

THE IMPACT OF CLIMATE CHANGE ON COASTAL TOURISM DESTINATION: CASE OF KUTA BEACH, BALI, INDONESIA

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Abstract. Tourism is one of the strategic economic sectors in Indonesia that use a lot of nature. The tourism destination is greatly affected by natural conditions and their changes. This study aims to identify the impact of climate change on coastal tourism destination from the perspective of stakeholders in Kuta Beach, Bali. This study employs mix methods, quantitative and qualitative. Quantitative methods employed to observe the perspective of tourists through questionnaire surveys with descriptive statistical analysis. While, the qualitative method uses interview data and observation to observe the perspectives of the remaining stakeholders, namely the local government, tourism entrepreneurs, and the leaders of the traditional villages. The results show that tourists' awareness of climate change is quite high, although understanding of climate change tends to be 'normal'. Climate change variables that affect the tourist experience of Kuta Bali tourists are more related to safety, except related to sudden and extreme weather changes. This study is expected to increase the awareness of tourism stakeholders on climate change so that climate change adaptation measures can be carried out that help develops tourism.

Keywords: tourism destination; climate change; stakeholders; coastal area; *Kuta Bali*.

1. INTRODUCTION

Tourism is one of the strategic sectors in development in Indonesia. The tourism sector is expected to bring economic benefits to both the community and the country, also in terms of regions and cities. The tourism sector is directed into one of the main economic activities in the country, thus, sound tourism planning is needed. One important thing to consider in tourism planning is the sustainability of a tourist destination. The sustainability of tourist destinations is closely related to the impact of tourism activities on the environment. It is well known that tourism is influenced by weather and climate (Weaver, 2011), many people make travel decisions influenced by natural conditions, such as; sun, sand, and sea, as well as the availability of snow. Thus perceptions related to climate variables such as temperature, rain, and humidity becomes a very important right for a tourist destination (Smith, 1993). Maddison (2001) analyzes the patterns of British tourist travel and finds that temperature is a variable that largely determines a person's decision to travel. This shows the close relationship between climate variables and tourism.

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NASA (2011) shows the difference between weather and climate, that the weather is an atmospheric condition at a particular time in a short period of time, whereas climate is how the atmosphere behaves in a relatively long period of time. NASA (2011) also revealed that climate change is a change in the average long-term daily weather. Climate change is a phenomenon that is happening widely in various parts of the world. Climate change has the potential to negatively impact the tourism sector, such as causing the declining number of tourist visits, as well as low economic growth in the local area.

To deal with climate change, adaptation steps need to be taken. Climate change adaptation actions in the field of tourism require planning and developing tourism which has taken into consideration and studied climate change. Scott *et al.*, (2008) suggest that planning and decision making by stakeholders in the tourism sector are likely to be more influenced by perceptions about climate change. As tourism is a sector that involves various stakeholders, thus in the study of the impact of climate change on the tourism sector, various perspectives are needed.

Bali is one of the main tourist islands in Indonesia. Bali is famous for its beaches and culture, annually bring millions of tourists, both domestic and international. One of the favorite destinations in Bali is Kuta Beach which provides a variety of attractions and facilities such as accommodation with various stars to support tourism activities. Kuta Beach is located in Badung Regency is a major coastal tourism destination on the island, inseparable from the influence of climate change. Based on the Gross Regional Domestic Product (GRDP), Badung Regency places tourism as the leading sector, thus planning and development of tourism continues to grow.

This study aims to identify the impact of climate change on tourism development from a stakeholder perspective through a case study on Kuta Beach, Bali. The purpose of this study is to assess the extent to which climate change has an impact on the development of tourism in Kuta Beach, according to the perceptions and preferences of tourists. This is related to changes in climate variables, as well as how perceptions and responses of other stakeholders and how the influence of climate change on tourists in the tourist area. To achieve these objectives, the objectives of this study are to determine the perceptions of tourists about climate change on the Kuta beach and identify the impact of climate change on tourism policy and tourism development on the Kuta beach, based on the viewpoint of stakeholders.

2. LITERATUR REVIEW

2.1 Sustainable Tourism

Tourism is one of the sector's biggest economic contributors to the development of regions and cities (Wijaya & Furqan, 2017). It is one of Indonesia's strategic sectors. It is also a sector that is able to bring economic benefits to both local and state communities, both in terms of regions and cities. These are all important reasons for planning and developing tourist destinations, both by the public, private and community sectors as well. According to González-Morales (2016), the development of the tourism industry depends on the condition of its ecosystem. Although on one hand, the existence tourism can have a negative impact on the ecosystem, tourism also has a positive impact in the form of economic and financial incentives for the government and other stakeholders involved either directly or indirectly.

González-Morales (2016) explains that tourism is a complex activity, involving a variety of different stakeholders. Sustainable tourism strategies involve the participation of many stakeholders, including (a) the public sector, which determines regulations, incentives, and public investment; (b) the private sector, in the form of Corporate Social Responsibility and the active participation of others, such as collaboration with the public sector; and (c) tourists as active stakeholders. In fact, sustainable tourism requires cooperation from all stakeholders. This is the reason for the importance of observing the perspectives of various tourism stakeholders in tourism-related studies.

2.2 Weather and Climate

According to NASA (2011), the weather is basically how the atmosphere behaves, and how the behavior affects human activities. Weather and climate are not the same, where the climate is an observed condition for a much longer period of time. NASA revealed that climate observations require a period of around 30 years. The weather can change within minutes, hours, days, months, and seasons. While the climate is the average of the weather in a certain period. The weather component consists of many things, including sunlight, rain, cloud cover, wind, snow, hail, floods, storms, lightning, temperature, etc. That is, the component of climate change is also a component of the weather that is observed within a certain period. Although these components are made up of many things, in this study, the observed component is limited to matters that affect tourism and tourist activities, as well as easily perceived and recognized by tourists.

2.3 Climate Change

Climate change is basically a change in climate conditions consisting of many elements, including temperature, humidity, rainfall, and wind speed. NASA (2011) also revealed that climate change is a change in the average long-term daily weather. Climate change is a phenomenon that is happening widely in various parts of the world. Predicted as a result of development undertaken by uncontrolled and irresponsible as well. Every development activity in various sectors results in climate change in the long run. The development of tourism is no exception.

2.4 Tourism and Climate Change

At present, tourism is considered to be strongly related to weather and climate conditions, with travel decisions strongly influenced by images of sun, sand, sea, and snow. Because of this natural commodity, perceptions about climate conditions become important for tourism (Freitas, 2001; Smith, 1993). According to Gossling et al. (2012), the impacts of climate change on tourism can be divided into four, namely direct impacts, indirect impacts, impacts on mitigation policies and tourist mobility, and social changes related to the decline in economic growth (Figure II.1).

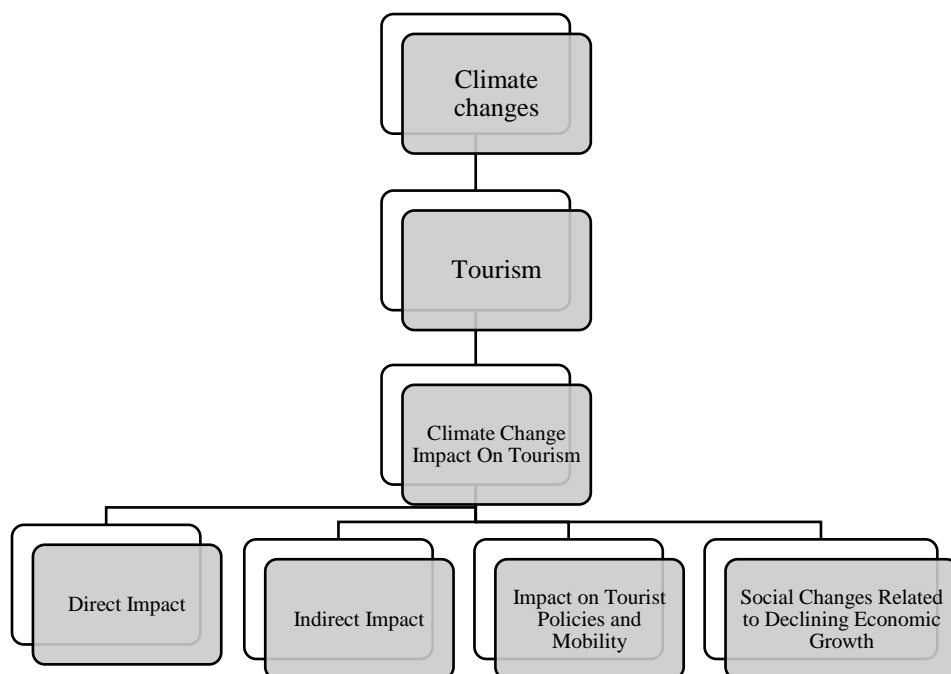


Figure 1. Schematic Impact of Climate Change.

Source: Gossling et al, (2012)

WTO-UNEP-WMO (2008) describes the main forms of climate change, consisting of changes in temperature, reduced snow, increased frequency of storms, changes in rainfall, sea-level rise, changes in sea surface temperature, changes in marine biodiversity, increased frequency of forest fires, and changes in soil conditions. It has a huge impact on the tourism sector. Becken (2016) mentioned that the sea level rise, extreme weather, rising temperatures, changes in precipitation, and changes in the environment as a matrix of impacts of climate change on coastal tourism. In addition, Becken (2010) also mentioned that some of the impacts of continued climate change that affect the safety of tourists, namely storms, floods, and tornadoes or other extreme wind events. Nevertheless, it states that in fact there are many variables that affect tourism (such as wind speed and snow depth that affects certain types of travel), but the matrix is the variable with the main impact is considered.

In addition to these impacts, according to Becken (2010), there are several influential variables that are specific to certain tourism activities. In the case of Kuta Bali, some tourist activities that are mostly done are relaxing on the beach, taking pictures, and surfing. Based on this activity, it is estimated that there is an influence of wind speed and wave height (which is likely to affect surfing activities). Regarding wave height, Simpson (2013) sees the importance of the influence of sea-level rise, changes in wave height, and storms in marine recreation.

According to Sookram (2009), the temperature is the most important climate variable in the analysis of tourism demand, in general, it affects the comfort of traveling. In addition, there are also other climate variables, which are also important in research on the effects of climate change on tourism. Many studies incorporate temperature and precipitation to examine the

impact of climate change on tourism demand (for example Scott and McBoyle 2006 in Sookram, 2009).

Many researchers, for example, Maddison (2001), Gosling et al. (2013) suggested that the effects of climate change greatly affect tourism development. Climate change can have both negative and positive impacts on tourism. For example, in temperature changes; a tourist destination that is initially cold to be rather warm can be a tourist attraction so that it is visited by tourists, this situation is a positive impact of climate change. But other circumstances can also occur, which is a hot destination, if it becomes hotter, can impact the reduction in the number of tourists because the weather is no longer friendly to the tourists, then this is the negative impact of climate change.

Related to tourists' perceptions on climate change, Lise & Tol (2002) argues that although they are very responsive, tourists may not pay too much attention to climate change. Tourists can easily replace one destination with another or change the time of travel if the condition of the tourist destination does not match their preferences. Although tourists do not pay much attention to climate change, if they change their tourist destinations, the number of visitors to a tourist destination will decrease. From the perspective of regional development, it can be a detriment to the local economy in tourist destinations.

3. METHODOLOGY

This study aims to identify the relationship and influence of climate change on tourism and its relation to the development of tourism in Kuta Bali. This research uses a deductive approach. A deductive approach is an approach that is carried out theoretically to get confirmation based on hypotheses and observations that have been made beforehand. This deductive method is an approach that draws one or more conclusions based on a given set of premises (Prihantoro, 2011).

This study reveals the object of study, by describing a situation without any particular intervention and treatment of the object of study (Kountur, 2004: 53). In this study, there is no manipulation of research variables, related to the circumstances that occur. This type of research is usually conducted on a variable which is described in detail, or more than one variable, but described one by one (Kountur, 2004: 54).

The scope of this study covers the whole of Kuta Beach and the surrounding area within the boundaries of the Badung Regency. The area around Kuta Beach in question is the area around Kuta Beach that provides accommodation and facilities for tourists who vacation in the area.

Basically, the tourist areas discussed in this study cover three beaches, namely Kuta Beach, Legian Beach and Seminyak Beach. These three beaches are lined with locations, so in general, tourists not only visit one of the three beaches but all three at once. The location of both star hotel accommodation or lodging, as well as restaurants and bars, are spread on these three beaches, so the possibility of tourists moving between these three beaches are high.

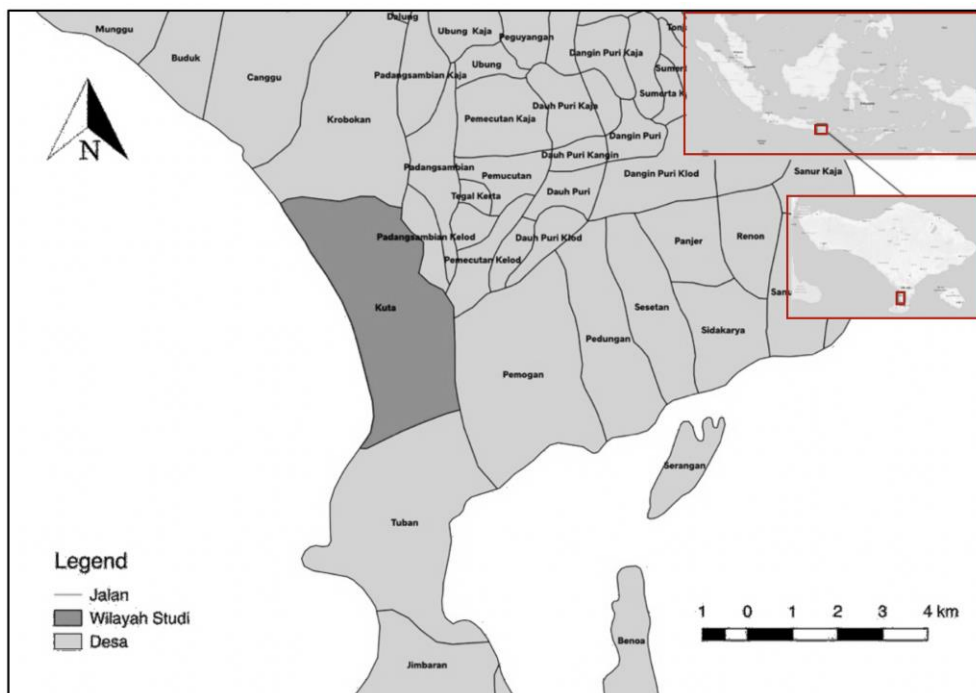


Figure 1. Map of Kuta Beach, the study area.

Source: Modified from Regional Development Planning Agency (Bappeda) Badung Regency, 2012.

Data collection in this study uses primary and secondary survey methods. The primary data survey was conducted through an in-situ questionnaire survey, direct observation, and interviews with strategic stakeholders. The tools used for data collection are questionnaires and interviews.

The questionnaire survey was conducted on tourists who were in Kuta Beach. Respondents were asked to fill out a questionnaire that had been prepared previously. While interviews were conducted with the government in Badung Regency, namely the Regional Development Planning Agency (Bappeda), the Tourism Office, the Office of the Environment, and the Regional Disaster Management Agency (BPBD). Interviews were also conducted with tourism entrepreneurs, namely hotel managers, traders, and surf entrepreneurs. In addition to the accommodation management and the agency, interviews were also conducted with *Balawista* (beach lifeguards) and the customary village.

Data were obtained, then analyzed. The method used, according to the form and method of obtaining the data. Data from questionnaires are analyzed quantitatively, while data from interviews with stakeholders is qualitative. Quantitative data analysis uses SPSS and Microsoft Excel programs, where the application of frequency and cross-tabulation is used to examine the correlation between variables. These data are obtained from questionnaires distributed to tourists around Kuta Beach.

Frequency analysis is used for questions regarding (1) tourists' understanding of climate change; (2) the extent to which tourists agree to the existence of climate change; (3) the extent

to which climate change must be a stakeholder concern; and (4) knowledge and preferences related to climate change variables. Whereas qualitative data analysis was carried out on data obtained through interviews with managers of tourist accommodation on Kuta Beach, as well as institutions related to Kuta Beach policymaking. The accommodation managers interviewed were 8 randomly selected hotels in the research area, then food and beverage vendors, surf entrepreneurs, travel agents, tour guide service providers, and mall employees. The agencies at the Badung Regency level interviewed in this study was the Regional Development Planning Agency (Bappeda), the Tourism Office, the Environmental Agency, and the Regional Disaster Management Agency (BPBD). In addition to the providers of tourism facilities and services and agencies, interviews were also conducted with beach lifeguards (*Badan Penyelamat Wisata Tirta – Balawista*) and the customary village parties as stakeholders. In addition, a qualitative analysis was also carried out on tourism-related policies in Kuta Bali. The policy documents reviewed consist of the RPJPD (Regional Long-Term Development Plan), RTRW (Regional Spatial Planning) and RPJMD (Regional Medium-Term Development Plan).

4. ANALYSIS AND DISCUSSION

Tourist perceptions are observed through the results of the questionnaire, questions related to understanding climate change, the level of agreement on climate change, the level of agreement that climate must be considered, and followed by questions related to perceived climate change. Questions related to the understanding of climate change and climate change must be considered using a Likert scale of 1 to 5 (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree).

Table 1. The Understanding of Tourist Towards Climate Change (N=164)

	The understanding of climate change		Climate is changing		Climate change must be considered	
	Number	%	Number	%	Number	%
Strongly Disagree	5	3,0	4	2,4	4	2,4
Disagree	7	4,3	7	4,3	3	1,8
Neutral	87	53,0	50	30,5	42	25,6
Agree	47	28,7	73	44,5	62	37,8
Strongly Agree	18	11,0	30	18,3	53	32,3
Total	164	100,0	164	100,0	164	100,0

Source: Analysis Results, 2017

The answer related to the question of understanding about climate change shows that the majority of respondents' understanding of climate change is 'neutral' (53%). The second highest answer is 'agree' with an accumulation of 28.7%, then the next third sequence is 'strongly agree', 11%. The analysis of respondents' answers regarding the level of agreement that climate is changing shows that the majority of respondents agree that our earth is undergoing climate change (44.5% agree and 18.3% strongly agree). The second highest answer is 'neutral' with 30.5%. The results of the analysis on questions related to climate

change as an issue that must be considered show the majority of respondents agree that climate change must be considered (37.8% agree and 32.3% strongly agree).

The third highest answer is ‘neutral’ with 25.6%. The results of the analysis in this section show change tends to be ‘neutral’. The number of ‘disagree’ and ‘strongly disagree’ responses is relatively very small. It also shows high awareness of climate change from the respondents. This study also analyzes tourist preferences related to climate change and its components. This can be considered in developing a tourism system in a destination.

Table 2. Affect of Climate Change Variables on Traveling Decisions

Variables	Affected on traveling decision				
	Strongly not affected	Not affected	Neutral	Affected	Strongly affected
Temperature increase	5 (3,05%)	36 (21,95%)	83 (50,61%)	37 (22,56%)	3 (1,83%)
Increased sea level	3 (1,83%)	24 (14,63%)	91 (55,49%)	44 (26,83%)	2 (1,22%)
Sudden weather change	4 (2,44%)	14 (8,54%)	56 (34,15%)	80 (48,78%)	10 (6,10%)
Increased wind speed	2 (1,22%)	22 (13,41%)	85 (51,83%)	49 (29,88%)	6 (3,66%)
Flood / inundation	4 (2,44%)	5 (3,05%)	22 (13,41%)	103 (62,80%)	30 (18,29%)
Sea wave	3 (1,83%)	19 (11,59%)	53 (32,32%)	77 (46,95%)	12 (7,32%)
Intrusion	5 (3,05%)	17 (10,37%)	60 (36,59%)	65 (39,63%)	17 (10,37%)
Storm / tornado	1 (0,61%)	2 (1,22%)	21 (12,80%)	50 (30,49%)	90 (54,88%)
Erosion	2 (1,22%)	15 (9,15%)	19 (11,59%)	86 (52,44%)	42 (25,61%)
Extreme weather changes	1 (0,61%)	5 (3,05%)	37 (22,56%)	91 (55,49%)	30 (18,29%)

Source: Analysis Result, 2017

From the results of the analysis, it can be seen that the effect of increasing temperatures on respondents’ travel decisions tend to be ‘neutral’, with the majority of respondents’ answer ‘neutral’, and the distribution of normal distribution for other answers. The majority of respondents also answered ‘neutral’ to the effect of increasing sea level on the travel decisions. Variable weather changes suddenly considered influential on respondents’ travel decisions, with 46.78% of respondents answering ‘affected’, followed by ‘neutral’ in total 34.15%. Similarly, to the variable increase in sea level, the effect of the variable increase in wind speed was considered moderate with the majority of respondents’ answer ‘neutral’.

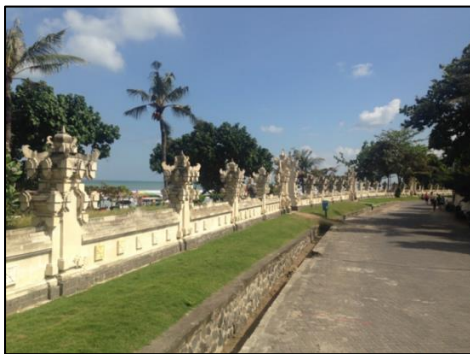
The flood / The inundation variable is considered to have an effect on the respondents’ travel decisions, with the majority (62.8%) of respondents’ answer ‘affected’. The sea wave variable is also considered influential on tourist decisions, with 46.95% of respondents answer ‘affected’. Intrusion variables also tended to be considered influential on respondents’ travel decisions, with 39.3% of the ‘affected’ answer. However, keep in mind that the number of ‘neutral’ answers to the intrusion variable approaches the number of ‘affected’ answers. The storm / tornado variable is the only variable that has the majority of ‘strongly affected’ answers

with 54.88%. This shows a high influence on respondents' travel decisions. Erosion and extreme weather changes have the majority 'affected' answers with 52.44% and 55.49% respectively, which show a fairly high influence on the respondents' travel decisions.

Climate Change Adaptation Policy in Kuta Beach, Bali. The interviews show that local governments have taken various approaches in adaptation to climate change. In terms of infrastructure, the Badung Regency Government has installed wave breakers in Kuta, built a fence in the coastal area to protect buildings, both tourism facilities and local residents' property, from exposure to sandstorms and waves carrying sand. The Badung Regency Regional Planning and Development Agency (BAPPEDA) has also used disaster-prone maps in the preparation of regional development plans. In addition, the local government also carried out a disaster response village program (*Desa Tangguh Bencana*) by forming a forum consisting of 30 (thirty) people, involving various stakeholders.

Based on field observations, the installation of a wall in a coastal area is a priority in reducing the impact of sandstorms and waves, therefore, until the time of the interview and observation of the fencing process continue. In addition, the visible walls in beautiful right with Balinese ornaments, traditional local the atmosphere and the identity of the uniqueness of the tourist area.

Based on field observations, the installation of a wall in the coastal area is a priority, in order reducing the impact of sandstorms and waves, therefore, until the time of the interview and observation the fencing process continues. In addition, the walls look beautiful with Balinese ornaments, the local and traditional atmosphere becomes the unique identity of the tourist area. This shows that the approach to adaptation to climate change impacts can result in infrastructure which has elements of artistic and touristic. In the photo below, indicate that the ornament has the characteristics of the local culture.



(1)



(2)

Figure 3. (1) Sandstorm retaining wall with typical Balinese ornaments. (2) The process of construction of a sandstorm retaining wall.

In addition to constructing a retaining wall, the local government, through its policy, requires hotel developers and operators to plant trees on the premises of their property. Cutting down a tree for construction must be replaced by a hundred trees elsewhere or on the premise of

their own hotel. In line with these regulations, the local government also conferred the “Tri Hita Karana Awards” for hotels that run the nature preservation rules.

In general, the adaptation approach to climate change by the government is contained in all development plans based on “Tri Hita Karana”, such as in the regional spatial plan (RTRW), local regulations related to building permits that regulate the building, Building Coverage Ratio (KDB), floor area ratio (KLB), and building and environmental planning (RTBL). The plans contain steps to anticipate the negative impacts of climate change. An example is installing a wave-breaking embankment and planting mangroves. The Provincial Government of Bali has also helped protect the environment by following the 30% forest cover, which is widely distributed in Central and West Bali. As stated by officials at the Department of Environment and Forestry (DLHK):

“... the way to adapt to climate change commanded by the government is, by issuing plans and policies. Such as issuing of building permits that regulate Building Coverage Ratio (KDB), floor area ratio (KLB), and building and environmental planning (RTBL), and other local regulations ...” (Interview, 2017).

In relation to their role, agencies have their respective responsibilities, relating to elements of climate change in accordance with their respective duties and functions. For example, Regional Disaster Management Agency (BPBD) focuses on disaster, Department of Environment and Forestry (DLHK) plays a role in environmental protection, Regional Planning and Development Agency (BAPPEDA) and the Department of Tourism focus on planning and further study. Where every department has responsibility and coordination related to disaster. As the officer in BAPPEDA stated: *As the officer in BAPPEDA stated:*

“... If there was a hurricane, for example, a fallen tree, it was immediately handled by the BPBD, the scattered trees would soon be cleared up. There is an evacuation route signboards installed by the BPBDs. We already have an RTRW, disaster-prone maps are included in the plan ...” (Interview with Bappeda, 2017).

The coordination between these agencies is also reflected on the disaster-prone map, issued by BMKG, then used by various agencies, such as the environmental department (DLHK) as well as the regional planning and development agency (Bappeda).

“...We also have a complete disaster-prone map. And good coordination with BMKG” (Interview with DLHK, 2017).

The responses to the effect of climate change on local government policies are varied. DLHK sees that climate change is in line with the times, it will always influence local government policies, the Tourism Office has conducted studies on climate change, while BPBD is not authorized to formulate policies. Likewise, Bappeda sees climate change as a long-term issue.

“The government is currently conducting a study (...related to the impact of climate change on the environment...). Environmental problems are strategic issues. We have conducted a study on Climate Change, and its relation to tourism. We have been discussing climate change intensively in the last five years ago ...” (Interview with Tourism Agency, 2017).

In essence, the findings from interviews conducted with the government indicate that climate change has become a concern in the department, especially the environmental and tourism

agencies. The disaster management agency (BPBD) is more focused on aspects of disaster-related to climate change. While Bappeda, climate change has not been positioned as a major issue, but rather a broader disaster. However, Bappeda sees that climate change has a negative impact on tourism activities in Kuta. As stated by Bappeda:

“... (climate change) directly impacts tourism, for example, weather, storms. ... (then) merchant can no longer at the seaside, tourist activity is reduced. Tourist areas become quiet.” (Interview, 2017).

Likewise, based on the results of a policy review of Badung Regency documents such as RTRW and RPJMD, that climate change has been included in the planning documents. Including in terms of environmental degradation, its impact on agriculture, the effect on disaster, and the effect on development planning. This is in accordance with interviews with relevant agencies and offices. Although there is no specific strategic plan related to climate change adaptation, it has already been incorporated into strategic plans. In the documents examined, adaptation to climate change is incorporated into the strategic plan of the agropolis and environmental quality improvement.

Other stakeholders' perspectives on climate change on Kuta Beach: After discussing the perspective of the local government as the main stakeholder and policymaker, this section will discuss the perspectives of other stakeholders, such as entrepreneurs and community leaders. Based on interviews with several hotel managers, they have not seen that climate change has a direct impact on the tourism sector. Some hotel managers criticized that what influenced the tourism business on Kuta Beach was the development of tourist attractions and facilities in other regions, thus spreading the concentration of tourist visits. This means that hotel managers are of the view that climate change does not have a direct impact on tourism, particularly in the hotel sector. As stated by a hotel manager.

“..... if (related to the number) of tourists there is no significant impact. ... (changes in the number of tourist arrivals) mainly due to the development in other locations, such as Seminyak, so visitors moved there. The case is almost the same as it used to be in crowded Sanur, now it is quiet and then moves to Kuta...” (Interview, 2017).

According to the hotel management, climate change negatively impacts the safety of tourists, because it led to disaster, although it does not affect the hotel sector directly. However, the current humid climate conditions in Bali are favored by tourists.

“...Humid weather in Bali causes sweating, it is desired by tourists...” (Hote Manager, Interview, 2017)

In contrast to the hotel manager, based on the interviews with local entrepreneurs, the decrease in tourists' number are affected by climate change which in turn affect the decrease in local businesses.

“...yes, (climate change) affects: causes fewer customers because of fewer tourists.” (Surfing operator, Interview, 2017)

Local food and beverage vendor groups on Kuta beach also saw that the number of visitors decreased, but their sales remained relatively stable. As they mentioned:

"...yes. Indeed, the number of tourists decreased, but (our) sales same as before, because of (our customers) many local people as well as local employees, local visitors, drivers, surf coaches..." (Interview, 2017).

With regard to adaptation to climate change, actions were taken by the hotel is linked directly to the effects of extreme weather, such as major disasters (floods, hurricanes). Based on interviews, that there is only one hotel that is adapting to climate change. He stated that the hotel carries out maintenance and repair of the engine cooler because if the temperature is hotter, tourists prefer to spend their time in the room, because there is air conditioning.

"...the type of adaptation (to climate change) that we do is to maintain air conditioners ..." (Hotel Bali Niksoma, Interview, 2017).

"...when the hot weather season, electricity consumption is higher than normal because more tourists are in the room. If they leave the room, then room boy will turn off the air conditioner, to save electricity usage..." (Hotel Bakung Sari, Hasil Wawancara, 2017)

The actions taken as a form of adaptation to disasters including the provision of evacuation routes, provide signposts, employee training on disaster management, determine gathering points, and fire alarms. The hotel also stated that it had been greatly assisted by the government. They get climate information from Meteorology, Climatology and Geophysics Agency (BMKG) and information dissemination of disaster evacuation from the authority.

"...From the office, there is a dissemination of disasters and diseases information ..." (Hotel Hana Kuta Beach, interview, 2017)

Furthermore, there is also the hotel building insurance in the event of damage caused by the disaster, although not all enrolled in such schemes. In addition, there are also, hotel standards that must be met by employers in accordance with the authority regulations, in order to anticipate the negative impacts of disasters that may occur.

"...There is also an evacuation training (organized by the authority) in the surrounding area, including for hotel workers ..." (Hotel Kuta Angel, interview, 2017)

Local entrepreneurs criticized the actions taken by the local authority, they were still limited to planning, so that their new policy was in the form of training and directions for installing evacuation routes. However, in fact, some of the adaptation efforts carried out by local entrepreneurs, have been more concrete, such as cleaning up rubbish, which if a flood occurs will worsen the situation. It can be seen that, in general, the knowledge and awareness of local entrepreneurs towards disaster and climate change are considered quite high. The approach was taken by the hotelier, basically the same as what is carried out by local communities. Especially for the Balawista (coast guard), they install two flagpoles, wherein both flags should not be any activity like swimming or other activities because they were too dangerous.

"...when a sea swell occurs... we will find it difficult to help victims off the coast ... To anticipate the possibility of danger, we have installed two flagpoles, between the red flags, tourists are prohibited from swimming and playing, because it is dangerous. But sometimes tourists do not notice it. So, we must always be vigilant..." (Balawista in Kuta Beach, interview, 2017).

The readiness of the hotel in dealing with disasters is more to provide evacuation routes, insurance, and information about possible hazards. This shows hoteliers' attention more towards disaster management and the safety of the tourists. There were no other responses from stakeholders with regard to adaptation to climate change apart from being closely related to disaster.

From the analysis of tourist perceptions about climate change on Kuta Beach, Bali, it was found that climate change has become an important tourist awareness and concern. This proves how climate change is becoming increasingly important for tourism planning and development. Its main purpose in policy and development of the tourism sector is to provide the best for tourists. If the issue of climate change may affect tourist arrivals whether to increase or decrease, then the study of climate change is substantial to be included in tourism planning and development.

In addition to perception analysis, an analysis of which variables have a high influence on a person's decision to travel shows that climate change impacts have a significant role. The effects of climate change such as storms, floods, extreme weather changes, erosion, sudden weather changes, waves, and intrusions are fundamental considerations in making travel decisions. Variable climate change is closely related to safety aspects when traveling. Thus, strategies in tourism planning need to be a concern of various parties. Particularly local authorities such as the Regional Disaster Management Agency (BPBD) and other relevant authorities.

5. CONCLUSIONS AND RECOMMENDATIONS

The results of this study indicates that tourists' awareness of the effects of climate change is quite high, even though basically their understanding of the meaning and concept of climate change is incomplete. Variables on the impact of climate change affecting the tourist experience in Kuta, Bali, more related to safety, except for sudden and extreme weather changes. The study also found that local authorities have paid considerable attention to climate change and its impact on the tourism sector. Their attention can be seen from the adaptation approach, such as building a parapet wall along Kuta Beach, although there are no other things that are more specifically related to tourism. This study is expected to attract attention and increase tourism stakeholders' understanding of the impacts of climate change so that an adaptation approach can be carried out better and systematically. Thus, reducing the negative impacts of climate change in the destination, which in turn will encourage the development of tourism.

Based on this study, there are several points that can be underlined to be recommendations. *First*; recommendation for the local authority in particular to the Regional Planning and Development Agency (BAPPEDA). We need to integrate climate change studies with the tourism sector, especially related to nature-based tourism attractions. The results of this study can be used as a reference and material for integrating climate change adaptation with tourism planning and development. Due to the impacts of climate change is very influential on a person's decision to travel. The tourism sector directly boosts the local economy and society. *Second*; recommendation for the entrepreneurs and private sectors. The private sector needs to collaborate with the local government through climate change programs and initiatives.

Third; recommendations for the local society. Communities are needed to support local authorities, especially in responding to various climate change adaptation initiatives. For example in this study, that it is difficult for researchers to observe indications of climate change through the perceptions and responses of tourists, due to the short period of being in the location.

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