

# **Local Conference of Youth Macau 2022**

## **Macau Youth Statement Towards Addressing Climate Change**

### **Youth Collective Position Papers**

## Contents

<b>1. Introduction</b>	<b>4</b>
<b>2. Action for Climate Empowerment</b>	<b>8</b>
<b>3. Climate Adaptation</b>	<b>10</b>
<b>4. Climate Change, Cities, and Health</b>	<b>12</b>
<b>5. Renewable Energy</b>	<b>14</b>
<b>6. Green Jobs</b>	<b>16</b>

This document is edited by GenerVision House, the organizing unit of LCOY Macau 2022.

We thank the inputs from the following members, in alphabetical order:

Editing:

Bella Wu  
Christy Un  
Gladys Ng  
Samson Cheng

Facilitation:

Arianna U  
Bella Wu  
Blair Ho  
Christy Un  
Edward Choi  
Gladys Ng  
Hermia Chan  
Ryan Chan  
Samson Cheng  
Ray Wong

Design:

Giovanna Lei  
Leo Si Tou

Translation:

Bella Wu  
Christy Un  
Gladys Ng  
Samson Cheng

## 1. Introduction

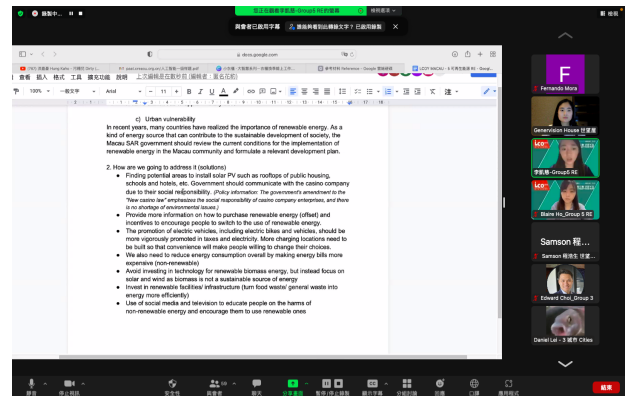
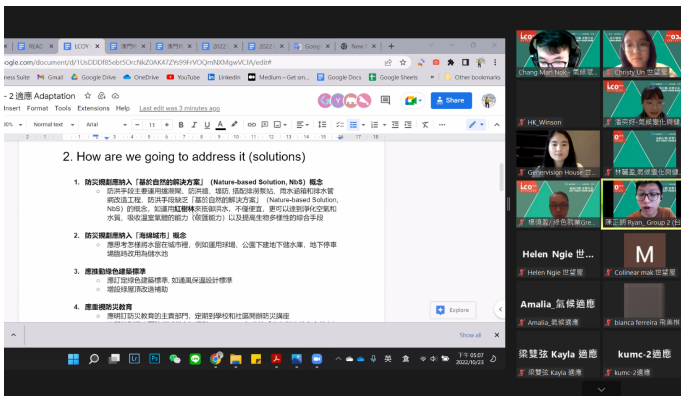
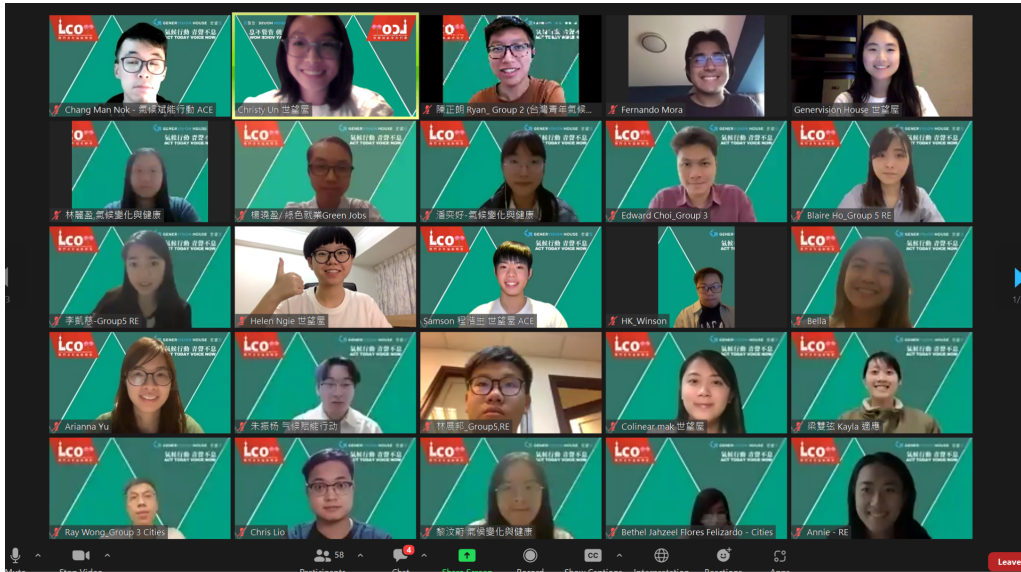
For many young people, the future of our planet is concerning. The IPCC Sixth Assessment Report (AR6) states that there have been more frequent and intense extreme climate and weather events since last reported in 2014, such as heavy precipitation, drought, and wildfire. Climate change impacts are amplifying, and they are hindering the progress toward achieving the Sustainable Development Agenda 2030. For this generation in Macau, we have already experienced the drastic damage brought by Typhoon Hato in 2017. More recently, Macau broke 8 records when it comes to extreme weather in 2021 - three out of seven Signal No. 10 typhoons issued since 1968 occurred in the past five years.

Sustainable Development is a development that meets the needs of the present, without compromising the ability of future generations to meet their own needs. It is clear that the older generations have failed to protect the planet, and the youth will have to pay with their futures. As the largest generation of youth in history and leaders of tomorrow, we have to scale up our efforts to protect our only home and our future.

The Local Conference of Youth (LCOY) is an initiative of YOUNGO & UNFCCC to empower youth and make their voices heard globally. LCOY Macau 2022 is officially endorsed by YOUNGO and sponsored by Sands China Limited. As the first conference of its kind in Macau, the two-day virtual conference centered on the following discussion themes: Causes and Impacts of Climate Change; Urban Green Transition and Climate Governance; Youth Participation and Policy Advocacy; and Climate Change Position Statement Writing Workshop.

The conference attracted nearly 200 attendances and featured guest speakers ranging from lawmaker to climate activists and environmental

educators. We aim to create a space for youth to listen to other voices and join the climate dialogue, and to inspire them to take climate actions.



Photos: Climate Change Position Statement Writing Workshop

This is a collective climate change position statement co-written by nearly 60 participants. During the LCOY Macau 2022, they came together to discuss their visions for climate action surrounding 5 topics: Action for Climate Empowerment; Climate Adaptation; Climate Change, Cities, and Health; Renewable Energy; and Green Jobs.

Let's “Act Today, Voice Now”.

## Guest Speakers of LCOY Macau 2022

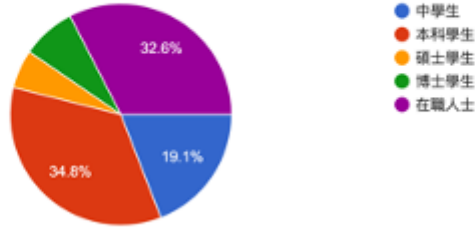
<p><b>13:40 - 15:00</b> 23/10/2022 圓桌會議 青年參與及政策倡導</p> <p>嘉賓講者 <b>梁志文博士</b> Dr. Danny Leong</p> <p>北京師範大學、香港浸會大學 聯合國際學院環境學及地理學教授 Programs at the Beijing Normal University, Hong Kong Baptist University, United International College 美國國家地理學會新創業者 The National Geographic Society Emerging Explorer</p> 	<p><b>14:10 - 15:30</b> 22/10/2022 圓桌會議 氣候變化的原因及影響</p> <p>嘉賓講者 <b>柯學明院士</b> Fellow Ruby Q</p> <p>澳門食物及環境健康學會會長</p> <p>柯學明院士自1988年在海外工作，先後擔任多個企業及學術機構的副總裁及總經理，為專青及澳門在食安及環境健康方面作出多項貢獻及研究。</p> 	<p><b>14:10 - 15:30</b> 22/10/2022 圓桌會議 氣候變化的原因及影響</p> <p>嘉賓講者 <b>陳俊明博士</b> Dr. Joe Chan</p> <p>澳門環境教育導師 Macao Environmental Educator 環保工作者 Environmentalist 澳門科技大學健康科學院公共衛生博士 PhD in Public Health 澳門科技大學健康科學院 Faculty of Health Sciences at Macau University of Science and Technology</p> 
<p><b>14:10 - 15:30</b> 22/10/2022 圓桌會議 氣候變化的原因及影響</p> <p>嘉賓講者 <b>呂定倫</b> Danny Lu</p> <p>Member of Council of Department of Geography, University of Macau 澳門地理教育研究會理事</p> <p>2021年畢業於華約諾大地理學系，目前在華約諾大學中國語文學院地理系工作。主要負責高中地理學科工作。作為土生土長的澳門青年，在有關氣候變化的議題中，比較關注如何讓氣候變化的議題中，比較關注如何讓氣候變化的議題中，比較關注如何讓氣候變化的議題中。</p> 	<p><b>13:40 - 15:00</b> 23/10/2022 圓桌會議 青年參與及政策倡導</p> <p>嘉賓講者 <b>柳濟琛</b> Ji Chen Lu</p> <p>禧華大專畢業於生物學，中國首創的AI輔助科學雜誌創刊負責人，人選為香港亞洲及中國30強精英。</p> <p>He is also a Schumacher Scholar at Tsinghua University and China's First Young Leader. He has published several articles in the field of AI and Science.</p> 	<p><b>13:40 - 15:00</b> 23/10/2022 圓桌會議 青年參與及政策倡導</p> <p>嘉賓講者 <b>劉嘉穎</b> Annie Lao</p> <p>其她，2019年，她一鼓作氣與她的朋友成立了「澳門氣候」的社區服務改善澳門的回收系統和廢物處理。</p> <p>She is also a Schumacher Scholar at Tsinghua University and China's First Young Leader. She has published several articles in the field of AI and Science.</p> 
<p><b>15:45 - 17:05</b> 22/10/2022 專題演講 城市綠色轉型及氣候治理</p> <p>嘉賓講者 <b>林宇滔</b> Ron Lam</p> <p>現任立法委員及澳門市政發展委員會成員。畢業於廣州暨南大學環境科學學士及北京大學政府管理學碩士。曾任澳門日報環境記者及編採，及擔任「綠色城市發展」和「城市氣候」委員會中國委員及城市規劃委員會委員。多年前已關注本港的氣候問題，包括參與氣候、本地環境與氣候、環保等活動，是澳門市政局上的面對的挑戰。</p> 	<p><b>15:45 - 17:05</b> 22/10/2022 專題演講 城市綠色轉型及氣候治理</p> <p>嘉賓講者 <b>Karen Araña Tagulad</b></p> <p>海洋生物學家 Marine Biologist 澳門聖若瑟大學教授 Prof at University of Saint Joseph</p> 	<p><b>15:20 - 16:40</b> 23/10/2022 工作坊 氣候立場書撰寫工作坊</p> <p>嘉賓導師 GUEST INSTRUCTORS 台灣青年氣候聯盟 陳正朗 Ryan Chan 何紫晴 Hui Ho 蔡伯賢 Edward Choi Network of Hermia Chan Environmental Student Societies</p> 
<p><b>15:45 - 17:05</b> 22/10/2022 專題演講 城市綠色轉型及氣候治理</p> <p>嘉賓講者 <b>宋慶彬教授</b> Prof. Song Qingbin</p> <p>澳門科技大學副教授/博士生導師。中國環境科學學會環境導游的發起人。2013年獲得澳門大學博士學位。主要研究環境與氣候變化的關係。曾參與多個國際氣候變化的研究項目。曾參與多個國際氣候變化的研究項目。</p> 	<p><b>15:45 - 17:05</b> 22/10/2022 專題演講 城市綠色轉型及氣候治理</p> <p>嘉賓講者 <b>楊鎮宇</b> Zhenyu Yang</p> <p>President of 澳門生態環境保育協會會長 Coordinator of Macau Conservation Biologists' Society 高級碳中和管理師 Senior Carbon Neutral Manager</p> 	<p><b>14:10 - 15:30</b> 22/10/2022 圓桌會議 氣候變化的原因及影響</p> <p>嘉賓講者 <b>曾宇飛</b> Yufei Zeng</p> <p>清華大學環境學院環境生物學碩士研究生，曾參與多個國際氣候變化的研究項目。曾參與多個國際氣候變化的研究項目。</p> 

慕拉士大馬路209號飛通工業大廈(第一座)10樓D39室

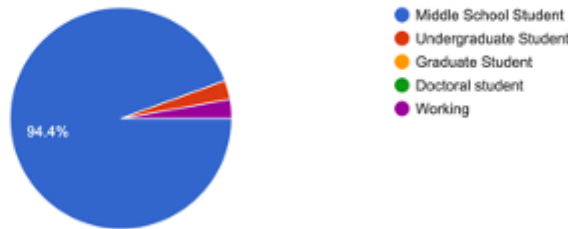
Email: [genervisionhouse@gmail.com](mailto:genervisionhouse@gmail.com) | Website: <https://genervision.org/>

**Occupations of the registered participants (Chinese-speaking & English-speaking participants):**

職業  
89 則回應



Occupation  
36 則回應



**Other Endorsing Organizations:**



## 2. Action for Climate Empowerment

Education, training, public awareness, public participation, public access to information, and international collaboration are the six priority elements under the framework of “Action for Climate Empowerment” (ACE). Adopted by the United Nations Framework Convention on Climate Change (UNFCCC) in 1992, the ACE elements are crucial to promoting inclusive community engagement, and fostering a better understanding of, climate change and its response.

We noticed that there is rich biodiversity in Macau with relatively easy access, and our citizens need to build connections with nature, learn to appreciate it, and encourage behavioral changes. However, a lack of a database on Macau’s environment and biodiversity makes it hard to advocate for collective and behavioral changes without enough data. There is also a lack of financial resources to develop such databases as well as relevant majors in universities or training to nurture talents.

We urge the Macau government to implement the following actions to enhance Action for Climate Empowerment within Macau:

1. To establish a fund for citizens to participate in nature activities. There are a few associations and individuals in Macau specializing in holding local nature activities and yet, these organizations are hard to sustain due to a lack of financial resources. If there is a nature activities fund, schools and local associations can collaborate with those specialists to promote biodiversity and climate actions in Macau, meanwhile incentivizing more youth to learn about this profession.
2. To encourage more international activities in Macau, such as Model United Nations, where students can discuss international topics and raise public awareness on climate topics.
3. To promote environmentally friendly behavior through education and financial incentives. For tourists, the Macau government could provide more subsidies



or favorable incentives to use public transportation instead of private cars or taxis. There should be more policies to promote waste management, recycling, and resource-saving in Macau, which can start with university dorms and student societies.

4. To publish data and progress reports on climate actions in Macau periodically and transparently on the one-stop-shop platform for climate information. We also hope that such a platform could be presented more systematically and ease public access to information.

### 3. Climate Adaptation

After Typhoon Hato in 2017, Macau's lack of adaptation to climate change was explicitly evident. As a coastal city, Macau is at the forefront of climate change, so climate adaptation is both important and urgent.

1. "Nature-based Solutions" (NbS) should be incorporated into disaster prevention planning. Currently, flood control in Macau mainly employs tide gates, flood walls, and embankments, together with drainage pumping stations, rainwater culverts, and drainage network renovation projects. However, it lacks the component of "Nature-based Solutions" (NbS). An NbS flood control can be using mangroves to resist floods. Not only is it affordable, but it can also lead to higher air and water quality and absorb greenhouse gases by acting as carbon sinks, therefore it is a way to enhance biodiversity.
2. Disaster prevention planning should incorporate the concept of "sponge city". We should consider how to keep water in the city, such as using permeable pavement for pedestrian walks and roads, building underground storage tanks under football courts and parks, and temporarily converting underground parking lots into storage tanks.
3. Attention should be paid to disaster prevention education. The responsible departments of disaster prevention education should be specified, and regular lectures on disaster prevention should be held in schools and communities. It is difficult to quantify the "awareness rate of the public on basic knowledge of public safety" in the 10-year Plan for Disaster Prevention and Reduction of the Macau Special Administrative Region for 2019-2028. We suggest that the government should set short-term and medium-term targets for the number of participants attending annual community disaster prevention seminars.
4. Increase funding for academic research on climate adaptation, such as sponge cities and urban drainage systems.
5. Disaster prevention policies should consider climate change and other hazards, such as extreme heat. Notably, the 10-year Plan for Disaster Prevention and Reduction should include other disasters of climate change,

such as extreme heat. The countermeasures could include the addition of subsidies for green roof renovation, the establishment of summer cooling centers, and the establishment of workplace and school leaves under days of high-temperature.

6. Green building standards such as ventilation and insulation design standards should be established.

#### 4. Climate Change, Cities, and Health

Buildings are responsible for a large number of carbon dioxide emissions. And without weatherization and renovation, they will continue to emit CO<sub>2</sub> and we will not be able to achieve the Paris Agreement's 1.5°C target. The majority of the buildings in Macau are built without the consideration of climate adaptation and are in need of renovation.

On the other hand, there are many brownfields in Macau that cannot be used due to the ambiguity of ownership. However, they can be turned into public green spaces that serve as recreational spaces and city carbon sinks.

According to the Report on the State of the Environment of Macau, emissions from land transportation constitute a large part of Macau's greenhouse gas emissions. This necessitates a green transition of public transportation as well as the adoption of private electric vehicles.

If we can solve the above problems, we can greatly reduce greenhouse gas emissions in Macau and also increase the quality of life for its citizens. But there are structural and legal issues that hinder the success of initiatives that aim to solve these problems. For example, despite Macau's urban building regulation dictates building owners should carry out maintenance of their buildings every five years, it imposes no penalty for building owners who fail to conduct maintenance. Therefore, we suggest the adoption of the following three measures:

1. Transform existing legislation to enable easier and more affordable building renovation. We suggest that the government can review existing legislations that make building renovation difficult and revise them so that buildings can be easily transformed into greener and more habitable environments. Besides, the government and banking institutes can consider putting out mortgage plans that incentivize buildings or homeowners to green their buildings.

2. Put brownfields into use and provide each district or zone with a green space of the same quality with a low cost of use (e.g. time and distance to reach).  
Although the new Macau SAR 2020-2040 Urban Master Plan seeks to complement the lack of green or public open space areas and enhance their accessibility and connectivity to residential areas, data and maps from the draft show that residents outside the prescribed areas may not have equal access to green space. So, we suggest the government make full use of the brownfields by revising the existing legislation to enable access to them and encourage public participation during the design stage of green spaces.
3. Develop a transportation plan for pedestrians instead of vehicles. Despite the light rail system being built to decarbonize public transportation, it has not been used as a major transportation tool for the majority of Macau citizens. While buses are still in high demand and traffic still impacts the bus routes each day during peak hours, we suggest that the government can innovate the existing transportation plan from a pedestrian perspective, and create public transportation routes that can allow easy access to low-carbon transportation tools and ones that incentivize people to drive less. For example, building bike lanes in the new urban zone will be a good way for people to commute with low carbon emissions as well as to exercise, which is both good for their health and the environment.

## 5. Renewable Energy

According to the Companhia de Electricidade de Macau (CEM), Macau generates only 5% of the electricity used by the city, with over 90% purchased and imported from Mainland China. This reveals a vulnerability when it comes to energy security - especially the experience citizens underwent during Typhoon Hato. Macau purchases a majority of its electricity from China Southern Power Grid, which claims over 50% of its electricity is generated from renewable sources. Yet, it is still unsure how much of the renewable energy gets fed into Macau's power grid each day. Therefore, it is important for Macau to develop its own renewable energy. Despite having published a set of safety and installation regulations in 2015 to encourage the installation of photovoltaic systems, there have only been 5 installations in Macau to this day. The government needs to review the current conditions for the implementation of renewable energy in the Macau community and formulate a relevant development plan. The following suggestions could be some of the potential future pathways:

1. Find potential areas to install solar PV such as rooftops of public housing, schools, hotels, etc. In light of the government's amendment to the New Gaming Law which emphasizes the social responsibility - including environmental concerns - of casino gaming enterprises, the government should communicate with the casino companies for them to take up their Corporate Social Responsibility.
2. Provide more information on how to purchase renewable energy (offsets) and incentives to encourage people to switch to the use of renewable energy.
3. The promotion of electric vehicles, including electric bikes and vehicles, should be more vigorously promoted in taxes and electricity. More charging locations need to be built so that convenience will make people willing to change their choices.
4. Reduce energy consumption overall by implementing Tiered Electricity Rates to make it more expensive for consuming large amounts of electricity.

5. Avoid investing in technology for renewable biomass energy, but instead, focus on solar and wind as biomass is not a sustainable source of energy.
6. Invest in renewable facilities or infrastructure, which could help to turn food waste or general waste into energy more efficiently.
7. Use social media and television to educate people on the harms of non-renewable energy and encourage them to use renewable ones.
8. As the only power company in Macau, CEM should cooperate with government policies to vigorously develop green and low-carbon energy, and accelerate the use of natural gas and renewable energy.
9. For public utility companies, such as electricity and water supply companies, they should come up with a plan for sustainable resource input and development for future discussion.
10. The government needs to make a clear commitment and a goal to build up a renewable energy network in the community. Our proposed goals are: to increase the use of renewable energy by 10% by 2030; to increase such use by 50% by 2050; to power the city with 100% renewable energy by 2060.
11. Considering that the government has already installed solar power systems at bus stops, consideration can be given to upgrading the power supply system at similar public service facilities such as street lighting.
12. Encourage residents to buy electric vehicles but at the same time limit the growth of vehicles.
13. Achieve Carbon Neutrality or Net Zero by 2050.
14. Generate our own renewable energy, instead of buying and importing from neighboring countries.
15. Require the establishment of a certain area of the solar power system on the rooftop of new buildings, especially public bureau or service buildings, which should constitute not less than 40% of the open area. Encourage the installation of solar power systems on the rooftops of buildings where the existing conditions permit.

## 6. Green Jobs

There is still a long way to realize a positive outlook for Macau's sustainable economic diversification. The development of green careers could bring recovery to the local job market, and the International Monetary Fund has conditioned Macau's economic outlook to its exposure to climate change for the first time. For Macau to become a low carbon emission center as mentioned in the Second Five-Year Plan, industries ranging from stores to hotels need to be greened.

It is crucial to educate the public about green sectors and which topics are related to green jobs to support the growth of green industries in Macau and recruit people to work for them. However, the general public's awareness of the green business is still limited, and many incorrectly think that it is just a traditional industry that has a "direct" connection to the sale of eco-friendly products and the provision of clean energy. However, this only reflects the public's misunderstanding, the lack of social concern, and insufficient government advocacy.

In addition, Macau lacks opportunities for graduates with environment-related academic backgrounds; based on current observations, Macau has adequate measures to support the four key sectors, but the region's emphasis has been primarily focused on these industries in which the demand is too singular. In contrast, environment-related supporting incentives are very limited. Regarding the private sector, green incentives are very much only limited to hotels, such as the Macau Green Hotel Award, thereby lacking the participation of other businesses. Furthermore, the SAR government does not provide adequate subsidies for the green transformation of businesses and industries, nor deliver support to cultivate the talent development of related industries. Similarly, the supporting legislations are also lacking a clear direction, resulting in low efficiency and making it challenging to foster a green economy and related industrial growth.

Green industry promotion cannot and must not rely on a single stakeholder. To promote a variety of environmental protection measures and low-carbon actions, the government must take the lead, with the support and collaboration of all sectors of society. Creating a sustainable society is a difficult endeavor and the development of green industries is only one element of it. We still need to handle concerns such as reducing environmental pollution, conserving energy, and lowering emissions. How



can a goal be attained if we all continue to pursue our individual paths instead of working together?

Against this backdrop, Genervision House has collected relevant suggestions and put forward solutions in the areas as follows.

### 1. Education:

- To address the public's misunderstanding of the green industry and the low levels of attention paid to this area of concern, Macau should begin with education. The government can incorporate sustainable development courses into the regular educational curriculum of primary and secondary schools, educating students about sustainable development from an early age. In addition, as it may take some time to integrate these topics into the regular curriculum, schools can encourage students to share topics related to the SDGs during morning and weekly assemblies.
- In the meantime, government departments can work together to promote the SDGs via various communication methods. For example, the Environmental Protection Bureau and the Education and Youth Development Bureau could jointly organize competitions and workshops on related topics to improve students' understanding of green industries and work, thereby fostering student interest and understanding of these future industries. In addition, schools and teachers could guide and encourage graduating students to look for more opportunities in their career planning, indirectly encouraging them to pursue their future in the green industries.
- To foster talent in green industries, the government can offer educational scholarships or funds for environment-related subjects. Additionally, providing internships for undergraduates to work at businesses in mainland China and arranging green job matching, thereby not only meeting the demands for green talent but also increasing the competitiveness of Macau youth and providing undergraduates with more employment prospects.
- To better understand how the public perceives the development strategy for Macau's green industries, the Environmental Protection Bureau could also work with the Economic and Technological Bureau to create a mobile application - based on referencing the IAM Connect app - to gather public opinions and feedback on pertinent policies.

## 2. Promoting Economic Diversification:

The true meaning of promoting green industry is to gather the consensus of all sectors of society, promote the upgrading and transformation of industries, continue to work on greening society, jointly undertake the social responsibility of caring for nature, conserve resources, reduce pollution, recycle and reuse products, practice a green and low-carbon management model, and work together towards the vision of the Environmental Protection Planning of Macau 2021-2025.

Macau can add green elements to existing industries, including politics, education, innovation and science, tourism, retail, finance, construction, logistics, and hospitality, and encourage them to explore the possibilities of various green jobs.

In terms of steering the industry, rather than relying on the industry to carry out the greening industry chain reform and implement corresponding measures, the Government should set up a Business Greening Force Committee, led by the Government's expert advisory team, and influential representatives from various sectors selected by the business community, and monitored by the Municipal Affairs Bureau, the Environmental Protection Bureau and environmental NGOs. The main tasks are as follows: bring together all sectors to ensure that all sectors are on the right track to achieve their goals by implementing the reforms and new measures they have promised to promote; hold a cross-industries work meeting every six months, which is attended by representatives from each industry, sum up the year's environmental work and submit a direction for the next year, promote the communication between the different sectors, such as establishing resource sharing network, setting up incubation center for environmental protection talents, launching cooperation promotion plan, etc., so as to improve work efficiency.

## 3. Green Talent

As aforementioned, developing green industries require an integrated approach. We need to encourage more industries from Macau to become a part of the green industries, which would in turn provide more green job opportunities for the local job market. Every job could also be greened and thereby increase the participation of the general public.

- Although Macau has limited resources domestically, the region could leverage its positioning and resources as a city in the Greater Bay Area and a bridge with Portuguese-speaking countries, in order to develop its green economy by encouraging more talent to go abroad for personal development while also attracting local talent to return to Macau for career development.

- The government could also develop a green talent incubation center, help Small and Medium-sized Enterprises to develop green industries, and increase related job opportunities. Furthermore, the government could align local or overseas green businesses for green job matching.
- In the area of talent admission, the government can broaden the assessment criteria and import talent from green industries. As the latest talent admission scheme will focus on importing talent from the “big health”, modern finance, high and new technology, and culture and sport industries, we advise the government to further integrate green industries and also take greening the four aforementioned industries into consideration. For example, the green finance industry has prospects with high development potential, and high and new technology talent could be attracted to develop green asset management and data analysis capabilities through Artificial Intelligence and big data.