ciliwung

by Dini Rosmalia

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DEVELOPMENT PLANNING FOR ECOTOURISM REGION IN CILIWUNG RIVER CORRIDOR, JAKARTA

DINI ROSMALIA DHALIMARTA
SITI NURISYAH
YUNI PRIHAYATI

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PREFACE

This book is the result of research which is done in order to complete the thesis for achieving master program at Bogor Agricultural University, Indonesia, in 2007, where the topic is relating to urban ecotourism in Ciliwung River, Jakarta. This case study was taken because of my concern on Ciliwung river condition of which is the most popular river in Indonesia for its numerous problems that occur and associating with. Ciliwung River has environmental conditions that tend to be bad, either its quality of river bank environment, and water. Therefore by conducting this research, I hope it can contribute in giving some feedbacks and recommendations for improvements that would enhance the quality of Ciliwung River in Jakarta.

In finishing this book I have been supported by Dr. Siti Nurisyah as supervisor, and Yuni Prihayati SP, MSi as interpreter who is translating my manusscript into English.

Chapter one discusses the importance of raising the issue of Ciliwung river in Jakarta as a case study that would increase the environmental quality along the river bank, and become the identity of Jakarta city. Chapter 2 reveals the literatures I refered to which has been a base for the research. Chapter 3 reveals the methodology used in this study, while Chapter 4, describes the condition of Jakarta as the Capital City of Indonesia, as well as a tourism city. Chapter 5 is the chapter containing discussion of the results of research based on data and analysis that has been done. Chapter 6 contains the development planning from the research, and the last is conclusions and recommendations proposed for the development and improvement in accordance with the results of the study.

Finally, I hope this book can contribute to the advancement and improvement of Jakarta city, especially along the Ciliwung river. Last but not least, I'd like to extend my gratefulness to all the people who contributed to the publication of this book.

Dini Rosmalia Dhalimarta

INTRODUCTION

Background

Jakarta as a capital of Indonesia is a city with various resources, both natural and built, which could be developed into tourism object and attractions. One of many resources within Jakarta city is Ciliwung river crossing over downtown Jakarta. The river is the longest river passing through the city. Its presence is quite important for Jakarta urban life, which is to support people living (bathing, washing, toilet), as sewage disposal dumpster, and primarily as source of material for drinking water. Besides, Ciliwung river has historical value as well, i.e. as an artery and main entrance to the center of Pajajaran Pakuan Royal in Bogor on the XVI century. At that time , the river functions as transportation facility connecting Bogor area to the trading port of Sunda Kelapa in Jakarta (Santosa 2006).

Urban growth and the increase of populationvin Jakarta tends to cause negative effects on river conditions, both on environmental physic, water quality, and aesthetic quality of river environment. Urban growth and population growth were condusive to changes in land use along the river (riparian) to residential, business district even dumpster. As result, the physical quality of river environment turns out to be severe and dirty, become narrow because of the large building along the river banks (riparian). Increasing number of households and industry along Ciliwung river impacted greatly on increasing garbage contamination (Ministry of Settlement and Regional Infrastructure and Government of the Netherlands. 2004).

Nowadays effort and planning toward physical environment improvement of the river is being conducted by Provincial Government of DKI Jakarta. The effort of river environment refinement is conducted in term of changing image of river previously has been known as back yard to be front yard. Improvements made, there is only on the path of Banjir Kanal Barat (West Canal Flood), which is an artificial canal of the colonial era, while on the path toward Ancol, which is original river, is only limited to physical care of the river with the constraint of water quality which is still below the standard.

River in a city could become characteristic and attraction to the city. According to Hussein (2001), river should become complementary elements that

enliven the city, that shows the quality and supporting character on uniqueness of a big city , where river has a role as focal point and identity for the city residents and visitors of the city. Succeess of the river as city's identity, must be supported by physical environment quality, good guality of water, which automatically will improve the aesthetic quality of the river environment. Riverfront area could be developed into ecotourism (environmental friendly tourism), which is part of urban tourism. In addition, objects and attractions located in tourism region could be an attractions for the area as well.

Ciliwung river that crosses over the Jakarta City, has potential to be developed into tourism area. In addition to influence the improvement of physic of environment, it also has opportunity in increasing people income and revenue for local government of DKI Jakarta, cultural preservation, and increased environmental awareness for the people living around this river. In development planning, object and attraction (scenery and nature activity, building with distinctive architecture, ancient, historical, and traditional building), socio-cultural activity, and socio-econimic of community, could be developed into tourism resources for the corridor region of Ciliwung river.

Problem Statement

Current condition of ciliwung river in Jakarta tends to decrease and have a fairly complicated problem. This condition, according to Dillingham (1994), may be a threat to urban area because river, river water, riparian, and swamp area, are unproductive area and often carry diseases so that they create negative image. The problem of this Ciliwung river varies ranging from physical environmental condition that give negative impact on water quality to the overflow of water from Ciliwung river that causes flood at certain time.

Based on the statement, the two problems can be formulated as follows:

1. Whether the existing condition of Ciliwung River area potential to be developed into ecotourism region?
2. How to plan the development of Ciliwung River corridor as urban ecotourism region to support the realization of a sustainable city of Jakarta.

Purpose of the Study

Development planning on Ciliwung river corridor as urban ecotourism region in DKI Jakarta, will therefore seek to explore and investigate the three objectives as follows:

1. To identify potency of ecotourism resources
2. To analyze environment quality, and object and tourism attraction potential that sustain ecotourism activity.
3. To plan the development of ciliwung river corridor as urban ecotourism region

Contribution of the Study

The findings of research that will be presented in form of development planning, is intended to:

1. Become input for tourism development will therefore used to increase city revenue and prosperity of people around the river

2. increase the quality of urban environment along the quality of river landscape particularly in DKI Jakarta.

3. become consideration for local government of Province of DKI Jakarta along other agencies in constructing planning policy , and integrative development as sustainable urban tourism region.

Research Framework

Research framework is a comprehensive description relating to logical framework that guides study implementation. This framework for the study is shown in Figure 1.

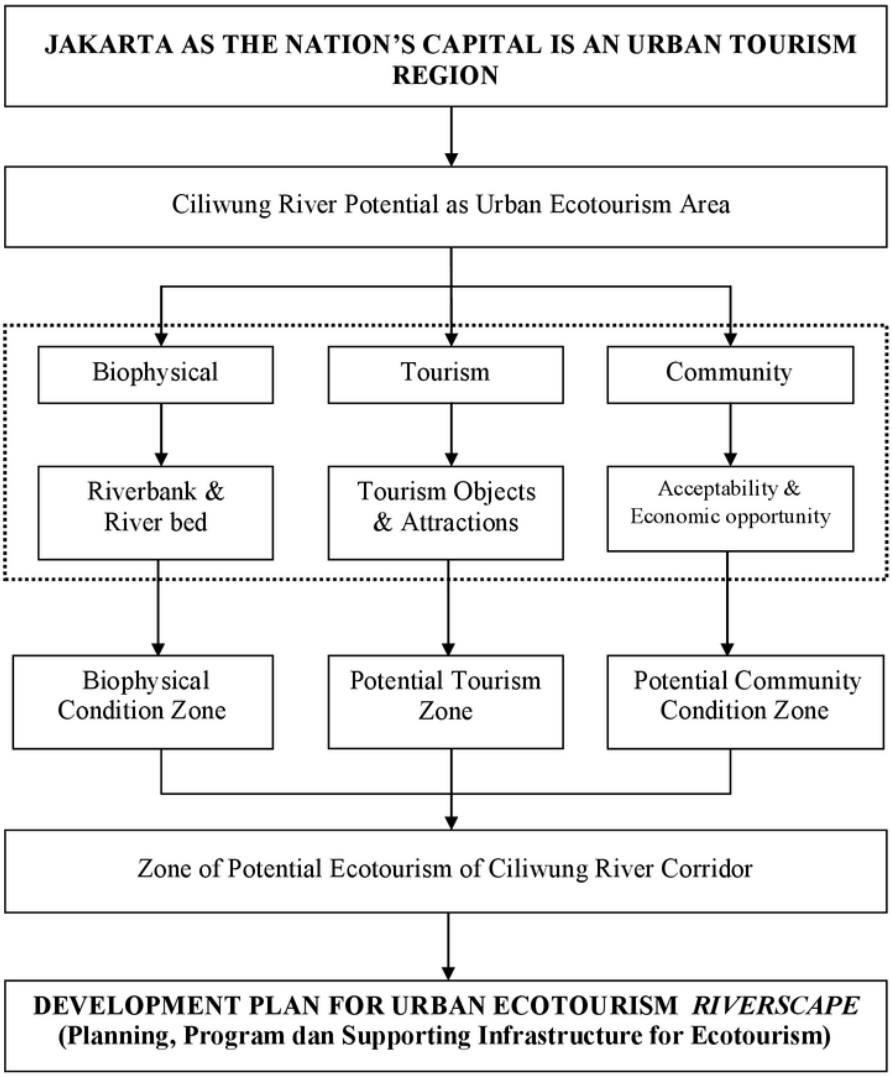


Figure 1. Research Framework

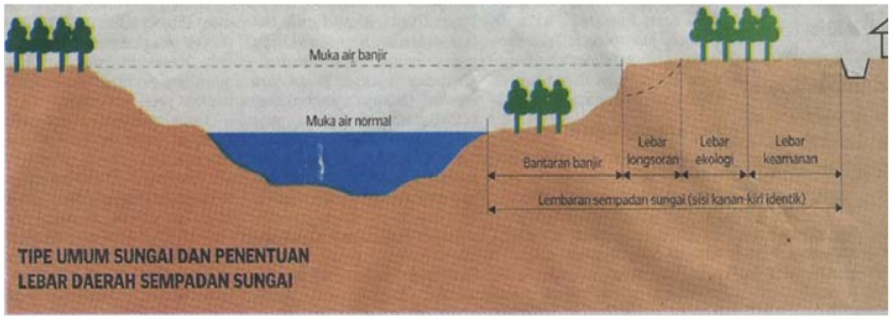
LITERATURE OF URBAN ECOTOURISM FOR RIVER

River Ecology

River has important role in human civilization development in this world, because river is closely related to human daily life. Government regulation Number 35 , 1991 on river states that:

1. River is a place and body as well as drainage for water flow starting from water source or spring to estuary, with boundaries in both sides of river along its flow indicated with river demarcation line.
2. River territory is territorial integrity of drainage system as a result of the development of one or more areas of the river drainage
3. River riparian or river bank is an area in both sides along the riverbed, counted from the edge to the inside of embankment
4. River demarcation line is outside line of the security of river riparian

Figure 2 shows the determination of the width of the border river, which is calculated based on the wide floodplain, avalanche width, the width of ecology, and width of secutiry (Maryono, 2003, referred to in Umar 2005). This condition is commonly found in rivers that are located from the middle region (midstream) to downstream (downstream).



Sources: Umar Maryono 2003 in 2005

Figure 2. General Type of River and Determination the river demarcation area

River demarcation by Predential Decree 32 in 1990 is area along both sides of river, inculding artificial river/canal/ primary irrigation channel that have important advantage to maintain the sustainability of the river. Moreover,

Presidential Decree 32 in 1990 and government policy No.47 in 1997, determines the width of demarcation of big river outside residence of at least 100m and for major tributary at least 50 m on both sides. For residential area, riparian width is just enough for the road inspection which is 10-15 m.

Environmental Impact Management Agency (Bapedal) of province of east Java (2006) states that river demarcation is floodplain area plus riverbank slide width that may occurs , ecological flood plain width, and security width associated with the location of the stream. (for example in residential areas).
Settlement boundary region of the river (DBPS) according to Environmental Management Agency of Province of DKI Jakarta (2001) in clean river program strategy (Prokasih 2005), is divided into area controlled the extent of 250 m from the river axis, and as wide as 200 – 300 m following a controlled area. Meanwhile according to Harjono (2000), in Umar (2005) says that bias on floodplain area spans approximately 15-150 m from both sides of the river where there are streams. This area is a very important region in river arrangement with spesific valuees belong to the river based on its characteristics.

River ecology width is as wide as vegetatif buffer zone outside the floodplain. Technically, the secure width of the river is assumed according to risk level of flood and landslide, as well as population density around it (Bapedal of Province of east java, 2006). According to Maryono (2003), in Aini (2005), river ecology relating to existing part of river, incuding demarcation, riparian, and determining width of river riparian area itself. Moreover, ecology poses an uniquely balance condition and has important role in conservation and land use as well as development to diminish problems arising from global change caused by human being (Forman & Gordon 1996).

River corridor ecology regarding to water current, fertile soil, aquatic organism, environmental dynamic with good vegetation and various functions. The balance of river corridor dynamic exists as long as river rocks, soil erotion, and river water flow gives great impact to sedimentation, nutrition and other materials coming from upstream. Slopes, the twists of the river, and vegetation could give direct impact to the river aquatic organism and the community effects the amount of structure changing, hisrology and water process (Lee, 1994).

Ministry of Settlement and Regional Infrastructure (Kimpraswil) and Government of the Netherlands. 2004 states that river area ecosystem is related to elements within both on stream and off stream involving hydrologi system, social system such as community living at river riparian as well as lang use around it.

Ecotourism

Tourism is travelling activity for one or group of people for temporary time in certain period to go out of their original place and routine works, for recreative purpose and non recerative purpose where they do activities during their visit at the destination place and facilities are created to meet their needs (Gunn 1994).

Soemarwoto (1996), referred to in Umar (2005) states that tourism is an industry whose sustainability is highly depended by good or bad of the environment, while the purpose of tourism is to get recreation.

One of enviromental friendly tourism comcepts is ecotourism, which constitutes an operational concept of tourism development towards sustainable tourism development (Sekartjakrarini 2005).

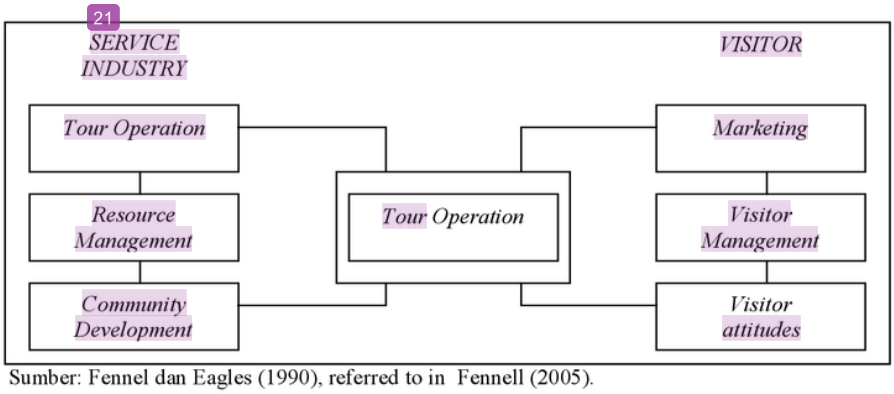
Brunn (1995) states that ecotourism (green tourism) or alternative tourism is an attempt to bridge the gap between commertial tourism industry conducted by enterpreuners in one side and environment protection in other side.

According to Directorate of Regional Resources (2000), ecotourism is a model for tourism development which is responsible in pristine area or in regions managed by natural principle whose purpose is not only to enjoy the beauty, but also to involve an elemen of education, understanding and support the effort in conserving natural resources and raising local community income.

Meanwhile Weaver (2002) reffered to in Fennel and Dowling (2003), argues that ecotourism is kind of tourism that offers experience to appreciate the natural environment along its components, and offers experience about culture as well. There are variables that distinguish nature tourism with ecotourism. In ecotourism, natural consideration is more emphasized through educational, sustainability and ethics experience of nature components. (Fennel 2005). Furthermore Kodhyat (1998) argues that ecotourism is a tourism activity management which is responsioble in pristine region or region managed based on

natural principle, that supports efforts in preserving natural resources and raising local community welfare.

The important thing is emphasized by Ceballos and Lascurain (1993), namely the tourism implementation should not only be limited within preserved area, but there is the fact that the development of natural area that is not in protected condition, could persuade local community to protect natural area and resources within their environment for their own interests. The success of ecotourism in reaching the purpose to develop the sustainable tourism, depends on planning which integrates community and private sector. Fennell and Eagles (1990), referred to in Fennel (2005), describes correlation between resource protection and community development for tourism facility and services as shown in Figure 3.



Sumber: Fennel dan Eagles (1990), referred to in Fennell (2005).

Figure 3. Tourism Conceptual Diagram

The new concept of ecotourism is an attempt that will ultimately lead to awareness of people in relating with resource protection and tourisme economic value, individual and an increase of community prosperity. In other words, ecotourism is a tourism concept which is in its implementation must be balanced with resource management control (Gunn 1994). According to Ceballos and Lascurain (1993) the criteria applied in planning, design, and development should minimize the impact on the environment by providing *funetorial self sufficiency to some extent,* by providing physical facilities that could enrich knowledge and experience for the visitors there. The physical facility stated above is facility that

use techniques relating to environment such as using solar energy (for heating and electricity power supply), reusing rainwater, recycling waste, designing building equipped with natural ventilation, making use of natural building material obtained from local product. Furthermore they suggest that the facility to be manufactured should be interesting, satisfactory to provide education element, manageable and low maintenance, as well as not distrub the environment.

Involving community participation in planning and management of the ecotourism region incredibly keep up the sustainability of ecotourism activities in the area. Brandon (1993) states that the primary purpose of ecotourism activities is to provide any benefits for local community, to ensure the consistency of ecotourism development with the social, ecology and local community purposes.

Urban Ecotourism

Motivation and desire are driving factor or stimulant for visitors to travel, while the magnetizing factors are the uniqueness of the place or tourism objects and attractions provided by the place (Inskeep 1991). The attracting factor, according to Perret (1995), is classified in spesific outstanding scenery element, culture and history or location with interesting events, the uniqueness such as cuisine (food) or distinctive building, flora and fauna.

In general, city has striking factor, such as significant history and special features as tourism attractions and objects. According to Inskeep (1991), tourism in big cities and towns practically succeed to be attractive by combining dramatic character of the city with special attractions.

At the same time, urban tourism, in addition to its basic economic benefits of generating income and employment, can be an important technique for helping support urban facilities and services, infrastructure improvement, helping to justify and paying for historic preservation, in some cases, can be a vital force for inner-city redevelopment and revitalization. (McIntoch & Goeldner 1990; Inskeep 1991).

One of types of city tourism with spesific interest is urban ecotourism. Green Tourism Association (2005) defines that ecotourism (urban green tourism) is tourism travelling in which the exploration activities are performed inside and around the city, while the activities are as follows:

- Involving the visitors and local community to appreciate natural resources and city culture so that it could encourage them to value and conserve urban resources along its cultural diversity.
- Designing festival event based on by local heritage and local culture
- Providing benefits to urban ecolology health
- Inspiring people through physical activities experience, intelectual stimulant, and social interaction
- Promoting local community economy
- Accessable and acceptable for all people

Ecotourism according to Blackstone Corporation (1996), referred to in Fennel (2005), is exploration tour within city region, where the visitors could enjoy and appreciate natural urban area and attraction of the culture, make pysicial activity, so that they would get interactive experience that will stimulate social and intelectual. In doing that activities, visitors are invited to walk, cycling, and take public transportation.

Furthermore this corporation says, that urban ecotourism could promote good quality of urban ecology for long term , promoting the sustainability of local economy development, development and sustainability of local community life, by performing events and festival originated from local culture-art heritage. Besides the urban green tourism activities could be accessed by all people and they are responsible to maintan it. The similar issue has also been emphasized by Fennel (2005), which is in planning the ecotourism, must integrate between conservation, education on environment, community welfare, ethics and sustainability.

Tourism Region Development Planning

In its broadest definition, planning is organization the future to achieve certain objectives (Inkeep 1991). Planning on the landscape is the composition of the problems that will be revealed and then solved in the entire region to anticipate rising problem relating to land use by human and further development (Morrow 1987). Furthermore, Umar (2005) said, that planning is not merely a

preparation matter, but also an activity process that continually goes along and influence the activity until it achieve the objectives.

In tourism development planning it may classified into two groups , namely, physically, where its purpose of planning is physical environment development as a space, while non-physically, the planning is intended to develope human resource as a user. Principle of physically tourism planning covers facility and accomodation encompassing good and pleasant accessibility, public transportation service avaibility, regulation in favor of market target increasing, pedestrian that links attractive zones to the facility and accomodation, control for high crime-rates area, good urban utilities, conservation for historical building and area, good urban design, good waterfront planning to improve the appearance of the city (Inskeep (1991). While non-physical development plannning is community welfare improvement, and culture preservation.

Tourism region Planning, design and management contributes to conservation, where similar key element , marketing system, tourism training for individual visitor, interpretative touring system, interpretative visitor information center, monitoring system of environmental impact, as well as services such as food sales, good lodging (Boo 1991 in Gunn 1994). Further more, Gunn (1994) states that tourism could be developed and planned based on ownership or tourism area management (government, non-profit organization, commertial industry), natural and cultural resources, tourism tour or supporting tourism, carrying capacity appropriate to the number of visitors. (intensive, semi intensive, extensive).

Inskeep (1991) states that the planning procedure for urban tourism are as follows:

- Assessment of the tourism product and market,
- Selection of any specific development sites required,
- Conceptual planning and prefeasibility analysis to determine if the development concept is likely to be economically viable and not generate any serious environmental or sociocultural impacts,
- Environmental and carrying capacity analysis and community relationship,
- Detailed analysis of regional relationship,

- Determination of facility, land use, and infrastructure requirements,
- Plan formulation, including outline planning of alternatives, evaluation of these, and final plan selection and refinement with phasing of development,
- Economic and financial feasibility analysis,
- Preparation of the implementation program with, if applicable, staging of development.

Also important to evaluate is the overall environmental character including:

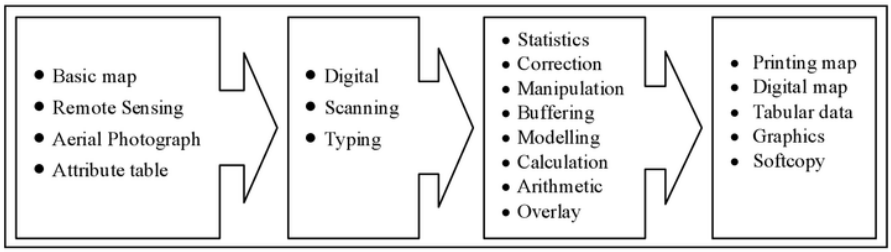
- Its visual quality of architectural style and character,
- Extent of parks, open space, and landscaping
- Views and vistas offered,
- Extent of traffic and pedestrian congestion,
- Cleanliness of the environment and extent of littering,
- Any serious problems of air, water, and noise pollution,
- Any difficult climatic patterns, such as extremely cold winters or very hot summers,
- The extent and type of crime and the general level of public safety.

Geographic Information Systems (GIS)

Geographic information systems (GIS) is an information system employs refference data such as spatial (geographic coordinate) and non spatial, in many cases are used in field of regional and central planning, resource management, and other fields that utilize geographic information (Star 1990). GIS is a substitute for paper map use into files displayed in computer monitor. Process of GIS composition includes data collection in various forms, data input, data process, processing and analyzing, and ultimately product results. (Figure 4).

Further GIS application is in addition used to save data, organize, analyze, combine, and display georgraphic information, and furthermore, it also used to create various models (such as earth configuration, watershed, and agricultural system) and even more to create simulation as needed. Fabos (1979) said that SIG in its application has extensive capabilities in mapping process and analysis so that the technology is often used in landscape planning process. Furthermore,

Cabuk (1995) said that use of GIS in two dimention- landscape planning study based on data and analyse on natural environment, culture, economic social, and demographic data is the correct measure. By using GIS, we can determine land use suitable to carrying capacity and community life condition.



Sumber: Roslita 2000.

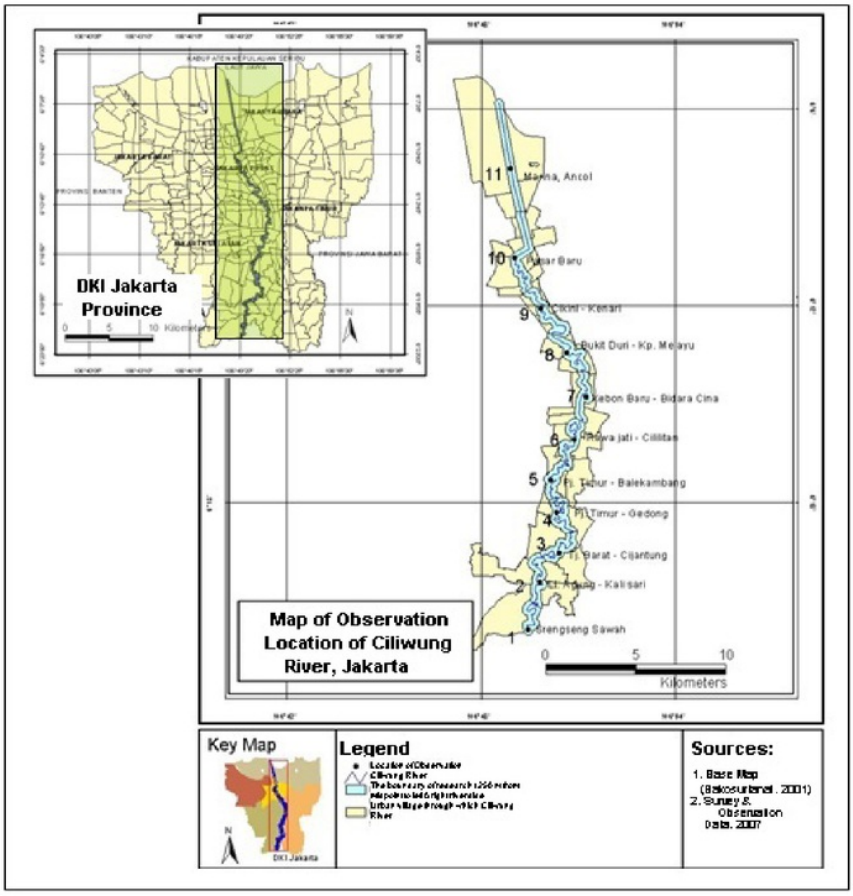
Figure 4. Process of Geographic Information System Composition.

In planning tourism region landscape, GIS could help to manage resources of tourism activities effectively and also improve recreation opportunity quality. GIS technoloy is incredibly useful to assist planner in planning tourism area geographically very widespread , either in regional scale, destination scale, or site scale. GIS has capacity to (1) integrate numerous and diverse data (vegetation, geology, exixting land use, land use plan, and track plan), (2) to analyze the suitability for a certain use plan, (3), to analyse of viewshed, to generate optimal track, camping location identification, identification for sensitive site that must be preserved, and other data monitoring. Furthermore, GIS is also able to monitor data from various sources, such as airphotos, field example, activity report, so that we can see continuosly the impact of tourism activities (Mehta 1998, in Roslita 2000). Besides, the use of GIS may increase time efficiency and precision (Gunn 1994).

RESEARCH METHOD

Research Time and Location

Study is undertaken along corridor of Ciliwung River in DKI Jakarta, starting from upstream in DKI Jakarta, namely Srengseng Sawah, South Jakarta, to downstream in Marina, Ancol, North Jakarta. Study boundary area is of approximately 250 m in width at both left and right sides estimated from the axes of river based on PROKASIH 2005, along approximately 55 km. Geographically it is located on East Longitude 106°40'20''- 106°56'25" and South latitude 06°23'00" – 06°4'30". (picture 5) . Data collecting time is started from Januari until Februari 2007.



Source: Coordination Agency for National Survey and Mapping (Bakosurtanal 2005)

Figure 5. Study Location Map

Materials and Tools

The study employs material and tool in types of hardware and software, Rupa Bumi Map of DKI Jakarta (Bakosurtanal 2005) and questionnaire. The hardware and software utilized is shown in Table 1.

Table 1. Hardware, Software and its Use

Hardware	Software	Use
Computer	Arcview ver 3.3	Spatial analysis
	Excel 2003	Tabular analysis
	SPSS 12.0	Tabular analysis
GPS		Recording point of survey location
Digital Camera		Field existing documentation
Tape Recorder		Interview result documentation

Research Method

Research activity is undertaken within three steps namely (1) data collection and data classification, (2) analysis and syntesis, and (3) regional planing, as shown in Figure 6.

1. Data Collection and Classification

Data collected for research purpose, is categorized into primary data and secondary data (Table 2). Primary data is collected in two ways namely interview result data and observation outcome at research location. Data collection in location of research is carried out by systematically way, namely distance determination of approximately 5 kilometers, thus it amounts to 11 location (Figure 5). The determination of observation distance is based on high diversity of land use along Ciliwung river riparian, the meanders of the river and its sinuousity. The primary data is also obtained through interview by using structured questionnaire to related stake holder. Table 3 shows lists of stake holders involved in this study, including 100 local communities, 20 people from eight related institution, 4 people from Non-Governmental Organization (NGO) , and 4 people from tourism travel agent within region of province of DKI Jakarta.

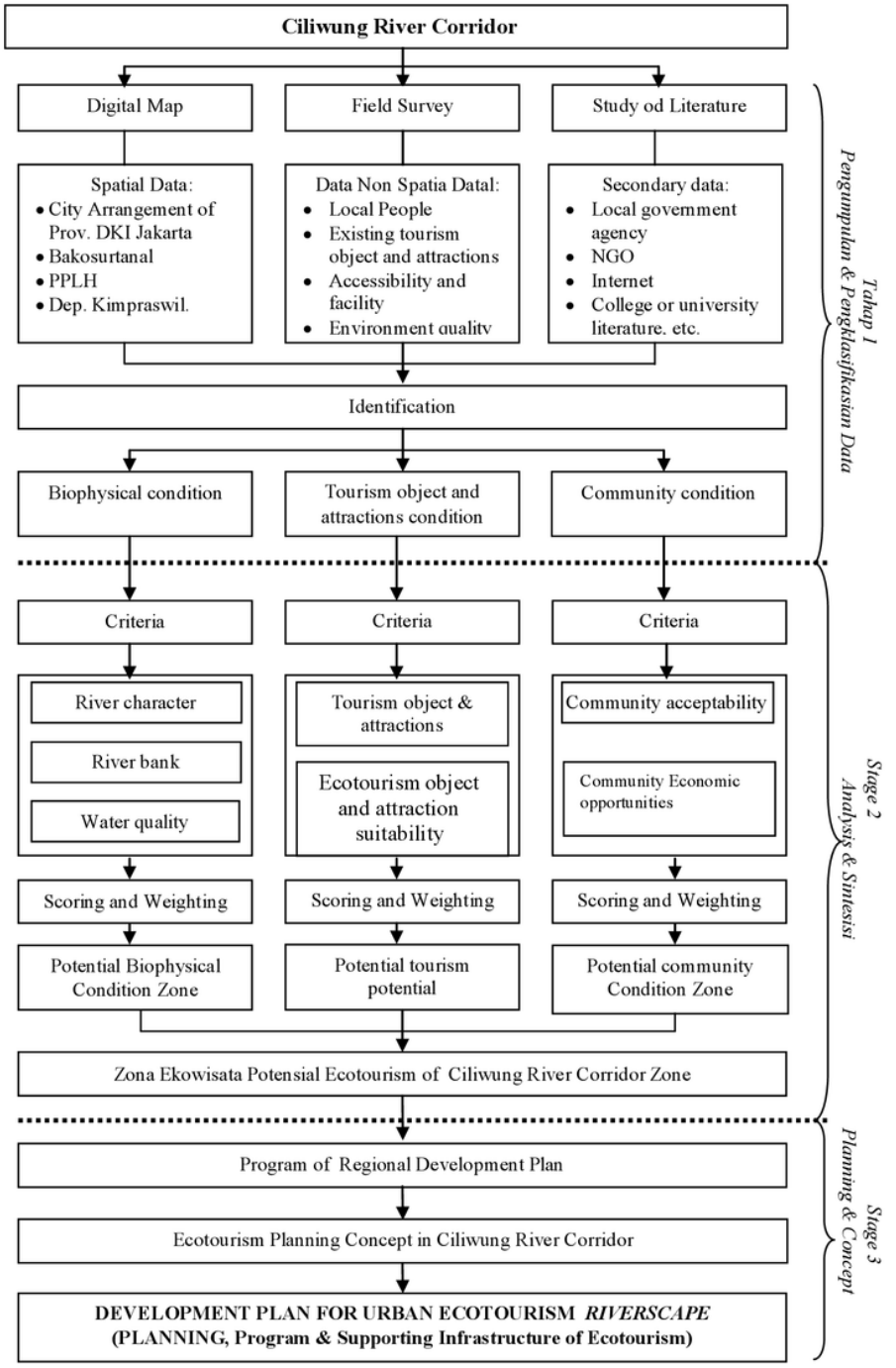


Figure 6. Phase of Research

Tabel 2. Source and Type of Data

Information & Data		Source of Data	Type of Data
Map & image	• Topography Map of DKI Jakarta, scale 1 : 25.000	• Bakosurtanal	• Secondary
	• Administration Map of DKI Jakarta (soft copy)	• Bakosurtanal	• Secondary
	• *land use* Map of DKI Jakarta, scale 1 : 25.000	• City arrangement agency of DKI Jakarta	• Secondary
	• RTRW map of DKI Jakarta, scala 1 : 700.000	• City arrangement agency of DKI Jakarta	• Secondary
	• Road map of DKI Jakarta, scale 1 : 12.500		• Secondary
	• Tourism Map of DKI Jakarta (no scale)	• public • Tourism agency of DKI Jakarta	• Secondary • Secondary
	• Ciliwung river Map (soft copy)	• Public work Dept,, PPLH-IPB	• Secondary
	• Landsat image	• PPLH	•
Physical condition of Ciliwung river in DKI Jakarta & its surrounding	• Weather Data of DKI Jakarta	• BMG	• Secondary
	• Ecological quallity	• BPLHD Prov. DKI Jakarta	• Priamry,secondary
	• Water quality of Ciliwung river	• BPLHD Prov. DKI Jakarta, lapangan	• Priamry,secondary
	• Hydrogeologi of DKI Jakarta	• Dep. Kimpraswil • Dep Kimpraswil, community, filed	• Priamry,secondary • Priamry,secondary
	• Flood hazards • Landslide hazards	• Dep Kimpraswil, ommunity, field	• Priamry,secondary
Ecotourism object and attractions	• Biodiversity	• Internet, field	• Priamry,secondary
	• Ecosystem condition	• Field	• Primary
	• Existing tourism object and attraction condition	• Internet, Tourism agency of DKI Jakarta, Dinas P2B DKI Jakarta, field	• Priamry,secondary
	• Accessibility	• Survey	• Primary
	• Infrastructure	• Survey	• Primary
	• Tourism Facility	• Survey	• Primary
Community Aspect	a. Demografi	• BPS Prov DKI Jakarta	• Secondary
	b. Community Perception dan preference	• Community	• Primary
Program and study ever done	Regional management and regional improvement program	• Dep Kimpraswil, Public work Dept.	• Primary,secondary
		• BPLHD Prov. DKI Jakarta	• Primary,secondary
		• Hygiene service agency of Prov DKI Jakarta	• Primary,secondary
		• Dinas P2B Prov DKI Jakarta	• Secondary
		• BP DAS Ciliwung –Citarum	• Primary,secondary
		• Dinas PU Prov. DKI Jakarta	• Primary
		• BBSWS Ciliwung –Cisadane	• Primary
		• Transportation agencies of. Prov. DKI Jakarta	• Primary
		• Landscaping services agency of Prov. DKI Jakarta	• Primary
		• BAPPEDA Prov. DKI Jakarta	• Primary,secondary
		• (WALHI) Jakarta	• Primary
		• LPP Mangrove	• Primary
		• Action contre la Faim (ACF)	• Primary,secondary
		• Aspac Mitra Consultindo	• Primary,secondary

Tabel 3. Responden List of *Stake Holder* in Ciliwung River

	Stake Holder	Total (people)	
1	Local People	100	1. Community in point of observation 2. Community leaders
2	Institution	20	1. Spatial Planning Directorate or Regional II , of Public work Dept. 2. City's Development and Planning Board (BAPPEDA) of Province DKI Jakarta 3. City's Environment Management (BLHD) of Province of DKI Jakarta 4. City's Planning Agency, of Province DKI Jakarta 5. Public Work of Agency of Province DKI Jakarta 6. Central Region Unit of Ciliwung-Cisadane River (BBSWSCC), 7. Tourism Agency of Province DKI Jakarta 8. Landscaping services agency of Province DKI Jakarta.
3	Non government organization	4	1. Indonesia Forum for Environment (WALHI) Jakarta 2. LPP Mangrove 3. Action contre la Faim (ACF) 4. Aspac Mitra Consultindo
4	Tour agent	4	1. Panorama Tour dan Travel 2. Indonesia Set of Tour guides (HPI) 3. Makara Tour dan Travel 4. Pesona Ceria

2. Analysis and Syntesis

Analysis is conducted to understand the condition of river biophysic, existing object and attractions, and community acceptability living along the study region. This aims to define potential zone, namely zone that is suitable for valuation standard to be developed into urban green tourism region.

2.1. Evaluation of River Biophysical Condition

Evaluation of biophysical condition of Ciliwung River is carried out to understand the suitability of the region as location, and ecotourism object and attraction in the city. The evaluation covers river area including riparian and water quality.

2.1.1. Quality of River Riparian

Riparian examined is started from highest level of water limit to area of river settlement boundary (DBPS) of Ciliwung namely 250 meters from river axes according to Prokasih work plan (2005). The variables applied encompass topgraphy, flood hazard,

and land use (Table 4). The evaluation undertaken within 11 location of observation along river corridor.

Table 4. Riparian Quality Evaluation

variable	Weight (%)	Category	Rank	Score
Landslide hazard	25	• 8% no potential of landslide	4	S1
		• 8-15%, less potential of lanslide	3	S3
		• 15-30% moderate potential of landslide	2	S3
		• >30% highly potential of landslide	1	S4
Flood hazard	25	• Never happen	4	S1
		• Flood once in 5 years	3	S3
		• Flood > 1x in 5 years – 1x in 1 year	2	S3
		• Flood > 1x in i year	1	S4
Land Use	25	• Suitable to land use, well organized, dominantly green/natural	4	S1
			3	S3
		• Suitable to landuse, less organized, dominantly green	2	S3
		• Not suitable to landuse, less organized, green space area as large as built area	1	S4
		• Not suitable to landuse, unorganized, dominantly built space		

Information: Score (S1= very suitable, S2= suitable, S3=less suitable, S4= usuitable)
Source: USDA (1968), modification

Assessment of calssification for riparian condition =

$$\left(\sum_{i=1}^{11} Fbl \times 25\right) + \left(\sum_{i=1}^{11} Fbb \times 25\right) + \left(\sum_{i=1}^{11} Flu \times 25\right)$$

Information:

Fbl = Landsclide hazard factor

Fbb = Flood hazard factor

Flu = land use factor

$\sum_{i=1}^{11}$ = location 1 to 11

Level of quality of river riparian is categorized into

T = high, score 226-300

S = moderate, score 151-225

R = low, score 75-150

2.1.2. Water Quality

Water quality evaluation consists of physical quality including water color, water debit, sedimentation (TDS, TSS), and water chemical quality namely COD, BOD, and

DO. The assessment is undertaken at 11 sites along the river corridor. The assessment of riverbed quality is shown in Table 5.

Table 5. Water Quality Evaluation

Variable	Weigh t (%)	Category	Rank	Score
Water color	30	• Clear brown	4	S1
		• Brown	3	S3
		• Dark brown	2	S3
		• Black	1	S4
Water debit	30	• No differences on dry and rainy season	4	S1
		• Little differences on dry and rainy season	3	S3
		• Fairly-high fluctuatuon between dry and rainy season	2	S3
		• High fluctuation between dry and rainy season	1	S4
Sedimentation (TDS, TSS)	20	• Quality standard of class I	4	S1
		• Quality standard of class II	3	S3
		• Quality standard of class III	2	S3
		• Quality standard of class IV	1	S4
Water chemical quality (COD, BOD, DO)	20	• Quality standard of class I	4	S1
		• Quality standard of class II	3	S3
		• Quality standard of class III	2	S3
		• Quality standard of class IV	1	S4

Information: Score (S1=very suitable, S2=suitable, S3=less suitable, S4=not suitable)
Source : BPLHD dan ASDEP affair in SARPEDAL KLH (2005); USDA (1968); modifikasi.

Classification Assessment of waterbed condition =

$$(\sum_{i=1}^{11} \text{Fwa} \times 30) + (\sum_{i=1}^{11} \text{Fda} \times 30) + (\sum_{i=1}^{11} \text{Fsed} \times 20) + (\sum_{i=1}^{11} \text{Fka} \times 20)$$

Information:

Ftwa = water colour factor

Fda = water debit factor

Fsed = sedimentation tactor

Fka = water quality factor

$\sum_{i=1}^{11}$ = location 1 to 11

Level quality of river bank which is divided into:

H = High, score 300 – 400

M = Moderate, score 200 – 299

L = Low, score 100 - 199

Based on evaluation outcome of riparian condition and water quality, then it is integrated to get level of biophysical potential from each observation location. The integrative outcome is classified based on three degree of regional potential as follows:

VP : very potential , score 526-700

The quality of environment at this location is extremely good, very potential for ecotourism regional development. No improvement is needed. The treatment should be done is to maintain the quality of environment in order to stay well.

P : Potential, with score 351-525

The environment quality of this location is at medium level which is needed improvement to increase the environment quality

NP : Not potential with score of 175-350

The environment quality at this location is very low, so it needs serious improvement action to increase environment quality

2.2. Evaluation on Existing Tourism Object and Attraction Potential

Object and attraction evaluation available for tourism development in ecotourism region is undertaken in two steps. Firstly, the assessment of existing tourism object and atraction potential. This step is done to see the potential level of existing tourism object and atraction along the corridor of Ciliwung River. This evaluation is classified using six criteria acquired from Inskeep (1991) and Umar (2005) which has been modified (Table 6). The evaluation is undertaken by 11 experts coming from Tourism Department of province of DKI Jakarta (four people), City's Development Planning Board (Bappeda) of Province of DKI Jakarta (3 people), and travel agent (4 people). Score assessment from each expert is added up to be classified into three types of levels including high (H), moderate (M), and low (L). The classification determination of potential level of tourism object and attraction is described as follows:

$$\text{potential level classification} = \frac{\sum_{i=1}^{11} \text{Maximum score} - \sum_{i=1}^{11} \text{minimum score}}{\sum_{i=1}^{11} \text{classification level}}$$

After classification, then the second step is undertaken, namely evaluating the suitability of tourism object and attraction potential in every observation of

location. The evaluation is done based on ecological level in which the object and attraction exists, transportaion and accessibility available to reach the location of tourism object and attractions, the location of tourism object anda attraction from main road, and tourism facilities offered. (Table 7).

Table 6. Evaluation of Existing Tourism Object and Attraction

Peubah	Kategori	Nilai
Hystory	• Has historical value, preservation is kept by local government	4
	• Has historical value, less preserved	3
	• Has historical value, not preserved	2
	• No historical value	1
Uniqueness	• .Spesific, distinctive, become characteristic of the region	4
	• Spesific, fairly distinctive, not become characteristic of the region	3
	• Less spesific and less distinctive.	
	• Not spesific and not special	2
		1
Social Function	• Very good in social function	4
	• Good enough to contribute to social function	3
	• minor contribution in social funtion	2
	• No social function	1
Harmony with the environment	• The presence of object and attraction is very harmonious with the environment	4
	• The presence of object and attraction is quite harmonious with the environment	3
	• The presence of object and attraction is less harmonious with the environment	2
	• The presence of object and attraction is not harmonious with the environment	1
Attractiveness	• Very attractive to be enjoyed	4
	• Quite attractive to be enjoyed.	3
	• Less attractive to be enjoyed	2
	• Unattracted to be enjoyed	1
Scarcity	• .Just only available in the location and well maintained	4
	• Just only available in the location and less maintained.	3
	• Just only available in the location and unpreserved	2
	• There is no scarce object and attraction	1

Source: Inskeep, Umar, modification

The second step evaluation of tourism object and attraction is as follows:

The classification of suitability of object and attraction condition=

$$\left(\sum_{i=1}^{11} 3\ \text{Foa} \times 30\right) + \left(\sum_{i=1}^{11} \text{Fek} \times 30\right) + \left(\sum_{i=1}^{11} 1\ \text{Faks} \times 20\right) + \left(\sum_{i=1}^{11} \text{Fjl} \times 10\right) + \left(\sum_{i=1}^{11} \text{Ffas} \times 10\right)$$

Information:

Ffoa = Tourism objects and attractions factor

Fek = Ecology factor

Faks = Accessibility factor

Fjl = Location from main road factor

Ffas = Avaibility tourism facility factor

$\sum_{i=1}^{11}$ = Location at first point to 11

Table 7. Evaluation of Suitability of Existing Tourism Object and Attraction

Variable	Weight (%)	Category	Rank	Score
Tourism object and attraction	30	• All tourism attractiosn have high score (T)	4	S1
		• Tourism attractions have moderate (M) to high score (T)	3	S2
		• Tourism attractions have low (L) to moderate (M) score.	2	S3
		• There is no objecta nd attraction	1	S4
Ecology	30	• Endemic, unit of ecology is well preserved	4	S1
		• Semi endemic, unit of ecology is preserved	3	S2
		• Unit of ecology is frightened - damaged	2	S3
		• There is no unit of ecology	1	S4
Accessibility	20	Close to main road, reachable, good condition, large numbers of types of transportation	4	S1
		• Secondary road, moderate condition, limited public transportation.	3	S2
		• Tertiary road, moderate condition, no public transportation	2	S3
		• No access, no public transportation.	1	S4
Location from main road	10	• Close (<1km)	4	S1
		• Moderate (1 – 3 km)	3	S2
		• Far enough (3 - 5 km)	2	S3
		• Extremely far (>5 km)	1	S4
Tourism facility available	10	• Available, complete, good quality and well maintained	4	S1
		• Few, fairly well maintained	3	S2
		• Few, less maintained	2	S3
		• Not available	1	S4

Note: Score (S1= very suitable, S2= suitable, S3= less suitable, S4= not suitable)
Source: Inskeep (1991), Yusiana (2007): Planning Agent of Malang regency (2006) in Prasasti (2008); modification

Outcome from suitability evaluation of tourism object and attraction is classified into some degrees namely:

SP : very potential with the score of 300 -400

Tourism Object and attraction is very potential to be developed into

ecotourism resources

P : potential, with the score of 200 – 299

Tourism object and attraction is quite potential potential to be developed into ecotourism resources. It should take an action to increase the quality becoming very potential

NP : not potential witg the score of 100-199

Tourism object and attraction available is not potential to be developed into ecotourism resources. It needs special high-priced treatment to increase the quality becoming very potential

2.3. Local Community Acceptability

The evaluation of community aspect is carried out to observe the local comuunity acceptability in term of establishing the development planning of ecotourism in Ciliwung river. This evaluation is devided into two steps, firstly assessing the community acceptability of tourism development plan at corridor of ciliwung river, and secondly, evaluating the community preference of kinds of economy opportunity they choose.

2.3.1. Community Acceptability

Parameter for evaluating the community acceptability of ecotourism development plan in Ciliwung river corridor is shown at Table 8. After doing assessment, then the calculation of community acceptability level is done as follows:

The calculation of community acceptability level=

$$3\sum_{i=1}^{11} Fpe + \sum_{i=1}^{11} Fku + \sum_{i=1}^{11} Fke + \sum_{i=1}^{11} Ffas + \sum_{i=1}^{11} Fpar$$

Informations:

Fpe = Community acceptability factor to regional development as tourism destination

Fku = Community certainty factor that ecotourism in Ciliwung River be able to improve the enviromment quality

Fke = Community certainty factor that ecotourism in Ciliwung River be able to improve the quality of the well being of community

Ffas = Community certainty factor that ecotourism in Ciliwung River be able to improve the quality of regional infrastructure and facility

Fpar = Community aspiration factor to participate in ecotourism management and activities

$\sum_{i=1}^{11}$ = location 1 to 11

Table 8. The Evaluation of Community Acceptability of Ecotourism

Variable	Category	Rank	Score
Regional development as tourism destiantion	• Agree	4	S1
	• fairly – less agree	3	S2
	• not agree	2	S3
	• no answer	1	S4
Ecotourism in Ciliwung River can improve environment quality	• Very confident	4	S1
	• Fairly confident	3	S2
	• little confident	2	S3
	• not confident	1	S4
Ecotourism in Ciliwung River can improve welfare	• Very confident	4	S1
	• Fairly confident	3	S2
	• little confident	2	S3
	• not confident	1	S4
Ecotourism in Ciliwung River can improve facility and infrastucture of region	Very confident	4	S1
	• Fairly confident	3	S2
	• little confident	2	S3
	• not confident	1	S4
Community aspiration to participate	• High	4	S1
	• Medium	3	S2
	• Low	2	S3
	• Nothing	1	S4

Source : Yusiana (2007), modification

Outcome from evaluation in score value is added up to obtain community acceptability which is devided into three categories as follows:

T : High, with score 150 – 200

The community acceptability level is high and there is no obstacle to develop regional into ecotourism

S : Moderate, with score 100-149

Level of community acceptability is moderate, there is constraint to develop regional into ecotourism. It is needed treatment to increase the community acceptability

R : Low, with score 50- 99

The level of communty acceptability is low. There are so many troubles in development planning for regional to develop it into ecotourism. It needs some specific treatment dan quite expensive to encerase the community acceptability.

2.3.2. Community preference to opportunity of economy

Analysis of community preference to opportunity of economy functions to evaluate the level of community aspiration to participate in tourism activities in their regional. The evaluation is done based on the opportunity of economy that is directly links to tourism, and opportunity of economy that serves as tourism supprot. The way of evaluation is by observing the types of most of the selected economy opportunity. (Table 9).

Table 9. Types Of Community Economy Opportunity

Tourism-directly linked economy opportunity	Economy opportunity as supporting tourism
a. Becoming employer/ tourism guide	e. Supplying tourism product
b. Opening store/restourant/inn/hotel	f. Others
c. Developing tourism object and attraction	
d. Farm/breed	

Source: Yusiana (2007), modification.

Outcome of community preference to types of economy opportunity is classified as stated in Table 10. The community preference to types of economy opportunity that directly links to tourism has higher value than economy opportunity as tourism support.

Based on integration result between community acceptability and community economy opportunity then it is divided into the very potential zone (VP), potential (P), and not potential (NP).

2.4. Development Zone Of Ecotourism Region

This step is known as syntesis , following the previous step, analyis step, in which the composite maps as result from biophysic condition analysis, analysis of potency of tourism objects and attractions, and community condition analysis, are integrated by using geographical information system method (GIS). After the tematic maps is integrated by overlaying them, the outcome is region potential zone for ecotourism development. The synthesis process is shown at Figure 7.

Table 10. Level Classification of Comunity Economic Opportunities

Tourism-directly linked economy opportunity	Economy opportunity as supporting tourism	Classification
100	0	Tinggi (T)
90	10	Tinggi (T)
80	20	Tinggi (T)
70	30	Sedang (S)
60	40	Sedang (S)
50	50	Sedang (S)
40	60	Sedang (S)
30	70	Rendah (R)
20	80	Rendah (R)
10	90	Rendah (R)
0	100	Rendah (R)

Information: Classification Table based on discussion with counselor (2007).

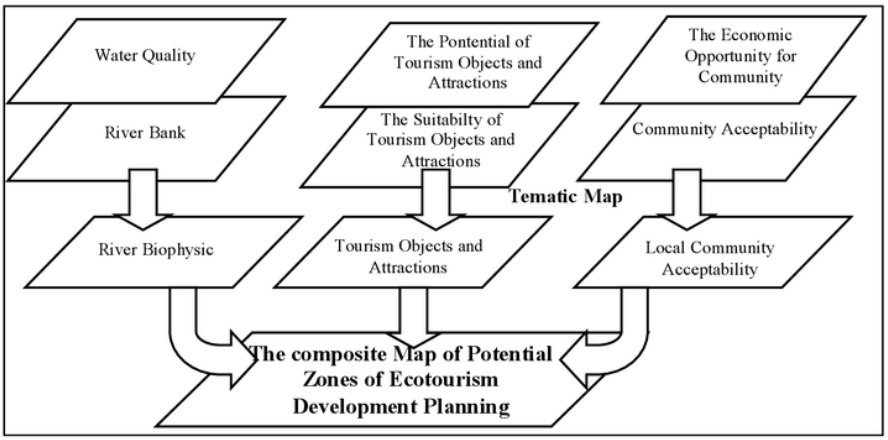


Figure 7. Overlays of Tematic Maps

The overlaying process of composite maps consisting of potential biophysic condition zone, potential tourism object and attraction zone, and potential community condition zone, yielding three region potential zone for urban ecotourism development, namely:

T : High potential zone, very suitable to ecotourism development. All of aspects have very potential value or at least there is only one aspect that is not included in potential classification, there is no aspect included in not potential classification.

S : Moderate potential zone, quite potential for ecotourism development. At least There is only one aspect included in not potential category

R : Low potential zone, not potential for ecotourism development. All of aspects are included in not potential classifiaction.

3. Development Plan for Urban Ecotourism Region

Development plan for ecotourism region is based on region potential zone for urban ecotourism development. This development plan is in form of development concept of ecotourism region, development program, and development plan of infrastructure of tourism support.

3.1. Concept of Region Development Plan

Region development concept is development plan for sustrainable urban ecotourism. The development plan concept is illustrated in form of tourism space development model considering the landscape character and tourism potential.

3.2. Spatial Concept and Circulation of Ecotourism Region

Space concept is implemented by ilustration of main tourism space, supporting space, welcome area, and trantition area in ciliwung river ecotourism region. The concept of area arrangement is based on concept of development plan. For circulation planning concept is described by constructing the relationship between tourism activity group, and between each tourism activities within the region.

3.3. Development Programme of Ecotourism Region

Development program of region is presented in improvement planning and regional arrangement according to concept of region development. The development program plan, is constructed by communicating the absolut value of regional tourism, which result is presented in regional development direction. The direction is illustrated graphically as guidance in arranging the ecotourism region in ciliwung river corridor in Jakarta.

3.4. Development Plan of Ecotourism Supporting Infrastructure

Ecotourism supporting infrastructure is built based on needs of each developed region. This aims to give tourist satisfactory that gives comfortable and safe for tourist. The concept of regional infrastructure plan is based on ecological consideration.

Terms Determination

Tourism attraction is attraction in tourism destination place such as art-culture traditional events, entertainment, services, and seasonal events (Karyono 1997)

Riparian/ flood plain is edge area of river which is inundated by water when there is flood (Maryono 2003, diacu dalam Aini 2005).

Ekowisata adalah a model of tourism development which is responsible in pristine area or in areas which is managed based on natural principle where the purposes are in addition to enjoy its beauty , it also involves an element of education, understanding, and supporting efforts for natural resource conservation and increasing local community income (Regional Directorate of Resources 2000)

Urban ecotourism is an ecotourism organization model that explores the implementation of eco-tourism in and around the city, where its activities in addition to respect, appreciate, and conserve natural resources and cultural city, it also works to increase the ecological quality of the city, and to encourage the local economy. Community and visitors involvement in their tourism activities and visitors will inspire of physical experience, stimulate the intellectual, and social interaction. In the operation of the activities they are conducted based on economic and services sectors, with urban standard facilities. (Green Tourism Association, 2007; Inskeep 1991)

River corridor is a controlled area that is part of boundary area of settlement of river (DBPS) according to work program of PROKASIH (2005), which is as wide as 250 m from the river axis to the left and right of the river (BPLHD Prov. DKI Jakarta 2005)

Tourism object is the manifestation of human creation, life style, art and culture and history of nation and place or natural condition that have attraction for visitors (Nurisjah et al., 2003; Karyono 1997).

Tourism is the overall activities of government, business, and community to organize, manage, and serve the needs of tourism. (Karyono 1997).

JAKARTA AS AN INDONESIA CAPITAL CITY

Province of DKI (Special Capital Region) Jakarta is Indonesia nation's capital located in Jawa Island. The posisiton is East Longitude 107°- 108 ° and South latitude 6° – 7°. The province is bordered by Java Sea in the North , Province of West Java in the East and South, and Province of Banten in the West.

The capital consists of 5 cities, 1 regency, 44 sub-districts and 267 villages, with an area of 656 km^2. Population in 2005 reached 8.725.630 people, with population density is of 13.150 people per km^2.

Tourism Potential of Jakarta City

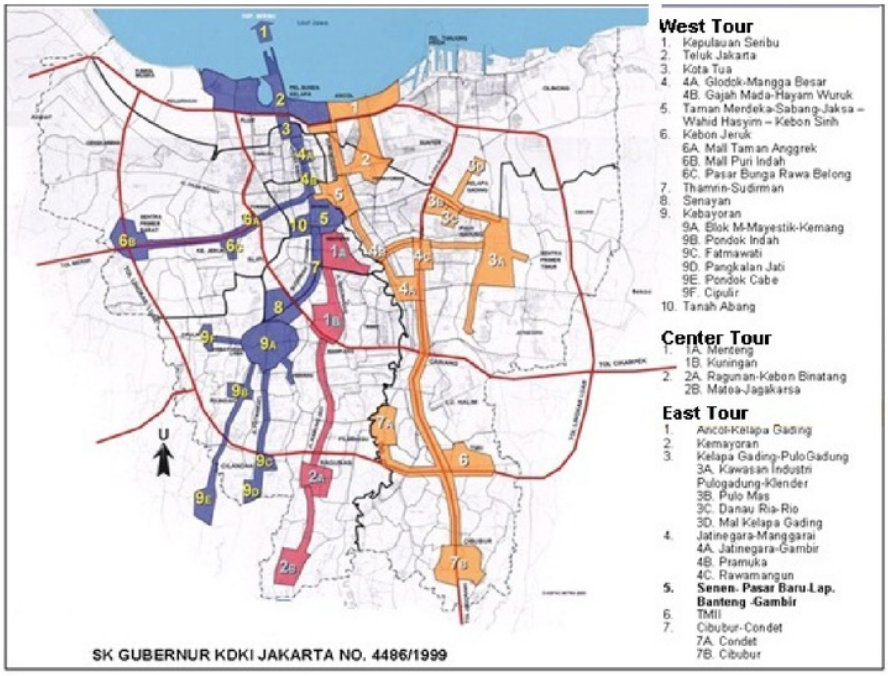
Jakarta is nation's capital of Indonesia, that functions as main gate, and become part of tourism destination of Indonesia, where Jakarta functions as display of Indonesia tourism. Jakarta itself has considerable potencial and various tourism resources . Jakarta tourism resources are available in the form of historical , shopping and culinary, bussiness and entertainment, as well as marine tourism.

The Tourism resources are quite comprehensive such as international-level shopping centers, various types and taste of food, various nightlife entertainment, and national or international level events, international-scale golf course , marine and island.

Jakarta government through Jakarta Governor decree No. 4486/1999 has assigned 3 tourism track in Jakarta through west track that has 10 tourism objects and attractions, middle trail with 2 tourism objects and attractions, and east track with 7 tourism objects and attractions (Figure 8). The development of this tourism trail has also been suppported with development of public transportation system such as busway path (trans jakarta), train (blue line), water way, as well as another available public transportations.

Based on data from Tourism agency 2007 relating to foreign tourists who visit Jakarta, they averagely come from Southeast Asia (ASEAN), East Asia, Middle East, Australia, and West Europe. Meanwhile their purposes are such as

bussines of 51.64%, MICE 3.23%, vacancy 23.64%, and family visit of 13.67%, and others 17,82%.



Source: Tourism Agency of Prov. DKI Jakarta (2007).

Figure 8. Three Tourism Track in DKI Jakarta

Location and Condition of Ciliwung River in Jakarta

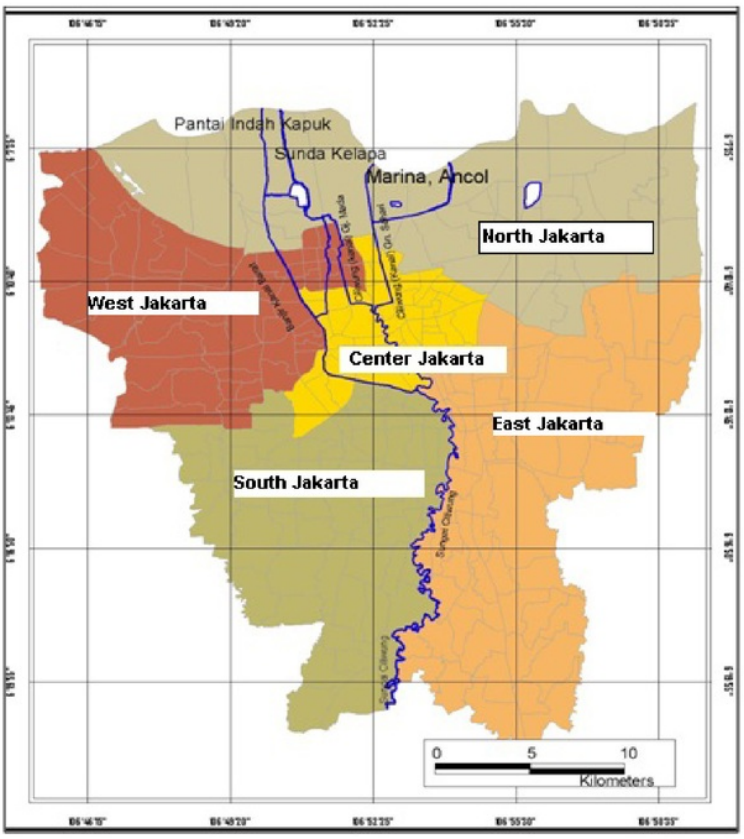
Ciliwung River is a part of Unit Area of River (SWS) of Ciliwung-Cisadane, stretching from upstream to downstream of 117 km, and has a river basin area (DAS) encompassing 337 km2 (BPLHD (District Environment Management Agency))of DKI Jakarta Province 2001; Department of settlement and Infrastructure of region and Dutch Government 2004). This river has upstream at Pangrango Mountain (3.019 meters above sea level), west java and it is ended in Java Sea, Province of DKI Jakarta.

Based on Government regulation No. 47/1997 on National Spatial Plan, Ciliwung River is devided into three parts:

1. River basin/watershed of the Upstream (from Pangrango Mountain until the edge of Bogor city);

2. River basin of the middlestream (from bogor boundary to DKI Jakarta boundary);
3. River basin of the Downstream (within DKI Jakarta until Sea Java).

Part of downstream of Ciliwung River is one of 13 rivers passing through within Jakarta city. The river is periodic river where the water is much in the rainy season and less in the dry season.



Sumber: Bakosurtanal (2005)

Figure 9.Location of Ciliwung River in DKI Jakarta

Seen from its character, the ciliwung river is categorized as dispersing system, where the river has scatter pattern system in the upstream and the downstream. The river flows into Jakarta City region through Srengseng Sawah in South Jakarta, where the river flow is devided at Manggarai sluice gate, becoming West Canal Flood towards Muara Karang (Pantai Indah Kapuk), and

towards Istiglal sluice gate. The natural river flow which reaches to Istiqlal sluice gate is once again devided into two way, towards Jalan Gajah Mada and towards Jalan Gunung Sahari, where both of them functions as canal, (Figure 9).

The downstream of ciliwung river has numerous problems, some of them are land use change and decreasing environment quality in the GSS region, as well as flood hazard. Based on that condition, BPLHD of DKI Jakarta Province for clean river program (PROKASIH) in 2005, devided Ciliwung River in Jakarta into three sectors based on land use, namely:

1. The upstream sector, starting from Kelapa Dua (Srengseng Sawah) until Pejaten Timur, the land use is a combination of green (agriculture and plantation) and settlement.
2. The downstream sector, starting from Pejaten Timur until Manggarai sluice gate. The land use in this sector is dominated by dense population. Meanwhile the land use is divided into quite dense population in Pejaten Timur – MT Haryono, then dense population in MT Haryono – Jalan Casablanca, and highly-dense population in jalan Casablanca – Manggarai sluice gate.
3. The downstream – estuary sector, is divided into two directions namely Manggarai sluice gate until Muara Angke, and Manggarai sluice gate until Muara Bintang Mas. In this sector, the downtown area is relatively organized, although it is getting worst the closer it gets coast. At the coast area, land is back used as dense and slum settlement.

In 2004, Department of Settlement and Infrastructure of Region cooperates with Dutch Government to divide Ciliwung River basin at downstream into three sectors based on physical characteristic and water flows debit, as follows:

1. The top of Ciliwung downstream, starting from Depok until Manggarai. Usage of river as drinking water and agricultural need. The water quality is relatively good, with good condition flow. The pattern of land use is dominated by a mixture of settlement and economy sector (national services standard).
2. The middle of Ciliwung downstream, starting from Manggarai until Pasar baru, as flood-hazard sector. Mostly the water quality in the segment has been polluted and not healthy, with small water flow condition. The pattern of land

use is dominated by a mixture of man activity of national government focal point sector, and urban ecomony sector (national services standard).

3. The base of Ciliwung downstream , starting from Pasar baru until Jakarta bay. The sector has water quality condition which has largely been heavily polluted, with small water flow condition. The pattern of land use is dominated by a mixture of main activity of urban economy (national services standard).

1. Physical Condition

Area of DKI Jakarta and its surrounding , in which the Ciliwung river is located, is situated on lowland area, with elevation of 0 -100 above sea level, with a gentle slope of 0-8%. An average temperature of 24-44^0 C, and an average rainfall of 200-250 mm/yr, within which the rainy season falls on December until March (Department of Settlement and Infrastructure of Region and Dutch Government 2004).

Lithological condition of the region is in form of sedimentary and volcanic rocks (volcano), with geological condition in form of sedimentary rocks shaping the heterogeneous and complex aquifer system. The system is characterized by the interfingering between aquifer and akitar system on the north-south cross section which thickens to the north, while east-west cross section which thickens toward the center. The depth of aquifer is of 0 – 300 m above sea level. ((Hutasoit 2002, quoted in BP DAS Citarum – Ciliwung 2003). Furthermore, the mechanism of the geological structure in the Jakarta area has been affecting the formation of depressive or basin morphology (the physiographic and tectonic). This is found in Bogor-Jakarta periphery area within which there are two water basins, bordered by impermeable tertiary rocks which is relatively shallow, uncovered in Bulak Kulon area (south Depok). Due to the geological conditions, the abundant flow of surface water from the south in the rainy season cannot be completely infiltrated. This has become one of the causes of floods in Jakarta.

In general, most environmental conditions and water quality Ciliwung damaged and polluted. One of reasons is the change in land use in the upstream and alongside the river, the green of the land change into residential and industrial land. This is an impact on the growing industrial and domestic waste into the river

(Department of Settlement and Infrastructure of Region & Government of the Netherlands 2004)

Furthermore, based on Province BPLHD Jakarta (2001), water quality pollution load comes from three sources. First, instansional pollutants, sources of pollutants that come from a variety of activities ranging from small to large-scale activities, with the manager or person in charge of activities are evident in the management of wastes, such as industry, commerce, hospitals, and others. Second, non instansional pollutants from household activities, agricultural, or other, which is clearly in charge of waste management. Finally, sources of pollutants originating from outside Jakarta, from upstream, in the form of waste derived from the population activity (domestic waste), waste, agriculture, etc.

2. Land Use Pattern

Pattern of Land Use and Regional Spatial Plan 2010 aroung the Ciliwung River can be seen in Table 11.

Table 11. Pattern of Land Use and an RTRW 2010

Item	Upper Ciliwung Downtream Segment	Center Ciliwung Downstream Segment	Low Ciliwung Downtream Segment
Landuse model	Mixed use (residential & the urban economic areas); national service standards	Mixed use (national govrenment & the urban ecomic areas); national service standards	Mixed use with urban economic activity (main sector); national service standards
RTRW DKI Jakarta until 2010	Residential with low low land building coefficient (KDB)	Public & Socio Facilities (government building)	Commercial Trade Center
The Potential Region for Central Government, trading, business	Pusat perdagangan grosir di Kramat Jati	- Medan Merdeka - Menteng - Sudirman Central Business District - Gambir Station	- Pasar Baru, Glodok & Mangga Dua. - Sunda Kelapa Harbor - Commercial, warehouses, Recreation (Ancol) areas.

Sources: Department of Settlement and Infrastructure of Region & Government of the Netherlands (2004).

3. Flood Risk

Ciliwung River that crosses the city of Jakarta is a river that has many problems, one of which is flooding caused by hydrogeological conditions at the border of Bogor and Jakarta so that water cannot be infiltrated to the maximum

and turn out to be surface water. This condition is exacerbated by the reduced capacity of the river due to sedimentation and erosions from the uplands, as well as land use change to settlements alongside the riverbanks of the center of downstream.

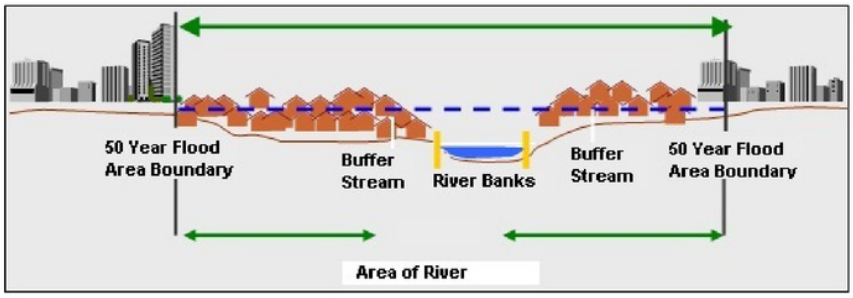
In anticipation of floods problem, in 1997 the government has created a master plan that established a demarcation line of the river (GSS) Kelapa Dua Sector (Srengseng Sawah) to the sluice gate Manggarai, ranging from 60-85 m. GSS is based on the calculation of the highest annual rainfall once in 100 year (R100), which can have capacity for up to 370 m3/second river discharge. Nevertheless with the passage of time and uncontrolled development in the upstream to downstream, then in 1994, Ciliwung river water discharge has been increased to 570 m3/second. It also coincided with increased erosion in the uplands. Comparison of capacity between the master plan Ciliwung River (1997) and river conditions in 2002 as shown in Table 12

Table 12. Capacity comparison of Ciliwung River between the Master Plan in. 1997 and River Conditions in 2002

No	Name of river/canal	Master Plan 1997			River / canal condition (2002)	
		DAS area (km^2)	Flood debit(m^3/detik)	Repeated period (Tahun)	capacity (m3/detik)	Capacity (%)
1	Ciliwung (Manggarai)	337	570 [1)]	100	100	17,5
2	West Flood Canal (Karet)	421	670 [2)]	100	400	59,7
3	East Flood Canal (Cakung)	207	370	100	0	0

Information: [1)] From Master Plan 1997 only 410 m^3/detik
[2)] From Master Plan 1997 only 480 m^3/detik
Source: Kimpraswil Departement dan Government of Netherland (2004).

Figure 10 shows the results of the study from the Department of Regional Settlement and Infrastructure in collaboration with the Dutch government (2004), regarding to the delineation of the management plan of Ciliwung River downstream based on the results of the worst flood risk analysis, with reference to the border of the worst floods that occurred due to the maximum discharge in Ciliwung River. While the assessment and management efforts that have been done in order to improve the quality of the environment and overcome the flooding in Jakarta and Ciliwung River, can be seen in Table 13.



Sumber: Kimpraswil Department, and Government of Netherland (2004).

Figure 10. Ciliwung River Planning Area Boundary in Jakarta

Table 13. Efforts and Studies the Government and NGOs to Ciliwung River Management

No	Effirt/Project/Title	Institution	Year
Efforts			
1	Prokasih	BPLHD Prov DKI Jakarta	1989 - 1999 2005
2	Waterway	Dinas Perhubungan Prov. Jakarta	2005
Studies			
1	Kajian Pustaka: Penataan Lanskap Bantara Sungai di Perkotaan DKI Jakarta	Dinas Pertamanan Prov. DKI Jakarta	2000
2	Determination of Area Boundary Ciliwung River Basin Management	Direktorat Penataan Ruang Wilayah Tengah, Government of Netherland	2004
3	Penyusunan Model Pengelolaan Dampak Lingkungan Berbasis pada Masyarakat	Pemda DKI Bekerja sama dengan Fisipol, UGM, Yogyakarta	2002
4	Pemaduserasian Rencana Tata Pengaturan Air DAS Ciliwung-Cisadane Terhadap Rencana Tata Ruang Kawasan Bopuncur dan Jabotabek	Direktorat Penataan Ruang Wilayah Tengah	2002
5	Penanganan Pasca Banjir dan Kerusuhan Sosial: Pekerjaan Penyiapan Model Pengendalian Pemanfaatan Ruang (Kasus Kawasan Bidara Cina)	Dep. Kimpraswil, Dirjend. Penatan Ruang.	2002
6	Rencana Pengelolaan DAS Terpadu DAS Ciliwung	BP DAS Cisadane-Ciliwung, Fahut, IPB	2003
7	Kajian Penanganan Sampah Sepanjang Kali Ciliwung	Dinas Kebersihan Prov. DKI Jakarta	2005
8	Pemberdayaan institusi untuk pengelolaan banjir Jabotabek	Dep Kimpraswil, JICA	2006
9	Seminar: Work Flood Hazard Mapping: Non Structural Measures Jakarta Flood Management	Jakarta Flood Team – Netherlands Water Partnership	2007
10	Survey Pengetahuan, Sikap dan Perilaku Masyarakat Kampung Melayu Terhadap Bencana Banjir	NGO: Action Contre la Faim	2006
11	Others		

4. Population and Socio-Economic Conditions

The population density in the downstream Ciliwung quite varied, with an average of 14791.49 people/km^2. The highest density in the center of the region downstream Ciliwung (23.812.32 people/km^2), with the densest urban village, Kampong Melayu at 47.383.33 people/km^2 (Table 14)

Table 14. Population Density in the Village alongside Ciliwung River, Jakarta (2006)

No	Village	District	Population. (people)	Regional area. (km^2)	Population Density. (people/km^2)
	Top of Downstream				
1	Srengseng Sawah	Jagakarta	49.953	6,75	7.400,44
2	Lenteng Agung	Jagakarta	50.653	2,28	22.216,23
3	Tanjung Barat	Jagakarta	29.383	3,65	8.050,14
4	Pejaten Timur	Pasar Minggu	46.219	2,88	16.048,26
5	Kalisari	Pasar Rebo	30.501	2,90	10.517,59
6	Baru	Pasar Rebo	24.858	1,89	13.152,38
7	Cijantung	Pasar Rebo	33.976	2,38	14.275,63
8	Gedong	Pasar Rebo	29.935	2,63	11.382,13
	Jumlah		295.478	25,36	11.651,34
	Middle Downstream				
9	Rawajati	Pancoran	16.491	1,44	11.452,08
10	Pangadegan	Pancoran	18.482	0,94	19.661,70
11	Cikoko	Pancoran	9.807	0,72	13.620,83
12	Kebon baru	Tebet	36.924	1,30	28.403,08
13	Bukit Duri	Tebet	42.120	1,08	39.000,00
14	Manggarai	Tebet	34.075	0,95	35.868,42
15	Balekambang	Kramat Jati	20.341	1,68	12.107,74
16	Cililitan	Kramat Jati	43.685	1,76	24.821,02
17	Cawang	Kramat Jati	31.967	1,79	17.858,66
18	Bidara Cina	Jatinegara	42.946	1,26	34.084,13
19	Bali Mester	Jatinegara	12.707	0,67	18.865,67
20	Kampung Melayu	Jatinegara	22.744	0,48	47.383,33
21	Kebon Manggis	Matraman	21.324	0,78	27.338,46
	Jumlah		353.613	14,85	23.812,32
	Bottom of Downstream				
22	Palmeriam	Matraman	18.023	0,65	28.004,62
23	Kenari	Senen	8.380	0,91	9.208,79
24	Kwitang	Senen	16.664	0,45	37.031,11
25	Senen	Senen	6.115	0,81	7.549,38
26	Pegangsaan	Menteng	23.127	0,99	23.360,61
27	Cikini	Menteng	7.572	0,83	9.122,89
28	Kebon Sirih	Menteng	10.711	0,83	12.904,82
29	Gambir	Gambir	2.974	2,58	1.152,71
30	Pasar Baru	Sawah Besar	13.261	1,89	7.016,40
31	Gunung Sahari Utara	Sawah Besar	20.276	1,89	10.728,04
32	Kartini	Sawah Besar	25.554	0,57	44.831,58
33	Mangga Dua Selatan	Sawah Besar	22.767	1,29	17.648,84
34	Pademangan Barat	Pademangan	63.506	3,53	17.972,55
35	Ancol	Pademangan	17.366	3,77	4.602,95
	Amount		256.296	21,00	12.206,72
	Total		**905.387**	**61,21**	**14.791,49**

Sources: BPS (2006)

Economic conditions of Ciliwung River downstream region is divided into three regions. First, in the upper of Ciliwung Downstream dominated by service sector, trade and small industries such as shops, small industries manufacturing food (tofu, cassava chips, bread), and convection. Furthermore, in the middle of Ciliwung Downstream dominated by informal sector and household industries, such as services (porters), household industries making tofu and Tempe. Finally, in the bottom Ciliwung Downstream dominated by formal sector and trade.

DISCUSSION AND RESULTS

Ciliwung River Biophysic Condition

Biophysical environment is an important aspect to consider in developing regional into a regional tourism, which serves as a medium for ecotourism activity in the region. An area that is planned for ecotourism should have a good quality biophysical. It is said to be good, if the elements of biophysical have functional and processes relation one to another. Damage to one element may result in changing the entire hydrological and biological processes in the river area (Rahmafitria 2004). When this happens, then the area function as a medium for ecotourism does not meet its full potential. Therefore to restore the balance between the biophysical elements, it is necessary to do improvement. It is important to restore the quality of the biophysical, that the eco-tourism activities could be done and continued in the region.

In developing Ciliwung River as ecotourism region it is necessary to assess the biophysical quality. This is to determine the level of damage on each biophysical element. The parameter for assessment is divided based on the two aspects namely riverbanks and water quality. Assessment is carried out at 11 point of observation locations, and interviews with 100 people (n = 100).

Besides the environmental quality assessment was also conducted based on secondary data and interviews with relevant institutions, namely the Directorate of Spatial Planning Region II in Department of Public Works, Planning and Regional Development Agency of DKI Jakarta, the Regional Environment Management Agency of DKI Jakarta (BLHD), the Provincial Department of City Planning Jakarta, Public Works Agency of DKI Jakarta Province, Central Region of Ciliwung Cisadane River Region Unit (BBSWSCC), Jakarta Provincial Parks Department and the Jakarta Provincial Tourism Office Department.

1. Riparian

The assessment of riverbanks quality is carried out based on some parameters namely landslide hazards, flood hazards, and land use (USDA 1968; Umar 2005). The assessment results are categorized into three levels namely high level (H), moderate (M), and low LR) shown in Table 15. Of the 11 sites were

observed, there are two sites (18%) included in the classification of H, Pasar Baru and Marina Ancol, six sites (55%) were classified as M, namely the Tanjung Barat-Cijantung, Pejaten Timur-Gedong, Pejaten Timur-Balekambang, Rawajati-Cililitan, and Cikini-Kenari, and three locations (27%) are classified as L, that is the Lenteng Agung-Kalisari, Kebon Baru-Bidara Cina, and Bukit Duri, Kampung Melayu.

Table 15. Ecotourism Region Condition based on the Quality of Ciliwung River Bank in Jakarta

	Observation Location	Landslide Hazards		Flood Hazards		Land use		Quality	
		S	R	S	R	S	R	S	C
1	Srengseng Sawah	25	S4	100	S1	100	S1	**225**	M
2	Lenteng Agung – Kali sari	50	S3	50	S3	50	S3	**150**	L
3	Tanjung Barat – Cijantung	50	S3	75	S2	50	S3	**175**	M
4	Pj. Timur (Poltangan) – Gedong	75	S2	50	S3	50	S3	**175**	M
5	Pj. Timur (Ps. Minggu) – Balekambang	50	S3	75	S2	50	S3	**175**	M
6	Rawajati – Cililitan	75	S2	50	S3	50	S3	**175**	M
7	Kebon Baru – Bidara Cina	100	S1	25	S4	25	S4	**150**	L
8	Bukit Duri – Kampung Melayu	75	S2	25	S4	25	S4	**125**	L
9	Cikini – Kenari	100	S1	75	S2	50	S3	**225**	M
10	Pasar Baru	100	S1	100	S1	75	S2	**275**	H
11	Marina Ancol	100	S1	100	S1	75	S2	**275**	H

Information : S = Score,
R = Rank (S1=very suitable, S2=suitable, S3=less suitable, S4=not suitable)
C = Classification (L=Low, M=Medium, H=High), maximum Score 300

In general, Ciliwung Riverbank in Jakarta can be developed into a ecotourism area with a quality improvement program along the river. The program is in addition to a physical improvement, can also be the construction of facilities, and activities that support quality improvement along the river. This needs to be done in order to accommodate eco-tourism activities in the area, and give a safe and convenient atmosphere for tourists who visit. The application of this quality improvement program is necessary in the area which is included in the classification of M and L, starting from the upstream to middle stream of Ciliwung River in Jakarta.

Landslide hazards in the upper reaches of Jakarta is quite high and it is due to the condition of the riverbank slopes are quite steep with a height of more than 10 meters from surface of the water. To anticipate the risk of landslides and accidents on local residents and tourists, it should be built natural retaining wall or

plastering stone interspersed with vegetation on the wall of riverbank. The illustration of model retaining wall can be seen in Figure 11.

Sumber: http://savethehills.blogspot.com/2011_10_01_archive.html (2011)

Figure 11. Retaining Wall Illustration to Overcome Landslides

Table 16. Landslides and Floods Hazard Condition in the Ciliwung River Banks

	Observation Location	Landslide Hazard	Flood Hazard
1	Srengseng Sawah	High-risk	Never been flooded
2	Lenteng Agung - Kali sari	Fairly risky	1 time/5 yr. - 1 time/yr
3	Tanjung Barat – Cijantung	High-risk	1 time/5 yr
4	Pj. Timur (Poltangan) - Gedong	Less risk	1 time/5 yr - 1 time/yr
5	Pj. Timur (Ps. Minggu) - Balekambang	Fairly risky	1 time/5
6	Rawajati – Cililitan	Less risky	1 ime/5 yr. - 1 time/yr
7	Kebon Baru - Bidara Cina	Not at risk	>1 time/yr.
8	Bukit Duri - Kampung Melayu	Less risky	>1 time/yr
9	Cikini - Kenari	Not at risk	1 time/5 yr
10	Pasar Baru	Not at risk	Never been flooded
11	Marina Ancol	Not at risk	Never been flooded.

Source: Observation in the field and interviews with community (n=100), 2007.

Table 16 shows, that there is flood risk almost along the corridor of Ciliwung river in Jakarta, the closer to the middle the riverbanks condition gets higher risk. This is due to hydrogeological conditions, soil type (alluvial), and the high flow of water in the rainy season, as well as a narrowing of the body streams due to changes in land use. The results of field observations show a change in the utilization of the River Demarcation Line (GSS) of green area to settlement on most of the river corridor in Jakarta. The improvements that could be made to enhance the condition are:

a. Restructuring the riverbanks into the ecological green area. This serves to reduce the water runoff wasting into the river.
b. Building safety embankments

c. Dredging back the riverbed periodically, to increase river capacity and reduce sedimentation in the river bottom.

The attempts above function in addition to improve the riverbanks quality, it also serve as tourism object and attractions.

In general, the land use along the corridor Ciliwung in Jakarta has changed. Based on the results of the assessment indicate that a relatively good location is at the upstream and downstream, while the central corridor of Ciliwung River in Jakarta is the worst. The improvements that can be done as follows:

a. Realignment of the settlement, with the vertical system (flats). This serves to increase the green open space alongside the riverbank.
b. Relocation the settlements, to turn the GSS (River demarcation line) function back into the green area.

The improvement efforts above serves in addition to increase the quality of riverbank ecology, it also serves as educative tourism objects and attractions.

From the results of quality assessment of Ciliwung River floodplain as an ecotourism area , it can be concluded, that the quality of the Ciliwung riverbanks is relatively modest for tourism development (Figure 12). In an effort to improve the quality, it needs some improvement efforts. The improvement of the banks should be done naturally. However, it does not rule out the possibility for structural repairs as long as it is harmless to the environment, and supporting eco-tourism activities. The Improvements are needed in order to tourist activities in this area feel safe and comfortable.

2. Water Quality

Water is one of the major capital in the development of river tourism, where the reflection of sunlight on the water will cause a feeling of fun and create spirit effect to scenery (Simonds 2006). Besides the river water in urban area generally has an important function as a source of drinking water. Corresponding to the Decree of Jakarta Governor No. 582 of 1995, Jakarta Ciliwung River water has been designated as source of standar water for drinking water (group B). However, from the monitoring results from BLHD Jakarta Province and Deputy Assistant for Environment Impact Management Facility (SARPEDAL) Affair ,

Ministry of Environment (MoE), the field observation and outcome of analysis for Ciliwung River water quality, indicates that in general water quality, water color, and water flows of Ciliwung River have low quality meaning that it is substandard as raw water sources for water drinking (group B).

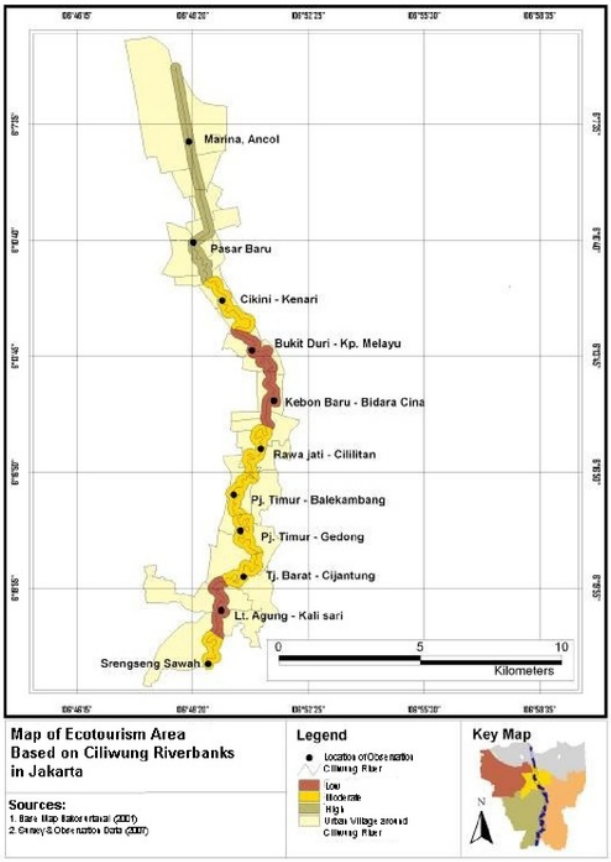


Figure 12. Map of Ecotourism Area Condition based on Quality of Ciliwung Riverbanks in Jakarta

Table 17 and Figure 13 show the results of assessment at 11 observation sites. The results indicate that there are no locations that are included in high classification (H) for the development of ecotourism. While the location that are included in modest classification (M) are four sites (36%), and the remainder are included in the low classification (L) that is seven sites (64%)

Table 17. Ecotourism Region Condition based on Ciliwung River Water Quality in Jakarta

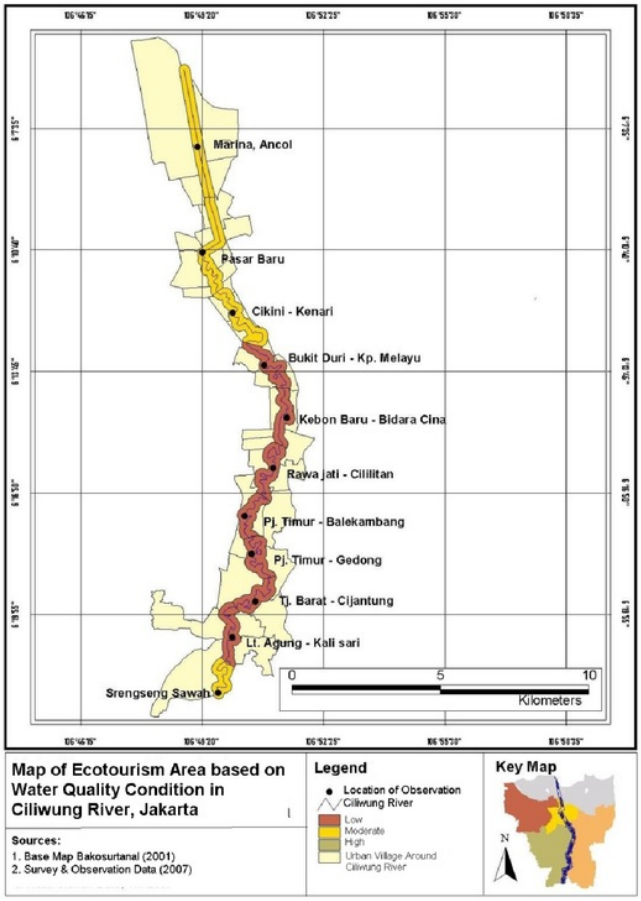
	Observation Location	Water Color		Water Debit		Sedimen-tation		Water Chemical Quality		Quality level	
		S	R	S	R		R	S	R	S	C
1	Srengseng Sawah	90	S2	60	S3	40	S3	20	S4	210	M
2	Lenteng Agung - Kali sari	60	S3	60	S3	40	S3	20	S4	180	L
3	Tanjung Barat - Cijantung	60	S3	60	S3	40	S3	20	S4	180	L
4	Pj. Timur (Poltangan) - Gedong	60	S3	60	S3	40	S3	20	S4	180	L
5	Pj. Timur (Ps. Minggu) - Balekambang	60	S3	60	S3	40	S3	20	S4	180	L
6	Rawajati - Cililitan	60	S3	60	S3	40	S3	20	S4	180	L
7	Asem Baris - Bidara Cina	60	S3	30	S4	40	S3	20	S4	150	L
8	Bukit Duri - Kampong Melayu	30	S4	30	S4	40	S3	20	S4	120	L
9	Cikini - Kenari	30	S4	90	S2	60	S2	20	S4	200	M
10	Pasar Baru	30	S4	120	S1	40	S3	20	S4	210	M
11	Marina Ancol	30	S4	120	S1	40	S3	20	S4	210	M

Keterangan : S = Score,
R = Rank (S1=very suitable, S2=suitable, S3=less suitable, S4=not suitable)
C = Classification (H= high, M= moderate, L= Low), maximum score 400.

The water quality seen from water color and sediment along the Ciliwung River tends to decline the closer it gets downstream. Brown water in the upstream turns out into black when it gets estuary downstream. This is because the contents of soil and sediment derived from erosion of the upstream watershed Ciliwung section, Puncak Area, West Java, and the increasing water pollutant. However, this condition is slightly improved in the rainy season, due to the influence of increasing water discharge into the riverbed. In consequence to reduce turbidity and improve the quality of water color, it should be made at of water lines or canal several locations coming into the Ciliwung River where the water entering the river has met the quality standard for drinking water.

One that affects the safety and security of tourists in doing activity on the river is water discharge conditions. From the results of monitoring from BLHD Jakarta Province and Deputy Assistant for Environment Impact Management Facility (SARPEDAL) Affair , Ministry of Environment (MoE) (2005) shown in Table 18, it indicates that there is a significant difference between the rainy season (May 2005) with the dry season (August 2005). Under these conditions the activities conducted on the river bed is incredibly limited, with limited time as well. Boating activities can be done in the upstream region in the dry season,

while they can be done at any time in the downstream of Ciliwung River in Jakarta.



Source : BLHD Prov. DKI Jakarta ASDEP Urusan Sarpedal KLH (2005).

Figure 13. Ecotourism Regions Condition Map Based on Water Quality of Ciliwung River in Jakarta

Good water quality is necessary to support ecotourism activities which are directly related to the water. Parameter to assess water quality of Ciliwung River is biological oxygen demand (BOD), chemical oxygen demand (COD) and dissolved oxygen (DO). BOD is needed in a certain amount for micro-organisms in the aquatic environment, where its function is to break down or degrade organic waste materials in the environment. This process can be performed at a temperature of 20°C, for 5 days (Alaerts 1987, referred to in Maryati 1999). While

a certain amount of COD is required to oxidize the waste through chemical reactions (Maryati 1999). Increased levels of BOD and COD in river water are automatically resulting in reduced DO (Dissolved Oxygen) levels. This condition just enables only certain organisms to live. From the results of monitoring from BLHD Jakarta Province and Deputy Assistant for Environment Impact Management Facility (SARPEDAL) Affair, Ministry of Environment (MoE) (2005) on Ciliwung in Jakarta, it appears that the average BOD contained is above the IV class and COD levels contained is included in III class, while DO is included in group III and IV (Table 19). So it can be concluded that in general Ciliwung River has poor water quality. This condition tends to improve in the rainy season due to the increased water discharge and stream power (strong currents) of water to dissolve the BOD and COD so that they are immediately discarded. Therefore the developed tourism activities should not be directly related to or contact with river water, like swimming.

Table 18. Monitoring Results of Water Debit in May and August of 2005 in Ciliwung River, Jakarta

	Observation Location	Water Debit (m^3/secnd)	
		May	Augut
1	Srengseng Sawah (Kelapa Dua)	11,21	2,83
2	Lenteng Agung - Kali sari	nd	nd
3	Tanjung Barat – Cijantung	nd	nd
4	Pj. Timur (Poltangan) – Gedong	nd	nd
5	Pj. Timur (Ps. Minggu) - Balekambang (Condet)	8,88	6,10
6	Rawajati – Cililitan	nd	nd
7	Asem Baris - Bidara Cina	nd	nd
8	Bukit Duri - Kampung Melayu (Manggarai)	15,24	1,86
9	Cikini – Kenari (Kwitang)	0,44	0,60
10	Pasar Baru	nd	nd
11	Marina Ancol	nd	nd

Information : nd = no data
Source : BLHD Prov. DKI Jakarta, ASDEP Urusan Sarpedal KLH (2005).

Based on the analysis of water quality that are shown in Figure 13, it can be concluded that along the corridor of Ciliwung river in Jakarta, there are not areas included in the high category (H). There are four locations that are included in the medium category (M), and seven sites included in the low category (L). location with M category was SrengsengSawah, Cikini -Kenari, Pasar Baru, and Marina Ancol.

Table 19. Monitoring Results of Ciliwung River Water Quality, 2005

	Observation Location	BOD (mg/l)			COD (mg/l)			DO (mg/l)		
		May	Agt.	class	May	Agt.	Class	May	Agt.	Group
1	Srengseng Sawah (Kelapa Dua)	14,15	13,40	IV	25,24	85,11	III	3,52	1,78	III
2	Lenteng Agung – Kalisari	Nd	Nd	Nd	Nd	Nd	Nd	Nd	Nd	Nd
3	Tanjung Barat - Cijantung	Nd	Nd	Nd	Nd	Nd	Nd	Nd	Nd	Nd
4	Pj. Timur (Poltangan) - Gedong	Nd	Nd	Nd	Nd	Nd	Nd	Nd	Nd	Nd
5	Pj. Timur (Ps. Minggu) - Balekambang (Condet)	3,15	12,50	IV	11,65	60,85	III	2,83	2,45	III
6	Rawajati – Cililitan	Nd	Nd	Nd	Nd	Nd	Nd	Nd	Nd	Nd
7	Asem Baris - Bidara Cina	Nd	Nd	Nd	Nd	Nd	Nd	Nd	Nd	Nd
8	Bukit Duri - Kampung Melayu (Manggarai)	14,70	16,00	IV	33,33	37,45	II	5,09	0,07	IV
9	Cikini – Kenari (Kwitang)	6,70	25,20	IV	15,00	62,13	III	0,25	0,81	IV
10	Pasar Baru	15,00	16,60	IV	33,33	73,62	III	0,28	0,08	IV
11	Marina Ancol	Nd	nd	nd	nd	nd	Nd	nd	Nd	Nd

Information : Classification Standard based on BPLHD (2005); Riwayati (1994):
BOD (Class I= 2 mg/l, Class II= 3 mg/l, Kelas III= 6 mg/l, Class IV= 12 mg/l),
COD (Class I= 10 mg/l, Class II= 25 mg/l, Class III= 50 mg/l, Class IV= 100/l),
DO (Group. I=6.6 mg/l, Group. II= 4.5-6.5 mg/l, Group. III= 2.0-4.4 mg/l, Group. IV= 2 mg/l), nd = no data

To improve water quality in the realization of the eco-tourism region development plan, it is necessary to conduct the physical improvements and construction of wastewater treatment facilities in several locations. Despite the physical improvements are being made by the government, but they must be supported by the application of unambiguous and strict regulation , like fines for violating the provision of, and appreciation for the people who maintain and help repair the environment. In addition, the construction of wastewater treatment facilities need to be prepared in several locations that could potentially pollute the river.

3. Biophysic

Biophysical conditions generated from compositing of riverbanks condition and water quality as shown in Table 20 and Figure 14, shows no locations that are included in the highly potential zone, eight sites (73%) are potential zone (P), and the remaining three sites (27%) are not potential (NP). So it can be concluded that in general Ciliwung River in Jakarta has quite potential to be developed into ecotourism region with several improvement programs.

Table 20. Potency Level of Ecotourism Region Based on Biophysical Condition of Ciliwung River in Jakarta

Point of Observation Location	River bank		Riverbed		Potential Level	
	S	C	S	C	A	Z
1 Srengseng Sawah	**225**	M	15	M	**435**	P
2 Lenteng Agung - Kali sari	**150**	R	180	L	**330**	NP
3 Tanjung Barat – Cijantung	**175**	M	180	L	**355**	P
4 Pj. Timur (Poltangan) – Gedong	**175**	M	180	L	**355**	P
5 Pj. Timur (Ps. Minggu) -Balekambang	**175**	M	180	L	**355**	P
6 Rawajati – Cililitan	**175**	M	180	L	**355**	P
7 Kebon Baru - Bidara Cina	**150**	L	150	L	**300**	NP
8 Bukit Duri - Kampung Melayu	**125**	L	120	L	**245**	NP
9 Cikini – Kenari	**225**	M	200	M	**425**	P
10 Pasar Baru	**275**	H	210	M	**485**	P
11 Marina Ancol	**275**	H	210	M	**485**	P

Information : S = Score, T = Total (maximum 700, minimum 175).
C = Classification (H= High, M=Medium, L=Low).
Z = Zona (VP= Very Potential, P=Potential, NP=Not Potential).

Existing Tourism Objects and Attractions Potential

Tourism Objects and attractions available along the study's sites are quite diverse. From data collection (primary and secondary) it is known that there are 23 tourism objects and to 44 tourism attractions. Once classified, it is found that there are 15 tourism objects in form of structures (65%), and the rest of them are natural and cultural attractions (35%). As seen from its spreading, at each observation site there is at least one tourism object, with one or more tourism attractions.

Assessment of Object and attractions is performed in two stages, firstly to assess the potential of available objects and attractions, second, to assess the suitability of such tourism objects and attractions. Assessment of tourism objects and attractions potential is conducted with six assessment parameters (historical, uniqueness, social functioning, and harmony with the environment, attractiveness, and scarcity). The Assessment results which are shown in Table 21, show that there are 15 high-potential tourism attractions (H) to be developed, 23 medium-potential tourism attractions (M), and six low- potential attractions (L).

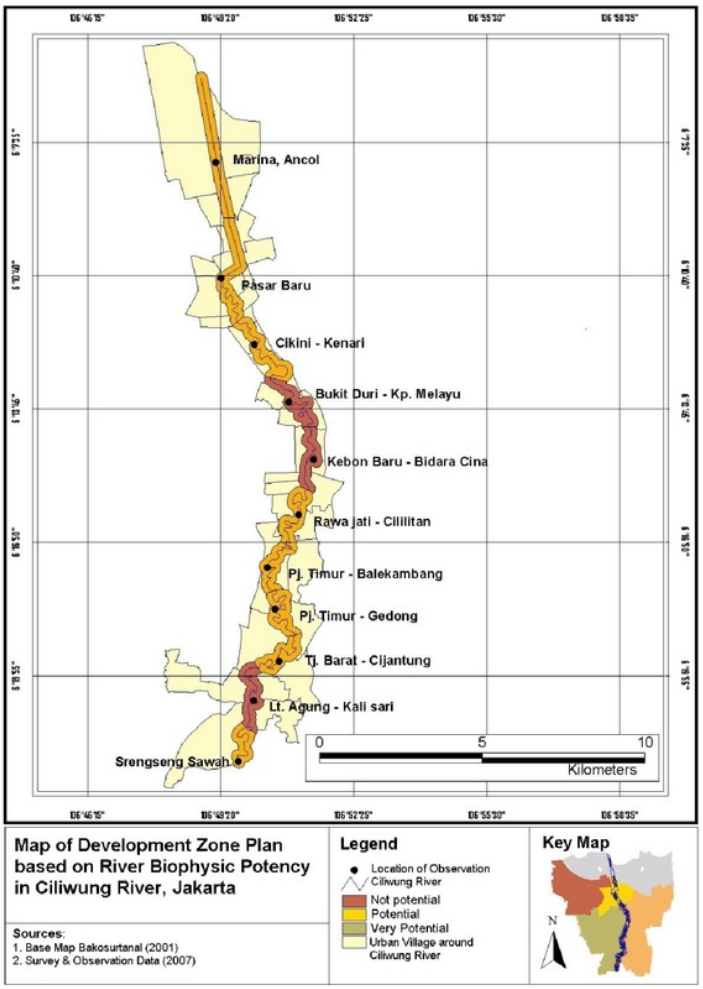


Figure 14. Map of Planning of Ecotourism Region Development Based on Biophysical Potential of Ciliwung River in DKI Jakarta

The second phase assessment has observed the existing tourism object and attractions suitability to be developed into ecotourism. The Assessment has been done by using five parameters modified between Inskeep (1991), Yusiana (2007), and Bappeda Malang (2006), referred to in Prasasti (2008). The Assessment results shown in Table 22 indicate that there are 8 high-potential tourism objects (HP) as ecotourism resources, 16 moderate-potential objects (P), which need some improvements and additions to improve the quality, and one not-potential

tourism object (NP), which needs to be very specific and serious treatment to enhance the potential of ecotourism as an ecotourism object.

Based on the two phase's assessment above, it could be concluded that the exiting tourism object and attractions alongside the Ciliwung river corridor have good condition (HP) on upstream and downstream. The condition is inversely proportional in the middle of river corridor in which is likely to worsen (NP), so that it is not potential to be developed into tourism object and attractions in the ecotourism region (Figure 15).

Although the assessment results are quite varied, but in general all the existing objects and attractions in Ciliwung River corridor need improvement, especially on ecological aspects, and completeness of tourism facilities. In an attempt to improve tourism object and attractions condition to be more ecological, there are some efforts can be done such as rearrangement of tourism object orientation and addition of vegetation surrounding the tourism objects and attractions environment. While the facility will be added to any tourism object and attractions, tailored to the needs of the region and should be ecological.

Figure 16 shows the tourism objects and attractions included in the High-Potential classification (HP) and sufficient to meet suitability for urban ecotourism in Ciliwung River, which is:

1. **Ciliwung Water Tourism**. The tourism Object and attraction is held every year in Srengseng Sawah to the Tanjung Barat (locations 1-3), in celebrating Jakarta City Birthday June 22. The Organizer is Local Government of South Jakarta with the Jakarta provincial BPLHD. The attractions that will be presented in form of such contest like decorating raft, catching the duck, climbing palm tree over the water, riding a raft made out of tires, and planting vegetation along the river.
2. **Dance and Karawitan laboratory**. The building is located on-site observation 4 (Pejaten Timur. - Gedong), and it is included in Balekambang village. Building form of this laboratory has characterized the Betawi culture. Besides this building serves as a place of learning, practicing and performing arts and Betawi culture.

3. **Condet Region**. This area encompasses Batu Ampar Village, Balekambang, and DukuhVillage. The area has been designated as cultural heritage area and preservation of fruits by Governor Decree No. D. IV-IV-115/e/1974. In the region there are a few sights of traditional residential buildings, and fruit agro tourism. Some traditional Betawi houses in this area are hundreds of years old and have indigenous form even building materials used are still the original (never replaced). This area is also famous of fruit, like dukuh and salak. The attractions can be found in this region are attractions of cultivation of fruit trees and watching birds which are migrating. In mid-November it can be viewed attractions of alap Nippon bird hawk (*Accipiter gularis*), kirik-kirik laut (*Merops philippinus*), and kirik-kirik senja (*Merops lescechenaulti*) which are migrating.
4. **Rawajati Agro tourism. The** Agro tourism is located in the ZENI Housing complex. The Tourism object is presenting the attractions of the cultivation of ornamental plants, composting, a beautiful residential setting, and pond for fishing. Still at certain times there will be arts and culture attractions.
5. **Jakarta Art Building**. The building is located in Pasar Baru that serves as a performing arts point, in where artists come together, express and perform their works. The building was initially built in 1814 by the Governor-General of England, Thomas Stamford Raffles, then changed into a cinema and *City theater* during the Japanese colonial era, and returned to art building in 1984. This building is a historic building, which has a colonial architectural style.
6. **Jakarta Cathedral Church**. The church is located in Pasar baru, officially used in 1901 and has the neo-gothic style of architecture of Europe, which is commonly used at that time. This church was designed by Father Anthony Dijkmans, while the first stone laying is done by Carolus Provicaris Wenneker, and the usage was inaugurated by Mgr. Edmund Sybradus Luypen, SJ, Vicar Apostolic. This building is a replacement building to Cathedral building that collapsed in 1890. By the Government, the Cathedral is set to be the building of cultural heritage.
7. **Istiqlal Mosque**. Istiqlal Mosque is the grandest mosques in the country and the largest in Southeast Asia, thus becoming the pride of Indonesia. Architect

of this mosque is F. Silaban. Its construction was announced by President Soekarno on December 7, 1954 and its use was inaugurated by President Soeharto on 22 February 1978. Istiqlal in Bahasa Indonesia means independence, the name was chosen to describe the condition of the newly independent Indonesia.

8. **The Dream Park Ancol**. Located at locations of 11, namely the northern of Jakarta city, is the largest and most popular recreation areas in Indonesia. This area is available on a variety of recreational areas, and supporting facilities. Recreational facilities are available such as beach, rides freshwater and seawater, Fantasy World, Sea World, swimming pools, drive in theater, sports facilities for bowling and golf, and lake for fishing spots. For Supporting facilities, there are hotel, marina, Pasar Seni (art market) in which there is variety of handicrafts and arts.

Table 21. Potency Level of Ecotourism Area of Ciliwung River in Jakarta Based on Tourism Objects and Attractions

Observation Locations		Objects		Attractions	Parameter						V	P	S
					I	II	III	IV	V	VI			
1	Srengseng Sawah	1	River Attraction	Cultural Festival	27	23	22	22	16	16	126	T	**S2**
				Water Attraction	19	20	24	24	19	13	119	S	
		2	Natural Scenery	Natural Scenery	11	15	14	25	27	13	105	S	**S2**
				Monkey (*Macaca fascicularis*) Attraction	11	20	11	24	25	20	111	S	
2	Lenteng Agung – Kalisari	3	River Attraction	Water Attractions	19	20	24	24	19	13	119	S	**S2**
				Monkey (*Macaca fascicularis*) Attract.	11	20	11	24	25	20	111	S	
3	Tj. Barat – Cijantung	4	River Attraction	Water Attractions	19	20	24	24	19	13	119	S	**S2**
4	Pejaten Timur – Gedong	5	Dance & Karawitan Lab.	Traditional Buildings	20	24	27	20	22	20	133	T	**S1**
				Betawi Art Perform.	20	24	27	19	22	20	132	T	
5	Pejaten Timur - Balekambang	6	Condet Area	The Traditional Building	15	24	23	22	22	18	124	T	**S1**
				Bird Attractions	15	22	20	25	26	22	130	T	
				Cultivation of Fruit plants	22	20	20	22	20	19	123	T	
6	Rawajati-Cililitan	7	Agrotourism Area	Cultivation of Flower Plants	16	25	26	26	26	16	135	T	**S1**
7	Kebon Baru – Bidara Cina	8	Density Residential	The Community Life	0	0	0	0	0	0	0	R	**S4**
8	Bukit Duri – Kampong Melayu	9	Bali Mester Market	Shopping	16	19	15	17	18	14	99	S	**S2**
		10	Manggarai Sluice	Sluice Atrraction	18	16	17	22	15	14	102	S	
				Architecture of Sluice	22	18	19	17	15	15	106	S	
9	Cikini – Kenari	11	RSCM Hospital	The Historical Arch.	23	17	20	17	16	16	109	S	**S2**
		12	Cikini Market	Parcel Market	15	19	15	15	13	12	89	R	**S3**
				Gold Shops	17	18	15	15	18	13	96	S	
				Flower Market	17	17	16	21	16	13	100	S	
		13	Taman Ismail Marjuki	Art Activity	20	23	19	19	19	14	114	S	**S2**
				IKJ (Artedutourism)	18	18	18	18	21	16	109	S	
				Planetarium	21	20	19	20	21	16	117	S	
				Art Performances	21	21	21	20	26	17	126	T	
10	Pasar Baru	14	Istiqlal Sluice	Sluice Attraction	15	15	15	17	11	11	84	R	**S3**
				Architecture of Sluice	18	17	17	15	18	14	99	S	
		15	*Kesenian Jakarta* Building	Historical Architecture	24	21	19	20	22	18	124	T	**S1**
				Cultural Art Performance	22	26	22	21	19	18	128	T	
		16	Philately Building	The Historical Architecture	24	19	19	19	17	16	114	S	**S3**
				Philately	15	14	13	13	13	14	82	R	
		17	Antara Building	News Museum	17	15	16	15	14	15	92	R	**S3**
		18	Cathedral	Heritage Building	29	25	24	25	21	18	142	T	**S2**
				Pilgrimage	22	20	24	21	17	14	118	S	
		19	Istiqlal Mosque	Architecrure	30	25	26	25	21	18	145	T	**S1**
				Pilgrimage	25	25	29	25	21	18	143	T	
		20	Art Painting Market	Painting Actifities Shows	18	22	18	19	16	13	106	S	**S2**
		21	Pasar Baru	Shopping Mall	24	19	19	19	20	13	114	S	**S2**
				Festival	18	18	18	19	18	12	103	S	
11	Marina Ancol	22	Mangga Dua Shopping Mall	Shopping	20	20	20	19	26	14	119	S	**S2**
		23	*Ancol Jakarta Bay*	Sluice Actifity	15	15	15	17	11	11	84	R	**S1**
				Marina Activity	20	21	22	21	23	15	122	S	
				Recreation	23	24	24	23	29	17	140	T	
				Beach Scenery	23	24	24	26	21	17	135	T	

Information : I = Historical, II = Uniqueness, III = Socio fuction, IV = Environment Harmonize, V = attractiveness, VI = scarcity.
V = value (max.= 145, min.= 0)
P = potency (H = High, M = Moderate, L = Low)
S = score (S1=very suitable, S2=suitable, S3=less suitable, S4=not suitable)

Table 22. The Suitability Level of Tourism Objects and Attractions of Ecotourism in Ciliwung River, Jakarta

	Observation Locations	Tourism Potential	Suitable Parameter										V	K
			I	S	II	S	III	S	IV	S	V	S		
1	Srengseng Sawah	1. River Attractions	120	S2	60	S2	80	S1	40	S1	10	S4	**310**	VP
		2. Natural Scenery	120	S2	60	S2	60	S2	40	S1	10	S4	**290**	P
2	Lt. Agung – Kalisari	3. River Attractions	120	S2	60	S2	40	S3	20	S3	10	S4	**250**	P
3	Tj. Barat – Cijantung	4. River Attractions	120	S2	60	S2	40	S3	20	S3	10	S4	**250**	P
4	Pj. Timur – Gedong	5. Dance & Karawitan Lab.	160	S1	40	S3	60	S2	30	S2	10	S4	**300**	VP
5	Pj. Timur – Balekambang	6. Condet Area	160	S1	80	S1	60	S2	30	S2	10	S4	**340**	VP
6	Rawajati-Cililitan	7. Agrtourism Area	160	S1	60	S2	60	S2	30	S2	10	S4	**320**	VP
7	Kebon Baru – Bidara Cina	8. Density Residential	40	S4	20	S4	20	S4	10	S4	10	S4	**100**	NP
8	Bukit Duri – Kp Melayu	9. Bali Mester Market	120	S2	20	S4	80	S1	40	S1	10	S4	**270**	P
		10. Manggarai Sluice	120	S2	20	S4	80	S1	40	S1	10	S4	**270**	P
9	Cikini – Kenari	11. RSCM Hopital	120	S2	20	S4	80	S1	40	S1	10	S4	**270**	P
		12. Pasar Cikini	80	S3	20	S4	80	S1	40	S1	10	S4	**230**	P
		13. Taman Ismail Marjuki	120	S2	20	S4	80	S1	40	S1	20	S3	**280**	P
10	Pasar Baru	14. Istiqlal Sluice	80	S3	40	S3	80	S1	40	S1	30	S2	**270**	P
		15. Kesenian Jakarta Building	160	S1	20	S4	80	S1	40	S1	30	S2	**330**	VP
		16.Philately Building	80	S3	20	S4	80	S1	40	S1	20	S3	**240**	P
		17. Antara Building	80	S3	20	S4	80	S1	40	S1	20	S3	**240**	P
		18. Cathedral	120	S2	40	S3	80	S1	40	S1	30	S2	**310**	VP
		19. Istiqlal Mosque	160	S1	40	S3	80	S1	40	S1	30	S2	**350**	VP
		20. Art Painting Market	120	S2	20	S4	80	S1	40	S1	10	S1	**270**	P
		21. Pasar Baru	120	S2	20	S4	80	S1	40	S1	30	S2	**290**	P
11	Marina Ancol	22. Mangga Dua Shopping Mall	120	S2	20	S4	80	S1	40	S1	30	S2	**290**	P
		23. *Ancol Jakarta Bay*	160	S1	40	S3	60	S2	40	S1	40	S1	**340**	VP

Information: The Parameter of suitablity (I = Tourism object and attraction, II = Ecology, III = Accesibility, III = location from main road, IV = Tourism facility available)
S = score (S1=very suitable, S2=suitable, S3=less suitable, S4=not suitable)
V = Value (max. = 400, min. = 100)
C = Clasification (VP = very potential, P = potential, NP = not potensial)

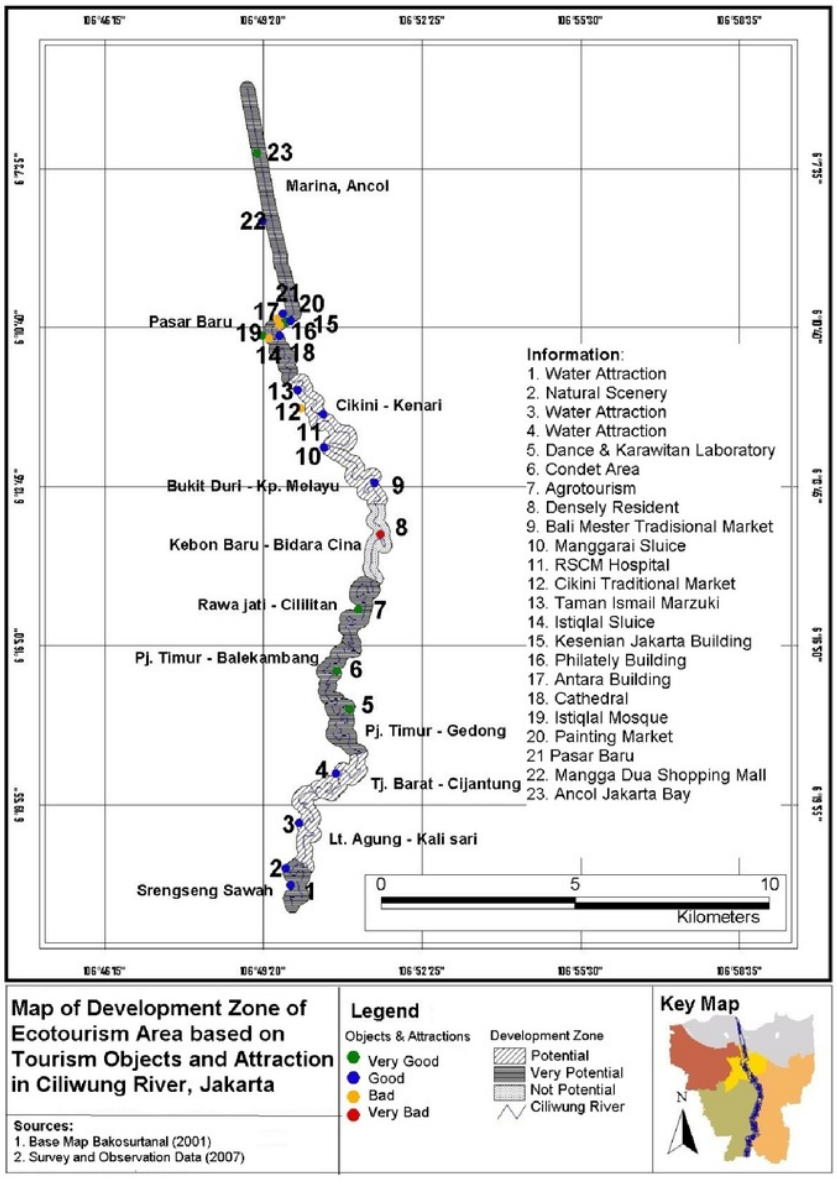
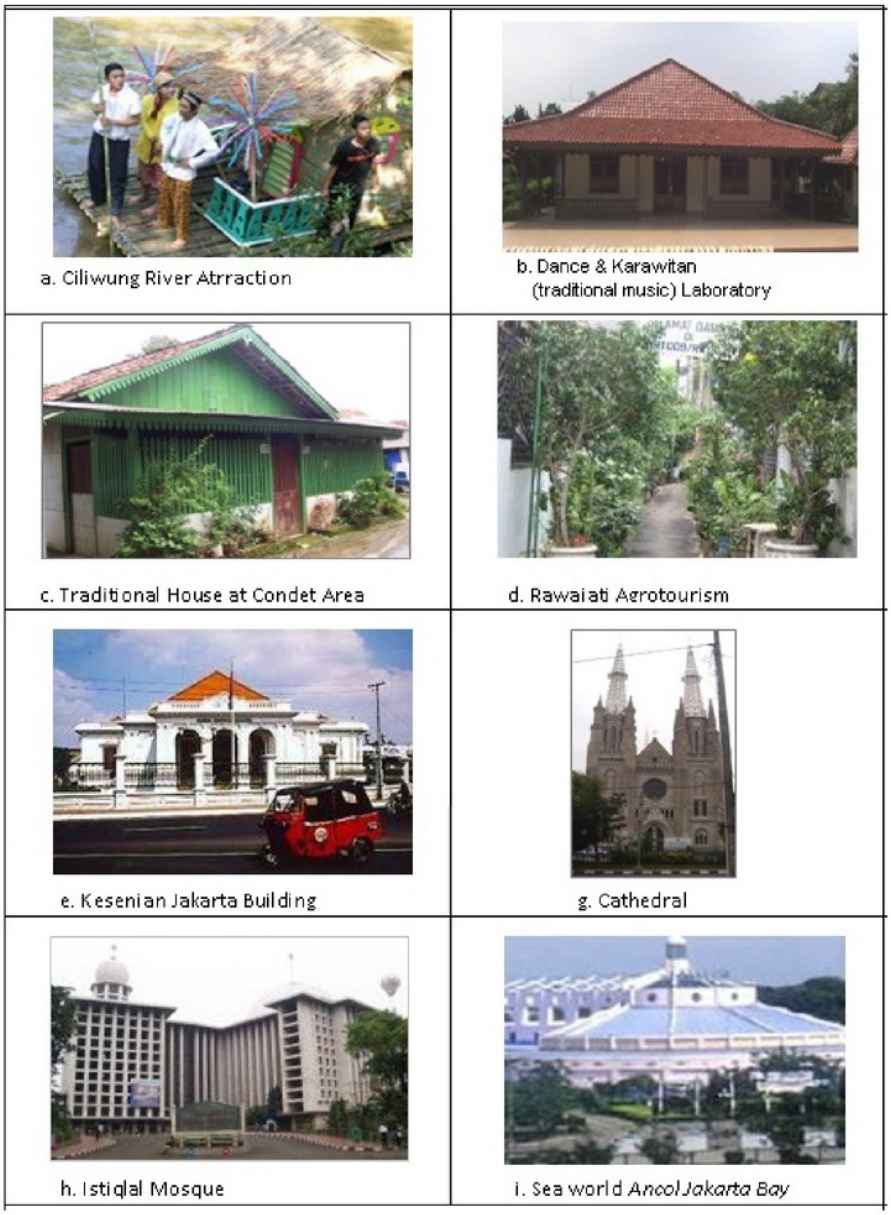


Figure 15. Zone Plan Map of Area Development Potential of Ecotourism Based on Tourism Objects and Attractions Existing in Ciliwung River, Jakarta



Sumber: Rosmalia (2007); Situs Pemerintah DKI Jakarta (2007);
http:// www.seaworldindonesia.com.

Figure 16. The Very High Potential Tourism of Existing Objects and Attractions in Ciliwung River, DKI Jakarta.

Local Community Acceptability

Place (1998) referred to in the Buchsbaum (2004) says, the negative impact on the region developed as an ecotourism can be reduced with community participation in tourism activities in the region. It is very important, considering the community is part of the neighborhood who felt the impact and benefits of changes in the environment. So it is necessary to determine the condition and the response of the people of the region towards tourism development plan. To determine the condition of community, then it is conducted a two-stage assessment. First, for assess the community acceptability or support for the development of ecotourism in their area, and second, for see the public preference for the type of participation in ecotourism development area.

The Assessment of the acceptability or community support is conducted through interviews with 100 respondents, randomly selected at each observation site, (except the Marina Ancol). Based on the assessment shown in Table 23, it shows that the level of public acceptability in all locations of the observations have high scores (H). This suggests that the public strongly supports the plan of ecotourism development in Ciliwung River.

Table 23. Community Acceptability Level of Ecotourism Development Planning

	Lokasi Pengamatan	I	II	III	IV	V	T	7
1	Srengseng Sawah	34	34	32	34	22	156	H
2	Lenteng Agung - Kali sari	40	35	38	40	26	179	H
3	Tanjung Barat – Cijantung	40	40	36	40	38	194	H
4	Pj. Timur (Poltangan) – Gedong	36	38	36	38	33	181	H
5	Pj. Timur (Ps. Minggu) – Balekambang	38	36	35	37	36	182	H
6	Rawajati – Cililitan	36	38	35	36	35	180	H
7	Kebon Baru - Bidara Cina	34	35	34	35	35	173	H
8	Bukit Duri - Kampong Melayu	34	37	31	38	32	172	H
9	Cikini – Kenari	38	39	32	39	36	184	H
10	Pasar Baru	37	37	36	38	39	187	H
11	Marina, Ancol (there are no settlement)							

Information: I = Regional development as tourism destiantion
II = Ecotourism in Ciliwung River can improve environment quality
III= Ecotourism in Ciliwung River can improve welfare
IV= Ecotourism in Ciliwung River can improve facility and infrastucture of region
V = Community aspiration to participate
S = Score (H=high, M=moderate, L=low)
Total = Total score (max. 200, min. 50)

The second stage of the assessment of the condition of community is, to assess public preferences towards the type of participation in the ecotourism area in Ciliwung River of Jakarta. This assessment is required to see the level of people's desire to be involved directly in the ecotourism area. Community involvement serves in addition to improving their welfare, can also support the sustainability of the implementation of ecotourism in the region. Horwich et al. (1995) said that community participation in ecotourism development is a joint effort between the community and visitors to protect the environment, cultural assets and biology, through support to local community development, in controlling and managing resources in order to remain sustainable and able to meet the needs of socially, culturally and economy. Furthermore Nasikum (2000) says that the development of community-based tourism has a better chance to survive because of the small-scale tourism object and attractions development organized by the community and local businesses, so it's easy to be organized and not much negative impact.

Whereas the community participation in ecotourism areas in Ciliwung River is implemented by providing business opportunities to improve their welfare through ecotourismm -directly related economic opportunities or simply as a support for ecotourism activities (not directly related). The type of participation that is directly related to ecotourism is becoming a tourism management employee or as tour guides, souvenir shops open businesses, restaurants, hotel, and then create the tourism objects and attractions, as well as farming or livestock. While the types of participation which are included in the eco-tourism support like, as tourism product providers, and others that supports and provide the implementation of ecotourism.

The assessment of community preferences for the type of participation in the Ciliwung ecotourism area is conducted on 100 respondents. Local communities can accept tourism activities if they believe that tourism can have a positive impact in their lives by improving the local trade businesses, using local labor, and increasing household income (Buchsbaum 2004). The assessment results are shown in Table 24 and Figure 17, shows most of the local community (80%) at study sites gave positive responses (H). This suggests that the

community interest is large enough to participate to the ecotourism activity - directly related economic business. While the rest prefer this type of economic activities that support ecotourism.

Table 24. Community Preference Level of Participation Type in the Ecotourism Area of Ciliwung River, Jakarta

Observation Location		Tourism-directly linked economy opportunity					Economy opportunity as supporting tourism			C
		A	B	C	D	N	E	F	N	
1	Srengseng Sawah	x	x	x	-	80	x	-	20	H
2	Lenteng Agung - Kalisari	x	x	x	-	100	-	-	0	H
3	Tanjung Barat - Cijantung	x	x	x	-	100	-	-	0	H
4	Pejaten Timur - Gedong	x	x	x	x	90	-	x	10	H
5	Pejaten Timur - Balekambang	x	x	x	x	90	-	x	10	H
6	Rawajati - Cililitan	-	x	x	-	60	x	x	40	L
7	Kebon Baru - Bidara Cina	x	x	x	x	80	x	x	20	H
8	Bukit Duri - Kp Melayu	x	x	x	-	80	-	x	20	H
9	Cikini - Kenari	x	x	x	-	90	x	-	10	H
10	Pasar Baru	x	x	x	x	60	-	x	40	L

Information : A = Employee, tourism guide
B = Opening store/restourant/inn/hotel
C = Developing tourism object and attraction
D = Farm/breed
E = Supplying tourism product
F = Others
V = Value
K = Clasification (H=high, M=moderate, L=low)

Ecotourism Development Region Zone

Ecotourism Region development zone along the corridor of Ciliwung river is obtained from the overlapping results (overlay) of biophysical potential map, and existing tourism objects and attractions potential map, and local communities potential map. Each map has an equal weighting (33.33%), this consideration is taken due to every aspect has an equal role for the sustainability of ecotourism. Then the overlapping results are classified into height (H), medium (M), and low (L) classification.

Development zone classification aims to determine the eco-tourism development center, which then it is adapted to the character of the landscape. Out of the classification results shown Table 25 and Figure 18, shows that most of the ecotourism development zones are included in the medium classification (73%),

two sites of High classification (18%), and only one location at the center pieces, is low classification.

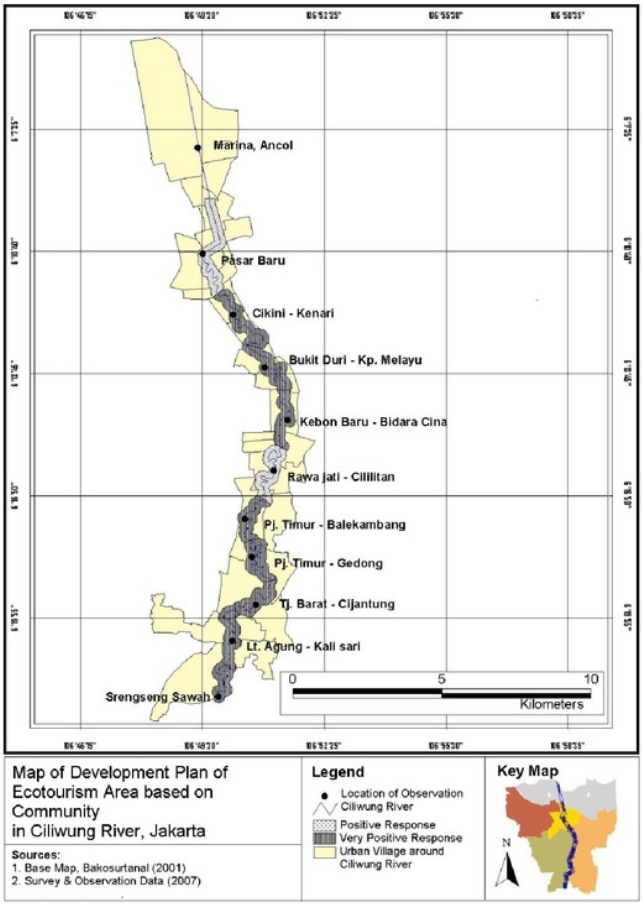


Figure 17. Map of Ecotourism Area Development Zone based on Community Potential in Ciliwung River, Jakarta

The area categorized in high ecotourism development zone (H) covers Srengseng Sawah and Pejaten Timur - Balekambang, which in turn, it is set into the center of the development of ecotourism. Srengseng Sawah is located on the natural character landscape area, so the development is becoming a antural ecotourism area. While Pejaten Timur - Balekambang is located on landscape are with mixture of natural character and artificial (manmade), so the development is becoming the semi-natural ecotourism area.

Table 25. Potency of Ecotourism Development in Ciliwung River Corridor, Jakarta.

Observation Locations	Physic		Tourism Objects & Attractions		Community		Zone	
	Z	S	Z	S	Z	S	T	C
1 Srengseng Sawah	P	2	VP	3	VP	3	**8**	**H**
2 Lenteng Agung - Kali sari	**NP**	1	P	2	VP	3	**6**	**M**
3 Tanjung Barat - Cijantung	**NP**	1	P	2	VP	3	**6**	**M**
4 Pj. Timur (Poltangan) - Gedong	**NP**	1	VP	3	VP	3	**7**	**M**
5 Pj. Timur (Ps. Minggu)–Balekambang	P	2	VP	3	VP	3	**8**	**H**
6 Rawajati – Cililitan	P	2	VP	3	P	2	**7**	**M**
7 Kebon Baru - Bidara Cina	**NP**	1	NP	1	VP	3	**5**	**R**
8 Bukit Duri - Kampung Melayu	**NP**	1	P	2	VP	3	**6**	**M**
9 Cikini – Kenari	P	2	P	2	VP	3	**7**	**M**
10 Pasar Baru	P	2	VP	3	P	2	**7**	**M**
11 Marina Ancol	P	2	VP	3	NP	1	**6**	**M**

Information : S = Score, C = Clasifikation (H=High, M=moderate, L=low), Z = Zone (VP= Very Potential, P=Potential, NP=Not Potential), Maximun value is 9, Minumum value is 3.

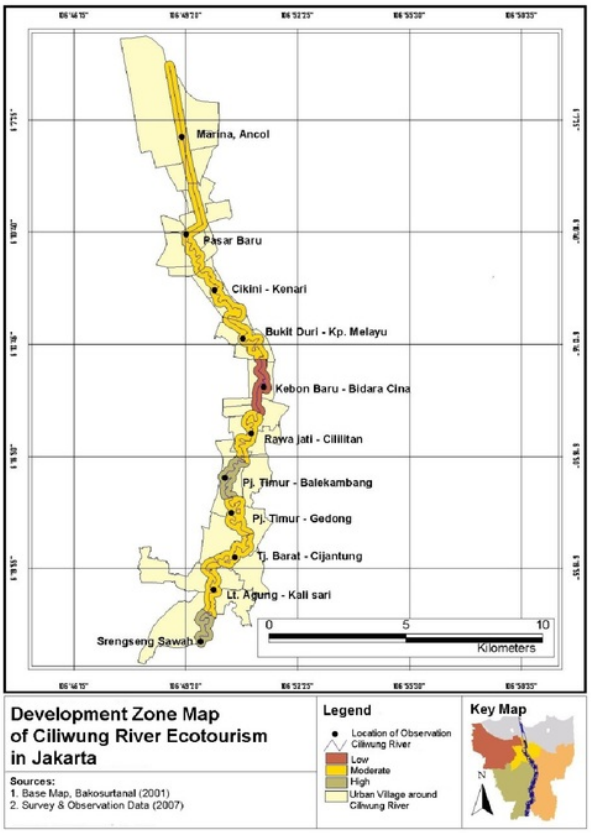


Figure 18. Zone Map of Ecotourism Development in Ciliwung River Corridor, DKI Jakarta

DEVELOPMENT PLAN FOR ECOTOURISM REGION IN CILIWUNG RIVER CORRIDOR, JAKARTA

Ecotourism Landscape Development Plan Concept

In developing the area into tourism area it is required a concept as basic planning, which aims to preserve natural and cultural sustainability and to enhance local community's well-being. Planning concepts developed in Ciliwung River corridor is the sustainable urban ecotourism. The cconcept is a development plan concept to accommodate the sustainability and quality of the natural environment of the river area , the participation of local communities and economic opportunities. The application of the concept of the landscape in the form of development plan model tailored to the character of the landscape and tourismm potential in the region.

From the results of the assessment of potential, there are two sites known as a center for ecotourism development, with three models of development plan. The model of development plan is translated into three landscape units, as follows:

1. Natural eco-tourism development zone, serves as ecotourism area which is dominant with vegetation endemic. Srengseng Sawah serves as the center of development, including Srengseng Sawah until Pejaten Timur - Gedong. The Ecological message is strongly emphasized to maintain and improve the sustainability of quality of the natural urban river environment.
2. Semi-natural eco-tourism development zone is the ecotourism area with combination of natural and man made structures. Balekambang serves as the center of development. The zone is including Pejaten Timur - Balekambang to Bukit Duri - Kampung Melayu . The messages to be delivered in this area are the harmonization of community life settling along the riverbanks in the ecological city. This was disclosed to improve the quality of semi-natural urban river environment and to maintain its sustainability.
3. Ecotourism development ssupporting zone, serves as an area which domonant of manmade structures. This zone is Include Cikini – Kenari until Marina Ancol. Quality improvement is described by physical improvements on the river banks to achieve the river sustainability.

Figure 19 shows model illustration of ecotourism development in Ciliwung River Corridor .

Figure 19. Development Plan for Ecotourism Region Landscape of Ciliwung River in Jakarta

Concept for Circulation and Space of Ecotourism Region

The circulation concept of ecotourism area in Ciliwung River, Jakarta, is in form of circulation network that is tailored to the concept of landscape development plan and tourism potential which serves as the local element of the development center area. According to Gunn (1994), a corridor that connects the center area to the attractions groups is an important element to increase the potential of the region.

Ecotourism region of Ciliwung River corridor can be visited through the two entrances located in a ecotourism development central location namely Srengseng Sawah and Balekambang. Selection of the entrance to the Ciliwung River tourism area is based on the potential of the region as an ecotourism area that is supported by many potential tourism objects and attractions found in this location. Therefore, this location is expected to be an image or a display of eco-tourism region of Ciliwung River in Jakarta.

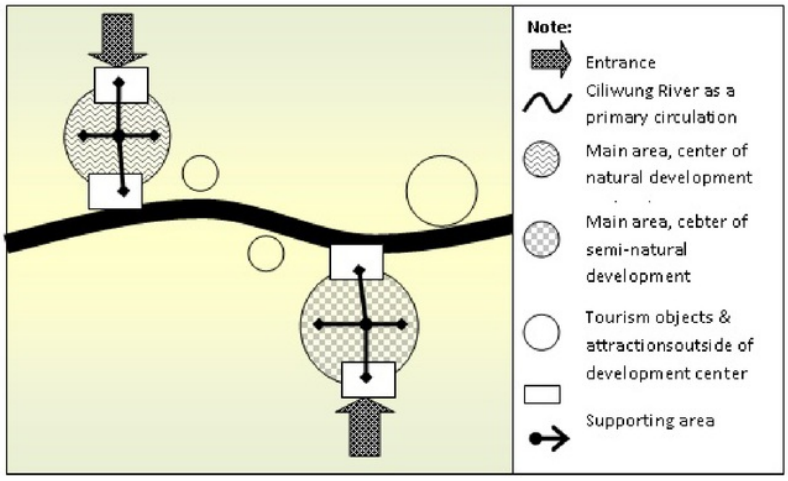


Figure 20. Concept of Space and Circulation in Ecotourism Area in Ciliwung River Corridor, Jakarta

The concept of space and circulation in this ecotourism Ciliwung River region is by dividing the ecotourism development zone into two, namely, ecotourism development center area and supporting area for tourism development center (the space is outside the center of the development and still within the zone). Figure 20 shows the placement of spaces in the center of ecotourism

development, in where there is central room and supporting space connected to the circulation path.

The main space is an area that accommodates all tourism activities, and to enter into the space we must pass through the supporting space. Supporting space serves in addition as a welcome area, as well as a transitional space. This space connects the outside of development region with the main tourism region , as well as acts as a link between the river area which serves as primary path of tourism to the main tourism space located on river banks/ flood plain.

Circulation path of Ciliwung river ecotourism area in Jakarta is divided into three, namely primary circulation path, secondary, and tertiary. The primary circulation path at this ecotourism area is a river that serves to connect the main tourism spaces, as well as tourism objects located along the river banks outside the main space. Furthermore, the secondary circulation pathway that serves to connect the tourism attraction groups within a main tourism space. Secondary circulation path is a path that can be used ranging from pedestrian to four-wheeled vehicles. Finally, tertiary circulation path is a pedestrian that connects every tourism attraction within its group.

Ecotourism Region Development Program

Development program planning of Ciliwung River ecotourism in Jakarta aims to improve the quality of the local culture and environment. The expectation is that this activity could improve the welfare of local communities, so that the the environment and culture sustainabilitycould be maintained. This is in line with the concept expressed by Fandeli (2000a), that ecotourism activities does not take advantage of the natural resources, but only use natural and local community to meet the needs of the knowledge, physical, psychological of tourists.

Development program of region aims to create the Ciliwung River corridor as the identity of Jakarta City. The program is planned based on three models of the ecotourism development plan of Ciliwung River corridor in Jakarta, which is a portrait of improvement and enhancement of environmental quality, elevation of life and culture of local communities , as well as the existence of local history.

Ecotourism region development Program is in form of guidance for the region development plan which is is illustrated in the form of direction of region

development. The developments include physical improvements, tourism activities and facilities development and management, where the flood plains and river water become a place to accommodate eco-tourism activities in the region .

Physical improvement that will be conducted is rearranging the region, which aims to turn out all the landscape elements in the environment along the river into a single unit of Ciliwung riverscape, with the river as its orientation. For tourism activities and facilities development, it should have educational and recreational characteristic. The development is done by utilizing the potential of local resources, and management that comes from physical activity (repair and rearrangement of region). While community-involving management of region aims to develop the community, in term of awareness encouragement in the community about the potential of the river, so that people become aware and participate in managing and maintaining the environmental conditions of Ciliwung river.

In accordance with the principles of ecotourism development from The Ecotourism Society (Eplerwood 1999, referred to in Fandeli 2000b), in making the corridor development program of Ciliwung River in Jakarta as an ecotourism, it is necessary to consider the following:

1. Application of the concept of ecotourism development of the area should consider the physical condition of Ciliwung River which is susceptible and has limited carrying capacity.
2. Construction of tourism facilities should not be on the river demarcation zone. The structure should be built with the traditional architectural styles to suit local climatic conditions and use local building materials, with an environmentally friendly energy sources
3. Development Efforts of tourism facilities and activities in the Ciliwung River area, especially those that support the conservation of endemic flora and fauna, as well as maintain the authenticity of the local Betawi culture. Consideration has to be taken in to account to minimize the impact on nature and culture. The Prevention and management efforts are tailored to the nature and character of natural and community culture in this Ciliwung River region.

4. The region utility systems are environmentally friendly and have zero waste concept (minimal waste)
5. Transportation used in the region is in form of environmentally friendly vehicles that avoids using fuel oil
6. The tourism activities development would be preferable to have educational element. Educational process is applied to the tourists and the local community, as well as carried out directly in nature
7. Development (rearrangement and enhancement) of local community settlement must comply with ecotourism development concept.
8. Community participation in planning, and management may support to increase their welfare. Besides it would encourage people to conserve natural and cultural sustainability in Ciliwung river area.
9. Conservation tax and retribution are in the form of direct income of area managed by managers of ecotourism area. It is useful to foster, preserve, and improve the quality of the natural and local community culture preservation.

Meanwhile the implementation of the ecotourism region development program alongside Ciliwung River corridor in Jakarta, are shown on Table 26, 27 and 28.

Table 26. Development Program for Natural Ecotourism Region

Absolute value	Development Program	Existing condition	Direction of development
a. Improving and maintaining the quality of existing natural resources b. Area with natural shades of the endemic vegetation dominance c. Orientation towards the river	**1. Natural Ecotourism Development Center in Srenggang Sawah** Biophysical a. Build the retaining wall which is a combination of built structures and vegetation along the edge of river bank. b. Create a dam that serves as a filter and regulator of water flow coming into the area of Iskarna c. Arrange the region to be more natural by showing the uniqueness of endemic native vegetation, such as bamboo and phytomation vegetation typical of this region. Tourism a. Utilize local resources as a tourism object and attractions that provide ecological and educational element, such as outbond, gardening, fishing, photo hunting, boating and so on. b. Arrange the area by structuring welcome area, functioning as main entrance to the Cibaung River ecotourism area in Jabanta. Views towards the river are exposed as magnetism. c. Provide the ecological infrastructure to support ecotourism activities		
	2. Support for Natural Ecotourism Development Centre Biophysical a. Build the retaining wall which is a combination of built structures and vegetation along the edge of river banks. b. Arrange the riverbanks area to display the uniqueness and the genuineness of endemic native vegetation in order to be more noticeable, such as using bamboo as a combination for retaining wall as well as phytomation vegetation which is an identity of this region. c. Rearrange building along the area to be more ecological and river-oriented. Tourism a. Provide facility concerning on ecology to support ecotourism activities within this area. b. Use ecological landscape and educational elements. c. Involve local people in creating tourism object and attractions as well as managing the ecotourism activities.		

Table 27. Development Plan Program for Semi-natural Ecotourism Region

Absolut value	Development Program	Existing condition	Direction of development
a. Image of Betawi's culture and Betawi's fruit preserve b. Traditional architecture and Betawi's art-culture c. High quality settlement environment. d. Educational facilities concerning on vegetation e. Pilot project for self-sufficient communities	**1. Semi-Natural Ecotourism Development Centre in Balekambang** Biophysical a. River banks arrangement to prevent landslide hazards by building retaining wall which combines structure and vegetation b. River demarcation line arrangement by: - Relocate the settlement, and change the orientation towards the river - Plant the river demarcation line c. Make Settlement with zero waste concep by structuring: - Sewage water treatment in the neighborhood area - Garbage treatment (neighborhood area) Tourism a. Accessibility improvement from rivers and main roads into the area, by making an entrance (entrance) and providing a welcome area, adequate and environmentally friendly transportation. b. Improvement of image of the region by enforcement efforts of regulation of region as Betawi's culture and fruit preserve site. c. Rehabilitation of cultural preserve building d. Provision of facilities for the ecological nuances of Betawi culture to support eco-tourism activities, such as visitor information centers, interpretation boards, docks, pedestrian, etc e. Local people involvement in managing the ecotourism		

Continued Table 27. Development Plan Program for Semi-natural Ecotourism Region

Absolut value	Development Program	Existing condition	Direction of development
	1. Supporting Semi-natural Ecotourism Development Centre		
	Biophysical		
	a. Structuring the demarcation line of the river (GSS), restore the area to be green by relocating settlements on GSS area		
	b. Arrangement of settlements along the river banks to be more healthy and ecologically, and oriented to the River		
	c. Building a solid waste and liquid waste treatment facilities, so they are not discharged directly into the river		
	d. Socialization and regulatory enforcement to the public about environmental cleanliness		
	Tourism		
	a. Provision facilities for the ecological romance to support the ecotourism activities		
	b. Making tourism educational attractions		
	c. Involving people as tourism manager		

Table 28. Development Program for Supporting Ecotourism Area

Absolut value	Development Program	Existing condition	Direction of development
a. The ecological waterfront city area b. Festival as an image of Jakarta's culture c. A region with historic architecture and culture-preserve architecture d. Open space area	Biophysical a. Repair of retaining wall along the river banks to be more ecologically by adding up the combination between structure and vegetation b. The arrangement of area which aims to unify the buildings which is a tourism object as one united area of supporting eco-tourism area. The arrangement is done by changing the orientation towards the river c. Create a welcome area that also serves as a unifier for the region which brings together the buildings that have a variety of architectural styles but historically will not be Tourism a. Supplement the tourism facilities, like information center and interpretation boards b. Infrastructure improvement, mobility intersection between busway, train, public trasportation and private transportation		

Tourism Supporting Infrastructure

Services are major factor in the development of tourism areas. One of determinants in services is the readiness of tourism infrastructure. Infrastructure development in tourism area is needed to provide comfort and security to tourists while visiting tourism destination. According Karyono (1997), infrastructure or tourism infrastructure include hotel, information office, as well as recreational facilities

Infrastructure development in the Ciliwung River tourism area in Jakarta is adjusted to the concept of tourism space and circulation, as well as regional development plan. Table 29 shows the plan of infrastructure development in the ecotourism area alongside the Ciliwung River corridor, Jakarta

Table 29. Infrastructure Development Plan for Ecotourism Region

Space and Circulation Path	Infrastructure
1. Main tourism space a. Natural ecotourism development center b. Semi-natural ecotourism development center	1. View tower 2. Interpretation sign 3. hotel 4. Rest area and gathering area 5. Festival stage 6. *Outdoor classroom* 7. *Shelter* 8. Stall
2. Supporting space a. Welcome area b. Trantitional area	1. Information center 2. Restaurant 3. Souvenir stand 4. Parking lot 5. Toilet 6. small mosque 7. phone booth
3. Primary circulation path	1. Dock 2. wide road of 3-5m 3. Pedestrian 4. Bamboo boat 5. Rowing boat 6. *Boat*
4. Secondary circulation path	1. Trecking 2. bicycle 3. Trishaw 4. Delman

Figure 21 and 22 shows an infrastructure development plan on the form of site plan of natural eco-tourism development center in Srengseng Sawah, and semi-natural in Balekambang

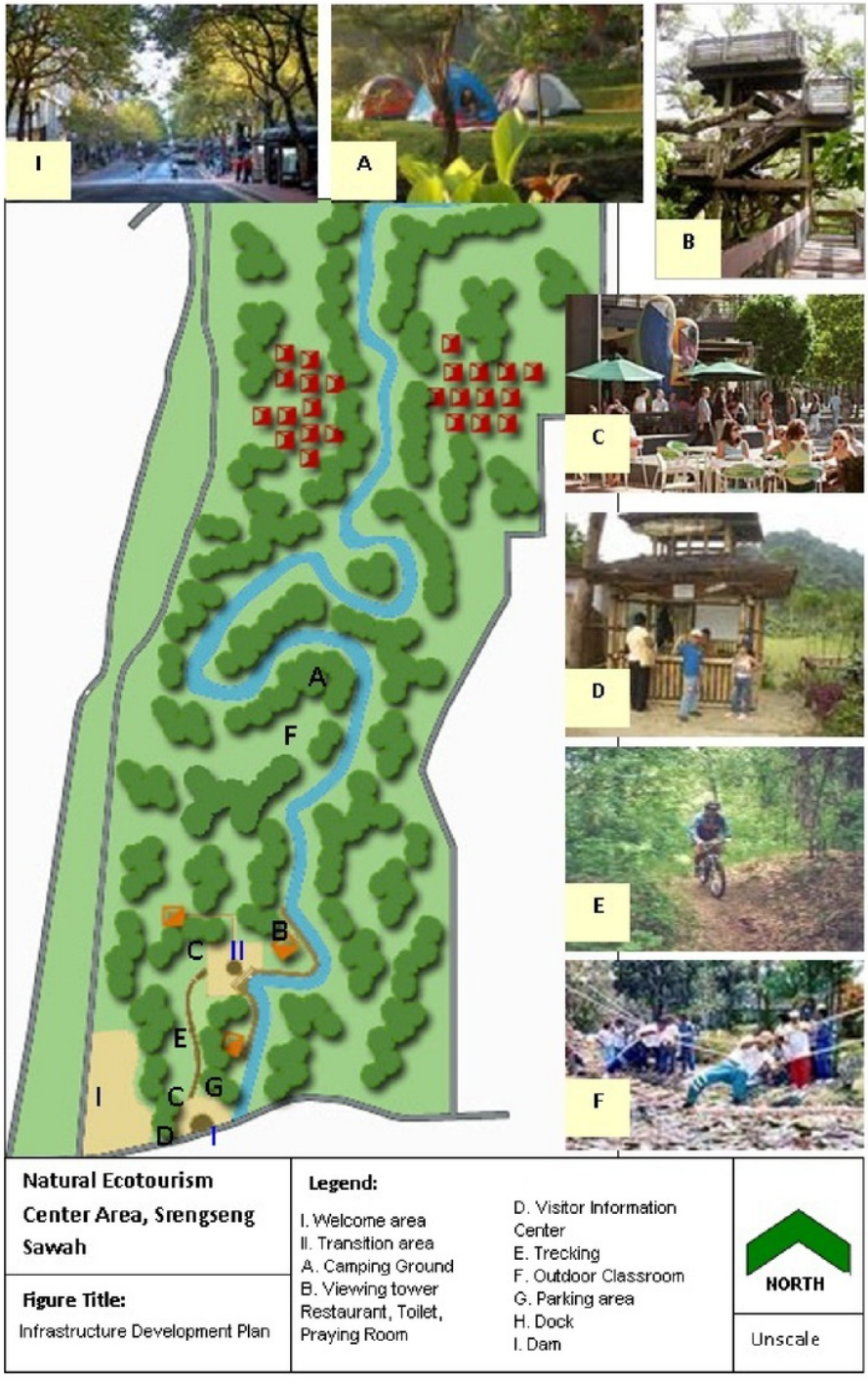


Figure 21. Infrastructure Development Plan in Natural Ecotourism Development Center in Srengseng Sawah

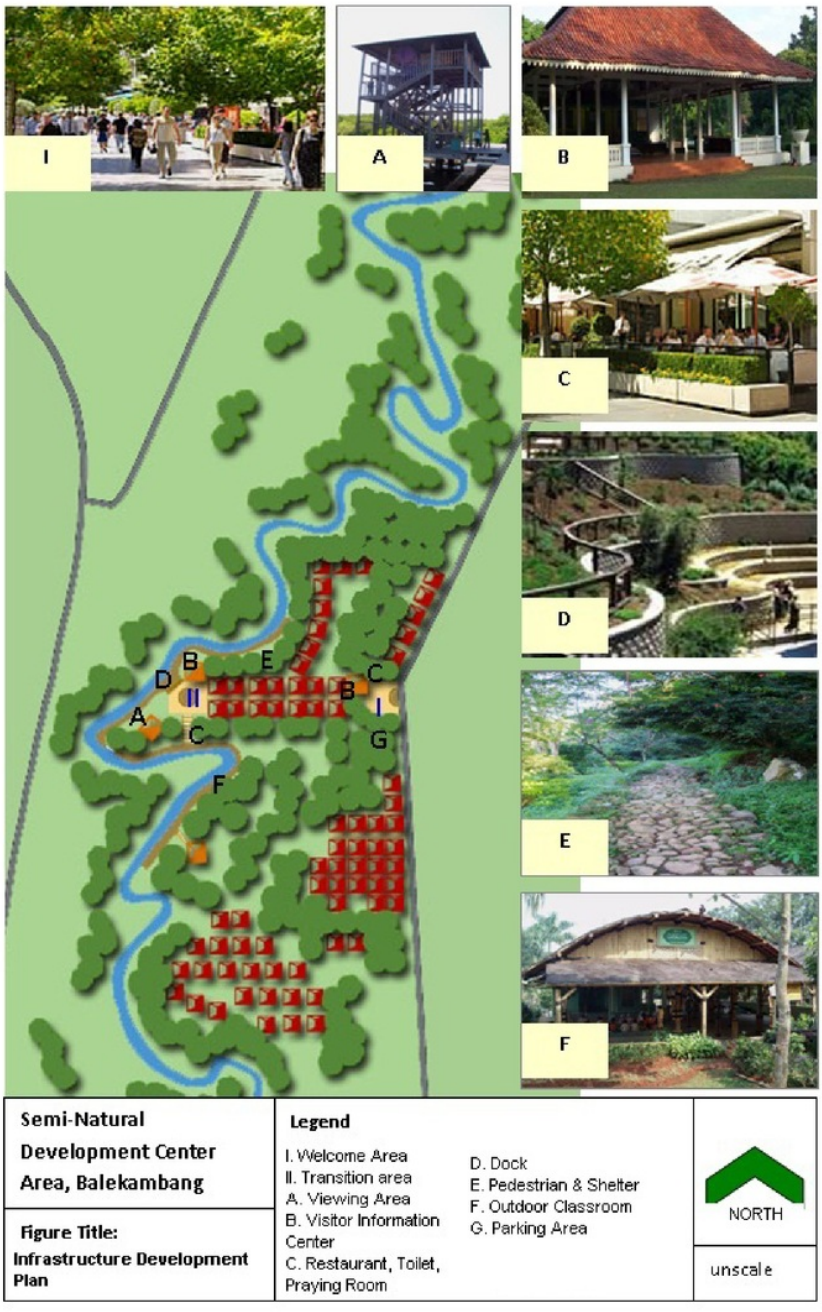


Figure 22. Infrastructure Development Plan in Semi-natural Ecotourism Development Centre in Balekambang

CONCLUSION AND RECOMMENDATION

Conclusion

1. Based on the biophysical character of the river, the potential of tourism objects and attractions and of community, Ciliwung River which splits Jakarta City is mostly enough potential to be developed into urban ecotourism
2. From the assessment results of the regional condition, there are two selected sites which have a high potential for ecotourism development of urban areas, namely Pejaten Timur - Balekambang and Srengseng Sawah. Then the two locations become the center of ecotourism development
3. Model of urban ecotourism development of Ciliwung River is divided into three zones, with two development centers. The development model is, first, the natural eco-tourism development zone with Srengseng Sawah as the center of development, second, semi-natural eco-tourism development zone with Balekambang as a development center, and third, supporting ecotourism development zones
4. Ecotourism development plan program of Ciliwung River in Jakarta is designed based on the assessment results of the regional condition, namely in the form of quality improvement of environment and completeness of tourism supporting infrastructure. Environmental quality improvement program emphasis on areas that are included in the classification of medium and low, while the completeness increasing program of tourism supporting infrastructure is executed on locations developed as a center of ecotourism development.

Recommendation

1. The need for community involvement in planning and site management. In addition to obtain their economic opportunities that their welfare increases, people can also serve as an environmental supervisor and controller, so that the sustainability of ecotourism in this Ciliwung river corridor can be continuously maintained.
2. Biophysical repair is conducted with an emphasis on planting along the river. In addition to improve the ecological quality that regional visual value will improve, it can also to decrease erotion level causing Landslides disaster.

3. Need for further development plan, like tourism interpretation track relating to the history of Ciliwung River as transport logistics to the Pakuan Kingdom in Bogor area.
4. Need for further research to explore areas management potential involving local communities, so that the sustainability of ecotourism in the Ciliwung River corridor area in Jakarta is still maintained
5. Need for policies that support the development of the river corridor as an ecotourism area. In planning policy, we should involve local communities
6. It is required to socialize tourism organization to the public living around Ciliwung river area to identify the role of community and the impact that may result from the development of tourism in Ciliwung River corridor.

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