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Adaptive Co-Management for Regional Tourism Governance Under the COVID-19 Pandemic in the Greater Bay Area, China

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ABSTRACT

This study examined the process of adaptive co-management (ACM) among actors and institutions in the Greater Bay Area (GBA) in China to rejuvenate the region's tourism recovery from the COVID-19 pandemic. Qualitative in-depth interviews were conducted with 19 key informants from various government departments within the region. Results demonstrated how actors and flexible institutions at multiple geographical scales and levels had joined efforts to cope with the various phases of uncertainty through a learning-by-doing process. Several essential factors leading to the success of the learning process within the region, its positive outcomes, and barriers encountered. This study contributed to understanding how the region, through ACM, was able to balance the pandemic control measures and restoration of its tourism industry during the crisis. Practical suggestions were also offered.

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Adaptive co-management; COVID-19 pandemic; uncertainties; regional and cross-border collaborations; Greater Bay area; China

关键词

适应性协同管理; 新冠疫情; 不确定性; 区域和跨境合作; 大湾区; 中国



適應性協同管理：新冠疫情下中國粵港澳大灣區區域的旅遊管治

摘要

本研究探讨了中国大湾区 (GBA) 的各参与者和机构如何通过适应性协同管理 (ACM) 使其旅游业从新冠疫情大流行中复苏。研究对大湾区各政府部门的 19 位关键信息提供者进行了定性深度访谈。结果阐明了不同地理范围和级别的参与者和机构是如何通过边做边学的过程联手应对不同阶段的疫情带来不确定性。研究还阐述了导致该地区学习过程成功的重要因素、其正面成果以及学习过程中存在的障碍。本研究有助于理解大湾区如何通过适应性协同管理平衡其疫情控制措施和在危机中恢复旅游业的努力。同时，研究也提供了一些实用的建议

1. Introduction

The global tourism industry has been negatively affected by the COVID-19 pandemic (hereafter, the pandemic). In 2021, there was a decline of 71% in international tourist arrivals, compared with the pre-pandemic period in 2019 (World Tourism Organization [UNWTO], 2022). It is crucial for the tourism

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industry to recover in a speedy manner. It is also realized that the pandemic is a cross-border issue, as the virus can spread from one locality to another; thus a joint effort of actors and institutions at multiple geographical scales and levels is necessary to respond promptly (Jing, 2021).

Prior studies on tourism recovery from the pandemic have adopted the perspectives of resilience (McCartney et al., 2021), governance (Neupane, 2021), public – private partnership (Wan et al., 2022), and justice (Rastegar et al., 2022). These studies provide a good foundation for understanding tourism recovery from the pandemic. However, while other crises such as typhoons or flooding to some extent can be predicted, the pandemic outbreak was sudden and unpredictable. Therefore, combating it needs flexible and adaptive structures that enable actors and institutions to search for strategies through an ongoing, self-organized, and learning-by-doing process. What is missing in the body of research is how actors and institutions adapt and respond to the pandemic flexibly through an adaptive co-management approach. Adaptive co-management (ACM) refers to institutional arrangements that are modified in a dynamic process in a learning-by-doing manner, enabling actors to learn and increase their adaptive capacity to respond to unpredictable crises (Plummer et al., 2012). ACM often brings several positive outcomes such as being able to solve problems within a short time (Islam et al., 2018); further, the availability of several conditions will help the learning process to be more successful (Plummer et al., 2012).

The case of the GBA in China is studied (Figure 1). The GBA consists of nine municipalities in Guangdong Province of China – Zhuhai, Zhongshan, Foshan, Huizhou, Guangzhou, Dongguan, Jiangmen, Shenzhen, and Zhaoqing, and two special administrative regions of China, namely Hong Kong and Macao (PRC Central Government, 2019). In its national comprehensive Outline Development Plan issued in February 2019, two key objectives emerged that are most relevant to GBA tourism



Figure 1. Map of the GBA.

governance. The first is to build an intercity rapid transit network to achieve one-hour access between major cities in the GBA. The increased connectivity has significantly promoted tourism and other kinds of mobility within the region, making the cities ever more interdependent as tourism destinations. Second, the Plan stipulates co-building GBA as a world-class tourism destination, by sharing of regional tourism resources, building GBA tourism brands, and jointly expanding the tourist market. In particular, the Plan stresses deepening the collaboration and cooperation in governance among GBA cities, including improving the response mechanism for emergencies and improving regional emergency cooperation capabilities, by establishing an emergency coordination platform and jointly developing emergency plans for major emergencies regarding accidents, natural disasters, public health and public security. It can be seen that coordination, collaboration, and co-management between cities are essential for GBA to be a concrete and actual megaregion rather than just discursive and imaginary (Harrison & Gu, 2021). This goal is prominently reflected in governance of the GBA tourism crisis caused by the pandemic.

This study utilizes the concept of ACM to examine how joint effort of actors and institutions at multiple geographical scales and levels in the GBA enables them to learn, adapt and respond to the pandemic outbreak for the restoration of the region's tourism industry. There are three research questions in this study:

- (1) To what extent does ACM enable the recovery of the GBA's tourism industry during the pandemic?
- (2) What factors facilitate/impede adaptive co-management?
- (3) What are the outcomes of adaptive co-management?

This study will contribute to theory and practice. Theoretically speaking, this study will add knowledge of how the joint effort of actors and flexible institutions at multiple geographical scales and levels enables them to respond to the pandemic through a learning-by-doing process to balance pandemic control and restore the region's tourism industry. Practically speaking, this study will provide practical suggestions to multiple levels of government within a region regarding ways to increase the region's adaptive capacity to respond to the pandemic as well as future tourism crises.

2. Literature review

2.1 Crisis management and adaptive co-management to cope with uncertainties in the COVID-19 pandemic

Crises in the context of this research are negative events that are sudden and unpredictable and have devastating effects on destinations (Neupane, 2021). Before the pandemic, crises were categorized as conventional (e.g. economic recession), unexpected (e.g. terrorist attack), tractable (e.g. rampant inflation), or extraneous (e.g. fire, food poisoning) (Racherla & Hu, 2009). The current pandemic crisis has contributed to a new understanding of crises since it is an unpredictable and dynamic global health disaster.

The tourism industry is particularly susceptible to crises because of the high level of mutual dependence between multiple stakeholders (Wan et al., 2022). Confronting any crises, tourism destinations need a resilience strategy that allows destination managers to reflect on how crises have been addressed and what actions they need to take to minimize loss and recover business operations in the tourism industry (Chen et al., 2022). As the pandemic is dynamic, the resilience strategy should be flexible and adaptive which enables actors and institutions to search for strategies to address changes through an ongoing, self-organized, and learning-by-doing process. This type of resilience strategy, called adaptive co-management (ACM), is regarded as suitable during a crisis and is particularly useful in handling problems that are complex and that involve multiple scales and levels (Armitage et al., 2007).

ACM is defined as ‘a process whereby institutional arrangements and ecological knowledge are tested and revised in an ongoing, self-organized and dynamic process of learning-by-doing’ (Armitage et al., 2007, p. 328). The term ‘adaptive co-management’ came from the resilience and ecological management literature, referring to how to deal with two problems in natural resource management. It was difficult to rely on pre-set assumptions, testing, and modeling to derive an adaptive environmental management plan because of the uncertainties involved (Armitage et al., 2007). In addition, the representation of diverse interests in the management process is crucial, as natural resource management involves not only policymakers and scientists but also multiple stakeholders and users, each holding certain interests and resources in a power relation. ACM therefore comprises two concepts – namely, co-management and adaptive management (Plummer & Armitage, 2007). First, ACM involves co-management because it draws on stakeholders’ resources and collaboration in decision-making. Second, ACM involves adaptive management since the collaboration is an ongoing process which involves a variety of actors vertically, horizontally, or in hybrid mode, in a search for the institutional arrangements that can tackle problems when the context changes, through a learning-by-doing approach (Jing, 2021).

ACM follows four main principles: (1) communication and collaboration among stakeholders, (2) social learnings in which stakeholders learn together how to manage a problem, (3) shared rights, responsibilities, and decision-making amongst the stakeholders involving power-sharing and conflict resolution, (4) adaptive capacity building and resilience within the stakeholders (Islam et al., 2018). Therefore, ACM involves joint management through learning by doing with stakeholders collaboratively handling problems and crises.

ACM previously has been applied in tourism studies. For instance, Lai et al. (2016) examined how ACM helps in managing and conserving mountain destinations. Ignatius et al. (2021) examined partners’ adaptive co-managing of hurricane-related disasters. Kristiana et al. (2021) study concerned the innovative adaptive strategies adopted by the tourism stakeholders during the pandemic in Indonesia. In short, ACM is considered an appropriate and novel approach to tourism destination governance, particularly in protected areas (Islam et al., 2018) or under crises (Ignatius et al., 2021; Kristiana et al., 2021).

ACM has been particularly relevant and helpful in tourism governance in the pandemic because of its capacity to cope with uncertainties. Hasselman (2017) summarized three major types of uncertainty. First, imperfect knowledge uncertainty relates to inadequate knowledge, which can be minimized through research (Brugnach et al., 2008; Pahl-Wostl, 2007). Second,

incomplete knowledge relates to the incompleteness of comprehending a full understanding of a system due to the lack of multiple perspectives. This kind of uncertainty can be reduced through stakeholder participation (Brugnach et al., 2008; Pahl-Wostl, 2007). Third, unpredictability, which is caused by unforeseeable changes such as changes in residents' requirements and preferences, government goals, and crises (Brugnach et al., 2008), is irreducible but can be coped with by implementing responsive strategies (Pahl-Wostl, 2007). The pandemic brought all three types of uncertainty into the tourism industry and posed significant challenges to tourism governance. For example, it involved imperfect knowledge and uncertainty regarding the character of the virus and the best way to deal with it; the government had incomplete knowledge of the extent to which the tourism industry was affected and the assistance they needed; and both government and industry were faced with unpredictability regarding local outbreaks, virus mutation, and the changing preferences of tourists. Therefore, ACM is a promising approach in explaining how uncertainties of tourism governance under the pandemic could be coped with.

Although ACM brings several benefits to destinations – such as enhancing collaborations among stakeholders at multiple scales and levels, strengthening the decision-making process, and being flexible in searching for solutions (Islam et al., 2018) (refer to Section 2.4 for more discussion on the outcomes of ACM) – there are many challenges for ACM. One of the challenges is power inequity. When some powerful stakeholders dominate the ACM process (e.g. in elitist and non-democratic societies), it results in inhibiting diversity and new knowledge creation. Some get more power and benefits than others, and those getting less will lose their interest to participate in the future learning process (Imperial, 2005). To overcome this challenge, it would help to have key leaders and a transparent process that allows diversity of knowledge (Fabricius & Currie, 2015). Another challenge of ACM is the time required for building trust and capacity in the learning process, especially since the time spent on finding the common ground between the stakeholders can be lengthy (Imperial, 2005). For ACM at regional levels, relational distances, fragmentation and asymmetry of multi-scalar institutions (Stoffelen et al., 2017), and competition and jealousy for fiscal resources among cities (Fabricius & Currie, 2015) often cause difficulties.

Finally, cultural dissimilarity is another major barrier to effective ACM. As ACM involves joint decision making for co-creating solutions, to be able to understand the values and cultures of diverse actors is essential for finding common ground (Alipour & Arefipour, 2020). Ma et al. (2022) examined the intercity technology transfers within the GBA and reported that cities that share the same institutional and cultural environment (e.g. habits, routines, and practices) find it easier to build trust in the process and reduce transaction costs, and vice versa. Xie et al. (2023) and Hong (2021) also discovered that GBA cities have different administrative regions and customs zones, such as 'one country, two systems,' 'three customs territories,' and 'three legal systems,' which often imposes barriers to regional collaboration, higher education, and planning and development. In tourism research, Park et al. (2022) found that collaboration across the borders within the GBA to cope with the pandemic required *guanxi* (or 'relationship'); and 'regional talents' or representatives who were unfamiliar with the region's language and culture affected the negotiations and institutional collaborations across borders. In short, prior studies show that cultural dissimilarity may block the informal communication and interaction channels and work relationships required for effective ACM within a region.

2.2 Adaptive co-management for the recovery of a region's tourism industry from crisis: a conceptual framework

Folke et al. (2002, p. 439) noted: 'Effective ACM relies on the flexible and open institutions and multi-level governance systems that allow for learning and increase adaptive capacity without foreclosing future development options.' Therefore, one needs to examine how different forms of institutions and actors within a region are drawn and developed, and how they collaborate and learn.

Formal and informal institutions

Formal institutions refer to the official form of government that is codified in regulatory frameworks. For example, some government bureaus have provided the policies of border control during the pandemic. Informal institutions, however, refer to shared rules, values, and norms that are not enforced within the legally sanctioned frameworks (Pahl-Wostl, 2007). An example includes several cities within a province jointly forced to rescue the province's economy because of their shared economic values and goals (Jing, 2021).

Vertical, horizontal, or hybrid forms of collaboration

Vertical collaboration refers to the collaboration among actors in a hierarchy of governments (Gerber & Loh, 2015). The government at the highest level offers the lowest level of government guidelines, services, and commands. An example of vertical collaboration is how the Economic Bureau of the central government provides guidelines to the regional and local levels to help rejuvenate their economy.

Horizontal collaboration involves the joint activities of two or more government units (Jing, 2021; Yao et al., 2021) and takes the form of both intra- and inter-governmental collaboration. First, intra-governmental collaboration involves the same level of government departments or bureaus in the same municipality (Yao et al., 2021). For instance, the tourism department works with the health department of a city to develop plans to protect the tourists during a pandemic. Second, inter-governmental collaboration involves actors and institutions at multiple levels to achieve common goals (Wu et al., 2021); it is an approach commonly used during crises, as it is more flexible in mobilizing resources (Jing, 2021; Wu et al., 2021). For instance, (Wu et al., 2021) discovered that the emergency recovery stage after an earthquake in Jiuzhaigou National Park in China relied heavily on aid from the central government of China as well as intergovernmental collaboration to facilitate intermediate and long-term crisis recovery. Several factors can enhance inter-governmental collaboration, such as geographical proximity and cultural similarity, as well as the degree of interdependency (Amore & Hall, 2016), and the mandated state policy for collaboration (Park et al., 2022).

Interactive and iterative learning

Interactive learning refers to stakeholder groups learning from each other through their collaboration. Iterative learning, however, is a 'learning-by-doing' process where stakeholders learn from designing and implementing management actions, monitoring the impacts of the actions, and adjusting their actions based on the lessons learnt (Islam et al., 2018).

2.3. Factors affecting the adaptive co-management capacity

Plummer et al. (2012) found that networks, knowledge, learning, shared power, shared responsibilities, leadership, conflict, trust, organizational interactions, enabling conditions, bridging organizations, and incentives were the factors that affect the ACM capacity of a system. Pennington-Gray et al. (2014) discovered that in managing the tourism crisis, pluralism, communication, transactive decision-making, social learning, and actors' joint action are the essential factors. However, factors that are essential for ACM in the tourism industry's recovery from the pandemic are absent from the research.

2.4. Outcomes of adaptive co-management

Islam et al. (2018) have summarized 14 positive outcomes of ACM for the short, medium and long term of a destination. The short- and medium-term outcomes include: (1) encouraging cooperation among actors at multiple levels, (2) strengthening the decision-making process, (3) developing awareness, (4) enhancing transparency, (5) fostering application of the rule of law, (6) enhancing social learning, (7) improving effectiveness of planning and implementation, (8) joint efforts in monitoring, and (9) adjusting plans. The long-term outcomes are: (10) improving resident livelihood and empowerment, (11) balancing power distribution, (12) restructuring institutions and resolving conflicts, (13) protecting a destination more effectively, and (14) enhancing destination governance. The outcomes of ACM in recovering the tourism industry from the pandemic need further investigation. Based on the literature above, a conceptual framework of the study is developed (Figure 2).

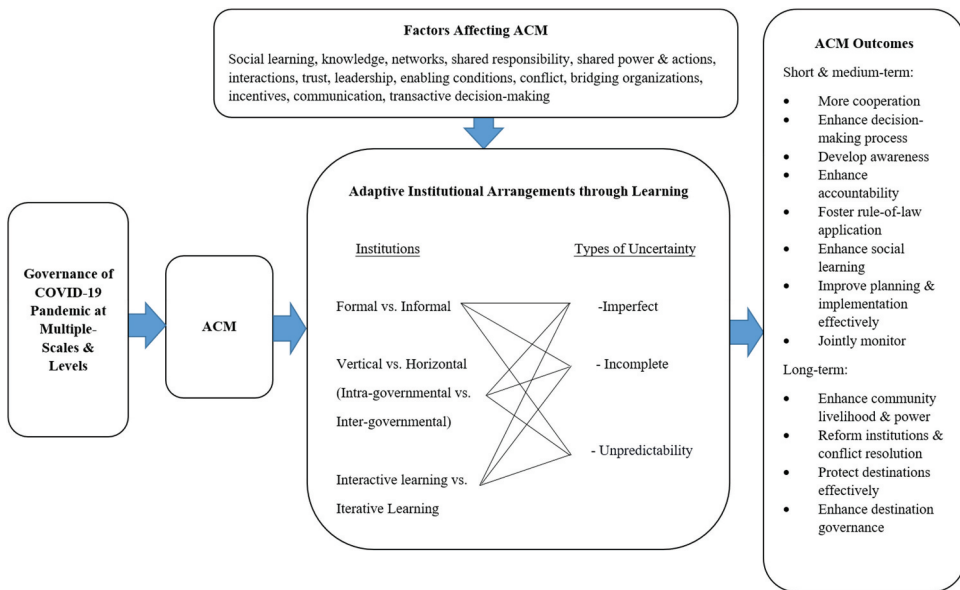


Figure 2. Conceptual framework of the study.

3. Methodology

As an exploratory study, this study adopted a qualitative in-depth interview approach. This research method allowed researchers to gain deeper insights from the interviewees regarding their opinions (Lune & Berg, 2017). Purposive sampling was used. Key informants from the governmental sector in the GBA who were involved in tourism management and tourism crisis management in the region were interviewed (Table 1). Target interviewees were invited through official invitation letters, personal connections, or reference by interviewees. A total of nine interviews with 19 informants from various government departments within the GBA were conducted between March 2021 and January 2022. The interviewees in Mainland China were public officials from the Cultural and Tourism Department of Guangdong Province and from cultural and tourism bureaus of major cities including Guangzhou, Shenzhen, Zhuhai, and Jiangmen. These are representative of GBA cities and provide essential insights on the region's tourism governance under the pandemic.

Being a special administrative region (SAR) within the Greater Bay Area, Macao holds a different jurisdictional structure and institutional framework from that of Mainland China. The collaboration experience within the SAR government and across regional governments sheds light on how adaptive co-management disentangles the sophisticated cross-border governance roles and processes. Interviews

Table 1. List of the interviewees.

Code No.	Office/Association	Division and Responsibilities	No. of Interviewees
R1	Culture and Tourism Department of Guangdong Province	Tourism industrial planning and formulating policies for cultural and tourism exchanges and cooperation.	2
R2	Tourism Development Research Center of Guangdong Province	Conduct research and practical projects according to the requirement of the governmental department.	2
R3	Guangzhou Municipal Bureau of Culture, Radio, Film and Tourism	Planning, marketing, and regulating tourism industries in Guangzhou as well as exchange and cooperation with Hong Kong, Macao, and Taiwan	5
R4	Zhuhai Municipal Bureau of Culture, Radio, Film, Tourism and Sports,	Promoting Zhuhai tourism resources and management of travel agencies, hotels, and scenic sports.	2
R5	Zhuhai Tourism Association	Providing platform for tourism industry communication and between industry and local government.	1
R6	Shenzhen Municipal Bureau of Culture, Radio, Film, Tourism and Sports, Division of Tourism Management	Formulating and implementing Shenzhen tourism service standards and regulatory standards, supervising and managing travel agencies, hotels, and scenic zones.	1
R7	Jiangmen Municipal Bureau of Culture, Radio, Film, Tourism and Sports	Making overall plans for the development of Jiangmen's tourism industries.	1
R8	Macao Government Tourism Office	Formulating and implementing tourism policies of Macao SAR and to enhance Macao's destination reputation.	4
R9	Macao-Zhuhai COVID-19 prevention and control working group (Macao SAR representative)	Enhancing co-operations between Macao and Zhuhai to combat the pandemic through a notification system to share latest information on the pandemic, and to provide related assistance to residents on both sides.	1

in Macao were conducted with the Macao Government Tourism Office and the Macao-Zhuhai COVID-19 Prevention and Control Working Group, who were in charge of the tourism and cross-border policy during the pandemic. Hong Kong, however, was not included in this study, owing to its escalating numbers of COVID cases, such that the border between Hong Kong and Mainland China was still closed, making it difficult to collect useful data to understand the process of ACM between Hong Kong and other GBA cities. The interviews were adequate as they covered the key government departments responsible for tourism governance in the major cities within the region. The reflections of these informants are informative and representative in their respectful fields because they hold critical positions in their respective organizations.

Semi-structured interview questions were developed covering all aspects of the issues on collaboration, tourism crisis management, and co-learning institutions and processes (e.g. Hasselman, 2017; Islam et al., 2018; Jing, 2021; Plummer et al., 2012). Questions covered aspects such as whether the informants engaged in any intergovernmental collaborations for the region's tourism industry recovery from the pandemic, and if so, how these were managed. Who were the major actors involved in the collaboration process, and what were their roles and responsibilities? In what ways was the collaboration adaptive to the changing pandemic situation? What are the major aims and measures for tourism governance in different pandemic stages? What are the sources of progress? The interviews were conducted in the form of face-to-face interviews, telephone interviews, and group discussion meetings, using Cantonese or Mandarin, depending on the informants. Interviews were audio recorded with the consent of the informant. Each interview lasted between 1 and 2.5 hours. Interviewees were briefed about the purpose of the study and informed that their responses would be used for academic purposes only and treated with strict confidentiality.

For data analysis, the transcript was typed and translated from Chinese to English. While reading through the transcripts line by line carefully, coding was conducted manually by three researchers separately. In coding and theming the data, an inductive mode of analysis was adopted that began with open coding; and after that, themes and sub-themes were developed by clustering and combining similar codes. The identified themes and sub-themes were cross-checked between the researchers. Transcripts were revisited and recoded when contrasting interpretations appeared. Thus, themes and sub-themes were revised until common ground was achieved. Repeating the procedures of continuous labeling helped organize the logic and structure of answers to the research questions. Data validity and trustworthiness were ensured in the research process. For instance, data was cross-checked between the researchers. Second, some transcripts were sent back to the informants to ensure that their intended meanings were not distorted. Third, the researchers made a conscious effort not to impose any personal stance when interpreting the data but to rely on the interviewees' own words (Lune & Berg, 2017).

4. Findings: regional tourism governance in the COVID-19 pandemic through adaptive co-management

4.1 *China's institutional background and tourism governance structures in the GBA*

China has a centralized administrative system combining a hierarchical system and a horizontal functional system. Hierarchically, China's administrative system is broadly divided into three levels: central, provincial, and local (including prefecture, county, and township), with the superior level governing its subordinate levels and each subordinate level reporting to its superior level. Horizontally, each level comprises several functional departments or bureaus in charge of different aspect of administration, such as transport, industry, land and housing, and tourism. As for tourism governance, the culture and tourism administrations were merged into the Cultural and Tourism Ministry at the central level in 2018. Its subordinates at the provincial level are the Cultural and Tourism Departments in different provinces, followed by the cultural and tourism bureaus at the local level.

The unique existence of the SAR has further complicated the structure of the GBA. Macao, being a SAR governed under the principle of 'one country, two systems,' is granted autonomous operations with an independent legal and economic system. Macao's chief executive is responsible for overseeing the execution of Macao's public affairs and reporting to the Central People's Government in Beijing directly. However, due to the indispensable exchanges between Macao and Mainland China across the border, Macao relies heavily on the political and economic support from the central and local government for cross-border policies and execution. Despite the implementation of the GBA concept, cooperation between Macao and other GBA cities is still limited and informal, mostly through the proximate city of Zhuhai (R9).

4.2 *Vertical interaction and intra-governmental collaboration for emergency response*

The initial stage of tourism governance under the pandemic period ran from January to May 2020, and was marked by the emergency suspension of all tourism-related business and the governmental bailout of the tourism industry. On 23 January 2020, the Cultural and Tourism Ministry of China issued a policy calling off all types of tourism activities. Following this action, the respective cultural and tourism departments in Guangdong Province and nine GBA mainland cities quickly started their emergency response. Tours were canceled, scenic zones and cultural venues were closed, 'ticket and hotel' businesses were stopped, and mobility was kept at a minimum. A major task for tourism bureaus was to deal with problems that arose from the sudden shutdown of tourism business, such as regulation of refunds, and infected tourists needing quarantine. Similar measures were taken in Macao to stop gatherings of all sorts. The borders of Macao were closed temporarily and were later relaxed to admit Chinese nationals subject to 14 days of quarantine. In response to the pandemic outbreak, the Macao SAR Chief Executive set up two cross-departmental task forces to deal with the pandemic issues. The Joint Prevention and Control Mechanism Team is responsible for internal coordination, while the Macao – Zhuhai COVID-19 Prevention Control Working Group collaborates with the Zhuhai Municipal government for anti-pandemic measures. Combating the pandemic was heightened as a national security issue, which

provoked close coordination among proximate regions to facilitate local and regional policies. At the intra-government level, the Joint Prevention and Control Mechanism Team was established as a new task force to tackle local pandemic issues. However, most of its members overlap with the existing Tourism Crisis Management Office, and cross-departmental trust has been established through previous collaborations.

Although the framework and objectives may be slightly different from our previous collaborations, the responsibilities still align with the departmental functions. Our role (as Tourism Office) is to assist tourists in Macao and Macau tourists traveling abroad by coordinating airlines, hotels and related travel agencies. We have conducted drills with police and health departments to prepare for different incidents, and we are confident that each department will function properly when a situation arises. (R8)

The pandemic came as a shock, and according to our interview, there was no contingency plan for this kind of tourism crisis. The society was faced with heightened uncertainty, particularly in terms of imperfect knowledge. As one informant recalled the situation: 'We were all blind at first, we knew little about the virus and no one knew what "Level one public health response" was' (R6). However, there was some reference from previous experience, the severe acute respiratory syndrome (SARS) outbreak in 2003, in which the GBA cities were hit hard. In our interview, a recurrent account was that at the beginning of the pandemic outbreak, people thought it would disappear in about 6 months, just like what happened to SARS. Reviewing the situation of 2003 was a major source of learning at this initial stage, and it shaped the expectations of both governments and the tourism industry. The industry was expecting a rebound in tourism half a year later so that they could earn back their losses (R3), and the government issued temporary supportive policies for a timeframe of 6 months (R7).

With reference to experience from 2003 SARS and the expectations of the pandemic ending in half a year, the initial stage of tourism crisis governance aimed at bailing out tourism enterprises including travel agencies, scenic zones, and hotels; it was characterized by vertical interactions and intra-governmental collaborations. In February 2020, the Cultural and Tourism Ministry of PRC issued its first policy to relieve the financial stress of travel agencies. Vertically, a special fund for the tourism industry was established at the central level, channeling down through the provincial level to municipalities. This response corroborates the findings from Yao et al. (2022) that financial resources were mobilized vertically from top to bottom within the governments during that period. In our case, Guangdong Province added to the special fund with its own financial resources, and each city would further add to the fund pool according to their available resources for the enterprises within its administrative boundary. Consequently, cities that were economically better off provided more financial support to their tourism industry.

'Intra-governmental collaboration' refers to collaboration of the same level of governmental departments or bureaus in the same municipality, which was manifested in both the emergency response to tourism-related pandemic prevention measures and the supportive policy for tourism industries. With the sudden stop of all tourism activities, it was a critical task to make sure tourists were sent home safely, and that those who could not return home due to interrupted traffic were settled properly. Taking Guangzhou as an example, to deal with such a public health emergency, barriers between different governmental bureaus were broken down and collaborations were formed, including the Cultural and Tourism Bureau, Commerce Bureau, Health Commission, Traffic Bureau,

and more (R3). According to the interview, new forms of communication and coordination were established in the form of an ‘epidemic prevention and control command headquarters’ at the municipal level, with all relevant bureaus taking part. The smart-phone app WeChat acted as an essential channel for timely communication, as ‘a complete WeChat group was established, with the participation of leaders of various bureaus and staff specific for this’ (R3). In this informal way, flexibility and quick reaction was achieved through intra-governmental collaboration.

The establishment of the temporary institution of Epidemic Prevention and Control Headquarters was responsible for coordinating different departments and bureaus at the same level to work together for pandemic control, chaired by the Party Secretary of the Municipality. It was equipped with the power to formulate pandemic control policies such as suspension of tourism activities. Likewise, intra-government collaboration in Macao was also enhanced through the cross-departmental task forces set up under the overarching objective of curbing the pandemic. For instance, the Joint Prevention and Control Mechanism Team was headed by the Chief Executive of Macao, and it was able to give guidance and even promulgate emergency laws for various departments to implement and execute the required anti-pandemic actions. The members of the team are high-ranking officers who ensure that orders are carried out efficiently. Hence, having specific institutions or task forces headed by key government officials with designated authority has proved to be an effective measure to enhance communications and allow alignment and implementation of pandemic policies in a prompt manner. The cross-border activities in this stage were confined to a minimal level where adaptive co-management focused on vertical and intra-government communications to tackle the pandemic-related issues locally. Figure 3 shows the governance structure and major institutions for tourism governance at the municipal level under Covid-19 pandemic.

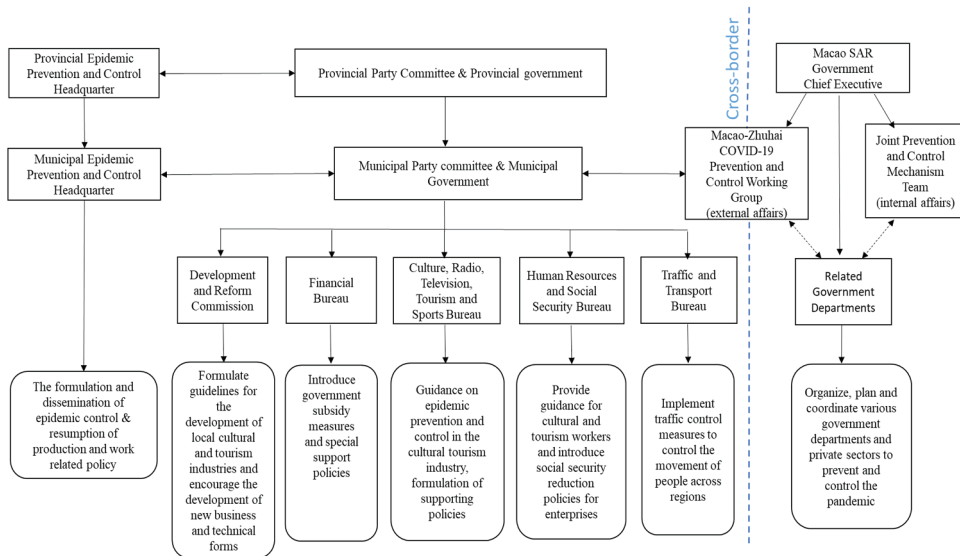


Figure 3. Governance structure and major institutions for tourism governance at the municipal level under COVID-19 pandemic.

4.3 Public – private interaction and inter-governmental collaboration for tourism revival

The second stage of tourism governance under the pandemic period lasted roughly from May to the end of 2020. The pandemic was largely under control in Mainland China by April 2020, while the GBA cities except for Hong Kong achieved zero local growth in positive cases in March. The society assumed the pandemic would end soon just like SARS, and there was much discussion among the government, the tourism industry, and academia about tourism recovery in the ‘post-pandemic’ era. The uncertainty regarding tourism governance in this period mainly concerned incomplete knowledge regarding how to help the tourism industry, and how to cater to the needs of tourists who were still under the shadow of the pandemic. The major aims for the pandemic-induced tourism crisis governance in this period included first, to understand the tourism industry’s needs and provide further assistance, and second, to boost tourists’ confidence and stimulate tourism demand. These aims were achieved mainly through public – private interactions and inter-governmental collaboration.

Public – private interactions were important for the government to understand the difficulties and needs of the tourism industry and offer proper assistance. Such interactions included meetings between officials from the cultural and tourism bureau and industry representatives, officials visiting tourism enterprises for investigation, and reports submitted by the industry to the government. Tourism industry associations play an important role in assisting communications between the public and private sector. As social institutions, they are intermediaries bridging the knowledge gap between public officials and private businesses, by, for example, gathering and explaining governmental policies to the industry and collecting industry needs to advise the government (R5). Good relationships and trust between the public and private sector are also essential. This collaboration was emphasized in one interview account:

It is because we have such a close relationship with enterprises, they are willing to put their ideas out, so we can quickly come up with some measures. I think the establishment of this relationship and mutual trust is inseparable. In our city, the tourism bureau has been doing a good job in maintaining good relationships and long-term collaboration with the tourism industries. (R7)

The Macao Government Tourism Office has also established close ties with tourism associations to understand their difficulties, share insights on market trends, and explore new markets and tourism products together. For example, the Office encouraged travel agencies to pursue the local market and sponsored them to create new itineraries tailored for the local people. They also organized visits to meet their counterparts in the GBA for possible collaborations. The associations are grateful for such opportunities, which are otherwise beyond their reach. Through strengthened communications, Macao hotels have established enhanced cooperation with GBA hotels, and more local event companies participate in GBA trade fairs (R8).

If the industry still wants to stay in business, they need to understand the new market and what they want. They came up with 25 routes for the local market, including local helicopter tours and chatting with pilots. These new routes are very popular – there are still many possibilities. We just have to be creative. (R8)

Inter-governmental collaboration, occurring between the same level of bureaus in different cities, has been common in tourism governance for GBA cities both before and after the pandemic. There have been small alliances among adjacent cities, such as the ‘Zhongshan-Zhuhai-Macao’ alliance, the ‘Guangzhou-Shenzhen-Zhuhai’ alliance, the ‘Foshan-Jiangmen’ alliance, and the large ‘9 + 2’ alliance for all GBA cities (R4, R7). During this tourism recovery period, these cities quickly resumed their collaboration in tourism promotions. Taking the ‘Guangzhou-Shenzhen-Zhuhai’ alliance as an example, the tourism bureau in each city takes turn acting as the presiding unit. The rotating leadership is responsible for planning and implementation, while tourism bureaus in the three cities discuss together to decide details such as where to do promotion (R4). However, the ‘9 + 2’ collaboration was much affected by the pandemic, as traveling between Hong Kong and the other GBA cities still required 14 days’ quarantine. With a ‘learning by doing’ approach, the tourism bureaus strived to maintain previous collaboration in changed forms, from on-site to online, to adapt to the new situation (R3).

A large-scale inter-governmental collaboration was evidenced through the joint effort of the Macao and Zhuhai governments in handling cross-border travel during the pandemic. Unlike the case with most GBA cities, traveling to and from Macao still involves crossing a border with a custom check. In the initial stage of the pandemic, the border between Macao and China was literally shut down to prevent the virus spread, a measure that affected the daily lives of workers, residents and travelers. Adaptive co-management was sought from bottom-up petitions to resolve the community-wide concerns. Through substantial effort and communications between the local government and Zhuhai, an agreement was eventually achieved on the operationalization of control measures for reopening the border. The success of this collaboration model sets an example for joint initiatives in the future.

We need to find a solution [to reopen the border]. For this purpose, we came up with a proposal and invite related departments to comment on the practicality. For example, we need to consider the pandemic risks, the maximum capacity, the social order, transportation arrangement, technological applications, etc. The border was first opened for Macao residents to enter Zhuhai, and then extended to the GBA and Guangdong Province gradually. Slowly, normal travelling resumed between Macao and Mainland China. (R9)

Establishing inter-government trust among the GBA cities is a complex process due to their diversity of location and concerns. Typically, cities located close to each other with shared concerns find it easier to build mutual trust. The example of Zhuhai and Macao illustrates how mutual trust could be established through continuous efforts to find solutions together during the pandemic.

Zhuhai is our important neighbor as we share the border and have mutual interests in many areas. Initially, strict national and provincial regulations were promulgated to control the pandemic, such as the 14-day quarantine before entering Guangdong province. This new policy has posed huge challenges for both cities. However, we maintained close communication with Zhuhai to ensure that certain workers and food resources could cross the border to maintain basic supplies for both sides. Zhuhai has always been quick and cooperative, unless it involves issues beyond their authority, for which they will facilitate the issues to appropriate levels or cities. Through these interactions, we have built trust by understanding our different perspectives. When proposing inter-government measures, we will consider the concerns of both sides to develop a comprehensive and feasible action plan. (R9)

4.4. Interactive and iterative learning for tourism transformation

The third stage roughly ran throughout the year of 2021 when a local outbreak reemerged in early 2021. Under China's zero-COVID policy, strict prevention and control measures were implemented immediately in the city where local transmission of COVID occurred, including shutting down of all cultural and tourism venues, cancellation of all inbound and outbound tours, and strict mobility control for people entering or leaving the city. In this stage, the challenge to tourism governance was mainly unpredictability regarding when and where local pandemic outbreaks would occur, what particular prevention and control policies would be implemented, and how tourists' expectations and preferences would change accordingly. Tourism governance in this stage, then, included two major aims: the first was to act quickly in cases of pandemic outbreak to implement prevention and control measures as required by the central state, and the second was to guide and assist the tourism industry to adapt to the new situation under the 'normalization of pandemic prevention and control' (i.e. looking for a way out by adaptive transformation).

At this time, a protocol of prevention and control procedures had been formed and both the government and the industry had become experienced in dealing with local outbreaks through an iterative learning process. According to the interview, progress was made through experience:

At first, we were not clear about the 'public health response,' didn't know its contents and procedures. With all this time, we are now very clear about it and have developed better response capabilities and mechanisms. We have plans for more than 20 warning situations and developed a complete protocol to deal with them. The industry also became more adaptive. We have formed the normalized idea both in the government and industry that when the pandemic outbreak occurs, the tours stop. (R3)

(In Macao) We are accumulating experiences from various crises and public events. From the SARS experience, Macao has promulgated laws to ensure legal enforcement of epidemic prevention measures. During the pandemic, such regulations are no longer sufficient; we have undergone a review process to add supplements to the existing laws based on the situation. (R8)

Such progress is made through repetitive summary from experience, from feedback from the industry and experts, and from step-by-step learning by doing. Interactive learning is equally important, particularly for adaptive transformation. Faced with operational turbulence and unpredictability of pandemic outbreaks, tourism enterprises need to change their strategy to adapt to the situation. The government guides and assists their transformation in different ways, with interactive learning at the core. The first is to provide training to enterprise managers to enhance the confidence and strengthen the cohesion of the industry and promote exchange of ideas and good practices among enterprises. (R4)

By inviting experts and organizing training, ideas and good practices could be shared both between the experts and the industry and among industry practitioners. Inter-governmental learning between different cities was also important in adjusting to the new situation. For example, officials in the tourism bureau of Guangzhou admitted they benefited a lot from communicating and learning from their counterparts in Macao:

I attended a promotion meeting by our counterparts from Macao and watched their short video, which was really good. The video showed Macao as a very safe place to travel to, explaining the preventive measures they took and their requirements for tourists in

pandemic prevention. The video told the story in an attractive and interesting way. We learnt the form and content from them and made a similar video for Guangzhou. (R3)

The complex issues brought by the unprecedented pandemic had fostered communications and garnered understandings from governments at different levels to attain consensus. The cross-border issue was an urgent prerequisite for the normalization of travel between Macao and Mainland China. Such considerations needed to balance the risks and work for all parties; a feasible solution was eventually achieved through interactive learning between the Macao and Guangdong governments.

Since people crossing the border need to present their nucleic acid test results, the paper report is not realistic due to the large traffic volume. We need a technological solution – a certified electronic evidence. We do not have such experience, but through brainstorming solutions from both sides [Zhuhai and Macao], we found that the Guangdong provincial government has developed an electronic health code for internal purposes. We then modified the health code for cross-border purposes. Through continuous communication, we were able to understand the concerns, learn about the alternatives and seek common ground for solutions at the end. (R9)

Through such interactive learning, experiences and strategic adjustments in response to the pandemic were exchanged and assimilated to seek solutions for tourism recovery in this highly uncertain era.

5. Discussion

Underpinned by the ACM paradigm, this research examined how tourism stakeholders in the GBA could learn and adapt to balance pandemic control and tourism recovery at multiple levels, including local, regional and cross-border. The study revealed that ACM is a suitable approach to examine the response mechanism to the tourism crisis triggered by the pandemic, which is uncertain and unpredictable in the long term. Therefore, the GBA needs flexible institutions and multi-level governance systems that enable actors to learn and increase their adaptive capacity to respond promptly to the different types of uncertainties (imperfect knowledge uncertainty, incomplete knowledge, unpredictability) arising from the pandemic. In addition, analysis of the adaptability and flexibility of institutional arrangements requires examining the structures, processes, and actor interactions to realize how adaptive and flexible they are to withstand changing circumstances, as well as the factors that enhance and inhibit the ACM process and outcomes. Built on our salient findings, our ACM process is proposed (Figure 4).

ACM as a process

This study elucidated that ACM is a process concerning how adaptive institutional structures react to the changing environment via an ongoing and learning-by-doing process (Islam et al., 2018). The progression of the pandemic presented GBA stakeholders with three distinct phases of uncertainty. In response to the challenges, common goals were formulated accordingly, and adaptive institutional arrangements were implemented in the best interest of accomplishing the shared objectives. The challenge faced by tourism governance in the first stage was the imperfect knowledge of the virus. Tourism

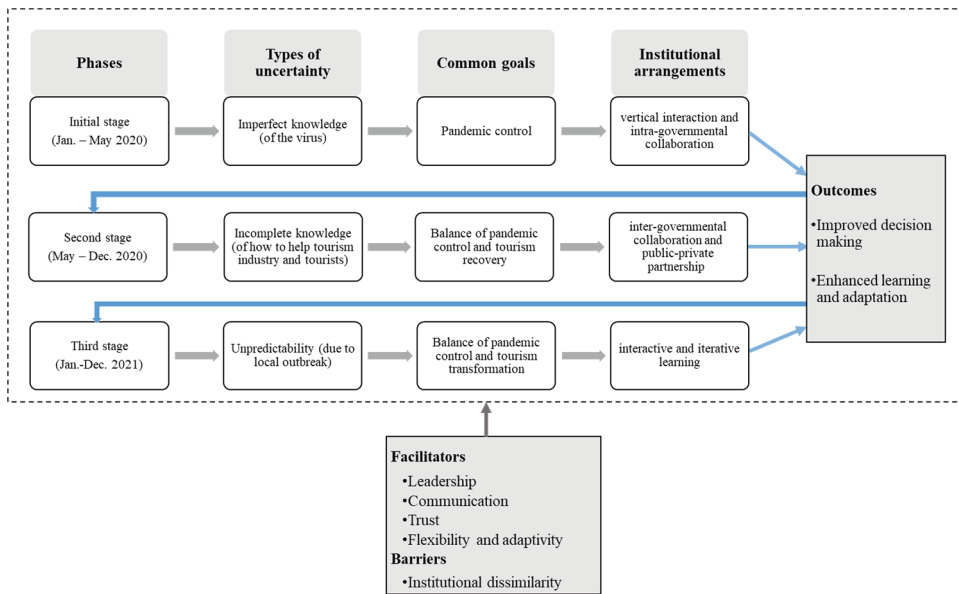


Figure 4. ACM process of GBA tourism governance in COVID-19.

authorities could only rely on their 2003 SARS experiences in the hope that the new pandemic could disappear at the end of summer. Therefore, with the aim of preventing the spread of the virus and bailing out tourism enterprises, tourism crisis governance was characterized by vertical interactions and intra-governmental collaborations. With the central government taking the leading and decisive role, temporary institutions of epidemic prevention and control were formed; and relief policies were issued to support the tourism industries at all levels. In the second phase, the uncertainty shifted to incomplete knowledge about how to support the tourism business and satisfy tourist needs in the shadow of the pandemic, which was addressed through public – private partnership and inter-governmental collaboration. In these two stages, as Wu et al. (2021) also found, the inter-governmental cooperation depended significantly on hierarchical cooperation, with higher level government sectors with higher support capacities offering resources to local government. However, as the pandemic unfolded, horizontal collaborations played a more important role in mobilizing resources and coordinating operations of pandemic control and tourism recovery. In addition, the contribution from private partners enabled the government to better understand the industry’s difficulties and provide assistance.

With sporadic local outbreaks and zero-COVID policy in force in the third stage, tourism governance was challenged by the unpredictability of local case emergence. While this stage appeared the most uncertain and unpredictable, the challenge was responded to with protocols for virus prevention and control that have been developed over the past two years. Through iterative and interactive learning, both the government and industry have achieved adaptive transformation by building better response mechanisms for controlling local occurrences and mitigating their impacts on tourism. This study concluded that an adaptive

learning and co-management method is well suited to an environment characterized by change and uncertainty (Islam et al., 2018; Plummer & Armitage, 2007), which are the defining features of the pandemic. An effective ACM approach relies ‘on the flexible and open institutions and multi-level governance systems that allow for learning and increase adaptive capacity’ (Folke et al., 2002, p. 439).

Facilitators of ACM

Our findings reveal a number of factors that enhance the learning process and collaborations at all levels. First, sustainable governance requires the involvement of different stakeholders. Consequently, strong leadership via governance is pivotal for coordinating their diverse interests (Wan et al., 2022). Due to China’s centralized administrative structure, it is evident that the central government needs to intervene when challenged by a crisis of this magnitude (Wu et al., 2021). However, it is also generally agreed that timely government interference is a must in managing the collaborations in recovery strategies (Salem et al., 2021). Our interviews indicated that the central government moved swiftly to establish Epidemic Prevention and Control Headquarters to regulate the pandemic and issue mandates for tourism relief. In the initial stage, for instance, a special fund for the tourism industry was created at the central level and subsequently directed to the provinces and municipalities. Therefore, strong leadership is essential, as it is often associated with greater levels of efficacy, which is critical during a crisis (Wan et al., 2022).

Second, the ACM framework posits that effective co-management requires communication (Cahyanto et al., 2021; Islam et al., 2018). In all stages, our findings indicate that there was sufficient communication between different parties, and that each party had a clear knowledge of their roles and responsibilities. Our interviews reveal that different forms of communication, such as WeChat groups, emerged to deliver messages and discuss matters in a more flexible and faster manner.

Third, trust is also essential for stakeholders to collaborate and learn from each other (Cahyanto et al., 2021; Islam et al., 2018). This is particularly true when private partners are engaged. Our findings emphasize that close relationships between the local government and tourism businesses, and mutual trust built prior to and during the crisis, facilitated the implementations of public policies and provision of appropriate assistance to tourism businesses.

Fourth, while hierarchical controls and coordination mechanisms are important at some stages, overreliance on them may render the collaborations at different levels unsustainable (Cahyanto et al., 2021; Plummer & Armitage, 2007). The time-sensitive nature of a crisis necessitates flexibility and prompt action. Our results show that, while hierarchical collaboration is indispensable, other forms of collaboration, such as small alliances among adjacent cities, must be developed to ensure the coordination mechanisms are sufficiently flexible and adaptive for decision making.

Barriers to ACM

Our findings reveal that institutional dissimilarity presents the greatest challenge to the implementation of ACM (Månsson et al., 2023). This disparity manifests itself primarily in the immigration policies executed during the pandemic, particularly in the first stage. For example, an unexpected measure was the complete closure of the Macao – Mainland China border, which was undertaken to prevent the virus spread. In addition, the absence of Hong Kong's participation in the ACM model of tourism governance in the GBA can be attributed to the institutional dissimilarity reflected in their ideological variations (Park et al., 2022). Whereas both Mainland China and Macao implemented zero-COVID policy and achieved the reopening of their shared border once the pandemic was effectively under control, Hong Kong did not pursue that approach and encountered constant local outbreaks. This policy divergence resulted in the prolonged semi-closure of borders between Macao and Hong Kong, as well as between Mainland China and Hong Kong, and the absence of Hong Kong in this ACM exercise.

Outcomes of ACM

Effective ACM often yields beneficial outcomes within a short time (Islam et al., 2018; Plummer & Armitage, 2007). The first outcome identified is an improvement in the efficiency of decision making. As the co-management involves all levels of public and private sectors, with the common goals set, they communicate and meet on a regular basis, either formally or informally. The continuous communication and exchange builds relationship and generates shared understanding, which enables joint efforts and coordinated actions directed to achieve the shared objectives, thus making the decision-making process more effective (Cahyanto et al., 2021). The second outcome is enhanced learning and adaptation. As each stage brings a unique set of obstacles, earlier experiences are not always relevant. It is necessary to adjust the institutional arrangements, policies, strategies and actions, which allows for learning and adapting. Even within the same stage, interactions and exchanges between partners give opportunities for learning, reflection and contemplation of future efforts (Islam et al., 2018). More importantly, the interactive and iterative learning and adaptation through the process builds knowledge about crisis management, hence boosting the capacity of the stakeholders to better cope with future crises (Islam et al., 2018; Park et al., 2022).

6. Conclusion

6.1 Theoretical implications

The theoretical contributions of this study are twofold. First, this study contributes to the literature on tourism crisis management through a novel lens, the lens of ACM. While varied perspectives have been embraced for understanding how crisis can be managed (Neupane, 2021; Rastegar et al., 2022; Wan et al., 2022), none fully account for the highly volatile nature of the pandemic or the distinct uncertainties and challenges it brought during its many phases of development. Utilizing the ACM perspective, this study associates the ACM process with three distinct phases of uncertainty (imperfect knowledge, incomplete knowledge, and unpredictability). In each phase of uncertainty arising

from the pandemic, there have been different challenges that required actors and institutions to assess and understand the challenges, set the goals and aims, and develop the appropriate forms of alliances within the region to adapt. The adaptive learning and co-management method evidenced in this study has been particularly relevant and helpful in tourism governance during the pandemic because of its capacity to cope with the various phases of uncertainty.

In addition, this study has expanded its perspective of ACM from dealing with the crisis at the local level to regional and cross-border levels. It demonstrates how joint efforts of actors and flexible institutions (e.g. vertical, intra-governmental, inter-governmental levels, hybrid forms of collaboration, interaction, and iteration) have worked at multiple scales and levels through a learning-by-doing process to balance pandemic control and restore the region's tourism industry. Furthermore, the study has articulated the essential factors that enhance the efficacy of the learning process and collaborations at the multiple levels, as well as the positive outcomes of ACM as evidenced by the enhanced capacity of the regional stakeholders to better cope with present and future crises. Through the case of the GBA in China, this study sheds some light on other nations, regions, and localities on the benefits and mechanisms of ACM to cope with crises that are uncertain and require the collaboration of actors at multiple geographical scales and levels.

6.2 Practical implications

This study reveals that the ACM process could further enhance regional integration through vertical and horizontal collaborations at different levels. At the intra-governmental level, the ad-hoc task force for epidemic control has played an important role in facilitating communications and execution within the hierarchical government structure. The task force not only signifies the importance of the issue, but also allows allocation of resources more efficiently. With the protocol in place, the task force could be extended to handle other crises and regional issues, especially at the uncertainty stage when flexibility and prompt action are crucial.

At the inter-government level, the joint task force between Macao SAR and Zhuhai has also contributed to normalizing cross-border activities through adopting proper pandemic measures acceptable to both parties. Similar taskforces could be established between other cities for critical issues, beyond cross-border measures. Adjacent cities, especially those with different legislation systems, are prompted to overcome their differences to find solutions for compatibility. Such task forces will serve as a platform for interactive and iterative learning to enhance understanding, narrowing the institutional dissimilarity and accelerating the integration process within the region.

Furthermore, leadership and communication are essential facilitators in the adaptive co-management process. With different stakeholders in the dynamic problem-solving process, discussions could easily go astray and lose focus due to the diverse interests and incomplete knowledge of the situation. The intervention of strong government leadership helps expedite the decision-making process, enables swift actions and, more importantly, signals determination to resolve a given crisis. Therefore, effective communication

channels should be maintained between policymakers and stakeholders to ensure shared understanding and support of policies and their implementation.

Finally, policymakers need to observe the situations arising from the different phases of uncertainty, to understand the roles and responsibilities of each party within the region, and give room for stakeholders to form their own alliances to search for the most suitable institutional arrangements to cope with the various phases of uncertainty. Besides, closely monitoring the outcomes of the collaborations from time to time will help a region to learn and increase their adaptive capacity to better cope with crises.

7. Limitations and future research

The study has several limitations. First, no interview from Hong Kong was obtained in this study. Although both Hong Kong and Macao are SARs, Hong Kong has a different social, political and economic environment from Macao. As Hong Kong is a metropolis in the GBA, the absence of its perspective leaves the picture of co-management incomplete. Hence, the results need to be interpreted with care. After the pandemic has been alleviated, future studies are recommended to include Hong Kong for its role in the regional adaptive co-management. Second, the majority of interviews were conducted by the end of 2021 or earlier. Because of the pandemic's prolonged impact on Mainland China, strategies and measures may evolve over time as a result of the adaptive process. Consequently, future research could explore further how the process evolves to account for new uncertainties. Third, this study is primarily focused on public sector entities as stakeholders. The participation of the local community in adaptive learning and co-management is equally important (Islam et al., 2018). Future research should take their interests into consideration for improved governance. Fourth, as most of the interviewees are government officials, they tended to be conservative when answering the questions posed, which could lead to potential bias in their responses. Caution should be exercised when examining the results. Fifth, although the data indicated that mutual trust could be nurtured through close communications, it is unclear to what extent the private sector trusts the government. There may be variations from place to place and from business to business. For example, data could be collected to compare the level of trust between the private sector and the government across different cities within the GBA, which may provide insights into the variations and factors influencing trust levels. Longitudinal studies could also be conducted to track changes in trust levels over time, in order to understand the evolving dynamics between the private sector and the government.

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