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การประยุกต์ระบบสารสนเทศภูมิศาสตร์เพื่อวางแผนสนับสนุนการท่องเที่ยวเชิงจักรยาน
กรณีศึกษา เกาะล้าน, เมืองพัทยา

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บทคัดย่อ

การศึกษาครั้งนี้มีวัตถุประสงค์เพื่อ (1) เพื่อทราบความคิดเห็นของชุมชนท้องถิ่นเกี่ยวกับการยอมรับรวมถึงความเข้าใจเกี่ยวกับการวิเคราะห์การท่องเที่ยวโดยจักรยานและการมีส่วนร่วมของชุมชนเพื่อพัฒนาการท่องเที่ยวเชิงจักรยานอย่างยั่งยืนที่เกาะล้านพัทยา (2) เพื่อทราบความคิดเห็นของนักท่องเที่ยวที่ปั่นจักรยานท่องเที่ยว และนักปั่นจักรยานที่ขี่จักรยานวิเคราะห์โดยใช้ทฤษฎีทรัพยากรหลักและมิติดึงดูดใจโดยรวมเกี่ยวกับความสามารถในการแข่งขันของปลายทางและความยั่งยืนที่เกาะล้านความคิดเห็นและจำแนกเส้นทางจักรยานที่เหมาะสมสำหรับ 2 รูปแบบคือ: 1.) เส้นทางปั่นจักรยานเพื่อการท่องเที่ยว 2.) เส้นทางปั่นจักรยานเพื่อการท่องเที่ยวเชิงกีฬา (3) เพื่อที่จะได้แผนที่เส้นทางจักรยานที่เหมาะสมโดยใช้การวิเคราะห์โครงข่ายด้วยโปรแกรม QGIS การศึกษาครั้งนี้ใช้การวิจัยเชิงคุณภาพโดยมีวัตถุประสงค์ 3 ประการคือ วิธีการสุ่มตัวอย่างอาจใช้วิธีการสุ่มตัวอย่างแบบเจาะจงโดยการสัมภาษณ์เชิงลึก คำถามสัมภาษณ์ประกอบด้วยสามส่วน ขนาดตัวอย่างในวัตถุประสงค์ที่ 1 คือการสัมภาษณ์เชิงลึก 35 รายจากผู้ประกอบการหรือผู้พักอาศัยที่เกาะล้านและอาชีพมีผลกระทบโดยตรงต่อการท่องเที่ยวจักรยานวัตถุประสงค์ที่ 2 ขนาดตัวอย่างคือการสัมภาษณ์เชิงลึก 35 คนนักท่องเที่ยวยุโรปและปั่นจักรยานที่ปั่นจักรยาน ที่เกาะล้านพัทยามีขนาดตัวอย่าง 25 และวัตถุประสงค์ 3 ใช้ GIS กับการวางแผนเส้นทางปั่นจักรยานเพื่อการท่องเที่ยวและเส้นทางปั่นจักรยานเพื่อการท่องเที่ยวเชิงกีฬา ผลโดยรวมคือการสร้างเส้นทางปั่นจักรยานและแสดงบน "คุณสมบัตินี้" ผลการวิจัยวัตถุประสงค์พบว่า 1 คนในชุมชนท้องถิ่นยอมรับเกี่ยวกับการท่องเที่ยวจักรยาน 100 เปอร์เซ็นต์ ซึ่งสามารถส่งเสริมรายได้ทางเศรษฐกิจและต้องการพัฒนากิจกรรมนี้เพื่อการท่องเที่ยวที่เกาะล้าน ผลลัพธ์วัตถุประสงค์ 2 ในแต่ละเส้นทางเหมาะสำหรับนักท่องเที่ยวที่ชื่นชอบการท่องเที่ยวแต่ละประเภทนำเสนอโดยแผนที่ GIS ในวัตถุประสงค์ 3 สามารถปรับเปลี่ยนผลได้ตามความเหมาะสมและสะดวกในการพัฒนาเพื่อรองรับการท่องเที่ยวจักรยานที่เกาะล้านพัทยาในอนาคต

คำสำคัญ: การท่องเที่ยวเชิงจักรยาน ระบบสารสนเทศภูมิศาสตร์ การท่องเที่ยวอย่างยั่งยืน

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THE APPLICATION OF GEOGRAPHIC INFORMATION SYSTEM FOR PLANNING AND SUPPORT BICYCLE TOURISM: A CASE STUDY IN KOH LARN, PATTAYA

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Abstract

This study aims (1) to know the local community's opinion about acceptance includes understanding about bicycle tourism analyze with sustainable tourism development and community participation at KohLarn, Pattaya. (2) to know tourist's opinion who travel by cycling, cyclists who cycling analyze with the effect of core resources and attractors dimensions on overall of destination competitiveness and sustainability at KohLarn opinion and classify the appropriate cycling route for 2 models: 1.) cycling route for tourism. 2.) cycling route for sport tourism. (3) to get a cycling routes map by using QGIS program network analysis. This study used qualitative research with three objectives; the probably sampling method by purposive sampling was uses by in-depth interview. The sample size in objective 1 was 35 in-depth interviews the entrepreneurs or residents who live at KohLarn and a career had directly affect with bicycle tourism, objective 2 the sample size was 35 in-depth interviews tourists who travel by cycling and cyclists who cycling at KohLarn, Pattaya the sample size was 25, and objective 3 was apply GIS to planning model cycling route for tourism and cycling route for sport tourism. Overall of the result were create cycling routes and shown on a "map features". The researcher found that people in local community with 100 percentages accepted about bicycle tourism, which can encourage economic income and want to develop this activity to be new sport tourism at KohLarn. cycling routes results in each route are suitable for tourists who are fond of each type of tourism was presented by GIS map can be adjusted as appropriate and convenient to develop to sustain bicycle tourism at KohLarn, Pattaya in the future.

Keywords: Bicycle tourism, GIS, sustainable tourism

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INTRODUCTION

Sport tourism is a potential and significant impact on the economic and cultural development of cities. The market for sport tourism is expanding and becoming popular activities in the world. Sport tourism can be dividing into more markets such as adventure sport tourism, water sport tourism etc. Sport tourism is an activity relating to nature. This type of tourism can reduce the environmental impact and it can also develop into sustainable tourism at many local communications. (Ahvenainen, JenniSport. 2013) Sustainable tourism is a great way to manage tourism and to promote and maintain a variety of existing resources. That is useful in business and tourism industry if develop with sport tourism by organizing non-destructive environment activities can create efficiently tourism experiences relating to nature and culture, and benefits to local community people to be sustainable.

Pattaya has a plan to develop to enhance the image into a famous tourist's center and sport tourism destination, and wants to promote tourists attraction provide new exotic experience and variety to make the right attitude for the targets working-class women, new generation tourists, and athlete.

(Pattaya city Development Plan, 2018) There are activities and festival to promote various images, especially in sports tourism and recreation as a result of both Thai and foreigner come to Pattaya for more activities. If mention about sport tourism, Pattaya has a campaign for cycling there are bike rental points many places and around the beach area. (Pattaya City information Center, 2018) To promote the sport tourism plan of Pattaya City the researchers interested in bicycle tourism and focus on the interaction of tourists and cyclists affecting to KohLarn, Pattaya and make a cycling routes 2 model cycling routes: 1) Cycling route for tourism 2.) Cycling route for sport tourism by using the geographic information system to create routes and display in map format for another option to attract visitors to other activities in addition to water sports. It can also be used to develop sustainable bicycle tourism in the community.

Research Objective

1. To survey the local community's opinions toward tourism impacts factor and participation factor regarding acceptance includes understanding about bicycle tourism consist of 7 beach areas around the island at KohLarn, Pattaya.
2. To survey tourist's opinion who travel by cycling and cyclists who cycling at KohLarn opinion to classify the appropriate cycling route for 2 models: 1.) Cycling route for tourism. 2.) Cycling route for sport tourism at KohLarn, Pattaya.
3. To apply GIS to planning 2 models map of cycling routes at KohLarn, Pattaya.

Literature review

1. Overview of sustainable tourism development

According to Boonlerd Jittangwarrana (2005), sustainable tourism is the concept of visiting somewhere and trying to make least or non-negative impact on the environment there. It is a development that meets tourists' need and that of the community. The impacts of sustainable tourism benefits all those involved: tourists, tourist spots and entrepreneurs. Sustainable development is about the development of 4 aspects: 1) economy, generating income, creating jobs for the locals 2) society, improving the quality of life of the local people 3) culture, maintain culture and tradition as a learning resource for tourists 4) environment, raising awareness and understanding to sustainably protect the environment. The Proposes that community-based tourism (CBT) involves the interactions between the visitor and the host community. It, moreover, determines the direction of tourism in the community (Sin Salobon, 2003). Sustainable tourism is the efforts to not only promote the tourism itself but also to minimize the negative effects of it on environment and maintain the culture of the locals (Thippawan Chomputima, 2017).

Resident's attitude toward tourism impacts

An attitude is an overall evaluation made to decide whether we like or dislike the objective, person, issue, or action. Besides, an attitude can reflect overall evaluation of something based on a set of associations linked to that attitude (Solomon et al. 2007). Sustainable tourism is involved in the development of 4 aspects: 1.) Economic impact to generate revenue, create a job for local people. 2.) Social – cultural impacts is the direct and indirect effects on host community relations between the tourists

and interaction with the tourism industry as visitors and service providers to improve the life quality of the local community, lifestyle, learning social exchange through tourism activities to provide a quality experience for tourists, and revive culture and tradition to be a tourist's resource. 4.) Environment impact experienced social standing of who that we concerning and how we interact with the natural environment to create awareness and understanding to protect the environment to be a tourist's resource and create a motivation to be sustainable (Masa' deh et al., 2017).

Community participation

According to UNEP (2005) community means a social group of the population whose members reside in a specific area, share government, and sometimes have a common cultural and historical heritage. Community' involvement is a process of the host resident plays a major role in the decision-making practice. Community participation in decision making is a part of the democratic system, which allows its residents to express their points of views on development matters which affect their lives in the future. Effective community participation may lead to economic development, social and personal empowerment, and social-political transformation. The analysis of participation is required to create an understanding of the conditions under which participatory approaches may further development objectives, and to aid the design of targeted interventions.

2. Sport tourism

Sport tourism

According to Hinch and Higham (2005) sports tourism is a kind of travel offering visitors interesting sports, experiences, and new knowledge. It is a mix of cultures, politics, economics and participation from the local community for sustainable tourism. Sport tourism must be travel by a reason, not business to attend sports activities and going out from home. Sports tourism requires 3 main factors: 1) A special event such as the Olympics. 2) Outdoor recreations including adventure tourism created at tourist destinations. 3) Health and physical fitness. All of these three are related to one another and important because the sports will attract more tourists.

Bicycle tourism

Cycling as a form of tourism is the main reason that community uses sustainable economic development opportunities (Duangdao Watthanaklang, 2015). Measured the economic benefits of communities and specific routes and the effect in the area found that people who cycle often find less traffic and appreciate more scenic routes. When tourists cycle more, they will spend more money on services in that specific community (Ritchie, 1998). Bicycle tourism comprises many things which are related to pleasurable activities. Bicycle tourism can be categorized into 4 kinds: 1) Bicycle tour which is independently organized and consists of day-time bicycle tours 2) Bicycle events organized for rides, tours, and races 3) The destination which is around a particular tourist spot 4) Cycling routes in local attractions (Arup, 2005).

3. Destination competitiveness and sustainable

In this research, the researcher introduced an element in the measurement of tourism destination and competitiveness to sustainability from literature review adapted to measure the image of bicycle tourism at KohLarn, Pattaya. The purpose of this research is to create a strong potential bicycle tourism image and complementary with cycling route. The researcher has compiled the most suitable theories to put in this research destination attractiveness and competitiveness to sustainable theories and support with cycling route that will be created by GIS. For this research, combined the theories from Crouch and Richie (2003, p.3) is applied. A factor of development of KohLarn, Pataya become bicycle tourism destination competitiveness is core resources and attractors. Some components are: 1) Physiography and climate 2) Culture and History 3) Mix of Activities 4) Special Events 5) Entertainment 6) Superstructure 7) Market Ties. These factors are the key of motivators for visitation to a destination. Core resources and attractors are fundamental reasons why prospective visitors choose one destination over another destination, while other components are essential for success and profitability.

4. GIS

According to (Geo-Informatics center of Thailand, 2019), geographic information system is the process of working with data in a spatial area with a computer system that uses the data set and the data that is related to the position in the quantitative area relative to the position in the map. In GIS, information systems which are in the form of data tables and databases related to spatial data related to time change of space usage. GIS is a valuable tool to visualize spatial data or to build decision support systems for use in organization and tourism and for investigating specific questions relating tourism development, location, condition of the area and patterns associated with resource. The features are typically classified as points, lines, or areas, or as raster images. Network models are based on interconnecting logical components which the most important. They are: 1) nodes, defining the start, end, and intersections 2) chains, line features joining nodes 3) links, joining points to make up a chain. This network can be analyzed using GIS. A network is a set of linear features that are interconnected in GIS such as roads, railways, and other transportation.

RESEARCH METHODS

KohLarn is located about 7km. off the cost of Pattaya beach. The total area on the island at about 14,000square meters, the shape of the island is like a pentagon from the north until southern around 4.65km, 90% is a mountain, long about 4km. and wide about 2km., and about 180meters high at the highest point.

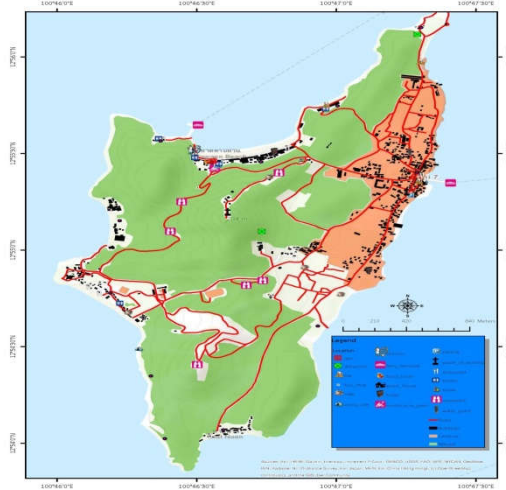


Figure 1 Map of Koh Lam, Pattaya City

This research used qualitative research. The survey research is used for this study to explain the purpose of the study. The research question will be used to in-depth interview to collect data for the study. For the purpose of the study is divided into 3 parts by every part of the research will be a continuous relationship:

Part 1: The sample size will be based on 7 beaches area amount 35 people in each group has a different amount informant from the willingness of respondents to the data collection considered criteria as follow:

1. Entrepreneurs or residents who live at Koh Lam, Pattaya more than 5 years and age more than 18 years old.
2. A career that directly affects bicycle tourism at Koh Lam, Pattaya. The researcher determined from non-participant observation as follow: 1) Hotel & Resort. 2) Retail trade, Souvenir shop. 3) Motorcycle rental. 4) Restaurant. The purpose sampling was chosen as the most appropriate average to 7 beaches areas at Koh Lam, Pattaya with the following qualifications. The researcher was chosen purposive sampling to use from key informants and collects sample size to conduct this research amount 35 people average to 7 beaches area determined by the satisfaction of the researcher, which sample size considered from repeat the answer by an in-depth interview with 18 questions. Be assembling interview from respondents and analyze. To in-depth interview divided to 4 factors: economic, social and culture, environment, participation.

Part 2: The sample size in this part divided to 2 parts: Tourists who travel by cycling will collect amount 35 people and cyclists who cycling will collect amount 25 people with 100 percent from the non-participant observation that the researcher survey. The researcher was chosen purposive sampling, which sample size considered from the repeat answer by an in-depth interview from tourists who travel by cycling at Koh Lam, Pattaya with 22 questions in each part. Include a factor of development become bicycle tourism destination competitiveness and sustainability is core resources and attractors and classify for 2 models routes for 1) Cycling routes for tourism 2) Cycling routes for sport tourism at Koh Lam, Pattaya.

Part 3: This part will bring summarize of 2 model routes from in-depth interview result in part 2 and combined with the creation of cycling routes.

RESULTS

Detail objective 1

Referring to the demographic part about local community at KohLarn, Pattaya(Part I)all of the respondents at KohLarn, Pattaya100 percentages are more than 18 years old. About occupations found that 100 percentages are occupation that the researcher mentions. Local communities' opinion analysis result by in-depth interview.From the result about local communities' opinion acceptance includes understanding about bicycle tourism toward economic, social and cultural, environment and participation.The researcher found that people in local community accepted about bicycle tourism and want to develop this activity to be a new tourism at KohLarn as follow:

Economic: the overall economy is good because KohLarn is still get a lot of income from foreigner group tour such as Chinese, Vietnamese, India, Korea, etc. every day even not high season with 60 percentages and they think that maybe better in the next 5 years with 68.57 percentages. Local communities think about bicycle tourism at KohLarn is good because can generate more income from related career about bicycle tourism, reduced accident, reduced fuel usages, and reduced pollution with 88.57 percentages. Most of this reason cause good affect to people in community with 94.29 percentages, respectively.

Social and cultural: KohLarn has 3 main unique traditions, but a unique tradition and culture at KohLarn is Annual merit making Chao Pho Dam shrine with 54.29 percentages. Most people in the area have conservation in tradition and culture by organize the activities every year for future generations to follow with 51.43 percentages. If there is bicycle tourism will be a change in the community most of people in the community think that they can do cycling activity together with tourists with 45.71 percentages, and occur unity in the community. Most of Them think will preparation about public facilities to support bicycle tourism and creating a bicycle challenge with 28.57 percentages, respectively.

Environment: Most of respondents think about current environment at KohLarn are good with 60 percentages. They encourage the environment sustainably by the main issue is collect garbage and keep clean around tourists area with 54.29 percentages. They think that bicycle tourism preservation of the environment in the community by 4 issues but most of them think that main issue is can reduce air pollution with 37.14 percentages, and bicycle tourism can develop about environment by reduce the long-term cause of pollution with 40 percentages from 7 main issues from interviewed.

Participation: Most of respondents at KohLarn said that the community leaders inform news to the community with 34.29 percentages, and inform through community wire broadcasting with 74.29 percentages. Most of tourism activities participated in the community is squid fishing in the night time with 22.86 percentages and people participate in the community contribute to the development of the island by participate to develop and maintain cleanliness in the community, and participate and support to development about tourism with 25.71 percentages, respectively.

Detail objective 2

Referring to the demographic part about tourists who travel by cycling' opinion to classify the appropriate cycling route for 2 models: Cycling route for tourism, and cycling route for sport tourism at KohLarn, Pattaya. (Part II)most of the respondents are female with 54.29 percentages and most of age ranks are 26-33 years old with 42.86 percentages with Thai nationality 65.71 percentages. Most of them come to travel at first time with 68.57 percentages, spend 2- 3 days with 57.14 percentages, and spend money about 1,000-2,000 baht of each visit with 54.29 percentages, respectively. Tourists who travel by cycling choose to cycle at KohLarn because beautiful scenery with 60 percentages.

Physiography and Climate: Think about landscape, climate, and scenery are good with 65.72 percentages make tourists enjoy and satisfaction to cycle at KohLarn with good quality of natural.

Culture and history: Think about social and cultural attraction are good because way of life of people around the island, and culture related to the beach with 100 percentages. And about social exchange within people in the community they think people in community are friendly with 85.71 percentages. Local people still keep their local attitude without get many influences from outside.

Mix of activities: Most of tourists were enjoyed beautiful scenery and good atmosphere with 57.14 percentages. And most of them want cycling tour around the island activity with 48.57 percentages and bicycle competition 40 percentages, respectively.

Special event: Think if there are activities or challenge for cycling at KohLarn is good because can promote the way of exercise in cycling activities and sport tourism at KohLarn with 91.43 percentages.

Entertainment: Expect good place to relax and enjoy along the way cycling such as café, coffee shop, restaurant with 51.43 percentages.

Superstructure: Think KohLarn have good cycling facilities but they need a bike lane, service point for bicycle, and bicycle parking place with 77.14 percentages. Moreover, accommodation and restaurant so good because a various choice to choose and the accommodations are beautiful and not too expensive with 65.71 percentages include route and transportation so good but need a bike lane with 60 percentages and feel safety when on cycling with 51.43 percentages, respectively.

Market Ties: Think that good to create cycling route for tourism and sport at KohLarn with 82.86 percentages. Most of them think can develop bicycle tourism to the sustainability 100 percentages and they will visit again if KohLarn creates competition and activity about cycling with 100 percentages, respectively.

Referring to the demographic part about cyclists who cycling' opinion to classify the appropriate cycling route for 2 models: Cycling route for tourism, and cycling route for sport tourism at KohLarn, Pattaya. (Part II)most of cyclists who cycling at KohLarn are male with 72 percentages and most of age ranks are 26-33 years old with 48 percentages with Thai nationality 72 percentages. Most of them come to travel at first time with 68 percentages, spend 2 – 3 days with 72 percentages, and spend money about 2,000-4,000 baht of each visit with 60 percentages, respectively. Cyclists choose to cycle at KohLarn

because new experience and place to cycling with 24 percentages, and they needs to relax and exercise with 24 percentages, respectively.

Physiography and Climate: Think about landscape, climate, and scenery are good with 84 percentages. Make the cyclists enjoy to cycle at KohLarn and satisfaction.

Culture and history: Think about social and cultural attraction is good because of lifestyle on people in community with 100 percentages. And about social exchange within people in the community they think people in community are friendly with 100 percentages.

Mix of activities: They were excited with 48 percentages. The most of them want adventure challenge about cycling with 44 percentages and bicycle competition 40 percentages, respectively.

Special event: Think if there are activities or challenge for cycling at KohLarn is good with 100 percentages.

Entertainment: Expect adventure way to cycling with 44 percentages.

Superstructure: They think KohLarn have good cycling facilities but they need a bike lane, service point for bicycle, and bicycle parking place with 52 percentages. The accommodation and restaurant so good with 64 percentages include good route and transportation but some routes are too small but it is challenged when cycling to see the view on the mountain can improve cycling skill, and need a bike lane with 76 percentages and feel safety when on cycling with 76 percentages, respectively.

Market Ties: Most of them think that good to create cycling route for tourism and sport at KohLarn with 100 percentages. Most of them think can develop bicycle tourism to the sustainability with 100 percentages and they will visit again if KohLarn creates competition and activity about cycling with 100 percentages, respectively.

Conclusion about analyze result from cycling route for tourism and cycling route for sport tourism.

Analysis results from in-depth interviews from tourists who travel by cycling and cyclists and cyclists who cycling at KohLarn, in order to know their need for the preparation of cycling routes in KohLarn. The researcher has created were convenient to access, interesting and can attractive tourists and cyclists with the integrity of nature and surrounding resources. In addition, tourists have participated in activities with cycling routes but the weakness for all these routes is there are no clear signs at some point, lack of facilities such as restrooms, trash, bicycle parking places, and breaking points for cycling. In terms of safety, a bike lens is needed to create for future tourists and cyclists who come to cycling at KohLarn, Pattaya. In some routes, there are limitations in time, space, convenience, safety, including lack of route development for cycling. For all of the routes in each route can be linked to other tourist destinations and attracting tourists to spend more time traveling, as well as being able to develop a good and efficient c route in the future.

Results of objective 3

Analysis results from GIS Network Analysis of cycling routes at KohLarn, Pattaya. The researcher creates 2 model cycling routes as follow: 1) Cycling route for tourism, this model can promote economic

and social-cultural aspects because can generate income from the spending of tourists and can get more social exchange²⁾ Cycling route for sport tourism, this model can promote economic and environment. The result was presented by GIS map. Cycling routes that the researcher has presented can be adjusted as appropriate and convenient. The researcher presented the map of each cycling routes as follow:

Cycling route for tourism 1 is starts from Wat Mai San Ran chilling around the area to relax and enjoy within the good place such as coffee shop, restaurant, and bars along the way cycling and finish at the same started point. This route is a convenient route for cycling, which is a 2 lanes road, good condition, and safety. There are many interesting cafes, restaurants, unique features, and can travel every season. Each location on this route is quite close. Therefore suitable for cycling to travel, this can be link to other nearby attractions. When performing route analysis in GIS, found that cycling route for tourism 1 have a total distance 2.5 kilometers, time spent on cycling is about 10 minutes, and slope along the route is 20%.

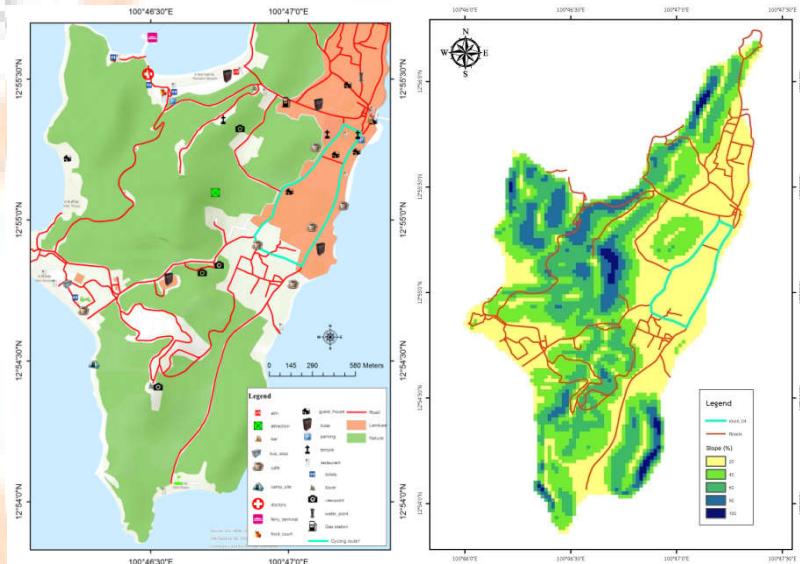


Figure 2 Cycling route for tourism 1, and Figure 8 Slope of cycling route for tourism 1

Cycling route for tourism 2 is starts from Wat Mai San Ran chilling around the area Maharak to hangout chilling within good café and bar go directly and finish at Sud Kate café. This route is and this is the shortest way and easy to cycling and suitable for relax, which are a 2 lens road, good condition, and safety. There are many café and can spend long time to hangout. Each location on this route is quite close. Therefore suitable for cycling to travel, this can be link to other nearby attractions and accommodations. When performing route analysis in GIS, found that cycling route for tourism 2 have a total distance 2.7 kilometers, time spent on cycling is about 10 minutes, and slope along the route is 20%.

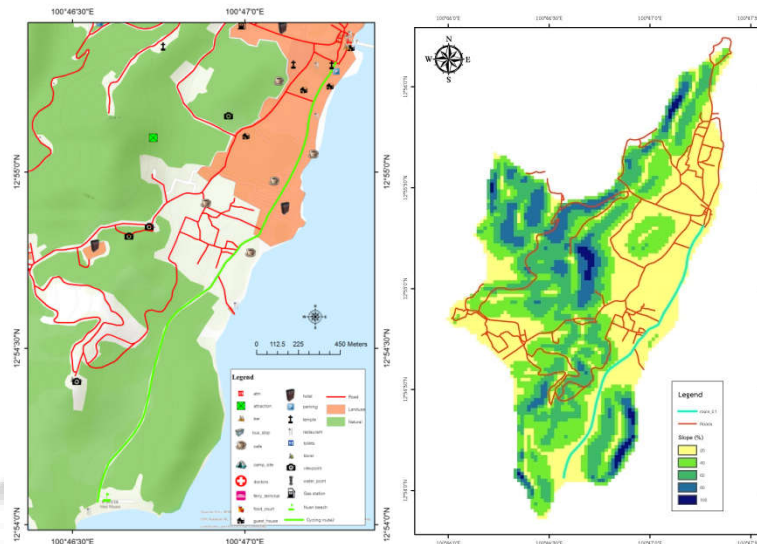


Figure 3 Cycling route for tourism 2, and Figure 10 Slope of cycling route for tourism 2

Cycling route for tourism 3 is starts from Wat Mai San Ran chilling around the area with the nature, beach, beautiful scenery and finish at Samae beach. This route is convenient to access, an interesting route and attracts tourists with the integrity of nature – and surrounding resources. In addition, tourists have participated in activities such as take a picture, thus suitable for tourists who want to cycle with beautiful nature and views. When performing route analysis in GIS, found that cycling route for tourism 3 have a total distance 2.9 kilometers, time spent on cycling is about 20 minutes, and slope along the route is 20% - 60%.

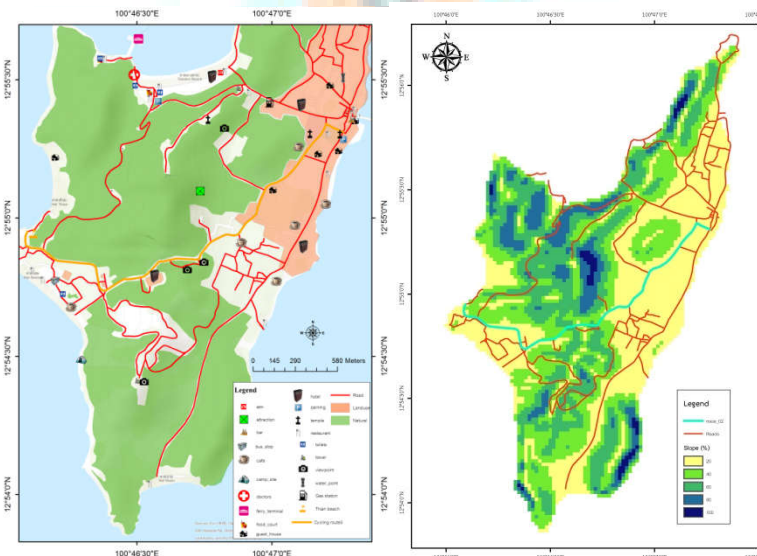


Figure 4 Cycling route for tourism 3, and Figure 12 Slope of cycling route for tourism 3

Network analysis result of cycling route for sport tourism

Cycling route for sport tourism 1 is starts from Wat Mai San Ran through the same way to Ta woen beach to see the view at the mountain finish at Windmill View point. This route is an adventure cycling for people who have a cycling skill or cyclists because this route is very slope and narrow hard to

cycling if didn't have skill. When performing route analysis in GIS, found that cycling route for sport tourism 1 have a total distance 1.5 kilometers, time spent on cycling is about 15 minutes, and slope along the route is 20% - 60%.

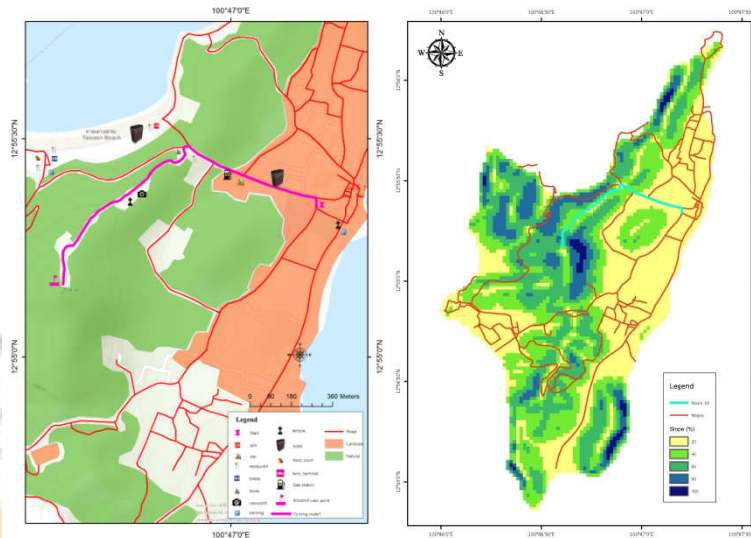


Figure 5 Cycling route for sport tourism 1 and, Figure 14 Slope of cycling route for sport tourism 1

Cycling route for sport tourism 2 is starts from Wat Mai San Ran through the same way with cycling route for cyclists 1 but goes directly and finish at Ta waen beach. This route is very slope and narrow hard to cycling if didn't have skill, normally use motorcycle will better than cycling. But most of cyclists have cycling skill already, so they can cycle with very slope path within safety. When performing route analysis in GIS, found that cycling route for sport tourism 2 have a total distance 1.8 kilometers, time spent on cycling is about 16 minutes, and slope along the route is 20% - 80%

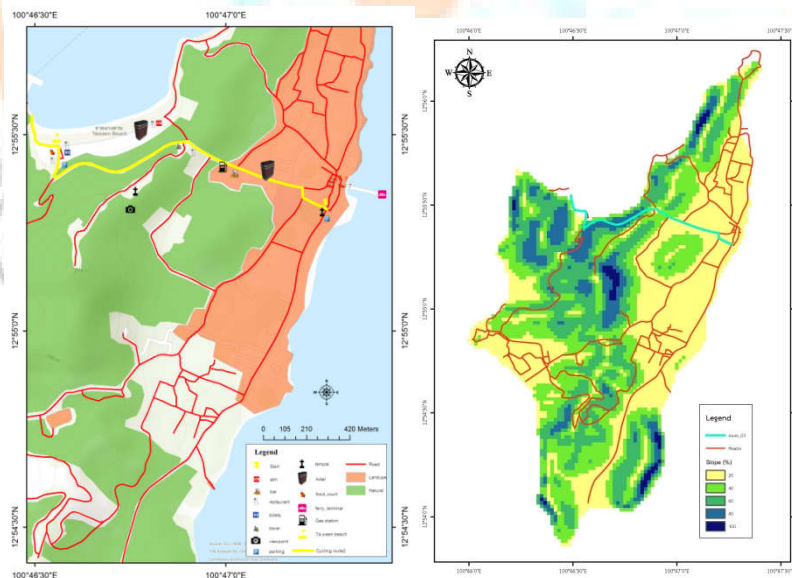


Figure 6 Cycling route for sport tourism 2, and Figure 16 Slope of cycling route for sport tourism 2

DISCUSSIONS

From analysis and summary of research results can discuss the important issues as follows:

Objective 1

The researcher had survey local community' opinion at KohLarn found that all of sample size that the researcher had been in-depth interviewed accept bicycle tourism, which four factors form the theory that the researcher determined to be consist with a positive effect to economic, social-cultural, environment, and participation which concerning to Thippawan Chomputima, (2017) said the results that demonstrate that attitude toward tourism are perceived positively based on the effects arising from four dimensions of attitude toward tourism including economic; sociocultural; environment; and participation, in her finding confirmed that if residents' assessment is positive, also their attitude towards the tourism will be positive. Most of respondents have a comment that bicycle tourism in general is a good level and should be developed to be a new type of tourism at KohLarnut but still not ready about facilities for bicycle tourism. Therefore, relevant department should take care and determine the direction of bicycle tourism development to be better. In-depth interviews results were shown the acceptance and participation of people in the community and related department, that able to jointly, improve, develop, and promote bicycle tourism together with good quality at kohLarn, Pattaya.

Objective 2

The researcher had survey tourists who travel by cycling opinion and cyclists' opinion with a factor of development of KohLarn, Pataya become bicycle tourism destination competitiveness and sustainability is core resources and attractors, was adapted from previous research Crouch and Richie, (2003) and Yulius Effrain, (2014) said the results that demonstrate that tourism destination competitiveness and sustainability are perceived positively based on the effects arising from dimensions of core resources and attractors, which is consistent with the research that the researcher has prepared.

Objective 3

Apply of geographic information systems to planning and presenting cycling routes. The researcher relies on the principle of organizing cycling routes for tourism in 2 models. The results of this research are used to create cycling routes according to the needs and based on information from the respondents for the route preparation specific and integrated style. KohLarn is just a small island; the researcher organizing different cycling routes depends on the interests of tourists who travel by cycling and cyclists who cycling at KohLarn. The researcher try to create cycling routes that meet the needs of people who want to travel by cycling and cyclists. For the benefit of the researcher is to preparation of the cycling routes can be adjusted as appropriate and convenient to develop and sustain bicycle tourism at KohLarn, Pattaya.

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