

# Design Al Amin Science Animal Husbandry Area and GAHP-Based Industrial Park (Living Lab) in Kutalimbaru Sub-District

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## ABSTRACT

Al Amin Science and Industrial Park (Living Lab) is an area that is projected to become a field laboratory and workshop center that accommodates all study programs at UNPAB. This area is also planned to become Ecoedutourism. One of the functions that will be developed in this area is the Animal husbandry area. Facing AEC (ASEAN Economic Community) 2015 in the food sector, especially Animal husbandry products, strict standardization is needed so that the concept of Good Animal Husbandry Practices (GAHP) needs to be applied. Thus, a good planning of supporting building design concepts is needed in the Al Amin Science and Industrial Park (Living Lab) Animal husbandry area by considering GAHP (Good Animal Husbandry Practice). The implementation of GAHP aims to ensure that the Animal husbandry products produced are safe for consumption with the right quality and appropriate for consumers, while also ensuring that the Animal husbandry products are produced in the right way without causing environmental loss/damage, health, safety and welfare of workers in the Animal husbandry sector. The purpose of this study is to produce the design of supporting buildings in the Animal husbandry area of Al Amin Science and Industrial Park (Living Lab) based on GAHP. The results of this design are expected to be a direction for the development of supporting buildings in the Animal husbandry area of Al Amin Science and Industrial Park (Living Lab).

**Keywords:** Animal husbandry Area; Design; GAHP; Living Lab; Kutalimbaru

## INTRODUCTION

Universitas Pembangunan Panca Budi will create an area that is projected to become a center for field laboratories and workshops that accommodate all study programs at UNPAB. The area which is also planned to become Ecoedutourism (Ecoedutourism) will be named Al Amin Science and Industrial Park (Living Lab). One of the functions that will be developed in this area is the Animal husbandry area. Facing AEC (ASEAN Economic Community) 2015 in the food sector, especially Animal husbandry products, strict standardization is needed so that the concept of Good Animal Husbandry Practices (GAHP) needs to be applied. Thus, a good planning of supporting building design concepts is needed in the Al Amin Science and Industrial Park (Living Lab) Animal husbandry area by considering GAHP (Good Animal Husbandry Practice).

The implementation of GAHP aims to ensure that the Animal husbandry products produced are safe for consumption with the right quality and appropriate for consumers, while also ensuring that the Animal husbandry products are produced in the right way without causing environmental

loss/damage, health, safety and welfare of workers in the Animal husbandry sector.

Based on the background description above, it is very important that this research is carried out in order to be able to compile a plan for the development of supporting buildings in the Animal husbandry area of Al Amin Science and Industrial Park (Living Lab) with a systematic, efficient, and targeted planning and design scenario and based on GAHP.

The formulation of the problem in the process of planning and designing supporting buildings in the Al Amin Science and Industrial Park (Living Lab) Animal husbandry area is how to design Animal husbandry support buildings in accordance with the GAHP concept.

The purpose of this study is to produce the design of supporting buildings in the Animal husbandry area of Al Amin Science and Industrial Park (Living Lab) based on GAHP. The results of this design are expected to be a direction for the development of supporting buildings in the Animal husbandry area of Al Amin Science and Industrial Park (Living Lab).

## **LITERATURE REVIEW**

### **GAHP (Good Animal Husbandry Practice)**

Facing AEC (ASEAN Economic Community) 2015 in the food sector, especially Animal husbandry products, strict standardization is needed so that the concept of Good Animal Husbandry Practices (GAHP) needs to be applied. The implementation of GAHP aims to ensure that the Animal husbandry products produced are safe for consumption with the right quality and in the right way without causing loss / damage to the environment, health, consumer safety, in addition to ensuring that Animal husbandry products are produced with and the welfare of workers in the Animal husbandry sector.

Principles of Good Animal Husbandry Practices (GAHP):

- Good Animal husbandry Implementation. Animal husbandry

managers are required to carry out a process of good Animal husbandry implementation practices, provide appropriate food, clean water, maintain Animal husbandry health and cleanliness of Animal husbandry drums.

- Animal husbandry Health Supervision. Ensure that Animal husbandry are free from disease.
- Biosecurity. Prevention against the entry of sources of disease into the Animal husbandry area.
- Infrastructure. Provide appropriate, safe, and comfortable buildings and supporting infrastructure.
- Monitoring the use of drugs. Supervise the use of drugs in Animal husbandry.
- Environmental Pollution Control. Ensure that all activities carried out do not pollute the surrounding environment (in water, soil, and air).

### **Al Amin Science dan Industrial Park (Living Lab)**

There is non-productive land owned by the Prof. Dr. H Kadirun Yahya Foundation in the Glugur Rimbun area of 20 ha, in order to change the land to be more productive, UNPAB is currently building a use plan for 10 ha and is expected to cultivate all 20 ha of the land. In this planning, UNPAB involves all study programs (study programs) in its nature. Basic Concepts The land development meets the needs of UNPAB's learning, practicum, research and innovation center which can become an income generator. Al Amin Science and Industrial Park (Living Lab) has 4 main themes: 1. Tri Dharma of Higher Education UNPAB 2. Eco-Tech-Edu Tours 3. Fitrah (Islamic) based education 4. Economic mutualism symbiosis.

Therefore, Al Amin Science and Industrial Park (Living Lab) has rooms and activities that are mutually sustainable internally and externally. Tri Dharma of Higher Education UNPAB Tri Dharma PT has 3 points, namely Education and Teaching, Research and Development, and Community Service. Al Amin Science and Industrial Park

(Living Lab) was developed as a land for educational and learning applications, research and trials of the UNPAB academic community, therefore there are facilities such as workshops, research land provided and can be seen by visitors as UNPAB educational show cases. It is also hoped that with the cooperation of villages and the surrounding community, Community Service can be carried out in the form of cooperation, counseling, and even services so that surrounding villages can become part of PT UNPAB's Tri Dharma application. Eco-Tech-Edu Tourism The combination and integration of learning across applicable programs is expected to be part of the educational tour of Al Amin Science and Industrial Park (Living Lab) for general visitors. Apart from being a place of entertainment, visitors will be shown and can interact with learning objects so as to understand that technological, educational, and economic developments can take place without leaving religious, spiritual, cultural, and natural sustainability values. Education based on Fitrah (Islam) UNPAB with its pearls of wisdom which aims as a place for human spiritual training will include religious values in all its activities. The concept of halal and tayyib in education, animal husbandry, agriculture, to the creation of a reflection of an independent civilizational ecosystem. Economic Symbiosis Mutualism Economic Symbiosis Mutualism in this case is the participation of the role of the surrounding community in UNPAB Tri Dharma activities through cooperation with villages and surrounding communities. This is aligned with the understanding of UNPAB Living Lab which adheres to the concept of circular economy education based on Islamic and humanitarian values. Opportunities for the

Development of Al Amin Science and Industrial Park (Living Lab) Areas with the concept of Eco-Tech-Edu Tourism that has an understanding of circular economy education (CED) are still very minimal in North Sumatra, Al Amin Science and Industrial Park (Living Lab) can be pioneers in spreading this CED understanding where there is an integration of economic and educational activities that at the same time help preserve nature. Encouraged by the development of the Independent Learning Curriculum (KMB), it is hoped that Al Amin Science and Industrial Park (Living Lab) can become a place for research, service and practicum of the UNPAB academic community that increases awareness of the need for nature conservation. Because Green Technology from across fields of science is still very minimally discussed and is still often partially researched, UNPAB can be an example of integration of fields of science into practical, dynamic, educational and economic value innovations. The existence of 20 ha of land owned by the Prof. DR H Kadirun Yahya Foundation, it is hoped that UNPAB can develop a Living lab ecosystem at least on 10 ha of land. Al Amin Science and Industrial Park (Living Lab) is expected not to be exclusive as tourist areas in general, with the concept of CED, Al Amin Science and Industrial Park (Living Lab) will not only help become an income generator & source of educational land for the academic community, but also help the welfare of the village and the surrounding community. The idea of Room Space at Al Amin Science and Industrial Park (Living Lab) is divided into several areas according to their activities and functions, namely:

**Table 1. The Activities Plan and its Function**

Area	Space requirements	
	Welcome area	Information centre
Gate		Landscaping garden
Rest area	Cafe & restaurant	Marketplace, Product gallery
	Office	Mosque
	Toilet	Garden
Service area, Office & Administrative Area	Generator	Reservoir air
	Garbage bank & hygiene	Control room & security
	Boarding house	Amenities

Table 1 To Be Continued...		
Educational area research, Workshop & production area	Hall	Museum
	Workshop	Laboratory
	Production & packaging room	
Public recreational area	Camping ground & Picnic area	River tourism
	Outbond & outdoor playground	
Agro-wisata	Agriculture	Animal husbandry
	Processing of production products	Packaging of production
	Waste	

Source: Al Amin Science and Industrial Park (Living Lab)

## MATERIALS & METHODS

The material of this study is the location of the site in Sampe cita Village, Kutalimbaru District, Deli Serdang Regency, the needs of the academic community of Panca Budi Development University for research land and the potential for regional development as a tourist facility, in this case the Animal husbandry Area Supporting Building as a Living Lab of the Animal Husbandry Study

Program, Panca Budi Development University. This study is a qualitative descriptive analysis. Data collection techniques are with a qualitative approach, so the data collection techniques used by the author in this study include: (1) interviews, (2) literature studies, (3) field observations, (4) documentation, (5) data validation, (6) data analysis.



Figure 1. The Research Location

## RESULT

Living Lab or Panca Budi Science EcoPark Glugur Rimbon (PSE-GR) has 4 main themes:

### Tri Dharma of Higher Education UNPAB

Tri Dharma of Higher Education UNPAB Tri Dharma PT has 3 points, namely Education and Teaching, Research and Development, and Community Service. PSE-GR was developed as a land for educational and learning applications, research and trials of the UNPAB academic community, therefore there are facilities such as workshops, research land provided and can be seen by visitors as UNPAB

educational show cases. It is also hoped that with the cooperation of villages and the surrounding community, Community Service can be carried out in the form of cooperation, counseling, and even services so that surrounding villages can become part of PT UNPAB's Tri Dharma application.

### Eco-Tech-Edu Tours

Eco-Tech-Edu Tourism The combination and integration of learning across programs that are applicative is expected to be part of PSE-GR educational tours for general visitors. Apart from being a place of entertainment, visitors will be shown and can interact with learning objects so as to



understand that technological, educational, and economic developments can take place without leaving religious, spiritual, cultural, and natural sustainability values. agriculture, to the creation of a reflection of an independent ecosystem.

**Fitrah (Islamic) Based Education**

Education based on Fitrah (Islam) UNPAB with its pearls of wisdom which aims as a place for human spiritual training will include religious values in all its activities. The concept of halal and tayyib in education, agriculture and animal husbandry.

**Economic Mutualism Symbiosis**

Economic Symbiosis Mutualism Economic Symbiosis Mutualism in this case is the participation of the role of the surrounding

community in UNPAB Tri Dharma activities through cooperation with villages and surrounding communities.

The existence of 20 ha of land owned by the Prof. DR H Kadirun Yahya Foundation, it is hoped that UNPAB can develop a Living lab ecosystem on the land. PSE-GR is expected not to be exclusive like tourist areas in general, with the concept of CED, PSE-GR will not only help become an income generator & source of educational land for the academic community, but also help the welfare of the village and surrounding communities.

**The Zoning Concept**

The space needs are allocated to development zones as seen in the illustration of the zoning concept planning area below:

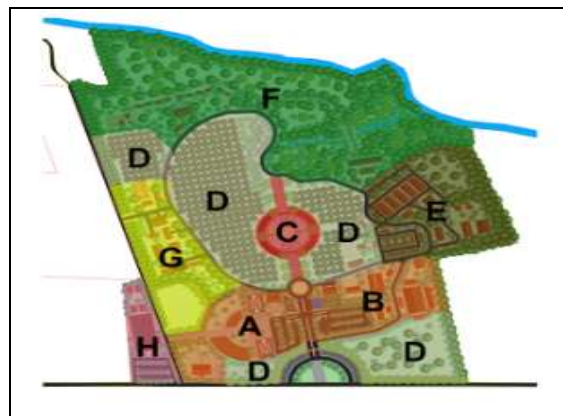


Figure 2. The Zoning Concept of Al-amin Science and Industrial Park Area

where:

A. Reception zone, sports centre, and rusunawa	E. Animal husbandry Zone
B. Product Processing Zone and Marketplace	F. Nature Zone and Outdoor Recreation
C. Main Plaza Zone and Area Management Office	G. Service Zone
D. Agricultural and plantation zones	H. Al-Amin Mosque zone

**Physical Analysis**

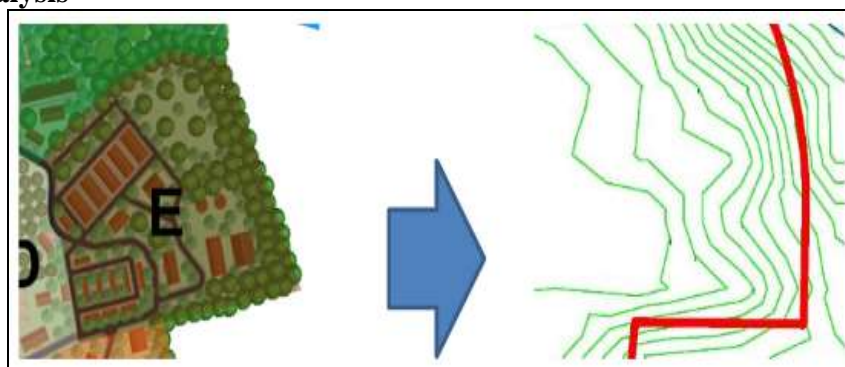


Figure 3. Contour Conditions of Animal Husbandry Areas

The Animal husbandry area is in an area with fairly dynamic contours. The design of buildings dividing internal zones of the area, buildings, and regional infrastructure facilities will be adjusted to the existing conditions of the area.

## DISCUSSION

### Animal Husbandry Area Site Plan

Based on the results of the analysis that has been carried out, it is concluded that the facilities and infrastructure needed in the Al Amin Living Lab and Industrial Park Animal husbandry Area are:

- a. Management Building and Laboratory
- b. Warehouse and Animal Feed Processing
- c. Slaughterhouse
- d. Goat shed
- e. Cowshed
- f. Chicken and Rabbit Cages
- g. Biodigester
- h. Grazing Area
- i. Fodder Planting Land
- j. Circulation and Landscape of Animal husbandry Areas

These facilities and infrastructure are designed in such a way that they can be used optimally, and meet safety and comfort standards for managers, visitors, the academic community, and the Animal husbandry itself.

### Al Amin Living Lab and Industrial Park Residential Area Building

In the Al Amin Living Lab and Industrial Park Animal husbandry Area, there are several buildings designed in accordance with GAHP standards and systems, namely:

- a. Management Building and Laboratory
- b. Warehouse and Feed Fermentation
- c. Slaughterhouse
- d. Female Goat Shed
- e. Male and Puppy Goat Sheds
- f. Fattening Goat Shed
- g. Cowshed
- h. Chicken and Rabbit Cage (Multi Function)
- i. Closed House Chicken Coop

## CONCLUSION

Facilities and Infrastructure The Animal husbandry area of Al Amin Living Lab and Industrial Park consists of:

- a. Management Building and Laboratory
- b. Warehouse and Animal Feed Processing
- c. Slaughterhouse
- d. Goat shed
- e. Cowshed
- f. Chicken and Rabbit Cages
- g. Biodigester
- h. Grazing Area
- i. Fodder Planting Land
- j. Circulation and Landscape of Animal husbandry Areas

The direction for the development of the Al Amin Living Lab Animal husbandry Area and Industrial Park meets the following criteria:

- Have minimum facilities and infrastructure Management Building and Laboratory, Warehouse and Animal Feed Processing, Slaughterhouse, Goat Shed, Cowshed, Chicken and Rabbit Coop, Biodigester, Grazing Area, and Animal Feed Planting Land.
- The design of the 1-2 storey building with a tropical concept is in accordance with the climate at the design site.
- The design of animal cages is adjusted to applicable standards and the GAHP system, both in terms of design models and material selection.
- Have grazing area and planting area of adequate animal feed land
- Circulation in the area is in accordance with applicable standards and the GAHP system, so it is safe for Animal husbandry and area managers.

Direction for the development of the Al Amin Living Lab and Industrial Park Animal husbandry Area building:

- a. Management Building and Laboratory
- b. Warehouse and Animal Feed Processing
- c. Slaughterhouse
- d. Goat shed
- e. Cowshed
- f. Chicken and Rabbit Cages
- g. Biodigester. Detailed specifications are adjusted to the needs of the Animal

- husbandry area (count from the Animal husbandry team)
- h. Grazing Area. Details of the design need to be continued in further research for the landscape design of the Al Amin Living Lab and Industrial Park Animal husbandry area.
  - i. Fodder Planting Land. Details of the design need to be continued in further research for the landscape design of the Al Amin Living Lab and Industrial Park Animal husbandry area.
  - j. Circulation and Landscape of Animal husbandry Areas. Details of the design need to be continued in further research for the landscape design of the Al Amin Living Lab and Industrial Park Animal husbandry area.

#### **Declaration by Authors**

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