Study on Tourism Potency and Planning of Techno-Edu Tourism in Institut Teknologi Sumatera

E E Franjaya¹ and I Prastiwi¹

¹ Department of Landscape Architecture, Faculty of Regional and Infrastructure Technology, Institut Teknologi Sumatera, South Lampung-Indonesia
E-mail: eduwin.franjaya@al.itera.ac.id

Abstract. This research was a result of thinking about the main function of a university in Indonesia, that is Three pillars of The University (education, research, and dedication to society). With a condition of Institut Teknologi Sumatera (ITERA) as a new technological university in Indonesia, there is creative thinking to develop them together to be an integrated program with a tourism concept on it. We named it as Techno-Edu Tourism ITERA. This study aimed to develop Techno-Edu Tourism program through an analysis of study programs that have a high potential as educational tourism object and attraction. The method used in this study is related with landscape planning technique with a qualitative-descriptive method as complement. Based on the result of questionnaires, interviews and field surveys, indicated that there is a high potential on developing the study programs and technical management units in ITERA to be educational tourism objects. With landscape planning technique, we designed the tourism site plan and 3D visualization of some of the objects.

Keywords: Education, Planning, Site Plan, Tourism, 3D Visualization

1. Introduction
Institut Teknologi Sumatera (ITERA) is a new higher institution that takes place in the south of Sumatera, Lampung Province. As a new higher institution ITERA is racing against time to develop itself physically and un-physically in line with that development, ITERA needs to show up to Sumatera people as well as Indonesian people in general. It can be achieved with an integrative and collaborative development concept.

There is a concept that appropriate enough with integrative and collaborative development. We call it a campus tourism concept, with a process of learning and facilities on it become tourism objects. This concept has a prominent benefit related to the implementation of Three Pillars of University (Education, Research, and Dedication to society). From the educational side, ITERA people not only can do the learning process but also can develop self-potential or self-actualization with direct participation in tourism activities. The student can do a practice directly and communicate with society from different backgrounds and educational levels. From the research side, there are so many research concepts that can be developed and introduce to the public, and this is also can increase the motivation of the researcher. From the dedication side, the existence of educational tourism can be a medium for ITERA to share knowledge with the Indonesian people, especially Sumatera. This can be a medium of promotion for ITERA directly or un-directly. IPB University with their Agro-Edutourism (AET) do the same thing, even the main aim of AET IPB is to promote IPB as a higher institution/education in the field of agriculture [1].
This study aimed to develop Techno-Edu Tourism program through an analysis of study programs that have a high potential as educational tourism object and attraction. With the site plan, tourism programs, and management, we can give recommendations for ITERA.

2. Materials and methods

2.1. Study area

This study was conducted in ITERA campus-South Sumatera Province (Figure 1). The area that used as a research area is all of the campus area as stated on-campus master plan. But, with the condition of ITERA as a new higher institution and not all of the building in ITERA has been built, so there are several objects or facilities to be proposed in this research.

![Figure 1. ITERA Campus on Master Plan](image)

2.2. Data collection

The data used in this research are physic-biophysics and non-physic. Physic-biophysics data consists of wide and type of the site, contour, type and soil structure, vegetation type, etc. non-physic data consists of a questionnaire, data of tourism potential program, etc. Primary
data is from field observation, measuring, photography, calculation, questionnaire, and interview. The secondary data is from literature and related sources.

2.3. Landscape planning technique
The method used in this research is qualitative-descriptive with landscape planning technique/approach. The research process consists of 6 (six) stages; initial observation, theoretical framework from literature, inventory of existing condition, data analysis and synthesis, concept and planning-design, and recommendations. The same process has been done by the researcher when making the landscape design of integrated farming for Agro-edutourism in the previous research [2].

3. Result and discussions
3.1. Observation
Based on the result of initial observation, the research-site location is a developing campus area. With 275 Ha in wide and the development is still ongoing, there are so many things that can be proposed. There are potency and constraints on the location. The existence of “Embung” (water body) and the on-going development become one of the potency. Another potency is the study programs in ITERA with several unique program study, even the first in Indonesia. It is Planetary and Atmosphere Science. The location of the campus that was strategic near toll access and the capital of Lampung become another positive reason. The constraint that was faced on-site is soil fertility. This condition needs to be fixed so that the development of the landscape can be maximum.

3.2. The Questionnaire, focus group discussion, and interview (Inventory)
Based on the result of questionnaire from ITERA, 99.2% of participants have agreed if the campus educational tourism applied in ITERA. 93.6% of participants that consist of lecturer, student, and staff also agree to be a part of the tourism program. The same thing has resulted when questionnaires were distributed to the people around Bandar Lampung. As many as 96% of participants had an interest if ITERA offering educational tourism package and services. Some of them propose attractive objects and tourism activities to developed, such as how to observe stars and how to make a simple mobile game.

Based on Focus Group Discussion (FGD) involving tourism planner specialists, the representation of educational tourism planning called Techno-Edu Tourism has obtained. Some of the main points that need to be done are mapping the potency of tourism objects, preparing the human resources and management organization, and planning the objects and tourism activities. The result of this stage was associated with tourism landscape planning and management.

Besides the questionnaire and FGD, the deepen interview is also conducted. This interview is conducted with the lecturer and staff of study programs in ITERA. The interview is needed to strengthen the questionnaire results and knowledge about the potency in each study program. Based on the interview’s result there are some tourism attraction potencies that could be added, like watching the stars documentation video in an attractive place like cinema under the science park, etc. Moreover, there are some study programs and technical implementation unit asking for the design of their building or working area to the researcher/designer. We respond to those requests with a design plan and 3D visualization.

3.3. Data analysis and synthesis
Based on Master Plan data of ITERA the year 2017-2039, and the result of questionnaires, FGD, and interviews, the data of tourism program and its completeness were obtained (Table 1).
Table 1. Tourism Programs, Activities, Organizer, and Facilities

| Tourism Programs          | Tourism Activities                                      | Activity Area        | Organizer                                                                 | Facilities                                      |
|---------------------------|--------------------------------------------------------|----------------------|---------------------------------------------------------------------------|-------------------------------------------------|
| Engineering               | Architecture: Drawing, make a simple maquette, etc      | Indoor               | Each study program under coordination of UPT Techno-Edu Tourism ITERA    | Studio/Design Lab                               |
|                           | Landscape Architecture: Drawing, ornamental plant introduction, make a simple maquette of landscape, etc | Indoor and outdoor   |                                                                           | Studio/Design Lab, Nursery, Green House, etc    |
|                           | Geomatics: Theodolite practices, how to make a simple map, etc | Indoor               |                                                                           | Lab, Theodolite, etc                            |
|                           | Informatics: Make a simple mobile game, Internet of things, etc | Indoor               |                                                                           | Computer Lab                                    |
|                           | Civil Eng: How civil eng work, technical lab of civil eng, etc | Indoor and outdoor   |                                                                           | Civil Lab                                       |
|                           | Visual Com. Design: Artwork, How to make a digital advertise, how to make an animation, etc | Indoor               |                                                                           | Studio/Design Lab, Computer, etc                |
|                           | Mechanical Eng: Electrical car, how a machine works, etc | Indoor and outdoor   |                                                                           | Workshop area, electrical car, etc              |
|                           | Environmental Engineering: How to measure air quality, water quality, etc | Indoor and outdoor   |                                                                           | Environmental Lab                               |
| Science                   | Planetary and Atmosphere Science: Planetary science, How to see a star in the sky, watching an atmospheric film, etc | Indoor and outdoor   | Each study program under coordination of UPT Techno-Edu Tourism ITERA    | Science Park OAIL+MKG, telescopes, etc          |
|                           | Physics: How physics work in life, etc                  | Indoor               |                                                                           | Physics Lab                                     |
|                           | Chemistry: Chemistry in daily life, etc                 | Indoor               |                                                                           | Chemistry Lab                                   |
|                           | Biology: how to see a microorganism, Biology in daily life, etc | Indoor and outdoor   |                                                                           | Biology Lab                                     |
| Sport and Nature          | ITERA Botanical Garden: Plant Nursery, Plan in Green House, “Embung Sumatera”, Thematic Park, etc | outdoor              | UPT Kebun Raya and UPT TET ITERA                                         | Embung, Green House, Thematic Park, etc         |
|                           | Sport Center: Archery, Football, Volley, Badminton, etc | Outdoor              | ITERA and UPT TET ITERA                                                 | Sport stadium                                   |
|                           | “Embung”: Boating, running, etc                         | Outdoor              |                                                                           | Boat, running path, etc                         |
|                           | “Hutan Serba Guna”: Harvesting fruits, jogging, etc     | Outdoor              |                                                                           | Fruits plant, jogging path, etc                 |

As stated in Table 1, the management of Techno-Edu Tourism will be handled by the technical management unit of Techno-Edu Tourism ITERA (UPT TET ITERA). This is a new proposed UPT, and this UPT will do coordination with others, such as UPT Kebun Raya, UPT Lahan, etc.
For the tourism program, we should have to prepare the basic facilities that needed for the program to be worked in real. Besides the facility on each study program, there are general facilities like buses, parking areas, canteens, toilets, parks, etc to be prepared. Some of the facilities like prayer rooms are already available in the existing building. But, in the future, the facilities to serve the visitor/tourist should be improved. The capacity of the facilities should be in line with carrying capacity. In this research, we do not do in-depth analyze about carrying capacity, except the correlation between the wide areas that available and the human standard size.

For the target group, the student in primary school, junior and senior high school are the main target group. But we do offer the tour package to all of the people in Bandar Lampung and surrounding areas. For the regulation, financial management and payment system should be set by ITERA and should be arranged with a decision letter from rector (SK Rektor) and another document.

3.4. Planning and design
After arranging everything related to tourism programs, we make a site plan and 3D visualizations as a part of landscape planning and design (Figures 2-8).

Figure 2. Site plan of Techno-Edu Tourism ITERA
4. **Recommendation**

This research is very complex if we want to get better planning for Techno-Edu Tourism. At this time, we just look at the landscape planning technique. We need to do further research specifically in planning the program, facility and capacity, also the whole management of Techno-Edu Tourism ITERA.
Acknowledgements
We gratefully acknowledged for the help that given by ITERA, The head of Agro-Edu Tourism IPB and staff, and Technical Management Unit ITERA so that this research is well done. We should also thank the other for helpful suggestions.

References
[1] Sulistyantara B, Muntasib EKSH, Innayah FH. 2012. Pengembangan Wisata Pendidikan Pertanian di Institut Pertanian Bogor. Prosiding seminar hasil-hasil penelitian Institut Pertanian Bogor 2012 Buku 2 hal 258-372.
[2] Franjaya EE, Gunawan I, Mugnisjah WQ 2013 Jurnal Lanskap Indonesia Vol 5 No 1