Design Information System of Small Island in Bangka Belitung Archipelago Province

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Abstract. Bangka Belitung Archipelago Province is one of the few provinces in Indonesia that has nomenclature of archipelago province in Indonesia. Archipelago Province means that the provinces have fewer land areas compare to sea areas. The Bangka Belitung Archipelago Province has many small islands is about 470 islands that have names, and the rest, 480 islands, that doesn’t have name. Information technology are believed to be able to answer a number of obstacles and problems that found on those small islands. The use of information technology by design information system for the small island is to make ease manage the information about the island and development planning of the potency of those island and in order to collect data on island in Bangka Belitung so planning and development for those island can carried out in the future, especially economic and tourism. This information system provide information on small islands and their potency and sea lanes can be used when they want to visit the island in Bangka Belitung. The system can be access using computer and smartphone through Internet to make it easier to get information about small islands and detail information when visiting the island in Bangka Belitung.

1. Introduction

Indonesia is the largest archipelago state in the world. But national development has not spread evenly to remote islands in the border region. Many of these islands have not been touched by the development process, accessibility out is still very difficult, and even some of them have begun to adopt the culture of neighboring countries. The potency of small islands in Indonesia is estimated to reach 10,000 islands from a number of 17,508 islands. The Bangka Belitung Islands Archipelago Province is one of eight provinces in Indonesia with archipelago nomenclature. Provinces based on islands are provinces that have less land area than the sea area [1]. As an archipelago province, Bangka Belitung have many small island that have many potency to develop, starting from mining, tourism, fishing, and etc. The existence of 950 islands in Bangka Belitung is to become something of great strength and potential in realizing the welfare of its people. Natural resources in small islands include renewable and non-renewable resources, and environmental services.

The environmental services activities that can be developed in the Babel Islands Province include marine tourism, transportation and communication media, energy sources, educational and research facilities, protected areas (conservation and preservation), and life support systems and other functions [2]. The Province of Bangka Belitung Archipelago is only known for its two large islands, namely Bangka Island and Belitung Island. Most of the 950 other islands are 'less known', and are categorized as small islands, spread across six regencies and one city.
Quoting the book "Profiles of Small Island in Bangka Belitung" edition 2004 and 2005, it is stated that the number of small islands in Central Bangka has 12 islands, Bangka Selatan 27 islands, Belitung 25 islands, and 71 East Belitung islands [3]. The existence of small islands has an important role in the development of the region, and the steps or efforts to improve the welfare of the community, given its abundant resources. Natural resources in small islands include renewable resources and non-renewable resources, and environmental services.

Apart from being a source of marine products (including various types of fish), small islands can be developed as the development of environmental services. Among them are marine tourism, energy sources, research facilities and education, transportation media and protected areas (conservation and preservation). The region of a group of small islands in the Province of Bangka Belitung Islands has the economic potential that is very rich in extensive land, marine resources, mining resources, and tourism.

If it is successfully developed optimally and sustainably, these remote islands will not only be a source of new growth, but will simultaneously reduce development disparities between regions and social groups. Sustainability of the island in Bangka Belitung is important when the island’s environmental ecosystem, the ‘biosphere’, and the human social system, ‘culture’, coexist and balance that need to be handle by the government. Even so, the fact states that development in small (remote) islands from various aspects or sectors is far behind when compared to large islands, especially Bangka and Belitung Islands. The problem for developing the small island is there is not a complete information about the island in Bangka Belitung overall. By using the system information about the small island the island database will be collecting and organize so make the people ease to access the information using the Internet. An information system (IS) development methodology is defined as a recommended collection of phases, procedures, rules, techniques, tools, documentation, management, and training used to develop a system [4-6]. The use of information and communication technology (ICT) in public management and public sector reforms is widely recognized and become one important needs in this era. Digital or electronic government is studied to make the public service can be easier and efficient. The basis of information management for small islands in Bangka Belitung Archipelago Province is to help for planning development to the island.

This information system was built with the aim that data and information on small islands in Bangka Belitung are in one database and complete and can be accessed via the Internet so that other parties who need data about small islands can get information. In addition, the purpose of this information system is to assist the government in planning for the development of the potential of small islands in the future so that it can provide maximum results and provide benefits for the small island.

This system will provide information about the island, starting from the description of the island, the island's potential, photos of the island and transportation to the island so that it can provide information about the island to the wider community. Small islands in Bangka Belitung are already known as tourist destinations such as Belitung Island, Lengkuas Island, Mindanau Island, Ketawai Island, Kelapan Island and Lepar Island which have been visited by many people for tours. This needs to be a concern of the government and begin to use information technology in promoting and developing tourism on the island.

The islands that been mentioned, there are still many islands that have the potential to become tourism objects that are not yet widely known by the local and global communities. This island also has extraordinary natural beauty that can make people interested in visiting. Those island are Begadung Island, Lepar Island, Celagen Island, Putri Island, Tujuh and Pasir Island.

The information system will be designed so that it can provide complete information about the islands in Bangka Belitung and provide an attractive appearance by displaying photos of the beauty of the island. This information system can also be accessed using Internet because it was built using PHP and MySQL by having a database of small islands in Bangka Belitung.

This system will divide islands in Bangka Belitung according to the regencies and municipalities in the Bangka Belitung Archipelago Province, making it easier to find information about the island. This system will also provide information about the map of the location of islands in Bangka Belitung by integrating using the Google map to facilitate information for others. The location of the island can be chosen and will provide detailed information about the island so that it can become a material for the
governments in developing and can make people interested in visiting the island in order to travel and others.

2. Literature Review

2.1. Bangka Belitung Archipelago Province

Located in a geographical position between 104 ° 50 ' - 109 ° 30' East Longitude and 0 ° 50' - 4 ° 10 ' South Latitude, Babel Islands Province has an area of 65,301 Km2 (79.99 percent), or wider than its land area: 16,424.14 Km2 (21 percent).

![Figure 1. Location of Bangka Belitung Archipelago Province](image)

2.2. Island

Islands are very diverse but they share the concept of insularity and many area that interest to research [7-9]. The insularity discussion highlights a number of ‘negative’ characteristics of islands, or characteristics that are considered as negative by many people.

The island is a special space where nature and humans use marine resources to live in a limited space surrounded by the sea, so it is very difficult to combine sustainability assessments applicable to inland [10]. Small islands also have beautiful coastal ecosystems, clear and clean coastal waters, good waves for surfing, lagoon and amazing natural panorama. Socio-culturally, Indonesia's small islands are largely uninhabited [11].

2.3. Information System

Information systems where of hardware, software, and telecommunications networks that combines that use by people to build and use to collect, create, and distribute data or can be called information, usually in organizational settings [12].

Information systems are components working together to collect, process, store, and disseminate information that interrelated to support decision making process, coordination, control, analysis, and visualization mechanism in an organization [13].

Information is data that has been processed into a form that is meaningful to the recipient and is useful in making decisions now or when it arrives. The definition of another information system is an integrated and complementary data processing unit that produces output both in the form of images, sounds and writing [13].

2.4. Hypertext Pre Processor (PHP)

PHP is a script language that can be embedded or inserted into HTML. PHP is widely used to program dynamic websites [14]. PHP can be used to build a CMS. PHP is said to be a server-side embedded script language, meaning syntax and the command we give will be fully executed by the server but included on ordinary HTML pages.

2.5. MySQL

MySQL is a Relationship Database Management System (RDBMS) that is distributed free under the GPL (General Public License). MySQL is actually a derivative of one of the main concepts in the
database for a long time, namely SQL (Structure Query Language). SQL is a database operating concept, especially for data selection and input, which allows easy operation of data to be done automatically[16].

2. Research Methodology

With this information system, small island data management is more emphasized on the use of the Internet so that everyone can find out the small islands in the Bangka Belitung Archipelago Province. This is because the tourism potential in the small island is enough high because many beautiful tourist destinations, that already know widely. To build a data website for small islands in the Bangka Belitung will use PHP and MySQL and design an interface so that people interested in information on the website of small islands that were built and know how transportation, potency and accommodation that available in the island.

![Figure 2. Design of Information System Small Island](image)

In Figure 2, it can be seen that there are Admin who manage and manage digital data on this small island son line and data management to build profiles of small islands in Bangka Belitung. The public can access the information system via the Internet so they can find out information on small islands in the Bangka Belitung Archipelago Province. In Fig. 1 can be seen that the database model that used is transportation data, island description, island potency that will give great and complete information to the user widely. The access to the information system can use the desktop computer and smartphone through the Internet so many people can look the system and get the information about islands in Bangka Belitung.

3. Result and Discussion

In this section, will be show the interface of information system that already design to make the easy of using the system.

![Figure 3. Main Interface of Information System](image)

In Figure 3, is the main page of the system where have the menu Home, Bangka, West Bangka, South Bangka, Center Bangka, Belitung, East Belitung and Pangkalpinang. The menu give information the city that exist in Province Bangka Belitung Archipelago that have small islands.
This menu is integrated with Google maps application so it can be zoom to see the area in Bangka Belitung and give the location if the island.

![Figure 4. Detail of City in Bangka Belitung](image)

In Figure 4, is the detail city when the map is click and show the name of area in the city.

![Figure 5. Small Island in Bangka Belitung](image)

In Figure 5 is the example of small islands in Bangka Belitung that have potency to develop specially in tourism because have beautiful natural beaches and sea. Using this information system aims to bring both local and foreign tourists because can be access using the Internet.

![Figure 6. Lepar Island, South Bangka](image)

4. **Conclusion**

The information system will able to help, planning, program and develop physical potential and environmental services that exist and are attached to small islands scattered in the a regions of the Bangka Belitung Archipelago Province.
Specifically, from the promotion aspects and business opportunities and investment, this information system designed supports all these aspects. The existence of small islands and their potential -both physical and environmental services- can also be widely and globally exposed. This is certainly part of the management decision of the business community to invest in building a business on these small islands. Prior to this, the management and promotion carried out for small islands in the Bangka Belitung was done manually and not digitally especially the use of information technology. With the existence of this information system, it will certainly be actual and real information, not only for the efforts to develop these islands by policy makers or the executives, but also as an attractive factor for prospective tourists to come and enjoy the charm of these small islands.

In the future, hopefully this information system about small islands in Bangka Belitung can be delivered in a complete and interesting way so that it can help the island to develop in a better direction with the use of the Internet and give advantage for developing economic and tourism in the island.

Acknowledgment
We gratefully acknowledge the funding from University of Bangka Belitung and USAID through the SHERA program – Centre for Development of Sustainable Region (CDSR). In year 2017-2021 CDSR is led by Centre for Energy Studies – UGM.

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