KEMENTERIAN PENDIDIKAN NASIONAL
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TIM TEKNIS PENILAI ANGKA KREDIT
(TTPAK)
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Nama Dosen : Ir. Sarino, M.Sc
Fakultas/Jurusan : Teknik/Teknik sipil
Jabatan Sekarang : Lektor, III/c
Diusulkan : Lektor, III/d
Angka Kredit Yang dibutuhkan : 25.00

No.	Judul Karya Ilmiah	Bentuk Fisik Media/Tulisan	Kum	Keterangan
1.	Analisis Profil Kawasan Sentra Produksi Industri Kerajinan Masyarakat Tanjung Batu Kabupaten Komering Ilir.	Karya tulis Populer; Buku; Penerbit : PT. PRO FAJAR; ISBN : 979-98938-1-X No. Reg. 03011005021304033I	0.30	
2.	Studi Pengembangan Konstruksi Rumah Kayu Sistem Knock Down Berdasarkan Konsep Struktur Kayu Tradisional Sumatera Selatan.	Karya tulis Populer; Buku; Penerbit : PT. PRO FAJAR; ISBN : 979-98938-1-X No. Reg. 03011005001303033 2	0.40	
3.	Pradigma Baru Mengurangi Permukiman Kumuh di Palembang.	Karya tulis ilmiah; Majalah; Jurnal Rekayasa Sriwijaya Vol. VIII No. 2 Mei 2002; ISSN: 0853-5366 No. Reg. 03010605021301032 9	4.00	
4.	Analisis Banjir Sub Das Kelekar di Prabumulih.	Laporan Penelitian; Makalah; Lengkap; Nopember 2005 No. Reg. 03010301050111022 9	3.00	
5.	Penggunaan Pasir Lokal sebagai Bahan Standard dalam Pengujian Kepadatan Tanah dengan Alat Sand Cone.	Karya tulis ilmiah; Majalah; Jurnal Teknik Sipil Sriwijaya Vol. 1, No. 1, Juli 2005 No. Reg. 03010302050101021 0	1.80	
6.	Evaluasi Dimensi Saluran Pembuang Sekunder Sub Das Kelekar di Prabumulih.	Karya tulis ilmiah; Makalah; Lengkap;Januari 2006 No. Reg. 03010901060101033 0	3.00	
7.	Ecological Evaluation From Road Building Planning Impact in Conservation Forestry Areas.	Karya tulis ilmiah; Makalah; Lengkap, Proceedings International Conference on Environmental Research and Technology (ICERT' 08); 28-30 May 2008; Malaysia No. Reg. 03010805080101032 8	3.00	
8.	Pemodelan Banjir untuk Mitigasi Manajemen Drainase Kota Palembang.	Laporan Akhir; Makalah; Hibah Kompetitif Penelitian Sesuai Prioritas Nasional: Nopember 2009 No. Reg. 03012002050104023 2	1.80	
9.	Perubahan Lebar Saluran pada Tikungan (Skala Laboratorium)	Karya tulis ilmiah; Makalah; Lengkap; Disampaikan pada Seminar Kenaikan Jabatan; Tahun 2010 No. Reg.	-	Lampirkan Nomor Registrasi **Nilai Kum : 3.00**
10.	Kajian Kerentanan Infrastruktur Kota terhadap dampak Perubahan Iklim (studi Kasus Bangunan Sekolah SMPN/MSN/SMKN Kota Palembang)	Karya tulis ilmiah; Makalah; Lengkap; Prosiding Konferensi Nasional Opascasarjana Teknik Sipil; 26 Mei 2010; Kampus ITB Bandung; ISBN: 978-979-16225-5-4 No. Reg. 03010605100101033 8	2.00	
	Jumlah		**19.30**	
	Kekurangan Angka Kredit		**5.70**	

Evaluasi : 19 Oktober 2010

GEOCON 2013

The 9th International Conference on
GEOTECHNICAL AND TRANSPORTATION ENGINEERING
GEOTROPIKA 2013

&

The 1st International Conference on
CONSTRUCTION AND BUILDING ENGINEERING
KONBUILD 2013

28th-30th OCTOBER 2013
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INFRASTRUCTURE ASSESSEMENT OF NEW RAILWAY FOR COAL TRANSPORTATION TANJUNG ENIM – TJ.API API SOUTH SUMATRA

ANIS SAGGAFF

PROF. DR. MOHD. ROSLI HAININ
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The 9th International Conference of Geotechnical & Transportation Engineering (GEOTROPIKA)

and

The 1st International Conference on Construction and Building Engineering (ICONBUILD) – GEOCON2013

DAY 1

28 October 2013 (Monday)

Venue: Main Hall 302

0800 - 0830	Arrival and Registration
0900 - 1000	**Opening Ceremony**
	- Arrival of Invited Guests - Arrival of Vice Chancellor, Universiti Teknologi Malaysia (UTM) - Arrival of Y.B. Datuk Dr. Abu Bakar Mohamad Diah, Deputy Minister of Ministry of Science, Technology and Innovation (MOSTI) - Recital of Doa - Welcoming Speech by Chairman, GEOCON2013, Prof. Dr. Mohd Rosli Hainin -Speech by Y.Bhg. Prof. Ir. Dr. Mohd Azraai Kassim Deputy Vice Chancellor (Reseach & Innovation) Universiti Teknologi Malaysia - Officiating Speech by Y.B. Datuk Dr. Abu Bakar Mohamad Diah, Deputy Minister of Ministry of Science, Technology and Innovation (MOSTI) - Press Conference
1000 - 1030	Refreshment
1030 - 1100	**KEYNOTE SESSION 1**
	Chairperson: Prof. Ir. Dr. Hasanan Md. Nor **Keynote Speaker 1 : Prof. Dr. Gordon Airey** Professor, University of Nottingham, United Kingdom **Title of Paper: 'Green Technology and Sustainability in Highway Engineering' Ensuring Sustainable Moisture Damage Performance of Asphalt Paving Materials**
1100 - 1110	Question & Answer Session
1110 - 1140	**KEYNOTE SESSION 2**
	Chairperson: Assoc. Prof. Ir. Dr. Hj. Ramli Nazir **Keynote 2 - Prof. Dr. Muhd Zaimi Abd. Majid** Dean of Construction Research Alliance, Universiti Teknologi Malaysia **Title of Paper: Innovative and Sustainable Construction Technology**
1140 - 1150	Question & Answer Session

1230 - 1245	**ID192:** PROPERTIES OF ASPHALT CONCRETE CONTAINING SASOBIT® Nurulain C. M, Ramadhansyah P. J, Norhidayah A. H and Hasanan M. N (Universiti Teknologi Malaysia)
1245 - 1400	**LUNCH**

* Each presenter will be given 10 minutes for presentation and 5 minutes Q&A

DAY 2

29 October 2013 (Tuesday)

SESSION (3C): TRANSPORTATION/HIGHWAY: TRAFFIC MANAGEMENT/ ROAD SAFETY/ TRAFFIC HIGHWAY ENGINEERING

Venue: 306

Chairperson: ASSOC. PROF. DR. ISHTIAQUE AHMAD

(Time shown includes Paper Presentation, and Question and Answer Session)

Time	Paper Title
1015 – 1030	**ID211:** PAVEMENT TECHNOLOGY ELEMENTS IN GREEN HIGHWAY M. R. Hainin, M. Z. Abd. Majid, R. Mohamad Zin, H. Yaacob, R. Zakaria, M. Bujang, and W. N. Aifa (Universiti Teknologi Malaysia)
1030 – 1045	**ID225:** INFRASTRUCTURE ASSESSMENT OF NEW RAILWAY FOR COAL TRANSPORTATION TANJUNG ENIM – TJ.API API SOUTH SUMATRA Sarino, and A. Saggaff (University of Sriwijaya, Indonesia)
1045 - 1100	**ID229:** MINIMIZING THE PETROLEUM CONSUMPTION FROM TRANSPORT SECTOR BY IMPROVING AND EXTENDING THE MINANGKABAU INTERNATIONAL AIRPORT BUS SERVICE F. Miro, Momon, and G. Yaldi (Universitas Bung Hatta, Indonesia)
1100 - 1115	**ID244:** DRIVERS' OPERATING SPEEDS ON ROAD BENDS ON SINGLE CARRIAGEWAY ROADS O. C Puan, S. Halim and M. N Ibrahim (Universiti Teknologi Malaysia)
1115 - 1130	**ID245:** ESTIMATION OF PERCENT TIME SPENT FOLLOWING ON TWO–LANE HIGHWAYS: A NEW MEASURING TECHNIQUE M. N. Ibrahim, O.C. Puan, M. Mustaffar and S. Halim (Universiti Teknologi Malaysia)
1130 - 1145	**ID248:** PERFORMANCE OF MICRO SURFACING ON EXPRESSWAY Nazaruddin Jamion, Mohd Rosli Hainin and Haryati Yaacob (Bina Masyhur Sdn. Bhd, Malaysia

ID: 225

Infrastructure Assessment Of New Railway For Coal Transportation Tanjung Enim – Tj.Api Api South Sumatra

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Abstract

Tanjung Enim is the largest coal mining field in South Sumatra and produces 2 million tons of coal each year. The coal from Tanjung Enim is tansported to Palembang by railway and road whereas to Lampung by rail way, then from Palembang to other ports outside South Sumatra by using barges through River Musi.. The depth of Musi river through which barges pass is decreasing and not sufficient for navigation during low water level. For that reason South Sumatra Province Government is planning to build sea harbor at Tanjung Api-Api near the estuary of Banyuasin river. The purpose of the study is to identify railway line, estimate infrastructure needed by using areal topography and field verification. The study shows that the interpretation of areal photography can be used to estimate the required infrastructure which include land acquisition, soil condition, best railway position , and crossings.

Keywords

Coal,; railway line; areal photography; field verification

INFRASTRUCTURE ASSESSEMENT OF NEW RAILWAY

FOR COAL TRANSPORTATION

TANJUNG ENIM – TJ.API API SOUTH SUMATRA

SARINO [1] , ANIS SAGGAFF [2]

1) **Lecturer , Civil Engineering Department, Faculty of Engineering, University of Sriwijaya, South Sumatra,Indonesia**
2) **Professor , Civil Engineering Department, Faculty of Engineering, University of Sriwijaya, South Sumatra,Indonesia**

ABSTRACT

Tanjung Enim is the largest coal mining field in South Sumatra and produces 2 million tons of coal each year. The coal from Tanjung Enim is tansported to Palembang by railway and road whereas to Lampung by rail way, then from Palembang to other ports outside South Sumatra by using barges through River Musi.. The depth of Musi river through which barges pass is decreasing and not sufficient for navigation during low water level. For that reason South Sumatra Province Government is planning to build sea harbor at Tanjung Api-Api near the estuary of Banyuasin river. The purpose of the study is to identify railway line, estimate infrastructure needed by using areal topography and field verification,

The study shows that the interpretation of areal photography can be used to estimate the required infrastructure which include land acquisition, soil condition, best railway position , and crossings.

1.Introduction

Tanjung Enim is the biggest coal mining field in South Sumatra and produces million tons of coal each year. This coal mining is exploited by PT.Bukit Asam a state own company . The main outlet of the product is Palembang River Port and Tarakan Sea Port (Lampung). The coal from Tanjung Enim is tansported to Palembang and Tarakan by rail way, then from Palembang to other ports outside South Sumatra by using barges through River Musi.. The coal is also transported from Tarakan to West Java and overseas designated port by sea.

The depth of Musi river through which barges pass is decreasing and not sufficient for navigation during low water level. Therefore

port of Palembang is also not reliable due to seasonal conditions.

For that reason South Sumatra Province Government is planning to build sea harbor at Tanjung Api-Api near the estuary of Banyuasin river. It is expected that the harbor as the outlet natural resources , mining and and industry product to be transported to other domestic or overseas port.

Considering the planning, the provincial government has plan to build railroad to transport coal and other product from Muara Enim to Tanjung Api-Api.

The purpose of the study are :

a.To identify trace of proposed rail way line .

b.To conduct need assessment of the required rail way infrastructure

c.To predict cost estimate based on need assessment.

The objectives of the Muara Enim – Tj.Api-Api Coal Railway Project are:

To facilitate economic development in the Central Kalimantan region, particularly in the area between Muara Enim and Tanjung Api-Api.

a.To provide an alternative to the limited road capacity, and overcome the problem related to river

transportation during the dry season;

b.To provide a mode of transport that is safe, more reliable and environmentally friendly.

Study Approach

The study was undertaken within the constraints of the relatively short project time frame, limited

access to documentation and records and included the following key stages:

a) Collation of data and information from previous studies.
b) Aerial Photograph to identify rail way line, land use , and infrastrure needed.
c) Field investigations to verify the field condition against the result of Photographs.

2.Current Condition of Coal Transportation

Coal mining in South Sumatra are found in vicinity of Tanjung Enim and Lahat. Tanjung Enim coal mining field has been exploited since Ducth Colony whereas Lahat mining field has been developed for the last two years. The product of coal mining from Tanjung Enim is partly transported by railway to Tarakan Lampung to fulfill demand of Electricity power generation in java and export. The coal is also transported to Palembang and then shipped to other domestic and overseas destination.

All of The Coal from Lahat mining field is transported to Tanjung Lago near Tanjung Api –Api by using trucks through regular rail road.

The shipment of Coal by rail way through should be terminated in Palembang while to Tarakan takes long way.

The transportation of coal by trucks through regular road causes traffic jam and accelerate road damage.

3. Infrastructure Assessment

Survey

An areal photographs survey of the rail line and associated infrastructure was undertaken . The survey was done to identify the railway line plan by taking into account land use, topography, and possible intersection with other infrastructure such as : river, road, or existing railway.

The track was delineated on Topograpic digital map in such way that it meet requirements of railroad as to the gradient of slope,geometry of curvature and least cost of land aquisition. The areal survey was done using ultra light plane over Lahat to Muara Enim, Tanjung Enim to Muara Enim, then From Muara Enim to Tanjung Api-Api of 261 km long line. The photographs cover the with of the width of 600 meter along 261 km line.

The result of the photograp was then interpreted ,analyzed, and plotted. The railway line was shown in figure 1.

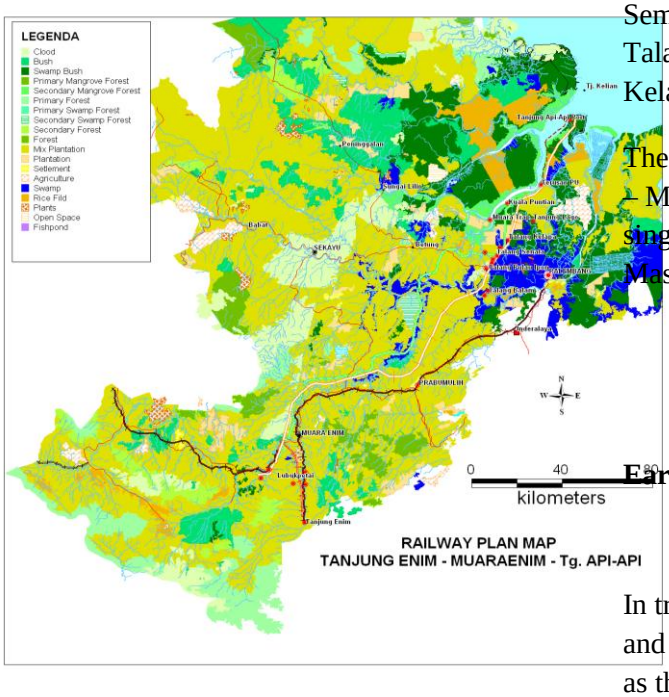

Figure 1 Location of Proposed Tj.Enim – Tj.Api –Api Rail Line

Rail Line Route

The proposed Tj. Enim – Tj.Api-Api rail line is approximately 261 kilometres long and it would link Muara Enim (capital city of Muara Enim district) directly to Tanjung Api-Api sea port.

The railway is positioned on right site of Enim River (Tj.Enim – Muara Enim) , and on the left side of Lematang river (Hujan Mas – Talang Kelapa), on the left side of Musi river (Sumbawa – Talang kelapa) and passes towns of Tanjung Enim, Muara Enim , Hujan Mas (Muara Enim district) , Sumbawa, Talang Kelapa, Sp.Terusan PU, and Tanjung Api-Api.The distance between those location is described as the following :

Tanjung Enim – Muara enim is 38,14 km. Muara Enim –Hujan Mas 13.2 km, Hujan Mas – Sumbawa is 129.12 Km, Sumabawa – Talang Kelapa is 13,08 km, Talang Kelapa – Sp terusan PU is 32.89 km, and Sp.terusan PU – Tanjung Api –Api 3.,67 km. The gradient of the line between Tanjung Enim and Muara Enim is about 1 %, Muara Enim – Hujan Mas moderate 1 %, Hujan emas – Sembawa is less than 1 % (flat), Sumbawa Talang Kelapa also less than 1 % and Talang Kelapa – Tj.Api –Api is less than 1 %.

The railway line segment from Tanjung Enim – Muara Enim is the expansion of the existing single track railway, while the one from Hujan Mas To Tanjung Api –Api is a new rail way.

Earthworks

In tracing planned railway line on topography and land use maps, requirements of railaway as the maximum gradient of longitudinal section and least expensive land acquisition were considered. Out of 261 meter railway

line , only 11 km of it lies on swampy area which will need special rail road subgrade of embankment. Based on planned railway line , most of railway earth works are embankment and only slight cut between Muara Enim and Hujan Mas and Hujan Mas and Sembawa. There is no tunneling.

Opening and Waterways

These items comprise concrete box culverts, reinforced concrete pipes and steel pipes (up to 2100 mm diameter). .

Concrete box culverts are constructed at some locations especially at railway line on swampy soil.

Bridges

Three major river bridges are required , long span bridges and short span bridgesfor river crossing and the one for railway and road crossing. The Musi River crossing will require a 300 metres bridge.There will be 33 river crossing with total length of 1850 meter . Two biridges will cross two big rivers namely Musi River and Lematang River, about 31 small bridges will cross small rivers along railway corridor.

The construction of bridges is steel structure frame .. This is considered to be a far more cost-effective structure and more inline with other existing bridges

Besides that there will be two rail road crossing at Hujan Mas and Sembawa. And one railway crossing at Hujan Mas

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