Annexure 1 Topo-sheet Map



Topo map within 10Km radius from the Project boundary



High Resolution Satellite image showing project site and its Latitude and Longitude

# Annexure 2 Fly Ash MOUs

# Govt of Bihar Rural Works Department

Letter No.- BRRDA (HQ) PMGSY-581/2015 GS

/Patna, dated- 07 01/16

From,

Kamlesh Choudhary Engineer in Chief

To.

Shri Praveen Gupta GM/HoP, BTPP SJVN Thermal Pvt. Ltd.

Sub: Long term requirement of Fly Ash from Thermal Power Plant for Its utilization in construction of Rural Roads in the State of Bihar

Sir.

As you may be aware, Rural Works Department is focusing on construction and maintenance of the rural roads falling mainly in the category of others District Roads (ODR) and Village Roads in Bihar state. In our initiative, towards adoption of environment friendly technology for construction of the rural roads, we intend to utilize fly ash from thermal power plant in construction of rural roads in the state of Bihar.

We understand that SJVN Thermal Pvt. Ltd. is looking to supply fly ash from their coal based Buxar Thermal Power Project, District Buxar.

Though our Fly Ash requirement varies from time to time depending upon quantum of works and at present we are utilising Fly Ash as new Technology. We may require up to 0.48 MMT per annum of Fly Ash for its utilization in construction activity of rural roads as stared above.

It is for your kindly information Thanking You.

**Vours** faithfully

100 n

(Kamlesh Choudhary) Engineer in Chief

# Office of The Engineer in Chief cum Additional Commissioner cum Special Secretary, Road Construction Department, Bihar, Patna.

Letter no- Sec.-11/Vividh-03-41/2015 - 1921

Patna, Date- 21116

From.

Lakshmi Narayan Das, Engineer in Chief-cum-Additional Commissioner-cum-Special Secretary.

To,

Sri Parveen Gupta, GM/Hop, BTPP, SJVN Thermal Pvt. Ltd., Talpatra Lane, Budh Marg, Patna-800001

Sub:- Long term supply of Fly Ash from Coal Based Supercritical Buxar Thermal Power Project for its utilisation in construction of Road and other related works.

Ref:- Your letter no.-392 dated-06.11.2015

Sir.

As directed it is stated that Road Construction Department is focusing on construction and maintenance of roads in Bihar. In our initiative towards adopting of environment friendly technology for construction of road, we intend to utilize Fly Ash from Thermal Power Plant in construction of roads in the state of Bihar.

We understand that SJVN Thermal Power Pvt. Ltd. is looking to supply Fly Ash from their coal based Buxar Thermal Power Project, District Buxar.

Though our Fly Ash requirement varies from time to time depending upon quantum of work, we may require 0.24 MMTPA out of 0.48 MMTPA free of cost as stated in your letter under reference from Buxar Thermal Power Plant.

Hence it is requested to kindly allocate 0.24 MMTPA of Fly Ash from your coal based Buxar Thermal Power Project, District Buxar.

Yours Faithfully,

(Lakshmi Narayan Das)

CP-33

M/s R.K. MISHRA ENTERPRISES

# Annexure - I

Expression of interest (EOI) for Uplifting of Fly Ash from 2x660 MW Buxar, TPP

4	Name of Internated Party	1.0	M/S D // Miches Enterprises
0	Address		Detail Nexes Weed Ma 57, Durability
2	Address	2	Patel Nagar, Ward No-17, Purabtola,
8			Kanaigaon, Bhagaipur (Binar).
3.	Nature Of Business	15	- Trader
			Iransponer
			<ul> <li>Bricks, Block, Tees or other ash</li> </ul>
			based product (to be specified)
	Tuna of products being dealt		Camonte Asbastore Bricks Block Tilas
**. E	Classification of the Company	1	Others (Lethers, elegas, proces, biock, files
0.	Classification of the Company		Outers (il outers, please specity)
~	And the second se	1	Prophetorship Firm
Б.	Contact details	12	Name - Ravi Kant Mishra
			Designation- Prophetor
			MOD.NO-09934702851
_			Email ID: ravikant_mishra14@yahoo.com
7+	Proposed and use of fly ash	6	Bncks
			<ul> <li>Exports</li> </ul>
			Trading
			Others (If others, please specify) Trading
8.	Years of experience in the business	14	8 (Eight) years
9.	Annual Turn over of the business	1.	61 (One Crore)
10.	Location & Agency's other details	10	<ul> <li>a) Distance of Ash utilization unit from</li> </ul>
		11	Buxar TPP - 200 K.M.
			b) Address:
		1	Patel Nagar, Ward No-17, Purabtola
			Kahalgaon, Bhagalpur (Bihar).
			<li>c) Details of license/registration</li>
			(if available) CST/VAT
			CST No- 10523309132
			VAT No- 10523309035

Regd. Office : Ogn. P.O. Maneshamunda, P.S. Kanalgaon, Dist. Bhagalpur, Pin-813203 (Bihar). Branch Office : Patel Nagar, Ward No. 17, Purab Tola, Kahaigaon, Mob. 9934702851, 9931859452 E-mail : ravikant\_mishra14@yahoo.com

-LAVER M

No

281170

53.0110

CP-32



M/s R.K. MISHRA ENTERPRISES

### 12. Quoted Price and Quantity of Fly Ash

SI No.	Quantity (MT/A	required nnum)	Price Offer at the	ed by party (Rs/MT) Fly Ash Silo*	Period of requirement (in no. of years)	
	In Figures	In Words	In Figures	In Words		
	5,00,000 MT Per Annum	Five Lacs MT/ Annum	10 Rs/MT	Ten Rupees Only/ MT	20 Years	

\* Excluding taxes, Duties & Freight.

Note -11

Those Agencies interested in uplifting of fly ash free of cost, may specify NIL in the column for price offered.

This announcement is not an offer for commitment for fly ash tie-up.

13. Whether willing to enter in to MOU : Yes.

We understand that fly ash quantity to be supplied would be as available basis from the designated delivery point (on ex. works basis) and we have to arrange transportation at own cost in bulkers / closed trucks. We are liable and responsible for payment towards any taxes, levies, octroi etc. applicable / enforced by state / Central Government from time to time during the tenure of the contract.

Date Pisce 15th October 2015 Kahalgaon

or, Mis R. K. Mishra Enterprises

2

Name of person - Ravi Kant Mishra Designation - Proprietor Name Of Company - M/S R K Mishra Enterprises Address - Patel Nagar, Ward No-17 Purabtola, Kahalgaon, Bhagalpur (Bihar), Pin- 813203

Javing Margar

Regd. Office : Ogri, P.O.-Maheshamunda, P.S.-Kahalgaon, Dist.-Bhagalpur, Pin-813203 (Binar), Branch Office : Patel Nagar, Ward No.-17, Purab Tola, Kahalgaon, Mob.: 9934702851, 9631659452 E-mail : ravikant\_mishra14@yahoo.com



Sr. Manager (Contract - 8D & MS) SJVN Limited, 707-709, 7" Floor, DLF South Court, District Centre, Saket, New Delhi - 110017

Date 24th August 2015

Ref: Invitation for Expression of Interest (EOI) SJVN/BD&MS/BTPP/EOI-Fly Ash dated 11<sup>th</sup> July 2015

Dear Sir,

We are pleased to submit the EOI for lifting Fly Ash from the proposed Thermal Power Station at Buxar,

Please find attached the Annexure I with the relevant details.

Thank you.

Yours faithfully,

**Rakesh Ram** 

020007 10 C COLONN

Asst. Vice President - Business Development & Strategy

Handing Manger

LAFARGE INDIA PVT. LTD. ( CIN - U26940MH1999PTC118229 ) Registered Offico: Equinox Business Park, Tower - 3, East wing, 4th Floor, Off. Bandra - Kurla Complex, LBS Road, Kurla - West, Mumbai - 400070 Tel: (91-22) 6630 6511 Fax: (91-22) 6630 6510 www.lafarge.com



### ANNEXURE I

(On the Company's Letterhead dully signed by Authorized with Company's Stamp)

### Expression of Interest (EOI) for uplifting of Fly Ash from 2 x660 MW Buxar TPP

1. Name of interested party	1	LAFTRAE INDIA BUT LTD.
2. Address	140	EQUINON BUSINESS PARK, TOMER-3, BASTWING, UPEFLOOD, DEF BANDAR KUELD COMPLEX LOS MARG, KURLY-NESS MUM. 400074
3. Nature of business		<ul> <li>Cement Manufacturer</li> <li>Ready Mix Concrete (RMC) Manufacturer</li> <li>Trader</li> <li>Transporter</li> <li>Bricks, Block, Tiles or other ash based product Manufacturer</li> <li>Others (if others, please specify)</li> </ul>
4. Type of products being dealt	1:	COMENT, RAY, MAC. BLOCKS, HEB
5. Classification of the Company		Public Limited Private Limited Partnership Limited Others (if others, Please specify)
6. Contact details	1	Name: CARESH, CATA Designation: ASAT, WILE PAESIDE AT Tel No. (With STD code). (P.2.1). 6/20.2654 Fax No.: (021).66306570 Mobile No. 9930040734 Email ID: VAESS, VAM. @ Catavar.com
7. Proposed end use of fly ash	1	Cement RMC Asbestos Bricks / Ame & Local Exports Others (if others, please specify)
<ol> <li>Years of experience in the business</li> </ol>	+	15 y card
9. Annual Turn Over of the business	Ŧ	Appres Ras 200 Creves
10. Location & agency's other details	+	<ul> <li>a) Distance of Ash utilization unit from Buxar TPP Km To &amp;S DEC 585</li> <li>b) Address</li> <li>c) Details of license/registration (if available):</li> </ul>
11. Total Requirement of fly ash	:	0.4.8.9 MT / Annum

12. Quoted Price and Quantity of Fly Ash

Sl. No.	Quant (MT	ity required / Annum)	Price Offered by party (Rs/MT) at the Fly Ash Silo*		Period of requirement (in no. of years)
	In Figures	In Words	In Figures(₹)	In Words(₹)	
1-2.	0-103	Eight-lac Tons	NIL .		30 45+R1 +

\*Excluding taxes, Duties & Freight.

Notes- Those Agencies interested in uplifting of fly ash free of cost, may specify NIL in the column for Price offered.

4 251/

Mans

# 1. Cemetat-0.70 MT 2. Are BLOCK -TOTAL 0.10 MT.

0.80 MT.





13. Whether willing to enter into MOU: Yes. 4154

NO.....

We understand that fly ash quantity to be supplied would be as available basis from the designated delivery point and we have to arrange transportation at own cost in bulkers/closed tracks. We are liable and responsible for payment towards any taxes, levies, octroi etc. applicable/ enforced by state/ Central Government from time to time during the tenure of the contract.

Date: 240 AUG. 2015 Place: NUM EAT

5.2

Company seal



Signature

alle

Name of the person REXESH RAM. Designation ALST. VICE INESIDENT Name of company CAFAEGE INDIA PVT. LTD. Address ERVINEM EUSINESS PERK,

EAST WING, TONEA -3 UA ELOUR, OTF. RANDAA KURLA LOMPLED, LAS MARG, KURLA - MESC MUMBAT- 404070

A Sug h Mar



newthink! cement! sugar! refractories! power!

23<sup>rd</sup> September 2015

### **EXPRESSION OF INTEREST**

To,

Sr. Manager (Contract) SJVN Limited Business Development & Management Services 707-709, DLF South Court District Centre, Saket New Delhi - 110017

Dear Sir,

Kindly find below our expression of interest for sourcing Fly Ash from SJVN Thermal Pvt Ltd.

1. Name of Party	Daimia Cement (Bharat) Ltd
2. Address	Hansalaya, 11 & 12 <sup>th</sup> Floor 15, Barakhamba Road, New Deihi 110001
3. Nature of Business	Cement Manufacturer
<ol><li>Type of products being dealt</li></ol>	Cement
5. Classification of the Company	Public Limited
6. Contact Details	Vijay Patil Executive Director- Strategy & Business Excellence Phone : 011-23465200 Fax : 011-23313303 Mobile : 9818866184 Email : patil1.vijay@dalmiacement.com
<ol><li>Proposed end use of fly ash</li></ol>	Cement Manufacture Fly ash based products (bricks, blocks)
8. Years of experience in the business	More than 20 years
9. Annual Turnover of the business	Rs 4000 Crore
10. Location & agency's other details	Distance of ash utilisation unit from Buxar TPP : Approx 25 km
<ol> <li>Total requirement of fly ash</li> </ol>	7 Lakh metric ton per annum

5 5

Dalmic Centern (Bharar) Limited 71th & 12th Floors, Manufally, Building 35, Barakhambe Road New Dalmi 131 (80) (NDLA ( %) (1.2346/000 / 9213 22332303 # info@shimubharaz.com w www.shimubharaz.com Begenered Office : Dalmiaparam 621 653 [Tamil Nashi]

12. Quoted Price and Quantity of Fly Ash :	
--	--

SI No	Quantity requin	ed (MT/Annum)	Price Offered by Party (Rs/MT) at the Fly Ash Silo		Period of requirement (years)
	In Figures	In Words	In Figures	In Words	
1	700,000	Seven Lakhs	NIL	NIL	25

### 13. Whether willing to enter into MOU : YES

We understand that fly ash quantity to be supplied would be as available basis from the designated delivery point (on ex-works basis) and we have to arrange transportation at own cost in bulkers / closed trucks. We are liable and responsible for payment towards any taxes, levies, octroi etc. applicable / enforced by state/Central Government from time to time during the tenure of the contract.

Signature	1.00	-2
Name	31	VUAY PATIL
Designation	1	Executive Director – Strategy & Business Excellence
Name of Company	Ŧ	Dalmia Cement (Bharat) Ltd
Address	3	Hansalaya, 11 & 12 <sup>th</sup> Floor 15, Barakhamba Road, New Delhi - 110001
Date	ŝ.	23 <sup>ad</sup> September, 2015
Place	14	New Delhi



monstry

2 girt 7

[On the Company's Latterboad Expression of interest (EoI) fr	ANNEXTMENT ANNEXTMENT dully signed by Authorized with Company's Shamp) or updifung of Fly Authorized 2 x668 MW Brear TPP <sup>(1)</sup> ate
1. Name of reterested party	Ghlabal Intag Expant
w. Adultana	Pilter Magas, ward No 17, Pusablas Kaharang Bhosalpus, Bihan
3. Mattaine of buildsome	<ul> <li>Consent Manufacturer</li> <li>Roady Min Controlle (RMC) Manufacturer</li> <li>Tradet</li> <li>Tradet</li> <li>Ritclin, Block, Tiles or other sub-hauet product (r be specified) Manufacturer</li> <li>Others (if others, please specify)</li> </ul>
6. Type of preducts heing doub	General Asbestown Boick Block
1. Classification of the Computey	Public United Private Limited Partnership United - Others (College, Plana reserve) Partners, She'P.
6 Contact defails	1 Name SHASHI RANT MISHRA Designation: Politings Shap: Tet Ma. (With STR ande) Fire No. Molitie No. 9831653459 (3334702) Kennel D. Shashi Japart 207 63 Samuel
<ol> <li>Proposed centure of By sub</li> </ol>	Aubentor Aubentor Briefs Espons Others (if others, please sperify) To Gd i Mg
IK Years of experience to the business	03(Three) years
9 Annual Turn Over of the Juniteest	FIFTX (SO) LOKA
<ol> <li>Latintian &amp; agency's other details.</li> </ol>	Adview 20.0

12. Quoted Price and Quantity of Ply Esh

t.

 $\pi_{tf}$ 

30 100	Qonat (MT)	ty riquired / Annum]	Price Offered by party [Rs/MT] at the Fly Ash Silo*	Portial of requirement (in munifyrare)		
	In Figuras	In Words	The Presures (#) In Words (#)			
	5.00000 Mr. Promute	FiveLarch	OSRS/M Five Rupus	20 74210- 1		

"Including taxes, Duties & Freight,

Note:- 1. These Agencies interested is upiliting of ity act free of cost, may specify NIL in the ostume for Price offered.

2. This association is not an offer for commitment for fly white-up

M/S GLOBAL INFRA EXPORT 5 51 -0 2236 M AL. . . ARTNER Pholo

Badg, Office ( Opti, Schulgson, III alignities) filler: Branch Office: Ford Nager, Werel Mr. 17, Press Tran. Katargeon Math. 99204702001 Control rational conduct Signification.



Bedg. Office - Gpt. Edulgam, Biahgalpur (Bihm) Ramah Office: Panit Rager, Ward No. 17, Panit Yala Edulgens Initis 9004702251 fl esalt configure printmet/dipation rest

# Annexure 3 Water Allocation

4-2010 16:54 From: BSEB ND

CER----2010 16:52 FROM:

all they have

27/09/10

Menbor (G) To: 06122504968 Ca(P×0) / TD: 26711683 2-711603 9.2010

No. 7/2/2BH (10)/2010 IP (N)/ 585-587 CENTRAL WATER COMMISSION IRRIGATION PLANING (NORTH) DTE.

> 204 (S) Sewa Bhawan R.K. Puram, New Delhi Dated 24 /09/2010

The Principal Secretary, Water Resources Department, Govt. of Bihar, Sinchai Bhawan, PATNA - 800015

Sub. Buxar Thermal Power Project- (2x660 MW) Bihar- Clearance of water availability - Reg

Ref: State Govt. Letter No. M-4-Work-D-55/2003-Pail-4-1421 dated 20.9.2010

Sir

Kindly refer to the letter citod on the above subject regarding water availability for the Buxar Thermal Power Project- (2x680 MW). It is stated that Covt. of Bihar has allocated 55 cusec of water to the above Thermal Power project & would be provided through river Gange out of the water available for irrigation use in Sone basin within 0.25 MAF allocated through Bensagar Agreement, 1973.

In this regard It is mentioned that total utilization in Sone Canal System of 5.77 MAF (5.00 MAF for Sone Low level canal & 0.77 MAF for High level canal) in Bihar is given below

i)	Irrigation in Sone Canal Project	5.64 MAT
	(Low level Ganal & High level Canal)	
ii)	Nabi Nagar Thermal Power Project (4x250 MW) -	0.04 MAF
	Proposed	
iii)	New Nabl Nagar STPP (3x660 MW) - Proposed	0.09 MAF
	Totai	5.77 MAF

ESEL

Thermal Power

EEE (P2D) Sh Yadan finsink 29/9/2010 pl, leep nin file and update Pl, leep nin file and update pl, leep nin file and update fisj9/20

P.1

11:1

24-2010 16:56 From:BSEB ND SEP-24-2010 16:55 FROM:

26711603

# To:06122504968

P.1 F:2

It is further stated that proposed allocation for Thermal power projects, as mentioned above would cause a shortfall of 0.13 MAF water for irrigation in Sone Canal System (Low level as well as High level) which is proposed to be compensated by utilizing the ground water available within the command.

In case, Govt, of Bihar proposes to withdraw 55 cused of water available for irrigation use in Some basin to use in Buxar Thermal Power Project, the irrigation use in the Sone basin has to be reduced further to the extent of 55 cused. Bihar Govt, may keep this aspect in view.

As per Bansagar Agreement, 1973 the total irrigation water requirement of undivided Bihar In Sone basin is assessed as 8.0 MAF out of which 7.75 MAF is to be met from Sone basin & 0.25 MAF is to be utilized from Ganga water. Further the allocation botween Bihar & Jharkhand is not finalized as yet.

In view of the above, I am directed to convoy the approval of Centrel Water Commission for the allocation of 55 cuses of water to Buxar Thermal Power Project (2x660 MW), Bihar during lean period (Jan. to May) subject to the condition that

> Total utilization for irrigation and other uses by erstwhile Bihar (before reorganization) shall not exceed the share of 8.0 MAF allocated to them out of which 7.75 MAF is to be met from Sone Basin and 0.25 MAF is to be utilized from Genga water as per Bansagar Agreement.

11)

1)

The water shall be accounted against the share of Bihar as and when agreement is reached between Bihar & Jharkhand and the Govt, of Bihar shall not exceed the water utilization from Sone Basin as agreed to among the Basin States.

However, the details of utilization of water in Sone Basin including the above thermal power project may be furnished for reference and record.

Yours faithfully,

Director, IP (N)

Copy to:

- The Advisor, Bihar Power Infrastructure Company Pvt. Ltd., 4-8. Ist Floor, Srikrishnapuri, Patna.
- Chief Engineer (PAO) for information and future reference.

ाः ८ मो0-4-कार्य-इति-55703 भार्ट-4-शि‴ सरकार

भेले संसाधन विभाग

5490.

२० रामचन्द्र प्रसार सिन्हा संयुक्त सचित (अभि०)

तेवा मे.

सरवतर के संसुकत समिव ऊर्जा विभाग, विहार, पटना

पटना, दिलांक-

विषय:------

- लकसर जिला के चौंसा गोला में प्रस्तायित 2000 मेगावाट क्षेमता के ताप लिद्युत परियोजना तेतु गंगा नदों से 100 कयूसेक जलापूर्ति के संबंध में । इस स्वायॉलय का प्रजांक गो0 व कार्य-हो0-55703 पार्ट-व-2577पटना, दिनोक 19.2.05
- प्रसंगः- इस कार्यालय का पत्रांक मो० व कार्य-डी०-55703 पार्ट-व-2577पटना, दिनोक 19.2.08 एवं निदेशक, टकनोको विकास बिहार, पटना का जापांक 1035 दिनोक 1.9.09

महाशव,

तकत निषय एवं प्रासंगिक पत्र के संदर्भ में आईठएलठ एण्ड एफठएसठ इठडेठकंठ लिठ द्वारा बकसर जिला में चौसा गोला में विद्युत संयंत्र की स्थापना हेनु गेगा नदी से 100 कथूसेक बंलापूर्ति लेने के संबंध में जल संसाधन विभाग द्वारा निम्नलिखित शक्तों के अधीन सहमति संसुचिन को बाती है:-

- जलापूर्लि प्राप्त करने हेतु सभी आवश्यक व्यवस्था एवं उससे संबंधित संस्वना का निर्माण, सम्मोगण एवं रख-रखाव संबंधित कम्पनी को अगने खर्च पर स्ववे करना होगा ।
- अल्रापूर्ति संरचना के निर्माण के कारण थदि उसके आसपास के संत्रों में कटाव को स्थिति उत्पन्न सोती है तो उसको सुरका को जिम्मेदारी कम्पनी को होगी ।
- जल को उपलब्धवा में कमी होने की स्थिति में कम्परी का कोई दावा माना नहीं होगा ।
- राज्य प्रयूषण नियंत्रण परिषद द्वारा निर्धारित माम्बरण्डो के अनुसार प्रदूषित जल को आवण्यक उपचार कर ही नदी में प्रवाहित करना होगा ।
- गर्दो से औद्योगिक आवस्यकता हेतु जल की आपूर्ति लेगे पर बिहार सरकार द्वारा समय-समय पर निर्धारित जल-कर/शुल्क अनुमान्य होगा ।
- संबंधित उपक्रम के निर्वेश प्रस्ताथ की स्वीकृति के पश्चात कल संसाधन विभाग से उपयुंकत शाली सहित एकरावनामा करना होगा ।

इस विभाग द्वारा पूर्व निर्गत पत्रोक-4-कार्य-डीठ-55/03 पार्ट 4-257 विठ 19.2.08 को इस देप तक संशोधित समझा जाग ।

> विषयसभाजनं, अन्यभा (रामचन्द्र प्रसाद सिन्हा) संयक्त सचिव (अपिठ)

पत्रीक [612=४घटना, दिनोना-≤]111⊃4

प्रतिशिपि निदेशक, तकनीकी विकास, उद्योग विभाग (तकनीकी विकास) बिहार सरकार, पटना को सुचनार्थ समर्पित ।

ElCo

(रामचन्द्र प्रसाद सिन्द्र)) संदर्कत सांचिव (अभि०)

# विहार तरकार, जल तताधान विभाग ।

पत्राक मोठ-4 कार्य डीं० 55/03 पार्ट 4257 /पटना, दिनाक 19-2-08

प्रेकान्त्

ई० आगोक कुमार वर्मा, तंधुक्त तचिव । अभिगधंत्रणा।

तेवा ते,

अपर तचिव, -उन्नी विभाग, बिहार, पटना ।

बक्तार जिला में चौता गोला में प्रस्तावित ताप विद्युत परिघोजना हेतु गंगा नदी में जल की उपलब्धता के तंबंधा में । आपका पत्राक 45 दिनाक 7.1.08

महाशाय,

प्रतग-

149

Nor

2/2/08

বিচায়-

निदेशानुसार प्रासंगिक पत्र के संदर्भों में मुख्य अभिाधन्ता, जल संसाधान विभाग, डिहरी के पत्राक 4653 दिनाक 4.12.07 ा छाया प्रति संलग्न ा के से प्राप्त प्रतिवेदन के आधाार पर सूचित करना है कि चौसा गोला बक्सर में प्रस्तावित ताप विद्युत परियोजना हेतु गंगा नदी में 100 क्यूसेका जल उपलब्धा है ।

अनु0- गर्टोक्त ।

विषयात भाजन, 19/108 । अप्राोक कुमार वर्मा । तयक्त तचिव । अभिग्यंत्रणा ।

Annexure 4 MOU for Imported Coal



# INDIA NON JUDICIAL

# Government of National Capital Territory of Delhi

e-Stamp

IMPACC (IV)/ dl851303/ DELHI/ DL-DLH

SUBIN-DLDL85130336624628079022O

SJVN THERMAL PRIVATE LIMITED

: SJVN THERMAL PRIVATE LIMITED

SJVN THERMAL PRIVATE LIMITED

Article 5 General Agreement

Not Applicable

MMTC LIMITED

(One Hundred only)

÷

0 : 1

: 100

(Zero)

IN-DL18984396671021O

23-Feb-2016 01:04 PM

### सत्यमंच जयते

Certificate No. Certificate Issued Date Account Reference Unique Doc. Reference: Purchased by Description of Document Property Description Consideration Price (Fis.)

First Party Second Party Stamp Duty Paid By Stamp Duty Amount(Rs.)



### Please write or type below this line ..... MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (hereinafter referred to as "MOU") 

M/s. MMTC Limited, a Government of India Enterprise having its Α. Registered office at Core 1, Scope complex, 7, Institutional area, Lodhi Road, New Deihi - 110 003, (hereinafter referred to as 'MMTC" which expression shall unless the context requires otherwise, include its successors and permitted assigns) of the First Part

Memorandum of Understanding Parveon Gupta

Statistary Abirty The sufficientize of the phone Conditions chicald be worthed at "www.sticlassburg.com", say available performance is result. The result of Therefore, the suggestionery is usually over the contribution.
 In cases of any disconsisting plasma inform this Comparised Automby

Chief Executive Officer SJVN Thermal Pvt. Limited Plot No. 192, Circle No. 06, Talpatra Lane. Buddha Marg. Patna - 800 001 (Bihar)

### and

B. The SJVN THERMAL PVT. LIMITED ( A Wholly Owned Subsidiary of SJVN LIMITED, A Joint venture of Govt. of India & Govt. of Himachal Pradesh ), a corporation incorporated under the Companies Act, 1956/2013, having its Registered Office at 69/5, T.N Banerjee Road, Near Gandhi Maidan, Chhajjubag, Patna- 800001 ( hereinafter called as " STPL" which expression shall unless the context requires otherwise, include its successors and permitted assigns) of the Second Part.

### WHEREAS:

- a) STPL is executing 1320 MW (2X 660 MW) Buxar Thermal Power Project at Chausa, Distt Buxar (hereinafter referred to as "Project") situated in Bihar; The project is expected to be commissioned by FY 2020-21.
- b) Ministry of Coal, Govt of India has allocated Deocha Pachami Coal Block (2102 MT), Distt Birbhum (hereinafter referred to as "Coal Block") situated in West Bengal to Buxar Thermal Power Plant along with State Power Utilities of Punjah, Uttar Pradesh, Bihar, Karnataka, Tamilnadu and West Bengal. The production of Coal from the said allocated Coal Block is expected to start at later date from the date of commissioning of project.
- c) STPL propose to operate the plant with imported coal after scheduled commissioning and till production of coal from Coal Block; However, after the start of production from Coal Block, the requirement of imported coal may be reduced depending upon the guantity of production from the coal Block
- d) MMTC is one of the major importer of imported steam coal in India having vast experience in supplying imported coal to various thermal plants in India;
- e) MMTC has agreed to supply imported coal of about 4.50 Million tonnes per annum (4.50 MTPA) for the above proposed project at the request of STPL.
- f) For the aforesaid purpose, the parties hereby agree to sign these presents on mutually agreed terms and conditions mentioned hereunder:

NOW THEREFORE THIS MEMORANDUM OF UNDERSTANDING (MOU) WITNESSTH AS FOLLOWS:

1. INTENT:

Memorandum of Understanding.

Parveen Gupta Chief Executive Officer SJVN Thermal Pvt. Limited Piot No. 192, Circle No. 06, Talpers Lane Eudrhe Marg. Patris - 800 001 (Bihar)

- a) MMTC shall import coal for Long term supply for operation of Buxar Thermal Power Project (2x660 MW). The imported coal shall be non- coking coal (steaming).
- b) The characteristics of imported coal shall be:-

PARAMETER	UNIT	ACCEPTABLE RANGE
Total Moisture (ARB)	9/a	Upto 32%
Ash (ADB)	%	Upto 12%-Max
Fixed Carbon (ADB)	%	30-50 Typical

## (A) CHARACTERISTICS OF IMPORTED COAL

Volatile Matter (ADB)

Sulphur (ADB)

Gross Calorific Value (ADB)

HGI		45-60
IDT under reducing atom.	Degree Centigrade	1100-1250
SIZE	мм	Up to 50mm However, size of coal less than 2.36 mm shall not be more than 25% of quantity received.

0/0

P/o

Kcal/ Kg

# Guaranteed Parameters for coal under this tender for Price Basis are as under:

1	25%
1	12%
10	0.80%
1	5700 Kcal/Kg
1	Not exceeding 25% of quantity
	11 11 11 11 11 11 11 11 11 11 11 11 11

Remarks: The above-specified values are broad quality parameters. However, at the time of procurement the same shall be within the prevailing MOEF&CC guidelines.

c) STPL shall intimate exact date of commissioning of the Project to MMTC in advance (i.e. three months) so that MMTC shall arrange necessary logistics.



Parveen Gupta Chief Executive Officer SJVN Thermal Pvt. Limited Plot No. 192, Circle No. 06, Talpetra Lane, Buddon (Binar)

25-45%

Upto 0.80% Max.

5300-5800

- d) STPL shall furnish month-wise requirement of coal to MMTC sufficiently in advance for supply of coal.
- e) The imported coal shall be brought at Project, if Railway Track is available, or the nearest railway siding and MMTC shall arrange Panamax Vessels for transporting the coal.
- f) MMTC shall follow CVC guidelines and other Govt. notifications issued from time to time for procurement of imported coal through transparent Competitive bidding process.
- g) MMTC shall furnish the split up details of imported coal including taxes, duties, insurance charges, Load transportation, port charges and all other incidental expenses such as pilotage and berth hire charges, light dues, harbour dues, clearing and forwarding, assessment and other charges with respect to the vessels at port of discharge. The rates shall also include overhead charges of MMTC.
- MMTC and STPL shall mutually discuss and agree on the price of coal every year for the supply of imported coal.
- MMTC shall arrange for sampling Analysis weighment of coal shipment at load port through mutually agreed Internationally accredited inspection Agency.
- C&F Price shall be adjusted for Gross Calorific Value, Total moisture, ash and sulphur as per mutually agreed terms before shipment.
- k) This MoU is prepared basis the prevailing market conditions, availability of coal, expected date of commissioning of project etc. MMTC will, however, enter into agreement with STPL prior to commencement of supplies elaborating all terms & conditions prevailing at that time.
- MMTC & STPL shall mutually discuss and agree on MMTC's trade margin every year for supply of imported coal to the said project.

# 2. Exclusivity for Sourcing Imported Coal

(a) STPL to exclusively buy imported coal through MMTC under the MoU.

(b) The exclusivity period shall mean the period starting from the date of signing of MoU and ends after lapse of three(3) years from commissioning of the project.

(c) During the exclusivity period, STPL will neither directly nor indirectly, through any employee or agent or otherwise invite or accept offer relating to purchase of imported coal for said project.

(d) STPL will initiate process of purchase of imported coal for said Project if MMTC refuses to supply imported coal.

Memorandum of Understanding



-4-

### 3. REPRESENTATION AND WARRANTIES:

Neither party shall have the right of power to bind the other party to any agreement without the prior written consent of the other party. Unless specifically agreed in writing, no party is authorized to make commitments, representations, warranties to agreements on behalf of the other party and each party agrees that it will not hold itself out as having such authority. If any party acts in violation of the foregoing, the said party agrees to indemnify, defend and hold the other parties harmless from and against any and all claims, demands, losses, damages, liabilities, law suits and other proceedings, judgments and awards, the reasonable cost and expenses, (including but not limited to reasonable attorneys fee) arising directly or indirectly in whole or in part, out of the breach of this article by such party whether committed by the indemnifying party, its employees, agents, successors or assigns.

### 4. LIMITATION OF LIABILITY:

Neither party shall be liable to each other for any financial liability or any consequential loss incurred by the party individually in respect of the MOU.

# 5. ASSIGNMENT:

The assignment by any party of all its rights and obligations under this MOU to a third party shall be subject to the written consent of the other party provided that such assignee shall also specifically agrees in writing to be bound by the terms of this MOU.

### 6. SETTLEMNT OF DISPUTES AND ARBITRATION:

In the event of any difference/dispute arising between the parties hereof under these presents, such disputes/difference shall in the first instance be resolved amicably by mutual consultation within 45 days of the reference of dispute by either party.

If amicable settlement is not reached between the parties in any dispute or difference, whatsoever arising between the parties out of or relating to the construction, meaning, scope, operation or effect of this MOU or the validity or the breach thereof shall be settled by arbitration in accordance with the Rule of Arbitration of the Indian Council of Arbitration and the award made in pursuance thereof shall be binging on the parties. The provisions of Arbitration and

Memorandum of Understanding Parveen Gupta **Chief Executive Officer** SJVN Thermal Pvt. Limited Plot No. 192, Circle No. 06, Telpatra Lane, Buritities Pares Paleo - 800 non Allegar

Conciliation act 1996 shall apply to such Arbitration proceedings. The venue of the Arbitration shall be at New Delhi.

### GOVERNING LAWS & JURISDICTION :

This MOU shall be governed by the laws of India and the rules framed thereunder. The Courts of New Delhi shall have exclusive jurisdiction in all matters relating to or arising out of this MOU.

### 8. NOTICE:

Any notice to be given under this MOU shall be in writing and shall be deemed to have been duly and properly served upon the Parties hereto if delivered against acknowledgement or by registered mail with acknowledgement or by registered mail with acknowledgement due, addressed to the Parties herein at the following addresses or such changed addresses as will be duly notified by the Parties from time to time.

### Address

# Attention

MMTC Limited, represented by General Manager (Coal) Core 1, Scope complex, 7,Institutional area, Lodhi Road, New Delhi - 110003 Tel No. :011-24366305, E-mail : mmtc@mmtclimited.com

### Attention

SJVN Thermal Private Limited

represented by Chief Executive Officer (STPL)

Plot 192, Circle 6, Ward 2, Talpatra Lane, Budh Marg, Patna-800001 Tel: 0612-2219340 Fax : 0612-2239341 E-mail :ceostpl@gmail.com

## 9. CONFIDENTIALITY:

a.

The parties, to the extent of their respective rights to do so, shall exchange such technical information and data as is reasonably required of each party to perform its responsibilities under this MOU. Each party agrees to keep in confidence and to use the same degree of care as it uses with respect to its own proprietary data to prevent the disclosure to third parties of all technical information, data and confidential business information (hereinafter referred to as "Data") = 10.



Chief Executive Officer

- Exchange, use and maintenance of confidential data shall be mutually discussed and agreed to by the parties.
- c. The preceding provisions of confidentially and restriction on use of data shall not apply to the Parties for-
  - Information in the public domain of information, which subsequently enter into public domain without committing breach of this clause.
  - Information in possession of the party at the time of disclosure and was not acquired, directly or indirectly, from the other party.
  - Information which a party is required to disclose under law, rules or regulations to any judicial or other authorities.
  - Consultants / advisors, provided they, in turn, sign undertaking of confidentially.

# 10. Validity OF MOU:

a. The MOU shall be deemed to be in force from the date of signing of MoU and shall continue to remain valid upto three(3) years from the date of commissioning of the project.

b. The MoU may be extended for further period on mutual consent of both the parties.

### 11. TERMINATION OF MOU:

The MOU shall stand terminated without any liability on either party,

- If the parties hereto by mutual consent agree that the MOU could not be continued for any reason whatsoever, or
- On expiry of the notice period if either party gives a written notice of not less than three months expressing inability to continue with the MOU.

# 12. COMPLIANCE WITH GOVT. ORDERS:

Coal to be imported under the proposed agreement is meant for the purpose of generation of power at STPL Power station at Chausa, Buxar.



MMTC shall ensure compliance of all regulations / conventions / policies / guidelines / orders/etc. enforced related to any or all of the activities covered in the imports, including shipping of consignments, Insurance, Clearing, Handling and Forwarding and Inlands Transportation etc.

In case of any modification in any of the provisions in respect of supply of imported coal during the pendency of the proposed agreement, the same shall become applicable and binding on MMTC and STPL with immediate effect.

### 13. EFFECTIVE DATE:

This MOU shall come into force as soon as it is signed for all purposes and intents.

IN WITNESS WHEREOF, the parties hereto have signed this Memorandum of Understanding at New Delhi on the date first mentioned above in the presence of witnesses as mentioned hereunder.

For and behalf of MMTC Limited GENERAL MANAGER/MMTC

WITNESSES

1. S.K.SINGH

Head (Contract) STPL Potha

2. Marit UpudRyoy Engineer (Deck) SJVN LT.D. (DELHI) For and behalf of STPL

A. W.

CH Parven Gupts Chief Executive Officer SJVN Thermal Pvt. Limited Plot No. 192, Circle No. 06, Talpatra Lane. Buddha Marg, Patna - 600 001 (Binar)

1. HEDDANT BIST CHIEF MANAGER (COAL) MMTC LTD, N.DELH

Ashal Kena 2. ACHAL MEENA MANAGER, COAL MMTC LTD , NEW Delhi

Memorandum of Understanding

# Annexure 5 Coal Linkage

### No. 13016/26/2004-CA-I (Pt.) Government of India Ministry of Coal

### Shastri Bhawan, New Delhi, Dated the 6<sup>th</sup> September, 2013

### То

1) The Chief Secretary,	<b>2)</b> The Chief Secretary,
Government of West Bengal,	Government of Karnataka,
Secretariat, Writers Building,	3 <sup>rd</sup> Floor, R. No. 320, Vidhan Sauda,
Kolkata-700001	Secretariat, Bangalore-560001
<b>3)</b> The Chief Secretary,	<b>4)</b> The Chief Secretary,
Government of Bihar,	Government of Punjab,
Old Secretariat, Patna-800015	Punjab Secretariat,
Secretariat, Bangalore-560001	Chandigarh-160017
5) The Chief Secretary,	<b>6)</b> The Chief Secretary,
Government of Tamil Nadu,	Government of Uttar Pradesh,
Secretariat, Chennai-600009	Secretariat, Lucknow-226001

# Subject:- Coal Allocation to Government Companies/Corporations and CPSUs under Rule 4 of the Auction by Competitive Bidding of Coal Mines Rules, 2012, –reg.

Sir,

This has reference to this Ministry's Notice Inviting Application (NIA) dated 31.12.2012, under Rule 4 of the Auction by Competitive Bidding of Coal Mines Rules, 2012, where in the Government had decided allocation of suitable coal blocks to the Government Companies / Corporation and Central Public Sector Undertakings (CPSU's).

2. Applications in the prescribed proforma and complete in all respect, were evaluated and scrutinized and comments were obtained from the Ministry of Power / Central Electricity Authority and other stake holders. The comments were examined whereafter, the Government decided to allocate <u>2102 Million Tonnes of estimated geological coal reserves of Deocha-Pachami Dewanganj-Harinsingha Coal Block</u> to six State Government Companies / Corporation as per details annexed hereto.

3. Since Deocha-Pachami Dewanganj-Harinsingha Coal Block is very large in size in terms of coal reserves it has been jointly allocated to the above mentioned state governments. For operational purpose all the Companies or joint allocattee states should form a Special Purpose Vehicle (SPV) or any other form of body incorporated as an independent entity (may be a JV) in which all the end users to whom coal reserves have been allocated, are represented in a mutually agreed manner.

Overburden material from this Coal Block shall be utilized by government of West Bengal for any purpose as may be deemed necessary in an environmentally compatible manner. 4. Mining Lease should be issued in favour of SPV or JV so formed / constituted. Besides exercising overall control of day to day management at Corporate level, such an entity could also decide upon the modalities of mining and sharing of coal produced. Coal produced in all such cases has to be shared in the proportion of reserves allocated / earmarked.

5. In accordance with section 7 of the 'Auction by Competitive Bidding of Coal Mines Rules, 2012' (Ministry of Coal Notification dated 2<sup>nd</sup> February, 2012) the Central Government has to enter into an agreement with the allocatee end use plant of the identified Government Company/ Corporation/ CPSU along with relevant terms and conditions to be incorporated in the agreement.

6. Further, in accordance with rule 4(6) (i) and (ii) of the 'Auction by Competitive Bidding of Coal Mines Amendment Rules, 2012' (Ministry of Coal Notification dated 27<sup>th</sup> December, 2012) the reserve price shall be payable by the allocattee company as specified in the allocation letter or the agreement and in case the reserve price is yet to be determined, the allocattee company shall furnish an undertaking for paying the reserve price within the specified time (after the reserve price is determined by the Central Government), failing which the allocation shall stand cancelled.

7. In this context, your attention is also invited to the record note of discussions of the meeting held on 29.08.2013 under the chairmanship of Additional Secretary, Ministry of Coal in which after deliberating upon all the related issues, it was impressed upon the State Government Companies/ Corporations/ CPSUs to whom the coal block has been allocated to expedite completion of the exercise for formation of SPV / JVs within the timelines agreed upon in the above meeting, in order to facilitate Ministry of Coal for entering into agreement with SPV / JV company for developing the Coal Block as per the Rules for 'Auction by Competitive Bidding of Coal Mines Rules, 2012'.

8. Further, you are requested to indicate the name of the end-use plant of the Government Company/Corporations in whose name the allocation of reserves from the proposed Coal Blocks are to be made.

Encl: - 1. Coal Block allocation details.

2. Copy of the record notes of discussions of the meeting dated 29.08.2013

H · Jaun (Hemant Jain) Director to the Government of India Ph. No. 23388043

Name of Coal Block	Location	Estimated Geological Coal Reserves of the Coal Block (Million Tonnes)	Estimated Geological Coal Reserves allocated (Million Tonnes)	State Government Company/ Corporation	End Use Power Project considered for allocation as per the essential requirement of PPA's submitted by the Company
Deocha- Pachami Dewanganj- Harinsingha	West Bengal	2102	584	The West Bengal Power Development Corporation Limited ( <b>WBPDCL</b> )	- Sagardighi Ph-II (1000 MW), Murshidabad (Distt.) West Bengal. - Sagardighi Ph-III (500 MW), Murshidabad (Distt.) West Bengal.
					- Santaldihi TPP (500 MW), Purulia (Distt.), West Bengal
					- Bakreshwar TPP (600 MW), Birbhum (Distt.), West Bengal

- ----

. . \_ . . . . . . .

# Annexure

Name of	Location	Estimated	Estimated	State Government	End Use Power
Coal Block	Location	Geological	Geological	Company/	Project
DIOCK		Coal	Coal	Corporation	considered for
		Resource	Resource		allocation as per
		of the Coal	allocated		the essential
		Block	(Million		requirement of
		(Million	Tonnes)		PPA's submitted
		Tonnes)	/	•	by the Company
					- Yeramarus
Deocha-	West	2102	382	Karnataka Power	TPP (1600 MW),
Pachami	Bengal	2102	502	Corp. Ltd. (KPCL)	Yeramarus,
Dewanganj-					Raichur (Distt.)
Harinsingha					Karnataka
					- Bellary TPS,
					Unit – III (700
					MW), Bellary
					(Distt.),
ļ					Karantaka.
					- Edlapur TPP
					(800 MW),
					Raichur (Distt.)
					Karnataka

. . . . . . . . . . . . . . . . .

Name of Coal Block	Location	Estimated Geological Coal Reserves of the Coal Block (Million Tonnes)	Estimated Geological Coal Reserves allocated (Million Tonnes)	State Government Company/ Corporation/ CPSU	End Use Power Project considered for allocation as per the essential requirement of PPA's submitted by the Company
Deocha- Pachami Dewanganj- Harinsingha	West Bengal	2102	486	SJVN Ltd.( <b>Buxar</b> ) Bihar State Power Generation Company Ltd. ( <b>BSPGCL</b> )	Buxar TPP (1320 MW), Buxar (Distt.), Bihar - Pirpainti TPP (1320 MW), Bhagalpur (Distt.), Bihar. - Lakhisarai TPP (1320 MW), Lakhisarai (Distt.), Bihar - Nabinagar Stage-II (1320 MW)

. . . . . . . .

Name of	Location	Estimated	Estimated	State Government	End Use Power
Coal Block		Geological	Geological	Company/	Project
		Coal	Coal	Corporation	considered for
		Reserves	Reserves		allocation as per
		of the Coal	allocated		the essential
		Block	(Million		requirement of
		(Million	Tonnes)		PPA's submitted
·	Į	Tonnes)			by the Company
					- TPP (1320
					MW) Hajipur,
Deocha				Punich State	near Mukerian,
Deocha- Bachami	Most			Punjab State	Hoshiarpur
Dewangani	Pengal	2102	229	Corporation 1 td	(Ditt.) Punjab
Dewanganj-	Dengai				
Harinsingna	-			(PSPCL)	-TPP (4800 MW)
					at Roopnagar
					(Distt.), Punjab

Name of Coal Block	Location	Estimated geological coal reserves of the Coal Block (Million Tonnes)	Estimated geological coal reserves allocated (Million Tonnes)	State Government Company/ Corporation	End Use Power Project considered for allocation as per the essential requirement of PPA's submitted by the Company
Deocha- Pachami Dewanganj- Harinsingha	West Bengal	2102	171	Tamilnadu Generation and Distribution Corporation Ltd (TANGEDCO)	Ennore TPS (660 MW) Replacement TPP, Tamilnadu

----

Name of Coal Block	Location	Estimated geological coal resource of the Coal Block (Million Tonnes)	Estimated geological coal resource allocated (Million Tonnes)	State Government Company/ Corporation/ CPSU	End Use Power Project considered for allocation as per the essential requirement of PPA's submitted by the Company
Deocha- Pachami Dewanganj- Harinsingha	West Bengal	2102	250	Uttar Pradesh Rajya Vidyut Utpadan Nigam Ltd ( <b>UPRVUNL</b> )	-Harduaganj Extension (660 MW), Kashimpur, Aligarh, UP - Panki Extension (660 MW), Kanpur, UP Meja TPP (1320 MW) (Expansion), Meja (Distt.), Allahabad, UP Meja Urja Nigam Pvt. Ltd. [JV of UPRVUNL and NTPC LTD. (50:50)]

### **DEOCHA-PACHAMI BLOCK**

### 1. Introduction

Ministry of Coal (MoC), through its notification has recommended DEOCHA-PACHAMI coal Block to Bihar State Power Generation Company Ltd. (BSPGCL) along with 5 other State power corporations for their power projects. The block was regionally explored by Geological Survey of India (GSI) by drilling 21 bore holes of total 11.326.15 m up to 1200 m. While general details have been uploaded on the website of MoC, several details viz. borehole logs showing lithology, thickness of coal seams, depth of occurrence etc. are not available. As a result we met DG, GSI and DDG, GSI (Coal Wing) at Kolkata on 5<sup>th</sup> and 6<sup>th</sup> August 2013, to obtain the requisite information. The following data pertaining to the block are given below:

### 2. Location and Topography

DEOCHA-PACHAMI coal Block is located in south western part of Birbhum coalfield. The nearest approach road is Panagarh – Mourigram road and the nearest railway station is Mallarpur (Barddhaman – Kiul of E. Railway.

This area is given in the Toposheet No. 72P/12 of Survey of India. Topography is monotonous stretch of volcanic trap and other rocks overlain by thin alluvium and laterite. The area is dotted with small villages and a no. of very small quarries. Dwarka River and its reservoir and a canal is on the south of the block. Other than the State Highway, few minor roads linking the villages can be noticed. Apparently, no forest land is indicated in the surface plan.

The limiting coordinates of the blocks are:

Latitude: 24° 01' 45"- 24° 05' 30" N (Approx) Longitude: 87° 34'15"- 87° 37' 39" E (Approx) Toposheet no - 72 P/12

3. Area: 9.70 sq. Km

### 4. Status of Exploration

Block	Agency	No. of	Meterage
		borehole	
Deocha-Pachami	GSI	21	11326.15m
Dewanganj	GSI	15	3830.45
Harinsingha			
Total	GSI	36	15156.60

### 5. Structure: Strike NNW-SSE

Dip:  $5^{\circ}$ - $10^{\circ}$  easterly

Faults: Area is dissected by three systems of normal faults. NNW-SSE trending boundary fault having easterly throw defining western limit.

6. Sequence of coal seams: Four coal seam zones have been identified The details are given below:

(a) DEOCHA-PACHAMI

Seam/Zone	Thickness of coal seam zones (i.e. cumulative thickness of coal seams & partings (m)	Depth Range (m)	Remarks
IV	8.98-30.77	135-355	
	(4.1-20.9)		
Parting	100-122		
III	17.32-42.66	280-500	
	(6.7-40.4)		Seams occur in a number of
Parting	30-122		sections. Coal seams are concealed
II	40.69-58.88	350-580	and Dubraipur formation.
	(15.2-53.6)		
Parting	87-200		
Ι	41.61-79.89	510-850	1
	(5.2-63.4)	1	

Note: Figures in bracket indicate cumulative thickness of coal sections.

# (b) DEWANGANJ-HARINSINHA

Seam	Zone thickness	Depth Range	Remarks
Zone	(m)	( <b>m</b> )	
III	107-138	12-96	There are 5-22 sections in seam zone. The total thickness of coal sections varies from 5.30-38.63 m
Parting	47-63		
Π	25-74	204-284	There are 6 to 16 sections in seam zone. The total thickness of coal sections varies from 8.62 to 31.04m
Parting	122-144		
Ι	10-17	45-386	There are 2 to 4 sections in seam zone. The total thickness of coal sections varies from 6.69-9.65 m

# 7. Quality

### (a) DEOCHA-PACHAMI

Seam zone	M%	Ash%	Class @ Range
IV	3.0-6.6	18.5-48.8	B-G
III	1.2-7.5	20.3-47.8	C-G
II	2.3-6.3	18.2-52.4	B-G
In some thick section of II	3.3-5.9	18.9-24.9	B-D

	.0 22.7-51.7	0-0
Lower part of 2.2-4	.1 15.4-28.4	A-D

### (b) DEWANGANJ-HARINSINHA

			UHV	Class @
Seam zone	M%	Ash%	Kcal/kg	Range
IIII	4.0-6.9	27.1-50.6	2662-4525	D-F
II	2.5-7.2	18.7-50.9	1365-5519	C-G
Ι	3.6-5.6	28.9-40.7	1300-4332	D-G

@ - The grade of the coal in present report has been given as per old classification prevailing before UHV based grade classification

#### 8. Reserves

(a) DEOCHA-PACHAMI: An indicated reserve of 2025.62m.t has been reported in Deocha-Pachami & adjoining eastern sector of Birbhum coalfield.

Seam	Gr A	Gr B	Gr C	Gr D	Gr E	GrF	Gr G	Total
IV					23.62	123.51	49.78	196.91
III			135.63	157.06	240.62	265.53	91.08	889.92
II			310.8		147.29			458.09
Ι			161.44	212.97	94.2		12.09	480.7
Total			607.87	370.03	505.73	389.04	152.95	2025.62

The depth-wise break-up of the reserves are given below:

Depth Range(m)	Reserves (Mt)
0-300	152.2
300-600	1078.39
600-1200	795.03
TOTAL	2025.62

(b) DEWANGANJ-HARINSINHA: Out of 38.693 mt. of net reserve, proved reserve of 28.093 & indicated reserve of 10.600 mt. has been reported. Horizon-wise reserve of Coal seams is given below:

Horizon (Seam zone)	Proved reserve	Indicated	Net Total (In Million Tonne)
III	12.014	1.797	13.811
Local	1.513	0.825	2.338
II	11.128	6.333	17.461
Ι	3.438	1.645	5.083
Total	28.093	10.6	38.693

GSI has estimated 'Proved' reserves in the Dewanganj-Harinsinha block as per the earlier practice of taking 200m influence from boreholes. However, in view of very limited data, the entire reserves are being reported as Indicated. Additional drilling would be required to prove the reserves.

### 9. Additional information obtained

A. All coal seams of the block are overlain by basaltic rocks of Rajmahal Trap and inter-trapean sedimentary rocks. The overburden comprises thin alluvial cover (1–20 m) followed by very hard basaltic rocks of volcanic origin (90 – 245 m) and sedimentary rocks of Dubrajpur formation (Upper Gondwana) and then of Barakar measure which contain the coal seams.

### B. Merging of Horizons II and III

Out of 4 coal horizons I, II, III, IV (in ascending order), it is found from the Bore Hole data that in the central and south-central part of the block, Horizons II and III have merged and formed a coal seam of enormous thickness which has not been found in any of the coalfields of India. The maximum thickness has been observed in one BH (DPD-3) to the tune of 116 m The area where this merger of coal seams have occurred is under a cover of 177 m to 480 m and this thick zone has a strike length of 3.8 Km.

- **C.** Horizon I , the bottom-most , is consistent for about 8.5 Km in the strike. The grade of coal varies from C to G , the bottom part of the seam is much superior, going up to even B and A. The depth of this horizon from surface ranges from about 420 to 1000 m.
- **D.** Horizon II, is consistent for about 8.6 Km in the strike. The grade of coal varies from D to G, the bottom part is mostly clean coal without bands. The depth of this horizon from surface ranges from about 290 to 630 m.
- **E.** Horizon III, is consistent for about 8.4 Km in the strike. The grade of coal varies From D to G, the bottom part is mostly clean coal without bands .The depth of this horizon from surface ranges from about 250 to 490 m.
- **F.** Horizon IV, the uppermost which is consistent throughout the block contains many bands is comparatively inferior to other horizons. The splitting is more on the northern side of the property. The grade of coal varies from D to G .The depth of this horizon from surface ranges from about 136 to 322 m.

### **10.** Evaluation of the property for mineability

- i. Seam IV is the uppermost coal seam occurring at a depth range of 135 355 m with a cumulative thickness of coal ranging from 4.10 to 20.90 m which indicates that presence of non-coal bands between sections of coal. Similar is the situation for seam III, seam II and seam I.
- ii. Because of the presence of intervening bands, there will be further dilution of coal grades, from the indicated grade wise reserves, during mining operation.
- iii. This is a unique type of coal deposit which has no parallel in Indian coalfields, because of the special structural features, already mentioned. In such a situation, though the reserve of coal hich is nearly 2 Billion tonnes and quite tempting for mining, at least theoretically, for the construction of a large mechanized mine of phenomenal output, this is not easy to mine with the current available technology of both underground as well as opencast mining. This is elaborated in the following paragraphs:

### **Underground mining:**

(a) There is no technology to mine such thick seam. Powered Support Long Wall (PSLW) faces, presently being worked in China and in some countries with their collaboration , are said to be

working up to 6m thickness in one lift. Even adopting Sub-Level Caving or Integrated Caving between two PSLW faces, there will be huge loss of coal.

- (b) Rajmahal Trap rock of 90 to 245 m thickness may not be cavable. In that case, underground mining should start after Horizon IV (depth 135 355 m) is mined by OC method after removing the entire trap rock as OB.
- (c) Sinking of shafts or driving of inclines through trap will be a formidable task in trap rocks.

### **Opencast mining:**

Theoretically this property can be mined by OC method. But the following aspects are to be addressed first.

- (a) Blast hole drilling (250 mm / 311 mm) suitable in basaltic rock.
- (b) Ultimate depth of quarry will reach 1200 m. Automotive transport of coal and OB, outside the quarry, after a certain depth 200m or even 250m will not be feasible. In-pit crushing of both coal and OB and conveying may have to be resorted to. Even thinking of large size Skips on open inclines may be there.
- (c) Back-filling of void will be only possible at the penultimate stage. Large area needed outside block area, for external dumps as well as for access trench.[However excavated basaltic trap rock during mining can be marketed for road making, for railway ballast and construction industry to meet the entire requirement of the state and even other states .]
- (d) entilation and pumping of the quarry have to be properly designed , because of great depth .
- (e) Such type of deposit are also is very vulnerable to spontaneous heating [example : Jhingurda mine of NCL having very thick seam ].
- (f) The property may be sub-divided in 2 sectors along strike and a mine of 40 million tonnes [20 M tonnes from each sector ] may be planned . Life of mine will be 50 years. The mine will sustain 6 to 8 nos. of captive STPP's of 1000 MW each

### 11. Conclusion :

- i. Detailed drilling will be needed to clearly define the property and its reserves. It is estimated that in a 400m x 400 m grid, some 80 bore holes will be required.
- **ii.** Keeping in view of the overlying Rajmahal Trap , special drilling rigs will be needed for expeditious exploration . .
- iii. Coal washing is considered necessary in view of presence of non-coal bands .
- **iv.** Augmentation of rail, road and other infrastructure would be necessary to evacuate 40 million tonnes of coal per annum.

### Note:

The Regional Exploration could be purchase from GSI( DDG Coal Wing) for which requisition/request may be sent. The cost of report is Rs. 7,35,490 and Rs. 1,10,610 respectively for Deochapachmi and dewanganj-harinsinha However, exact details will be forwarded by GSI on receipt of request

# List of Annexure

- 1. Location Map
- 2. Litholog
- 3. General Information