educational institutes and universities around the world have taken the lead to turn the goals into reality. For many, it is a continuation of work they were already doing to address global challenges on the horizon.

In Macao, local universities have long been conducting impactful research, advancing academic opportunities and even modifying campus grounds to prepare for what's ahead, particularly when it comes to environmental challenges.

"Having the most cutting-edge resources and technology, research institutes and universities like UM have become the vanguard of the sustainability movement providing strategies and approaches

to solve the technological and scientific challenges of achieving a sustainable future," says Hao.

Using a newly developed bioprocess, Hao hopes to overhaul Macao's wastewater treatment system. The new system will cut the size of the current water treatment plants in Macao in half and lower their carbon footprint by 30 per cent. It will also slash costs, from MOP 1.2 per tonne of wastewater to MOP 0.3-0.5.

UM is not labouring alone. Researchers at the University of Saint Joseph (USJ) are also involved in a range of sustainability-related projects, from upcycling fabrics to green architectural design and marine conservation.

One of these forward-thinking projects, PlastiFish, examines

the impact of microplastics on fish production in two distinct ecosystems: Macao and the Algarve, the southernmost region in Portugal.

According to Sara Cardoso, a postdoctoral researcher at USJ, since the study was started in 2019, researchers have found a dangerous link between personal care products and microbeads (tiny pieces of plastic used in skincare products, such as face washes, body scrubs, cosmetics and lotion) in Macao. Based on their findings, citydwellers may release over 37 billion microbeads per year into the environment via wastewater treatment plants. Examinations of coastal sediment from several locations across Macao also revealed a high density of microplastics – an average of 21,111 pieces per square

metre of beach surface – which is among the highest reported densities in the world. Whereas microplastic concentration of beach surface is 5,595 items per square metre in Hong Kong and 133.3 in Portugal.

"Microplastics are one of the major sources of pollution around the world, and our findings have shown that Macao is no exception," Cardoso stresses. "If we want to [conserve] biodiversity below water, we urgently need to understand how microplastics affect the marine ecosystem and find mitigation measures to [address] the problem."

According to Cardoso, the team will soon start experimenting with fish in the laboratory using the data they collected in the field. The team will expose fish to a range of microplastics and observe how these tiny pollutants affect their behaviour and physiology at different stages of development. They hope that the experiment will shed light on how microplastics impact species, ecosystems and, ultimately, human health.

According to Cardoso, ingested microplastic particles can accumulate and lead to organ damage, as well as expose people and animals to toxic chemicals. "If these particles accumulate in the food chain, the whole ecosystem might be compromised," she warns.

CULTIVATING GREEN CAMPUSES

Macao's institutes of higher education are looking beyond the lab in pursuit of the SDGs by incorporating environmental protection into their teaching, policies and daily operations. The Macao Institute for Tourism Studies (IFTM), for example, a school exclusively devoted to tourism and hospitality education, has been promoting environmental sustainability across its campus for the past 10 years.

"We want to raise environmental awareness and inspire change, not only among our students but also among our colleagues and guests," says Helena Lo, general manager of the Educational Hotel at IFTM.

"By doing this, we can encourage stakeholders from [across society] to adopt a greener lifestyle, reduce waste and cherish [natural] resources."

To reduce water and energy consumption, IFTM's campus has installed a rainwater collection system. The school uses the rain it collects to water the lawn and plants. In addition, each of the guestrooms at IFTM's Educational Hotel features a CO2 metre – a simple way to help guests understand that they can leave a carbon footprint just by using the electrical appliances in the room.

When it comes to waste reduction, the institute has installed an artificial intelligence-enabled technology called Winnow Vision, which helps the IFTM canteen and restaurant adjust portion sizes and menus by tracking food waste. Of the food waste produced, the restaurant strives to turn 80-90 per cent into organic fertilisers for gardening or distribution. Furthering waste reduction efforts, the school has also eliminated disposable amenities in guestrooms and set a printing quota for staff and students.

While these initiatives focus on reducing the school's carbon footprint, other projects seek to cultivate an eco-conscious mindset within the community. Every September, IFTM staff joins hands with its student union to organise Healthy and Green Month, a campaign that champions environmentalism.

Last year, in its 10th edition, Healthy and Green Month introduced a contest – called "Have you saved the world today?" – that promoted eco-friendly behaviours, such as reducing water usage and recycling, through rewards and recognition. Meanwhile, a "Mid-Autumn No Air Con Night" campaign encouraged students and staff to turn off air conditioners for one night to highlight the importance of energy conservation.

“We want to raise environmental awareness and inspire change, not only among our students but also among our colleagues and guests.”

– Helena Lo



Timeline: Macao's Sustainable Development Goals Progress

Mid 2004	The government constructs the Ecological Zones in Cotai, an area of about 55 hectares that's home to more than 162 types of birds and 35 types of fish.
September 2012	The Environmental Protection Bureau releases the first environment protection plan of Macao, with a goal to increase clean energy, promote waste recycling and improve coastal water quality.
August 2019	Macao introduces a MOP 1 plastic bag levy to reduce plastic waste.
January 2021	The government bans importing and selling disposable styrofoam takeaway containers.
January 2022	The government bans importing and selling single-use plastic straws and stirrers.
	The Environmental Protection Bureau releases their five-year environmental protection plan, which focuses on cutting carbon emissions.
January 2025	The government plans to convert 90 per cent of Macao's public buses to electric or clean energy by 2025.

Last year's campaign also featured a major milestone for the school: IFTM permanently removed plastic bottles from all vending machines across campus, making it the first higher education institute to do so in Macao.

"At first, many people were upset about the new policy. They missed the convenience of plastic bottled water," says Oscar Chan, an undergraduate student majoring in tourism event management who promotes eco-oriented activities and policies on campus as an IFTM green ambassador.

But, as Chan observed, behavioural changes can happen quickly when options are limited. In just a few days, he says, reusable plastic bottles could be seen everywhere on campus. "Because water is an essential part of life, this left us no choice but to adapt. This shows that unified action for the environment is possible, as long as we have the will for it."

CONCRETE ACTIONS FOR A SUSTAINABLE FUTURE

Looking ahead, Lo believes that sustainability will play an even bigger role in the curriculum and daily life at Macao's universities. "More and more young people realise that it is important to have knowledge and awareness about sustainability," she explains, "as it is not only important for environmental protection, but also for improving their competitive edge as they graduate and enter into an increasingly low-carbon society."

This awareness has taken root across the IFTM campus. According to Lo, their students proactively organise green initiatives and challenge wasteful activities at the school. They host charity flea markets regularly, she says, giving second-hand items new life instead of sending them to landfills. Students also made the call to cancel a fashion show the university had held annually for a decade, because it required many single-use materials.

"Once you start incorporating sustainability on campus, there's no going back. We will continue to do more and more for a better and green future," Lo says.

On a regional level, Hao believes the integrated development of the Greater Bay Area (GBA) has boosted cooperation between universities from different member cities, with universities in Macao, Hong Kong and Guangzhou co-establishing several environmental laboratories in the GBA for research cooperation and data-sharing. For instance, UM's Centre for Regional Oceans collaborates with top-notch research units, such as the South China Sea Institute of Oceanology in Guangzhou, to advance marine science and technology in the region.

As promising as these projects may be, he also stresses that the development of the GBA, a mega-city cluster with a total population of over 86 million, will pose further environmental challenges. As the region develops, Hao believes local universities will need to come up with increasingly innovative – and actionable – solutions.


"The Greater Bay Area has a huge demand for fresh water, not only for the survival of humanity but also for industrial and agricultural use," he explains. "We need to look into alternative water supply, such as using seawater for flushing or air conditioning, in order to preserve fresh water."

He also foresees waste becoming a serious issue, since highly developed economies tend to be some of the largest waste producers. Unchecked waste can harm our environment, threaten water resources and lead to disease, warns Hao. "We need to find a sustainable way to detoxify our waste and even turn it into useful resources."

While there is a lot of cooperation between universities in the region, Hao says it's largely academic in nature. "We have a lot of published research but little concrete action," he says. "I hope to see more solutions from scientists and researchers that actually have an impact on communities, so that we can tackle the environmental problems happening in front of our eyes." ●

The Centre for Regional Ocean masters and doctoral students work hard to tackle the environmental challenges of Macao

Scan the QR code below to watch the video:





Q&A

Partnerships for prosperity

The new secretary-general of Forum Macao, Ji Xianzheng, outlines his vision for the future of relations between China and the Portuguese-speaking countries.

Text **Gonalo C sar de S **
Photos **Lei Heong Ieong**

Ji Xianzheng's diplomatic career has taken him from Portugal to Venezuela before joining Forum Macao in January

The new secretary-general of Permanent Secretariat of the Forum for Economic and Trade Co-operation between China and Portuguese-speaking Countries (Macao) – known in short as Forum Macao – Ji Xianzheng, took office in January, and has already made numerous efforts to share the institution's future plans and projects. Ji previously served in China's embassies in Portugal, Spain and Venezuela, and is an expert on the Portuguese-speaking countries (PSCs).

Since Ji's appointment, he has met with representatives of the central government in Macao, with the city's Chief Executive, Ho Iat Seng, with secretaries and directors of local government departments, with Macao's Legislative Assembly and journalists. He has also travelled to Beijing to meet the ambassadors of the Portuguese speaking-countries. Ji spoke to *Macao Magazine* about the future of Forum Macao and how he intends to strengthen relations at all levels.

How has the Covid-19 pandemic shaped Forum Macao's work?

The Covid-19 pandemic has caused severe negative impacts globally, especially on the economic and

social development of China and PSCs. The appropriate way to face these challenges is to strengthen solidarity and cooperation under the banner of multilateralism, uphold sustainable development, and work together to achieve a community with a common destiny for humanity.

Within the framework of Forum Macao, China and Portugal should step up cooperation on Covid-19, especially with PSCs in Asia and Africa, to help make vaccines accessible and affordable in these countries. On the other hand, we need to take active measures to promote economic recovery. All parties should maintain the stability of the supply chain; encourage commerce between the mainland, Portuguese-speaking nations and Macao; constantly enhance the business and trade environment; boost industrial collaboration; and assist the growth of small and medium-sized businesses.

Since the Covid-19 outbreak, China has been at the forefront of global anti-epidemic cooperation, upholding the priority of vaccines as a public good and playing a leading role in the equitable distribution of vaccines.



António Sanmarful

Artworks from artists of the Portuguese-speaking countries on display during Cultural Week

China was the first country to commit to treating the Covid-19 vaccine as a global public good, the first to support the exemption of intellectual property rights on vaccines, the first to cooperate with developing countries in vaccine production, and the first to provide more than 2 billion doses of vaccines to more than 120 countries and international organisations, accounting for one-third of the total global vaccines used outside China.

China has announced that it will provide another 1 billion vaccine doses to Africa, with 600 million of them as grant assistance, and a further 400 million doses jointly produced by Chinese enterprises and relevant African countries. A further 150 million doses of vaccines have been sent to countries in the Association of Southeast Asian Nations.

So far, China has provided free assistance to PSCs in Asia and Africa with vaccines and anti-epidemic materials, including testing reagents, masks and protective suits, and it has also actively cooperated with Brazil to produce vaccines locally. Meanwhile, in some PSCs in Asia and Africa, medical teams sent by the Chinese government have been fighting on the front line, saving lives and healing the sick without fear of the epidemic.

In a post-pandemic world, will there be a need to strengthen the cooperation between Chinese and PSC entrepreneurs and companies with visits to the eight participating nations and from those countries to China?

The Permanent Secretariat routinely visits PSCs to learn about the

actual market conditions and needs of entrepreneurs there. Prior to the pandemic, the Secretariat organised delegations to the eight PSCs every year to visit relevant government departments, and communicate with local entrepreneurs and business associations. Enterprises in Macao and the mainland also accompanied the [Forum Macao] delegation to carry out trade exchanges in PSCs. Due to Covid-19, however, the Secretariat's visits to the PSCs have been suspended for two years.

How can Forum Macao help diversify its work into areas other than commercial and economic ones?

The Action Plan on Trade and Economic Cooperation adopted by successive ministerial conferences of Forum Macao is an important document guiding its work. With the continuous development of economic and trade relations between China and PSCs, the areas of cooperation under Forum Macao have been expanded and the content has become more extensive. The Action Plan grew from seven areas covered by the first Ministerial Conference to nearly 20 areas covered by the fifth Ministerial Conference. These include government, investment, trade, agriculture, forestry, animal husbandry and fisheries, finance, human resources, natural resources, production capacity, infrastructure, tourism, transport and communications, culture, radio, film, sports, health, maritime, finance, and other traditional and emerging fields.

Do you think that Forum Macao should further promote the cultures of the PSCs?

Since the establishment of diplomatic ties between the People's Republic of China and the PSCs, all parties have made concerted efforts to enhance mutual political trust, economic integration and cultural inclusiveness, and bilateral relations have grown steadily.

Forum Macao has always been committed to giving full play to Macao's role as a platform to promote economic and cultural exchanges between the mainland and PSCs.

Each year since 2008, the Secretariat has successfully held 13 successive Cultural Weeks of China and the PSCs and conducted economic and trade exchanges between the mainland and PSCs to improve understanding of the economies, trade, and cultures of PSCs within mainland provinces and cities. In recent years, the Secretariat has also worked closely with China Central Television and the local mainstream media in Macao to produce promotional videos on the culture of PSCs and display them on various platforms.

The 14th Cultural Week of China and PSCs, organised by the Secretariat, will be held in late 2022 with more content to be prepared and created. At the same time, we're in contact with embassies in China representing the PSCs to see how we can increase our work together on cultural exchanges and communication.

The Cultural Week of China and PSCs is not simply a one-week event but consists of many "weeks" that span across half the year. Each event is combined with specific

workshops to promote the essence of Portuguese-speaking nations' cultures, drawing a great number of Macao residents and tourists.

What are the synergies between the Greater Bay Area, the development of Hengqin, and Macao as a platform between China and the PSCs?

The Chinese government's 14th Five-Year Plan supports Macao in consolidating and enhancing its competitive edge and better integrating Macao into the overall development of the country. Macao is actively participating in the development of the GBA and opening a new chapter of cooperation between Guangdong and Macao in the Guangdong-Macao Intensive Cooperation Zone in Hengqin.

These major national strategies were promoted and implemented by the Chinese government, providing greater space for in-depth cooperation between China and PSCs through the Macao platform.

This February, the Secretariat invited officials from the management committee of the Guangdong-Macao Intensive Cooperation Zone in Hengqin to give policy briefings and in the near future, representatives of the Permanent Secretariat of Forum Macao will visit Hengqin for inspection and exchange of views. The Secretariat also plans PSC delegations to visit major cities in the Greater Bay Area within this year, hold exchanges and discussions with local governments and enterprises, and carry out relevant promotional activities providing Covid-19 prevention and control conditions permit.

Macao is using its unique advantages, and strengthening its service platform for cross-border commercial collaboration between China and PSCs. As a result, Macao's active participation in building the GBA and the enhancement of Macao as a platform between China and the PSCs will help Macao better integrate into China's overall growth and diversify Macao's economy in a suitable way.

How can the China-Portuguese-Speaking Countries Cooperation and Development Fund be made more accessible to SMEs?

The fund is jointly initiated and invested by the China Development Bank and the Macao Industrial and Commercial Development Fund, operated and managed by the China-Africa Development Fund. The fund follows market principles, making decisions independently and taking its own risks. Like all commercial funds, there are strict investment standards and requirements.

The financing difficulty of small and medium-sized enterprises (SMEs) is a common problem. The Permanent Secretariat has been seeking project resources through various channels and providing timely project information to the fund to highlight the investment projects of SMEs. The fund has a good understanding of the market

environment and the needs of enterprises, they are now studying the demands of relevant enterprises.

How do you see the future of Forum Macao, and how will it innovate and expand its impact?

It has been almost 20 years since the establishment of Forum Macao. A review of the past shows that China and the PSCs have achieved remarkable developments in commerce and investment.

In 2021, the trade volume between China and PSCs exceeded MOP 1.62 trillion (US\$200 billion) – a historical high. At present, the international situation has witnessed some new changes and increased uncertainties. At the same time, the willingness of all parties to work together to address common challenges has become stronger, and the potential for development remains huge.

Under these new circumstances, China and the PSCs have made full use of the unique advantages of Macao as a platform to consolidate cooperation, promote post-epidemic economic recovery, and realise promising prospects for common development. I will work with my colleagues in the Permanent Secretariat to build consensus and bring into full play the initiative of all parties, innovate work models and expand work areas, and better serve the development needs of all parties. ●

Ji Xianzheng talks to *Macao Magazine* at Forum Macao offices about the role of the institution and its future plans



Remembering Macao's 'golden age' of tea

Tea connoisseur Lo Heng Kong has devoted over two decades to studying and sharing the art of tea. Last year, he distilled his insights into a definitive guide to local tea culture, *My Notes on Tea: The Past and Present of Tea in Macao* (《澳門·茶·前世今生—我的茶事手記》).

Text **Vivianna Cheong**
Photos **Lei Heong Ieong**

Lo Heng Kong turned a life-long passion for tea into a new book on the rich history of tea in Macao

A tea master rhythmically unravels a piece of turquoise fabric on the floor, creating a graceful sea of blue. He gently edges his knees onto a cushion, then arranges a large kettle, delicate teacups, a ladle and a bouquet of pink blossoms across the fabric as if he is painting. The Macao Chinese Orchestra plays classical Chinese music in the background, enhancing the calming and poetic atmosphere.

In 2018, local tea connoisseur Lo Heng Kong demonstrated this unique tea ceremony, which he designed himself, to celebrate the drink's history in Macao and encourage its appreciation. Instead of making tea at a table, as is tradition, Lo kneels on the floor to be closer to nature. He also aspires to transform tea ceremonies into performance art by using the fabric – which can be any material – as a canvas.

In 2020, the tea master wrote about creating this modern tea ceremony in his book, *Tea Ceremony Setting and its Designs*, which includes many photographs and setting designs by Lo and the members of his Chinese Teatism Association of Macao. But while writing the book, the 68-year-old discovered that many people worldwide do not know about the city's tea culture. This realisation inspired him to embark on his new book: *My Notes on Tea: The Past and Present of Tea in Macao*, published in 2021.

Part memoir, part account of tea's history in Macao, Lo's new book feels like an archaeological dig, in which Lo attempts to dust away misconceptions and unveil the truth. "I hope my readers can use the book as a reference and historical record," says Lo.

"Tea is not only for drinking. Many misunderstand that the art of tea originates from Japan, but it actually passes on from China [to Japan and beyond]. It saddens me to hear this [that Chinese culture is not well understood and respected], so I decided to find the origin and present it here [in the book]."

MACAO'S PREEMINENT TEA EXPERT

Lo is well-positioned to tackle such a broad topic thanks to 20 years in the tea industry. In 1997, when Lo was in his early 40s, he left a career in interior design and embarked on a lifelong journey devoted to tea – from brewing to ceremonies, history and appreciation.

That same year, Lo opened Chun Yu Fang (meaning 'Workshop of Spring Rain'), in Taipa. The teashop invited enthusiasts to learn about tea appreciation, enjoy the drinking experience and purchase tea. While running the shop, Lo sold a selection of high-quality tea leaves and shared tea-making experiences with regional experts from the mainland, Taiwan, Japan and South Korea.

In 2000, he founded the Chinese Teaism Association of Macao and delved deeper into teaching and research. “I love tea, as well as teaching the art of tea. Instead of having only a few lessons, I hoped my students could sustain their studies, so I established the association,” he says. “I also came across some issues, such as the inconsistency between tea and the suitable tea-making tools, so I started designing proper tools. I want to provide comprehensive knowledge about the art of tea.”

Seven years later, he moved Chun Yu Fang into the green hinterlands of Coloane, an island of Macao, and changed its name to Chun Yu Fang Tea House. The tea master says his tea house is his dream. “As I buried myself in writing and research, and [would be] getting older, I hoped to find a proper spot for teaching and research.”

His experience and research on tea have led to many academic opportunities. Lo frequently gives lectures and workshops in local secondary schools and higher education establishments, including the Macao Polytechnic Institute’s Seniors Academy. He has also travelled extensively to share his knowledge during seminars in the mainland, Japan and South Korea while consulting for tea associations in the mainland.

For example, Lo is an honorary committee member of the China International Tea Culture Institute, an honorary researcher of Ningbo East Asian Tea Culture Research Centre and a consultant of Hebei Tea Culture Association. In 2009, he was granted the honorary title of merit by the Macao SAR government for his devotion to society.

TEA TAKES HOLD

This world of experience prepared Lo to produce his ambitious new book, *My Notes on Tea*. Designed by Lo’s student, Zen Wong, the cover features an illustration of a broken wooden door with a keyhole in the middle. Peering through the hole, readers can see a tiny porcelain teacup – the same type used at the famed Kun Nam Tea House, which operated from 1953 to 1996 on Rua de Cinco de Outubro.

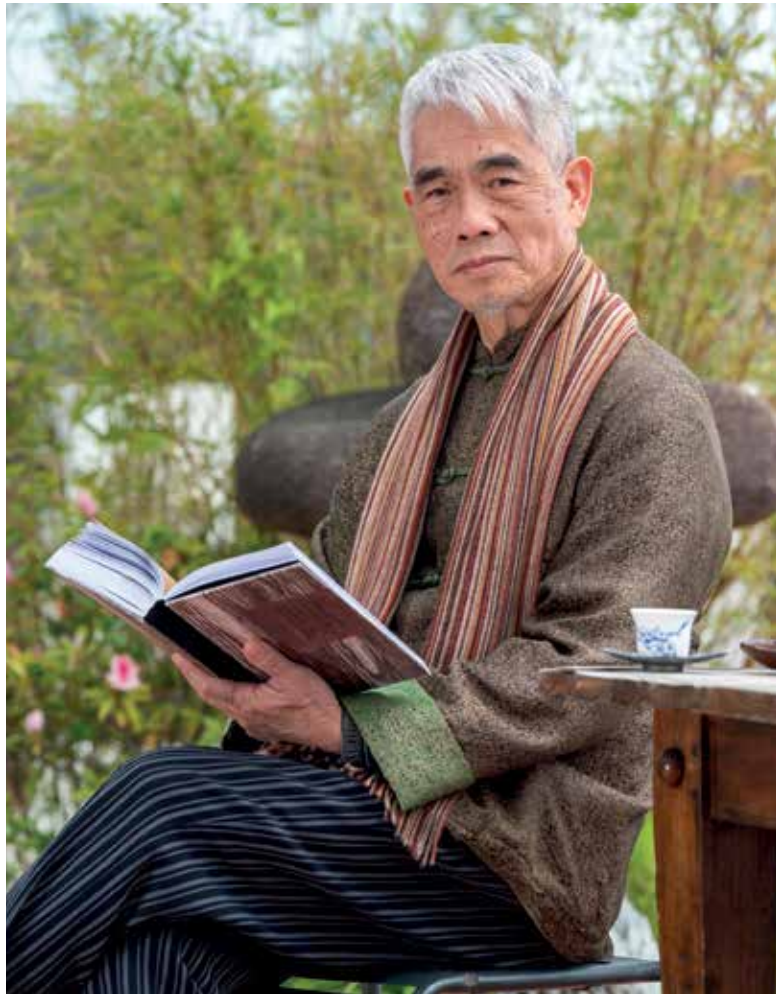
According to Lo, the delicate teacup (made in Jingdezhen, a famous ceramics manufacturing hub in Jiangxi province) showcases ideal proportions, a lightweight body and finely detailed artwork.

This teacup is symbolic for Lo and overflows with memories. He recalls visiting Kun Nam Tea House with his father, a tea house manager who had a keen sense of tea making and appreciation. “My father had a deep knowledge of tea. He was a busy man. Life was tough back then, so I couldn’t bring myself to ask him questions,” says Lo. “When writing the book, I really regretted not finding out more about tea from him.”

But Lo’s insights prove more than sufficient, with *My Notes on Tea* providing a deep dive for beginners and connoisseurs alike. Divided into four chapters, the book covers a lot of ground, from tea’s beginnings in China to Lo’s tea memories in Macao, tea ceremonies and tea-making tools. Through a mix of research and storytelling, Lo strives to trace tea’s footsteps through Macao while celebrating the art of tea. He also wants to debunk a pervasive misconception worldwide – that tea originated in Japan, not China.

A set of wooden tea tools, beautifully handcrafted by Lo





Lo also designs his own porcelain teacups, which he has made in a Chinese kiln

(Opposite page) Lo has spent two decades delving deeper into the history of tea

According to Encyclopaedia Britannica, among other respected sources, tea originated in China around 2700 BCE and gained popularity in the Tang (618–907) and Song (960–1279) dynasties. In the 8th century, Buddhist monks brought tea leaves from China to Japan, where elites began consuming the drink for medicinal purposes. By the 13th century, the Japanese tea ceremony emerged,

though it was initially rowdier than today's formal experience. Around the same time, the drink became available to everyday people to consume for both health and enjoyment.

In Macao, the “golden age” for tea, as Lo calls it, ran from the mid-1500s to the mid-1800s, while the Portuguese settled in the territory and established a trading port. Guangzhou, then known as Canton, was an important Chinese port, which had been open for foreign trade since the 14th century. It was also the only port open to foreign trade from 1757 to 1842. Since Macao was located just 150 kilometres down the Pearl River, the city became an important entrepôt – a trans-shipment port where goods can be reloaded for the onward journey – for Chinese goods.

Though they operated trade routes with Europe, the Portuguese did not ship tea at first. It was the Dutch who introduced Chinese tea to Europe via Japan in the early 1600s. Around the mid-1600s, British merchants also started shipping Chinese tea to England. It was primarily consumed for medicinal purposes until Queen Catarina de Bragança popularised the drink. As the daughter of Portugal's King D João IV, Queen Catarina had access to Chinese tea via Macao and drank it daily for enjoyment. When she married England's King Charles II in 1662, she is thought to have made tea more fashionable as a social beverage.

After the turbulent transition between the Ming and Qing dynasties in 1683, the Kangxi Emperor banned foreign trade

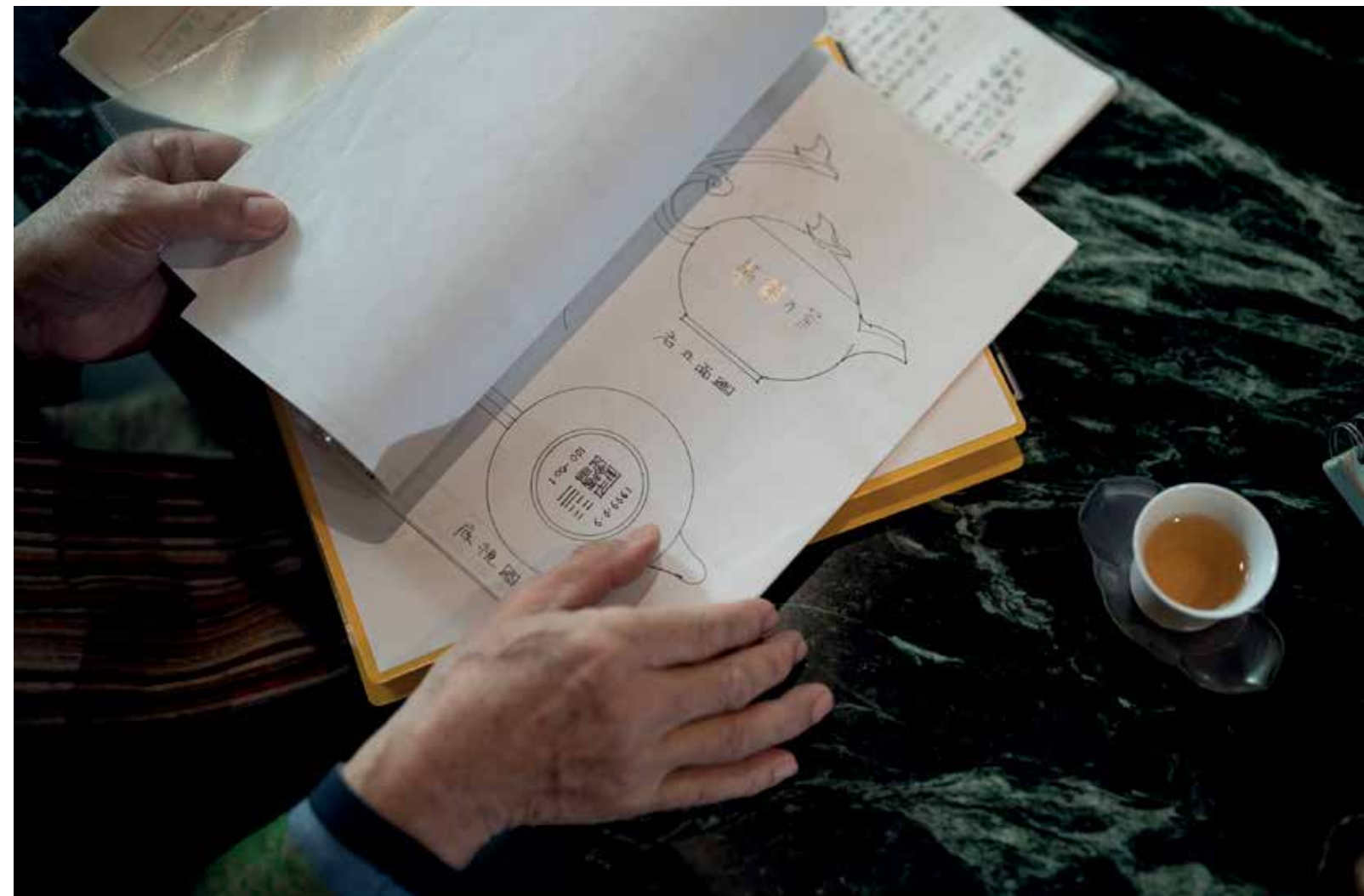
unless it went through Macao, which gave the Portuguese an opportunity to sate demand for tea in the West. The Portuguese began purchasing tea from Guangzhou and supplying it to British and Dutch merchants until the mid-1700s.

When the Qing dynasty reopened to foreign trade, the British established direct links with Guangzhou and grew increasingly dominant in Asia. And while the British eventually monopolised the

tea market, Macao continued to play an essential role as an intermediary port until Hong Kong came into the picture and became the duty-free port of choice for European ships.

However, Macao's role in developing tea culture in the West did not end there. In the early 19th century, the Portuguese empire shipped a wide variety of seeds – from avocado to mango, grapefruit, camphor, lychee and more – from Macao to Brazil, which

was a Portuguese colony at the time. After the seeds acclimated, the Portuguese planted them to create the Botanical Garden of Rio de Janeiro in 1811. A year later, Macao Senator Rafael Botado de Almeida sent seeds of the *Camellia sinensis* (the shrub that produces tea leaves) to Rio de Janeiro followed by Chinese farmers in 1814, who cultivated a tea plantation in the garden and harvested the leaves twice a year.





“Many have forgotten the thriving tea culture in Macao. I am trying to look for the golden age of Macao in the ruins.”

– Lo Heng Kong

Although the tea trade slowed during the next century, Macao saw another “golden age” for tea in the 1940s and ‘60s. During this period, tea house culture gained popularity in Macao with famed tea houses – Lok Kok, Kun Nam and Iun Loi – gracefully dotting historical Rua de Cinco de Outubro and the surrounding neighbourhood. Lo explores Macao’s vibrant tea house culture in one chapter by examining an order sheet from Va Mau tea shop.

On the sheet, over 60 kinds of teas were available to consume, which the expert believes demonstrates the city’s high standards during this era.

In the 1970s, however, tea house businesses started to decline as many locals sought employment in the burgeoning textile and clothing industry, and a wider variety of dining outlets – such as Western-style franchises, Chinese-style hot pot and seafood restaurants – emerged in the city.

“A great number of tea houses began to close down to give way to urban development – the current site of Kun Nam is a hotel, and Iun Loi a supermarket,” says Lo, emotional about the loss. “Many have forgotten the thriving tea culture in Macao. I am trying to look for the golden age of Macao in the ruins [through the metaphor of a broken door].”

LIFE BEGINS WITH TEA

When working on the 500-page book, which took Lo about a year to write, the tea master combed through research, notes, photos and references. In particular, he relied on his notes from previous business trips to the mainland, Japan, Taiwan, and South Korea and reference books, such as *Macao Brief Monograph* and the *Macao Encyclopaedia*, co-authored by Wu Zhiliang, president of the Macao Foundation, and scholar Ieong Wan Chong.

“Due to the pandemic, many of my lectures and workshops had to be put off. So I wrote like clockwork every day,” says Lo of his writing process.

Apart from charting tea’s journey from the mainland to Macao, the expert also shares stories about running Chun Yu Fang and promoting tea culture beyond Macao. For example, in 2001, he was asked to perform a tea ceremony in Japan. To the guests’ surprise, Lo pulled out the equipment he had designed himself and demonstrated his unique tea ceremony style, which he says was warmly received by the guests. After the experience,

Lo recalls feeling delighted to be able to share his designs with other enthusiasts and spread Macao’s tea culture abroad.

Inspired by classical writings, such as *Ch’a Ching* (《茶經》) by the respected Sage of Tea Lu Yu, Lo handmakes his wooden tools and designs porcelain teacups, kettles and scoops, which he then has made in a Chinese kiln. He elaborates on his tea-making tools in his book while sharing helpful tips for choosing suitable teacups, lids, kettles, spoons, ladles and more.

After years of exploring, teaching and researching tea, the subject has become an integral part of Lo’s life. Every day, he savours tea, arranges flowers to go with his tea ceremonies, handmakes tools and hosts gatherings. In addition, he gives lectures on his ceremony

designs and the history of tea to his students at local secondary schools, Macao Polytechnic Institute’s Seniors Academy and Chun Yu Fang. His teaching, research and books are all part of his mission to sustain local tea culture and inspire the next generation while expanding his well of expertise.

“When I wrote about Chun Yu Fang, a wave of memories came over me. I thought about the customers who spent their afternoons appreciating tea here. I was sometimes angry as our culture had been underestimated,” says Lo. “An excruciating feeling gripped me, as my profession and passion were once criticised [as insincere]. However, whenever I reminisced about how I have grown professionally and became recognised, I felt grateful.” ●



Find Lo's book
(available in Chinese only) at
local bookstores: Macau Plaza,
Universal Gallery & Bookstore
and Elite Book Store.

Scan the
QR code
to watch
the video:



ARTS & CULTURE

A novel kind of library

The modern day library is more than just a collection of books. As our reading and media consumption habits have evolved, so too has this humble public facility.

Text **Miguel Luigi Enriquez**
Photos courtesy of **Cultural Affairs Bureau**

Macao's libraries have been undergoing a digital makeover over the past few years, making them more than just an archive of physical books

The concept of the library has existed for so long that it predates books themselves. But in a world in which books, research and news are always at your fingertips, this public resource is in some ways no longer what it once was.

Today, Macao's libraries are growing beyond their physical spaces, shifting to accommodate changes in consumer behaviour. If you want to read a magazine or borrow a book from the catalogue, you no longer have to leave the comfort of home to do it, yet modern libraries have the potential to become more than just digital archives.

With investments in digital resources, a growing number of community events and a new central facility in the works, Macao is updating its libraries to keep up with the times, developing spaces that offer new ways to share knowledge, find inspiration and connect.

LIBRARIES PAST AND PRESENT

Some of the earliest libraries, containing archives of clay tablets inscribed with the wedge-shaped ancient writing known as cuneiform, emerged over 5,000 years ago. The earliest iteration was used mostly for

administrative purposes, but over time, libraries expanded to include resources on astronomy, history and philosophy.

Established around 300 BC, the Library of Alexandria of ancient Greece, located in what is now Egypt, more closely resembled what we think of libraries today: a centre for knowledge and resources. With the equivalent of 100,000 scrolls in its collection, it was the largest and most important library in the ancient world.

Other great civilisations, from the Chinese to the Aztecs, also boasted their own grand libraries.

Over time, libraries became community hubs where everyone could gather, learn and benefit from the extensive resources and services.

Today, libraries continue to evolve to accommodate our ever-changing reading and learning habits. If you have not paid a visit to your local library in a while, you may be surprised by what you'll find.

In Macao, there are 17 libraries spread across the three islands, where you will find not only books and magazines but also multimedia resources, such as Blu-ray players and desktop computers. That image in your head of a strict librarian

reprimanding kids for being noisy? Several libraries in the city have dedicated spaces for children, as well as outdoor reading areas where study groups or tutors and students can converse.

Last year, Macao's libraries recorded nearly 2.4 million visits – quite a feat, as the pandemic slowed tourism to a trickle and local outbreaks briefly forced libraries to close. In fact, over half a million books were borrowed in 2021, the highest number recorded since the government started tracking in 2010.

Many of the city's libraries are housed in historic pieces of architecture like the Coloane Library which is in a former primary school constructed in 1911

RETHINKING THE LIBRARY

According to the Cultural Affairs Bureau (IC), the surprising surge in book checkouts is a testament to several updates it has made to keep libraries relevant in the digital age.

For starters, Macao's libraries have improved efficiency, access and convenience with a centralised online system.

Today, if you go to any branch you will have access to the city's entire book collection. You don't even need to physically visit to access a library's catalogue – the system is all online, so you can access it anywhere with an internet connection. From the online catalogue system, you can see what titles are available, where they can be found (down to the

shelf number) and whether they're available to reserve.

Of course, there are still limitations: not every book can be found at every branch. But even this logistical hurdle has seen a convenient workaround. If the book you want to borrow is unavailable at your preferred library, you can request for it to be delivered within a few working days for free.

An app called My Library (available both on iOS and Android) replicates some of the website's functions. Users can renew books they have borrowed and extend their loan periods, as well as stay up-to-date on operating hours and events. Need help remembering your book return deadline? Users can opt in to receive reminders via text message.

When it's time to drop off your book, all libraries offer book checkout and return machines, which automate the process. Most libraries are open until midnight, but if you need to pick up or drop off a book outside hours or on public holidays, several branches (at least one on each island) have automated lockers where you can pick up or drop off books outside opening hours.

Accessibility is another focal point of Macao's libraries. Nearly all the city's libraries are equipped with electronic magnifiers, with the main branches offering reading devices for the visually impaired to make materials accessible to as many people as possible. All branches have induction loop kit systems to support those who use hearing aids, while about half of all libraries have accessible toilets, wheelchair ramps and lifts.

"We continuously introduce various services and intelligent equipment providing, whenever possible, various facilities, including discussion rooms for groups, study areas, and children's reading areas, in order to allow all residents to enjoy a more convenient service and find their own corner of the library," says an IC representative.

BOTTOMLESS DIGITAL RESOURCES

Our changing reading habits will dictate what future libraries might look like and, in some ways, that future has already arrived. Digital books and audiobooks have become increasingly popular with the rise of smartphones, tablets, and dedicated e-readers such as Amazon's Kindle.

In 2020, research firm Facts & Factors valued the global value of the e-reader industry at over MOP 242 billion (US\$30 billion) and forecasted 25 per cent growth by



2026. The pandemic played a part in boosting the already burgeoning industry. Last year, as remote learning and working became the norm worldwide, many markets quickly embraced the technology with e-book loans spiking 53 per cent in US libraries. In some places, this digital shift even predates the pandemic – in 2016, e-books made up 28 per cent of all publishing sales in the mainland, for example.

According to the IC, which has roughly 16,000 digital reading resources available, demand for electronic resources has "increased significantly" in Macao over the past three years. In 2019, library members made 75,000 requests to access digital books, magazines and special collections, compared with about 290,000 requests in 2021 – that's nearly four times more interest. "[We can] see that the pandemic has given rise to a change in the [public's] reading habits, with electronic resources having effectively met some reading needs," says the IC representative.

Macao's Central Library will be replaced by an entirely new structure in 2025 right across its current location in Tap Seac Square





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The library supports the formal education and self-learning of people.

– Cultural Affairs Bureau representative

In 2020, the department began offering digital book provider Hyread’s collection to Macao library members. The service offers over 10,000 e-books, mostly in traditional Chinese, covering a variety of topics including finance, spirituality and exam preparation. A selection of the libraries’ magazine subscriptions can also be accessed digitally through Flipster, an app offering international titles like *Newsweek*, *Elle* and *Rolling Stone*.

In terms of academic resources, the library system grants members access to its digital subscription to Wanfang Data. As an affiliate of the Chinese Ministry of Science & Technology, the online archive offers academic materials from the likes of the China Online Newspaper Database, China Dissertation Database, and the China Science and Technology Information System.

STACKED FULL OF NEW IDEAS

Aside from a treasure trove of resources – both analogue and digital – Macao’s libraries offer valuable spaces, events and a sense of community. It’s a dedicated space for getting work done, pleasure-reading or maybe even meeting friends for an event without the need to buy anything. Public libraries, like parks, are the epitome of what public facilities should be – places where residents from all walks of life can enjoy the services and spaces free of charge.

“The library supports the formal education and self-learning of people from different social classes, promoting reading habits, and encouraging research, exploration and culture in the city,” says a representative from the IC.

As part of its efforts to get more people to visit libraries and promote

Libraries embody what public infrastructures should be all about: a space where all members of the community can gather and enjoy the facilities free of charge

(Opposite page) The My Library app gives users access to the public library system’s catalogue of books and other multimedia resources, allowing them to borrow, reserve and renew materials with ease

a love of learning, the department also organises events, activities and special releases throughout the year, including themed book recommendations, a seasonal publication and cross-cultural exhibitions held in collaboration with other public libraries in Hong Kong and Guangdong province.

This month, in celebration of World Book Day on 23 April, the bureau will hold a “Reading Across the City” event, which includes the annual book exchange programme. Until 17 April, residents can drop off used books at select libraries to earn points, which can then be used to “purchase” reading materials at the Book Exchange event on 30 April and 1 May at the Old Court Building and Seac Pai Van Library. In 2021, the exchange collected 17,000 books – a testament to the public’s appetite for reading and community events.





Macao's libraries are home to about 40,000 rare titles, including documents dating back to the 16th century

There's more to look forward to, including a new central library that's slated for completion in 2025. Located next to Tap Seac Square, across from the current central library, the modernist building will feature extensive glass elements that maximise natural light and a facade inspired by an open book. Inside, an open floor plan softens the boundaries between the in-house coffee shop, bookshelves and reading areas. The new facility will also incorporate more event spaces and digital zones in what is shaping up to be the embodiment of a truly modern library.

Nuno Fontarra, the architect leading the project on behalf of Dutch

design firm Mecanoo, told *Macao Magazine*: "We want this to be a public library that covers a whole range of learning experiences. You don't just go in to read a book. You can go in to have a cup of coffee and talk to a friend. Or you go to see an exhibition or lecture. It's multifunctional."

Despite all these updates to the humble library, its core function remains the same as it has been for thousands of years: to be a centre for knowledge, where people can gather and learn. In Macao, our libraries are telling the same story in new and innovative ways. ●

Macao libraries: Past, present, future

PAST



Senado Library

One of Macao's oldest libraries is still in operation and has a vast collection to show for it. Opened in 1929, Senado Library houses some of the most valuable books in the city with rare foreign books from the 17th to mid-20th centuries. It also keeps Portuguese newspapers from the late 19th century, including the first newspaper published in Chinese territory by foreigners. Inside, the library's long history is clear from its classical style and furnishings. It's located inside the Municipal Affairs Bureau building and can be visited by appointment only.

PRESENT



Sir Robert Ho Tung Library

This is Macao's largest library and represents what the city is all about: a harmonious blend of old and new. The original building dates back to the 19th century; Hong Kong tycoon Sir Robert Ho Tung purchased it in 1918 before it was converted into a public library in 1958. In 2006, the local government invested tens of millions of patacas into constructing a new building in the space while preserving its historic origins. The library is home to over 100,000 volumes, ranging from rare books on classic Chinese literature to thousands of audiovisual resources. It's also the only library in Macao and Hong Kong with landscaped gardens, which seamlessly integrate with its outdoor reading area.

FUTURE



New Central Library

Macao's new central library is scheduled to be completed in 2025 and, based on design renders alone, has the potential to become an architectural marvel. Situated next to Tap Seac Square in the former Hotel Estoril, the structure will retain elements of the historic hotel, including its iconic mosaic mural. Dutch design firm Mecanoo says that visiting this library will be an experience in and of itself, starting with the symbolic entrance, which resembles an open book. The library will not only be modern in appearance but also in spirit – it's designed to be a knowledge hub for the community, combining a large archive of physical books with digital resources and spaces for new ideas to come to life.



SPORTS

A smash hit: How table tennis took Macao by storm

Hot on the heels of the World Table Tennis Macao 2021 tournament in January, we take a look at how the popular sport found its rhythm in the city.

Text **Rafelle Allego**
Photos **Denzel Calangi**

Cheong Chi Chun, right, and his brother are Macao's first full-time professional table tennis players

Chinese ping pong stars Wang Chuqin and Lin Gaoyuan crouched at opposite ends of a black table during the men's singles finals at the WTT Champions Macao 2021 China Stars tournament on 23 January. The athletes moved at a dizzying pace, gracefully sending a tiny ball back and forth, left and right, high and low. The room was silent, aside from the sharp smack of each paddle stroke and tap of each bounce. After an intense match, Wang won 4-3 and solidified his ranking as one of the world's top-rated players.

One of Macao's first professional table tennis athletes, Cheong Chi Cheng, also competed at the tournament, which took place at the Tap Seac Multisport Pavilion from 19 to 23 January and was co-organised by the Sports Bureau of Macao, World Table Tennis (WTT) and the Macau Table Tennis Association (MTTA). And, though he did not move past the first round, having faced off against current world champion Fan Zhendong, Cheong played a quality match and made the city proud.

While there's nothing quite like watching world-class athletes in action, a love for table tennis (also known as ping pong) in Macao extends well beyond elite tournaments. Walk by any sports facility after work or on weekends, and you'll encounter ping pong tables fully occupied by young and old, beginners and pros. The sport appeals to just about everyone thanks to its easy-to-learn rules and approachable nature.

And with standard 274-centimetre tables in most sports facilities in the city, it's one of the most accessible, inexpensive games to play.

But ping pong had to come a long way before it became one of the city's most beloved sports. From its origins in Victorian England to global expansion via Portuguese trade routes, here's how table tennis became one of Macao's most popular pastimes.

THE FIRST SERVE

Believed to have emerged in Victorian England in the late 19th century as a descendant of "Real Tennis" – a cross between tennis and racquetball – ping pong was the after-dinner parlour game of choice among British elites. According to the UK's National Army Museum, British officers in India and South Africa in the 1880s developed an early version of table tennis, having created a makeshift game using cigar lids as paddles, wine corks as balls, and books as a net.

The game gradually spread across Europe, and when the Portuguese ventured eastward for exploration and trade, the game made its way to Macao in 1914. It took only a few years for the sport to gain some momentum. By 1923, Macao counted at least five independent table tennis teams followed by its own Table Tennis Federation (TTF), which organised local matches, six years later. In 1931, the TTF held the first match between Macao and Hong Kong at the now-defunct Cheng Peng Theatre.



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All that's needed is a portable paddle and you can already start a game.

– Leung Heng Ming

Since then, the popularity of table tennis has skyrocketed. In 2007, the Sports Bureau and the MTTA established the city's first Table Tennis Youth Academy, where hand-picked young athletes aged 6-14 can take part in beginner- and intermediate-level training. The academy has enrolled more than 1,000 students since opening and expects to recruit another 120 in 2022. After the age of 14, athletes must achieve a high rank – top 8 for under 18 open matches and top 4 for under 15 open matches at MTTA-recognised events to join the Macau Table Tennis Training Team.

Today, MTTA Chairman Leung Heng Ming estimates that there are around 70 local teams and over 410 table tennis players who are members of the association. The sport is so popular among youth, says Leung, that nearly 70 per cent of the association's members are between 6 and 25 years old.

Leung, who has also been a council member of the Asian Table Tennis Union since 2019, owes the sport's widespread appeal to its convenience and accessibility. “All that's needed is a portable paddle and you can already start a game,” he says. “The sport also

makes sense for compact Macao – you can fit at least nine table tennis tables in a single basketball court – plus you can play rain or shine on an indoor table.”

LOCAL STARS ARE BORN

As ping pong gained more popularity in Macao and more respect around the world, it inspired many young people to dedicate themselves to the sport. Twin brothers, Cheong Chi Cheng and Cheong Chi Chun, picked up the

sport at the age of 8, when they took extracurricular table tennis lessons with the MTTA.

“We started quite young with table tennis and because most of our friends play it too, we've continued,” says Cheong Chi Cheng, now 22. “Win or lose, we enjoy and love the game no matter what ... Although winning certainly is enjoyable as well.”

“It is also easy to play, with no venue restrictions, allowing a lot of movement with [fewer] chances of being hurt,” adds Cheong Chi Chun.

Cheong Chi Cheng and his brother have been playing table tennis since they were eight years old

Leung Heng Ming, the chairman of the Macau Table Tennis Association and Asian Table Tennis Union council member, says table tennis is the ideal sport for a compact city like Macao

Throughout the 1930s until the early '40s, at least 14 tournaments took place annually. However, when World War II broke out, tournaments hit a standstill until 1949, when competitions between Macao and Hong Kong resumed. That same year, local players established the Macau Table Tennis Association (MTTA) to represent more than 20 teams at the time. The Portuguese administration granted the MTTA recognition as the city's official table tennis organisation, which subsequently paved the way for subsidies and support.



The Macao Table Tennis Training Team, which helps junior to elite-level athletes develop their skills and participate in international competitions, recruited the twins when they were 13. According to their coach Li Xiang, the twins “like and love table tennis very much, taking their usual training very seriously”, which is why they stand out amongst their peers in Macao. They don’t rest on their laurels, though, training six days a week for three to six hours at a time.

After three years of regular training, the twins became Macao’s first full-time,

professional table tennis athletes at the age of 20, taking a three-year break from their university studies at the Macao Polytechnic University to prepare for the Asian Games, which will take place in Hangzhou, China, in September 2022.

In 2019, they joined Henan’s regional table tennis team – ranked eight in the country – in Hubei, central China, because their coach is from the province. Over the past two years, they have also trained with China’s national team to learn new techniques and practice among elite players.



Coach Li Xiang, center, who hails from Henan province, says table tennis players should have ‘excellent reflexes, flexibility and a good feel for the ball’

(Opposite page) Cheong Chi Chun, left, and Cheong Chi Cheng, right, train for six days a week, for three to six hours at a time

Since only one athlete from Macao was allowed to compete in the WTT Champions tournament earlier this year, Cheong Chi Cheng took part and represented the city.

When he first received the announcement that he’d be representing Macao, Cheong Chi Cheng recalls feeling elated. On the first day of the tournament, however, he says it momentarily rattled his nerves to see so many of the world’s top table tennis players in one room. Yet when the time came to play, he felt “relaxed” and “at ease” since the competition was in his hometown of Macao.

DOWN THE LINE

The twins’ success and high-profile tournaments in the city have inspired many parents to enrol their children in the sport. According to Leung of the MTTA, the association saw a particularly big boost last year after the WTT Macao 2020. As the first event of its kind in Macao, the tournament welcomed 16 of the world’s top players and generated a lot of buzz.

“We were already receiving around 350 applicants for our extracurricular table tennis lessons three years ago, but then it increased after the games,” he says.

Ping pong breaks the ice

After the People's Republic of China was formed in 1949, its leaders realised that the country could showcase its strength through sports like ping pong.

Since table tennis was so accessible and inexpensive, Communist leaders encouraged residents to pick up the sport and, soon enough, China was producing world champions such as Rong Guotuan, who won the 1959 World Table Tennis Championship.

While China did not open to the world until the late 1970s, the sport brought about new opportunities to engage with other nations, especially the US – a period that's now called "Ping Pong Diplomacy". At the 1971 World Table Tennis Championships in Japan, for example, the Chinese team invited American player Glenn Cowan to catch a ride on their bus and champion Zhuang Zedong gave Cowan a gift.

The small but pivotal gestures led to "friendship" matches between the US and China, which paved the way for then President Richard Nixon to ease trade embargos and lift travel bans on China. Nixon then secured an invitation to visit Mao Zedong in China in 1972 and establish a diplomatic relationship after 20 years of silence between the two countries.

“

Our head of secretary is 85 and our vice-chair is 101, but they are still active and we all have good eyesight, thanks to table tennis.

– Leung Heng Ming

MTTA, which has been holding after-school lessons at the Lin Fung Sports Centre every day since 2007, had to grow more selective, accepting just 105 players per year. The association also offers special classes on Tuesdays and Thursdays for the top 10 performers.

In recent years, the Sports Bureau of Macao has also been working to further develop the sport locally. It provides over 60 table tennis tables in eight different sports pavilions and, in 2021 alone, the bureau recorded over 286,000 people (including repeat players) using the table tennis facilities.

The bureau has also supported MTTA with MOP 3 million per year in subsidies for the past three years. The funds have enabled the association to hire professional coaches, access exclusive training venues at the Macao East Asian Games Dome, organise competitions and arrange intensive training for professional athletes, like the twins, in and outside Macao.



With plans to host the WTT Champions tournament in Macao annually, Sports Bureau President Pun Weng Kun expressed hopes for "our local athletes to participate in this competition" because it's a "valuable opportunity" for Macao's talents to compete with the world's best players.

The bureau plans to continue promoting table tennis as a "competitive sport" and a "sport for all". As part of this ambition, the bureau strives to cultivate local table tennis talents and popularise the sport among the public to identify, recruit and support rising stars to represent Macao.

Leung believes this is an admirable goal, as table tennis enhances the health, agility and "quality of life" of Macao residents since table tennis involves coordination, endurance, quick reflexes and rhythm.

"It's a very good workout," adds the 66-year-old, who has played ping pong every day since he was in his teens and believes it keeps him nimble. "Our head of secretary is 85 and our vice-chair is 101, but they are still active and we all have good eyesight, thanks to table tennis. We hope to continue getting support in growing table tennis in Macao for all ages." ●

The twin brothers enjoy the game whether they win or lose

POLITICS

Macao recognises outstanding citizens and institutions

While the Grand Lotus – Macao’s highest decoration – was not awarded this year, ten outstanding citizens and a dozen organisations were honoured for their service to society.



Text **Rafelle Allego**
Photos courtesy of **Government Information Bureau**

Every year since 2001, the Macao Chief Executive has given out Decorations of Honour, Medals of Merit, Medals of Distinguished Service and Honorary Titles and this year the special occasion took place

on 18 February. Following the recommendations from the government-appointed Committee of Nomination of Medals and Honorary Titles, the 2021 Honours List singled out 10 remarkable citizens and 12 organisations.

Golden Lotus

The Golden Lotus Decoration of Honour – the second-highest decoration in Macao – went to Chui Sai Cheong (right), a businessman who is also the vice-president of the Macao Legislative Assembly



Golden Lotus

A Golden Lotus also went to the private health institution Kiang Wu Hospital, accepted by Ung Pui Kun



MEDAL OF MERIT

There are seven categories of Medal of Merit – Professions, Industry and Commerce, Tourism, Education, Culture, Philanthropy and Sports – that are awarded to individuals or entities, from business leaders to sports people and artists. Recipients are recognised for their great contributions and achievements in their respective fields.

PROFESSIONS



Wang Yitao

Chair Professor of the University of Macau's Institute of Chinese Medical Sciences, Wang Yitao received the Medal of Merit on behalf of the University of Macau's State Key Laboratory of Quality Research in Chinese Medicine



Liu Liang

Academician Liu Liang received the Medal of Merit on behalf of the Macau University of Science and Technology's State Key Laboratory of Quality Research in Chinese Medicine

INDUSTRY AND COMMERCE



U Seng Pan

UM alumnus and businessman U Seng Pan, who is an internationally-renowned integrated circuit specialist, received the Medal of Merit in Industry and Commerce



Wu Tat Chong

Businessman Wu Tat Chong, who is known for his contributions to promoting Macao's economic diversification and sustainable development, also received the Medal of Merit in Industry and Commerce

TOURISM



Alberto Lei

The Medal of Merit in Tourism went to the pastry chain store Cinco de Outubro Pastelaria (Macao) with the medal presented to its Vice President Alberto Lei

EDUCATION



Rui Paulo da Silva Martins

The Medal of Merit in Education went to University of Macau's Vice-Rector Rui Paulo da Silva Martins, who considers the medal a recognition of his contribution to higher education in Macao over the past three decades

CULTURE



Chui Weng Chi

Artist Chui Weng Chi received the Medal of Merit in Culture



Au Chon Hin

Award-winning graphic designer and co-founder of design studio Untitled Macao, Au Chon Hin, also received the Medal of Merit in Culture

PHILANTHROPY



The Medal of Merit in Philanthropy went to the Emergency Department of the Conde de São Januário Hospital Centre, accepted by Lei Choi Chu

SPORTS



Kuok Kin Hang

The Medal of Merit in Sports went to medal-winning karateka Kuok Kin Hang



Chen Yu Chia

Special Olympics medallist Chen Yu Chia received the Certificate of Merit



Chen Pui Lam

Medal-winning swimmer Chen Pui Lam also received the Certificate of Merit

Certificates of Merit

MEDAL FOR DISTINGUISHED SERVICE

Outstanding performance in community services and duties for public entities, organisations and their staff are awarded the Medal for Distinguished Service.

Five police units were awarded the Medal for Bravery:

- Civil Protection Operations Centre of the Unitary Police Service
- Macao Police Department of the Public Security Police Force (PSP)
- Islands Police Department of the PSP
- Special Police Unit of the PSP
- Judiciary Police (PJ) Crisis Response and Command Centre

Meanwhile, the Medal for Dedication went to the Laboratory Division of the Municipal Affairs Bureau, while the Medal for Community Service went to the Macau Association of Mutual Help of Myanmar Overseas Chinese and community worker Cheong Lai Chan, who is a former vice-president of the General Union of Neighbourhood Associations of Macau (Kai Fong).

HONORIFICS – CERTIFICATES OF MERIT

The Certificates of Merit are presented to those who have made contributions to the 'reputation, development or social progress' of the city. ●

Treasures of Lingnan culture on display

Guangdong Provincial Museum has pioneered the collection and study of the rich Lingnan culture, whose roots are embedded in large areas of south China, including Macao, and is collaborating with similar institutions across the Greater Bay Area.

Text **Louise do Rosário**

The Guangdong Provincial Museum has begun to increasingly promote the shared culture of the Greater Bay Area: Lingnan culture

Visitors to the Zhujiang district of Guangzhou cannot fail to miss the striking red-lit “China Box”. This multi-layered, exquisitely designed building is a visual delight, standing out from the rows of skyscrapers there.

Welcome to the Guangdong Provincial Museum (GPM), a major cultural landmark in Guangzhou. Its mission is to promote Lingnan arts and culture. The term Lingnan refers to a large region of the mainland south of the Nanling Mountains, mainly covering Guangdong and Guangxi provinces, but also covering the cities of Macao and Hong Kong.

Lingnan culture is expressed in architecture, opera, pottery, paintings, calligraphy, cuisine and many other artistic forms. The GPM boasts a comprehensive range of Lingnan artefacts and has displayed them in numerous award-winning exhibitions.

In recent years, the museum has assumed an additional role – to promote the shared culture of the Guangdong-Hong Kong-Macao Greater Bay Area (GBA). The GBA is China’s national plan to integrate the economies of Hong Kong, Macao and nine cities in Guangdong province – Guangzhou, Shenzhen, Zhuhai, Foshan, Zhongshan, Dongguan, Huizhou, Jiangmen and Zhaoqing.

The museum is well-equipped for this new challenge with its decades of experience and team of experts in organising art events showcasing the distinctive cultural identity of southern China. Since 2012, at three year intervals, it has also jointly organised large-scale exhibitions with museums in Hong Kong and Macao. These exhibitions have focused not only on Lingnan culture but also on the Maritime Silk Road and other shared histories of cities in southern China.

广东省博物馆



Denzel Calangi



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Production of Chinese silk fabrics are widespread in the GBA

(Inset) Xiao Haiming, the museum's director

(Opposite page) The tapestries made with Guangdong embroidery are exclusive exhibits in Macao. Because of their size and delicate material, this part of the collection will not tour outside Macao

The latest cross-border cooperation is an exhibition entitled “A Tale of Three Cities: Guangdong-Hong Kong-Macao Greater Bay Area and Export of Silk Products in the Ming and Qing Dynasties”. It features 112 sets of exhibits totalling 201 pieces, from cultural institutions in Guangdong, Hong Kong and Macao. After its debut at the GPM, the exhibition moved to the Macao Museum, and will go later to the Hong Kong Museum of Art.

NEW CROSS-BORDER MUSEUM PLATFORM

In December 2021, the GPM announced another GBA-related initiative to intensify cooperation with its counterparts in Hong Kong

and Macao – the launch of a project tentatively called the “Guangdong-Hong Kong-Macao Mobile Museum Platform” (“粤港澳流动博物馆平台”).

Xiao Haiming, the museum's director, speaking on 2 December 2021 at the Understanding China Conference in Guangzhou, said that his museum had been actively building such a platform, to facilitate greater exchanges of cultural personnel in the GBA. GPM already has a domestic mobile museum platform, which organises over 100 exhibitions in other mainland cities annually.

Xiao revealed a few details of the new Guangdong-Hong Kong-Macao platform at this early stage but stressed the ability of his museum to achieve it. The GPM

has a collection of 320,000 artefacts ranging from underwater archeological findings from the Han dynasty to artistic products exported during the Ming and Qing dynasties. All are important relics of the common heritage of GBA cities, he said.

REMARKABLE ARCHITECTURE

The GPM itself has a remarkable history. It first opened in 1959, on the original site of Sun Yat-sen University in the Yuexiu district of downtown Guangzhou. In 2003, the Guangdong government announced a master plan for Zhujiang New Town as the new cultural centre of the city, including an opera house and library in addition to the GPM. It chose the “China Box” design submitted by Rocco Design Architects of Hong Kong. On 18 May 2010, the new five-storey museum opened, covering a floor space of 67,000 square metres.

The architects designed the new museum not only to house treasured items, but also to resemble a treasured object itself – like a traditional multi-layered ivory puzzle box – an intricately handcrafted item that Guangzhou specialised in. Inside this state-of-the-art museum are the permanent exhibitions of Guangdong History and Culture, as well as Guangdong Natural Resources and Arts. Among its many attractions are Duan inkstone, which comes from the area around the Duanxi River in Zhaoqing; Guangdong and Chaozhou wood carvings, famous for their precision and sophistication; pottery and porcelain.

Despite the Covid-19 pandemic, 2021 was a banner year for the museum – open for 315 days, it attracted a record 1.13 million visitors. Its most recent exhibitions have included “Life and Cross-Border Trade of Guangdong in the Early 20th Century”; “The Richness of Lingnan”, which displays the museum's fine porcelain items and “The Song of Wine”.

The “Song of Wine” traces the history of liquor in China over many centuries, using examples from literature, archaeology, calligraphy, painting and opera to illustrate its different aspects.

Denzel Calangi

Former Guangdong Provincial Museum director Wei Jun was at the helm of the institution between 2012-2019

(Bottom) Artifacts discovered on the Nanhai No 1 ship

(Opposite page) Built in 1894, the Chen Clan Ancestral Hall is an academic temple in Guangzhou that exemplifies traditional Chinese Lingnan architecture. Now it houses the Guangdong Folk Art Museum



NEW CREATIVE VENTURES

From 2012 to 2019, the museum reinvented itself with distinct projects under Wei Jun, its director during that period. An archaeology graduate of Beijing University, Wei was appointed in 2007 as leader of the excavation team of the ancient vessel Nanhai 1 which dates back to the Song dynasty (960-1269). The discovery, made on the Maritime Silk Road in southwest Guangdong, greatly boosted the province's status in the national cultural arena.

Wei was appointed director of the GPM for his deep understanding and passion for the culture of southern China. As the country's youngest museum director – he was just 40 at the time – Wei breathed new life into the institution. In 2013, he introduced virtual tours of the museum, allowing viewers to enjoy

online explanations and download content. He and his team also gave live guided tours online at least once a month. The most popular talks attracted as many as 300,000 viewers.

Another initiative from Wei's was to open a display outlet inside Guangzhou's Baiyun International Airport in 2018 – the first of its kind in the mainland. Wei said that the "Experience Store" aimed not so much to sell creative items and souvenirs but to allow passengers to experience Lingnan culture while they were waiting for their next flight.

For its many innovations, the GPM has won national awards almost every year since 2012. In 2016, it was further honoured as "the most creative museum" in a national survey of all Grade-One museums in China.

QUALITY FIRST

Looking ahead, GPM continues to strive for quality, not quantity, in its unwavering focus on Lingnan culture. Wei made this clear in an interview published online by Guangdong People's Political Consultative Conference in June 2020.

The GPM is at a disadvantage when compared with the prominent museums established along the Yellow and Yangtze rivers, since this area has been considered as the the cradle of Chinese civilisation, which later gradually extended its influence into the Lingnan region. Wei said that GPM could devote a great deal of energy and funds in collecting traditional items such as bronze and jade but could never compete with museums located in the Central Plains, the birthplace of China.

"We have to concentrate on Lingnan culture, in our efforts to collect, preserve, document, study and exhibit iconic items," said Wei in the



interview. The efforts have paid off: GPM now has the country's best collection of Lingnan-style Duan inkstone and Chaozhou wood carvings.

Another goal of the GPM is repatriating artistic items exported overseas via Guangdong during the dynastic periods. For over a decade now, GPM has been acquiring these items outside the mainland. Now it has the country's most comprehensive collection. It includes paintings, furniture, pottery, silverware, fans, embroidery, ivory and lacquered wood. In ancient

times, Guangdong was not only an export outlet for these artistic items, but also a centre for finishing artworks from elsewhere, such as Jingdezhen ceramics and Fujian pottery.

STORY OF LINGNAN CULTURE

Wei, now a professor at Fudan University in Shanghai, said that simply having an extensive collection of artefacts was not enough for GPM to keep ahead of the game. Education and publicity are equally important. To complement its exhibitions,

GPM has been organising cultural tours, tracing the roots of Lingnan arts.

The GPM is looking at the Palace Museum in Beijing as its model for future development. The Palace Museum is a world-class cultural icon, whose architecture and items on display tell a powerful story of China's history. GPM too has to learn to tell its story better, said Wei, tapping deeper into its rich Lingnan culture for inspiration.

The ancient culture has many branches, with widespread archeological findings, from the Pearl River Delta to caves in the north of Guangdong.

In his research, Wei has also come to realise that Lingnan culture has served as a cultural bridge between China and neighbouring Southeast Asia, and reached as far as areas in the Pacific Ocean. GPM has the capacity to articulate the story of far-reaching Lingnan culture, through its impressive range of relics. "Let Lingnan culture venture out, to show the nation and the world its rich content, through lively and confident presentations," Wei said. ●



Fun Fact

Hong Kong-based award-winning Rocco Architects, led by Rocco Yim, has a global reputation for creativity in designing structures that stand out from the crowd. Aside from the Guangdong Provincial Museum, it also designed the stunning 36-storey StarWorld Hotel in peninsular Macao. The structure uses multiple interlocking rectangular blocks with two towers set on a podium, resembling a Tetris-style computer game puzzle. The hotel opened in 2006.



PORTUGUESE-SPEAKING COUNTRIES

Lisbon builds a stable for IT ‘unicorns’

The Portuguese capital is staking a claim as a global innovation hub, encouraging digital entrepreneurs to set up in the city, and with the advantage of the centuries-long Portuguese-Macao relationship offering exciting new prospects.

Text **Fei Pou Lou**

Lisbon Mayor Carlos Moedas takes the stage at the 2021 Web Summit

(Opposite page) The Web Summit 2021 opening ceremony was held in Lisbon



‘U’nicorns’ have become the most sought-after creature for investors in the past decade or so. This species of unicorn does not come from fairy tales but instead comprises successful companies that grow from small start-ups into companies with a market capitalisation of over MOP 8 billion (US\$ 1 billion). These are rare creatures and many of them emerge through the dynamism and disruption that characterises the IT sector.

Cities worldwide have raced to attract the innovative, creative entrepreneurs behind these ground-breaking companies, incubating IT start-ups until they are ready to take their first steps into the business world. At the same time, these cities are trying to attract investment from established tech giants such as Google or Facebook.

Lisbon is one of several European cities entering this race. In 2022, the Portuguese capital will open what its mayor, Carlos Moedas, calls the ‘Unicorn Factory’ project. It will be located in the Beato Creative Hub, which will have the capacity

to host hundreds of start-ups and entrepreneurs from all over the world. The construction of this hub in a previously derelict building in the industrial east side of the city is nearly finished.

“We are building and implementing, as quickly as possible, this ‘Factory of Companies’ to be born here in the area of Beato, which I often provocatively call a Unicorn Factory,” Moedas said recently. The idea is to bring together large companies and smaller ones, helping start-ups grow. And, by doing so, help Lisbon become an “innovation capital”.

Mayor Moedas, a former European Commissioner for Research, Science and Innovation stressed that Lisbon is in global competition with other cities and has to be able to attract talent, taking advantage of features such as the diversity and multiculturalism that characterise the Portuguese capital – “an open, tolerant city that embraces other cultures”.

Start-ups are “through technology, through the ability to change the world, creating jobs”, Moedas added.

A rendering of the Beato Creative Hub which will be an innovation centre for creative and technological companies. The space was formerly an industrial area of the Portuguese Army

(Opposite page) Executive director of Startup Portugal António Dias Martins

He was speaking to the press after the opening of a new technology centre, created by multinational online gaming company Evolution on Lisbon's Tejo riverside. It will create 150 jobs, mostly in the IT sector.

The Beato Hub is expected to be up and running in November, just in time for this year's edition of the Web Summit, an international event that has helped put Lisbon on the global IT map since 2016.

The event, which brings together young entrepreneurs with high-level guests and investors, drew a record 70,000 visitors in 2019. In 2020, it went online because of the pandemic, returning in 2021 with around 40,000 visitors. Guests in previous editions have included Tim Berners-Lee, the "father of the internet" and various top executives from Apple, Microsoft, Amazon and Facebook. Young tech entrepreneurs from across the world have been flocking to Lisbon to take advantage of this opportunity to rub shoulders with influential tech

executives and present their pitches to a broader audience.

In his speech to last year's Web Summit event, Moedas made a powerful pitch for his city: "If you think about innovation – I told everyone, my dream is that Lisbon is the innovation capital of the world ... Whatever you do in life, whatever your project, dream big, go deep into the details ... this is what can change the world, and if you do that I can only tell you one thing: Lisbon is the right place to do it."

Lisbon and Portuguese authorities have not merely offered verbal encouragement, they have shown their willingness to invest substantial sums of money and effort to promote the city, the summit itself is testament to that commitment.

The Portuguese government subsidises the Web Summit event to the tune of MOP 97 million (EUR 11 million) each year and estimates that it gains an economic return of MOP 2.7 billion (EUR 300 million) through hotel and restaurant income, directly through the 250 Web Summit permanent and temporary jobs in Portugal, as well as the company start-ups that result from hosting the event.

A RECIPE FOR GROWTH

At the heart of the effort to put Lisbon in the international IT map is Startup Portugal, a non-profit organisation whose mission is promoting entrepreneurship and innovation in Portugal. It liaises with different partners both state and private, such as Portugal Ventures, which has a role in the financing and growth of the local entrepreneurship ecosystem; IAPMEI, which promotes business growth through various



initiatives and strategies for growth and internationalisation; ANI - Agência Nacional de Inovação, which supports technological and business innovation in Portugal; CEiiA, a Centre of Engineering and Product Development that designs, implements and operates innovative products and systems. Another private partner is Aptoide, a Lisbon-based start-up that developed an online marketplace for mobile Android applications and has expanded into Asia.

António Dias Martins, executive director of Startup Portugal, tells *Macao Magazine* that "the number of entrepreneurs, start-ups, and incubators has shot upward in the past few years, with seven unicorns founded by Portuguese talent. This growth is also due to all the ecosystem players in the community working together to design incentives for the ecosystem's growth."

"Many factors have contributed to the growth of our tech scene. For a long time, it has been a country recognised for its quality of life and extremely accepting of foreign cultures, Portugal has many other factors which leveraged the Portuguese entrepreneur ecosystem. Talent is one of the main ones," Martins says. He stresses that Portugal ranks seventh in the English Proficiency Index (EPI, 2021) internationally, has world-class universities (both in STEM and Business disciplines), and a deep pool of tech talent.

Startup Portugal operates as an intermediary between government, entrepreneurs, incubators, accelerators, and knowledge hubs, addressing the ecosystem's needs. It helps design and implement public policies and private initiatives that continuously serve the community

and attract the best foreign talent, founders, and investors.

Among Startup Portugal's contributions is the Startup and Tech Visa: Visas for talent who wants to open an innovative company or that is highly qualified and specialised staff to have quick access to a residence visa that allows them to create a new business or move their existing start-up to Portugal.

It has also launched the One-Stop-Shop to assist entrepreneurs and investors, providing online and offline support on a one-to-one basis with all the information needed to set up operations in Portugal. Through missions abroad, it provides one-to-one online and offline support to entrepreneurs and investors with all the necessary information to set up in Portugal.

Another programme is the Road2Web Summit, designed by Startup Portugal in collaboration with Web Summit to promote and support Portuguese-based start-ups in their participation in the technological event. Its six editions have already helped more than 700 Portuguese start-ups.

Startup Portugal is also responsible for the National Network of Incubators (RNI – Rede Nacional de Incubadoras), a nationwide network to identify, connect, and assist existing incubators and accelerators of start-ups. It has certified more than 150 incubators so far.

"The main challenges to be addressed are the improvement of fiscal incentives to attract and retain more talent and the creation of new incentives that follow the growth and maturity of our ecosystem," Martins acknowledges.





Farfetch



Courtesy of Talkdesk

CEO & founder of global online retailer Farfetch
José Neves

(Below) CEO of Talkdesk
Tiago Paiva

PORTUGUESE 'UNICORNS'

Likely the most famous unicorn to come out of Portugal is Farfetch, the online retailer with a growing global footprint. Founded by Portuguese entrepreneur José Neves, Farfetch recently entered a partnership with Alibaba, the giant Chinese e-marketplace. The joint venture, Farfetch China, is committed to investing over MOP 8.8 billion (US\$ 1.1 billion) in the luxury goods market. From the start, Farfetch attracted top shareholders and partners such as Tencent, as well as two luxury giants, Kering, which owns brands such as Bottega Veneta, Gucci, Yves Saint Laurent, and Richemont, owner of such names as Cartier and Piaget.

In a research note to investors, Credit Suisse analyst Stephen Ju said last year that the real opportunity for the platform with its most recent joint-venture comes from its integration into Alibaba's Luxury Pavilion. Ju forecasts Farfetch ended 2021 with 3 million active shoppers on its platform, but believes it can multiply that tenfold over the next five years.

Launched in 2017 on Tmall, Alibaba's business-to-consumer (B2C) shopping site, the Luxury Pavilion is an invitation-only platform offering products that include not only clothes and skincare, but also fashion accessories like watches, and luxury cars.

Farfetch launched new shopping channels on Tmall, Luxury Soho (a platform for young, but value-minded luxury consumers), and cross-border site Tmall Global, enabling it to tap into Alibaba's nearly 760 million consumers.

Farfetch saw revenues grow 35 per cent year-over-year in 2021 to a total of MOP 18.5 billion (US\$ 2.3 billion). The company's CEO and founder, José Neves, said in a statement that the fourth



presidencia.pt

quarter "clearly demonstrates the strong momentum" of the platform, adding it has gained market share in 2021. Last year, Farfetch reported a net profit of MOP 11.8 billion (US\$ 1.47 billion), and this was also the "first year" of adjusted EBITDA profitability, the CEO revealed.

Neves was one of the unicorn CEOs named by Portuguese President Marcelo Rebelo de Sousa last year, to hear their thoughts on how to make the country more competitive in IT and other tech industries, taking advantage of a MOP 147.2 billion (EUR 16.6 billion) post-pandemic economic stimulus initiative, called RRP – Recovery and Resilience Plan. President Rebelo de Sousa also reached out to the heads of other Portuguese-born unicorn companies – OutSystems,

Talkdesk, Feedzai, Defined Crowd and Unbabel.

Some of these executives have also been calling for the government to address some of the country's economic issues, to help it grow technologically. Neves said in a TV interview in 2020 that it was necessary to improve citizens' digital skills to reduce unemployment in Portugal. Paulo Rosado, CEO of OutSystems, has called for redundancies to be facilitated so that companies "can lose weight and grow in a much more flexible way".

Tiago Paiva, from Talkdesk, a cloud-based contact centre and artificial-intelligence software provider told the Portuguese business magazine *Exame* that national companies are small and "very focused on the country", instead of having a more global perspective.

Portuguese President
Rebelo de Sousa
met with start-up
companies in Lisbon

“

Lisbon is now one of the best European places for large-scale tech hubs but also for start-ups.

– Diogo Dias



Tiago Costa Alves from Aptoide has developed an online marketplace for Android mobile applications

(Opposite page) The Macao Young Entrepreneur Incubation Centre open-plan working space

IT STARS OF THE FUTURE

A new generation of tech entrepreneurs is fast emerging in Lisbon. One example is Tiago Costa Alves from Aptoide, a start-up that developed an online marketplace for Android mobile applications.

Having grown up in Macao, he is one of the most active Portuguese IT executives in the Asian market. This earned him an award from the Portugal-China Chamber of Commerce and Industry in 2019.

Aptoide has kept its HQ in Lisbon, but expanded to Singapore and Shenzhen in southern China in 2015. Since then, Aptoide has grown its user base ten-fold, from 10 million to 100 million users, Alves tells *Macao Magazine*. “We kept our tech team in Portugal since we have very good technical skills there and use the Asia office for business development”. Aptoide has also raised money from Asian investors (Gobi Partners from China and Golden Gate Ventures from Singapore).

“The tech scene in Portugal has grown a lot in the past few years. It’s quite competitive for start-ups to open offices there since the hiring costs are much lower than the rest of Europe,” Alves says. “I have seen many foreign companies setting up their tech and support teams in Portugal,” he adds. A recent example is Sky Portugal, which now has around 300 employees based in Portugal supporting their UK and US offices, he says.

Another Lisbon start-up that has caught the eye of international investors is BiLD Analytics. This company uses cloud technology, automation, including machine learning, to analyse data from its clients and allow BiLD to recommend improvements, detect anomalies, optimise workflow and suggest shifts from manual to automated activities. The company’s tech hub is in Lisbon and, in the past three years, the company generated more than MOP 35 million (EUR 4 million) in sales and hired more than 45 employees.

“Our data services leverage cloud, big data, and open-source to produce game-changing insights through better analytics, dashboards, machine learning, and more,” says Diogo Dias, the company’s managing partner. The company, founded just a few years ago, has active customers in more than 10 countries, from Europe to the US.

“Lisbon is now one of the best European places for large-scale tech hubs but also for start-ups,” Dias says. “Multinational companies find in Lisbon a friendly, stable and cost-effective environment, where they can scale their tech teams to deliver their tech products faster and cheaper,” the young entrepreneur adds.

Start-ups “are also enjoying the side effects of events like the Web Summit and great support from the Portuguese government in terms of tax benefits and financial incentives. We expect that this new remote-friendly paradigm can be responsible for a massive tech talent relocation to Portugal, and that will foster a strong development in the local start-up ecosystem,” Dias says.

LINKS TO MACAO IT

As part of its programme of economic diversification, Macao has actively been building its tech sector and approaching other IT hubs in Lusophone countries, especially in Portugal. The Macao Young Entrepreneur Incubation Centre (MYEIC) has signed cooperation agreements with incubators such as Lisbon’s Beta-i, which helps new and established businesses, and Brazil’s Fábrica de Start-ups, which means ‘Start-up Factory’. Since June 2018, Macao start-ups have been designated a dedicated area in Beta-i’s facilities in Lisbon, as well as government support, to undergo specific acceleration programmes. Fábrica de Startups also offers similar acceleration programmes for young entrepreneurs from Macao.

MYEIC aims to assist Chinese start-ups which want to explore business opportunities in Portuguese-speaking countries, while also helping start-ups from the Lusophone countries launch or further their projects in the Greater Bay Area. It is also monitoring incubators in Portugal, as well as in

Hong Kong and on the mainland, to develop more concepts for the Macao centre.

Before the pandemic, Portuguese start-ups participated in several events in Macao, points out António Dias Martins, executive director of Startup Portugal. “We look forward to having the opportunity to be back. We sincerely hope that we will come sooner rather than later,” he says.

“We’re interested in keeping our start-up communities connected by bringing some of the best Portuguese start-ups to look for business synergies and partnerships in the Greater Bay Area and leveraging Macao’s role as a platform for Portuguese-speaking countries and China, continuing the historical Portugal – China relationship,” Martins says.

Aptoide’s Tiago Costa Alves also sees avenues for cooperation between Lisbon’s growing start-up scene and the Greater Bay Area programme. “For China, the companies should see Portugal as a great opportunity to start exploring the European market since we are a very friendly country, with low costs, many English-speaking people and with good tech and business skills, the former Macao resident says. Alves believes that: “Macao can play a key role helping companies to expand to Portugal and China and act as an interface between both countries.”

As Lisbon emerges as a significant European tech hub, Macao stands to benefit, given its close relations with Portugal. Perhaps the next unicorn will have its DNA lineage traced to Macao and Lisbon. ●



1

ZOOM

The Year of the Tiger roars into Macao

Chinese New Year Parade delights the crowds and raises spirits for a more prosperous Macao in the year to come.



Photos courtesy of **Government Information Bureau** and **Xinhua News Agency**

Macao's Chinese New Year festivities in the past two years were more restrained and quieter than usual, due to the pandemic and the preventative measures in place. But this year, the city greeted the Year of the Tiger with a roaring celebration not seen in the city since 2019. Fireworks also lit up the night sky to greet a prosperous year with better fortune for all!

There are already signs of improvement. From 31 January

to 6 February 2022, the Macao Government Tourism Office recorded 95,696 people visiting the city, a daily average of 15,949. Compared to last year that represents a 23.6 per cent increase in total visitor arrivals. Macau International Airport recorded over 29,000 air passengers during the Chinese New Year holiday, which is a 208 per cent increase year-on-year.

All of this creates hopes that the city will see better times coming. ●

2



3



- ① The Golden Dragon Parade began at the Ruins of St Paul on 1 February
- ② Headed by a 238-metre-long golden dragon, the parade crossed Senado Square to get to its final destination
- ③ The God of Fortune was present, distributing gold ingots to the crowds, symbolising prosperity, but he wasn't alone. The three Gods of Happiness, MAK MAK – Macao's very own tourism mascot – the Chinese Zodiac Tiger and other figures were also out in force



- ④ As well as the Ruins of St Paul and Senado Square, the parade route covered many of Macao's main streets and neighbourhoods
- ⑤ A 'pride' of 18 dancing lions delighted the crowds
- ⑥ The fireworks shows for the Year of the Tiger celebration took place on 3, 7 and 15 February
- ⑦ There were two government-sponsored parades in celebration of the Year of the Tiger, one on 3 February and the other on 12 February





8 There were 22 local and mainland Chinese performance groups, which danced and entertained their way to the Macao Science Center from Sai Van Lake Square

9 Artists in colourful flowing costumes performed during the parade. All performers were required to follow the Health Bureau's pandemic prevention guidelines, such as completing two doses of the Covid-19 vaccine

10 The parade, comprising 14 floats, took off from Sai Van Lake Square

11 Parade spectators had to present their valid Macao Health Code, scan the contact-tracing QR code, undergo temperature checks, maintain social distancing and wear facemasks to comply with health measures in place

12 Spectators were advised to arrive early to minimise crowding but were able to interact with the performers



- ⑬ The second firework display on 7 February lit up the skyline above Macao for the enjoyment of both local and visiting spectators
- ⑭ The second parade on 12 February ran through the city's Northern District starting from Rua Norte do Patane to Rua do Mercado de Iao Hon. The parade concluded at Iao Hon Market Garden
- ⑮ On 15 February, the fireworks grand finale illuminated the sky, lighting the way to a year of progress and renewed prosperity!



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