

# Climate Change Implications on Strategic Tourism Development of Yogyakarta during the Pandemic Covid-19

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## ABSTRACT

The purpose of this research is the regional tourism development strategy in DIY Province to answer the challenges of climate change impacts related to the community's social life and tourism which was very-slumped during the pandemic. What are the efforts of the community and government to restore tourism? The existence of diverse and unique potential of DIY's natural resources must be maintained and developed even during the pandemic. Strategic innovation to create regional competitive advantage through increasing community empowerment and the role of the Penta helix. This study uses qualitative research methods, through field observations, interviews, and empirical document data that are appropriate and relevant to the research objectives. The commodification of natural potential and the role of the Penta helix can encourage people to build micro-entrepreneurs, culinary businesses, restaurants, cafes, baristas, and online delivery businesses in DIY. In the future, this research is expected to be redeveloped as a reference for new tourism development strategies with more creative and adequate designs as a competitive advantage for tourism according to the demands of millennial tourism development.

**Keywords:** Climate change; Strategic development; The COVID Pandemic

## INTRODUCTION

The empirical phenomenon of tourism climate change due to the pandemic case has drastically changed various aspects of environmental, social, economic, and cultural life and Indonesia's tourism industry. The public is depressed by the conditions of the pandemic situation and must comply with various government policies, comply with not carrying out activities and maintain health protocols. Many people during the pandemic suffered greatly, because they did not have a steady income, and many were unemployed. However, they must continue to live to meet the needs of their families, so that they are required to be able to create innovative strategies to build online, participatory and collaborative micro-businesses in the development project of several tourism objects and new culinary businesses such as Obelix hill, Breksi Cliff, Little Tokyo, He-Ha sky dining view, etc. in collaboration with investors tourism in DIY (Prayudi, 2020).

The strategy in responding to the recovery of tourism which has been slumped in DIY due to the pandemic for more than 2 years, the active role of Penta Helix (academics, business, community, government, and multimedia roles) is needed to synergize to create innovative recovery strategies through empowering the competence of the management community with

programs empowerment of community-based tourism (CBT) based on community competence through mentoring and provision of mental attitudes so that people can rise from adversity independently to collaborate with Penta Helix in managing existing DIY regional tourism assets and building micro-business entrepreneurs to meet family needs and survival community and the continuity of tourism in DIY. Because not all community members are aware of and actively participate in tourism recovery, only a few people who are aware and intelligent can understand this climate change, those who are aware can respond wisely to create innovative efforts from various competitive business opportunities and challenges in the world while pandemic period (Zaenuri, 2018).

### **Rational justification**

Based on observations of tourism developments in DIY during the pandemic based on reasoning analysis and the ratio of the implications of climate change on tourism, it has a significant effect on the survival of people who do not have a fixed income, due to socio-economic pressures, with many companies going bankrupt, layoffs occur, affecting the decline in the tourism industry in DIY. However, based on the reality of the pandemic, there are some entrepreneurs, investors, and the public who can innovate. They understand that the post-pandemic tourism prospects will be booming because, for more than 2 years, they have been under pressure to not be able to travel. They collaborate with the community to build new tourist attractions in the DIY area such as He-Ha sky dining view, Obelix hill, Breksi Clift Little Tokyo, and He-Ha Ocean beach which is very beautiful, attractive, and is currently booming. Even with their success in bringing in abundant visitors, they were able to encourage several other investors to start building micro-businesses such as restaurants and cafes, and baristas, which are now becoming viral social media trends such as Kopi Klotok, Gacoan, coffee houses spread all over the world corner of the city of Yogyakarta.

The tourism HR development strategy in DIY through the community-based training (CBT) program is required to be faster in anticipating the demands of post-pandemic millennial tourism development (being smart about tourism). The existence of potential tourism assets in DIY encourages Penta Helix to play an active role in the development of more competitive tourist destinations. The middle-lower community business with micro-business that is currently a trend is *angkringan*, a solution for the economic recovery of the lower class. Meanwhile, middle and upper entrepreneurs are starting to be able to build various cafe business businesses, and restaurants, which can commodify natural assets and human creations (artificial). In addition, the recovery strategy with online culinary business innovation with delivery service (Gojek), restaurant businesses, and food shops can more easily reach the consumer market through products uploaded on the internet, supported by the role of sophisticated IT technology and social media (Aziz, 2019).

The development of new tourist objects that are currently viral and booming has become a special attraction for tourist destinations in DIY, as well as micro-businesses of restaurants, cafes, and baristas being able to boost the growth of the number of tourists coming to Yogyakarta very significantly, even though in new normal conditions time, the pandemic is not over. The Yogyakarta city government did not miss to create innovations for the development of community micro-enterprises by Malioboro laser near Tugu train station, terrace 1 and terrace 2 in the Malioboro area to move hawkers who previously sold along Malioboro street. So, that now shopkeepers do Malioboro is free to sell its wares. The city government's policy is to close the Malioboro road to motorized vehicles, only traditional *becak* and *Andong*

transportation are allowed to operate, build the Malioboro area as a walking street, by managing the pedestrian area along Malioboro to be beautiful for tourists to rest while enjoying the typical Malioboro atmosphere.

**Figure 1. The new Malioboro Walking Street of Yogyakarta**



Source: Sutianto (2018) & Sweetrip.id (2020)

The rapid development of technology, digital, and multimedia branding in the city of Yogyakarta has become effective and competitive. The main problem faced by tourism development at this time is the existence of infrastructure, ranging from road accessibility to crowded locations, limited parking space, in mountainous areas and hills with many sharp turns, narrow roads, and climbs, as well as the absence of public transportation facilities and Inadequate WIFI internet network in hard-to-reach locations. In addition, the human resource aspect of tourism management, which is still limited in knowledge and competence, cannot yet provide excellent service to tourists.

DIY tourism service products and facilities must be improved through progressive debriefing, mentoring, and training for the tourism management community so that they are by the information on regional tourism marketing programs that have been socialized by branding on social media. Collaborative strategies among Penta Helix members must be improved and able to create a competitive advantage for DIY tourism. The most effective branding of satisfied tourists is by uploading their selfie video photos on social media which can foster a positive image and public trust. (Cao et al., 2014).

### **Problem statement**

The development of DIY tourism based on the smart city concept, which has been socialized by the government since 2012, is still not realized, namely aspects of E-governance, government information communication systems with the community, uneven development, and even delays due to the pandemic. Empirical phenomena in certain riverbank areas in Yogyakarta city are still slums, tourism management is still traditional, and public awareness and participation are also still considered low, with piles of garbage in TPA-TPA and special support from the government not optimal. Tourist attraction managers must be able to adapt to an environment that is neatly organized and clean, creating a green area, to the demands and tastes of today's millennial tourists.

The most important alternative tourist attraction is the uniqueness and specifications of the product supported by excellent service facilities, currently, it is still not able to fully meet the needs and targets expected from foreign tourist visits. The main obstacles are the narrow and inadequate road infrastructure to tourist sites, slow service, lack of anticipatory strategies in

dealing with abundant visitors, road congestion, culinary products that are still lacking in quality, and human resources that are still not competent and professional in need empowerment and training with the concept of CBT.

The current DIY tourism product development strategy has not yet followed the Jogja smart city concept program, so it is necessary and must be promoted progressively, and implemented sustainably, to encourage regional development tourism in other places that is equitable and adequate, superior, and highly competitive. Community development for tourism managers needs to be carried out with competency-based progressive training (CBT) and implementing entrepreneurial management, with the aim that people are more enthusiastic about entrepreneurship, can be responsible, and are aware of their involvement and active participation in tourism object management. Tourism in DIY can be more well organized and interesting improvement design.

### **Objectives**

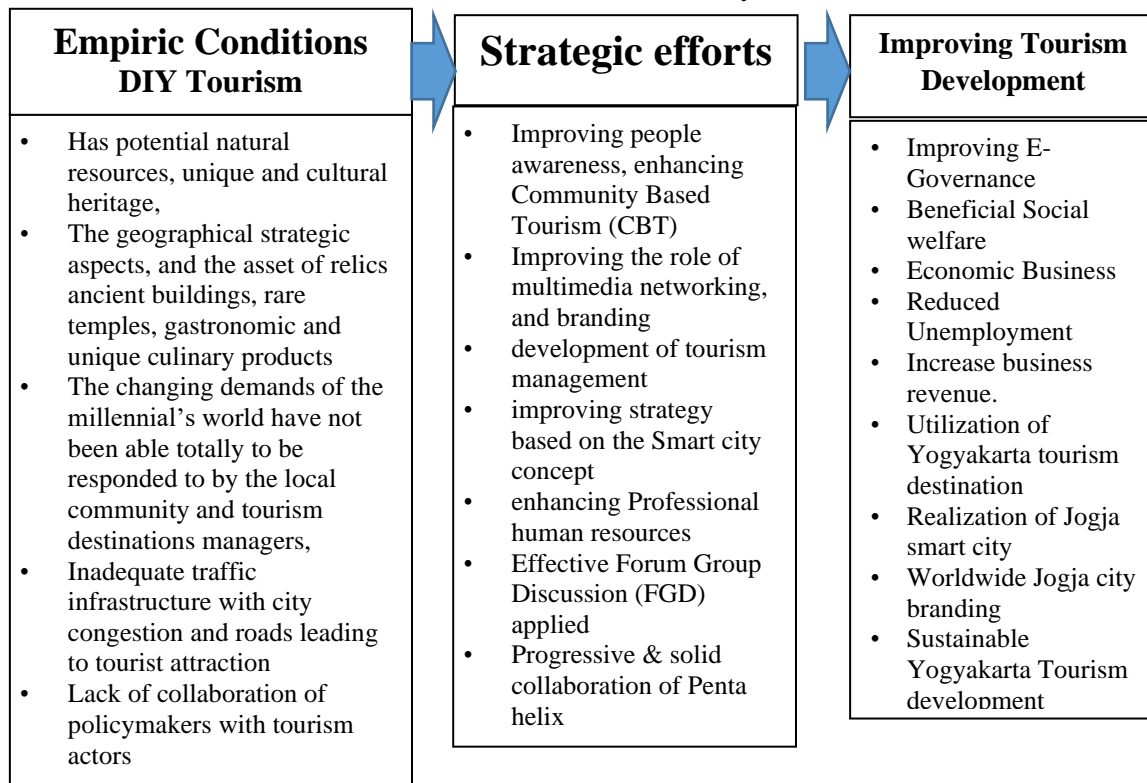
Formulation of the problem to be more focused, based on the various problems described above, it can be formulated with several relevant questions so that they are not biased towards the expected goals as follows: (1) What is the public understanding of the implications of climate change on tourism during the pandemic and being able to respond to the opportunities and challenges of the Covid pandemic? (2) How are the strategic efforts in managing tourism objects and the social life of the community from the impact of climate change in tourism so that DIY tourism development is sustainable? (3) How does the innovation strategy build DIY tourist attractions to create a competitive advantage from the implications of tourism climate change?

### **Scope**

Based on the research questions from the formulation of the problem above, it can be described and described according to the research objectives as follows: (1) Explaining that the impact of the pandemic on tourism climate change related to the potential and opportunities of regional tourist attractions must be socialized to be understood by the public, as well as to encourage public awareness and participation in tourism development according to current millennial and global demands. (2) The Penta helix community's role is required to play a more active, responsible, and directly participatory role in various strategic efforts that support regional tourism development programs consistently. (3) The local community can collaborate, and synergize with investors in managing new tourist attractions in DIY that are attractive, innovative, unique, and beautiful, to attract tourists to visit, by creating a competitive advantage in the development of DIY tourism.



**Table 1. Framework Analysis**



The framework analysis table describes the empirical conditions of tourism in DIY, the effects of climate change, the impact of the pandemic, and strategic innovation solutions that must be carried out to create various benefits in the development of sustainable tourism in DIY. In addition, collaborative and innovative strategies in improving the quality of tourism industry services including hotel accommodations, tourist villages, restaurants, cafes, baristas, and culinary products as well as in existing tourist sites must also be adapted to the demands of millennials and current globalization (Barata et al., 2015 & Aziz, 2019). And the addition of an innovative strategy to improve international standard air transportation service facilities in Yogyakarta which was previously less standard with the establishment of the Yogya International Airport in Kulon Progo Regency (YIA) became very adequate (Prayudi, 2020).

**Related Works/ Literature Review**

Post-pandemic tourism development and anticipation of climate change that must be addressed by tourism managers and Penta helix in DIY must be carried out effectively and efficiently and sustainably, by addressing various problems and obstacles that must be adapted to government policies in overcoming the covid pandemic case opinion according to Arlin (2016) to maintain sustainability and develop tourism destinations, reliable human resources are needed who have the character of "tourism awareness and who can internalize the Seven charms (*Sapta Pesona*) within themselves. Tourism awareness is the participation and support of all community components in encouraging the creation of a conducive climate for the growth and development of tourism in an area.

Meanwhile, in dealing with the pandemic and the implications of climate change for the tourism business, Widodo et al. (2015) and Charles (2018) stated that the impacts of climate change can encourage the managing community to produce strategies to develop innovative

ideas to build new alternative tourist attractions. Existing tourism management human resources are empowered to be better able to take the opportunities that occur by developing adequate new tourism objects, because climate change after the pandemic period will affect people's interest in traveling to be very high, considering that it has been more than 2 years since they have been unable to travel anywhere? Thus, it is very necessary to make strategic efforts to manage new tourist areas and human resources for regional tourism managers so that they can accept the overflow of post-pandemic tourists through community-based CBT training to be competent and more professional.

The benefits of this CBT program are to equip the community with community competencies so that they have commitment, awareness, concern, and responsibility for the environment, and tourism assets and to increase community participation as managers in collaboration with Penta Helix in the perspective of environmental governance of Yogyakarta tourist destinations that is more adequate and sustainable. Furthermore, Meijer & Bolívar (2015) stated that the development of tourism based on community empowerment assumes that the existence of a heterogeneous community will use various forms of empowerment; using different contexts is also fluctuating as needed. This is assumed to provide wider opportunities for weak community groups to get protection and guarantees in improving the quality of community resources.

Those are related to some opinions according to Yuli (2011); Evita et al. (2012); Widodo et al. (2015) stated that the influence of climate change can turn mass tourism into alternative tourism, which also triggers tourism in each region. Meanwhile, several regencies in DIY have tried to develop new tourist attractions in their respective regions that are designed according to millennial tastes, such as Breksi cliff; Obelix Hill; He-ha sky Dining view; Little Tokyo in Bantul, and He-Ha Ocean Beach in Gunung Kidul beach has been able to bring in thousands of visitors even the covid pandemic has not ended yet.

The development of new tourist objects in DIY must be based on the strength of the support of the community, opinion of the community from Fadli et al., (2022) also stated that in tourism development, strengthening the potential of local communities is very important for sustainable tourism management. Thus, it is hoped that they will be able to come up with creative and innovative ideas to maintain and improve their competitiveness and their survival.

Meanwhile, Natalia & Fadhlialim, (2022) stated that community empowerment in sustainable tourism development must also be marked by the creation of tourism community independence which can be achieved not easily but through an integrated management process, which is realized through the active participation of Penta helix and local communities in empowering life and livelihoods their environment, and can access productive and competitive resources. However, climate change and tourism must be equipped with the internal conditions of the community, as is done according to the smart city concept by the opinion from Rahman et al., (2020) stated that changes in the world tourism climate according to the smart city concept in Malaysia can provide positive aspects to social life, economic pressures and tourism slumps encourage the creation of creative innovations in the development of regional tourist accommodation facilities carried out through community empowerment local as well as entrepreneurship.

Furthermore, by understanding those problems Evita et al. (2012) stated that the community can be more independent in building a tourism environment and a strategy for life recovery solutions during a pandemic. This is a series of community empowerment activities that will be carried out, such as building awareness to understand the impact of the pandemic and observe the potential and opportunities of the local community's cultural environment, so that it can be more concrete in future development programs; knowing the capabilities and characteristics of local communities can be empowered, including through an assertive approach to make the community aware so that they can play an active role in the development of their regional tourism; and increasing the role of the community in the development of digital information technology which is growing rapidly and is their responsibility in branding their regional tourist destinations and entrepreneurial businesses that can be developed through communication media.

Anyway, sustainable tourism development actually must be supported by the creation of tourist attractions from products and services that can meet the tastes of the consumer market, it is relevant to the opinion of Husamah & Hudha (2018) and Widodo et al. (2015) that the development of new tourist destinations is directed at the management of natural resource assets, and the development of local wisdom culture, and is supported by the active role of the community in participating in managing and developing regional tourism according to the demands of millennials. And globally, as well as the goal of being able to provide benefits to the micro-economic life of local communities. Empowering the local community is not easy as Mardikanto (2011) stated, that needs several principles in community empowerment that must be understood, observed, and applied by: the possibility of developing community potential; ability to build a positive mental attitude in the development of tourism culture from elements of local wisdom; encouraging motivating, and raising awareness of the potential of the community and striving to be developed; strengthening of structured, integrated, sustainable community potential; ability to develop opportunities and challenges and able to provide many inputs; and community involvement in opening a network of access to tourism promotion to various opportunities that can make the community more empowered.

Furthermore, related several points of view before, Husamah & Hudha (2018) and Widodo et al. (2015) stated that sustainable tourism development must be supported by the creation of new regional tourist attraction products, starting from the management of natural resource assets, and the development of local wisdom culture, and supported by the active role of the community in managing and developing regional tourism by the demands of millennials and global, to be able to provide benefits for the micro-economic life of the local community.

## **METHOD**

This study uses qualitative research, where data is collected by using triangulation of data from direct observation in the new tourist area in DIY, interviews with the community managing tourism in Obelix, He-Ha Ocean Beach, Breksi cliff, interviews, and empirical research data from various variables related to the implications tourism climate change that is convergent, and changes very quickly so that it requires the ability of human resources. as a tourism manager must be able to keep up with climate change. And the observations in this study still use a manual system able to produce empirical data that is relevant to the research objectives. As stated by Creswell (2008) in Raco (2010), empirical data that has a relationship and

influence on the problem of climate change is needed. This study describes various empirical problems from the most crucial and valid ones to find out the analysis of opportunities and challenges of tourism development innovation strategies, from the impact of tourism climate change during a pandemic.

Meanwhile, policies in tourism management regional tourism development planning according to the DIY tourism office is carried out by identifying how much potential and opportunities for regional tourism to be developed, including analysis of various problem variables that must be faced, collaborating with investors, and then formulate alternative regional tourism development by innovation programs based on existing potential and based on common opinion, mindset, ideas and for the general welfare (Arumsari & Rini, 2008); (Zainuri et al., 2022).

This study combines a descriptive-evaluative approach to obtain accurate and reliable information data (confirmability) through observations in several new trending tourist sites in DIY and conducting direct interviews with informants at the research location according to the criteria for affiliation and competence. In this research data collection with a triangulation program, namely from the results of observations (grounded research); real data from direct interviews with tourism object managers, tourists, and local governments, and elements of the Penta helix, as valid informants as well as photographic documents, and documents that can be accounted for, namely the results of observations on several aspects of the influence of climate change related to the research objectives, starting with from the aspect of community social life, the environment, tourism products and services, the application of information technology in the field, how management has been implemented, and the extent to which the role of the Penta Helix is related to the influence of climate change during the pandemic on the decline of regional tourism in DIY.

This study uses observations and interviews to obtain more in-depth data by the theoretical neglect (Creswell (2008) in Raco (2010),) regarding the problem being studied, considering that this qualitative research is a descriptive study that tends to use analytical and evaluative programs by the research objectives.

In this qualitative research study, the researcher will highlight the process and direct perspective to interpret the subject being studied more deeply. In addition, by using some of the literature relevant to the research objectives can be used as an accurate reference in evaluating and researching solutions. This is the opinion of Kriyantono (2012) who states that qualitative research must be able to explain various empirical phenomena logically based on more in-depth data. Qualitative research also emphasizes the depth of data obtained in research. The more in-depth and detailed the data obtained, the better the quality of the research. So that the process of this research, researchers participate and collaborate directly in research activities at the location to be able to understand the real conditions under study. This study takes data from several studies of previous research results in the field of local community-based human resource development (CBT) and how the involvement of the Penta helix role in applications in the field there are still many shortcomings and weaknesses that must be resolved by the concept of tourism development. Sustainable DIY with a smart city concept.



Researchers pay attention to the extent to which public awareness and involvement in regional tourism development are still low, especially with the influence of climate change during the pandemic. Most people are still passive and always depend on government assistance, lack knowledge and experience, and understanding of the demands of millennial and global changes that are still not fully realized, so it is necessary to build public awareness and participation in managing potential tourism assets in DIY by fostering mental attitude, debriefing, and motivation for climate change recovery solutions during this pandemic. The purpose of this research is to focus on tourism development during the pandemic to anticipate the surge in tourists after the new normal and so that the role of the community and government involvement, especially in the field of tourism development, is more optimal, especially in the aspect of human resources of local communities as tourism managers which have not been able to be managed professionally in creating tourism service products that are by the demands of millennial and global tourism developments.

The qualitative research used the data from the facts obtained in the field, so it has a depth of empirical data. This qualitative study will highlight processes and perspectives in interpreting the subject under study. In addition, it uses several literature studies that are relevant to the research objectives which can be used as an accurate reference in research studies Kriyantono (2012) states that qualitative research must be able to explain various empirical phenomena logically based on more in-depth data. Qualitative research also emphasizes the depth of data obtained in research. The more in-depth and detailed the data obtained, the better the quality of the research. In this study, researchers participate directly in research activities so that they can understand the real conditions under study. Several studies of research results in the field of human resource development and their involvement in field applications still have many weaknesses. The aspects of being concerned, awareness, and community involvement in regional tourism development are still of low standard, especially with climate change during the pandemic, for most people still passively depend on government assistance. Enhancing knowledge and understanding as well as public awareness and participation in the low potential of tourism assets still requires guidance, coaching, debriefing, and motivation. The purpose of this research is that the role of the community and the involvement of the government, especially in the tourism sector, are more optimal, especially the development of human resources as tourism managers who have not been able to optimally create products that are by tourism development in the era of globalization.

The flow of research carried out from the initial process by observing empirical data searches, from the problems of the social life of the community, the environment of the tourist area of the existing tourism products, the use of technology, governance management, and the role of the Penta helix described in the process of understanding and interpretation in various cases for analysis to create alternative tourism development solutions in DIY during the pandemic.

## **RESULT AND ANALYSIS**

The empirical phenomenon of the influence of the pandemic and the implications of tourism climate change are felt by all the people of DIY, which is a catastrophic tragedy that involves various aspects of social, economic, and cultural life and even education that must be taken seriously. Pandemic cases are not only allowed to wander but must be eliminated through the integrated cooperation of all citizens and the government so that the Covid virus disappears

by itself. The pandemic period for almost 3 years has become an experience that can educate the public in various aspects. The wrong culture of life, lack of discipline, concern for the environment, cleanliness, and a healthy lifestyle, government policies with health protocols, and mass vaccinations, must act on and comply with high commitment.

The downturn in social conditions and the economic life of the community must be solved with a solid strategy by growing collaborative creative ideas with the Penta helix role in innovating the restoration of people's lives for independent entrepreneurship with micro businesses that can support family needs. The implications of the pandemic have positive aspects on the psychology of life, being able to provide education about how to live a healthy lifestyle and learn to be steadfast, patient, and trustful. Making people smarter in the field of technology with the advancement of the gadgets world so that life is faster and more practical in overcoming problems. Creating an online business, and delivery service. Educational learning programs continue to run even though they are online, online according to government policy. Creating a competitive strategy to build new tourism objects to meet the demands of travel needs to anticipate tourists who are thirsty for travel.

Tourism development needs to understand the characteristics and conditions of heterogeneous communities coming from different regions of origin. It must still be empowered, by studying the history, and culture of certain communities, from attitudes, and behaviors, and being able to build solid cooperation so that they are willing to participate and work collaboratively with other people. This is by the opinion (Charles, 2018) which states that knowledge of factual information about the community about their educational level, and socioeconomic status, including knowledge about their life values, attitudes, rituals, and customs becomes the basis for carrying out a collaborative strategy managing climate change (Charles, 2018).

Meanwhile, in Rizkianto's opinion, based on the fact that tourism requires human resources who have a good mental attitude and independence that can improve a better quality of life, competency development also absolutely must be programmed through training and providing knowledge, as well as building community attitudes through the support of educational staff (academics) in a structured, progressive and sustainable manner. So that the expected outputs (Outcomes) obtained by the community are smarter, have high awareness, care about the environment, can adopt the demands of the times, innovate, and have a cosmopolitan perspective (Rizkianto & Topowijono, 2018).

The increase in the character development of the DIY tourism community has shown quite encouraging results because the varied characters of the DIY population come from various regions and different ethnic groups so that in understanding, and dealing with climate change during a pandemic, people have different views. An understanding of tourism climate change needs to be disseminated to the entire tourism management community to be able to increase public participation and awareness in maintaining tourism assets and be able to empower the competitive DIY tourism potential, becoming a leading attraction according to the demands of millennial tourists. The community together with the government and Penta Helix must be able to consistently support regional tourism development programs and primarily create competent and adequate quality human resources during the pandemic through community empowerment strategies with integrated, progressive, and collaborative group discussion forums. So that during the pandemic, which has subsided, they can create more innovative

and effective efforts in creating a competitive advantage for the development of sustainable regional tourism. ("Travel and", 2018)

Climate change on the development of tourism psychologically encourages some people to start being smart in overcoming the management of potential regional tourism assets, addressing opportunities and challenges of strategic solutions that must be done for sustainable regional tourism development. This is relevant to Fahmi's opinion, that community empowerment, through the development of individual community self-motivation, must be developed and optimized, by increasing individual behavior that dares to take all risks, changes, and challenges by creating strategic innovations related to business prospects in the tourism sector. (Fahmi, 2013).

Relevant to the purpose of tourism development according to the Regional Development Planning Agency (Bappeda) DIY in 2018 is to improve the quality of life of the community, the environment, and people's livelihoods through a social order that can guarantee diversity and be able to maintain and develop The Yogyakarta culture. The management of the realization of good governance reform has been addressed by investors who work with local communities as regional tourism managers. Even now more and more new alternative tourist attractions are being developed in DIY, namely innovative ideas with efforts to commodify natural assets with beautiful creations, such as Breksi Cliff tourism objects, Obelix Hills, He-Ha Sky dining Views, and He-Ha Sea views. Ha; Little Tokyo attracts many tourists to visit Yogyakarta.

The role of investors and local communities in solving climate change in the pandemic era by collaborating with local communities to build new tourist attraction innovations by combining the modification of the existence of local natural resource assets with artificial products that are designed very attractively, so that they can attract many visitors even though most of the visitors are domestic. Many of the new destinations in DIY mentioned above are visited by many tourists, but the obstacles are inadequate infrastructure, namely the road to the location is very narrow and up and down sharply, many challenges, and poor human resource management still not professional. Caring and sensitive to the environment and visitors who come and the quality of service is still very limited, so it requires training and debriefing to meet the qualification standards of good service products.

### **Perspective Tourism: Innovation Development**

Tourism development requires the responsibility and competence of Human Resources with the enrichment of knowledge and experience to be able to actively participate in creating innovations and tourist attractions that can enrich local culture, and in understanding human involvement with nature, the environment, and culture. (Natalia & Fadhlilhalim, 2022). The impact of climate change is related to the demands for the development of tourism innovations that have succeeded in utilizing natural assets commodified with artificial tourism as new attractive tourist destinations and able to bring in tourists from outside the region in DIY.

The impact of climate change has also been able to encourage the local community to build alternative micro-business ideas, investors, and tourism object managers to create natural commodities that can encourage regional economic growth from various creative business opportunities by tourist villages, lodging, hotel accommodations, tourist trips, and culinary businesses products: Restaurants, Barista Cafes, and roadside stalls (*Angkringan*) are increasingly mushrooming throughout the city of Yogyakarta.

**Figure 2. Café & Angkringan Yogya**

Source: Hartono (2018) & Siregar (2022)

The development of alternative tourism innovation is supported by the presence of human resources who are polite and have hospitable ethics to be developed in tourism services, apart from being an aspect of tourism innovation by utilizing the potential of existing natural resources, to be developed and preserved as well as possible future must understand the development of alternative tourism such as green tourism; soft tourism; halal tourism, low impact; ecotourism; responsible tourism; sustainable tourism; and others. (Andriati & Hidayati, 2020).

Despite that Raharjana (2012) states that local community participation should be seen as important for policy making in regional tourism development, and the benefits or benefits obtained by the community as an implication of the success of tourism activities. Strategic Tourism Development Perspective amid the COVID-19 pandemic on climate change in the Development of the Green Tourism. Related to this idea Yogyakarta tourism development by now already designed in all regency of DIY related to the opinion of Masayu & Astuti (2007) and Yoeti (2008) outlined by the Green Tourism association must be assumed by: (1) The creation of environmental responsibility means protecting, conserving, or expanding natural resources and the physical environment to ensure the long-term life and sustainability of ecosystems. (2) The vitality of the local economy encourages local economic growth, and the business world to ensure sustainable economic strength, for example, the impact of tourism development followed by the expansion of local economic activities.

Changes in the tourism climate from the natural aspect and human involvement have been able to create benefits for the socio-economic welfare of the wider community. However, still needs management in the development of Yogyakarta's tourism objects related to the smart city concept is still inadequate because it is constrained by the empowerment of some areas whose environment is still slum and has not been managed properly. Increase cultural sensitivity that encourages respect and appreciation for customs and cultural diversity, to ensure the sustainability of good local culture, for example through cultural tourism.

Enhancing Human capital in Yogyakarta tourism is not easy for most people still suffering from pandemic cases. Fahmi (2013) stated that people who know the region's or another country's culture have respect for that culture's richness. It can be concluded that strategic tourism development must be able to create attractions that can enrich knowledge and tourism commodities. As well as improve the experience of human resource managers who are better

able to provide satisfactory services, through active participation in understanding climate change starting from human behavior, understanding, and responsibility for nature, the environment, and culture.

Furthermore, Sedarmayanti (2014) stated strategic efforts to develop tourism from climate change by understanding the knowledge of implementing several business tourism recoveries in pandemics that should be socialized, trained, and programmed by the role of Penta helix in Yogyakarta such as: recognizing the missing basics of the tourism business; restart the business and run it normally and effectively; understanding the changing character of tourist culture and new business identities; efforts to motivate, and increase the spirit of traveling again through the development of new alternative tourist destinations, and the development of sustainable marketing branding for Yogyakarta tourism destinations; maintaining health protocols, and make operational innovations that are applicable and significant, to the needs of micro-enterprises that are more relevant and sustainable; and more applicable micro-enterprises to accommodate new job opportunities for the community and the needs of the tourism industry.

With several roles and involvement of Penta helix participation in tourism development as above so that it can provide motivation and provision for the community to be better able to innovate independent and collaborative programs that they must do in meeting the demands of the needs of tourists' tastes for the products and services of the tourism industry in Yogyakarta for the future.

## CONCLUSION

Nowadays, people have learned that Climate change during the COVID-19 pandemic is an issue of social and economic change, making all levels of society have to understand and take seriously the conditions and impacts of the situation, the implications of the prolonged case of the Covid-19 pandemic have been able to change all social mobility. and all the business community. Regional tourism development during the Covid-19 pandemic requires community involvement, enhancing people's awareness to manage the environment, products, and facilities needed to grasp visitors. Penta Helix provides competency support knowledge to examine problem gaps in depth through various studies of social, economic, and cultural innovation strategies in line with tourism development related to aspects of social life during the pandemic.

Despite the shortcomings, the local community has been able to know how to maintain creativity by increasing the existence of the socio-economic environment of the community in the face of an alarming economic crisis. The role of the Penta Helix community has to support and maintain the continuity of regional tourism potential. Developing business innovations needs to improve the competence of human resources by providing entrepreneurship education, such as creating jobs and building a new life post-Covid-19.

Furthermore, the research described above can be concluded that the community has become smarter, and more independent in creating solutions to climate change, and world tourism in the era of globalization and digital technology has been able to change the new order of people's lives to become smarter in responding to the challenges of climate change impacts for



the next life. how to respond to tourism strategic development efforts through the commodification of nature and humans that make tourism potential in line with the demands of industry 4.0 which requires the DIY tourism community to be able to develop faster, more innovatively, and creatively.

This has been proven by the growth of new tourist attractions, namely alternative tourism such as Breksi Cliff, Obelix hill, He-Ha sky view, Little Tokyo, and He-Ha Ocean beach as tourist attractions and leading destinations in DIY that can bring in many visitors. The role of Penta helix was really important in the tourism development in DIY for local people still need guidance on the socialization of deep understanding in the development of competitive tourism today, given the existence of various infrastructure facilities that are still far from adequate, how effective strategies are in developing tourism objects that the community must be able to handle independently.

### **Recommendations and Future Research**

Based on the conclusions from the various problems mentioned above, recommendations that can be given for climate change impacts such as: planning community development programs through CBT from the simplest aspect, realistically creating micro-enterprises that must be developed from the restoration of community involvement in pandemic issues, thus changing their lives to become more innovative, prosperous, and sustainable in creative micro-economy; understanding of the added value aspects of DIY tourism products is highly dependent on local community resources, natural potential, the availability of adequate infrastructure, and tourism supporting assets as well as the role of the government to create a competitive tourism advantage; post-covid tourism is highly dependent on improving the quality of tourism human resource competencies from the knowledge, experience, skills, and communities that are more innovative and creative in developing their tourism assets; alternative product innovation that can be marketed through beautiful IT branding; conservation of nature and the environment is carried out by maintaining the function of natural structures and water quality to ensure adequate environmental area management; and environmental changes in the DIY region according to the smart city concept must primarily pay attention to the existence of environmental land management, geographical design, and natural structures. An understanding of the environment which is the unity of natural life, living things including culture and human behavior that can live in prosperity with other living things must be carried out continuously for continuous research and analysis.

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