

The Ecodesign Concept for *Kondang* Waterfall Ecotourism Object in *Salak II* Resort Area, The *Halimun-Salak* National Park

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Abstract: *Kondang* Waterfall is one of ecotourism objects in *Salak II* Resort Area, The *Halimun-Salak* National Park (HSNP). HSNP is one of 50 National Park in Indonesia with high potential biodiversity. *Kondang* Waterfall is in great demand by visitors, has the potential of a very interesting waterfalls landscape. The aim of this research is to make the design concept for *Kondang* Waterfall Ecotourism Object characteristic. The method used in this research is descriptive qualitative through survey and literature review. The Ecodesign concept of ecotourism object development is more emphasized on circulation form, spatial form, vegetation shape, and facility form. *Kondang* Waterfall area has a height ranging from 1000 m to 1,200 m above sea level (ASL). The slope of *Kondang* Waterfall varies from sloping area (2% - 15%), rather steep area (15% - 40%), steep area (slope > 40%). This area has an area of 330.39 m². High of waterfall 7m, the area of pool is 50 m² with steep and rocky topography. Type of vegetation: the dominant is *puspa*, fern, *kaliandra*, *Africa*, *hanjuang*, *huru*, bamboo. The basic plan concept of ecotourism object planning *Kondang* Waterfall is 'nature character base' that carries the traditional architecture of West Java with *Parahyangan* nuance. . The planned space are welcome area, service area, recreation area, preservation and conservation area, and home stay area. The basic plan concept of building is 'exposed the nature character'.

Keywords: Ecodesign Concept, *Kondang* Waterfall, *Salak II* Resort Area, The *Halimun-Salak* National Park, West Java Traditional Landscape Design.

INTRODUCTION

Kondang Waterfall is one of ecotourism objects in *Salak II* Resort Area, The *Halimun-Salak* National Park (HSNP). HSNP is one of 50 national parks in Indonesia that has a very high biodiversity potential and is representative of the largest tropical forest ecosystem in Java Island. This area also holds the potential for the uniqueness of traditional culture, the beauty of landscape and the stunning natural phenomenon [1]. *Kondang* Waterfall is in great demand by visitors, has the potential of a very interesting waterfall landscape. .

Based on the Decree of the Minister of Forestry dated June 10th, 2003 No. 175/*Kpts-II*/2003 along with the development of the area [1], the HSNP area is set to ± 113,357 Ha. This area has some function, namely: protected area, production forest and limited production forest, originally managed by *Perum Perhutani*.

The HSNP area has been defined as managed by the zonation system, namely: Protected Zone, Wilderness Zone, Utilization Zone and Others Zone (Zone of Rehabilitation, Traditional Zone, Special Zone and Cultural Zone) [1]. This is in accordance with the mandate of Law No. 5/ 1990 on the

Conservation of Biological Natural Resources and its Ecosystem, Government Regulation No. 28/2011 on the Management of Nature Reserve and Nature Conservation Area, and Minister of Forestry Regulation No.P.56/ MENHUT-I I/2006.

In the framework of preparation and arrangement of spatial functions within the zones of HSNP area, especially in *Salak II* Resort Area, it is necessary to design the site of ecotourism objects. This matter as regulated in Government Regulation No. 36/2010 concerning Exploitation of Nature Tourism at Wildlife Sanctuary, National Park, Forest Park and Natural Park, Regulation of Minister of Forestry No P.48/*Menhut-I I*/2010 concerning Exploitation of Nature Tourism in Wildlife Sanctuary, National Park, Forest Park and Nature Park and Regulation of the Director General of Forest Protection and Nature Conservation No. P.3/I V-SET/2011 on Guidelines for Design of Natural Tourism Management Sites at Wildlife Sanctuary, National Parks, Forest Parks and Natural Parks.

Salak II Resort Area, HSNP is located in Bogor Regency, has ecotourism objects and landscape resources for ecotourism development with its uniqueness. In addition, high visitor intensity in some

ecotourism objects, sustainability and stability of natural resources, management authority status, and the welfare of surrounding communities require good planning and management..

Kondang Waterfall is an ecotourism object that has a waterfall attraction with an area of 330.39 m² [2]. Kondang Waterfall is one of the ecotourism objects frequented by tourists. The number of visits to Kondang Waterfall reached 3,824 people in 2016. Based on visitor trend analysis, Curug Kondang has potential value to visit [3].

Kondang Waterfall Real Carrying Capacity (RCC) is 212 people/day [2]. Kondang Waterfall is in the "limited suitability class" to be developed as an ecotourism area [4]. On the other hand, Kondang Waterfall has good potential to be developed as an ecotourism object [4].

Kondang Waterfall ecotourism object has a natural tropical forest landscape character that can provide motivation for tourists to visit. Kondang Waterfall has the character of a natural waterfall on the valley landform. In addition there is also some character of the build environment character [5].

Human activities that interact with natural landscape areas in Kondang Waterfall in a long time, causing some locations to experience character changes. According to Western [6], character changes can result in damage or destruction of ecosystems through improper development. This condition according to Strake and Simonds [5], need to be modified landscape both to the character of the natural environment and build environment.

. Based on the above matters, it is necessary to conceptualize ecotourism of tourist area development by taking into consideration the landscape capacity, so that tourists can obtain security and comfort [7]. The ecodesign concept undertaken can emphasize ecological design principles and strategies in designing ecosystems, which consider landscape capacity of spatial shape, circulation form, vegetation form, and form of tourism facilities [8, 9, 7] in order to meet a friendly and sustainable integrated environment [10].

Problems of the study

Kondang Waterfall is located in HSNP which has natural tropical forest landscape character as a protected area. The character of the Kondang Waterfall landscape is a natural waterfall area on a valley landform. The Kondang Waterfall area is sloping area, rather steep area, and steep area.

The built environment character, such as the circulation path that is currently not yet have directions and there is no node (stopping area) to enjoy the scenery around the area. The facilities are still many

who do not have a unity of meaning with the surrounding environment.

The comforting situation encourages many visitors come to the area Kondang Waterfall. On the other hand, this area has limited ability to support visitor activity. Activities undertaken by visitors during the tour will have an impact on the biophysical condition and the character of the landscape. Human involvement in development that utilizes natural resources causes many changes in the character of the landscape resulting in the destruction of the ecosystem [11, 12]. The interaction processes that occur in it provide the influence of landscape character values, environmental pollution and ecological degradation [11, 5, 13].

The development of ecotourism areas in national park areas requires protection and enhancement of resource quality [14, 9, 15], requiring good planning and design to minimize the risk of damage [16].

Research Questions

- How the biophysical condition, visual, social and economic aesthetic of Kondang Waterfall area.
- How does the ecodesign concept of Kondang Waterfall in Salak II Resort area, HSNP?

Objectives of the study

This study aims to: (1) analyze the biophysical, visual, social and economic conditions of Kondang Waterfall area; (2) create ecodesign concept of ecotourism object Curug Kondang character.

METHODOLOGY

The method used in this research is descriptive qualitative through survey and literature review. Research location in the ecotourism object of curug kondang, salak mountain resort area II mount halimun salak national park.

The stages of the process undertaken to create an ecodesign concept that are: 1) preparation of mapping the site; 2) site inventory; 3) site analysis; 4) space development program; 5) making function diagrams; 6) making a functional diagram connected to the activity space; 7) the concept of planning; 8) design concepts (preliminary design). The ecodesign concept of ecotourism object development is more emphasized on circulation form, spatial form, vegetation space, and facility form [19].

Preparation of mapping the site

- Making a site inventory is done through the processing of image data SRTM 30 meters. The stages of work performed are as follows:
- Capturing UTM coordinate data for Kondang Waterfall ecotourism object, Salak II Resort Area,

HSNP via Geographic Positioning System (GPS) survey;

- Retrieve the coordinate data of the UTM point of the ecotourism object site;
- Recording of image data for the ecotourism object in question;
- Image data processing for mapping of ecotourism object done in the studio.

• **Site Inventory**

The activities undertaken in the site inventory of ecotourism object include :

- The activity of site character inventory;
- The activity of inventory of biophysical component;
- The activity of inventory of social and cultural components,
- The activity of inventory visual components,
- The activity of inventory of economic activity

• **Site Analysis**

The activities undertaken in the ecotourism object analysis include:

- Landscape character analysis;
- Analysis of potential, constraints, amenity and danger signal of ecotourism object.

• **Plan Concept**

The activities undertaken in making the plan concept of ecotourism object include:

- Space development program;
- Space and activity function diagram.

• **Ecodesign Concept**

The activities undertaken in making the ecodesign concept of ecotourism object include:

- The concept of space composition
- The concept of vegetation composition
- The concept of facilities
- The concept of accessibility and circulation composition.

LITERATURE REVIEW

Natural resources in Salak II Resort Area, HSNP have uniqueness and beauty that must be protected. This is because there is flora and *fauna* biodiversity that found in location as ecotourism object that is very interested by visitors [4]. There are 11 ecotourism objects that have been developed and spread in Salak II Resort Area, HSNP, namely 1) Hot Water Baths Park; 2) Cigamea Waterfall; 3) Ngumpet Waterfall; 4) Seribu Waterfall; 5) Pangeran Waterfall; 6) Muara Waterfall; 7) Cihurang Waterfall; 8) Crater of the Ratu; 9) Campgrounds; 10) Kondang Waterfall; and 11) Alami Waterfall [1].

Established zones in the HSNP Areas are the Protected Zone, Wilderness Zone, Utilization Zone and

Other Zones (Rehabilitation Zone, Traditional Zone, Special Zone and Cultural Zone) [1]. Based on research conducted by Kusumoarto and Ramadan [2], the zones that fall into the appropriate classification are utilization zones and special zones, with ecotourism objects such as Campground, Alami Waterfall, and Ngumpet Waterfall. Zones that enter into the classification according to the conditional are the zone of rehabilitation and special zone, with attractions Cigamea Waterfall, Pengeran Waterfall, Cihurang Waterfall, Hot Water Bath Park, Kondang Waterfall, and Seribu Waterfall. Objects that include the classification are not appropriate just Muara Waterfall. The Ratu Crater goes into the protected zone.

Kondang Waterfall is one of ecotourism objects that have uniqueness and uniqueness as well as dominated by nature tropical landscape character. Kondang Waterfall is a landscape that represents a picture of natural landscape with its total characteristic formed through the integration of processes and patterns of human and nature thereby providing harmony and unity among all the natural elements of its formation [5].

Ecotourism

Ecotourism is a form of tourism activity that is responsible for the preservation of natural areas as an effort to conserve natural resources, benefit economically and maintain cultural integrity for local communities [17, 18, 9, 19, 20].

The design of ecotourism areas should have minimal impact to the environment, have a beneficial impact to local communities, and provide environmental conservation education [5]. Furthermore, Fennel and Eagles [21] suggest that there are six important principles in the implementation of ecotourism in relation to the sustainability of destinations as follows: (1) to minimize the negative impacts of their presence on the environment of tourist destinations and local people, (2) travel excursions and local uniqueness, (3) maximizing the initial and long-term participation of local communities, in decision-making processes related to ecotourism implementation, (4) contributing to protected conservation efforts, (5) providing economic benefits rather than simply diverting communities from their traditional jobs, (6) open opportunities for students, local people and tourist workers to take advantage of the beauty of natural resources.

Landscape Character

Kondang Waterfall has natural landscape tropical forest landscape character. Kondang Waterfall landscape with its total characteristics is formed through the integration of processes and patterns of human and nature so as to provide harmony and unity among all the natural elements of its formers [5]. All landscape areas have repetitive features that contribute

to or reduce the overall quality of an area [6].

The landscape character of Kondang Waterfall is formed from tropical forest landscape type, is a recognizable real pattern of elements that occur consistently within a landscape type, which is created from a landscape formation formed from human activities that interact with the land in the long period enough [6].

Development of Kondang Waterfall area as an ecotourism area requires an effort to protection the character and quality improvement, so visitors gain comfort, tranquility and experience in traveling. It also requires the assessment of the desired landscape character to make landscape modification decisions [7, 5].

Some of ways to modify the natural landscape are: 1) eliminating elements that interfere with natural landscape characters; 2) a positive element accentuation that supports natural landscape characters; 3) landscape alteration that provides security to landscape characters; 4) intensification of landscape forms to strengthen the character of the landscape. Several ways are done to modify the build environment, area: 1) the suitability between the built environment and the natural landscape character; 2) harmony between the built environment and the natural landscape character; 3) contrast between the built environment and the natural landscape character.

Ecodesign Concept

The systematically ecological design concept sensitive to environmental needs and human needs, cultural diversity, as well as within a wider range consider the relationship between humans and the environment [22]. To minimize the impact of the damage and integrate with life processes it is necessary to make the concept of development design of the area in the form of ecological design concept [10].

Ecodesign concept is a landscape development model that uses ecological and strategic design principles in designing ecosystems so as to meet environmentally friendly and sustainable environments. The design process will minimize the reduction of non-renewable resources, protection, ecosystem quality improvements [23] and minimize fragmented resources [10, 11]. The indicators used in applying the concept of ecodesign concept in the area to be developed according to Van der Ryn and Cowan [10] as follows:

- Solving the problem should be grounded from the place where the designer is designed. Understanding of site characteristics, surrounding environmental conditions, and site users is the key

to information for design (Solution Grows from Place).

- Design that considers and takes into account the integrity of the ecosystem (Ecological Accounting Informs Design).
- Design should always consider sustainability (Design with Nature).
- Design is a process of participatory activity of all stakeholders (Everyone is a Designer).
- The design should consider the cycle of natural processes (Make Nature Visible)
- While the principles of ecodesign by Beck and Franklin [24]:
- The selection of plants should be in accordance with the local environment (Right Plant Right Place)
- Plants with different characters that grow together in a community environment (Working with Plant Populations and Communities).
- Principles that take into account the existence of competition in the plant population because the existing resources are limited to create diversity. (Competition and Assembling Thight Communities).
- The development and management of ecosystems concerns the interconnectivity of living things in an important ecosystem (Designing and Managing Ecosystem).
- Biotic and abiotic role with high biodiversity level (Biodiversity for high functional landscape).
- Principles that encourage the ability to improve the quality of water and soil on the footprint (Promoting Living Soil and Health Water)
- Integrating connectedness between organisms on the site, so as not to disrupt the existing food chain (Integrating Other Organism).
- Take into account the disturbance that occurs in the development with the succession process that occurs (Counting on Disturbance and Planning for Succession).
- Applying the ecology of the landscape is the study of the relationship between organisms in an ecosystem (Landscape Ecology Applied).
- Dynamic landscape development for a global change era (Creating Landscape for An Era of Global Change).

RESULTS

Research Location

The Salak II Resort Area, HSNP is located at: 106° 36 '30' BT to 106° 45' 55 " BT and 6° 31 '0' LS to 6° 47' 15 " LS (Figure 1). Kondang Waterfall is at 686899.05 LS and 9259413, 24 BT (Figure 2). The land cover around Kondang Waterfall is a natural forest and a little mixed plantation.

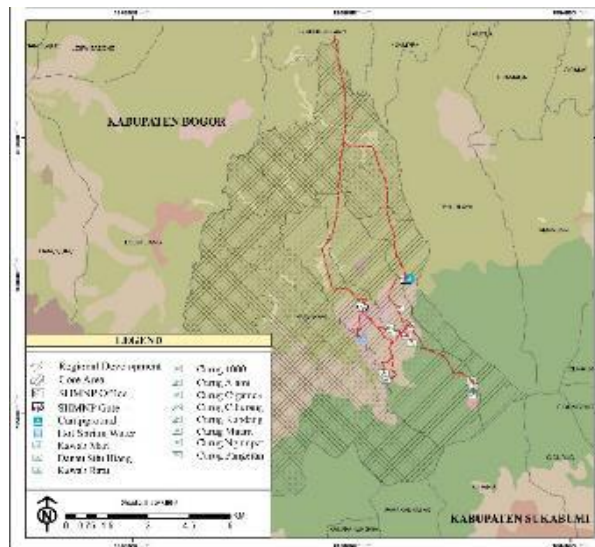


Fig-1: Salak II Resort Area, HSNP
 Source: Kusumoarto and Ramadhan (2016)

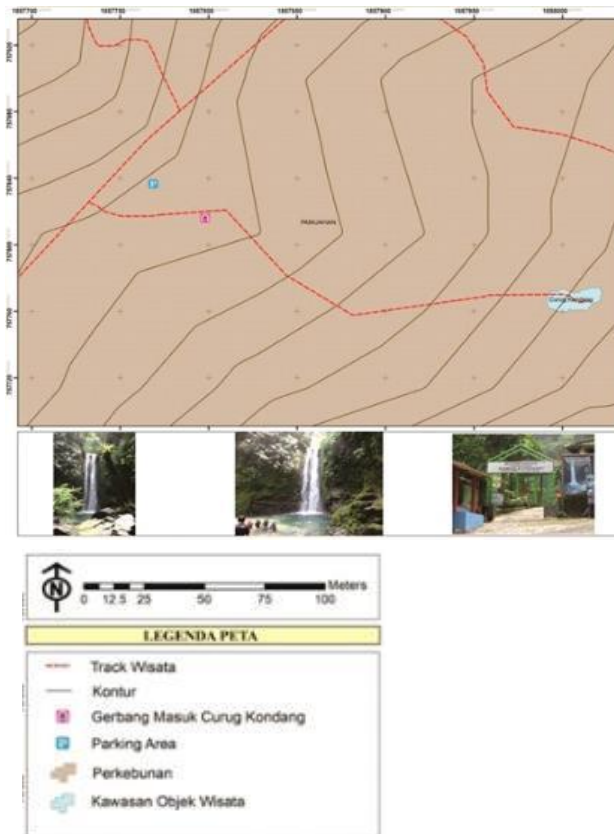


Fig-2: Kondang Waterfall Location

Topografi

Kondang Waterfall has an altitude ranging from 1000 m to 1,200 m above sea level (Figure 2). Kondang Waterfall has a sloping slope ranging from slightly sloping (slope 2% - 15%), sloping (slope 15% - 40%), and steep (slope > 40%).

Hidrology

In Salak II Resort Area, HSNP there are two

Main Rivers namely Cikuluwung River and Cigamea River. Both boils down to Cianten Sub-watershed. Cikuluwung River drainage comes from Kawah Ratu where the water is physically reddish because it contains sulfur. Cigamea River Water comes from the buffer area of Mount Salak where the water condition is clear and its tributaries are widely used by the people who are around this river.

Accessibility

Kondang Waterfall can be reached via: *Bogor - Cibungbulang - Pamijahan - Gunung Salak Endah - Kondang Waterfall*, or via: *Bogor - Cibatok - Gunung Picung - Gunung Salak Endah - Kondang Waterfall*. From the east gate: *Bogor - Taman Sari - Gunung Bunder - Gunung Salak Endah - Kondang Waterfall*.

The location of this object is approximately 38 km from the city of Bogor to the gate of *Gunung Salak Endah* Tourism Area. Next from the gate is approximately 2 km to arrive at the gate Kondang Waterfall. The journey continues with a path along the track (track) as far as 200 m to arrive at the location Kondang Waterfall. Public transportation to get to the location is public transportations (Figure 3).



Belum adanya trayek yang teratur. Banyak warga yang memanfaatkan keberadaan omprengan (angkutan dengan plat nomor hitam) dan juga ojek. Doc. Cv. IMAYA, 2003

Sempitnya jalan, sangat rawan kemacetan juga membahayakan bagi pengguna jalan lainnya. Doc. Cv. IMAYA, 2003

Fig-3: Transportation and road network

Source: Private document (2017)

Facilities and Infrastructures

The existing facilities and infrastructures in Kondang Waterfall are still said to be quite simple, because it is classified as a new object. Facilities provided include vehicle parking area, entrance gate, ticketing, and track to location of waterfall. In around the object there are also several small tent stalls owned by local communities.

Visitors

Kondang Waterfall is an ecotourism object that offers the beauty of waterfall around the cliff. The water flow is quite large, although the height of the cliff is not too high, with the area of the pond is not too wide. Kondang Waterfall used to be known by the community with Ngumpet Waterfall II due to its somewhat hidden location. To be more popular again, the name of the waterfall changed to Kondang Waterfall.

Tourists who visited to Kondang Waterfall came from Jakarta, Bogor, Depok, Tangerang and Bekasi (Jabodetabek). Visiting motivation for most visitors is to refresh or refresh from daily routine, and the nearest location from Jabodetabek. Kondang Waterfall itself has not been too many visitors because it is still less popular with other waterfalls in the area of Salak II Resort Area, HSNP. Activities undertaken by visitors were enjoy the beauty of nature, picnics,

hanging out (sitting and chatting), and photographs. The group consists of groups of students, groups of students, and community entourage.

Landscape Potential

Kondang Waterfall has landscape potential (natural phenomenon, green open space, *flora*, and *fauna*) which is good enough for ecotourism development [5]. Kondang Waterfall has the highest natural symptom potential compared to other ecotourism object in the resort area of Salak II Resort Area. Kondang Waterfall has an advantage of assessment on natural beauty symptom indicator as well as high adaptation level to other visitor arrivals. Kondang Waterfall get high scores because the physical, ecological, and psychological carrying capacity of visitors is still not exceeded.

Kondang Waterfall has the same green open space (GOS) characteristic as ecotourism object, so its uniqueness and its scarcity do not differ much from other ecotourism object. Similarly, the value of seasonalitas, tropical rain forests that in fact green throughout the year to make visitors can enjoy the same green conditions at any time, unless it is heavy rain and floods occur. The value of the beauty of Kondang Waterfall GOS can be said to be very high because the green space that has the composition of shades, colors,

and GOS spaces is still natural, unspoiled humans, with the dynamics of the process of GOS is very integrates with the natural potential waterfall, thus creating a whole GOS is beautiful and reconcile. Kondang Waterfall high enough adaptability associated with the arrival of tourists who do not alter or affect the morphology, physiology, and ecological processes passed by the GOS.

The dominant vegetation types are puspa, fern, kaliandra, Africa, hanjuang, huru, bamboo. The sensitivity value of vegetation in Kondang Waterfall deal with tourists is quite high. This is because the type of forest cover vegetation is considered a hardwood tree that tends to hold the presence of human activity around it. Then, high sensitivity values are also seen from indicators of undisturbed growth physiological, morphological, generative flora when in physical contact.

The unique value of the *fauna* potential in Kondang Waterfall is quite good. This uniqueness comes from a number of *fauna* that can be found, such as Java Eagle and Java Owa. These *fauna* can be found in certain conditions, such as when few visitors come or when the *fauna* is foraging. This *fauna* is considered to have a high sensitivity level so it is difficult to be seen continuously throughout the day by visitors. The *fauna* is also included in the protected *fauna*.

Suitability of Site Development

Ecotourism areas to be developed adapted to the potential of resources and designated. This is because these activities require the requirements of resources

and environment in accordance with the tourism object that will be developed. The ecotourism object Kondang Waterfall is in the classification as limited suitability.

Land has greater limits to maintain the level of development that must be applied. Barrier will reduce tourism activity or profit. The ecotourism objects that are in the classification as limited suitability are located in the rehabilitation zone and the special zone, and the distance from the road to the object 100 - 300 meters. The erosion hazard index is high so that some of these parameters limit the development of ecotourism area at Salak II Resort Area, HSNP. Land or environment will be damaged if excessive development [25].

Landscape Character

In the area of Curug Kondang spread is natural landscape and build environment. The natural landscape is a tropical rain forest that surrounds the area, curugs, and streams of river bodies (Figure 4). The scattered build environment is the main entrance, motorcycle parking, house building next to the gate, walkways, food stalls, mosque building, gazebo, and toilet building (Figure 5).

River water bodies and tropical rain forests are the major feature of landscape character. Waterfall and build environment are minor feature of landscape character. The landscape character of the natural form, the destruction of the natural form, the alteration of the natural form, the intensification and enhanced visual quality of intensively for natural landscape. For built environment modified such as suitability, harmony, and contrast (table 1).



Fig-4: Natural Landscape Character
a). tropical forest; (b) waterfall; (c) river water bodies
Source: private document (2017)

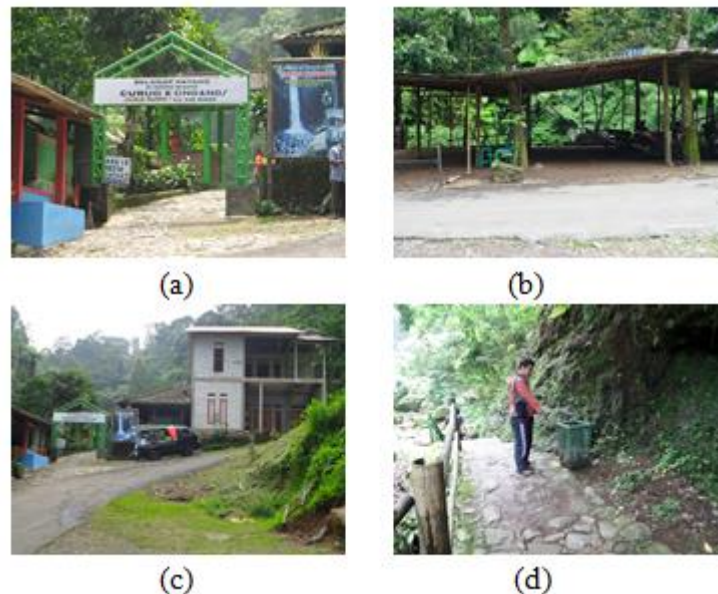


Fig-5: Built Environment Landscape

(a) gate; (b) parking area; (c) housing; (d) pedestal; (e) food stall; (f) mushola; (g). gazebo; (h) toilet

Source: private document (2017)

- Minor feature

- a. Natural landscape

- a.1. Waterfall element

Waterfall element is a natural landscape element. Modifications made are to protect both the clarity of water, tropical rain forest vegetation that is around and rock cliffs around it.

- b. Build environment

- b.1. Gate

Gate is the entrance to the Kondang Waterfall. The gate design should be modified to give the impression of harmony and suitability with the existing natural environment and a little contrast.

- b.2. Parking area

Currently parking is used for motor vehicles. In the holiday season, many car vehicles park on the sides of the road due to lack of capacity. The current motorized parking lot should be removed and moved to the north. Another thing is also done for intensive visual quality improvement by creating suitability and harmony with the surrounding environment and giving a little contrast as a point of interest.

- b.3. Housing

The existing house is a resident's house that has long inhabited the location. In picture 5c it appears that the house's buildings are destroying natural landscape scenery. In this case it is necessary to eliminate inappropriate elements and intensive visual quality improvement through building design that suitability and harmony with the natural environment, as well as providing non-

dominant contrast.

- b.4. Pedestal

Pedestal building (pedestrian facilities / pedestrian) using natural stones. The impression given aksentuation of natural form. The use of material is maintained for visual visual enhancement with a design that is suitability and harmony with the natural environment and little contrast.

- b.5. Food stand

Food stalls are buildings owned locals to peddle food and drink. Food stalls are permanent and some are not. Some food stalls have an impression that integrates with their natural environment but some do not. The use of bamboo and color materials is a design idea to give the impression of suitability and harmony with the environment.

- b.6. *Mushola* (Praying Building)

The place of praying is often used by visitors. The use of bamboo materials and wall colors provide intensive visual quality improvement, is a design idea to give the impression of suitability and harmony with the environment. Food stalls that interfere with the visual nature of the environment should be eliminated.

- b.7. *Gazebo*

Gazebo is a building for visitors resting places such as sitting, chatting and eating snacks and taking a break. Its current placement should be moved and more intensively placed in spaces adjacent to other build environments. Proper placement can improve the visual quality intensively so that it can do suitability and harmony design with

the surrounding environment and a little contrast..

b.8. Toilet

The toilet building is a permanent building. It is necessary to eliminate inappropriate elements and the use of materials and colors that enhance the visual quality intensively by presenting a suitability and harmony design with the environment and providing a little contrast.

- Mayor feature

- a. Natural landscape

- a.1. River

The river is a natural river. Modifications made are to protect both the clarity of water, tropical rain forest vegetation that is around and rock cliffs around it. The surrounding environment is given a stronger and more intensive form of natural accentuation. Another thing that is done is to improve the natural visual quality of the natural environment by presenting natural elements that match and harmony with the surrounding environment.

- a.2. Tropical Forest

Tropical Forest is a natural forest on GHSNP. Modifications made are to protect both the clarity of water, tropical rain forest vegetation that is around and rock cliffs around it. The surrounding environment is given a stronger and more intensive form of natural accentuation. Another thing that is done is to improve the natural visual quality of the natural environment by presenting natural elements that match and harmony with the surrounding environment. Contrast can be presented to give the impression of 'surprise' to tourists through the color of leaves and flower colors and tree trunk color.

Site Analysis

Kondang Waterfall has some potentials resources and facilities: 300 m2 parking area for wheel 2 and wheel 4, flat topography, Left River and MCK building, dominant vegetation spread ie *puspa*, fern, *kaliandra*, *Africa*, *hanjuang*, *huru*, *bamboo*. High waterfall 7 meters, pond area 50 m². Rocky steep topography. Some problems found in Kondang Waterfall

Table-1: Landscape Character Protection and Modification in Kondang Waterfall

No	Landscape Character	Protected The Landscape Character	Elimination of Incongruous Element	Accentuation of Natural Form	Destruction of The Natural Form	Alteration of The Natural Form	Intensification	Enhanced Visual Quality Intensively	Suitability	Harmony	Contrast
1.	Minor feature										
a.	Natural Landscape										
a.1	Waterfall Element	v		v			v	v			
b.	Build Environment										
b.1	Gate							v	v	v	v
b.2	Parking		v					v	v	v	v
b.3	Housing		v					v	v	v	v
b.4.	Pedestal			v				v	v	v	v
b.5.	Kios makanan		v	v				v	v	v	
b.6	Mushola			v				v	v	v	
b.7	Gazebo		v					v	v	v	v
b.8	Toilet		v					v	v	v	v
2.	Mayor Feature										
a.	Natural Landscape										
a.1	River	v		v			v	v			
a.2	Tropical Forest	v		v			v	v			

- The pedestal is too steep to require hand railing for visitor handling, as it is quite dangerous especially during the rainy season as seen in Figure 6. The use of path materials should not use materials that peddle pedestrians such as the use

of slippery "stone templek" during the rainy season.

- Unstructured parking location (Figure 6). There are several parking locations managed by the local community. The obscurity of the entrance

and exit leads to a queue when the vehicle will be in and out.

- Irregular traders' stalls as shown in Figure 6. There are several locations of food vendors: 1) near the parking lot; 2) on the trail path to the famous curug attractions; 3) at the location of the famous waterfall attractions.
- The steep slopes of land located on the left and right of the ecotourism object (Figure 6). The slope of this land at a certain time will celebrate visitors and often erosion during the rainy season. In this case effort is needed to prevent erosion while maintaining existing landscape elements (natural rocks and plants and watercourses) and not changing the landscape and placing the building elements.

Some of the potential that is in the area of Kondang Waterfall ecotourism object are:

- Kondang Waterfall is a waterfall attraction in Salak II Resort Area which also has its natural beauty. This waterfall, interesting to visit on a limited basis. Because the natural conditions and paths are steep and not too wide.
- The beauty and uniqueness of biodiversity (*flora* and *fauna*). Along the path of the path and at the location of the attractions will see the beauty and uniqueness of *flora* and *fauna* which is

characteristic of tropical forests. Also found beautiful scenery at certain points.

Plan Concept

The basic plan concept of ecotourism object planning Kondang Waterfall is 'nature character base' that carries the traditional architecture of West Java with Parahyangan nuance. The planned space are welcome area, service area, recreation area, preservation and conservation area, and home stay area. The basic plan concept of building is 'exposed the nature character'. The principles in this landscape planning are as follows:

- Avoid as much as possible changes in the existing landscape in the tourist area.
- Using local crop elements.
- Using elements of landscape building materials that do not damage the natural conditions.
- Natural conditions are a potential that must be protected and not changed.
- Protection of the number and value of the quality of flora and fauna components that present in the area.
- Protection of hidrology system.
- Protection of soil fertility.
- Protection of geological, landform and slope of land stability.

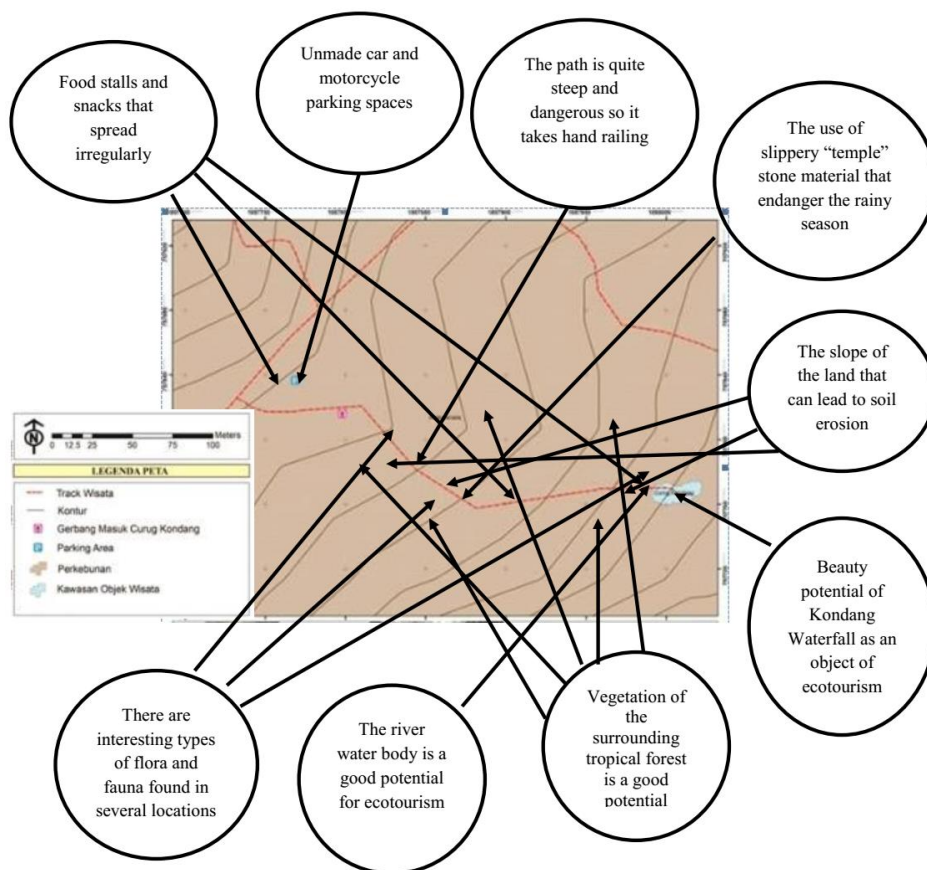


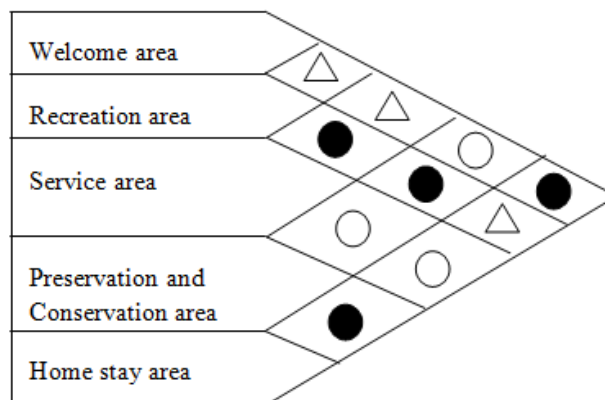
Fig-6: Analysis of the potential and constraints of Kondang Waterfall ecotourism object

- Protection of microclimate conditions.
 Areas to be developed in ecotourism object Curug Kondang are: 1) welcome area; 2) recreation area; 3) service area; 4) preservation and conservation

area; 5) home stay area. Between one area and the other has a close relationship between areas (Figure 7). Table 2 shows details of planned activities and facilities in each area.

Table-2: Activities and facilities

No	Area	Activities	Facilities
1.	Welcome area	Receptioning	Gate
			Ticket booth
			Motor parking
			Car parking
			Pedestal
2.	Recreation area	Enjoying the environment entertaining	Stage
			Gazebo
			Office
			Pedestal
3.	Service area	Rest Eating and drinking	Gazebo
			Small store
			Toilet
			Mushola
			Kitchen
4.	Preservation and Conservation area	Preservating and conservationing	Tropical forest vegetation
			River bank
			Waterfall
			River stone
			Pedestal
5.	Home stay area	providing lodging facilities	Local homestay



Where:
 ● : Interactive; ○ : adjacent; △ : remote

Fig-7: Spatial Relationship

Spatial Computation

The spatial composition is allocated more to the preservation space and conservation of tropical forest vegetation that has excellent biodiversity. Existing vegetation must be protected and maintained, as well as ecotourism potential also serves to maintain environmental sustainability and function as wild fauna

habitat as endemic fauna of HSNP.

The spatial allocation for lodging is at the smallest percentage of land use compared to other rooms. Welcome area and recreation area occupy the same percentage of land use with different functions (Figure 8). Percentage of land use for each space can be seen in Table 3.

Tabel-3: Percentage of land use in each area

No.	Area	Percentage of Land Use (%)
1.	Welcome area	0,10
2.	Recreation area	0,15
3.	Service area	0,025
4.	Preservation and Conservation area	0,70
5.	Home stay area	0,025
	Total	1,00

Landscape Design Concept

Kondang Waterfall landscape has a natural value (natural phenomena), the existence of flora and fauna and good community life in support of ecotourism development in Kondang Waterfall. Its development requires the concept of design spaces of activity, facilities in the outer space and good circulation.

- **Landscape planning in activities areas**

Landscape planning is carried out in the gate, parking, and service area of Kondang Waterfall (Figure 9):

- The landscape plan at the entrance consists of a 1.5 m wide walkway plan and a gate ornament and office arrangement plan. The types of plants planned are *Erythrina cristagalli*, *Canna* sp, and *Spathyllum* sp as well as grasses planted in front of the gate.
- The landscape plan at the car park and the motorcycle park consists of pavement parking plans and guard posts. In addition the planned plants consist of *Mimusops elengi*, *Manilkara kauki*, and *Erythrina cristagalli* as well as several areas for grass planting
- The landscape plan in the service area consists of a pavement plan, a gazebo arrangement, a mosque, an office, a kitchen, a toilet, a shop, a lawn, a fountain pool, a *Manilkara kauki* plant and an

Erythrina cristagalli.

- **Planning for Outdoor facilities**

The planned facilities are based on the use of developed activity areas.

- Facilities in the entrance gate consist of post in the entrance, entrance ornaments, and office.
- Facilities in car and motorcycles parking areas are just a guardhouse.
- Facilities in the restaurant room consist of office buildings, mosque buildings, kitchen buildings, building toilets, building shops, and gzebos.

- **Circulation planning**

The planned circulation consists of circulation in the car and motorcycle parking and circulation from the gateway to the restaurant as well as the circulation located in the service area.

- Circulation in the car and motorcycle parking has one entrance and exit are the same? This circulation is planned to facilitate entry and exit of the vehicle. Plants planned in the circulation space consist of *Mimusops elengi*, *Manilkara kauki* and *Erythrina cristagalli*.
- Circulation in the service area is a circulation connecting between existing buildings and forming outer space (lawn and pond) Plants planned are *Erythrina cristagalli*.

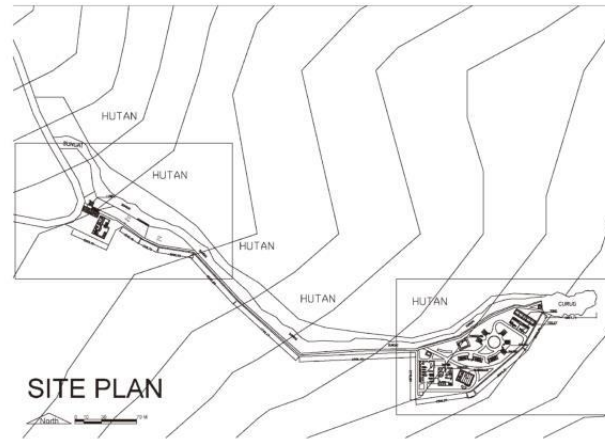


Fig-8: Spatial competition of Kondang Waterfall ecotourism object

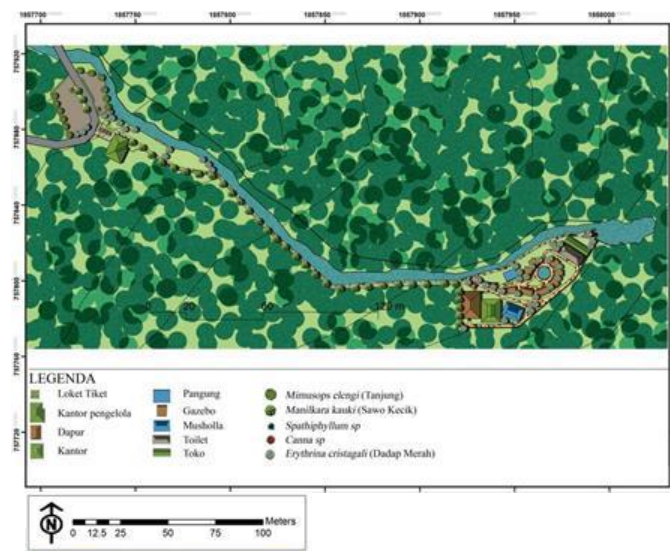


Fig-9: Landscape Design Concept of Kondang Waterfall Area

Architecture Design Concept

The basic concept of building planning in Kondang Waterfall ecotourist area is 'exposed the nature character'. A 'natural' exposure is often shown in the planning of the building and the facilities within its space. Overall the theme of the region still carry the traditional architecture, parahyangan nuance into the main concept offered (Figure 10). The principles in doing this building planning are as follows:

- Avoid as much as possible changes in the landscape to be built on the building above.
- Using elements of local materials.
- Using elements of building materials that do not damage the natural conditions.
- Natural conditions are a potential that must be utilized for 'seeting' the building.
- Protection of quantity and value of quality of component used for building.
- Protection of the value of cultural and historical buildings in the region.
- Protection of hydrological systems from, to and out of the building.

- Protection of geological stability, landform and slope of land.
- Protection of micro-climate conditions utilized for space within the building.

Kondang Waterfall is one of the waterfall areas that have a strategic location. Its location is close to the main road, making it easier for tourists to visit this area. Famous waterfall has a land that is not too large building.

The design of Kondang Waterfall ecotourism object is planned to have interesting architectural attractiveness and modern but still pay attention to local architectural policies that can provide beauty and not damage the nature. Overall the theme of the area still carries the traditional architecture (Figure 11), parahyangan nuance into the main concept on offer. Based on survey results, it is necessary to improve some supporting facilities such as toilets, playgrounds and religious facilities. Here are the proposed development and structuring of the famous curug area, including:

- Improvement of the gate design, in the pedestrian area is given canopy with creeper that serves as a shade while giving the impression of beautiful and comfortable (Figure 12).
- The need for an expansion of the parking area, an existing parking area that can accommodate 20 four-wheeled vehicles and 50 two-wheeled motor vehicles (Figure 13)..
- Repair and extension of pedestrian path (pedestrian) as wide as 2 meters.
- Improvement of toilet design and rinse room in the waterfall area.
- Giving garden chairs every 50 meters distance as a shelter as well as a rest area for visitors.
- Provision of gazebo around the waterfall as a sitting/ rest room for visitors.
- Inside the waterfall area will be added culinary zones and repair of worship facilities (musholla). Restaurant consists of the main building consisting of the manager room, cashier, kitchen, warehouse, employee space, buffet room and serving table (for 4, 6, 8 and 12 visitors). While gazebo-gazebo is also provided for visitors who consist of family 6-8 people, which is planned to be placed on a fish pond (Figure 13).
- Rivers will be created as outbound areas.
- Making parks along the road to the pool carrying thematic concepts including flowering plants, fruit plants and medicinal plants.
- Improvement of dikes along rivers and slopes to prevent landslides.
- Waterfall condition is maintained so that natural nuance still felt.



Fig-10: Architectural design concept with parhyangan nuance



Fig-11: The concept of architectural design that carries the traditional architecture

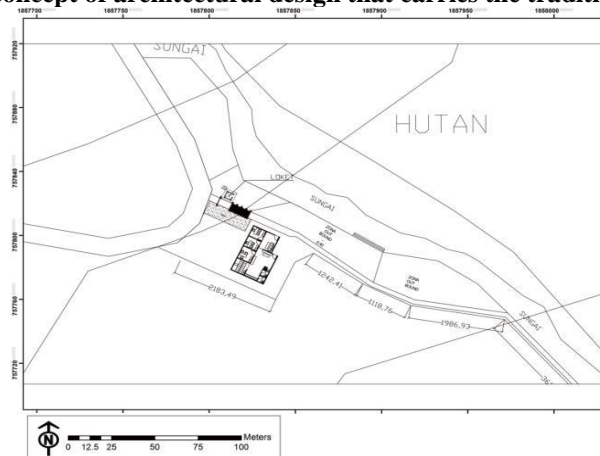




Fig-12: The gateway area in the receiving room of Kondang Waterfall

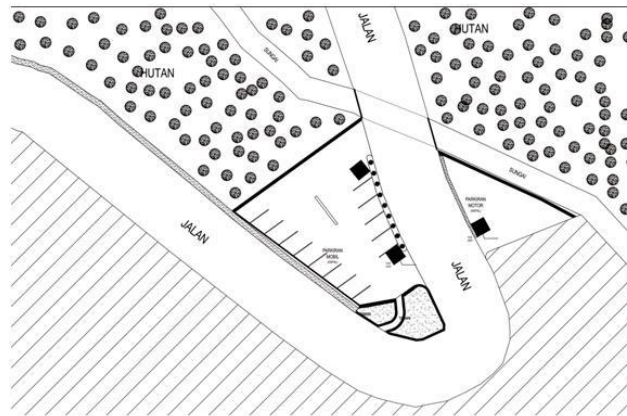


Fig-13: Parking area for cars and motorcycles in Kondang Waterfall

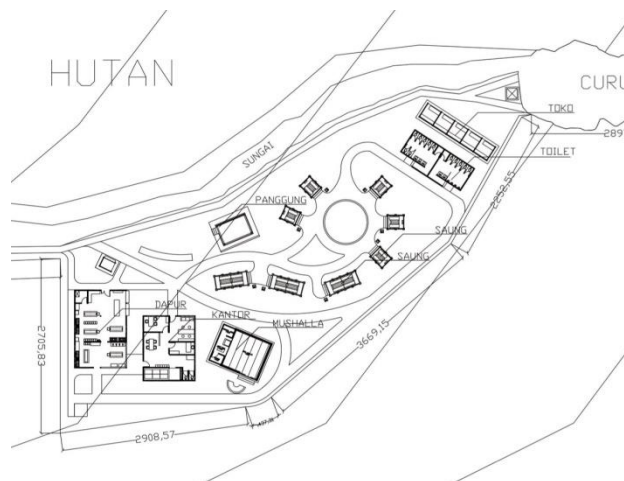
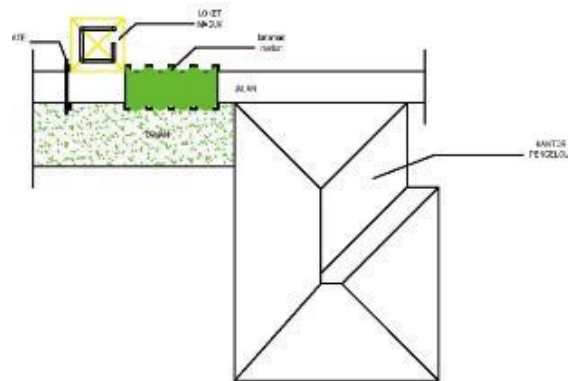




Fig-14: Restaurant Area in Kondang Waterfall



ENTRANCE
SKALA 1:30 CM

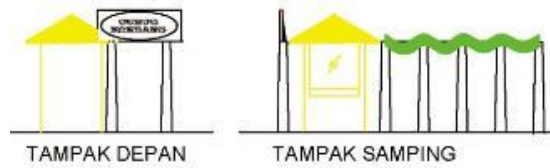
Facilities Design Concept

The planned facilities at Kondang Waterfall ecotourism object are the gate building, the management office located in the welcome area, the management office located in the recreation area, the praying room, the stage, the kitchen, the kitchen, the toilet. The planned facade buildings provide a suitability and harmony character with the surrounding

environment with contrasting shapes and colors that do not diminish the traditional impression of parahyangan nuance. This character is the uniqueness and uniqueness that appear on the design of Kondang Waterfall ecotourism object. The design of these facilities can be seen in Figures 14, 15, 16, 17, 18, 19, 20, 21, and 22

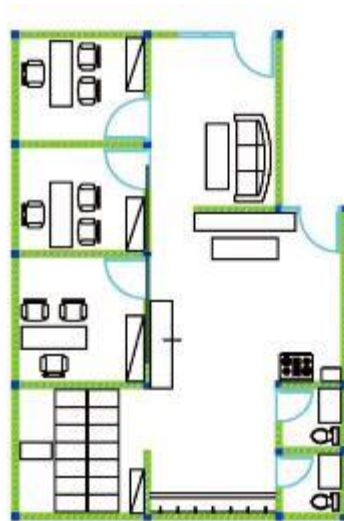


TICKETING
SCALE = 1: 16 CM



LOKET MASUK
SKALA 1:16 CM

GATE ILLUSTRATION
SCALE = 1: 16 CM
Fig-15: Facilities gate

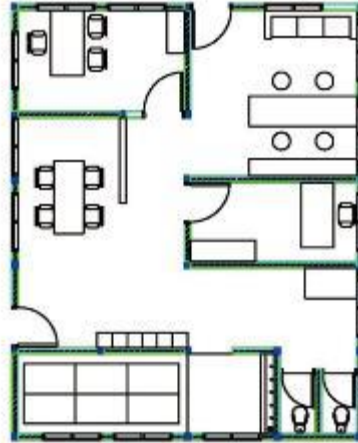


DENAH KANTOR PENGELOLA
SKALA 1:16 CM

ENTRANCE
SCALE = 1: 30 CM

MANAGEMENT OFFICE SITE
SCALE = 1: 16 CM

Fig-16: Office management facilities in the reception room

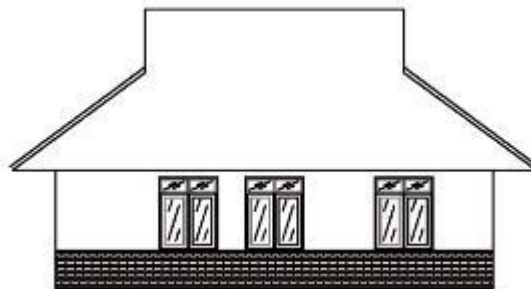


DENAH PENGELOLA RESTO
SKALA 1:16 CM

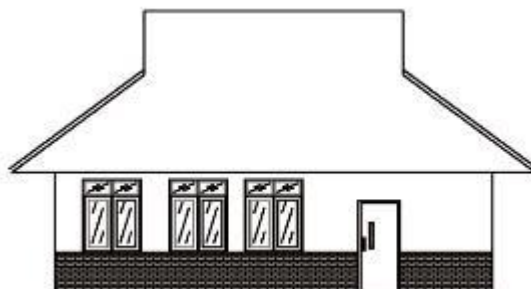
**RESTO MANAGEMENT PLAN
SCALE = 1: 16 CM**

**RIGHT SIDE VIEW
SCALE = 1: 10 CM**

**FRONT VIEW
SCALE = 1: 16 CM**

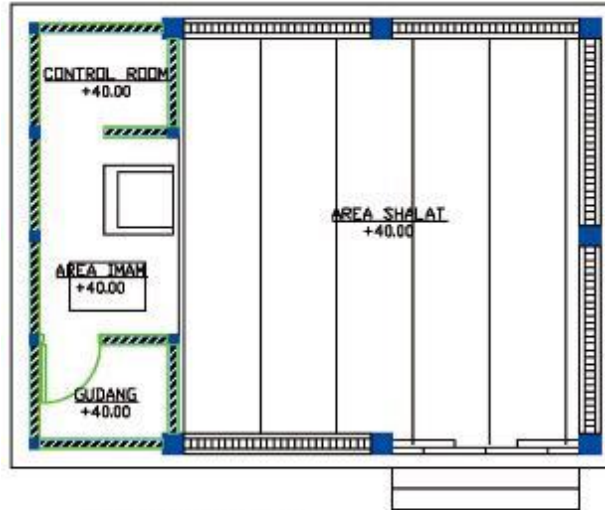


**RIGHT SIDE VIEW
SCALE = 1: 16 CM**



**LEFT SIDE VIEW
SCALE = 1: 16 CM**

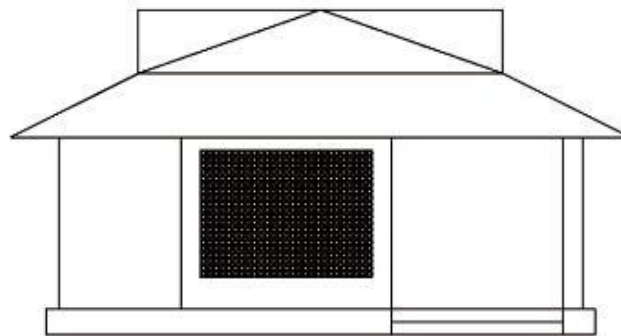
Fig-17: Office management facilities in the recreation area



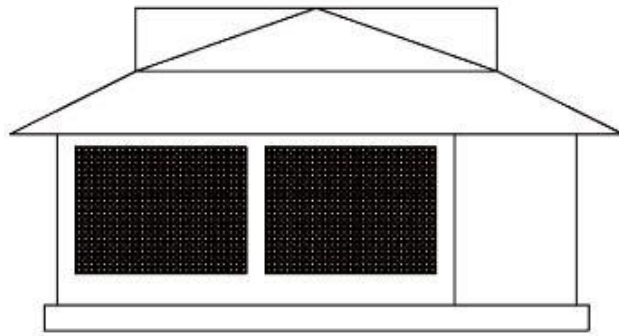
DENAH MUSHOLA
SKALA 1:10 CM

MOSQUE PLAN
SCALE = 1: 10 CM

WUDLU AREA PLAN
SCALE = 1: 10 CM



FRONT VIEW
SCALE = 1: 10 CM



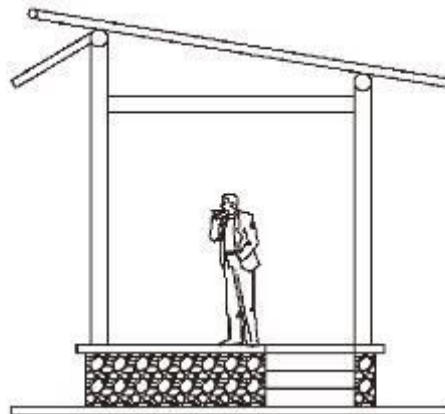
TAMPAK BELAKANG
SKALA 1:10 CM

BACK VIEW
SCALE = 1: 10 CM

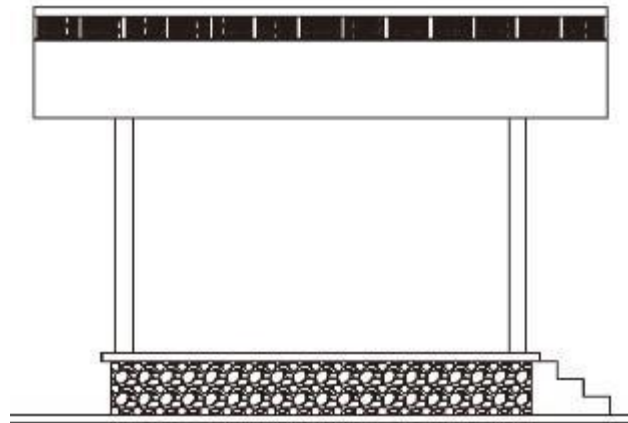
Fig-18: Mushola in the recreation area



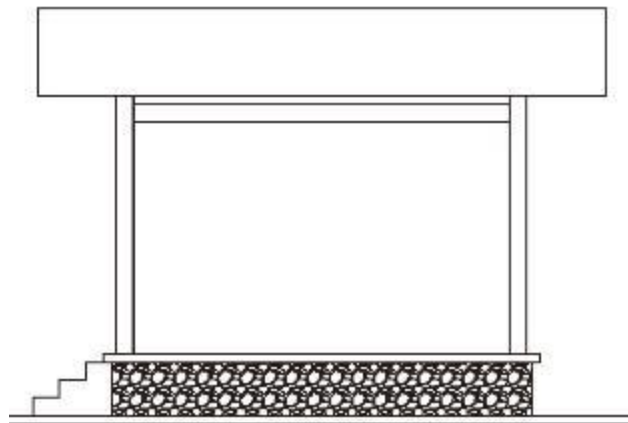
STAGE PLAN
SCALE = 1: 8 CM



LEFT SIDE VIEW
SCALE = 1: 8 CM

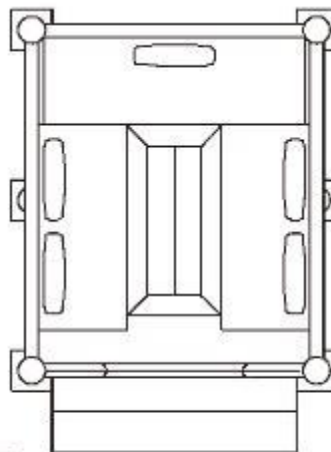


FRONT VIEW
SCALE = 1: 9 CM

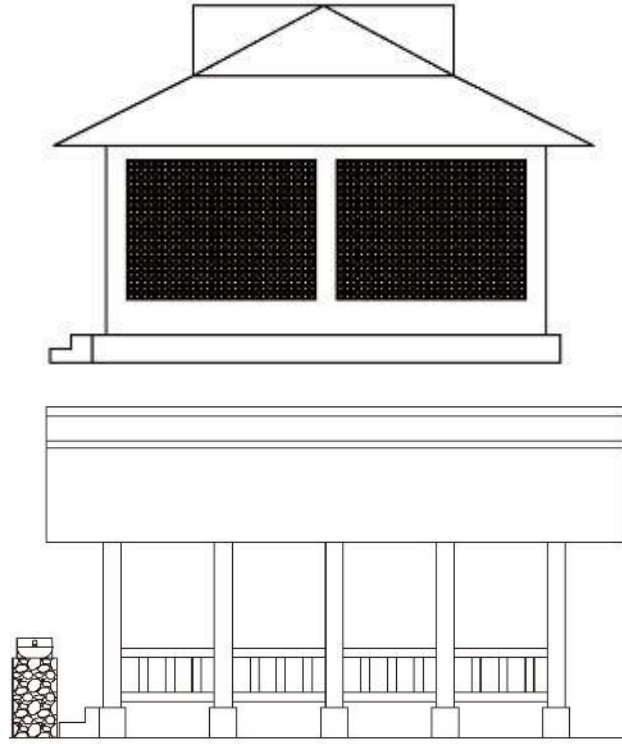


BACK VIEW
SCALE = 1: 8 CM

Fig-19: Stage facility in recreation area

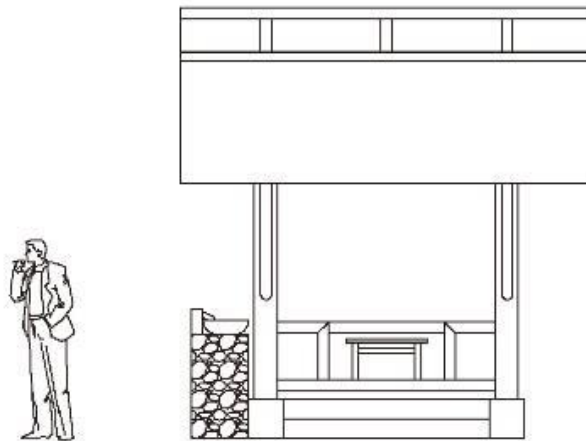


DENAH SAUNG 1
SKALA 1:5 CM

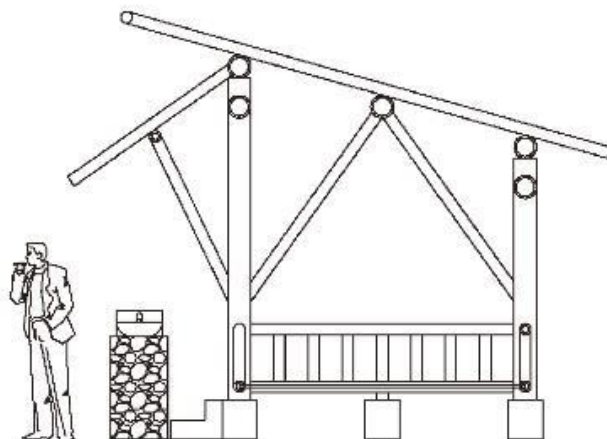


TAMPAK DEPAN
SKALA 1:5 CM

GAZEBO PLAN 1
SCALE = 1: 8 CM

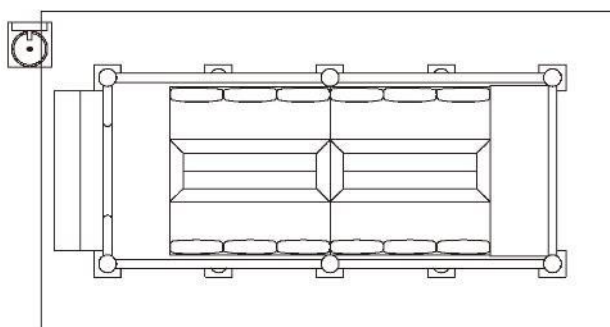


FRONT VIEW
SCALE = 1: 5 CM



SIDE VIEW
SCALE = 1: 5 CM

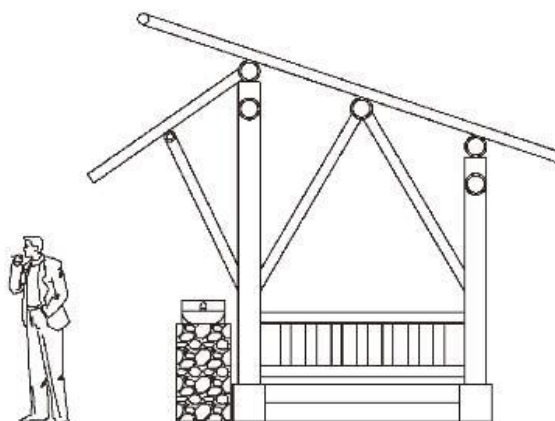
Fig-20: gazebo facility 1 in recreation area



DENAH SAUNG 2
SKALA 1:5 CM

GAZEBO PLAN 2
SCALE = 1: 5 CM

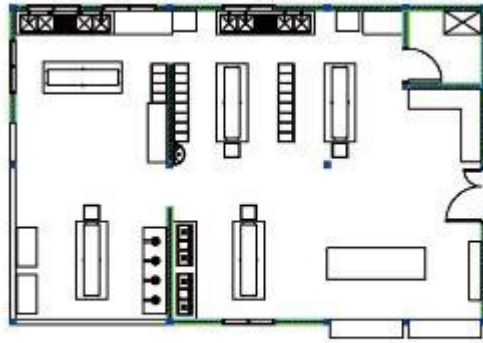
FRONT VIEW
SCALE = 1: 5 CM



TAMPAK SAMPING
SKALA 1:5 CM

SIDE VIEW
SCALE = 1: 5 CM

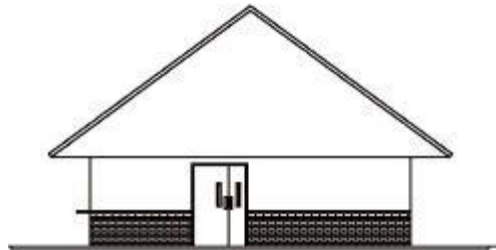
Fig-21: Gazebo Facility 2 in recreation area



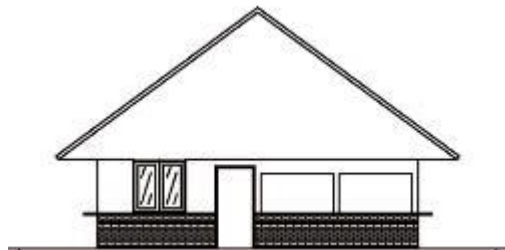
DENAH DAPUR
SKALA 1:16 CM

**KITCHEN ROOM PLAN
SCALE = 1: 16 CM**

**KITCHEN ROOM FRONT VIEW
SCALE = 1: 16 CM**

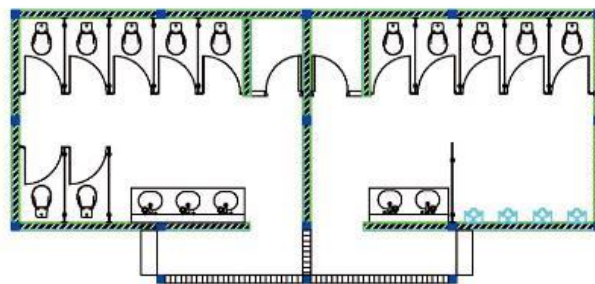


**KITCHEN ROOM RIGHT VIEW
SCALE = 1: 16 CM**



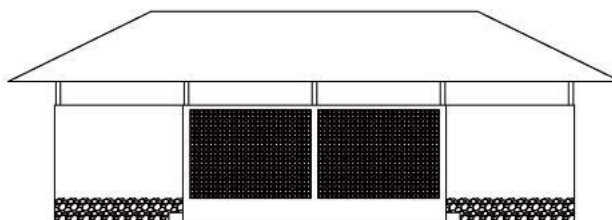
**KITCHEN ROOM LEFT VIEW
SCALE = 1: 16 CM**

Fig-22: Kitchen room facility in recreation area

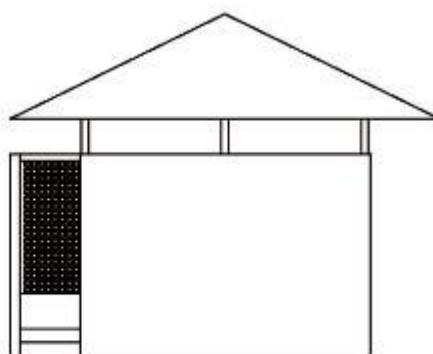


DENAH TOILET
SKALA 1:10 CM

REST ROOM PLAN
SCALE = 1: 10 CM



REST ROOM FRONT VIEW
SCALE = 1: 10 CM



REST ROOM SIDE VIEW
SCALE = 1: 10 CM

Fig-23: Rest room facility in recreation area

CONCLUSION

Kondang Waterfall is one of ecotourism objects in Salak II Resort Area, The Halimun-Salak National Park (HNSP). Kondang Waterfall has a character of a natural waterfall on the valley landform. Kondang Waterfall is in great demand by visitors, has the potential of a very interesting waterfalls landscape.

Kondang Waterfall has a highest natural potential compared to other tourist attraction. Kondang Waterfall has the same green open space (GOS) characteristic as other ecotourism objects. Kondang Waterfall is quite well related to the unique value of the potential of *flora* and *fauna*.

Natural landscape is a tropical rainforest that surrounds the area, waterfall, and streams of river bodies. Kondang Waterfall. The scattered build environment is the main entrance, motorcycle parking, house building next to the gate, the walkway, the building of food stalls, the mosque building, the gazebo, and the toilet building.

The character of the landscape to be protected is the river body, waterfall and surrounding areas, and

tropical forests. Elimination of Incongruous Element is a parking, housing, food stall, gazebo and toilet. The landscape characters that must be accentuation of natural form are water bodies, waterfall, tropical forests, pedestals, food stalls and musholla. The character of the landscape that should be intensification is the body of water, waterfall, and tropical forest. All landscape characters must be enhanced visual quality intensively through suitability, harmony, and contrast.

The basic plan concept of ecotourism object planning Kondang Waterfall is 'nature character base' that carries the traditional architecture of West Java with Parahyangan nuance. The planned space are welcome area, service area, recreation area, preservation and conservation area, and home stay area.

The composition of the planned area is allocated more to the preservation space and conservation of tropical forest vegetation that has excellent biodiversity. The allocation of area for service and homestay are at the smallest percentage of

land use compared to other rooms. Welcome area and recreation area occupy the same percentage of land use with different functions.

The basic plan concept of building in Curug Kondang Waterfall ecotourism object is 'exposed the nature character'. A 'natural' exposure is often shown in the planning of the building and the facilities within its space. Overall the theme of the area still carries the traditional architecture, parahnya nuance into the main concept on offer. The facade buildings are planned to provide a character of suitability and harmony with the surrounding environment by contrasting on shapes and colors that do not diminish the traditional impression of parahnya.

RECOMMENDATIONS

Researchers provide recommendations to limit the number of visitors who enter the Kondang Waterfall ecotourism object. This research can proceed to make detailed design on the placement of tourist infratraktur, placement of buildings that become economic resources. Researchers also provide recommendations for research on building models that have nuances of harmony, suitability, and contrast to the nature of the existing natural environment.

ACKNOWLEDGMENT

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