

# MANAGING LOGISTICS MANAGEMENT AND STRATEGY IN TOURISM INDUSTRY WITH SUSTAINABLE TOURISM DEVELOPMENT

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## Abstract

Tourism has become a significant industry to boost Thailand economy. Through years, it generates high revenues, as compared to the revenues from export sector. This paper focuses on tourism logistics in Bang Saen Beach, Thailand as the case study. The beach is a beautiful destination in Chonburi province. However, with rapidly increasing number of tourists, logistics tourism is a challenge in term of insufficiency of transport system, infrastructure systems and facilities. It also includes generate environmental pollutants. Further, these problems are pointing to lack of effective tourism logistical management and strategy. An objective is to analyze demand forecast model for tourism at Bang Saen Beach. It also examines tourists' behavior, lifestyle and expectation. The results are used for planning infrastructure systems and facilities, including strategies for transport networks and logistics systems to support the future growth. Data are collected from secondary and primary sources. The questionnaire is distributed to 150 potential tourists, with 98 questionnaires being returned, for return of rate at 65.3 percent. The result shows that a time series would be an appropriate model for a demand forecast. However, there are several factors intervening and effect to the model interpretation. It reveals that tourism to Bang Saen Beach would rapidly increase in the next decade, especially in public holidays. It suggests that designing transport and logistics systems from Bangkok to Bang Saen Beach would be considered. Effectively designed infrastructure systems and facilities are also required to support sustainable tourism on Bang Saen Beach. Issue of reverse logistics system for garbage management would be effectively focused. Rapidly increasing garbage is a problematic issue for logistics related to a sustainable, green, eco-friendly environment.

**Keywords:** Tourism, logistics, demand forecast, Beach, Thailand

## 1.0 INTRODUCTION

Tourism has become a significant industry to boost Thailand economy. Through years, it generates high revenues, as compared to the revenues from export sector. This paper focuses on tourism logistics in Bang Saen Beach, Thailand as the case study. The beach is a beautiful destination in Chonburi province. The paper focuses on how to design and develop Bang Saen Beach, Chonburi province, Thailand, to become eco-friendly tourism destination. Bang Saen Beach is an important and popular tourist destination, just out 80 kilometers from Bangkok, capital of Thailand. However, with rapidly increasing number of tourists, logistics tourism is a challenge in term of insufficiency of transport system, infrastructure systems and facilities. It also includes generate environmental pollutants. Further, these problems are pointing to lack of effective tourism logistical management and strategy.

This study applies logistics management to the tourism industry under the hypothesis that moving tourists from Bangkok to Bang Saen Beach more efficiently and effectively, by providing an effective transport networking system and transport facilities, would significantly increase a number of tourists, including facilitating tourism industry. A demand forecast is statistically calculated in order to provide recommendations for the improvement of infrastructure systems and facilities. Further, the use of logistics in the

tourism industry is currently recognized as a strategic tool for enhancing tourist satisfaction in relation to lower travel costs, one-stop services, other conveniences and safety.

However, the research study (Briguglio 1995; Bryden 1973) shows that traveling destinations, using tourism logistics concept is key success for developing destination sustainably. It is starting point for planning and developing infrastructure systems and facilities, including formulating strategies for transport networking and logistics systems to support the future sustainable growth of tourism industry.

## 2.0 LITERATURE REVIEW

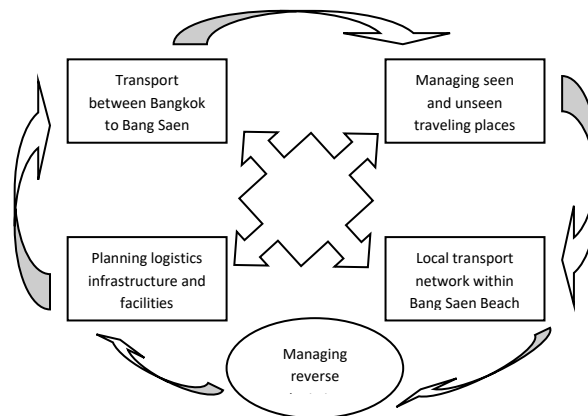
This study reviews the literature related to the logistics planning and implementation to tourism industry to expand the economic growth of Thailand. It also considers the adoption of logistics management in the tourism industry, especially the beach and island tourism. Two relevant sources (Acharya 1995; Briguglio 1995; Bryden 1973) point out that logistics management contributes to the success of sustainable tourism development. These sources also review definitions of logistics and logistics management as they pertain to sustainable tourism development, but no research identifies exactly what tourism logistics is and how it contributes to tourism success.

Theppitak (2006) points out that before design logistics system in travelling destinations, it needs to understand tourists' behaviour and pattern of travelling. It then forecasts demand of tourist and frequency of travelling to sufficiently provide logistics infrastructure and facilities. Furthermore, logistics is mostly understood in term of business industries, with only a few research studies done exclusively in relation to tourism (Briguglio, Butler, Harrison and Filko 1996). People typically relate logistics (Bowersox & Closs 1996; New, 1994) to transportation or warehousing, particularly connecting it to aspects of material goods or information flow (Butler 1980; Theppitak 2006). As such, logistics is understood as a service-oriented process related to movement of physical and information flow. To apply logistics to tourism, people, or tourists, shall be considered as physical flow from one point to another, and examined in terms of lower costs, higher safety and more convenience through excellent coordination and collaboration (Bowersox & Closs 1996).

The authors (Butler 1980; Briguglio 1996) points out that before logistical planning for tourism infrastructure and facilities can be achieved, there needs to be an accurate demand forecast developed. Demand forecasting for tourism into the next decade is statistically calculated in order to provide improvement for infrastructure systems and facilities, which can in turn support growth and expansion. However, very few researches have been done in area of tourism logistics (Butler 1980; Conlin and Baum 1995). It also reveals patterns of tourist behavior and other factors influencing travel decisions, as well as identifies problematic issues with tourist destinations (Conlin and Baum 1995).

Conlin and Baum (1995) states that there is a relationship between adoption of logistics management in the tourism industry and the success of sustainable tourism development. For instance, logistics management can be used to consider moving people, or tourists,

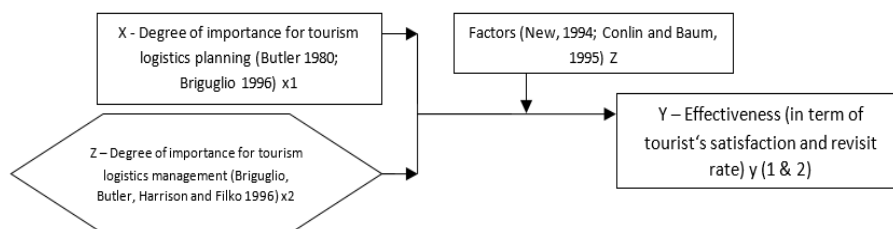
from one point to another point (Theppitak, 2006). It provides tools for facilitating how to prepare accommodations, how to build transport networks between and within locations to support sustainable tourism (see Figure 1). However, there is the gap for application logistics in tourism. This study applies a logistical approach to the tourism industry under the hypothesis that moving tourists from Bangkok to Bang Saen Beach more efficiently and effectively, including providing an effective transport networking system, would increase tourist satisfaction on Bang Saen Beach.



**Figure 1: Relationships between activities in tourism logistics**

When considering the factors affecting adoption of logistics planning and implementation in tourism, in particular, tourism on specific beach, the literature points out the major factors are economic and political realities (New, 1994). The research (Conlin and Baum, 1995) highlights the relationship between such factors and the adoption of logistics management, like fluctuating tourist numbers and tourist satisfaction.

It concludes there is a literature gap related to the examination of issues related to adoption of logistics management (and its effectiveness) within the tourism industry, and specifically for a beach. It would be examined the factors contributing to the logistics adoption phase and the factors influencing sustainable tourism development. This study therefore proposes a theoretical framework (Figure 2) derived from a previous study (Theppitak 2006).



**Figure 2: Theoretical Framework of the study**

Figure 2 shows the theoretical framework of variables in this study. The literature review revealed that designing and building a sustainable tourism industry, especially tourism on a beach, required widely applied logistics concept and strategies. Success of sustainable

tourism development requires a high priority of importance on logistics planning. The research points out that more importance placed on the logistics planning, the more effectiveness is gained for developing tourism (on a beach) in term of tourist satisfaction. A main objective is to find ways to improve tourist satisfaction.

This study examines relationship between variables ( $X$ ,  $Y$ ,  $Z$ ), defining degree of importance to the adoption of logistics planning and logistics management as *an independent variable* (*Variable X1 and X2*) and defining the effectiveness of logistics management to tourism on Bang Saen Beach, in terms of tourist satisfaction (i.e., convenience, safety for transport network, infrastructure and facilities on Bang Saen Beach), and return rate of tourist as *a dependent variable* (*Variable Y1 and Y2*).

Furthermore, it discovered that factors, (i.e., economic and political) were significant to tourism logistics management and planning. These factors are defined in the framework as *an intervening variable*, (*Variable Z*), which influences both the independent variable (*Variable X*) and the dependent variable (*Variable Y*). It was therefore assumed that the level of such influencing factors would have a correlation to the degree of adoption of logistics management, as well as to the effectiveness of any logistics used on destination.

### 3.0 RESEARCH METHODOLOGY

This study initially focuses on issues related to design and develop of tourism in logistics perspective, including the examination of problems and opportunities occurring while development to tourism destinations. The objective is to investigate a relationship between variables related to the adoption of tourism logistics to Bang Saen Beach, as well as the effectiveness of logistics management for building sustainable eco-friendly tourism. The study collects data in *two* following dimensions: first, a *literature review* is conducted in various fields related to tourism logistics management. Secondly, *questionnaire survey and in-depth interview method* are used. The pre-testing is conducted with Cronbach's alpha ( $\alpha$ ) at 0.91. To obtain the data, the study uses a sample of 270 randomly selected tourists, which included both Thai and foreign tourists traveling on Bang Saen Beach. This number of face-to-face questionnaires is based on a randomly stratified sampling. The rate of response is very good, with 98 respondents, or 65.3 percent.

To answer the above issues, the study defines following questions; first, how are behaviors of tourists used to design infrastructure and facilities on Bang Saen Beach? Secondly, what are factors influencing the design and implementation of tourism logistics strategy on Bang Saen Beach? Finally, what are efficiencies and effectiveness of tourism logistics management? Under the questions,

Hypotheses are established in order to examine a relationship between tourism logistics planning and management and the effectiveness of improving tourism on Bang Saen Beach.

$H_1$  = There is a relationship between tourism logistics planning and a degree of tourist satisfaction.

H<sub>2</sub> = There is a relationship between tourism logistics management and Increasing return rate of tourists to Bang Saen Beach.

H<sub>3</sub> = There is a relationship between logistics planning and management and a degree of factors (i.e., political, economic)

#### 4.0 FINDING RESULTS

The result reveals that most of these tourists well support the rationale of this survey. The survey covers demographical data related to attitudes and behaviors of tourists when visiting Bang Saen Beach, including examining hypotheses. Implications related to transport modes; logistics infrastructure and facilities are discussed.

The result shows that gender of respondents. Male tourists are the greatest number of respondents in the sample at 56.8 percent, followed by female tourists at 43.2 percent. The study represents real information for tourism on Bang Saen Beach and shows that the male tourists become a major target. When considering to the age of targeted tourists visiting to Bang Saen Beach. The result shows that 63.9 percent were between the ages of 13 to 28 years. Most of them, or 38.9 percent, had an age between 21 and 28 years. Secondly, 25.2 percent has an age between 13 and 20 years. The figure shows that the major targeted groups of tourists on Bang Saen Beach are now adolescent and young adults. It also shows the nationality of tourists. The survey reveals that most tourists came from Asian countries, 86.2 percent. Of this number, 68.2 percent are Thai tourists, with the remainder coming from other Asian countries (e.g., China, Taiwan, and South Korea) at 18 percent collectively. The result also shows a smaller percentage of tourists coming from western countries, especially European tourists. This result reflects that Thai tourists currently are the major tourist group.

It shows to marriage status of tourists and reveals that the major tourist group, at 68.5 percent, was of single status. Only 27.9 percent of surveyed tourists are married. The result indicates that infrastructure and facilities on Bang Saen Beach should be considered accordingly, to support relevant activities, behaviors and lifestyles. It also points out that educational level of tourists that most of tourists or 87.4 percent have educational level lower than a bachelor's degree, and 12.6 of them were at postgraduate level. The results point to relevant expectation levels regarding lifestyles, traveling activities, facilities and infrastructure on Bang Saen Beach.

When considering to a career of respondents, the result reveals that major tourist groups were private employees (47.7 percent) and students (30.6 percent), for a combined total of 78.3 percent. This information points to a corresponding approach to infrastructure and facilities, which should be prepared and developed on Bang Saen Beach to facilitate these targeted groups. The study represents the average incomes of tourists and reveals that average income of most tourist groups, or 63.9 percent, was lower than 20,000 baht. The greatest number, or 23.4 percent, has income between 5,000-10,000 baht. This income data should facilitate researchers to design and develop proper infrastructure and facilities on Bang Saen Beach, consistent with targeted tourists' income. It also reveals

the frequency of travel to Bang Saen Beach per tourist (excluding their current trip at the time of the questionnaire). The result shows that most tourists, or 44.8 percent, have traveled to Bang Saen Beach several times. Only 22.4 percent of them has traveled there only one time. This frequency of tourism to Bang Saen Beach reflects an overall perception of satisfaction for tourists in Bang Saen Beach. For traveling period to Bang Saen Beach, the result reveals that most tourists, or 67.8 percent, visited between October-December. This period defines a peak seasonal period of tourism.

When considering to traveling behavior of tourists, it indicates that the greatest percentage of tourists, or 71.2 percent, come with their friends. Only 19.8 percent came with family. This information will help facilitate relevant designs and patterns of transport, as well as for infrastructure and facilities to support sustainable tourism on the beach. For the number of people per tourist group, it shows that the greatest number of tourists or 58.6 percent identified that their group had one to five tourists. Next, 22.5 percent of them identified six to ten tourists per group. This information points to how building infrastructure and facilities should be built consistent with targeted tourist groups. The pattern of vehicle to Bang Saen Beach is revealed that most of the tourists, or 33.3 percent, traveled by personal car, 30.6 percent of them visited by bus, and 17.1 percent by tourist bus, respectively.

The result shows the pattern of stay overnight in Bang Saen Beach and it points out that most of the tourists, or 87.0 percent, does not stay overnight. The tourists point out that proper infrastructure and facilities for overnight stays in Bang Saen Beach are unavailable and/or inconvenient. Only 13 percent of surveyed tourists indicate that they stay overnight in Bang Saen Beach, typically for a long weekend or special holiday. For types of accommodation on Bang Saen Beach, it shows that the greatest number of tourists, or 58.1 percent, chose to stay at resorts. Next, 25.8 percent of them chose a hotel, and 16.1 percent stayed at private residents. This information reveals tourists' expectations regarding the pattern of accommodations on Bang Saen Beach.

**Table 1: Summary of testing hypothesis and relationship between variables**

Variable		Correlation	p-value
Independent	Dependent		
X1	Y1	+0.745	0.000
X1	Y2	+0.754	0.000
X2	Y1	+0.824	0.000
X2	Y2	+0.680	0.001
Z	Y1 & Y2	+0.289	0.001

Table 1 shows summary of hypothesis testing. The result reveals that adopting tourism logistics planning (X<sub>1</sub>) would have positive relationship with tourist satisfaction (Y<sub>1</sub>) and promote increasing tourists' return rate to Bang Saen Beach (Y<sub>2</sub>). It also shows that effective tourism logistics management (X<sub>2</sub>) have positive relationship with tourist satisfaction (Y<sub>1</sub>) and promote increasing tourists' return rate to Bang Saen Beach (Y<sub>2</sub>).

Further, effective tourism logistics management ( $X_2$ ) would increasingly encourage tourism activities and promote increasing tourists' return rate to Bang Saen Beach ( $Y_2$ ). In term of tourism Logistics planning covers properly matching demand of tourists and services supply on the beach, including organizing logistics networks (e.g., linking between seen and unseen traveling places, transport, accommodation) within destination. Tourism logistics management covers how well logistics management is used to create and promote tourism industry on Bang Saen Beach, including providing reasonable costs, satisfying tourist need.

The result shows that factors, such as economic and political, were significant to tourism logistics management and its effectiveness. These factors, as *an intervening variable* ( $Z$ ), influence both the independent variable ( $X$ ) and the dependent variable ( $Y$ ). They ( $Z$ ) have moderately relationship with logistics management and effectiveness.

## 5.0 DISCUSSION AND IMPLICATIONS

Logistics in the context of tourism would be defined as “the management of the flow of physical (including tourists or vehicles) and information (information related tourism).” In this definition, tourists are being considered as “goods,” being moved from point to point. Transport system, between mainland and the beach, as well as within the beach, would need to be designed to support the move of tourists in terms of lower costs, safety, comfort and convenience. Therefore, scope of tourism logistics also covers functions i.e., transport, infrastructure and facilities. (In Figure 1)

To support and foster more and better tourism on the beach, infrastructure (e.g., electricity, water and internet) must be readily available. Also, future tourist facilities (for all travel activities and including currently undeveloped areas) must be well planned and organized. These facilities should include hotels and other accommodations. If tourists are the goods, then hotels and resorts can be considered as warehouses or distribution centers. Proper demand forecasts of tourist behaviors and lifestyles are critical. In-depth and accurate logistics is the only proper way to prepare for future tourist accommodations, facilities and traveling activities.

Tourism logistics also includes reverse logistics activities. Reverse logistics can be defined as the management of the flow of materials or information back to a desired point. This methodology covers the management of garbage, or unusable materials, by tourists. Normally, there are many methods to manage garbage, with different costs occurring, including non-monetary costs like pollution. This study can also be used logistically to incentive and support sustainable, more eco-friendly tourism on Bang Saen Beach.

To improve transport systems between Bangkok and Bang Saen Beach, it would improve in two ways. First, reengineering existing transport systems by focusing on hardware (i.e., vehicle, facility, infrastructure and road network), software (i.e., information to tourists, programme) and peopleware (i.e., training serviced people with service-minded). Second, new efficient and friendly environmental transport system (i.e., cable car and underwater car) would be considered.

The result shows that importance level and satisfaction level which tourists have when travelling within Bang Saen Beach. Surveyed tourists revealed they had high expectation for the destination in respect to beauty and atmosphere, cleanliness, security and safety. As they are satisfied with these aspects of the beach. However, they indicated some dissatisfaction with cleanliness and sanitary system, as well as some concern for the safety of security systems used at some places of destination.

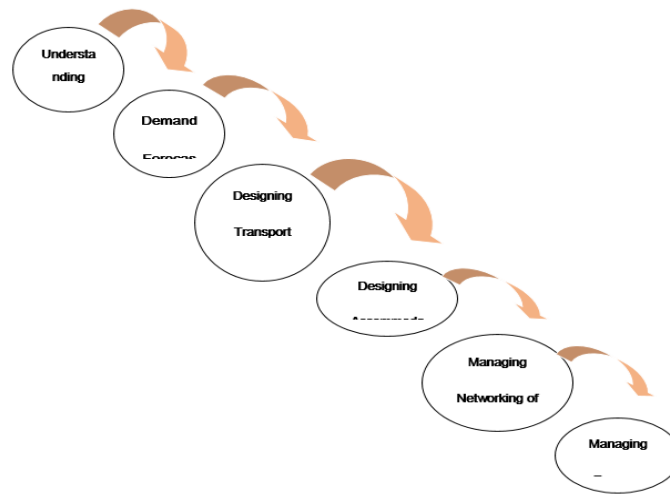
Managing tourism logistics in term of existing destinations is not considered only lower costs and higher services level, but it also means to manage the destination in routes and vehicles. Unseen travel places would be effectively established and promoted. Obvious and clear signs between destinations become a source of satisfier.

When considering the levels of importance and satisfaction tourists place on transport (and related logistics) while visiting on Bang Saen Beach. This study asked the tourists to rate the transport systems from Bangkok to Bang Saen Beach, as well as the transport systems within Bang Saen Beach, in various relevant areas. Most of the tourists indicated high expectations related to safety and the expense of transportation. The study also found that they were mostly satisfied with the availability and comfort of transport systems to Bang Saen Beach. However, they were somewhat dissatisfied with the safety of transport systems to Bang Saen Beach.

When considering the transport system within Bang Saen Beach, tourists had high expectations for price standardization, as well as for comfort and availability of transport. But they were dissatisfied to actually find a lack of price standardization of transport within Bang Saen Beach. Logistical implication would consider in a whole system, and then set standard prices in each destination. The difficulty is how to communicate and motivate to local people for following to same standard without their resistance and conflict.

Infrastructure required for supporting tourism on the beach, it included electricity, road, water, and telephone systems. Survey results revealed that most of the tourists (more than 75 percent) did not stay overnight in Bang Saen Beach, but rather returned to stay overnight in Pattaya. The question is that why tourists did not stay overnight on Bang Saen Beach. The results showed that most of tourists identified to unavailability and inconvenience in term of shortage, including high prices compared with earned services. They had high expectations for the costs and availability of tourism infrastructure in Bang Saen Beach. But they were dissatisfied with the actual fees charged for services and the availability of infrastructure.





**Figure 3: A Model of Sustainable Tourism Logistics Development at Bang Saen Beach**

The study points out that design logistics system in Bang Saen Beach, it would start from understand tourist's behaviour, and then forecast their demand and expectation. With proper information, transport system and network can be properly designed and planned. It also includes designing of accommodations and facilities, consistent with calculated demand. Furthermore, it facilitates tourists for traveling to existing and unseen destinations. Finally, the above model recommends to consider for garbage disposal and managing pollution.

These results reflect that there is a need to rethink and analyse a whole system. It would commence with forecasting future demand to provide properly infrastructure and facilities. The study examines an appropriate method and found that seasonal time series would be the demand forecasting model which fits to tourism on Bang Saen Beach. One of potential problems is garbage and pollutions occurring from tourism (appropriate 6-12 tons a day). Now the issue is increasingly becoming serious problems to friendly environmental tourism. It needs to apply concept of effective reverse logistics for creating and enhancing sustainable, eco-friendly tourism on Bang Saen Beach.

**In summary, the *main research finding* reveals that:**

- Tourism logistics planning ( $X_1$ ) would have positive relationship with tourist satisfaction ( $Y_1$ ) and promote increasing tourists' return rate to Bang Saen Beach ( $Y_2$ ).
- Effective tourism logistics management ( $X_2$ ) has positive relationship with tourist satisfaction ( $Y_1$ ) and promote increasing tourists' return rate to Bang Saen Beach ( $Y_2$ ).
- These factors, as *an intervening variable* ( $Z$ ), influence both the independent variable ( $X$ ) and the dependent variable ( $Y$ ). They ( $Z$ ) have moderately relationship with logistics management and effectiveness.

- Factors (Z) (i.e., economic, and political) have a moderate and positive relationship to tourist satisfaction ( $Y_1$  and  $Y_2$ ) and they influence to decision making for traveling at Bang Saen Beach.
- Lacking of effective demand forecast method creates problems in mismatching between supply and demand, preparing infrastructure and facilities.
- Transport (between Bangkok and Bang Saen Beach, and within Bang Saen Beach) contributes to tourism's satisfaction and tourism promotion success.
- Bang Saen Beach effectively lacks tourism logistics planning and management in term of sustainable development.
- Garbage from tourists is increasingly becoming serious problem, it needs to design effective and efficient reverse logistics systems.
- Finally, it concludes that effective tourism logistics management is a key success to tourism on Bang Saen Beach.

## 6.0 CONCLUSION

The results show that using a logistics concept for tourism, especially on the beach, would increase effective, sustainable, eco-friendly tourism. A demand forecast of tourism for the next ten years must be considered to effectively design and develop smooth flow patterns for future tourists, along with providing sufficient and appropriate infrastructure and facilities. It points out that a seasonal time series would be an appropriate model of demand forecasting. It reveals that in the next decade, tourism in Bang Saen Beach would increase to twice its current level. This result must be taken into consideration for designing transport (and related logistics systems) from Bangkok to Bang Saen Beach.

Today, more than 300 street food shops in Bang Saen Beach are increasingly complex and sophisticated to tourism management. Effective design for future infrastructure systems and facilities must support sustainable tourism in Bang Saen Beach. Likewise, development plans and redesign for new destinations must be included an appropriate action plan to managing environmental pollution. Finally, garbage management could be effectively planned using a reverse logistics system, as rapidly increasing garbage has become a problematic issue related to the logistics of maintaining a green, eco-friendly environment.

It provides valuable information for stakeholders, especially tourism related government agencies and Tourism Authority of Thailand, to plan and develop infrastructures and facilities for beaches, and specifically Bang Saen Beach. Logistically planned transport management can facilitate growing tourist travel to and from Bang Saen Beach, providing hotel, resort and residential-accommodation owners with consistently increasing demand, while also preventing the unrestrained destruction of natural resources and environments on the beach. This study leads to the conclusion that strategic and integrated logistics management is required, with active participation from all relevant stakeholders.

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