Abstract. This study analyzes and sees Penta-helix actors’ role and contribution in maintaining the tourism sector during the COVID-19 pandemic. The involvement of these actors before the pandemic succeeded in advancing the Indonesian tourism sector. Since the COVID-19 pandemic, a large contraction in the tourism sector has been inevitable. This research was conducted using data analysis from NVivo 12 Plus software. The research data consisted of files and documents over three months (August, September, October) and supported by online media data related to the pandemic’s tourism sector. The study results showed that the government and business/private had the highest scores to maintain the tourism sector, with an average of 27.88% and 28.11%. Compared to other actors (academic, community, media), these high values were caused by a close relationship between government and business/private in the economy, employment, mobility, and tourism policy. Second, academic and community actors were in third and fourth place with 21.31% and 13.44%. Third, the actor with the lowest score was the media, with a score of 9.27%. During the COVID-19 pandemic, the media prioritized information about the spread and development compared to information on the tourism sector.

Keywords: Penta-Helix model · Sustainability · Tourism industry · Tourism activities · COVID-19

1 Introduction

The research aims to describe how Penta-helix collaboration can enhance Indonesia’s tourism area during the Corona Virus Disease 19 (COVID-19) pandemic. The emergence of COVID-19 at the end of 2019 has a significant impact on Indonesia’s global activities, namely the decrease in human mobility to carry out all activities, including tourism
The tourism industry is a leading sector for the Indonesian government in improving the national economy because it provides a considerable contribution. The high contribution of tourism to the national economy is also driven by other actors’ involvement, namely academics, business/private, society, and the media (Penta-helix), supporting tourism progress. However, since the emergence of the COVID-19 pandemic in Indonesia (March 2020) has put pressure on tourism, contractions and large losses have been inevitable due to the pandemic. Therefore, this research also assesses Penta-helix actors’ role and influence to maintain Indonesian tourism’s sustainability during the COVID-19 pandemic.

The tourism industry’s high contribution to the national economy before the COVID-19 pandemic is inseparable from the Penta-helix collaboration model’s various interest actors. In the last five years (2014–2019), the implementation of the Penta-helix collaboration was considered successful in advancing the development of the Indonesian tourism industry. The Penta-helix collaboration model has five (5) actors and is interrelated in development efforts in the tourism sector, namely academics (A), business (B), community (C), government (G), and media (M). The Penta-helix collaboration model is a refinement of the collaboration model between the government, private sector, and society by including other important actors, namely academics and media.

The concept of tourism development using the Penta-helix collaboration model is an innovation towards change in the form of cross-stakeholder. Actor mapping shows how significant the role and influence of actors are in developing tourism. In general, the Penta-helix concept tends to see developments in the export-import industry activity sectors. As time goes by, the concept of Penta-helix collaboration is increasingly shifting to other industries, such as the tourism industry.

Coronavirus Disease-19 (COVID-19) presence in early 2020 in Indonesia hurt national industries. The rapid spread of the COVID-19 pandemic is a big surprise for the global economy, including affecting the Indonesian economy. One of the most influential in COVID-19 pandemic is the tourism industry. The tourism industry is one of the industries that have been badly affected by the spread of COVID-19, seen from the massive decline in foreign tourist arrivals, resulting in a large contraction of income from the tourism sector. Before the COVID-19 pandemic, the tourism industry continued to increase every year (2015–2019), and it is targeted that tourist attendance in 2020 will reach 20 million tourists (Fig. 1) and (Table 1).

Based on Fig. 1 and Table 1, the tourism crisis during the COVID-19 pandemic is a shared responsibility. In this case, it is necessary to conduct coordination and cooperation by all stakeholders. Coordination and cooperation within the Penta-helix are needed to sustain and restore tourism that has been destroyed by the pandemic. Coordination in these efforts must be carried out in a structured and systematic manner so that the implementation of the recovery runs well. Each actor’s role in the Penta-helix contributes to maintaining and restoring the tourism sector.

This study analyzes tourism sustainability efforts using the Penta-helix model approach and can assess the most influential actors in maintaining tourism sustainability during the COVID-19 pandemic. This research is qualitative research using secondary data. Secondary data were documents and files discussing the tourism sector. The data came from the Ministry of Tourism and other related institutions. Data from online media also supported this article with 30 news stories from August-September-October or the
new life order policy (New Normal Era) that began in Indonesia. The data coding was carried out using NVivo 12 Plus software and a Crosstab Query. The NVivo 12 Plus in this study can analyze deeply and distinguish each actor’s role and involvement [13]. The Nvivo12 Plus software obtained maximum results following the study’s title, seeing the most influential actors in maintaining tourism during the COVID-19 pandemic.

2 Finding and Discussion

Collaboration between government administration stakeholders to solve is a limitation of dealing with them [14]. The collaborative governance approach is a relevant step to be developed because it explains the collaboration system that will introduce various concepts that unite the government, private sector and society. In this collaboration, a dialogue will occur in solving a problem [15]. In formal policies, the government is dominated by actors who influence the interests of public affairs. Although governments no longer exercise centralized control over public policies, they still can influence them. The power used by the state today is to negotiate with actors in policy networks. Members of this network are increasingly accepted as equal partners in the policy process, public and private actors collaborating to obtain resources they cannot access independently.
For example, using private companies for policy implementation allows the government to avoid costly and time-consuming procedural and accountability issues. Currently, governance theory is increasingly significant in public service affairs. The paradigm shift from government to governance reflects the political will designed to drive governance reform by implementing proper governance principles [16]. Good governance currently has high complexity because it involves supporting actors, such as business/private, academia, society, and the media.

So far, Penta-helix actors’ involvement in the tourism sector positively impacts the national economy because they can maximally carry out their respective roles [17]. However, since COVID-19 emerged, all actors have been unable to control the tourism sector’s impact because the COVID-19 pandemic has also damaged other vital sectors such as the mining industry, export-import activities, trade, and others [18]. Researchers’ data in looking at Penta-helix actors who play a role and influence in maintaining and trying to restore the tourism sector are as follows. First, the government as the main actor seeks to control the spread of the COVID-19 pandemic by making policies, in this case also including policies in implementing health protocols in every tourism activity, and always paying attention to the losses of the tourism economic sector caused by COVID-19. Second, Business/Private has always played a role in encouraging the development of the tourism industry, making an immense contribution to investment and development to improve tourism’s quality and facilities further. However, when COVID-19 business/private suffers the most losses. The tourism sector’s economy has fallen by 90% since COVID-19 entered Indonesia [19].

Third, a community in the Penta-helix model has been the leading partner in developing the tourism sector. Groups and communities always welcome the presence of ideas in tourism development during the pandemic. All groups, associations, institutions, and the community always follow appeals and government policies, especially closing access to tourism destinations or destinations only for local communities [4, 20]. Fourth, in the Penta-helix collaboration model, academics’ role is considered a drafter, providing new ideas and concepts in developing national or regional tourism. Academics are a source of knowledge with concepts, new theories relevant to tourism development with scientific studies, and research to improve tourist destinations’ quality and quantity [21]. Besides, they play a role in providing standardization, product certification, and human resources skills (HR). Fifth, in the Penta-helix collaboration model, media are expenders to support the publication, promote and create a brand image through websites, online and offline media. In other words, the media are tools for marketing and attracting tourists’ attention [22].

In the current situation, these actors’ roles and contributions are needed to restore the economy, society, health, mobility, and the environment. In the preliminary discussion, the tourism industry is a leading sector that supports the national economy. The government’s priorities for the tourism sector, which began in 2014, gave significant results to make an enormous contribution to the national economy (Fig. 1 and Table 1). However, since the COVID-19 pandemic in Indonesia, the tourism sector has experienced a large contraction, affecting the national economy [23, 24].

Figure 2 explains that COVID-19 has a significant influence on tourism activities. The outline of Fig. 2 is also connected to the food and beverages business, hotels, jobs, shopping, consumers and producers, exhibitions, travel, transportation, and others. This
condition proves that COVID-19 has a significant effect on all holiday activities and tourism activities. This pandemic’s enormous effect requires a joint role, especially the helical actors, to maintain and slowly rebuild tourism.

Based on data findings and analysis results using the Nvivo 12 plus software, the five actors in the Penta-helix model have different roles and influence on the tourism sector. This study used several indicators of great concern in rebuilding tourism, the economy [25], employment [26], the health of tourists [27], health policy in tourism [28], and human mobility in tourism activities [29]. The indicator used is a benchmark for coding and data analysis to get results.

Based on Fig. 3 and Table 2, each actor has their value to maintain and rebuild Indonesia’s tourism sector. Of the overall indicators, the highest score was achieved by a business or private, with an average of 28.11%. The second place is the government with 27.88%, and the third is academies with 21.31%. The fourth is the community with 13.44%, and the fifth is media with 9.27%. The discussion of each indicator is as follows.

First, on economic indicators, the government is the most influential actor in the tourism economic sector than other Penta-helix actors. This situation cannot be avoided because the tourism sector is the leading sector in Indonesia. After all, it has an enormous contribution and has been helpful to the national economy. Since the COVID-19 pandemic in Indonesia, the country’s foreign exchange earnings from the tourism sector have fallen by 90% [19]. The magnitude of the declining value has become the government’s concern in the tourism economic sector. The government has taken several strategic steps to slowly revive the tourism sector, including providing a tourism grant of IDR 3.8 trillion [30]. The grants are given in subsidies for hotels, restaurants, and businesses directly related to tourism throughout Indonesia to provide industry opportunities to continue tourism economic activities during the COVID-19 pandemic.

Second, in job indicators, business or private is the actor with the most role and influence on continuing work in the tourism industry. The business/private sector must bear large losses due to the cessation of tourism activities caused by COVID-19.
condition continues to mass layoffs of employees/termination of employment in the scope of tourism. Business/private must also provide severance pay for these former employees’ survival during the pandemic. The number of layoffs in Indonesia’s tourism sector reached 82% [31]. The business/private tourism sector must carry out this figure to maintain the tourism sector’s sustainability, which is currently in crisis.

Third, business/private and government are the leading actors on the mobility indicator due to the close relationship. Clashes and differences in views on human mobility are a big problem in the current pandemic situation. First, during the COVID-19 pandemic, people’s movement from one place to another becomes a calculation and analysis to see and assess the number of COVID-19 spread caused by this mobility [32]. Second, to maintain and improve the tourism sector, human mobility is needed so that the tourism

Table 2. The value of Penta-helix actors during the pandemic

|          | Economy | Labour | Mobility | Policy | Public health | Total |
|----------|---------|--------|----------|--------|---------------|-------|
| Academic | 19.94%  | 18.97% | 21.48%   | 22.99% | 22.84%        | 21.31%|
| Business or Private | 28.7%  | 27.59% | 28.87%   | 26.64% | 28.45%        | 28.11%|
| Community | 13.6%  | 17.82% | 13.73%   | 10.95% | 12.5%         | 13.44%|
| Government | 29%    | 24.14% | 28.17%   | 29.93% | 26.29%        | 27.88%|
| Media    | 8.76%   | 11.49% | 7.75%    | 9.49%  | 9.91%         | 9.27% |
| Total    | 100%    | 100%   | 100%     | 100%   | 100%          | 100%  |

Fig. 3. The role and influence of Penta-helix actors
sector can survive during a pandemic. Business/private endeavors to bring out all innovation and creativity to attract tourists’ attention during the COVID-19 pandemic, such as promoting destinations at low prices, applying health instruments during tourism activities, and providing health insurance for tourists during tourism activities. The magnitude of the two actors’ roles and concerns is an essential point in preventing the spread of COVID-19 and seeking tourism sustainability during the pandemic, even though on a low scale.

Fourth, in the tourism policy indicator, the government and business/private are the leading actors seen by the reciprocal relationship and mutual support of each policy program. The government issued a policy to maintain the sustainability of tourism during the pandemic. This policy is supported by businesses/private by implementing tourism activities. The government’s new policy is to prioritize and implement health protocols to prevent the spread of COVID-19 in tourism activities. Health instruments in the implementation of tourism activities refer to the tourism ministry’s programs, namely Cleanliness, Health, Safety and Environmental Sustainability (CHSE) [33] as well as the Circular of the Minister of Tourism and Creative Economy/head of the Tourism and Creative Economy Agency Number 2 of 2020. Fifth, on indicators health of tourists, business/private has a high value compared to other actors. Even though the government issues every policy, business/private actors significantly contribute and pay attention to tourists’ health in its implementation.

The three other actors are academics, community, and media, with low tourism sector scores. Still, the roles and contributions of these actors are vital in maintaining the sustainability of tourism. (1) During the COVID-19 pandemic, academics have always provided concepts, ideas, strategic steps to the government and business/private sector to suppress the spread of COVID-19 and strive to ensure that tourism activities do not stop completely. One of them is to provide input to the government and business/private sector to continue to carry out local scale tourism activities to keep the economy running even on a small scale. (2) Even though it does not have a high score, the community has a significant role in maintaining tourism by implementing every policy and regulation. People can still take vacations only to the local area while still fulfilling the health protocols.

Third, business/private and government are the leading actors on the mobility indicator due to the close relationship. Clashes and differences in views on human mobility are a big problem in the current situation. First, during the COVID-19 pandemic, people’s movement from one place to another becomes a calculation and analysis to see and assess the number of COVID-19 spread caused by this mobility [32]. Second, to maintain and improve the tourism sector, human mobility is needed so that the tourism sector can survive during a pandemic. Business/private endeavors to bring out all innovation and creativity to attract tourists’ attention during the COVID-19 pandemic, such as promoting destinations at low prices, applying health instruments during tourism activities, and providing health insurance for tourists during tourism activities. The magnitude of the two actors’ roles and concerns is an essential point in preventing the spread of COVID-19 and seeking tourism sustainability, even though on a low scale.
Of the five indicators, the Penta-helix actors who are more visible in their role, contribution, and influence in maintaining tourism sustainability during the COVID-19 pandemic are the government and business/private because the two actors have a close and interrelated relationship with the tourism industry. The government needs business/private to maintain and encourage tourism during a pandemic. Business/private also needs government assistance to reduce the number of COVID-19 spread caused by tourism mobility. Even though other actors (Academic, Community, Media) only had low scores, they also have contributed significantly to implementing tourism activities during the pandemic. The five Penta-helix actors are running correctly to maintain the tourism sector and rebuild the tourism industry.

3 Conclusion

Indonesia has lost one of the primary income sources, which has a multiplier effect, namely the tourism industry. The Penta-helix collaboration has succeeded in advancing the tourism industry before the COVID-19 pandemic. Still, during the COVID-19 pandemic, the tourism sector has suffered significant damage but can still survive even on a low scale. The involvement of interest actors, in this case, the Penta-helix, must be carried out maximally to maintain the tourism sector. Further, these actors must immediately encourage the tourism sector’s awakening with a new style, namely implementing health protocol instruments in every tourism activity. The goal is that the tourism sector can survive in the future, vulnerable to external disturbances. Therefore, it is necessary to maintain and increase collaboration, in this case, the Penta-helix, to create innovations so that the tourism sector can continue to survive even in a crisis.

References

1. Yazid, S., Lie, L.D.J.: Dampak Pandemi Terhadap Mobilitas Manusia di Asia Tenggara. Jurnal Ilmiah Hubungan Internasional, 75–83 (2020). https://doi.org/10.26593/JIHI.V010.3862.75-83
2. Budimanta, A.: Sektor Unggulan Pemerintah, KomineEkonomi Industri Nasional (KEIN), Jakarta (2019)
3. Nasution, D.A., Erina, E., Muda, I.: Dampak Pandemi Covid-19 Terhadap Perekonomian Indonesia. J. Benefita 5(2), 212–224 (2020). https://doi.org/10.22216/jbe.v5i2.5313
4. Hardianto, W.T., Sumartono, S., Muluk, K., Wijaya, A.F.: Tourism investment services in Batu city with penta helix perspective. Int. J. Manag. Adm. Sci. 5(05), 17–22 (2017)
5. Sugihamretha, I.D.G.: Respon Kebijakan: Mitigasi Dampak Wabah Covid-19 Pada Sektor Pariwisata. J. Perenc. Pembang. Indones. J. Dev. Plan. 4(2), 191–206 (2020). https://doi.org/10.36574/jpp.v4i2.113
6. Halibas, S.A., Sibayan, R.O., Maata, R.: The pentahelix model of innovation in Oman: an HEI perspective. Interdiscip. J. Inf. Knowl. Manag. 12, 159–174 (2017)
7. Amrial, A., Muhammad, A., Muhud, E.: Penta helix model: a sustainable development solution through the industrial sector. Soc. Hum. Sci. (November), 152–156 (2017). HISAS 14th Proceedings of Conference
8. Calzada, I.: Local entrepreneurship through a multi-stakeholders’ tourism living lab in the post-violence/peripheral era in the Basque Country. Reg. Sci. Policy Pract. 11(3), 451–466 (2019). https://doi.org/10.1111/rsp3.12130
9. Williams, A.M., Baláž, V.: Tourism risk and uncertainty: theoretical reflections. J. Travel Res. 54(3), 271–287 (2015). https://doi.org/10.1177/0047287514523334
10. Sulistyo, A.: Strategi Pengembangan Objek Wisata Minat Khusus Dalam Upaya Menciptakan Pariwisata Berkelanjutan Di Kabupaten Bantul (Studi Kasus: Karst Tubing), 11th Univ. Res. Colloqium 2020, pp. 1–8 (2020). https://repository.urecol.org/index.php/proceeding/article/view/876/851
11. Wishnutama, W.: Kerugian Pariwisata Indonesia Akibat Corona, Jakarta (2020)
12. Taulhid, T., Argubi, A., Ramadhon, R., Kamaluddin, K.: Revitalisasi Kebijakan Pengembangan Pariwisata Dalam Menghadapi Pandemi Covid-19 di Kota Blma. Sadar Wisata 3(1), 13–24 (2020)
13. Zahra, A.A., Purnomo, E.P., Kasiwi, A.N.: New democracy in digital era through social media and news online. Humaniora 11(1), 13 (2020). https://doi.org/10.21512/humaniora.v1i1i.6182
14. Renn, O.: Stakeholder and public involvement in risk governance. Int. J. Disaster Risk Sci. 6(1), 8–20 (2015). https://doi.org/10.1007/s13753-015-0037-6
15. Ansell, C., Gash, A.: Collaborative governance in theory and practice. J. Public Adm. Res. Theory 18(4), 543–571 (2008). https://doi.org/10.1093/jopart/mum032
16. Mannaa, M.T.: Halal food in the tourist destination and its importance for Muslim travelers. Curr. Issues Tour., 1–12 (2019). https://doi.org/10.1080/13683500.2019.1616678
17. Muhyi, H.A., Chan, A.: The penta helix collaboration model in developing centers of flagship industry in Bandung City. Rev. Integr. Bus. Econ. Res. 6(1), 412 (2017). https://buscompress.com/journal-home.html
18. Uğur, N.G., Akbiyik, A.: Impacts of COVID-19 on global tourism industry; a cross-regional comparison. Tour. Manag. Perspect. 36(September), 100744 (2020). https://doi.org/10.1016/j.tmp.2020.100744
19. Karunia, A.M., Jatmiko, B.: Akibat Pandemi, Pendapatan Devisa Sektor Pariwisata Turun hingga 90 Persen, Kompas.com (2020). https://money.kompas.com/read/2020/09/25/135500926/akibat-pandemi-pendapatan-devisa-sektor-pariwisata-turun-hingga-90-persen. Accessed 10 Dec 2020
20. Zulkhibri, M., Sinay, J.B.: Assessing ASEAN economic policy responses in a pandemic. ASEAN Policy Br., vol. 02, no. May 2020
21. Yuningsih, T., Darmi, T., Sulandari, S.: Model Pentahelik Dalam Pengembangan Pariwisata. JPSI (J. Public Sect. Innov.) 3(2), 84 (2019). https://doi.org/10.26740/jpsi.v3n2.p84-93
22. Nugraha, Y.M.: Analisis Potensi Promosi Pariwisata Halal Melalui E-Marketing di Kepulauan Riau. J. Penelit. dan Karya Ilm. Lemb. Penelit. Univ. Trisakti 3(2), 63–68 (2018). https://www.trijurnal.lemlit.trisakti.ac.id/lemlit/article/view/2990
23. BPS, Kunjungan Wisatawan Mancanegara, bps.go.id (2020). https://www.bps.go.id/subject/16/pariwisata.html#subjekViewTab3. Accessed 25 July 2020
24. Trading Economics, Indonesia GDP Growth Rate, Trading Economics (2020). https://tradingeconomics.com/indonesia/gdp-growth
25. Ozili, P.K., Arun, T.: Spillover of COVID-19: impact on the global economy. SSRN Electron. J. (2020). https://doi.org/10.2139/ssrn.3562570
26. Olivia, S., Gibson, J., Nasrudin, R.: Indonesia in the time of Covid-19. Bull. Indones. Econ. Stud. 56(2), 143–174 (2020). https://doi.org/10.1080/00074918.2020.1798581
27. Esfami, S., Khalilfah, Z., Mardani, A., Streimikiene, D., Han, H.: Community attachment, tourism impacts, quality of life and residents’ support for sustainable tourism development. J. Travel Tour. Mark. 36(9), 1061–1079 (2019). https://doi.org/10.1080/10548408.2019.1689224
28. Lee, S., Hwang, C., Moon, M.J.: Policy learning and crisis policy-making: quadruple-loop learning and COVID-19 responses in South Korea. Policy Soc., 1–19 (2020). https://doi.org/10.1080/14494035.2020.1785195
29. Bonaccorsi, G., et al.: Economic and social consequences of human mobility restrictions under COVID-19. Proc. Natl. Acad. Sci. U. S. A. 117(27), 15530–15535 (2020). https://doi.org/10.1073/pnas.2007658117

30. Jyestha, V.: Pemerintah Harus Selektif Salurkan Dana Hibah Pariwisata Rp 3,3 Triliun, Kompas.com (2020). https://www.tribunnews.com/nasional/2020/10/05/pemerintah-harus-selektif-berikan-dana-hibah-pariwisata-rp-33-triliun. Accessed 10 Dec 2020

31. Putri, C.A.: Survei: Karena Covid-19, 35% Pekerja di Indonesia Kena PHK, CNBC Indonesia (2020). https://www.cnbcindonesia.com/news/20201007145144-4-192535/survei-karena-covid-19-35-pekerja-di-indonesia-kena-phk. Accessed 10 Dec 2020

32. Prawoto, N., Purnomo, E.P., Zahra, A.A.: The impacts of Covid-19 pandemic on socio-economic mobility in Indonesia. Int. J. Econ. Bus. Adm. 8(3), 57–71 (2020)

33. Wishnutama, W.: Panduan Pelaksanaan Kebersihan, Kesehatan, Keselamatan dan Kelestarian Lingkungan Pada Penyelenggaraan Kegiatan Pariwisata. Kementrian Pariwisata dan Ekonomi Kreatif, Jakarta (2020)