

3:3(1)

- (iii) Permission to undertake the Ecological Survey for Lachung H.E. Project, Sikkim.

Prof. S.K.Barik vide letter dated 15<sup>th</sup> July, 2008 placed at Annexure 'A' has sought the permission to undertake the Ecological Survey for Lachung Project, Sikkim offered by the WAPCOS. The total cost of the work is Rs. 3.90 lakh (Rupees Three Lakhs and ninety thousand) only, work order placed at Annexure 'B'. He has requested Vice-Chancellor to grant permission to take up the project. Letter conveying permission is placed at Annexure 'C'.

The matter is placed before the Executive Council for ratification.

No.F. 44-10/Acad/SKB/WAPCOS/2007-483 dt. 6/8/2008.



NORTH-EASTERN HILL UNIVERSITY

DEPARTMENT OF BOTANY

NEHU PERMANENT CAMPUS, SHILLONG – 793 022, INDIA

Prof. S.K. Barik

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FAX: + 91 364 272 - 2000

e-mail: [sarojkbarik@yahoo.com](mailto:sarojkbarik@yahoo.com)

The Deputy Registrar (Academics)

15<sup>th</sup> July, 2008

North-Eastern Hill University

Shillong- 793022

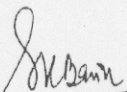
Sub: Permission to undertake the Ecological Survey for Lachung H.E.Project, Sikkim.

Sir,

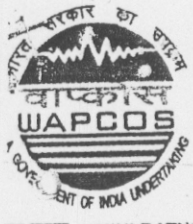
The Water and Power Consultancy Services (India) Limited, a Government of India Undertaking under Ministry of Water Resources has offered us the above mentioned project with a total cost of Rs. 3.90 lakh (Rupees Three lakh and ninety thousand only). I shall be grateful, if you kindly convey me the permission of the Vice-Chancellor to take up the project. The breakup of the budget is also enclosed.

Thanking you and with kind regards,

Yours sincerely,

  
 (S.K. Barik)  
 Prof. S. K. Barik  
 Principal Investigator  
 Department of Botany  
 North-Eastern Hill University  
 Shillong - 793022

Encl. :  
 1) Project award letter from WAPCOS  
 2) Budget break-up



3:3(3)  
जल एवं विद्युत परामर्शी सेवाएँ (भारत) मर्यादित  
WATER & POWER CONSULTANCY SERVICES (INDIA) LTD.  
(भारत सरकार का उपक्रम)  
(A GOVERNMENT OF INDIA UNDERTAKING)

Quality Assurance  
ISO 9001 : 2000  
Civil Design  
EAQA, U.K.

ANNEXURE - 'B'

घु रत्न - MINI-RATNA

WAP/ENVT/Lachung/07/ 886

**Dr. S.K. Barik,**  
Reader in Ecology,  
Department of Botany,  
North-Eastern Hill University,  
Shillong-793 022.

13.03.07

**Sub.: Work order for Ecological Survey for Lachung H.E. Project, Sikkim**

**Ref.: WAPCOPS NITNo.WAP/Envvt/Quot/2007/786, Dated 23.1.07  
NEHU Quotation dated 29.01.07**

Sir,

We are pleased to award the work of ecological survey for Lachung H.E. Project in Sikkim. The total cost for this work will be Rs.3.90 Lakh (Rupees Three Lakhs Ninty Thousand Only), as quoted by NEHU vide above referred letter. TOR of the study will be same as given in WAPCOS NIT dated 23.01.07. This cost is inclusive of all and no other expenses will be entertained by WAPCOS. The details of ecological survey work are as follows:

**1. Project Location**

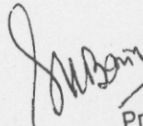
Lachung H.E. Project is located on river Lachung at distance of about 100 km from Gangtok in district North Sikkim of Sikkim State. The location map of the project site is enclosed. The details of sampling are as follows

**2. Scope of Work**

The Ecological Survey is to be conducted around the proposed project site for Four Seasons at six locations. The exact location of sampling stations will be fixed in consultation with WAPCOS representative. The study area will include the following:

- Submergence area (area within the HFL of the reservoir),
- Area within 7 km from reservoir periphery
- Catchment area directly draining in to reservoir
- Land to be acquired for various project appurtenances

The survey will be carried out in the study area through a sample survey depending upon the topography and floristic composition. The survey will include the following:

  
Dr. S. K. Barik  
Professor of Ecology  
Department of Botany  
North-Eastern Hill University  
Shillong - 793022, India

"हमेशा हिन्दी में पत्र व्यवहार  
करके देश का शेरव खड़ा"

जल संरक्षण - जीवन संरक्षण  
Conserve water - Safe life

पंजी. एवं नि. का. 5वां तल 'कैलाश', 26 कस्तूरबा गान्धी मार्ग, नई दिल्ली - 110 001 दूरभाष (91-11) 23313131, 23313133 फैक्स : (91-11) 23313134 तार : 'वापकोस' नई दिल्ली  
Reg. & Corporate Office : 5th Floor 'Kailash', 26 Kasturba Gandhi Marg New Delhi - 110 001 Ph. : (91-11) 23313131, 23313133 Fax : (91-11) 23313134 Cable : "WAPCOS" NEW DELHI  
मुख्य कार्यालय : 76 - सी, इनस्टीट्यूशनल एरिया, सेक्टर - 18, गुडगाँव - 122015 (हरियाणा) दूरभाष : (95 - 124) 2399421 फैक्स : (95 - 124) 2397392  
Main Office : 76 - C, Institutional Area, Sector - 18, Gurgaon - 122015 (Haryana) Ph. : (95 - 124) 2399421 Fax : (95 - 124) 2397392  
E-mail : wapcos@vsnl.com Website : http://www.wapcos.net

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### Terrestrial Ecology

The terrestrial ecological survey shall be conducted for **four seasons** i.e. *Summer season (April/May 2007)*, *Monsoon season (July/August 2007)*, *Post-monsoon season (October 2007)* and *Winter season (November/December 2007)* for the flora in the study area. A herbarium shall be prepared during the course of the ecological survey. The surveying is to be done at minimum five locations. At each location, random technique will be utilised and the quadrates will be formed. The quadrat size will range from 0.1m<sup>2</sup> to 100m<sup>2</sup> depending on the type of species (i.e., Trees, Shrubs & Herbs etc.) number and sensitivity of species. At each sampling location, at least 25 quadrates shall be studied. The scope of work shall include the following:

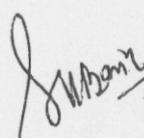
- Identification of forest type and density, bio-diversity in the study area.
- Preparation of comprehensive checklist of flora (Trees, Shrubs, Herbs & Grasses) with Botanical and local name.
- Importance value index of the dominant vegetation in the study area of proposed project.
- Frequency, Abundance and density of each species of Trees, Shrubs, Herbs & Grasses at representative sampling sites will be estimated.
- Identification and listing of Rare/Endangered species.
- Identification and listing of plants of genetically, biologically, economical and medicinal importance.
- Ethno botanical aspects of each species need to be assessed.
- Assessment of economic values and uses of existing forests in the study area.
- Identification of potentially important species from conservation and economic point of view.
- Micro flora observed at various locations.
- While carrying out sampling within the submergence area and area to be acquired for various project appurtenances girth of all the trees having height above 8 meter at representative sampling site is to be measured to calculate the timber loss due to the submergence.
- Major forest produce, if any and dependence of locals on the same in the forests observed in the study area.

During the field survey, if survey team encounters wild animals including avi-fauna and is able to identify the animals through visual observations, pug marks, local inquiry etc. The same needs be indicated in the report

### Aquatic Ecology

The aquatic ecological monitoring is to be conducted minimum at 3 locations for four seasons. i.e. *Summer season (April/May 2007)*, *Monsoon season (July/August 2007)*, *Post-monsoon season (October 2007)* and *Winter season (November/December 2007)* at three locations. The details of the monitoring work proposed to be carried out are as follows:

- Assessment of biotic resources with special reference to primary productivity, zooplanktons, phytoplanktons, benthos, macrophytes, macroinvertebrates and fishes in the study area.
- Population densities and diversities of phytoplanktons, zooplanktons benthos, macrophytes, macroinvertebrates and fish shall be estimated. Diversity indices of these ecological groups will also be calculated separately.
- Spawning & breeding grounds if any, have to be identified.
- Assessment of loss of habitat and conservation needs for Fish species in the project area
- Based on the existing status of riverine ecology the ecosystems shall be characterized for trophic status.



Dr. S. K. Barik  
Professor of Ecology  
Department of Botany  
University  
India

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### 3. Time Schedule

The ecological survey shall be conducted for four seasons i.e. *Summer season (April/May 2007), Monsoon season (July/August 2007), Post-monsoon season (October 2007) and Winter season (November/December 2007)*. The work has to be carried out as per the schedule given above, and the report should be submitted within a maximum of 2 weeks of completion of the field studies for each season. For any delay, a penalty @ 1% of total value of work for each week of delay or part thereof subject to maximum of 10% of total contract value shall be charged.

### 4. Force Majeure

Force majeure is hereby defined as cause which is beyond the control of the awarded party and WAPCOS as the case may be, which they did not foresee or with a reasonable amount of diligence could not have foreseen and which substantially affects the performance of contract, such as:

- a) Natural phenomena including but not limited to floods, draughts, earthquakes and epidemics.
- b) Acts of any government, domestic or foreign, including but not limited to war, declared or undeclared priorities, quarantines, embargoes, provided either party within fifteen (15) days from the occurrence of such causes notify the other in writing of such causes.
- c) Should the occurrence of Force Majeure last more than 45 days, both parties have the right to cancel the contract. In such a case, the awarded party will be paid for all the work completed or which has been carried out or performed to the time.

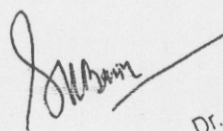
### 5. Arbitration

In the event of any question, dispute or differences arising out of or in connection with this work, the same shall be referred for arbitration for which purpose WAPCOS and the awarded party shall nominate one Arbitrator each. The arbitration shall be conducted in accordance with the provisions of Indian Arbitration Act, 1940. The costs of reference and arbitration award shall be payable by the parties to the extent and in a manner as may be determined by the Arbitrators or the Umpire.

Notwithstanding the existence of any dispute or difference and/or reference for the arbitration, you shall proceed with and continue without hindrance the performance of the work under the contract with due diligence and expedition not be withheld by WAPCOS on account of such difference or arbitration proceedings unless such payment is subject matter of the arbitration. The Arbitrators may from time to time with consent of the parties in-charge for making and publishing the award. The venue of arbitration shall be the WAPCOS office at Gurgaon, Haryana.

### 6. Responsibility of the awarded party

It would be the entire responsibility of the awarded party to carryout the work at their own end. WAPCOS under any circumstances whatsoever will not be responsible for any untoward incident, abduction, accident or any other event causing injuries, death, agony, health problems, etc. of the personnel deployed by the awarded party. Under these circumstances the awarded party is advised to get adequate and appropriate insurance for all the persons engaged for the study. Further, the awarded party shall stand guarantee and are deemed to have guaranteed the suitability, acceptability, adaptability, reasonability and correctness of the output both in quality as well as quantity acceptable to WAPCOS.



Dr. S. K. Barik  
Professor of Ecology  
Department of Botany  
North-Eastern University  
Shillong - 793022, India

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**7. Postponement, Suspension or Termination of Work**

If at any time, the WAPCOS decides to postpone, suspend or terminate the work or part thereof, notice shall be served by WAPCOS of not less than 15 days, notifying its intention to suspend/postpone or terminate the Ecological Survey work or any part thereof. In the event of such suspension, postponement or termination, proportionate fees on account of submission of work output and other expenses between WAPCOS and the awarded party shall be paid by WAPCOS to the awarded party.

**8. Disparity**

If any disparity of work is found, the awarded party will be responsible and the expenses will be borne at his own cost.

**9. Deliverables**

- i) One copy of Draft report on completion of field study for each season along with soft copy.
- ii) Two copies of Final Report, incorporating comments on the Draft Report along with soft copy for each season.
- iii) Two copies of Final Report, incorporating the final results of all the four seasons along with soft copy.

**10. Terms of Payment**

- |  |     |
|--|-----|
| i) Mobilization advance along with work order (on receipt of signed copy of this work order as a token of acceptance)  | 15% |
| ii) On submission of the Draft Report for the 1 <sup>st</sup> season (Summer season) and its acceptance by WAPCOS  | 15% |
| iii) On submission of the Draft Report for the 2 <sup>nd</sup> season (Monsoon season) and its acceptance by WAPCOS  | 15% |
| iv) On submission of the Draft Report for the 3 <sup>rd</sup> season (Post Monsoon season) and its acceptance by WAPCOS                                      | 15% |
| v) On submission of the Draft Report for the 4 <sup>th</sup> season (Winter season) and its acceptance by WAPCOS   | 15% |
| vi) On submission of Final Report including 4 season data along with conservation plan for rare and endangered species, if any; and its acceptance by WAPCOS | 25% |

WAPCOS representative will monitor the work regularly at the field. Any change in plan of survey as directed by WAPCOS shall be mandatory on the awarded party within the scope of work.

We are enclosing herewith two copies of work order. You are requested to send duly signed copy of this work order as a token of acceptance.

Yours sincerely,

*Amam Sharma*  
13.3.07

(DR. AMAN SHARMA)  
INCHARGE (ENVT.)

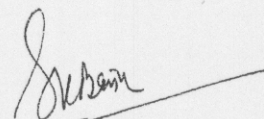
*S. K. Barik*

Dr. S. K. Barik  
Professor of Ecology  
Department of Botany  
North-Eastern Hill University  
Shillong - 793022, India

**Budget breakup for the research project entitled 'Ecological Survey for Lachung H.E. Project'.**

Sl.No.	Budget head	Amount (Rs )
1.	Remuneration to 6 Resource persons	2,30,000/-
2.	Two laptops, one printer and pendrives	1,00,000/-
3.	Travel of Resource persons and local travels	40,000/-
4.	Institutional fee for NEHU	20,000/-
	<b>TOTAL</b>	<b>3,90,000/-</b>

(Rupees Three lakh and ninety thousand only)



(Prof. S.K. Barik)

Principal Investigator  
Prof. S. K. Barik  
Principal Investigator  
Department of Botany  
North-Eastern Hill University  
Shillong - 793022

Ph: 2721046

  
**NORTH-EASTERN HILL UNIVERSITY**  
NEHU Campus, Shillong – 793022, Meghalaya, INDIA

No. F. 44 – 10/ Acad/SKB/ WAPCOS/2007 - 410.

Dated 24<sup>th</sup> July, 2008.

To

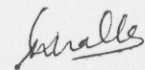
Prof. S. K. Barik,  
Department of Botany,  
NEHU, Shillong.

Sub: Permission to undertake the Ecological Survey for Lachung H. E. Project, Sikkim.

Sir,

With reference to the subject cited above, I am directed to inform you that subject to the ratification of the Executive Council, permission of the Vice Chancellor is hereby conveyed to take up the above mentioned project.

*Yours faithfully,*



(Mrs. L. D. Nalle)

Deputy Registrar (Academic)

