

RESEARCH ARTICLE



The Environmental Education Tourism Development Design Concept in the Citic Seram Energy Limited Area, Maluku Province

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Abstract

The development of environmental education tourism in the area of Citic Seram Energy Limited (CSEL) is a design concept developed from the CSEL Study Tour program, which is an annual Citic Seram Energy Public Relations program sub-field of the Public Education Work Program that has been going on since 2009. This study aims to evaluate CSEL study tour activities as recommendations for developing environmental education tourism in the CSEL area. The method used is a survey method with purposive sampling techniques, namely sampling techniques taken based on certain considerations and objectives. Respondents in this study amounted to 40 people, namely participants in the CSEL study tour in 2013-2019. Data collection techniques use closed-pattern questionnaires with scoring. The processed questionnaire data was then analyzed using IPA (Importance Performance Analysis) to determine the level of performance variables of CSEL study tour activities. The study results show that the perception of study tour participants on the variables of CSEL study tour activities obtained a very high level of importance and satisfaction. This is evidenced by the average importance score obtained, which is 4.68 (very important) and the average satisfaction level score is 4.55 (very satisfied). However, the IPA Diagram shows that the Study Tour and Environmental Conservation Object Variables are in Quadrant I, meaning they are considered important but have satisfaction scores below the expectations of study tour participants. This is a recommendation to increase study tour activities at CSEL in the future.

Keywords: Citic Seram Energy Limited, Environmental Education Tourism, Importance Performance Analysis, Study Tour

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1. Introduction

Act No. 10 of 2009 [1], concerning tourism, defines tourism as travel activities carried out by a person or group of persons by visiting a certain place for recreational purposes, personal development, or studying the uniqueness of tourist attractions visited in a temporary period. [2] defines educational tourism as an educational travel to a place both individually and in groups with the main purpose of getting a learning experience (education). Sharma [3] explained that educational tourism consists of several sub-types of tourism, including: ecotourism, heritage tourism, rural/agricultural tourism, and student exchanges between educational institutions. Educational Tourism (*edu-tourism*) is a derivative or sub-type of natural tourism objects (*ecotourism*), so the basis for development is not much different and still uses the rules and criteria of ecotourism [4].

According to Wood [5], the rules of edu-tourism, looking at the rules of ecotourism are as follows: conserving the surrounding environment, nature, and local culture, minimal effect toward nature in construction and operation, adopting local context in culture, and physical appearance, for example, architecture will follow landscape, form, and local color, minimize the consumption of water and use alternative ways to get the source of water, waste treatment carefully, fulfill energy needs using the passive infrastructure, cooperate with locals during the managing and building up period, offering qualified programs regarding education regarding nature and local culture toward human resources and tourists, accommodate every research program by the contribution of ecotourism toward sustainable development on the site.

Environmental education tourism is an educational tour based on the environment. The environment as a means of educational tourism is not only useful as a function of the environment itself but also pleasant in terms of aesthetics. Environmental education in the tourism industry has an important place because it has a significant effect on increasing individual awareness, also on attitudes and behaviors toward environmental issues [6]. Ajake [7] defines environmental education as a learning process to: 1). Increase public knowledge and awareness about the environment and its challenges, 2). Develop the skills and expertise necessary to overcome these challenges, 3). Foster attitude, motivation, and commitment to make informed decisions and take environmentally responsible actions.

Winarto [8] stated that the tendency of people to engage in tourist activities is only oriented towards eliminating boredom. However, nowadays, many tourist attractions that are developed not only have entertainment value, but also educational value for tourists. Tourist attractions with educational value are in demand by many tourists. [8] added that each region has diverse educational tourism potential. However, there are not many tours in the area that have been developed as educational tourism that has entertainment and educational value.

Citic Seram Energy Limited (CSEL) is a SKK MIGAS production cooperation contractor company in the Seram Non-Bula Block, which is concerned about the sustainability of the mining environment. One of the real contributions that has been made by CSEL to the community is CSR (Corporate Social Responsibility) in the field of Education which is packaged in the form of a study tour. The study tour referred to in the CSEL CSR program is one of the annual Citic Seram Energy Public Relations programs, a sub-field of the Public Education Work Program which has been going on since 2009-2019 involving as many as 150 high school students (SMA) or equivalent and accompanied by several teachers representatives from each school, including: SMA Negeri 1 Bula, Madrasah Aliyah Negeri (MAN) 2 SBT, SMK Negeri 1 Bula, SMK Negeri 2 Bula, SMP Negeri 1 Bula, SMP Negeri 1 Bula Air, Madrasah Tsanawiyah Bula, SMA Negeri 2 Banggoi, SMK Pertanian Bula, Madrasah Aliyah Negeri Bula, and SMK Negeri Teluk Waru [9], and also Politeknik Negeri Ambon.

The study tour program initiated by the CSEL aims to provide an introduction, knowledge, and understanding related to the work system and petroleum technology [10]. On the other hand, the purpose of the study tour is to motivate students to continue their studies at universities by choosing science specifications related to the mining industry so that, in the future, they will be able to play an active role in the world of the mining industry that will be increasingly competitive [9]. The locations that are the center of the study tour activities are the Oseil Area (oil well head location), Field Facility (oil, gas, and water separation area), Main Production Facility (oil storage tank area), and jetty area (special port for oil loading), which are CSEL operational areas.

Thus, the study tour activities held by the Citic Seram Energy Limited Company were evaluated and recommended for the development of educational tourism based on the concept of environmental educational tourism. Citic Seram Energy Limited is expected to be a means of information and learning to increase public awareness of the sustainability of the mining environment and as a foundation in the management of the environmentally sound mining industry.

Based on the background described earlier, the formulation of this research problem is: 1). What are the perceptions of CSEL tour participants towards study tour activities at CSEL; 2). What is the concept of environmental education tourism development design in the CSEL oil and gas mining area?; 3). What tourism objects have the potential to be developed as environmental education tourism in the CSEL Oil and Gas mining areas?

The aims of this study were as follows: 1). Map and describe the object and circulation of study tour activities at CSEL, 2). Assess the perceptions of CSEL tour participants towards study tour activities at CSEL; 3). Formulate the design concept for developing environmental education tourism in the CSEL oil and gas mining area. 4). Identify study tour objects and other objects as a plan for developing environmental education tourism in the CSEL Oil and Gas mining area.

The benefits of this study are:1). As input material for the company in the development of CSR programs in the field of public education, 2). As a reference for developing environmental education tourism in other mining areas, 3). As a means of information and learning to increase public awareness of the sustainability of the mining environment; 4). As a foundation for management in the mining industry, it is environmentally friendly.

2. Research Methods

2.1. Research Location and Time

This research was conducted in the CSEL Oil and Gas Cooperation Contract Contractor (KS) Mining Area in Bula District, Eastern Seram Regency, Maluku Province from May to July 2019. The study began with field observations in September 2017, and data collection was conducted from May to July 2019 Figure 1. The survey was conducted through direct interviews with study tour participants who were taking part in study tours at CSEL on May 2-3, 2019, and alumni who had participated in study tours at CSEL.



Figure 1. Research Location. Source: CSEL (2017)

2.2. Data Types and Sources

The data used in this research include basic and supporting data, both in the form of primary and secondary data. Primary data were obtained through books, journals, and other references during the pre-study survey. Secondary data were obtained and collected directly from the study locations Table 1.

Table 1. Main Data and Supporting Data

Data Classification	Data Type	Data Source	
		Primary	Secondary
Main	CSEL Operation situation	✓	
	Data and information related to study tour activity at CSEL	✓	
	The situation of study tour activities	✓	
	Research location	✓	
Support	Study tour object and circulation		✓
	Perception		✓
	Preference		✓

2.3. Method of Data Collection

The sample size of the study tour participants at CSEL was determined by referring to Roscoe’s suggestion (1982 in Sugiyono 2012) which states that if the sample is divided into categories, the number of sample members for each category is at least 30. The respondents in this study tour were 40 people consisting of Alumni of Madrasah Aliyah Negeri 2 SBT as well as teachers/mentors who had participated in study tours at CSEL in 2013-2014 and Institut Politeknik Negeri Ambon students and their lecturers/assistants who participated in study tours at CSEL from to 2018-2019. A description of the sample used in this research is presented in **Table 2**.

Table 2. Sample Description

Participants	Number of Samples	Description of Samples
Study tour participant	40 people	<ul style="list-style-type: none"> - 7 alumni from Madrasah Aliyah Negeri 2 SBT as well as teachers/mentors who had participated in study tour activities at CSEL in 2013-2014. - 33 Ambon State Polytechnic students and lecturers/assistants who participated in study tour activities at CSEL in 2018-2019.

For respondents, the contents of the perception questionnaire included nine assessment variables: study tour materials, study tour objects, study tour media, study tour programs, study tour services, study tour information, study tour promotion forms, study tour regulations, and environmental conservation. A Likert scale (scores 1-5) was used in the choice of the questionnaire, from “very unimportant/very dissatisfied” to “very important/very satisfied”. The perception assessment scores that can be selected are limited to scores 1,2, 3, 4, and 5. Perceptions and preferences were analyzed using a 5-class Likert attitude scale **Table 3**.

Table 3. Likert Scale

Scale	Quality
1 < 1,8	Very unimportant/Very Dissatisfied
1,8 - <2,6	Unimportant/ Dissatisfied
2,6 - < 3,4	Sufficiently Important/ Sufficiently Satisfied
3,4 - <4,2	Important/Satisfied
4,2 ≤ 5,0	Very Important/Very Satisfied

This study uses the IPA (*Importance Performance Analysis*) method. IPA (*Importance Performance Analysis*) is a quadrant analysis that aims to group perceptions of importance and satisfaction values [11]. Perceptions of satisfaction on variables are placed on the horizontal axis as performance, perceptions of importance on the center line of the points of perception of satisfaction, and important sides **Figure 2**.

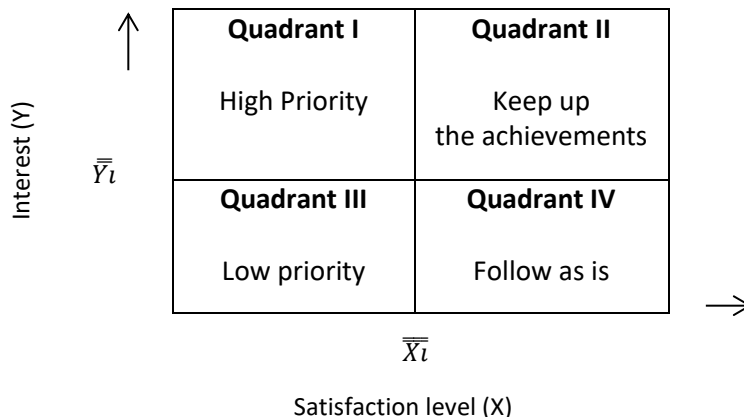


Figure 2. Cartesian Diagram of Importance Performance Analysis

The IPA Cartesian Diagram (Importance Performance Analysis) is divided into four quadrants [11], namely: Quadrant I (High Priority), containing attributes that are considered important but with satisfaction values below the expectations of study tour participants, Quadrant II (Maintain achievement), indicating that attributes are considered important and have a high satisfaction value, Quadrant III (Low priority), contains attributes that are considered less important with a low satisfaction score, Quadrant IV (Follow as it is), this quadrant contains attributes that are considered less important by study tour participants but have a high satisfaction value.

3. Results and Discussion

Citic Seram Energy Limited is a joint contractor to produce SKK MIGAS in the Seram Non-Bula Block. The Seram Non-Bula Block Oseil Oil Field is a Mining Working Area (WKP) of the Citic Seram Energy Limited. Administratively located in Bula Village, Bula District, East Seram Regency, Maluku Province, with the following boundaries: the north side of the site is an area of mangrove forest, swamp, and Seram Sea, and the East side is still in the form of production forests, with residents and mixed gardens in people's yards. To the west is the Kalrez Petroleum (Seram) Limited area, otherwise known as the Bula Block. The southeast is the village closest to the site, Salas Village. The total exploration and exploitation area of Citic Seram Energy Limited in the Seram Non-Bula Block after the third relinquishment process in October 2010 was approximately 1,524 km².

The Oseil Field is a hilly forest area. Based on the Agreement on Forest Utilisation (TGHK), this area is a production forest under the Forest Management Unit (KPH) of the Central Maluku Regency (now East Seram Regency). Use forest areas for production operations of CITIC Seram Energy Limited, an extension of the permit by the Decree of the Minister of Forestry No. SK.657/Menhut-II/2009 which is valid until 2020 [12].

3.1. Mapping and Description of Study Tour Activity Circulation at CSEL

Study tour activities at the CSEL have been ongoing for approximately seven years. The objects that are at the center of the study tour activities are the Oseil Area (location of oil wells/wellheads), Field Facility (oil, gas, and water separation area), Main Production Facility (oil storage tank area), and Jetty Area (special port for loading oil). Figure 3 shows the circulation of the study tour activities at the CSEL in 2019.

The study tour participants first gathered at the participant gathering point (TK) to participate in an indoor study tour program. Then, we proceed with an outdoor study tour program, namely, visiting study tour objects: (1) Oseil Area (oil well/wellhead location), (2). Field Facility (area for separating oil, gas, and water) (3). Main Production Facility (oil storage tank area) (4). Jetty Area (special port for loading oil).



Figure 3. Circulation Map of Study Tour Activities at CSEL

Information: TK (Meeting Point for Study Tour Participant (1). Oseil Area (oil well location/wellhead) (2). Field Facility (area for separating oil, gas, and water) (3). Main Production Facility (oil storage tank area) and (4). Jetty Area (special port for loading oil).

The study tour activities at the CSEL involve students and student representatives from each educational institution. Table 4 shows a list of study tour participants who participated in study tours at CSEL from 2009 to 2019.

Table 4. Study Tour Participants at CSEL in 2009-2019

No	Year of Study Tour Activities at CSEL	Study Tour Participants
1.	2009	SMA Negeri 1 Bula Madrasah Aliyah Negeri 2 SBT SMK Negeri 1 Bula SMK Negeri 2 Bula
2.	2013	SMA Negeri 1 Bula Madrasah Aliyah Negeri 2 SBT SMK Negeri 1 Bula SMK Negeri 2 Bula SMP Negeri 1 Bula SMP Negeri Bula Air Madrasah Tsanawiyah Bula
3.	2014	SMA Negeri 1 Bula SMA Negeri 2 Banggoi Madrasah Aliyah Negeri 2 SBT SMK Negeri 1 Bula SMK Pertanian Bula
4.	2015	SMA Negeri 1 Bula SMA Negeri 2 Banggoi SMK Teluk Waru Madrasah Aliyah Negeri 2 SBT SMK Negeri 1 Bula SMK Pertanian Bula
5.	2018	Institut Politeknik Negeri Ambon
6.	2019	Institut Politeknik Negeri Ambon

Source: CSEL (2019)

The materials presented to the study tour participants were the History of CSEL Oil and Gas Company, Operational System at CSEL, Introduction to Oil and Gas Production Systems and Maintenance Systems for Oil and Gas Production Equipment, Introduction to HSE and Oil and Gas Construction Systems, and Operational Support Programs (PPO). In the presentation of the study, tour material using a computer/laptop and LCD projector aims to present materials that have been prepared by CSEL employees representing each department as well as a way to introduce the potential of oil and gas mining in Bula District Source: CSEL (2019)

Figure 4.



Source: CSEL (2019)

Figure 4. Situation of Study Tour Activities at CSEL

Participants were allowed to visit several locations that became the center of the study tour activities, guided by employees as interpreters, to explain each object visited (Figure 5).



Figure 5. Visit to Study Tour Location Center

The facilities provided by CSEL in the study tour activities are in the form of company buses used to visit the study tour objects, provision of consumption, worship facilities, health facilities, clinics, and so on. The implementation of the study tour activities was provided to the targeted schools in collaboration with one of the Maluku universities. The study tour activity at CSEL was promoted through the newspaper “People of Maluku” **Figure 6.**



Transportation for tour participants



Meal facility



Prayer facility



Clinic Citic



Promotion media



Figure 6. CSEL Study Tour Facilities and Media Promotion

3.2. Perception Analysis of Study Tour Participants at CSEL Characteristic of Respondents

The characteristics of respondents who took part in the study tour were grouped by gender, age, place of residence (domicile), population category, last education, occupation, number of study tour visits at CSEL, year of visit, and name of school/university, as presented in Table 5.

Table 5. Characteristics of Study Tour Participants

No.	Study Tour Participant Characteristics	Information
1.	Gender	Male 43%, Female 58%
2.	Age	Range 19 to 65 years.
3.	Status	Single 33, Married 7 people
4.	Population Category	Bula 13%, outside 88%
5.	Work	College 78%, others 23%
6.	Join the Study Tour at CSEL	Once 23, Twice 10 people
7.	Name of School/University	Politeknik Negeri Ambon 33, Madrasah Aliyah Negeri 2 SBT 7 people.

3.3. Perception of Study Tour Participants on Study Tour Activities at CSEL

The perception of study tour participants was assessed based on the importance and satisfaction of nine tour activity variables: study tour material, study tour object, study tour media, study tour program, services, information, forms of promotion, regulations, and environmental conservation. Table 6 presents the results.

Table 6. Interests and Satisfaction of Study Tour Participants on Study Tour Activity Variables at CSEL

No.	Variable	Score Interest	Satisfaction
1.	Study tour material	4,79	4,64
2.	Study tour object	4,74	4,59
3.	Media study tour	4,9	4,77
4.	Study tour program	4,55	4,48
5.	Study tour services	4,83	4,81
6.	Information	4,36	4,26
7.	Promotion form	4,42	4,11
8.	Rules	4,78	4,68
9.	Environmental Conservation	4,76	4,61
	Average	4,68	4,55

The average score of the "Importance" of the study tour participants on the study tour activity variable at CSEL was 4.68 (very important), and the average score of the study tour participant's "Satisfaction" score on the study tour activity variable at CSEL was 4.55 (very satisfied). This shows that the study tour activities at CSEL have a very good performance.

Based on the IPA Diagram Figure 7, the study tour object and environmental conservation variables are in quadrant I. The assessment related to Study Tour Material, Study Tour Media, Study Tour Services, and Regulations was in Quadrant II. In the assessment of the Study Tour Program, information and forms of promotion were in Quadrant III.

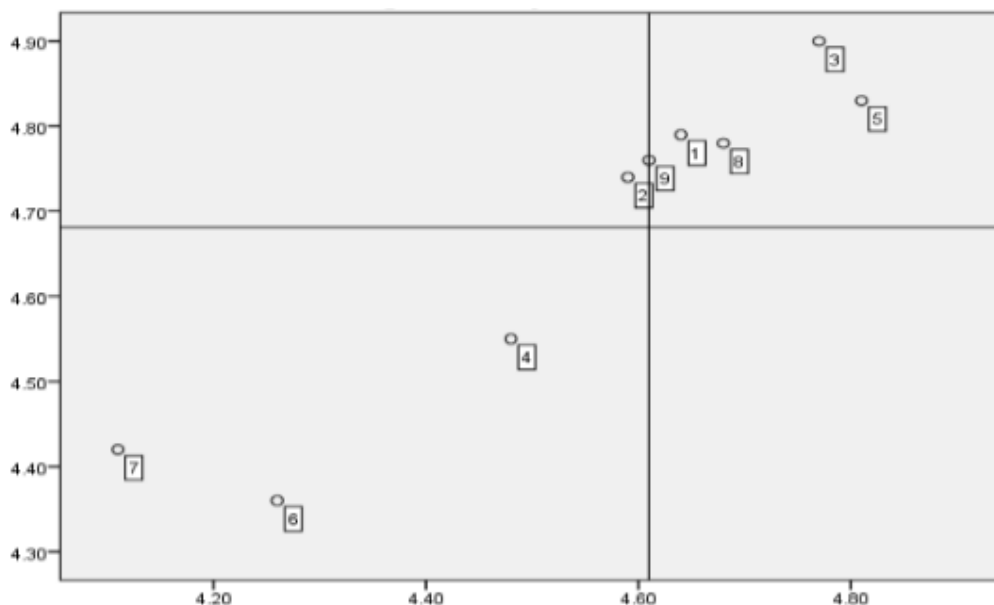


Figure 7. IPA Diagram of Study Tour Activity Variables at CSEL

Description: (1). Study Tour Materials (2). Study Tour Object (3). Media Study Tour, (4). Study Tour Program, (5). Service, (6). Information, (7). Promotion Forms (8). Regulation (9). Environmental Conservation.

The study tour object and environmental conservation variables are in quadrant I, which means that the variables are considered important. Still, the satisfaction value is below the expectations of the study tour participants. Therefore, the study tour object variable and environmental conservation were the main priorities in the management recommendations of the study tour at the CSEL. In the assessment related to Study Tour Material, Study Tour Media, Study Tour Services, and Regulations were in Quadrant II, indicating that these variables are considered important and have a high satisfaction value. The consequence of future management is to maintain performance (achievement). In the assessment of the Study Tour Program, information and forms of promotion were in Quadrant III, indicating that these variables were considered less important and had low satisfaction scores. The consequence of future management is that these variables have low priority for management. For each study tour activity, the positions of the variables in the IPA diagram are presented in **Table 7**.

Table 7. Distribution of the Study Tour Participants Assessment Quadrants of the Variables

No	Variable	Quadrant I	Quadrant II	Quadrant III	Quadrant IV
1.	Study Tour Materials		✓		
2.	Study Tour Object	✓			
3.	Media Study Tour		✓		
4.	Study Tour Program			✓	
5.	Study Tour Services		✓		
6.	Information			✓	
7.	Promotion form			✓	
8.	Rules		✓		
9.	Environmental Conservation	✓			

3.4. Identification Objects as Development of Environmental Educational Tourism in CSEL Oil and Gas Mining Areas

3.4.1. Management of Temporary Shelter for Hazardous Waste in the MPF Area

The temporary shelter for B3 is in the warehouse, which is permitted by the Decree of the Regent of East Seram No. 201 of 2018 concerning Hazardous Waste Storage Permits that are accommodated, including chemical packaging, used oil, used batteries, used fluorescent

lamps, oil filters, clinical waste, rags, printer cartridges, sludge/contaminated soil, and medical waste. The B3 waste is then sent to a third party that has a permit from the KLH for further management [12].



Figure 8. Hazardous Waste Transport Process at the B3 Waste TPS Area MPF CSEL

3.4.2. Mangrove Forest Tourism

Mangrove forest tourism has developed in the Jetty area of Wayhul Beach. Administratively, it is located in the Bula Air Administrative State, Bula Sub-district, East Seram Regency, Maluku Province. The mangrove forest in the jetty area covers an area of ± 10 Ha Figure 9.

Mangrove ecosystems can contribute positively to controlling the pace of global climate change and the ecological dynamics of an ecosystem, in addition, mangrove ecosystems also have functions as ecological stability or balance of ecosystems, nutrient sources, nursery areas, feeding ground areas, and spawning ground [13].



Figure 9. Mangrove Forest in Jetty Area

4. Formulation of the Environmental Education Tourism Development Design Concept in the Oil and Gas Mining Area of CSEL

The Environmental Education Tourism Development Design Concept in oil and gas mining areas in the CSEL is formulated based on the concepts of objects, programs, material (curriculum), management, and regulations. This concept was developed based on the perceptions and preferences of study tour participants.

4.1. Object

The environmental education tourism object developed from the CSEL study tour program consists of seven objects: Oseil Area, Field Facility, Main Production Facility, Jetty Area, Reforestation activities, Hazardous Waste Management, and Mangrove Forest Tourism.



Information: TK (Meeting Point for Study Tour Participants) (1). Oseil Area (oil well location/wellhead) (2). Field Facility (area for separating oil, gas, and water) (3). Main Production Facility (oil storage tank area) and (4). Jetty Area (special port for loading oil), (5). Mangrove Tourism.

Figure 10. Circulation Design for Education Environmental Tourism

4.2. Program

The environmental education tourism program developed from the CSEL study tour program consists of indoor and outdoor activities. The indoor program consisted of material presentations, discussions/questions and answers, and video screenings of activity documentation. The outdoor environmental education tourism program consisted of visits to each object, fishing tours, and culinary tours.

4.3. Material (Curriculum)

The developed environmental education tourism object and program, the material (curriculum) for environmental education tourism at CSEL consists of an introduction to oil wells, main production facilities, field facilities, oil loading ports, B3 waste management, mangrove forests, crab cultivation, and shrimp farming.

4.4. Management

Environmental education tourism management at CSEL is developed collaboratively with stakeholders who have worked with CSEL in the mining environment, such as the Environment Center (BLH) and the UPTD KPH Forestry Service of SBT, through their main duties and functions.

4.5. Rules

The concept of environmental education tourism regulations at CSEL follows the regulations that apply to study tour activities, namely regulations on dress, regulations on security, order, and safety of tour participants, and regulations on HSE.

5. Conclusions

The average score of the "Importance" of the study tour participants on the activities variables of study tour activities at CSEL was 4.68 (*very important*), and the average score of the "Satisfaction" of the study tour participants on the variables of study tour activities at CSEL was 4.55 (*very satisfied*). This shows that the study tour activities at CSEL have a very good performance. However, based on the IPA Diagram (*Importance Performance Analysis*), the Study Tour Object variable and the Environmental Conservation variable are in Quadrant I, which means that both variables are considered important but have low satisfaction. Therefore, the variables of Study Tour Objects and Environmental Conservation Objects are the top priorities in CSEL Study Tour management recommendations in the future.

The study tour objects at the CSEL consist of oil wells (Oseil Area) an oil, gas, and water separation facility (Field Facility); an oil storage tank (Main Production Facility); and a special oil loading port (Jetty Area). The circulation of study tour activities at CSEL starts with the gathering of CSEL study tour participants to oil wells field facilities, to the main production facilities, to the jetty area, and finishes at regrouping places.

Environmental education tourism objects at CSEL are study tours, B3 waste management, and mangrove forest tourism. The design of environmental education tourism development at the CSEL was formulated based on the concepts of objects, programs, materials, management, and regulations. As described in this journal, The CSEL is advised to enrich study tour objects and programs by developing study tour activities into environmental education tours with development designs.

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