



## Exploration of Madura Local Wisdom as a Support for Ethnoscience-Oriented Madura Tourism Database

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### Abstract

The purpose of this research is to identify and classify the types of ethnoscience-ecotourism on Madura Island, and examine the supporting and inhibiting factors. This study employs a qualitative descriptive research design and is conducted in the regencies of Bangkalan, Sampang, Pamekasan, and Sumenep. The research instruments include the researchers themselves, interview guides, and other supporting materials, whereas the data sources are primary and secondary data obtained through observation, interviews, and documentation. Utilizing interactive analytic techniques to analyze research data Huberman and Miles. The results showed that the types of Madurese local wisdom with the concept of ethnoscience-ecotourism were Aer Mata Ebu Arosbaya Bangkalan Market, Lon Malang Sampang Beach, Pamekasan Salt Education, and the Sumenep Palace Museum; The clustering of Madurese local wisdom as an ethnoscience-based tourist object that has been carried out shows that the Aer Mata Ebu Arosbaya Bangkalan Islamic Boarding School is included in the type of religious tourism, Lon Malang Sampang Beach is of the nature and halal syari'ah tourism type, Pamekasan Salt Tourism is of the educational tour type, and the Sumenep Palace Museum type of heritage tourism. Factors supporting the development of ethnoscience-ecotourism in Madura are the concept of place, certain points as references, history in Madura and natural landscapes which are the main attraction for tourists. The inhibiting factors for the development of ethnoscience-ecotourism in Madura are the absence of the participation of the closest government apparatus (Village/POKDARWIS), the uncoordinated route network for the Madura tour network, inadequate transportation routes.

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## INTRODUCTION

Since Indonesia is known for having a wealth of natural resources, there are many possible benefits that can be derived from Indonesia's natural resources. Every region has the potential to enhance its tourist industry, which would help the nation, its regions, and its local communities' economies. At the national, regional, and local levels, Indonesia's economy depends heavily on the tourism industry. Tourism's economic impact extends beyond industries that are directly tied to it, like those in the accommodation industry, dining establishments, and tour operators. However, a lot of other economic activity, like banking, telecommunications, and transportation, are connected to tourism. (Arifin, 2017).

The contribution of the tourist sector to the national GDP serves as more evidence of the sector's significance for economic development. This demonstrates the benefits of

accelerating national economic growth for raising people's welfare. The importance of the tourist sector in enhancing human welfare increases with the tourism sector's GDP contribution (LPEM-FEBUI, 2018). This rise in contribution is pursued in accordance with the improvement of community welfare through the construction of a quality socio-cultural environment, leisure, and a quality standard of life. (Gokovali & Bahar, 2018; Ivanov, 2020).

The contribution of the tourism sector to the national GDP has increased significantly. In 2018 the contribution of the tourism sector to the national GDP reached 5.25%. Furthermore, in 2019 the contribution of the tourism sector to the national GDP increased to 5.5%. However, in 2020 it decreased to 3.4% during the Covid-19 Pandemic and crawled up to 4.2% in 2021 (Kemenparekraf, 2021). It is necessary to identify and group local tourist attractions because regions need to develop tourism destinations more than ever in the era of regional autonomy and growth, tourists need to choose the best tourist attractions based on criteria, and travel and hotel business owners need to cater to tourists' interests and needs (Nizar, 2018; Torres, 2014).

The magnitude of the benefits of the tourism sector, it must be realized that tourism activities also have a negative impact, tourism is often accused of being the cause of traffic jams, environmental damage, fading of the nation's cultural heritage, and carriers of negative cultural values and habits (Suwanto, 2015). Stakeholders should be aware of the unfavorable effects that result, including the negative economic, sociocultural, and environmental effects as well as the connection between tourism and local culture. Additionally, the influence on the environment poses a threat to the preservation of nature because the majority of the tourism business relies on or even makes the environment its main attraction. (Peng, et al, 2015).

The experts then examined a concept of ethnosience-based ecotourism, which can be called ethnosience-ecotourism. This concept prioritizes environmental conservation, environmental education, the welfare of local residents and respects local culture and wisdom in tourism (Sturtevant, 2018). Indonesia has the potential for beauty and natural wealth of high value in the natural tourism industry market, especially ethnosience-ecotourism. As a trending form of tourism, ethnosience-ecotourism has the specificity of prioritizing environmental conservation, environmental education, population welfare and respecting local culture (Chuang, 2017). This is due to a paradigm shift in international tourism from mass tourism to specific tourism, namely ecotourism. (Nugroho, 2015).

Ethnosience-ecotourism relies on the noble values that apply in the living system of society to protect and manage the environment sustainably. There are five cultural dimensions of local wisdom, namely (a) local knowledge, (b) local culture, (c) local skills, (d) local sources, (e) local social processes (Sternberg, et al, 2018; Yasir & Wulandari, 2020). Ethnosience-ecotourism is expected to make tourism not only oriented to economic aspects, but also contribute to environmental conservation, education to increase awareness of environmental protection, and maintain the values of local wisdom in the region.

The object and attraction of ethnosience-ecotourism on Madura Island also develops according to its potential. In general, the development of ethnosience-ecotourism on Madura Island is carried out collectively under the auspices of institutions / governments, and some are independently privately. Madura Island has great potential because of its attractiveness (Yunin, et al, 2019). A number of problems hinder the development of ethnosience-ecotourism on the island of Madura. It turns out that until now only a tourism awareness group association (POKDARWIS) has been formed in Madura, but various kinds of ethnosience-ecotourism in Madura have not been massively identified and have not been classified according to tourist attractions (Budhiyanti, et al, 2019; Yasir et al., 2022). This makes prospective tourists who want to visit and travel in Madura do not yet have an idea of

the location of ethnosience-ecotourism objects in Madura, tour packages, tour guides, accessibility, transportation so that ethnosience-ecotourism objects in Madura have not been integrated in a series of Madura tourism routes.

The challenges that develop clearly call for alternate solutions, as evidenced by the explanation of the problems provided above. The requirement for categorization and identification of tourism attractions on Madura Island is the alternative solution put out. Contributing to the maintenance of the Madura tourism database is crucial. The identification and grouping of Madura tourist items based on the category of Madurese local wisdom based on ethnosience represents innovation as the state of the art of this research. To aid in the growth and development of each tourist destination on Madura Island, information is being made available on the types, descriptions, characteristics, reference points, and contacts of tourism objects in Madura (Bagasta et al, 2021; Anandhyta & Kinseng, 2020).. Based on the background and problems described above, research will be carried out with the title of exploring various kinds of Madura local wisdom as a supporter of the ethnosience-oriented Madura tourism database.

## **METHODS**

This type of research is descriptive qualitative research. The focus of this research includes: (a) types of local wisdom on Madura Island that can be used as objects of ethnosience-ecotourism, (b) clustering of ethnosience-ecotourism according to tourist attractions on Madura island, (c) supporting and inhibiting factors in the development of ethnosience-ecotourism on the island of Madura.

The research was conducted in four districts on Madura Island (Bangkalan, Sampang, Pamekasan, Sumenep). This area was chosen on the grounds that it has a variety of local wisdoms and has the potential for ethnosience-oriented tourism. The research subjects were local wisdom with ethnosience-ecotourism characteristics in each district. The subjects as the research sample were obtained using a non-probability sampling technique with purposive sampling with consideration that the average Madura local wisdom in each district was heterogeneous. The object is teaching researchers at UTM Science Education. The research was conducted in June - December 2022.

The data collected is in the form of primary and secondary data. Primary data sources are obtained directly while in the field through interviews with informants/informants by means of in-depth interviews or field observations with the aim of knowing all things related to research. The parties involved in the primary data are Madurese local wisdom figures/owners of ethnosience-oriented tourist attractions, and tourists who visit Madurese local wisdom sites/ethno-science-oriented attractions. Secondary data sources are obtained from literature studies or documentation in the form of books, reports, internet references, and others related to research problems and are useful in enriching primary data sources. This secondary data is in the form of government regulations on Madurese local wisdom and Madura tourism, profile documents of Madura local wisdom and tourism, Madura tour package brochures, and other relevant information.

Data collection techniques using observation, interviews, and documentation. This research observation was conducted to observe the types of local wisdom in Madura which can be used as objects of ethnosience-ecotourism. Structured interviews were used for ethnosience-ecotourism clustering according to tourist attractions on Madura Island and supporting and inhibiting factors in the development of ethnosience-ecotourism on Madura Island. Documentation is used to document photos and make field notes from observations and interviews related to the exploration of Madurese local wisdom as a support for the ethnosience-oriented Madura tourism database.

Analysis of research data using the proposed interactive analysis method Miles dan Huberman (2014) which were put forward, namely data collection, data condensation, data presentation, drawing conclusions and verification. Data checking techniques use the degree of trust/credibility by (a) determining the period and schedule of the research until saturation points appear, (b) making consistent observations, (c) using the data/source triangulation method to test the correctness of the data collected by comparing the results data observation with data obtained through interviews with informants.

## **RESULTS AND DISCUSSION**

### **A. Observation and Documentation Survey Results of the Types of Madura Local Wisdom**

This study aims to describe the types of Madurese local wisdom as a support for the ethno-science-oriented Madura tourism database, which begins with conducting a study of local wisdom in Madura. Observation surveys and documentation of types of local wisdom in each district on Madura Island were conducted to study Madurese local wisdom. The types of Madurese local wisdom studied in the observation and documentation surveys in this study were aer mata ebuh pesarean, Lon Malang beach, salt tourism, and the Sumenep palace museum. Explanation of the results of the observation survey and documentation of the study of Madurese local wisdom in each district, whether Bangkalan, Sampang, Pamekasan or Sumenep, will be explained as follows.

#### **1. Results of Observation Survey and Documentation of Madura Local Wisdom Study in Bangkalan Regency**

This Pesarean is the most extensive cemetery in East Java. Pesarean Aer Mata Ebu is a family burial place that has been passed down for seven generations, is widely known by the public, and is full of history and sacredness. Caretaker of Pesarean Aer Mata Ebu Moh. Jamal said that the shrine was named Aer Mata Ebu, because it was the place of Kanjeng Ratoh Ebu Syarifah Ambami's hermitage in the past.

The source of the spring, which is believed to be blessed water, is also inseparable from the history of Queen Syarifah Ambami. According to Jamal's story, Syarifah used to meditate for the safety of her husband Raden Praseno, who was fighting in Mataram. During the hermitage, Syarifah cried and met Prophet Hidir. In his prayers, he asked God, seven generations to rule the island of Java. Because of that cry, this village was named Kampung Aer Mata. After coming from Mataram, Raden Praseno asked Syarifah Ambami what he had obtained during asceticism. Syarifah recounted what she experienced while meditating.

As it turned out, this story made Raden Praseno furious and then returned to Mataram. Seeing this incident, Syarifah Ambami meditated again while crying incessantly, until her tears spilled over where she was meditating. Her ascetic place is the source of water until now. In fact, according to him, since Gusdur became president, and the Suramadu Bridge has been operating, pilgrims have come not only from Madura, but also from abroad (Netherlands).

#### **2. Results of Observation Survey and Documentation of Madura Local Wisdom Study in Sampang Regency**

Sampang is one of the districts in Madura. In the northern Sampang area there is Lon Malang Beach. This beach is located on the north side of the island of Madura, precisely on Jalan Raya Batu Lenggur Timur, Bira Tengah, Sukobana, Sampang Regency. Access is also easy because it is on the left side of the Provincial road. To

get to this place, we can simply use private transportation. If departing from Surabaya, we can go through the Suramadu Bridge or take a boat at Tanjung Perak Harbor with a travel time of 2 hours 30 minutes.

Before arriving at the location, along the way we will be presented with views of the exotic sea to the north, as well as some hills on the south side. This beach was formerly called 'Beach Only You' as branding. This is because according to Matsuki (source person) thought, the name which was inspired by the title of the dangdut song would become a magnet that could attract visiting tourists. Because, for a tourist area, such a name is not only unusual, but a complete blend of unique and strange.

Because it was the era of narcissism, Mastuki initiated the creation of several selfie spots. There are bridges, swings and gazebos. Each selfie spot is written with naughty sentences. For example, 'Room of the Widow Sighs', 'Lake Asmara', as well as 'Papa Comes Home, Mama Wet'. The goal is for many visitors to take fun selfies and then upload them to their respective social media accounts. Then, the manager's expectations went viral.

However, the initial name of the panta received sharp criticism from his cousins and local scholars. All the overflow of criticism, became a spirit whip to realize criticism with a new name branding. All boards containing naughty sentences were removed, and the name of the beach was also changed to Lon Malang, according to the original name of the area before it was transformed into a beautiful beach.

### **3. Results of Observation Survey and Documentation of Madura Local Wisdom Study in Pamekasan Regency**

Bunder Village, Pademawu District, Pamekasan Regency is one of the largest salt producers in the East Java region. Even though Pamekasan Regency has become one of the largest salt producers, this has not had an impact on the welfare of salt farmers. The salt import policy issued by the central government actually worsened salt production. One solution that can be offered to overcome this problem is by developing salt pond tourism. Through educating salt ponds, it is hoped that it can be a solution to several problems related to salt, especially to improve the welfare of salt farmers.

Edutourism has an element of travel that is packaged with learning activities to increase the intelligence and creativity of visitors, besides that salt ponds also offer unique scenic tours, especially during the salt harvest and sunset. snow mounds with windmills around it add to the beauty of the salt ponds, at sunset the location of the salt ponds is no less exotic, making people, especially young people, make the location an aesthetic and instagramable photo spot.

Salt educational tours, which are meant to be in the form of introduction and learning about the process of salt production from the beginning of making plots of land until the salt is harvested and entered into the storage warehouse. This tourism manager has an important role in designing tourist sites as a result of initiative and creativity, as well as an important element in the product development strategy for salt tourism.

### **4. Results of Observation Survey and Documentation of Madura Local Wisdom Study in Sumenep Regency**

The Sumenep Palace Museum is a museum located at Jalan Dr. Sutomo No. 6, Delama Neighborhood, Pajagalan, Sumenep City, Sumenep Regency, East Java. The Sumenep Palace Museum collects relics related to the Sumenep Palace. The museum building is the Sumenep Palace in East Java. The collections of the Sumenep Palace

Museum vary in size from small to large. Small collection of ceramics and weapons. While the large collection is in the form of horse-drawn carriages from the British Empire. The main collection in the Sumenep Palace Museum is the golden chariot that was once ridden by Arya Wiraraja. Most of the collection is the legacy of Sultan Abdul Rachman.

The Sumenep Palace, which is used as a museum, was built by a Chinese architect named Louw Phia Ngo. The resulting architectural style is a blend of Islamic, European, Chinese and Javanese architecture. Ownership of the museum was handed over to the Culture, Tourism, Youth and Sports Office of Sumenep Regency. Its management is given to the Technical Implementation Unit (UPT) of the Sumenep Palace Museum.

The Sumenep Palace Museum is divided into 3 buildings called Museum I, Museum II and Museum III. Museum I houses two horse-drawn carriages belonging to the king and relics of the Sumenep Palace. Museum II used to be a king's office called the Koneng office. In the Madurese language, koneng means yellow. Meanwhile, Museum III was used as the king's meditation room. The collection in Museum III is the Al-Qur'an written by Sultan Abdurrahman. Apart from that, there were some dried palm leaves tied together. These palm leaves are inscribed with Islamic religious teachings and Javanese traditions in Javanese script.

The results of observational surveys and documentation of studies on Madurese local wisdom in each district are used to identify typical types of Madurese tourist objects. The peculiarities of the types of Madura tourism objects in each district in Madura have their own characteristics. The type of tourist object in Bangkalan is Aer Mata Ebu Arosbaya which has a characteristic philosophy, history, culture from the Kingdom of West Madura which is believed by visitors to have health benefits. Lon Malang Sampang Beach as a type of tourist attraction in Sampang has a characteristic panoramic landscape that is beautiful, shady, exhotic with a wide coastline complete with community traditions that emphasize halal syariah. The type of tourist attraction in Pamekasan, namely Eduwisata Garam Bunder, which has the characteristics of managing salt ponds, is an educational tourist spot about Madura Salt, processing, marketing, and so on which greatly educates visitors according to Madura geography. The Sumenep Palace Museum as a tourist attraction in Sumenep has a characteristic philosophy, history, culture from the East Madura Kingdom which is believed to be a heritage site which is a Cultural Heritage.

The types of Madura tourism objects in each district in Madura obtained from the survey results and documentation above are derived from Madurese local wisdom. The types of Madurese local wisdom that are raised are in the form of religion, social society, cultural traditions, agriculture, as well as maritime affairs and fisheries. Various Madurese local wisdom can be used as study material. (Yasir & Wulandari, 2020; Khafid et al, 2019). Because Madurese local wisdom can be used as study material, then of course within Madurese local wisdom there are many things that can be studied to add to existing study material. Study materials from the context of Madurese local wisdom are found within the scope of ethnosience (Yunin et al, 2019; Yasir & Wulandari, 2020).

Ethnosience is an activity of transferring original science or knowledge that develops in society into a scientific scientific concept (Rahayu & Sudarmin, 2015). Indigenous Science of the community regarding a local wisdom in an area. Local wisdom is understood as genuine knowledge or local intelligence of a society that comes from the noble values of cultural traditions. Original scientific knowledge consists of all knowledge pertaining to the facts of society. This knowledge comes from beliefs passed

down from generation to generation or hereditary beliefs from predecessors (Ilhami et al, 2020). Scientific science is studied theoretically or scientifically based on experiments, research, literature references to prove the truth of the original knowledge of the community (Mudawamah, 2020).

## B. Clusterization of Madura Local Wisdom Acoording to Tourism Objects

From several local wisdoms from each region on Madura Island, the characteristics and potential of the area in Madura can be seen as a tourist attraction for Madura. The tourist objects of each Madura area are very unique and are not owned by other regions. Regional uniqueness as Madura local wisdom as a Madura tourism object can be used as a source and learning media for students as well as supporting references in creating an ethnosience-oriented Madura tourism database. Because Madurese local wisdom is used as study material, then of course in Madurese local wisdom there are many things that can be studied to add to existing study material.

The various tourist objects in Madura indicate the need to be clustered. Tourist object clustering can be interpreted as tourist object data that does not have a label then is labeled in groups, then tourist object data that has similarities is collected in one group, and those that have differences are classified into different groups (Ferreira, 2019). Tourist object clustering is usually used to determine patterns, grouping, decision support for tourist destinations according to the goals and wishes of tourists (Nordin, 2013).

The clustering of Madurese local wisdom as a Madura tourism object is adjusted to the type of tourism and the field of ethno-science studies. Types of tourism in Madura are more towards natural tourism, religious tourism, heritage tourism, educational tourism, art and cultural tourism. While the field of study of ethnosience consists of a) focusing attention on culture to find out the original science of society (indigenous knowledge), b) developing technology that is already owned by certain communities related to customs, laws, rules, norms, values that are believed to be true and good by the community so that people do it or prevent it, and c) focusing attention on culture as a set of principles of creating dramas, for writing scripts, and of course, for recruiting players and audiences based on various activities in everyday life to understand the structures of life Madurese people carried out in daily behavior, but the actual scientific function is not known.

Of the various types of Madurese local wisdom as a tourist attraction in Madura, it turns out that it can be classified according to the type of tourism and relate it to the field of ethno-science studies. The connection between the types of tourism and the field of ethno-science studies from various kinds of Madurese local wisdom as tourist objects is shown in **Table 1**.

**Table 1.** Types of Tourism and Fields of Ethnosience Studies from Various Kinds of Madura Local Wisdom as Tourism Objects

No	Regency	Kinds of Madura Local Wisdom as a Tourism Object	Types of Tourism	Field of Ethnosience Studies
1	Bangkalan	Pesarean Aer Mata Ebu	Religious Tourism	Focusing attention on culture to know the original science of society (indigenous knowledge)
2	Sampang	Pantai Lon Malang	Nature Tourism and	The development of technology that is

No	Regency	Kinds of Madura Local Wisdom as a Tourism Object		Types of Tourism	Field of Ethnoscience Studies
				Halal Syariah Tourism	already owned by a certain community is related to customs, laws, rules, norms, values that are believed to be right and good by the community so that people do it or prevent it
3	Pamekasan	Eduwisata Garam		Educational Tourism	Focusing attention culture as a set of principles of creating dramas, for writing scripts, and of course, fo recruiting players and audiences based on various activities in daily life to understand the life stuctures of Madurese people carried out in daily behavior, but its actual scientific function is not known
4	Sumenep	Museum Sumenep	Keraton	Heritage Tourism	Focusing attention on culture to know the original science of society (indigenous knowledge)

In **Table 1**, which is drawn from the description data from the survey results of observation and documentation of local wisdom in each Madura region, it appears that each Madurese local wisdom has its own characteristics, uniqueness, trend towards tourism development, and fields of ethno-science studies that can be studied in the area separately. The local wisdom of pesarean aer mata ebuh which is the place of Rato Ebu's grave and the source of aer from Mata Rato Ebu as a characteristic and uniqueness has a tendency to become religious tourism. Because there are so many tourists who visit the place for pilgrimage and pray and take lessons from the Aer Mata Ebu event and its water sources. This contains the concern that there is indigenous knowledge that needs to be studied in more depth to find out the origins, motivations, and understanding of the community as a basis for environmental conditions that influence behavior.

The local wisdom of the Lon Malang beach which presents natural natural charm from the geography of the beach and sea, as well as rules in place based on gender and Islam as its characteristics and uniqueness has more of a tendency to become natural tourism and halal sharia. Because tourists with various genders and religions, especially the majority of Muslims who are thick with halal and sharia, visit the place to enjoy the charm of nature and as a form of gratitude for God's greatness. This implies the concern that there is technological development that is already owned by certain communities



related to customs, laws, rules, norms, values that are believed to be right and good by the community so that people do or prevent them. Customs, laws, rules, norms, values that are believed to be right and good by the community are related to halal and sharia travel in terms of layout, travel rules for those who dress and socialize in a syar'i manner (do not generate immoral, pornographic or pornographic content ), as well as kiosks, stalls, cafes that present the concept of buildings, food, and ways of serving that are halal and syar'i as branding.

Local wisdom Salt Edutourism is a place where salt ponds are conceptualized as tourism with various kinds of supporters packaged in such a way in salt education and training (education) as a characteristic and uniqueness which has a tendency to become educational tourism (otherwise known as edutourism). The tourists who come want to know more about salt, not only from the salt ponds, but also from the production and processing of salt from start to finish. This contains attention to culture as a set of principles of creating dramas, for writing scripts, and of course, for recruiting players and audiences based on various activities in daily life to understand the life structures of the Madurese people carried out in daily behavior. -days, but its actual scientific function is not known. The behavior in question is the production and processing of salt in Madura. This concern shows that there is education as education and training in the production and processing of salt in Madura for the public and tourists who visit salt tourism.

The local wisdom of the Sumenep Palace Museum which is a legacy of the Sumenep kingdom in the Mataram era and Dutch, British and Japanese colonialism which went through various periods as its characteristics and uniqueness has more of a tendency to become heritage (historical) tourism. Because there are so many tourists who visit this place to learn about the origins, history and heritage and meaning in historical events contained in the Sumenep Palace Museum. This contains the concern that there is indigenous knowledge that needs to be studied in more depth to find out the history and legacy and meaning in historical events contained in the Sumenep Palace Museum, and the understanding of employees, teachers, figures, government, and the people of the Museum area. The Sumenep Palace as a basis for environmental conditions that influence behavior.

The study of Madurese local wisdom as a tourist attraction that focuses on STEAM will bring up natural science learning material through the process of reconstructing scientific science (concepts, laws, science theory) from societal science (opinions, perceptions, people's habits). Reconstruction of scientific science from social science is carried out by means of transformation through validation and standardization of scientific terms, conceptualization, descriptive and procedural declarative (Sturtevant, 2018). Standardization of scientific terms, conceptualization, descriptive, and procedural declaratives is carried out through literature review and experimentation. From the transformation process, the results of the literature review and experiments are then identified, verified, formulated conceptually through assimilation, accommodation, and equilibration of cognitive mental processes that will make a person develop and accept things that are right/wrong (Yasir & Wulandari, 2020).

The reconstruction of scientific science from community science through ethnoscience research shows the existence of citizen science. Citizen science characterizes the role of the public, namely students and the community as contributors to scientific-based research data (Jennet, et.al, 2020; Bonter, 2012). With the existence of citizen science, national values and national character education arising from the values of local Madurese wisdom will not fade. This is due to the emergence of a sense of

awareness of the importance of maintaining and preserving the values of local Madurese wisdom.

The inculcation of national values and national character education using citizen science is carried out through the promotion of diversity by visiting museums, social and cultural sites, as well as tourist tours. (Suyitno, 2020; Ahmed, 2017). Such diversity promotion can reflect the experience of diversity and national and diversity values in the form of social contribution activities (Tim, 2021; Vosinakis, 2020). Apart from that, there are inspirational stories and experiences from the leaders of the preservation of Madurese local wisdom through inspirational talkshow activities. The results of the promotion of diversity and inspiration are then contemplated actively and dynamically through reflection activities to gain wisdom, benefits, lessons, guidance, life motivation, and tolerance for diversity. All activities to instill national values and national character education using citizen science are packaged in such a way as archipelago activities.

### **C. Interview Results of Supporting and Inhibiting Factors in the Development of Ethnoscience-Ecotourism on Madura Island**

The various kinds of Madurese local wisdom as an ethno-science-based Madura tourism object indicate that there is more potential to be developed broadly and massively. The development of ethnoscience-ecotourism of Madurese local wisdom in order to know the direction of its development, contribution, income, supporting and inhibiting factors was conducted through interviews.

Pesarean Aer Mata Ebu is in the process of developing its tourism directly from the Bangkalan Regency Quarterly so that the Village Head does not participate in its development. This aer mata ebuh pesarean religious tourism has contributed to the GDP of Bangkalan Regency and boosted the economy of the local community.

The results of interviews with resource persons at the Aer Mata Ebu Festival show that there are supporting and inhibiting factors in the development of ethnoscience-ecotourism at Aer Mata Ebu Tourism. The supporting factors that encourage the development of the aer mata ebuh pesarean are the concept of the pesarean place, certain points as references, history and royal genealogy in Madura and Rato Ebu which make it attractive for tourists to want to visit and travel. The factors that can hinder the development of the Aer Mata Ebu market are the absence of the participation of the closest local government apparatus, in this case Buduran Arosbaya Village which is involved in the development of the ethnoscience-ecotourism of the Aer Mata Ebu market so that it has not characterized the situation and conditions that occur in the field. Triwulan only restores, repairs, and conceptualizes the Aer Mata Ebu market place. This should have a relationship and cooperation between parties from top to bottom to become a connecting bridge in the development of a better aer mata ebuh ethnoscience-ecotourism.

Lon Malang beach tourism has good landscapes and panoramas. It's also on the edge of the national highway so it's easy to find. However, there are several fundamental problems with tourist objects in the tourism development process, including inadequate facilities and infrastructure, where the facilities available for tourists, namely bathrooms, are far from proper because the bathrooms built by the government are not taken care of, the quality of human resources it is still low in tourism services and community appreciation in planning and developing various fields is still low, and in tourist areas there is still a lot of scattered garbage, wild plants that are not cut down so as to damage the beauty of the tourist attractions themselves, road accessibility to the beach Lon Malang is far from the city because it is located on the Northmost Beach route

(PANTURA), namely in Bira Tengah Village, Sokobanah District, Sampang Regency and the access road is not good, many have holes and are damaged and patched unevenly, so it is very influential and disrupts the safety of tourists visiting. visit the Lon Malang beach tour. Promotional efforts were not very active so that visitors who came were still dominated by local tourists from the Sampang Regency area.

From these conditions, it is necessary to plan for the development of tourism on the Lon Malang beach which is good by the relevant agencies, namely the Youth, Sports, Culture and Tourism Office so that it becomes a tourist attraction that can increase tourist attraction and be able to compete with other tourist destinations in Sampang Regency. According to Budhiyanti, et al. (2019) development planning includes: (1) a participatory planning approach, in which all elements involved in planning and developing tourism object areas are included both theoretically and practically; (2) the potential and characteristic approach to the availability of cultural products can support the sustainable management of tourist attraction areas; (3) the community empowerment approach, is to provide opportunities for the community to develop their abilities in order to achieve both personal and group abilities.

Based on the results of the research through interviews conveyed by several informants about the large number of tourist visitors, it cannot be denied that the supporting factors can become a tourist attraction to visit tourist attractions, namely the natural charm or the beauty of the natural panorama where Lon Malang Beach Tourism has very special characteristics. nice on stretching white sand, very clear beach water, very shady trees so that it can add a cool and cool atmosphere even though it is on the coast and in the afternoon tourists can see and capture very beautiful moments at sunset or sunset to take pictures so many photographers take good spots in the tourist area to post to their social media accounts.

Human Resources A workforce that is involved in the tourism sector as a tourism business actor should be available sufficiently and professionally. Because in the management of an activity, human resources are professional and very decisive in maximizing the existing potential, in this case the tourism potential of Lon Malang Beach in Bira Tengah Village, Sokobenah District, Sampang Regency.

The inhibiting factor that becomes an obstacle in the development of ethnosience-ecotourism on the Lon Malang beach is the feasibility of facilities and infrastructure such as bathrooms, CKM, places of worship that need to be improved and the access roads are not good, many have holes and are damaged and patched unevenly so that they are very influential and disrupt safety. tourists to visit the Lon Malang beach tour. Therefore, it is necessary to have cooperation from various parties, including the Sampang Regency Government, Managers, and Communities around the Lon Malang area to complete the deficiencies that can become obstacles to the development of ethnosience-ecotourism tourism on the Lon Malang beach.

The direction of this Edutour is on educational tours, namely providing information to the public, especially visitors related to salt, its processing, and also related to salt recrystals. Because now there are still many who do not really understand this. In addition, the direction of this educational tour is to meet SNI criteria so that products produced from this salt can be consumed legally by the public. The purpose of Madura Salt Education is to educate and prosper the people of Bunder Village, Pademawu, Pamekasan with the potential for salt in this region.

The step for developing the Madura Salt Edutourism is to take part in competitions, with the intention of introducing this Edutourism to outside areas and later the funds obtained from this competition can be used for the development of Edutourism.

Another form of developing this educational tour is by carrying out the construction of existing facilities at the Salt Madura Edutourism. In addition, the eduwisata also does not cut down mangroves to continue to preserve the living things that are here.

The contribution to the development of the Eduwisata Salt tourist attraction has an influence on the welfare of the community. This is because the community earns income from the opportunity to get a job by opening a business by trading/selling food, drinks, souvenirs, so that they are able to support the life of the community itself. The development of the Salt Edutourism tourist attraction plays a role in increasing the Regional Original Income of the Tambak Area, Pandan, Kec. Galis, Pamekasan Regency, due to the increasing contribution of the trade, service and other sectors. At this Salt Edutour, when entering the Edutourism area to buy a ticket, a pack of salt will also be given where the salt will later be used as a souvenir for each visitor. The gifts given to the visitors can support the salt production of salt farmers so that they can be traded and will still get income.

The results of interviews with informants on salt education show that there are supporting and inhibiting factors in the development of ethnosience-ecotourism in salt tourism. Supporting factors that encourage the development of salt tourism are the concept of salt tourism places, certain points as references, salt production and processing from start to finish which makes it attractive for tourists to want to visit and travel. The factors that can hinder the development of salt tourism are the need to complete facilities and infrastructure according to reference points and tools and places for the production and processing of salt. This should have relationships and collaboration between parties from top to bottom to encourage investment from investors for the development of better ethnosience-ecotourism salt tourism.

The Sumenep Palace Museum is in the process of developing its tourism directly from the Sumenep Regency Government. This is because the Sumenep Palace Museum is a place where cultural heritage is preserved and cared for. This tour of the Sumenep Palace Museum has contributed to the GDP of Sumenep Regency and the Ministry of Education and Culture's Cultural Heritage Center and boosted the economy of the local community.

The results of interviews with informants at the Sumenep Keraton Museum show that there are supporting and inhibiting factors in the development of ethnosience-ecotourism at the Sumenep Keraton Museum. Supporting factors that encourage the development of the Sumenep Palace Museum are the concept of the location of the Sumenep Palace Museum, certain points as references, history and genealogy of the Sumenep kingdom at various times which make it attractive for tourists to want to visit and tour. The factors that can hinder the development of the Aer Mata Ejuh market are the need for widespread and massive promotion through various means to increase tourist visitor arrivals and income.

The Madurese local wisdom that was studied as a support for the ethno-science tourism database which was raised was heavily influenced by the perspective of the Madurese people (Yasir et al, 2020; Sturtevant, 2018). This Madurese perspective then becomes the basis for integrating ethnosience into tourism. Interviews that have been conducted with informants show that the perspective of the Madurese community determines the supporting and inhibiting factors in the development and progress of ethno-science tourism in Madura.

Factors supporting the development of ethno-science tourism in Madura are the concept of place, certain points as references, history in Madura and natural scenery which are the main attraction for tourists, which are indeed very characteristic of ethno-

science to be developed into tourism. The inhibiting factors for the development of ethnosience-ecotourism in Madura are the absence of the participation of nearby government officials (POKDARWIS), uncoordinated route networks for the Madura tourism network, inadequate transportation routes, which are the perspectives of the Madurese community at this time need to be changed so that open minds, openness information, and access to get to these tourist attractions.

## CONCLUSION

Observation surveys and documentation of types of local wisdom have been carried out in each district on Madura Island to study Madurese local wisdom which can be used as an ethnosience-ecotourism object in this study. The types of Madurese local wisdom studied in the observation and documentation survey are Aer Mata Ejuh Arosbaya Arosbaya Bangkalan, Lon Malang Sampang Beach, Pamekasan Salt Education, and the Sumenep Palace Museum which have characteristics according to the potential of each region. The characteristics and uniqueness of each local wisdom in the Madura area as a tourist object can be classified according to the type of tourism and the field of ethno-science study. The clustering of Madurese local wisdom as an ethnosience-based tourist attraction that has been carried out shows that the Aer Mata Ejuh Arosbaya Bangkalan Islamic Boarding School is included in the type of religious tourism, Lon Malang Sampang Beach is of the nature and halal syari'ah tourism type, Pamekasan Salt Tour is of the educational tour type, and the Sumenep Palace Museum type of heritage tourism. Factors supporting the development of ethnosience-ecotourism in Madura are the concept of place, certain points as references, history in Madura and natural landscapes which are the main attraction for tourists. The inhibiting factors for the development of ethnosience-ecotourism in Madura are the absence of the participation of the closest government apparatus (POKDARWIS), the uncoordinated route network for the Madura tour network, inadequate transportation routes. The contribution of the results of this study as a support for the ethnosience-based Madura tourism database is by conducting exploration through identification and clustering of Madura tourism objects based on the ethnosience-based Madura local wisdom category, so that it can provide information on types, descriptions, characteristics, characteristics, reference points, and contacts of tourist objects Madura according to local Madurese wisdom has the concept of ethnosience to support the development and progress of every tourism destination on Madura Island.

## SUGGESTION

The advice that can be given is that you should contact the resource informant first to confirm the date and match the date with the calendar of each Regency, as well as manage research time even better. The research results that have been obtained need to be followed up by integrating ethnosience-based Madura tourism data into science and lecture learning, and creating an ethno-science-based Madura tourism map website.

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