

ANALYSIS STUDY ON ENVIRONMENTAL IMPACT OF BREBES-TEGAL RING ROAD



MINISTRY OF SETTLEMENTS AND REGIONAL INFRASTRUCTURE
DIRECTORATE GENERAL OF URBAN & RURAL DEVELOPMENT
DIVISION OF CENTRAL JAVA URBAN ROAD AND BRIDGE DEVELOPMENT PROJECT

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OF BREBES-TEGAL RING ROAD



EXECUTIVE

Chapter 1 Introduction

Brebes Regency and Tegal municipality is located in west part of Central Java Province and represents gateway from west direction, Brebes city as the capital of Brebes and Tegal municipality are passed by n lane of Pantura with high density of traffic so that there are often traffic jams. In this lane there are a lc: c: intersection which across local way and almost the whole lane length is located in area of urban area c Brebes and T gal cities. various vehicle types pass this lane, such as' long distance intercity truck, intercity public buses, intercity public transportation, private cars and bicycles with different speed. This matter makes the movement of traffic slows down on Brebes-Tegal road lane, and affects on a high vehicle operating cost. Afterwards it becomes one factor influencing high expense economics as a whole to the of goods and service-transportation. Other aspect that arise is the increasing of accident numbers. Therefore, the Government of Brebes Regency and legal municipality plan to develop a new road; that so-called Ring Road of Brebes-Tegal as long as 18,49 km In order to lessen the traffic jam. Ring Road Brebes-Tegall IS expected to lessen vehicle current burden at the existing road in Brebes-Tegal cities. This

Ring Road is also expected to cut short time going froth West side of Brebes until East Tegal city side. sc that on a long term it can create a more effective peaceful and economic traffic current pattern.

Based on Enclosure of Decree of State Minister of Environment Number 17 / 2001 about. Type of Effort or Activity which Is Obligated To Provide an Analysis Concerning Environmental Impact and according to the decree, the plan of Brebes -Tegal ring road development as long as 18,49 km will affect on landscape, potencial traffic trouble, economics facilities and infrastructure trouble, noise, vibration, visual trouble emission and social impact. Impacts arising out represent important and big impact to environment so that the plan require Analysis Concerning Environmental Impact.

Another concern is the Involvement of society In assessing elegibility of the project environment referring t Decision Of Head of Bapedal (environmental impact controller board) No. 8 / 2000 about Involvement of Society and the transparency of Information about Analysis Concerning Environmental Impact.

The Minister of Public Work Decree no. 40/KPTS/1997 about Technical Guide in· Compilating an AnalyꟀis Concerning Environmental Impact of Road Development Project also require the existence of Analysis Concerning Environmental Impact related to Road development in Brebes -Tegal .

Brebes–Tegal Ring Road Development Plan
















































The Project of Brebes -Tegal ring road development along region of Brebes Regency and Tegal municipality represent a new road lane. The development of this ring road is initiated by planning on development of Intersection across Brebes - Cirebon way on the point of Klampok in front of Pus kud and the road goes diagonally to the north, then to the east and across Kuligangsa river (as the Tegal city border). Next passes Jalan Sipelem Raya, Jalan P. Tendean and across an intersection to-be in Jalan Yos Sudarso in city.

The rute of Brebes-Tegal has 18,49 Km length, which has the following sections :

- Section 1 Klampok - Kaligangsa : 12,35 Km (in Brebes region)
- Section 2 : Kaligangsa - P. Tendean - Yos Sudarso : 6.14 Km (in Tegal region)

The mapping plan of Brebes-Tegal ring road lane can be seen In *picture 1*.



 <p>MINISTRY OF SETTLEMENTS AND REGIONAL INFRASTRUCTURE DIRECTORATE GENERAL OF URBAN & RURAL DEVELOPMENT DIVISION OF CENTRAL JAVA URBAN ROAD AND BRIDGE DEVELOPMENT PROJECT</p> <p>ANALYSIS STUDY ON ENVIRONMENTAL IMPACT OF BREBES-TEGAL RING ROAD</p>	<p>Legend</p> <table border="0"> <tr> <td></td> <td>Town Line</td> <td></td> <td>Project Border</td> </tr> <tr> <td></td> <td>District Area</td> <td></td> <td>Settlement</td> </tr> <tr> <td></td> <td>Rural Line</td> <td></td> <td>Agriculture</td> </tr> <tr> <td></td> <td>Road</td> <td></td> <td>Fishpond</td> </tr> <tr> <td></td> <td>Ring Road Plan</td> <td></td> <td>Open Space</td> </tr> <tr> <td></td> <td>Road</td> <td></td> <td>Cemetery</td> </tr> <tr> <td></td> <td>Railway</td> <td></td> <td></td> </tr> <tr> <td></td> <td>River</td> <td></td> <td></td> </tr> <tr> <td></td> <td>Bridge</td> <td></td> <td></td> </tr> </table>			Town Line		Project Border		District Area		Settlement		Rural Line		Agriculture		Road		Fishpond		Ring Road Plan		Open Space		Road		Cemetery		Railway				River				Bridge			<p>IMAGE 1</p> <p>RING ROAD PLAN, M.P</p> <table border="1"> <tr> <td>Source</td> <td>No</td> </tr> <tr> <td>BANOSURTANAL, 2002</td> <td>4</td> </tr> <tr> <td>Scale</td> <td>North</td> </tr> </table> <p>0 0.5 1 Km</p> 		Source	No	BANOSURTANAL, 2002	4	Scale	North
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The description of Brebes-Tegal ring road development project is as follows

- Road Class :
 - Road Type : 2
 - Road Function : Primary Artery
 - Road Length : Region of Brebes Regency = 12,35 km
 - Region of Tegal municipality = 644 km
 - TOTAL
- Used Held : farm
 - = 8,7 km
 - Fishpond = 7,99 km
 - Settlement = 1,3 km
 - TOTAL
- The amount and width of main lane : 4 lanes 2 directions ; wide 3,5 m
- Amount and slow lane : 2 lanes 2 directions ; wide 4,5 m
- The width of median : 2 m
- The shoulder of Road : 2 sides, wide 2 m
- The body of road : wide approximately 30 - 40 m
- Normal inclination : 2 %
- Speed of plan : 60 km/hour
- Land acquisition : 628.233 M2

- Hoard Land : 1.072.420 M³
- Dig Land : 10.000 M³
- Aggregate Base of class B, 35 cm thick : 187.6735 M³
- Aggregate Base of class A, 25 cm thick : 134.052,5 M³
- Asphalt Treated Base (ATB) 10 cm thick : 44.420 M³
- Asphalt Concrete Binder of Coarse (ACBC) 6 cm thick : 16.645 M³
- Asphalt Concrete Wearing Coarse (ACWC) 4 cm thick : 443.780 M³

The Plan of Brebes -Tegal ring road has some important

A. Pre-Construction Phase.

At pre-construction phase, the activities that have impact are :

1) Socialization Publication

As arranged in Head of Bapedal (*environmental impact controller board*) decree No. 08 in 2000 about Involvement of Society and transparency of Information of Analysis process Cancer: in Environmental Impact, in this pre-construction need socialization or publication about the project of Brebes -Tegal ring road development.

This socialization has been conducted in the meeting between government apparatus and inhabitants whose land are used for the road. The publication is done by installing notice in villages along the ring road.

2) Survey And Measurement Of Road Trace

Survey at this pre-construction phase is measuring field and giving signs/poles for the boundaries of each work position for making detailed design. Placing poles is adapted with boundary of used field This has been done by each local government either by Government of Brebes Regency and Municipality Tegal .

3) Land Acquisition And Compensation

The acquisition of land and all things on the surface and also compensation to inhabitant is according to width of land, building and crops. This activity has been done by local government. The land acquisition in region of Brebes Regency has been done, while in region of Tegal municipality it will have completed in March 2004. the execution of land acquisition is based on the law.

B. Construction Phase

The next is construction phase, the phase in developing physical building of project which includes :

1) Land Clearing

The land clearing is limited on the land and building on the road lane plan as wide as $\pm 30 - 40$ metre (*the body of road*), In this phase some activities of land clearing is done for preparing construction. The equipments covers simple equipments of hoe, scythe and crook, while for certain location need small capacity bull dozer. Considering project trace location in general in the form of rice field areal and fishpond, hence activity of heaping is more dominant compared to activity of land clearing,

2) Building And Operating Base Camp

Activity of building base camp is to supply facilities for Project Office, storing material, equipments and also employees residence including is clean water and sanitation (Bathing, Cleaning, Water closet). Generally it is placed as near as possible by project location and it has entrance way.

Base Camp is the centre of project activities management, storing materials, equipments and workers residence. The operation of Base Camp will make back and forth activities of workers, materials and also vehicle of project from Base Camp to development location.

The operation of Base camp is executed before construction, its activities in the form of stone crash production, asphalt mixing plan and breaking plan.

3) Mobilization Of Heavy Equipment

An activity of construction will be followed by mobilization activity of equipments, that is an activity of supplying / returning heavy equipment and vehicle used during a period of construction.

4) Mobilization Of Labour

Labour that are absorbed during the construction consist of educated labour and skilled man power more or less amount to 90 personnei. While harsh labour more or less amount to 300 people, coming from area of around project. Some of labour coming from outside area will be accomodated in Base Camp. It covers an activity of retiring and repatriating of labour.

5) Transportation Of Material

This activity covers the transportation of materials for construction and transportation of garbage material from land clearing. At this development, needed materials are taken from away from mining area (quarry) in Songgom and Tonjong District of Brebes Regency and also Margasari District of Tegal regency which are more or less 40 - 60 Km distant from location of project and transported to heading

Location by using vehicle of trucks.

6) Road Body Construction And Spreading Asphalt

The project of this ring road is the project of new road development. constructing new road covers following activities Dig and hoard, this activity aim to form road body construction by throwing away bad elementary geology layer and charging it with material matching with specification and also solidifying. it is also to get elevation matching with road plan

Road foundation, this activity covers spreading and solidifying road fondation layers from class of aggregate foundation material of klas B, class A aggregate and of asphalt base treated (ATB) as according to the thickness plan,

Laying solid material, this activity covers spreading and solidifying outside layer from road construction in the form of asphalt concrete which consists of asphalt concrete wearing coarse (ACWC) and or asphalt concrete binder coarse (ACBC) as according to the thickness plan.

7) Making Of Drainage Channel And Complement Building

Making drainage covers side ditch, water channel and repairing or evacuating drainage channel and irrigation channel exposed by road construction, While making of supplementary building of road covers installation of traffic signs, middle-road strips and also other buildings which represent supplementary road medium including public facilities which is exposed by road construction, drainage work is executed at the same time with activity of road construction, cif supplementary building is executed after construction work of road finishes.

8) Planting Shading Tree

This activity covers plantation of trees by the side of road alongside streets to replace the trees which are exposed by road body.

C. Operation Or Post-Construction Phase

1) Road Operation

This activity covers examination to the comfort of road alignment, possible vehicle speed, range of visibility of vehicle and lights at night. It is followed by the opening of the road for public traffic lane, so that this road can function optimally according to planned road classification.

2) Road Maintenance

This activity covers routine maintenance, periodic maintenance, overlay, completing the existing road mediums, clearing and repairing drainage, cleaning and replacing traffic signs, repainting the road strip, clearing and replacing lights.

3) Time Scheduling Of Executing Brebes-Tegal Ring Road Development

The development of Brebes Tegal ring road is based on the following schedule:

TIME SCHEDULE OF BREBES-TEGAL RING ROAD DEVELOPMENT

NO.	ACTIVITY	TIME (week)	AMOUNT (WEEK)
A. Pre-construction Phase			
1	Socialization / Publication	4	4
2	Survey and Measuring Road Trace	4	8
3	Land Acquisition and Compensation	4	12
B. Construction Phase			
1	Land Clearing	2	14
2	Building and Operating Base Camp	2	16
3	Mobilization of Heavy Equipments	2	18
4	Mobilization of Labour	2	20
5	Transportation of Materials	4	24
6	Constructing Road Body dan Spreading Asphalt	104	128
7	Making Drainage and Suppplementary Building	12	140
8	Planting Shading Tree	4	144
C. Post-construction or operation phase			
1	Road Operation	2	146
2	Road Maintenance	12	158

4. Work Initiator

- a. Initiator : Ministry of Regional Settlements and Infrastructure, Directorate General Of Urban An.!
Rural Development.
- b. Legally Liable Person : The Head of Rural Road and Bridge Planning dan Controlling Department of Central Java
Provlnce.
- c. Office Address : Jl. Durian Raya No. 16 Banyumanik Semarang Telp, (024) 7471743.

The Continuation of Table of Evaluating Brebes – Tegal Ring Road Development Impact

Kinds of Important Impact	Impact Characteristic	Impact Scale	Important Impact Level
CONSTRUCTION PHASE			
j. Decreasing ground water and surface water quality	Negative	Small	Not Important
k. Opening New Work	Positive	Small	Important
l. Decreasing water absorption coefficient	Negative	Small	Not Important
POST CONSTRUCTION PHASE			
a. Decreasing Air Quality	Negative	Small	Important
b. Decreasing Public Health	Negative	Small	Not Important
c. Decreasing Noise	Negative	Medium	Important
d. Increasing Swiftness of Traffic	Positive	Big	Important
e. Increasing Economics Activities	Positive	Big	Important
f. Increasing Traffics disturbance	Negative	Small	Not Important
g. Regonal Development	Positive / Negative	Big	Important
h. Changing Land Use	Positive / Negative	Big	Important
i. Changing Master Plan	Positive / Negative	Big	Important
j. Increasing Public Facilities and Utilities	Negative	Small	Not Important
k. Increasing Number of Flora & Fauna	Positive	Small	Not Important
l. Temporary Parking for Big vehicle	Negative	Small	Not Important
m. Emerging Immoral Activities	Negative	Small	Not Important
n. Concentrated Traffic Volume	Negative	Medium	Important

Efforts in Environment Management of Brebes-Tegal Ring Road Development

No	Kinds of Impact	Impact Source	Impact Measuring Rod	Management Purpose	Management Technique	Management Location	Management Time	Management Executor
1	2	3	4	5	6	7	8	9
1.	Community Uneasiness	<ul style="list-style-type: none"> • Socialization/ Publication • Survey and measuring • Land acquisition <ul style="list-style-type: none"> • Mobilization of labour <ul style="list-style-type: none"> • Transporting and heaping materials 	- - -	To anticipate community safety and disorder disturbance	<ul style="list-style-type: none"> • Socialization of activities plan continuously. • Involving community which are exposed by Project in fixing the compensation • Conducting study on Land Acquisition and Resettlement Action Plan (LARAP) Involving community around the project as the workers.	Settlement environment which is exposed by land acquisition Settlement along project lane Along material transportation lane	Pre construction phase Construction phase Construction phase	Local government of Tegal municipality and Brebes Regency Executor and initiator: contractor initiator

The Continuation of The Table of Efforts in Environment Management of Brebes-Tegal Ring Road Development

No.	Kinds of Impact	Impact Source	Impact Measuring Rod	Management Purpose	Management Technique	Management Location	Management Time	Management Executor
1	2	3	4	5	6	7	8	9
2.	Decreasing air quality and increasing noise	<ul style="list-style-type: none"> Land clearing Mobilization of heavy equipment Transporting and heaping materials Constructing road and spreading asphalt <p>Road operation and maintenance</p>	Kep-Gub Jawa Tengah No. 8 Tahun 2001	To lessen impact on public health	<ul style="list-style-type: none"> Watering small plant periodically on the location near the settlement Arranging schedule material and equipment transportation Placing the material Penempatan material dan dig land is not near the settlement <p>Regulating vehicle speed limit</p> <p>Planting shading trees</p>	<p>Along material transportation lane; STA 4+700 to 5+100, STA 7+000 to 7+400, STA 17+100 to 18+400</p> <p>STA 0+000 s/d 18+400</p> <p>STA 0+000 s/d 18+400</p>	<p>Construction phase</p> <p>Post construction phase</p> <p>Construction dan post construction phase</p>	<p>Executor and Initiator contractor</p> <p>Highway Transportation and Traffic Official (DLAJR) of Tegal Municipality and Brebes Regency</p> <p>Executor and initiator contractor</p>
3.	Public transportati on lane disturbance	<ul style="list-style-type: none"> Mobilization of heavy equipments Transporting and heaping materials 	-	To lessen road damage	<ul style="list-style-type: none"> Regulating alternative way for material transportation project vehicle 	<p>Along material transportation lane; STA 4+700 s/d 5+100, STA 7+000 s/d 7+400, STA 17+100 s/d 18+400</p>	Construction phase	<p>Executor and initiator contractor and DLAJR of Tegal Municipality and Brebes Regency</p>
4.	Water flow pattern disturbance	<ul style="list-style-type: none"> Land clearing Hoard materials Constructing road and spreading asphalt 	Change of water flow pattern	To lessen swampy land	<ul style="list-style-type: none"> Reciting hidrology system around project location Technical planning on drainage system at project location 	<p>Along project lane, mainly on city irigation and drainage channel</p>	Construction phase	<p>Executor and Initiator contractor</p>

The Continuation of The table of Efforts in Environment Management of Brebes-Tegal Ring Road Development

No.	Kinds of Impact	Kinds of Impact	Impact Measuring Rod	Management Purpose	Management Technique	Management Location	Management Time	Management Executor
1	2	3	4	5	6	7	8	9
5.	Increasing traffic volume	<ul style="list-style-type: none"> • Mobilization of heavy equipments • Transporting and heaping materials <p>Road operation and maintenance</p>	-	To lessen potencial traffic accident	<ul style="list-style-type: none"> • Regulating mobilization of heavy equipments and materials not at busy time • Installing project signs • Implementing traffic management according to fixed technical plan • Limiting direct access to ring road • Installing signs according to law. • Installing light as needed 	<p>Along material transportation lane; STA 0+000 s/d 18+400</p> <p>STA 0+000 s/d 18+400</p>	<p>Construction phase</p> <p>Post construction phase</p>	<p>Executor and initiator contractor and DLLAJR of Tegal Municipality and Brebes Regency</p> <p>Local government and DLLAJR of Tegal Municipality and Brebes Regency</p>
6.	Public facilities and utilities disturbance	<ul style="list-style-type: none"> • Land clearing • Transporting and heaping materials • Constructing road and spreading asphalt 	-	Controlling public facilities and utilities damage	Repairing damaged public facilities and utilities in the end time of construction	STA 0+000 s/d 18+400	Construction phase	Executor and initiator contractor
7.	Changing landscape and land use	<ul style="list-style-type: none"> • Hoard land at quarry • Heaping (Constructing road and spreading asphalt) <p>Road operation and maintenance</p>	-	<p>Controlling environment al damage in quarry</p> <p>Controlling the changing of landscape and land use</p>	<p>Rehabilitating environmental damage in quarry location</p> <p>Regulating city's general masterplan and region's masterplan which consider fishpond and farming ecology function</p>	<p>Taking hoard land (quarry)</p> <p>STA 0+000 s/d 18+400</p>	<p>Construction phase</p> <p>Post construction phase</p>	<p>Executor and initiator contractor</p> <p>Local government of Tegal municipality and Brebes Regency</p>

Efforts in Monitoring Environment of Brebes-Tegal Ring Road Development

No.	Kinds of Impacts	Impact Source	Monitored environment Parameter	Monitoring Methode	Monitoring Location	Monitoring time	Environment Monitorer Institution				
							Executer	Controller	Report Acceptor		
1	2	3	4	5	6	7	8	9	10		
1.	Community Uneasness	<ul style="list-style-type: none"> • Socialization/ Publication • Survey and measuring • Land acquisition 	<ul style="list-style-type: none"> • Public health • Social relationship pattern • Community's perception 	<ul style="list-style-type: none"> • Direct observation, • interview • spreading questionnaire 	Community settlement whose land are exposed by the project	Pre construction phase	Local government of Tegal municipality and Brebes Regency	<ul style="list-style-type: none"> • Local government of Tegal municipality and Brebes Regency • Police department of Tegal and Brebes resort 	<ul style="list-style-type: none"> • Ministry of regional settlement and infrastructure • Local government of Central Java Province • Regional Environmental Impact Controller of Central Java Province 		
						Settlement along the project lane				Construction phase	initiator
						<ul style="list-style-type: none"> • Mobilization of labour • Transporting and heaping materials 				Material transportation lane	Construction phase
2.	Decreasing air quality and increasing noise	<ul style="list-style-type: none"> • Land clearing • Mobilization of heavy equipment • Transporting and heaping materials • Constructing road and spreading asphalt 	SO ₂ , CO, NO ₂ , HC, Pb, dust, noise (Db)	<ul style="list-style-type: none"> • Measuring air quality and noise level • Laboratory analysis • Interview with community • spreading questionnaire 	Material transportation lane; STA 4+700 s/d 5+100, STA 7+000 s/d 7+400, STA 17+100 s/d 18+400	Construction phase	The initiator	<ul style="list-style-type: none"> • Regional Environmental Impact Controller of Tegal municipality and Brebes Regency • Public Work Department of Tegal municipality and Brebes Regency 	<ul style="list-style-type: none"> • DPU Prop. Jateng • Regional Environmental Impact Controller Board of Central Java Province 		
		Road operation and maintenance			STA 0+000 s/d 18+400	Post construction phase				The manager of ring road	

The Continuation of The Table of Efforts in Environment Monitoring of Brebes-Tegal Ring Road Development

No.	Kinds of Impacts	Impact Source	Monitored environment Parameter	Monitoring Methode	Monitoring Location	Monitoring time	Environment Monitorer Institution		
							Executor	Controller	Report Acceptor
1	2	3	4	5	6	7	8	9	10
3.	Public transportati on lane disturbance	<ul style="list-style-type: none"> • Mobilization of heavy equipments • Transporting and heaping materials 	Condition or the damage of road	<ul style="list-style-type: none"> • Direct observation on field 	Jalur pengangkutan material; STA 4+700 s/d 5+100, STA 7+000 s/d 7+400, STA 17+100 s/d 18+400	Construction phase	initiator, DLLAJR	<ul style="list-style-type: none"> • Traffic Official of Tegal municipality and Brebes Regency • Public Work Department of Tegal municipality and Brebes Regency 	<ul style="list-style-type: none"> • Public Work Department of Central Java Province • Traffic Official of Central Java Province
4.	Water flow pattern disturbance	<ul style="list-style-type: none"> • Land clearing • Hoard materials • Constructing road and spreading asphalt 	Swiftness of water flow pattern which across ring road lane	<ul style="list-style-type: none"> • Direct observation • Monitoring community response • Measuring rthe quality of water 	Potential area to be swampy and alongside river	Construction phase	initiator	<ul style="list-style-type: none"> • Public Work Department of Tegal municipality and Brebes Regency • Regional Environmental Impact Controller of Tegal municipality and Brebes Regency 	<ul style="list-style-type: none"> • Public Work Department of Central Java Province • Regional Environmental Impact Controller Board of Central Java Province
5.	Increasing traffic volume	<ul style="list-style-type: none"> • Mobilization of heavy equipments • Transporting and heaping materials <p>Road operation and maintenance</p>	<ul style="list-style-type: none"> • number of traffic jam • potential traffic accident number 	Direct observation and calculation on field	Material transportation lane (quarry); STA 0+000 s/d 18+400	Construction phase	Initiator, DLLAJR	<ul style="list-style-type: none"> • Traffic Official of Tegal municipality and Brebes Regency • traffic police official Tegal municipality and Brebes Regency • Public Work Department of Tegal municipality and Brebes Regency 	<ul style="list-style-type: none"> • Public Work Department of Central Java Province • Traffic Official of Central Java Province • Regional police department of Central Java Province
					STA 0+000 s/d 18+400	Post construction phase	The manager of ring road Traffic police official and DLLAJR	<ul style="list-style-type: none"> • Public Work Department of Tegal municipality and Brebes Regency 	

The Continuation of The Table of Efforts in Environment Monitoring of Brebes-Tegal Ring Road Development

No.	Kinds of impacts	Impact Source	Monitored environment Parameter	Monitoring Methode	Monitoring Location	Monitoring time	Environment Monitorer Institution		
							Executor	Controller	Report Acceptor
1	2	3	4	5	6	7	8	9	10
6.	Public facilities and utilities disturbance	<ul style="list-style-type: none"> Land clearing Transporting and heaping materials Constructing road and spreading asphalt 	public facilities network damage	Survey and direct observation on field	Certain points on STA 4+700 s/d 5+100, STA 7+000 s/d 7+400, STA 17+100 s/d 18+400	Construction phase	initiator	<ul style="list-style-type: none"> Public Work Department of Tegal and Brebes Regional Environmental Impact Controller of Tegal and Brebes 	<ul style="list-style-type: none"> Public Work Department of Central Java Province Regional Environmental Impact Controller Board of Central Java Province
7.	Changing landscape and land use	<ul style="list-style-type: none"> Hoard land at quarry Heaping (Constructing road and spreading asphalt) <p>Road operation and maintenance</p>	<ul style="list-style-type: none"> Changing land use Changing environment estetical value Changing land economics value 	Survey and direct observation on field	<p>Taking hoard land (quarry)</p> <p>STA 0+000 s/d 18+400</p>	<p>Construction phase</p> <p>Post construction phase</p>	<p>initiator</p> <p>The manager of ring road</p>	<ul style="list-style-type: none"> Agency for regional development of Tegal and Brebes Regional Environmental Impact Controller of Tegal and Brebes 	<ul style="list-style-type: none"> Agency for regional development of Central Java Province Regional Environmental Impact Controller Board of Central Java Province