

MEMORANDUM OF UNDERSTANDING

BETWEEN

**INDIAN INSTITUTE OF TECHNOLOGY
KHARAGPUR (IITKGP)**

AND

DAMODAR VALLEY CORPORATION (DVC)

FOR

**CO-OPERATION IN DEVELOPING AND RUNNING
RESEARCH & DEVELOPMENT CENTRE OF DVC AT
KOLKATA**

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This Memorandum Of Understanding (MOU) made on **30th day of January two thousand and eight** between **Indian Institute of Technology, Kharagpur**, having its office at IIT Kharagpur 721302, referred to as **IITKGP** (hereinafter called **FIRST PARTY**) and **Damodar Valley Corporation**, having its registered office at DVC Towers, VIP Road, Kolkata – 700 054, referred to as **DVC** (hereinafter called **SECOND PARTY**).

WHEREAS the **SECOND PARTY** in pursuit of achieving operational and system excellence in its coal based Thermal Power Stations, Hydel Stations and EHT Transmission System felt the need for a state-of-the-art **Research & Development (R&D) Centre** at Kolkata.

AND WHEREAS on invitation of the **SECOND PARTY**, the **FIRST PARTY** agreed to associate itself in setting up of a state-of-the-art **R&D Centre** of DVC at Kolkata with an extension Research Hub at IIT, Kharagpur to take care the need for fundamental research.

The **FIRST** and **SECOND PARTIES** have, therefore, agreed to draw the following **TERMS & CONDITIONS** under this **MOU**.

1. The expressions **FIRST PARTY** and **SECOND PARTY** unless otherwise repugnant to the context be deemed to mean and include its successors, heirs, legal representatives and assigns.
2. The **R&D Centre** of DVC will come up at Rajarhat, Kolkata on a piece of plot allotted to the **SECOND PARTY** by WBHIDCO in consultation with the **FIRST PARTY**. This is expected to house about a dozen laboratories. In addition an R&D hub is also planned in IIT Kharagpur.
3. Since the permanent building of the **R&D Centre** at Rajarhat will take some time to come up, it will start functioning with immediate effect from a rented accommodation at Kolkata, arranged by the **SECOND PARTY**, initially with 3 (three) Laboratories having

minimum interdependence and subsequently 2 (two) more laboratories to take care of the immediate problems faced in the power plants of the **SECOND PARTY**.

4. The **SECOND PARTY** shall develop the infrastructure including office computers, Telephone, FAX etc. but excluding the Laboratory equipment for the **R&D Centre**, which shall be arranged by the **FIRST PARTY**.
5. For carrying out cutting edge research related to power sector at the IIT Kharagpur campus, a separate hub at IIT, Kharagpur shall be opened by the **SECOND PARTY** as an extension unit of the **R&D Centre** of DVC. These two units will be connected with a high bandwidth video conferencing and related communication link to enable constant interaction.
6. The **R&D Centre** will have world class facility and take up not only the technical issues, both generic and general in nature, of the power plants and transmission & distribution system of the **SECOND PARTY** for solutions but also provide similar services to the power industry of the country.
7. The research projects to be taken up at the extension hub of DVC R&D Centre at IIT, Kharagpur shall be innovative and fundamental in nature and shall be need based for the power industry.
8. Apart from providing R&D facilities, the **R&D Centre** would extend advanced training for enhancing technical skills. The Centre would also promote collaborative research in the field of power sector with industries and institutes.
9. The **FIRST PARTY** shall identify the equipment required in the laboratories of the **R&D Centre** and shall share the specifications with the **SECOND PARTY**.
10. Procurement of Laboratory equipment including those of foreign origin for the **R&D Centre** will be the responsibility of the **FIRST PARTY**. While taking action for such

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procurement, the **FIRST PARTY** will phase out the programme in consideration of interdependency of the equipment and their sequential availability based on the delivery lead time.

11. The **R&D Centre** shall run on collaborative approach by both the parties. The Centre will have two tier organizational structures – one **Steering Committee** for policy decisions and strategic planning and one **Core Committee** for operating the Centre. There shall be participation from both the parties in above committees on mutual understanding. All the major issues shall be decided with concurrence of the respective Boards of both the parties.
12. The **R&D Centre** will be managed by manpower to be arranged by the **FIRST PARTY**, which will include deputation of research scholars with participation/manpower support by the **SECOND PARTY** initially for a period of 5 (five) years, which might be extendable at a later date on mutual agreement.
13. To take care of the administrative affairs of the Centre, there will be one Head (Administration) to be provided by the **SECOND PARTY** and for the technical matters one Head (Technical) from the **FIRST PARTY**. The Head (Administration) and the Head (Technical) shall be members of and shall report to the Core Committee. The manpower to be provided by both the parties to run the Centre would be on mutual consent basis.
14. The fund required for developing the infrastructures at Kolkata and the recurring administration costs of the Centre will be provided by the **SECOND PARTY**. The fund required for procuring the Laboratory equipment, consumables like re-agent, chemicals etc. shall be provided by the **SECOND PARTY** in advance to the **FIRST PARTY** in phases, as per the requirement, on mutual agreement.

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15. The **SECOND PARTY** will fund for establishment of the Extension Hub of the R&D Centre at IIT, Kharagpur by the **FIRST PARTY**. The research projects to be undertaken in the Extension Hub by the **FIRST PARTY** will be in project mode. The ownership of the research projects will rests jointly with the **FIRST PARTY** and **SECOND PARTY**.
 16. The rights for the intellectual property developed in **R&D Centre** of DVC during the tenure of association of the **FIRST PARTY** will be owned jointly by both the parties and no party shall transfer their rights without written consent of the other.
 17. Both the parties shall have the right to assign non-exclusive user rights purely for research and academic purposes to other R&D Centres for a definite period, as deemed fit on case to case basis. This must be approved by the Steering and Core Committees.
 18. Any other party joining or sponsoring the **R&D Centre** subsequent to this **MOU** shall also have non-exclusive rights only for non-commercial use of such technologies developed after the date of their joining subject to the consent of the Core and Steering Committee.
 19. This **MOU** shall remain valid for a period of 5 (five) years. In case need arises, the parties to this **MOU** shall amicably decide to either renew this **MOU** or enter in to a fresh **MOU** on mutually agreed terms and conditions.
 20. In case of dissolution before expiry of the tenure of this **MOU** the manner and method for exit to be decided mutually by both the parties.
 21. Both the parties agree to use the Proprietary Information/data of others for the sole purpose of R&D projects.
 22. This **MOU** shall come into force from the date hereof and shall be substituted by a detailed Agreement covering all aspects, legal, financial, commercial and technical.
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23. Any dispute between the parties shall always be resolved by mutual consultation without any resort to arbitration or other form of legal remedy including resort to court of law.

Signed at Kolkata on **30th day of January, 2008.**

For and on behalf of
IIT Kharagpur (IITKGP)

Signature Acharya
Name : Prof. Damodar Acharya,
Director, IITKGP.

Office Seal



WITNESSED BY:

1.
Signature Chakrabarti
Name : Prof. P. P. Chakrabarti,
Dean, IITKGP.

Office Seal

Prof. Partha P Chakrabarti
Dean
Sponsored Research & Industrial Consultancy
I.I.T. Kharagpur-721302, India

2.
Signature S. K. Roy Chowdhury
Name : Prof. S. K. Roy Chowdhury,
Dep. of Mech. Engg.
IITKGP.

Office Seal



For and on behalf of
Damodar Valley Corporation (DVC)

Signature Barman
Name : Mr. Asim Kr. Barman,
Chairman, DVC.

Office Seal

Asim K. Barman, I.A.S.
Chairman, D.V.C.
DVC Towers, V.I.P. Road,
Kolkata - 700 054

WITNESSED BY:

1.
Signature Biswas
Name : Mr. Subrata Biswas,
Secretary, DVC.

Office Seal

सुब्रत बिस्वास, भा.प्र.से.
Subrata Biswas, I.A.S.
उपनि, वा.घ.नि. / Secretary, DVC
कोलकाता / Kolkata - 700054

2.
Signature S. B. Srivastava
Name : Mr. S. B. Srivastava,
Director (Tech.),
DVC.

Office Seal

एस० बी० श्रीवास्तव / S. B. Srivastava
निदेशक (तकनीकी) / Director (Technical)
विद्युत विभाग / Electricity Deptt.
दामादि, कोलकाता-54 / DVC, Kolkata-54



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This Memorandum of Understanding (MOU) is entered on this 30th day of January, 2008.

Between

Damodar Valley Corporation (Constituted and established under the Damodar Valley Corporation Act, being Act No. XIV of 1948 and having its Head Quarters at DVC Towers, VIP Road, Kolkata – 700 054 and hereinafter referred in as 'DVC' which expression shall unless repugnant to the context or meaning thereof includes its successors, administrators and assigns.

and

Indian Institute of Technology Kharagpur
(Department of Architecture & Regional Planning)
Kharagpur – 721302, India

Hereinafter referred to as 'IIT Kharagpur'

WITNESSETH

WHEREAS DVC intends to award the work of **Comprehensive Technical Consultancy Services for Town Planning, Landscape Design, Architectural Design, Design & Engineering of Residential as well as Non-residential Buildings, Infrastructural facilities, Interior Design, Special Design etc.** to IIT Kharagpur for various projects of DVC.

WHEREAS IIT Kharagpur, an academic Institution, under Ministry of Human Resource and Development, Government of India, having all the resources and capabilities in taking up Planning, Design and other associated work/services as per requirement of DVC, has agreed to take up the responsibility of undertaking the aforesaid consultancy services through Department of Architecture & Regional Planning, with team members comprising appropriate experts from the said department and members from various other departments of IIT Kharagpur depending on their specialization, as well as some other external experts/agencies, as associates, where appropriate experts/specializations/services are not available within IIT Kharagpur.

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স্টাম্প ভেতর স্বাক্ষর

বিধান নগর (সল্টলেক সিটি) জ. প্রি. এস. ডায়. ও.

মেটি স্টাম্প তার তার

28 DEC 2007

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NOW THEREFORE, it has been agreed between the parties as under:

1. IIT Kharagpur shall carry out the Consultancy service as per the following scope of services assigned to them complete in all respect for the execution purpose of DVC. IIT Kharagpur is to provide consultancy services for various projects of DVC considering appropriate utilisation of lands / spaces for different categories of employees (inhabitants) / functions / services of DVC, including provisions of different spaces and other amenities within the proposed project sites, in conformity with standard norms laid down by the National Building Code (NBC), BIS (Bureau of Indian Standards), UDPFI guidelines, Bureau of Public Enterprise (BPE) and, any other applicable standards, norms and guidelines or as per stipulation of DVC.

BROAD SCOPE OF SERVICES

a. Township Planning, Landscaping, Rain Water Harvesting etc.

Preparation of Planning Brief in consultation with DVC, Site evaluation, contour analyses, Land suitability analyses, Zoning, Land use, Phasing, Site planning & Development, Landscape design, Signage, Planting design, Landscape structures and features, Rainwater Harvesting, Building / Housing layout, Layout and detail engineering of Infrastructure facilities, such as, Road, Drainage, Water supply, Sewerage, Solid Waste Management, Illumination design, Boundary walls, Security Watch Tower etc. including preparation of estimate, Tender document etc. but excluding Sewerage Treatment Plant and Water Treatment Plant.

b. Residential and Non-residential Buildings

Architectural Design, **Design & Detail Engineering of** Structure, Sanitary & Plumbing, Colour Schemes, Electrical, Heating, ventilation and air conditioning and other mechanical systems, Fire protection and Security systems etc.; Site Development, Landscape, Roads and Pavements, compound walls, associated with the specific buildings, and Gateway to the Plant Premises (as required), etc., including preparation of estimate, Tender document etc.

c. Interior Design / Special Design (on the Old / New works), Retrofitting Structures / Service Systems (on the Old / Existing works)

Interior design, additions and alterations, Design of special items of work, interior related civil works, Illumination, Acoustics, special air-conditioning, CDM, BMS etc. including preparation of estimate, Tender document.

d. Soil Investigation and survey works (as required).

e. Any other related works which will be assigned to IIT, scope of which will be finalized on mutual discussion.

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2. **SCHEDULE OF SERVICES :**

Toward the implementation of the projects on consultancy basis the parties agree that:-

IIT Kharagpur shall carry out the assignment as per the following Schedule of Services for architectural, landscape and planning of the buildings and townships in line with DVC requirement and shall prepare the preliminary estimate of the assigned project in consultation with DVC.

- a) Furnish site evaluation and analyses report with basic approach to circulation, activity distribution and interactions including external linkages.
- b) Prepare conceptual designs with reference to requirements given by DVC and prepare approximate estimate of cost on plinth area / land area basis.
- c) Modify conceptual designs incorporating required changes / suggested inputs, prepare preliminary drawings and design for the client's approval along with revised estimates of cost.
- d) Prepare drawings and documents necessary for submission to statutory authorities for sanction, wherever applicable.
- e) 3 sets of Final Soil Investigation report, along with related documents, if any.
- f) Prepare drawings, specifications and Bill of Quantities sufficient to arrive at estimate of cost.
- g) Prepare Tender Documents (drawings and details in appropriate scale, detailed specifications and Schedule of Quantities) sufficient to invite tenders.
- h) Submission of the following drawings for DVC comments/approval, both soft (1 copy) and hard copies (as mentioned hereunder).
 - i) Three copies of Preliminary Concept Drawing along with Design Parameters for DVC comments/approval.
 - ii) Three copies of Detail architectural, structural and other engineering drawing as mutually decided for DVC comments/approval.
 - iii) Twelve (12) set of Tender Document along with Tender Drawing.
 - iv) Seven sets of Final Concept Drawing after incorporating comments, if any, by DVC.
 - v.) Seven sets of Working Drawing after incorporating comments, if any, by DVC.

3. **TIME FRAME**

The consultancy services as assigned will be carried out with due diligence within the stipulated period as mutually agreed.

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4. **RESPONSIBILITIES OF IIT KHARAGPUR (Consultant)**

- a) The consultant shall prepare drawings, design, outline specifications normally based on CPWD / BIS specifications as per requirement.
- b) The consultant shall assume full responsibility for the design and specifications affecting design for items described in the scope of work. IIT will furnish all design calculation (both hard and soft copies) to DVC for satisfying themselves as to their appropriateness.
- c) The consultant shall make necessary revisions as may be required by DVC in the drawings and other documents submitted by them at the draft stage. Any subsequent revisions in the drawings and documents once approved, due to technical requirements arising out of site constraints or provisions of relevant codes shall be rendered by the consultant without any additional cost to DVC.
- d) No change shall be made in the approved drawings and specifications at site, affecting design, without the consent of the consultant.
- e) The DVC (client) shall have the liberty to postpone or not to execute any work and the consultant shall not be entitled to any compensation or damage for such postponement or non-execution of the work except the fees which are payable to the consultant up to the stage of services then in progress.
- f) Undertake Soil investigation work, and survey works (as required) as per codal provision.
- g) Based on design/drawings, approved by DVC, the tender drawings and detailed estimate & specification shall be prepared by IIT Kharagpur for floating tender for execution of the work. IIT Kharagpur representative shall not participate in the tendering process. The work will be carried out generally in line with CPWD Specification and Delhi Schedule of Rates.
- h) Prepare PERT network/ BAR chart based on MS Project for each assignment and subsequent monthly report indicating progress on each assignment.

5. **RESPONSIBILITIES OF DVC(Client)**

- a) Provide detailed requirements of the work, as needed by the consultant for the work.
- b) Provide accurate site plan to the suitable scale showing:
 - i) Traversed boundary of the plot and adjoining roads with necessary dimensions, angles and spot levels, as available
 - ii) Existing physical features including roads and paths, trees, existing structures (if any), existing service and utility lines, and such utility lines to which the proposed services can be connected, as available.
 - iii) Furnish any local bylaws or approved norms of the DVC, to be adhered to, wherever applicable.
- c) DVC shall approve the architectural concept & design and preliminary estimate of the building prepared by IIT Kharagpur within a reasonable time of submission of the same by IIT Kharagpur.

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6. DVC agrees to pay consultancy charges to IIT Kharagpur as per the following table, based on the estimated cost of the project. Estimated cost for residential building is to be arrived at based on Plinth Area Rate (PAR) of CPWD with prevailing cost index. The detail estimate, based on CPWD DSR 2007, is to be submitted in respect of the building which is not covered by CPWD PAR ESTIMATE. If any item is not available in DSR 2007, the rate may be taken from approved DVC non-schedule items / latest published scheduled of rates for State PWD / local market rate

a) **RATE OF CONSULTANCY CHARGE:**

	Items	Scope of Services	Consultancy charges
i	Township Planning, Landscaping, Rain Water Harvesting etc.	Refer item '1a' under Broad Scope of Services	Rs. 50,000/- (Rupees Fifty thousand) per acre with minimum payment of Rs. 10,00,000/- irrespective of Land Area coverage
ii	Residential and Non-residential Buildings	Refer item '1b' under Broad Scope of Services	3 % of the estimated cost
iii	Residential and Non-residential Buildings	Repetition / Replication of a previously submitted design of item '1b' above under Broad Scope of Services	0.3 % of the estimated cost
iv	Interior Design / Special Design (on the Old / New works), Retrofitting Structures / Service Systems (on the Old / Existing works)	Refer item '1c' under Broad Scope of Services	6.5 % of the estimated cost
v	Soil Investigation and survey works (as required).	Refer item '1d' under Broad Scope of Services	As per norms of IIT
vi	Any other works which will be assigned to IIT, scope of which will be finalized on mutual discussion.	Refer item 'e' under Broad Scope of Services	Rate to be mutually decided

The consultancy charge is firm and fixed during the validity period of MOU and inclusive of all prevailing taxes except service tax along with educational cess. The consultancy charge also includes tour, travel and other expenses associated with assigned job. However, DVC will provide local transport and local hospitality during such visits.

The IIT (consultant) will extend local transport and local hospitality to DVC representatives during their visit to IIT campus in connection to the assigned project.

The Service Tax including Education Cess applicable as per GOI norm will be paid extra along with each payment by DVC. Any additional tax / cess if imposed by GOI during the concurrency of the assignment will be paid by DVC. Any enhancement / reduction in tax rate will be paid / recovered by DVC.

If there is revision in approved design parameter / concept drawing by DVC, the consultant shall be accordingly compensated as mutually agreed.

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b) PAYMENT OF TRAVELLING ALLOWANCES AND INCIDENTAL EXPENCES

DVC shall reimburse / pay towards expenses to IIT Kharagpur, at the following rate, in respect of site visit by IIT Kharagpur consultants, (maximum three persons) with regard to Periodic Inspection & Evaluation of construction works on request of DVC.

To-and-fro Travel expense in 1st class / A.C. train Fare / AC car charges.

Inspection Charge @ Rs. 2,000/- per day per person for periodic inspection of project works at the site.

Applicable taxes including service taxes in this respect shall be paid by DVC.

7. MODE OF PAYMENT

For each of the services in the scope of the work IIT will be paid the consultancy fees in the following stages consistent with the work done.

Stage I	assignment of each project	Rs. 5,00,000/- (Rupees five lacs) per assignment
Stage II	submission of Conceptual designs and estimate of costs and acceptance of the same by the DVC / sanction from the statutory authorities (if applicable)	30 % of the total consultancy fee payable
Stage III	submission of detailed tender documents, drawings, BOQ, detail specifications	40% of the total consultancy fee payable (minus payment made under Stage I)
Stage IV	submission of the complete sets of all the drawings and details sufficient for the work to be executed at site (architectural construction drawings, structural drawings, electrical, drawings, site development and other services drawings)	30% of the total consultancy fee payable

Further sub-break up of Stages II to IV (if required) within the allocated percentage limit, to facilitate progressive payment, shall be considered by DVC on the request of IIT Kharagpur.

IIT Kharagpur will raise the bills and DVC will release the payment within 21 days from the receipt of the bills.

All the payments regarding consultancy and other charges to be paid by DVC through A/c payee cheque, drawn in favour of "**Indian Institute of Technology Kharagpur**" or electronic transfer (account detail to be submitted by IIT Kharagpur).

8. IIT Kharagpur shall implement the assignments in a time bound manner and submit the designs/drawings complete in all respect to DVC within the time period as mutually decided by DVC & IIT Kharagpur, which shall start from the date of assignment of the specific job to the IIT Kharagpur.
9. IIT Kharagpur shall submit to DVC the PERT network / BAR chart based on MS PROJECT for each work and subsequent monthly report indicating progress on assignment thereof.

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10. FORCE-MAJEURE

IIT Kharagpur shall not be considered in default if delay in completion of the work occurs due to cause beyond its control such, as acts of God, natural calamities, civil wars, fire, strike, frost, floods, riot and acts of unsurpassed power. Only those causes which have duration of more than seven (7) days shall be considered cause of force / calendar majeure. A notification to this effect, duly certified by the statutory authorities, shall be given by the IIT Kharagpur to the DVC within 10 days from the date of such force majeure condition by registered letter. In the event of delay due to such causes, the completion schedule will be extended for a length of time equal to the period of Force-Majeure. If the design and other related work / obligation by IIT Kharagpur is suspended by Force-Majeure condition lasting for more than 02 (two) months, DVC shall have the option of cancelling the assigned project in whole or part at its discretion without any liability on its part. In the event of such cancellation, the IIT Kharagpur shall refund any unadjusted advance lying with IIT Kharagpur and deliver back any materials issued to them by the DVC, if any, provided by DVC. However, applicability of Force-Majeure Clause in respect to a particular assigned project in the above backdrop is to be decided by DVC.

- 11.** DVC will appoint one Nodal Officer at Kolkata, for the assigned projects at any locations of DVC, who will coordinate the timely implementation of the project and communication with IIT Kharagpur. All the projects under this MoU shall be co-ordinated by Dr. Uttam Kumar Banerjee, Professor, Department of Architecture & Regional Planning on behalf of IIT Kharagpur. Dr. Banerjee will act as the Consultant-in-charge on behalf of IIT Kharagpur, till further intimation. All communications in this respect of work will be directly addressed to Prof. Banerjee. Any requests or suggestions to IIT Kharagpur from any of the project sites of DVC shall be routed through the Nodal Officer at Kolkata.

12. PLACE FOR OPERATION AT IIT KHARAGPUR

As mutually agreed upon, all the works for all the projects under this MoU, will be carried out from the Department of Architecture & Regional Planning, in a space specifically earmarked for this project.

13. SETTLEMENT OF DISPUTE & ARBITRATION

In the event of any disputes or difference relating to the interpretation and application of the provisions of the contracts, (whether during the progress of the works or after their completion) the same shall be settled amicably through mutual discussions. In the event of failure of such mutual discussion the matter may be referred to a sole arbitrator, or the Arbitration Board consisting of three members as mutually decided by IIT Kharagpur and DVC, Kolkata

The Arbitration shall be conducted in accordance with the provisions of **Arbitration and Conciliation Law 1996 or latest** and the decision/ judgment of Arbitrator/Arbitrators shall be final and binding on both the parties.

All suits arising out of this MOU and subsequent assignment, if any, are subject to jurisdiction of Court in the City of Kolkata only and no other Court, when resolution/settlement through mutual discussion and arbitration fails.

- 14.** The specific work to be assigned to IIT Kharagpur will be intimated by DVC separately to the Consultant-in-charge, time to time, with terms and conditions set under this MOU. IIT Kharagpur should communicate their acceptance within seven days from the date of issue of letter of assignment.

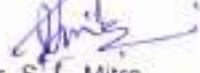
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This MOU will be applicable from the date of signing of MOU and shall be valid for Five Years and to be renewed as per mutual consent.

In witness where at the parties hereto have caused their authorised representatives to sign the MOU (two copies – both in original) at Kolkata on the day mentioned above.

For and on behalf of DVC :

Signature : 
Name : Mr. S. L. Mitra
Designation : Additional Secretary
Address : Damodar Valley Corporation,
DVC Towers, VIP Road,
Kolkata-700054
स. एल. मित्र / S. L. Mitra
अवर सचिव / Addl. Secretary
स. ए. नि. कोलकाता-54
DVC, Kolkata-54

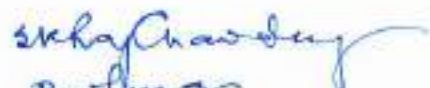
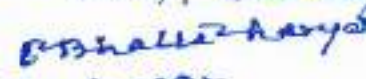
Witness :

1. 
(S. MUKHERJEE)
DCE(C).
2. 
(S. P. Singh)
SDIC(C)

For and on behalf of IIT Kharagpur

Signature : 
Name : Prof. P. P. Chakrabarti
Designation : Dean SRIC
Prof. Partha P Chakrabarti
Indian Institute of Technology
Kharagpur, Kharagpur
Sponsored Research & Industrial Consultancy
I.I.T. Kharagpur-721302, India

Witness :

1. 
Professor
Mechanical Engineering
I.I.T., Kharagpur
2. 
Professor
Mechanical Engineering
IIT Kharagpur.



पश्चिम बंगाल पश्चिम बंगाल WEST BENGAL

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AGREEMENT

This Agreement made this twenty eighth day of Two thousand eight between DAMODAR VALLEY CORPORATION, a Corporation constituted under Damodar Valley Corporation Act being Act No. XIV of 1948 having its registered office at DVC Towers, VIP Road, Kolkata 700054 (hereinafter referred to as "DVC") which expression shall unless repugnant to the context or meaning thereof, include its administrators, successors, executors and assigns on one part and Indian Institute of Technology, Kharagpur, Dist. West Medinipur - 721302, West Bengal, an educational & Research Institution established under the Indian Institute of Technology Act, 1956 of Parliament of Republic of India having its main office at Kharagpur (hereinafter referred to as "IITKGP") which expression shall unless repugnant to the context or meaning thereof, include its administrators, successors, executors and assigns of the other part.

WHEREAS

- a) DVC made and entered into a Memorandum of Understanding (MOU) on the Thirtieth Day of January of Two Thousand and Eight with IITKGP on the basis of a project proposal submitted by IITKGP for engaging in focused and futuristic research in the areas of power generation, distribution, maintenance, reliability etc. and setting up and carrying out R&D in State-of-the-Art Research and Development Centers (R&D Center) at New Town, Kolkata on a piece of plot allotted to DVC by West Bengal Housing Infrastructure & Development Company (WBHIDCO) and a co-ordination center at IIT KGP in pursuance of achieving operational and system excellence in the coal based Thermal Power Stations, Hydro-electric Power Stations and EHT Transmission System for taking care of the need for fundamental research for carrying out cutting edge research related to power sector, including a high bandwidth video conferencing and related communication link to enable constant interaction.



the Memorandum of Understanding (MoU) on 30.01.08 resulting in the Letter of Comfort No. EDCON/OS&U/R&D Center/01/4433 dated 22.03.08 which has been awarded by DVC to IITKGP in terms and conditions most specifically contained in the Memorandum of Understanding and IITKGP has furnished acceptance vide letter No. IIT/SRIC/DEAN/2008 dated 26.03.08 as per requirements of the conditions of the said Letter of Comfort.

- c) Background: DVC is one of the largest power generation sector in Eastern India and the need for DVC to face the future challenges of energy requirement in the region where the growth in industry is of exponential nature and is clearly of very high order. DVC is constantly striving to boost its power generation to serve the nation better. Technology in this knowledge domain is changing rapidly. Traditional and existing technology are forcing the plants to face problems of varying nature with the machine and equipment malfunctioning. The problems have hitherto been tackled with the in-house expertise and sometimes with the help of the consultants in the field. However, DVC now feels the need for creation of cutting-edge knowledge by engaging in R&D through collaboration with IITKGP by setting up focused center to evolve new technologies for efficient power generation, solve problems of its power plants and transmission & distribution system in order to bring down the forced outage to zero and furthermore to carry out in-depth research in areas those are likely to bring in major changes in the power generation systems and methodology both for the company and for the country. The Centers are also poised to emerge as sources for technology that may find its way abroad and bring in foreign exchange to the country.

IITKGP, over the years, has gained unique expertise in different fields of science and technology and have standardized the industry-academia partnership model of R&D. They have already set up several collaborative research laboratories in various knowledge domains. In view of the above IITKGP can collaborate with DVC with its immense capabilities that may be critical in successful setting up of state-of-the-art laboratories and engaging in collaborative research aiming at developing futuristic and efficient power generation technologies and solving the maintenance problems of power generation, transmission and distribution systems and also to create an environment of innovation to absorb & sustain the future needs of power sectors.

- d) DVC in pursuit of achieving operational and system excellence in its coal based thermal power plants, hydro-electric power generating stations and EHT transmission system would also like to partner in contributing intellectually in this project and to facilitate participation of its executives and researchers felt the need for locating a state-of-the-art Research & Development Center at Kolkata.
- e) On invitation of DVC, IITKGP and DVC agreed to form a collaborative project for setting up and engaging in research and development in the state-of-the-art R&D Center at Kolkata and a Co-ordination center at IITKGP in order to take care of the need for research. The R&D Center will have world class facilities and take up not only the technical issues, both generic and general in nature, of the power plants, hydro-electric power generating stations and transmission & distribution system of DVC for solutions; but also, provide similar services to the other power industries of the country. The research projects / activities are envisaged to be of innovative and applied in nature and shall be need based for power industry. DVC agreed that the R&D center shall be in the custody of IITKGP for the technical R&D part for an initial period of 5 years as per the proposal.
- f) Objective of setting up of R&D Center:

The basic objective is to engage in advanced research in collaborative mode with IITKGP to develop worthwhile competence for the smooth running of the present and future generation power plants and also to nurture ideas and concepts for the future energy needs of the country. Innovative research at the R&D Center is expected to take the power generation technology in the country to a new height.

Apart from providing Research & Development facilities, the R&D Center will provide platform for think-tank activities with the objectives of promotion of collaborative research in the field of power sector with other industries and educational institutions, industrial community service, advanced training service for enhancing technical skills, support of research and education in the university, public offering of research and technology in the university, continuous talent building, promotion of Applied Research & Development, cross

A) GENERAL AGREEMENT

- 1) The R&D Center housing a number of laboratories shall be located at New Town, Kolkata equipped with the latest and most relevant testing facilities ;
- 2) Since the permanent setup will take some more time to come up at New Town, R&D Center will start its activities immediately by opening 3(three) laboratories viz. Analytical Chemistry Laboratory, Non-destructive Testing Laboratory and Corrosion & Metallurgical failure analysis laboratory in the first phase and two more Laboratories viz. Vibration & Conditioning Monitoring Laboratory and Tribology Laboratory in the second phase in the rented accommodation at Sector V, Salt Lake, Kolkata to take care of the immediate problems faced in the power plants of DVC.
- 3) The R&D Center shall run on the industry-academia collaborative principle between IITKGP and DVC in line with the spirit and standard principles of industry sponsored projects as at IITKGP.
- 4) The Center will have two tier organizational structures – one **Steering Committee** for policy decisions and strategic planning and one **Core Committee** for operating the Center.
- 5) The said committees comprises the following members of DVC and IIT KGP :

Steering Committee:

DVC	IIT, KGP
Chairman	Director
Secretary	Deputy Director
Director (Tech.)/Director (Operation)	Dean (SRIC)
Financial Adviser	Prof. S.K. Roy Choudhury
Sr. Chief Engineer (Gen./System)	Dr. S.K. Guha as permanent invitee.

Core Committee:

DVC	IIT, KGP
Sr. Chief Engineer (Generation)	Dean (SRIC)
Sr. Chief Engineer (System)	Prof. S.K. Roy Choudhury, PI and Head (Research)
Chief Engineer (OS & U)	Prof. U. K. Chatterjee, Co-PI and PIC
Additional Secretary	Prof. S. K. Roy, Co-PI and PIC
Head (Administration)	Prof. R. K. Saha, Co-PI and PIC
Dy. Chief Engineer (OS & U)	Prof. R. Bhattacharyya, Co-PI and PIC
Dy. Chief Engineer (GM)	Prof. S. Sen, Co-PI and PIC
Sr. Additional Chief Accounts Officer (Corporate Affairs)	Prof. M. Bhattacharya, Co-PI and PIC
Jt. Financial Adviser (Works)	Prof. Mihir Sarangi, Co-PI and PIC
	Prof. A. K. Sinha, as special invitee
	Prof. U. K. Banerjee as special invitee

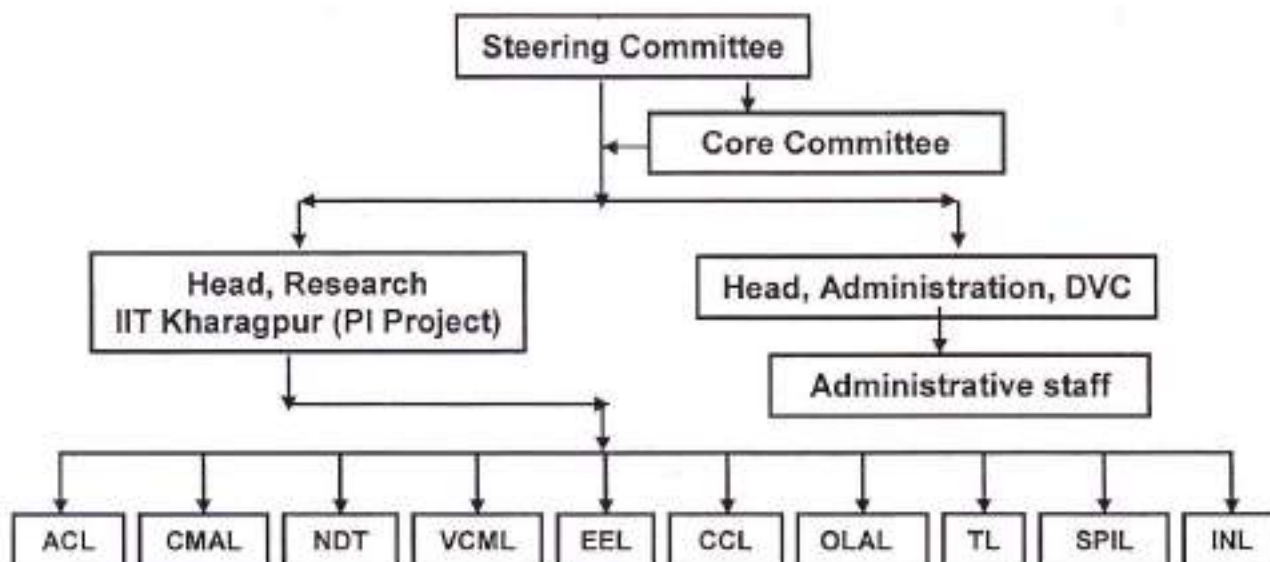
Here PI means Principal Investigator; Co-PI means Co-Principal Investigator and PIC means Professor-in-Charge of a Laboratory of the R&D Center

- 6) One Chief Engineer, DVC shall function as Head (Administration) to take care of the administrative affairs of the Center and Prof. S.K. Roy Choudhury, IITKGP shall function as Head (Research) to take care of the technical and research matters. The Head (Administration) and the Head (Research) shall be members of the Core Committee and shall report to the Steering Committee.
- 7) Chairman, DVC shall be the Chairman of the Steering Committee and shall have the power of giving final verdict on any decision taken by the Committee. Director, IITKGP shall be the Co-chairman of the Steering Committee. All major issues shall be decided by the Steering Committee.

Dean (SRIC), IITKGP shall be the Chairman of the Core Committee and Sr. Chief engineer (Generation / System) & Project Head, DVC shall be the Co-chairman. The final decision on

the Committee.

- 8) The participation of DVC and IITKGP in above Committees shall be on agreement of both DVC and IITKGP.
- 9) The organizational structure of the R&D Center shall be as follows:



The following laboratories have been identified for development at the beginning:

Analytical Chemistry Laboratory (ACL),
Corrosion and Metallurgical Failure Analysis Laboratory (CMAL)
Non-destructive Testing Laboratory (NDT),
Vibration and Condition Monitoring Laboratory (VCML),
Electrical and Electronics Laboratory (EEL),
Coal Characterization Laboratory (CCL),
Oil and Lubricant Analysis Laboratory (OLAL),
Tribology Laboratory (TL),
Safety and Performance Improvement Laboratory (SPIL),
Information and Networking Laboratory (INL)

Each laboratory shall be developed in collaborative research project mode as per norms of IITKGP and shall be under one Professor-in-charge, under whom there shall be Research Fellows and Technical Officers / Technical Assistants. The Professor-in-charges nominated by IITKGP shall be paid separate top-up fellowship as per IITKGP norms from the said collaborative research project funds provided by DVC. The Research Fellow and Technical Officer / Technical Assistant shall be recruited on contractual basis through SRIC, IITKGP. Existing DVC employee shall be considered on deputation for Technical Officer / Technical Assistant, if found suitable through SRIC, IITKGP selection process.

- A(a) DVC and IITKGP further agree in respect of Intellectual Property Rights (IPR).
1. Any intellectual property available with either party prior to signing of this MOU shall solely remain the property of the respective party and the other shall have no claim whatsoever on them.
 2. If any background intellectual property including know-how, integrated circuit, designs and other such tangible and intangible material available with either party is required to be exclusively used for achieving the said purpose as detailed in this Agreement; such use can only be carried out after signing of suitable technology transfer agreement (s) and payment of technology transfer fees to be decided by by the Steering Committee.
 3. Rights of Management of Intellectual Properties resulting out of the activities carried out at the R&D Center of DVC and any other such activities carried out within the targeted results during the life of this agreement shall be governed as follows:
 - i) The Intellectual Property Rights shall be jointly owned by IITKGP and DVC. Neither IITKGP nor DVC shall transfer their rights to any third party without prior written consent of each other.
 - ii) On behalf of both the parties, IITKGP shall file all necessary IP (Intellectual Properties)

- shall be shared equally by both parties.
- iv) The revenue generated from services offered to other external agencies by this R&D center (other than those related to IPR) will be maintained as separate account head and shall be used for development of this R&D center as per IITKGP norms.
 - v) The parties signing this agreement solely reserve the right to assign non-exclusive and non-transferable user rights purely for research and academic purposes to other R&D centers as may be approved by the Steering Committee for a period as deemed fit from time to time.
 - vi) Any other party joining or sponsoring, specifically this Center, with the approval of the Steering Committee, subsequent to the signing of this agreement shall also be given non-exclusive rights only for non-commercial purposes to use such technologies developed by them after the date of joining subject to consent of the Steering Committee.
 - vii) Any downstream and derivatives of the technologies having prior protection after the long time of the agreement however shall be owned by IITKGP solely, but DVC shall have the right to use such technology arising out of the project free of cost. No other party shall have any claim whatsoever on such downstream derivatives.
 - viii) For any other projects conducted within the Center, the IP rights shall be governed by specific agreement drawn up for such projects by the parties with DVC in consideration of the existing IP policy of IITKGP at that time

A(b) That the words and expressions used in this agreement shall have the same meaning as are respectively assigned to them in the Memorandum of Understanding, Letter of Comfort and other documents as mentioned herein as Annexures. The said documents are as follows:

- i) Letter of Comfort No. EDCON/OS&U/R&D Center/01/4433 dated 22.03.08 and acceptance of the same vide letter No. IIT/SRIC/DEAN/2008 dated 26.03.08.
- ii) Record notes of discussion on 17.03.08. at IIT, Kharagpur circulated vide No. EDCON/OS&U/R&D Center/01/4432 dated 22.03.08.
- iii) Memorandum of Understanding (MoU) signed on 30.01.08.

A(c) That this Agreement has been compiled from the original MoU and all the correspondence from the initial stage till the acceptance of the Letter of Comfort, which have been annexed herein and changes thereof on mutual agreement. In case of disputes, parties have agreed to refer the documents mentioned hereinabove to settle the disputes amicably at the first stage. Further steps are contained at clause A(i).

A(d) That the Payment Terms will be as follows :

- 1) Fund for procurement of laboratory equipment including 15% overhead shall be released in advance to IITKGP at the beginning of each quarter as per the tentative cash flow projection (phasing of Fund) of Rs. 4 (Four) crores per quarter and as the invoices will be raised by IITKGP. The release of such fund will, however, be like revolving imprest account subject to production of utilization certificate and document thereof. The procurement of laboratory equipment shall be made following IIT system of Government Purchase Procedure. All applicable taxes and duties and any other statutory Government claims shall be paid out of the research project funds provided by DVC.
- 2) Payment of fellowships / salaries to the faculty members and the candidates recruited through SRIC, IITKGP as Research Fellows and Technical Officers / Technical Assistants shall be made on completion of each month. The amount of payment in such cases shall be governed by the decision of the Steering Committee.
- 3) This agreement for the collaborative research project does not preclude IITKGP from providing consultancy services to DVC and charge fees for the same as per IITKGP norms. These shall be treated as separate consultancy projects. DVC has initially earmarked a tentative cash flow (phasing of fund) of Rs 15 lakhs per quarter inclusive of applicable service tax for some related consultancy activities. In addition, a separate agreement will be prepared and signed for architectural design and engineering etc. for R&D Center and Management Training center, Newtown, Kolkata.

Rs. 25.72, 18.59, 36.52, 10.43 and 5.21 Crores for the first to fifth year respectively. If a sanctioned amount is not released in a particular year, it may be carried over to later years. The balance will be adjusted as and when such need arises with the approval of the Steering Committee.

- A(c) That it is expressly understood and agreed by and between IITKGP and DVC that DVC is entering into this agreement solely on its own behalf and not on behalf of any other person or entity. In particular, it is expressly understood and agreed that the Government of India or the two participating State Governments i.e. Government of West Bengal & Government of Jharkhand is not a party to this agreement and has no liabilities, obligations or rights herein under. It is expressly understood and agreed that the DVC is an independent legal entity with power and authority to enter into agreements solely on its own behalf and under the applicable laws of India and the general principles of Contract Laws in force. IITKGP expressly agrees, acknowledges and understands that the DVC is not an agent, representative or delegate of the Government of India or the two participating State Governments i.e. Government of West Bengal & Government of Jharkhand. It is further understood and agreed that the Government of India or the two participating State Governments i.e. Government of West Bengal & Government of Jharkhand is not and shall not be liable for any acts, omissions, commissions, breaches or other wrongs arising out of the agreement. Accordingly, IITKGP expressly waives releases and forgoes any and all actions or claims including cross claims and impleader claims for counter claims against the Government of India or the two participating State Governments i.e. Government of West Bengal & Government of Jharkhand arising out of this agreement and covenants not to sue the Government of India or the two participating State Governments i.e. Government of West Bengal & Government of Jharkhand as to any matter, claim and cause of action or thing whatsoever arising of or under this agreement.
- A(f) That the duration of the Agreement shall be for five years from the date of execution unless extended in writing on mutually agreed terms and conditions.
- A(g) Termination of the Agreement: The Steering Committee may recommend the termination of the Agreement after serving 3 (three) months' notice in writing to both the parties, if there is failure / breach of agreement or default by other party other than on force majeure agreement.
- A(h) That in the matter of Force Majeure IIT KGP shall not be considered in default if delay in carrying out the activities of the Center occurs due to causes beyond its control such as acts of God, natural calamities, civil wars, fire, strike, frost, floods, riot and acts of unsurpassed power. Only those causes which have duration of more than seven days shall be considered cause of force/calendar Majeure. A notification to this effect duly certified by the statutory authority shall be given by IIT KGP to DVC within ten days from the date of such Force Majeure condition by registered letter. In the event of delay due to such causes, the schedule of activities will be extended for a length of time equal to the period of Force Majeure. In other cases, at the opinion of DVC, the order may be cancelled. Such cancellation would be without any liability whatsoever on the part of DVC. In the event of such cancellation, IITKGP shall refund any unspent/uncommitted amount advanced or paid to them by DVC and deliver back any materials / release facilities issued to them by DVC. The IPR issue will still be governed by clause A(a) 3.iii & A(a) 3.iv of this agreement above.
- A(i) That in the matter of other terms neither DVC nor IITKGP shall publish or deliver to the press any information related to the PROJECT/PROJECTS without written permission of the Core Committee / Steering Committee. IITKGP project participants will take responsibility that confidentiality clause as mentioned hereunder is not violated while submitting any information for publication in the form of thesis, papers or presentation etc.

Both DVC and IITKGP will do their jobs diligently and will complete their tasks within scheduled time. Neither party, however, shall be liable for any default or delay, if that party is prevented from performing its obligations due to Force Majeure or by any circumstances beyond its control including any restriction imposed by new law coming into force. In each case stated above, the party so prevented from performing, shall start working as soon as the difficulties/restrictions are removed and shall try its best to start work and complete within

provide the other proprietary and confidential information which is considered essential for the conduct of any PROJECT at their sole discretion.

PROPRIETARY INFORMATION for the purposes of this AGREEMENT shall include all data, samples, discoveries, inventions, technical information, reports, know-how and other information related to and disclosed by any party in any form of written materials and it shall be the duty of the receiving party to maintain its confidentiality.

The DVC and IITKGP agree to hold PROPRIETARY INFORMATION in confidence and to protect it against disclosure to the public and third parties. Accordingly, DVC and IITKGP will employ protective measures fully commensurate with those used by them to protect their own trade secrets and other confidential information from disclosure to the public and to third parties including the industry partners involved in industry-academia partnership under the R&D Center, but in no event less than the ordinary degree of care required by law to preserve the secrecy of information that under such law is deemed confidential. By way of example, such efforts will include the act of obtaining the execution of suitable confidentiality agreements from other parties and from other persons to whom such information is disclosed in the course of execution of the PROJECT and to retrieve the connected documents on completion of the project where given for the same.

The DVC and IITKGP agree to use PROPRIETARY INFORMATION only for the PROJECT during the TERM of the PROJECT.

The DVC and IITKGP agree not to copy, reproduce or otherwise reduce to writing any part of PROPRIETARY INFORMATION except and only as may be reasonably necessary for the PROJECT.

INFORMATION disclosed by IITKGP to the DVC in the form of results of the study / research originating from the projects under the R&D Center shall be treated as confidential and shall not be shared with any third party, including any country, without the expressed / written permission of IITKGP.

IITKGP shall be free to publish research results out of this Center that does not contain proprietary information. In case it contains proprietary information, IITKGP shall submit a copy of such thesis, papers etc., to the DVC for examination, comments and approval. The DVC shall not unreasonably withhold its consent to such publication and/or RESULTS pursuant to the non-disclosure conditions hereof, and shall send its comments, suggestion etc. within a period of one month from the date of its receipt.

A(k) That in the matter of charge or amendment no change can be made to this Agreement without written consent and duly signed by both DVC and IITKGP. Additions, deletions and/or alterations to this Agreement may be effected with the written consent of all to this Agreement concerning the changes. Documents containing such additions, deletions and/or alterations and signed by all shall form addenda to this Agreement and be deemed to be part of this Agreement. Any party should not utilize this Agreement or any content thereof for any other purpose except facilitating successful implementation of this PROJECT.

A(l) That in the matter of settlement of disputes & arbitration :

Parties hereby agreed that –

Any dispute(s) or difference(s) arising out of or in connection with the Agreement shall, to the extent possible, be settled amicably between DVC and IITKGP and the decision of the Steering Committee shall be final and binding to both DVC and IITKGP.

All suits arising out of this Agreement is subject to jurisdiction of Court in the City of Kolkata only and no other Court in India & abroad, when resolution / settlement through arbitration fails. Please note that the Arbitration Clause is missing and this should be

A(m) That in the matter of Governing Laws, the laws applicable to this Agreement shall be the laws in force in India.

A(n) That in the matter of Notice of Default :

Notice of Default given by either party to the other party under the Agreement shall be in writing and shall be deemed to have been duly and properly served upon the parties if delivered against acknowledgement or by Fax or by registered mail with acknowledgement duly addressed to the signatories at the addresses mentioned hereinafter.

A(o) That in the matter of Binding, the parties hereby agree that conditions, terms etc. as stated herein along with documents attached or annexed shall be binding on the parties attached to the Agreements.

B) DVC agrees

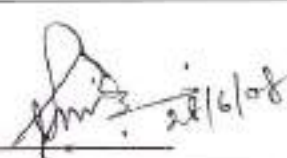
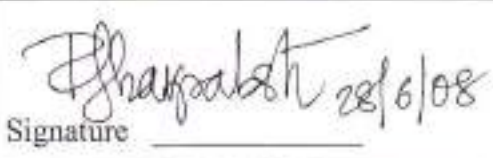
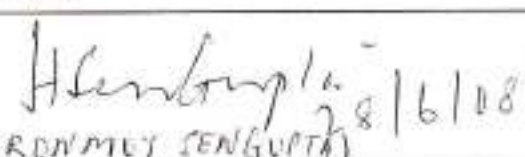
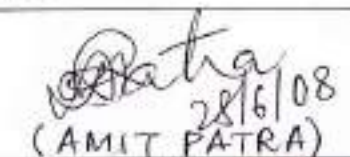
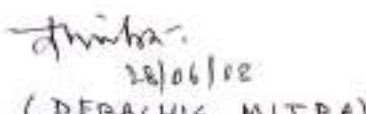
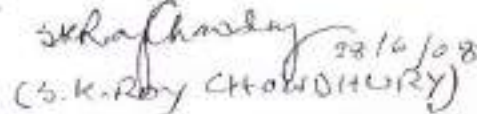
- 1) DVC shall develop infrastructure including building, office computers, telephone, fax etc.
- 2) DVC will provide fund required for purchasing laboratories equipment including high bandwidth Video and related communication linked accessories.,
- 3) Release the approved budgetary fund as per payment schedule agreed by the Core Committee so as to ensure smooth procurement of Laboratory reagents and overhead charges of IITKGP for the Center which includes all other expenses required for the Center for smooth functioning.
- 4) Provide the infrastructure and support to the R&D Center at Kolkata and Coordination center at IITKGP.
- 5) Facilitate the visit of a team comprising of members from both sides to the advanced R&D Center in country and abroad to gain experience and replicating/improving the facilities at DVC R&D Center. The visit in abroad shall be with the approval of the Steering Committee.
- 6) Facilitate stable platform to members of IITKGP for testing / demonstrating the results of individual projects.
- 7) Help to provide necessary technical information / opinion that may be necessary to execute assigned projects.
- 8) Help the Center to get national & international accreditation and collaboration, knowledge sharing and national & international patenting and in developing standards.
- 9) Conduct the Steering Committee meetings under the chairmanship of Chairman DVC at least once in a year.

C) IIT KGP agrees to

- 1) The laboratories which will be set up at New Town and Salt Lake, Kolkata will be actively participated by Professors and Research Fellows from IITKGP with expertise in relevant field.
- 2) The Laboratory equipment, chemical and reagents for R&D Center will be arranged by IITKGP from project fund provided by DVC.
- 3) Facilitate efficient operation, quick procurement of laboratory equipment and infrastructure building as facilitated under the Sponsored Research and Industrial Consultancy (SRIC) unit of the IITKGP.
- 4) Facilitate Professor, Research Fellows or DVC's representatives to participate in various roles for fulfilling the objectives of the center and also recruit suitable research persons on contract basis to execute the project and technology development activity.
- 5) Allow adequate Investigators from within the faculty members of IITKGP to engage in result oriented research & development, conducting courses to train the trainer, designing the courses, undertaking project studies & consultancy.

- 7) Facilitate the Center to work out annual / long-term plan of deliverables / research output linked with quantum of grants / incentives. The expected minimum deliverables from the Center in the form of commercialisable innovations, patents, published papers, pilot sample development, project/study reports, application development etc., may also be worked out.
 - 8) Organize seminar, workshops and training programs from time to time.
 - 9) Facilitate project review meetings at least once in six months by the Core Committee.
 - 10) Transfer all assets created out of the project to DVC.
- D) That upon signing MOU and furnishing the said acceptance, IITKGP, has thus accepted unequivocally the Terms and Conditions of the said MoU and Letter of Comfort and also the documents annexed herewith resulting in a concluded Agreement (hereinafter referred to as 'Agreement').
- E) IITKGP hereby covenants with DVC that IITKGP shall carry out the award strictly in terms of the documents annexed herein.

IN WITNESS WHEREOF, the parties through their duly authorized representatives have executed these present (execution thereof has been approved by the competent authorities of both the parties) on the day, month and year first above written.

For and on behalf of Damodar Valley Corporation (DVC)	For and on behalf of Indian Institute of technology (IIT), Kharagpur
Signature  28/6/08	Signature  28/6/08
Additional Secretary, DVC	DEAN (SRIC), IITKGP
Office Seal अपर सचिव / Addl. Secretary दा. घा. नि., कोलकाता - 54 DVC, Kolkata - 54	Office Seal Prof. Partha P Chakrabarti Dean Sponsored Research & Industrial Consultancy I.I.T. Kharagpur-721302, India
WITNESS:	WITNESS:
1.  28/6/08 (HIRADMITAY SENGUPTA)	1.  28/6/08 (AMIT PATRA)
2.  28/06/08 (DEBASHIS MITRA)	2.  28/6/08 (S.K. ROY CHOWDHURY)