Environmental and Social Monitoring Report

Project Number: 47937-001 31 August 2015

Rantau Dedap Geothermal Development Project (Republic of Indonesia)

Safeguard and Social Monitoring Report – 1st Semester 2015

Prepared by Supreme Energy for the Asian Development Bank

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Rantau Dedap Geothermal Power Project Phase 1 - Exploration

Safeguard and Social Monitoring Report



RD-I1

Issued on 31st of August 2015 RD-RSH-RPT-IEE Rev1 – 30 June 2015

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Abbreviations

ADB	Asia Development Bank
ACSR	Aluminium Conductor Steel Reinforced
AECOM	Architecture, Engineering, Consulting, Operations and Maintenance
EPC	Engineering, Procurement and Construction
FCV	Flow Control Valve
FEED	Front End Engineering Design
IEE	Initial Exploration Examination
IESE	Institute of Earth Science and Engineering
ISDP	Integrated Social Development Program
LAPI ITB	Lembaga Afiliasi Penelitian dan Industri Institut Teknologi Bandung
LCI	Leighton Contractor Indonesia
LIPI	Lembaga Ilmu Pengetahuan Indonesia (National Science Body)
MEQ	Micro Earth Quake
MSE	Mechanically Stabilized Earth
OHS	Occupational Health and Safety
PLN	Perusahaan Listrik Negara (National Power Company)
PPA	Power Purchase Agreement
PT	Pressure Temperature
PTS	Pressure Temperature Spinner
RD	Rantau Dedap
SDI	Scientific Drilling International
SERD	Supreme Energy Rantau Dedap
SFTT	Static Formation Temperature Test
SGS	Steamfield Gathering System
SHE	Safety, Health, and Environment
TD	Total Depth
TPL	Third Party Liability
TVD	True Vertical Depth
UKL	Upaya Pengelolaan Lingkungan (Environmental Management Effort)
UPL	Upaya Pemantauan Lingkungan (Environmental Monitoring Effort)



1. General Information

1.1 **Project Location**

SERD is developing the Project which is situated approximately 225 km from Palembang, the capital city of the South Sumatera province. Geographically the area is situated between 4° 7′ - 4° 15′ South Latitude and 103° 29′ - 103° 18′ East Longitude. The Project area covers approximately 35,440 ha (18.56 km x 19.63 km) and is situated at an elevation ranging from 1,000 to 2,600 meters on the Bukit Besar volcanic complex. The prospect is located in a very remote and undeveloped area with steep terrain; most of the prospect area has only walking trails or no access ways at all.



Rantau Dedap Location Map

1.2 Project Summary

The Project implementation will be carried out in two phases. Phase 1 constitutes of geothermal resource exploration and drilling. Steam-field development and power plant construction will be taken up as part of Phase 2. SERD is currently undertaking exploratory drilling to investigate the geothermal resource and, if investigations are satisfactory, to subsequently undertake the development of the geothermal power project through to commercial operation of the geothermal power plant of 240 MW.

The exploration program has started since 2011 and on February 3, 2014, the exploratory drilling programme commenced with the 'spudding' and drilling of the first exploratory well of RD-B1.



1.3 Date of Construction/operation commencement

The following items were described as the key milestones which lead to the determination of commercial operations.

- The exploration drilling activities of 6th well completed on mid-April, 2015
- The well testing activity related to the exploration drilling which include the production test and interference test up to the 6th well is expected to be completed by the 2nd week of August, 2015.
- Financial close date involves several things for completing the financial close. This would follow the sequence as follow: The resource assessment (September 1st, 2015) to be completed 2 weeks after the latest well testing schedule completed (August 14th, 2015), another 4 months for feasibility study report (December 29th, 2015), continued by around 4 months for FEED completion (Nov 24th, 2015 March 1st, 2016), 1 month for EPC RFP to be ready for tender issuance, and associated items such as EPC contract ready to be awarded based on tariff adjustment approval, thus the date of financing close is expected to be on 27 January 2017.

1.4 Approvals

Prepared by: VPs and Head of Department

Approved by: Board of Director

1.5 Contacts

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2. Relevant Environmental Permits or Compliance Certificates

This Chapter discusses relevant environmental permits or compliance certificates as required by SERD, including the latest permits or compliance certificates obtained/will be obtained, key developments and any major changes in location and design, and findings of any environmental and OHS regular inspections audits.

2.1 New Permit or compliance certificates required and obtained

 Received approval of Term of Reference of Environmental Analysis (TOR ANDAL) from Ministry of Environment on 6 May 2015. Further progress is pending due to waiting for the availability of Feasibility Study of Development Phase.

2.2 Key Developments and Major changes in location and design

Development of Wellpad-I, located approximately 2.5 km from Wellpad-C.

2.3 Findings of Environmental and OHS Regulatory inspections or audits

- In compliance of OHS regulatory inspections or audits requirements on routine activity, no major issue has been reported.
 - SHE Inspection performed by Ministry of Energy's EBTKE on 27 February 2015 (No major finding).
 - SHE Inspection performed by Mining Office of Muara Enim district on 3 March 2015 (No major finding).
 - SHE Inspection performed by Ministry of Energy's EBTKE on 4 June 2015 (No major finding).
 - SHE Inspection performed by Head Office Management on 25 and 27 May 2015 (No major finding).

2.4 Others

- Requested Forestry Office support to inspect of potential illegal land opening due to incoming dry season and supported the Forestry inspection conducted by South Sumatra province Forestry Office on 15 April 2015.
- Conducted joint socialization with Forestry Officers from South Sumatera province and Lahat district on 26 and 27 May 2015 at Segamit village, Yayasan hamlet and Tunggul Bute village.
- Cleaning up solids / sediments from water ponds and mud ponds at each wellpads (started in June 2015).
- Discuss with Forestry Office of South Sumatera to form Forest Security and Forest Fire Team. Due date is 2nd semester of 2015.

3. Incidents of Environmental Safeguards Violations or Noncompliance

This Chapter discusses relevant incidents of environmental safeguards violations based on applicable environmental standards and regulations along with the correctives actions, deadlines, identification of responsible parties, and status of implementation of corrective action plan.

• There had been no issues found related to incidents of environmental safeguards, violations or noncompliance, and hence no corrective actions were required.

4. Incidents of Environmental, OHS Accidents

This Chapter discusses incident recorded dates and responsible agencies, the scale of damage and injury, authorities in charge of investigation/ recording, media or community reactions and corrective actions, deadlines, identification of responsible parties.

4.1 Environmental Incidents

• No Environmental incidents were reported during the period.

4.2 Occupational/Community Health Incidents

• No Occupational/ Community Health Incidents were reported during the period.

4.3 Safety Incidents

- There was 1 (one) serious incident involving contractor worker (truck helper). However the
 accident happened outside the SERD mining area during demobilization of drilling equipment
 from site to another geothermal project in Java island (fingers pinched between tire and
 wheel-chock)
- There was 1 (one) incident involving medical treatment of contractor employees (finger pinched between pipes)
- There were 3 (three) accidents related to the vehicle and heavy equipment which caused minor to medium material damage only. Top Management of SERD has declared May 2015 as "Road Safety" and "Don't Phone and Drive" campaign month.
- There were 5 (five) minor landslides happened at SERD site. Project conducted soil stabilization and landslide mitigation efforts by making bench, drainage, etc in June and July 2015. Currently all landslides potential locations, have been taken care of.
- SERD Incident / accident register for first half of 2015 is as written as follow:



No	DATE / TIME	ACCIDENT SUMMARY	CONTRACTOR / DEPARTMENT	ACCIDENT CATEGORY
82	5 Jan'15	Around 17.30 hours, driver finished serving Drilling on WP-I. When he (alone) drove from WP-I to Talang Pisang Camp, at WAC 9 Ch 1.100 at around 18.30 hours, the LV lost control, left hand side of LV hit steel water pipe, hung, slide over on the top of water pipe of around 4-5 meters. After the right hand side front wheel hitted pipe sleeper, the LV rolled over 360 degree caused severe damage to the light vehicle.	DKB / Drilling	No injury recorded. Major damage to LV
	18.30	WAC 9 Ch 1.100		
83	26 Jan'15	26 Jan'15 pipe box, IP opened the shackle. When the shackle was opened, 5" drill pipe spreaded then pinched the IP left middle finger. 3 Stiches by DATI / Drilling performed by		Laceration and fracture of bone at the finger top under the nail. 3 stitches performed by Paramedics at site but no need for surgery. MTC
	19.30	Drilling Rig at RD-I2		
84	4 9 Feb'15 Land slide at MSE-3. Buried water pipe caused pipe to be off from the sleeper. 7 days rain in a row.		Project	Land slide. No injury recorded. No material damage
	Morning	MSE-3		
85	9 Feb'15 Land slide at between MSE-4 and WP-C and closed access. Immediately re-open the access after cleaned up by backhoe loader. 7 days rain in a row.		Project	Land slide. No injury recorded. No material damage
	19.30	Access road between MSE-4 and WP-C		
86	10 Feb'15	10 Feb'15 Land slide at MSE-3. Buried water pipe caused pipe to be off from the sleeper and bent the pipe. 7 days rain in a row.		Land slide. No injury recorded. Minor material damage / water pipe bent
	08.00	MSE-3		
87	10 Feb'15	Trees fell down due to landslide	Project	Land slide to road. No injury recorded.
	16.30	WAC 17 Ch. 300 (access to WP-I)		



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88	22 Apr'15	On Wednesday 22 April 2015 at around 21.00, an accident happened at Ch 6.000 during rig demobilization. Middle finger of right hand of a CHAS truck helper was pinched between rear tire and a stone (in addition to a wooden choke) that used to choke the truck so it did not move back on an ascending road between Talang Pisang and Kota Agung. Injured person (IP) lost 2 segments of his middle finger. IP brought to a medical facility (puskesmas) at Kota Agung.	CHAS / Drilling	Regulation KepMen PE 555K / 1995 categorizes this as a serious accident. Since SERD has declared its mining area on 25 of February 2015 to the authority and the accident happened outside of the SERD mining area.
	21.00	Ch. 6.000 between Talang Pisang and Kota Agung		
89	3 May'15	Land slide at access from MSE 4 to WP-C. Informed in the morning of 3 May 2015. Currently access from WP-C is blocked so the demobilization from WP-C to Open Yard interrupted. There is no casualty but water supply pipes were impacted. Intensity of rain was 67.5 mm last night. Mobilized Excavator and Backhoe Loader to location and ask Drilling Team to assist with Big Wheel Loader.	Project	Land slide. No injury recorded. Minor material damage / water pipe bent
	Night time			
90	6 May'15	LV BA 1281 BB (driver Misbah) departed from Talang Pisang camp for the purpose to drop off the passenger (Indra Gunawan / driver; for first day-off) to Karang Endah village. After drop off Indra Gunawan arriving at Karang Endah village, the driver returned to Talang Pisang. Around WAC 2 (around 300 meters from T-junction heading to Talang Pisang), this LV suddenly went into the ditch on the left side. Driver said he lost concentration for a few second and there was a chicken crossing and then LV went into the ditch. Note: At the time the weather was mild rain and road condition is wet. No injury recorded during this incident. LV already evacuated at 06.40 PM with heavy equipment (boom truck)	dkb / SCM	No Injury recorded. Minor damage to L/H of LV
	14.45	WAC 2 ; 300m from T junction heading to Talang Pisang		
91	9 Jun'15	Single incident of PT. Agitek's light vehicle is recorded. The vehicle went into the right side ditch at Ch.00 access road to shortcut.	Agitek / SCM	No Injury recorded. Minor damage to light vehicle recorded (tire and side vender).

5. Social Safeguards Monitoring

This Chapter discusses progress in implementation of the social safeguard compliance audit report and corrective action plan, implementation of grievance mechanisms, resources for implementation of social safeguards, forward plan of social safeguards, labour hiring and management.

5.1 Social Safeguards Monitoring General Overview

SERD is continuing the process for Social Safeguards Monitoring through its Integrated Social Development Program. To enhance the Integrated Social Development Program, SERD has already conducted survey of Livelihood Opportunities and Skill Development Planning for Rantau Dedap Communities.

This survey result are :

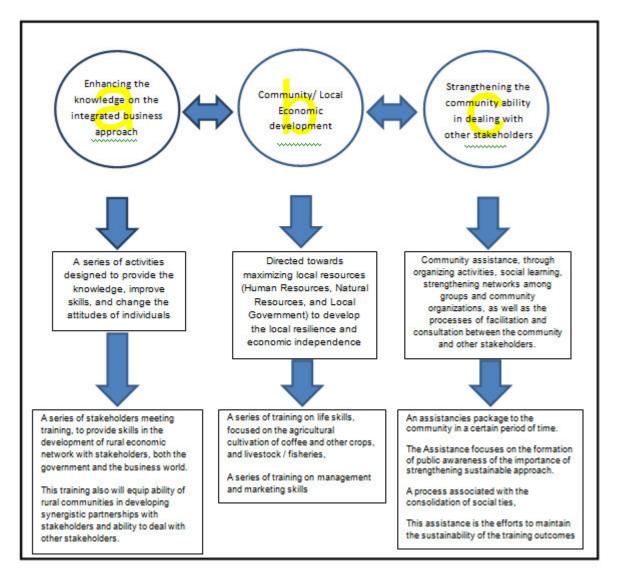
- The Respondents Common Social Profiles
 - Predominantly by Male as the Bread Winner
 - Mostly Belong to the Productive Age Group
 - Rather Low Level of Education
 - Mostly Farmers
- Basic Economic Profiles of the Respondents :
 - Traditional agricultural based economy
 - High employment rate with relatively low income
 - where the education level of the people is not sufficient to boost up the economy, due to the decent individual wages/ income
 - Stagnant economic pattern
 - Not too much room for saving and investment
 - Income equals to basic needs expenditure (often insufficient)
 - Huge economic burden
 - Low household Income
 - High number of dependent
- The analysis of the demand for capacity building is based on the findings from the field survey at the Subject Site. The Survey indicates list of training offered to the respondents who can chose more than one training types. Based on that survey, it is noted the preference of the respondents on the training types.



• Survey Result shows that more than 50% of the respondents choose the training related to coffee cultivation (81.15%), agricultural cultivation (80.33%), alternative coffee cultivation technology (71.31%), and training on entrepreneurship (57.38%).

The Capacity Building Approach and Strategy could be seen on figure 5.1.1







5.2 Summary of information Disclosure, consultation and participation activities

During the period of first half of 2015, Relation Team continously participate in consultation with the villages head, districts head, regent and also the military heads in Lahat and Muara Enim regencies as attendees. The purpose of this informal consultation is to get the latest information regarding the security and social condition in the regencies and consult SERD participation if required by the regencies.

Status of corrective actions

By having engagement with social consultant, SERD had been provided with :

- 1. Socio economic profile
- 2. Redeveloped Grievance Mechanism
- 3. Selection of beneficiaries assistancy
- 4. Identification of skill development and capacity building initiatives through Development of General Capacity Building and Action Plan

All this corrective action plan was documented in Final Report of Integrated Social Development Program Study Services.

Continually, SERD documentation and record keeping has been improved by :

- 1. Revise the guidelines of presidium / village forum / committee principals
- 2. Develop internal and external monitoring report to comply with ADB SPS
- 3. Documentation and record maintenance of consultation
- 4. Budget monitoring for Integrated Social Development Program

5.3 Implementation of Grievance mechanism

During this period no grievance has been reported and in the other hand we already redevelop Grievance Mechanism to be implemented by next period.

5.4 Resources for Implementation of ISDP components

Summary of progress in implementation of the Integrated Social Development Program components could be found on the following table. During this period, since there were a lot of religious festivals and some community events, almost of the program distributed to donation or sponsorship for the events or festivals.



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	Implementation of ISDP components Implementation Period : January – June 2015				
No.	Activity	Target beneficiaries	Status	Remarks	
1	Economic empowerment				
	Skill development Training for women (sewing, food processing, catering supplies, computers) and youth (construction related trades, driving, electrician, mechanic, automobile repairs, etc.)	Vulnerable affected households	Procurement Process	Propose to Q3 2015 Program	
2	Education and scholarship				
	Scholarships (with specific targets on girls)	Affected communities	Done	Providing the donation for Top Achievers Student Competition Elementary – High School Level at Kota Agumg Sub District	
3	Infrastructure improvements				
	Improvements to infrastructure in the project villages including public sanitation facilities, inner roads, drainage and small scale water supply	Sukarami Village – Karang Endah Village, Kota Agung District	Done	Road Asphalting for Inner Road connecting Sukarami Village and Karang Endah Village	
	improvements	Community of Tunggul Bute Village	Done	Stormwater drainage improvement along the village	
		Community of Padang Panjang Ilir Hamlet, Tunggul Bute Village	Done	Provide 100 jts water pipe for water supply improvement project in the hamlet	
		Community of Karang Endah Village	Done	Providing support for Village Mosque renovation	
4	Donations and community relationship				
	Donations or sponsorship on several events such sports events, independence day, religious	Villages in Circle 1 and beyond Circle 1 in the Regency of Muara Enim and Lahat	Done	Donation for several religious events for Rantau Dedap Hamlet, Segamit Village, Talang Pisang Hamlet and Tunggul Bute Village.	
	festivals	Village heads, members of Presidium	Done	Presidium Semende Darat Ulu & Kota Agung Village Forum Operation Financial Support	
		Villages in Circle 1 in the Regency of Lahat	Done	Donation for Safari Ramadhan with Lahat Regent in Kota Agung Sub District	



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	Capacity building of leaders, village heads in conflict resolution, mentoring etc.	Villages in Circle 1 and beyond Circle 1 in the Regency of Muara Enim and Lahat		Conduct forestry campaign with South Sumatera Forestry Office to villagers Circle 1 and beyond Circle 1 in the Regency of Muara Enim and Lahat
5	Community needs assessment			
	Survey for Skills assessment and livelihood opportunities	All Vulnerable Affected Persons	Done	
6	Employment opportunities			
	Recruitment of unskilled and semiskilled workers during construction	Villages in Circle 1, with priorities to vulnerable affected persons	Done	Recruitment of unskilled workers during AFT pipeline installations, road maintenance from Sukarami village to Tunggul Bute Village, pump station guard cum operator from January to June 2015
	Recruitment of locals in the Borrower team	Villages in Circle 1, with priorities to vulnerable affected persons	Proposal for Capacity Building Training Programs for VAP	Propose to Q3 2015 Program
	Recruitment of locals in plant operations	Villages in Circle 1, with priorities to affected persons		



5.5 Forward Plan / Next steps (for the next 6 months)

SERD has set a forward plan for the next 6 (six) months that consists of the following programs, i. e:

- Implementing Capacity Building Action Plan for Livelihood Opportunities and Skill Development Planning for Rantau Dedap Communities phase I by providing life skill training, conduct stakeholder meeting training, community assistance, and community capacity building through skill trainings institutions
- Continuing Implementation of Integrated Social Development Programs through the implementation of capacity building, livelihood development program, employment provision program, and safety net program
- Strengthening of record keeping of grievance redress (continous)
- Standardize formats for documentation and record of consultations including training of staff (continous)

5.6 Labour Hiring and Management

Workplace inspection was conducted by internal SERD in Project and Drilling Site and also conducted by Local Authorities, i.e.: Workplace inspection and monitoring from South Sumatera Mining Office was conducted on 27 – 30 April 2015 (no major findings).



6. Environmental Capacity

This Chapter discusses staff capacities in environmental management, degree of awareness, training conducted, needs assessment of environmental management capacity and awareness level of contractors' staff trained.

6.1 Staff capacities in environmental management

Due to less activity at site, one SHE personnel was returned back to his original site / workplace. There are 3 Site SHE personnel (back-to-back) available at site to handle the remaining construction and drilling activities. SERD site personnel was also assisted by 3 (three) SHE personnel in Jakarta.

6.2 Degree of awareness

The current personnel responsible for environmental management have sufficient knowledge of environmental management, health and safety requirements, including environmental laws and regulations.

6.3 Training Conducted

SERD sent 1 (one) site personnel and 1 (one) head office personnel to attend certified Advance SHE Supervisory training (POU) that was held by the EBTKE in April 2015.

6.4 Needs assessment of environmental management capacity

Based on current assessment, no additional need is required at this stage. However if there is a need to improve the capacity, it will be done accordingly.

6.5 Awareness level of contractors' field personnel

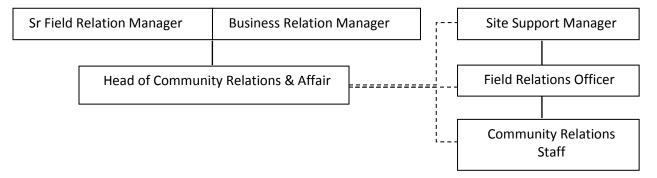
On the job training has been conducted in the form of direct coaching, pre-job meeting, use of display boards and banners.



7. Social Management Capacity

This Chapter discusses staff capacities in social management, degree of awareness, training conducted, needs assessment of social management capacity and awareness level of contractors' staff trained.

7.1 SERD's relation team



7.2 Number and adequacy of staff to monitor labour and working conditions

To monitor labour and working conditions, SERD employs 2 (two) managerial levels (construction managers and site support manager) and 5 (five) supervisory level (Site SHE Representatives).

7.3 Training Conducted

Social awareness on labour termination trainings were conducted in last year.

7.4 Designation and Signature of person responsible

Head of Community Relation and Affair is the responsible for preparing the social safeguards monitoring reports, while Sr. Manager Field Relations and Business Relations Managers are the responsible persons for reviewing the reports.



8. Issues, Status of Implementation of Mitigating Measures in the Environmental Management Plan

This Chapter discusses status of implementation of mitigating measures in the environmental management plan, and if such issues arise, corrective actions and recommendations, would be act upon.

Mitigating Measures	Status
Water Quality	No report of water pollution event.
Air quality and Noise	No report of excessive noise and air pollution.
Soil quality and erosion control	Soil is disposed of at soil disposal facility and erosion is prevented by providing sufficient sloping and conduct revegetation.
	There were several land slide occasions reported and there have been mitigation efforts conducted.
Aquatic biota	No issue.
Waste Management	Conducted mud ponds and water ponds cleaning by reclaiming mud from the ponds using an excavator and a sludge pump.
	In accordance with the prevailing regulation, since October 2014, the drilling cutting and drilling mud are not categorized as hazardous material anymore.
Flora Fauna	Completed the provision of biodiversity study by ENV-Greencap. The results have been shared to ADB.
	Discussed the results of biodiversity study with Forest Office of South Sumatera.
Occupational Health, Safety and Security	Conducted routine inspections.
Community Health, Safety and Security	Ditto
Forest Management Plan	Conducted joint socialization with Forestry Office of South Sumatera province on forest protection to surrounding communities at 3 locations i.e.



	 Segamit village, Yayasan hamlet, and Tunggul Bute Village in May 2015. Distributed flyers from Head of Police of South Sumatera province regarding prohibition of burning trees for land opening and land clearing. Discussed with Forestry Office of South Sumatera province for establishing Forest Security and Forest Fire Team
Earthquake occurrences/incidences (seismicity)	No reported occurrence
Environmental Management Plan	Routinely conducted as stipulated in the government's approved Environmental Study
Environmental Monitoring Results and Environment	Submitted routine reports to government.
Findings and recommendations of audits carried out	No major issues
Problems Encountered and action plan for the next reporting period	No issues encountered.
Other information and Feedback	No issues.



APPENDIX A. Project Pictures.

A.1 WP-I : North Slope Improvement



A.2 WP-I : AFT, Gabion Wall, and Slope Protection





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A.3 WP-I : Perimeter Drainage Maintenance



A.4 Revegetation



A.5 Reclaim Mud from Ponds





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A.6 Socialization on Forestry Matters to Surrounding Communities





APPENDIX B. ISDP Pictures.

B.1 Road Asphalting for Inner Road connecting Sukarami Village and Karang Endah village (including hand over ceremony to Lahat Regent)



B.2 Stormwater drainage improvement along the Tunggul Bute village



B.3 Provide 100 jts water pipe for water supply improvement project in the Padang Panjang Ilir hamlet



B.4 Provide support for Village Mosque renovation





B.5 Donation for Safari Ramadhan with Lahat Regent in Kota Agung Sub District



B.6 Recruitment of unskilled workers during AFT pipeline installations, road maintenance from Sukarami village to Tunggul Bute village, pump station guard cum operator from January to June 2015





APPENDIX C. Details describing the identified causes of the vehicle incidents and the mitigating efforts that have been introduced

Identified Causes and Mitigating Efforts (preventive and corrective) of the vehicle incidents are:

Causes	Mitigating Efforts
Provide necessary equipment needed for safe operation of the vehicle	 Provide sufficient wheelchock for trucks. Check adequacy / completeness of vehicle accessories such as tools, fire extinguishers, wheelchock, horn, etc.
Improve knowledge of the driver	 Continue to conduct regular yearly refresher defensive driving course, including implement pre and post-tests to check proficiency. Use of displays and banners.
Speeding	 Enforce regular (monthly) random check for ALL operating vehicles (speed-check by join team SHE, Security, Contractor representatives). Appreciation / reward for driver that obeys Company driving regulation. Enforce "warning letter system" for driver and their company that violate Company regulations and/or contract condition. Issued warning letters and one dismissal of the driver.
 Road condition Damaged and missing road signs, reflectors and its cleanliness 	 Continue check and repair road, drainage, and trim bushes. Including provision and maintenance of safety berms and crash barriers. Improve road sign maintenance starts from Kota Agung (reflector, safety mirror, warning signs, banners, etc). These include addition, repair, replace and regular cleaning.
Vehicle condition and maintenance	Enforce regular vehicle check for ALL operating vehicles (Daily and pre-use check by driver, Weekly pre-use check by Site SHE).