

Brief Bio-data

1. Name: Dr. Arnold Luwang Usham
2. Date of Birth: 1st March 1988
3. Current Position and Address: Scientist & HoS, Group IV (2), Coal Petrology, RQA Division
P.O-F.R.I, Pin- 828108, Digwadih, Dhanbad, Jharkhand, India.
e-mail: arnoldluwang@cimfr.nic.in & arnoldluwang@gmail.com

4. Educational qualifications: (Graduation and above)

Sl. No.	Degree	Year of Passing	University/Institute	Subject
1.	Ph.D.	2017	University of Delhi, Delhi, 110007	Geology
2.	M.Sc.	2010	University of Delhi, Delhi, 110007	Geology
3.	B.Sc.	2008	Manipur University (Imphal College)	Geology (h), Physics, Maths

5. Work experience:

Designation	Institute/company	From	To	Nature of Work
Scientist & HoS Group IV (2) Coal Petrology, RQA	CSIR-Central Institute of Mining and Fuel Research	July 2020	Present	Research and development
Scientist Group IV (2), RQA	CSIR-Central Institute of Mining and Fuel Research	December 2018	July 2020	Research and development

6. Work Area(s)/ Specialization:

- a. Coal Petrology and Quality Assessment of Coal
- b. Water Contamination and Pollution (Arsenic, Fluoride & Mercury)
- c. Remote Sensing & GIS
- d. Environmental Impact Assessment (past experienced)

7. Major contributions: (Max. 100 words):

Scientific knowledge contribution to the National Project on coal quality monitoring work at various loading ends (BCCL, ECL, CCL, NCL) and unloading ends of various power utilities. Innovation of advanced concepts to demarcate the quality of coal in coal mines for efficient, economic and environmentally safe energy generation and management to bring an energy efficient. Studies of coal rank determination, maceral analysis and microlithotype through reflectance coal petrology microscope. Additionally, studies on toxic elements contamination such as arsenic, fluoride and mercury contamination effect on human health in industrial areas.

8. No. of Research Publications:

Hyperlink: [Google Scholar Q9wd95UAAAAJ&hl=en](https://scholar.google.com/citations?hl=en&user=Q9wd95UAAAAJ)

- Papers in Journals: 5
- In conference proceedings: 6
- Invited lectures delivered: -
- Patent: 1

•List of best 05 publications (In Indexed/ Peer Reviewed Work)

- I. Dubey, C.S., Usham, A.L., Mishra, B.K., Shukla, D.P., Singh, P.K. and Singh, A.K., Anthropogenic arsenic menace in contaminated water near thermal power plants and coal mining areas of India. *Environmental geochemistry and health*. Corresponding Author: A L Usham, DOI: [10.1007/s10653-021-01010-0](https://doi.org/10.1007/s10653-021-01010-0). Impact factor 4.6
- II. Ramakrishna, V., Singh, A.K., Bayen, G.K., Masto, R.E., Meena, R.K., Singh, P.K., Arya, M., Jyoti, S. and Usham, A.L., 2021. Torrefaction of agro-wastes (palmyra palm shell and redgram stalk): characterization of the physicochemical properties and mechanical strength of binderless pellets. *Biomass Conversion and Biorefinery*. DOI: [10.1007/s13399-021-01720-6](https://doi.org/10.1007/s13399-021-01720-6). Impact factor 4.9
- III. Usham, A.L., Dubey, C.S., Shukla, D.P., Mishra, B.K. and Bhartiya, G.P., 2018. Sources of fluoride contamination in Singrauli with special reference to Rihand reservoir and its surrounding. *Journal of the Geological Society of India*, 91(4), pp.441-448. Corresponding Author: A L Usham, Springer, Impact factor 1.6
- IV. Mishra, B.K., Dubey, C.S., Shukla, D.P., Bhattacharya, P. and Usham, A.L., 2014. Concentration of arsenic by selected vegetables cultivated in the Yamuna flood plains (YFP) of Delhi, India. *Environmental earth sciences*, 72(9), pp.3281-3291. Springer, Impact factor 2.8
- V. Dubey, C.S., Shukla, D.P., Ningreichon, A.S. and Usham, A.L., 2013. Orographic control of the Kedarnath disaster. *Current Science*, 105(11), pp.1474-1476. Impact factor 1.3

•Books/Chapters authored/edited

- I. Usham, A.L 2013, *Research Methodology in Geology*, Maxford Books, Maxford dynamic series, 10, 295 pages. ISBN-10: 8181162013/ISBN-13: 9788181162014

•9. R&D Projects:

- I. Application of Spectroradiometry for assessing the calorific value of different Indian coals. In-house Project No.: MLP- 95 /2019-20
- II. Optimization and Development of a new method for determination of Equilibrated Moisture in a shortest duration as compared with conventional methods of 72 hours, In-house Project No.: MLP- 127/2020-21
- III. Deterioration of coal quality and its chemical changes due to weathering caused by longtime stockpiling. In-house Project No.: MLP- 128 /2019-20

10. (a) Name of Patents/Copyrights applied /granted/commercialized:

2020: A process for the determination of equilibrated moisture in coal. Applicant: Council of Scientific and Industrial Research, Indian Patent Application No.: 202011045585, Date of e-Filing: 19/10/2020

(b) Technologies/Products /knowhow/Services developed:

11. Honors/Awards/Recognitions/Fellowships/Scholarships/Professional Memberships received:

2012- 2017: Awarded Senior Research Fellow SRF 2014 to 2017 and JRF 2012 to 2014 under UGC-Centre for Advanced Studies CAS II Meritorious students Centre for Advanced Studies

2009- 2010: Awarded State Merit Scholarship for 2nd Position in B.Sc. during Post Graduate under the Directorate of University & Higher Education, Manipur

2013-2014: Contribution to achieve “*Best Practices Award, University of Delhi*” among all the Faculties & Departments of Arts, Social and Science; 1st prize of ₹ 10 lakhs in 2014 and 3rd prize of ₹ 5 lakhs in 2013

2016: 2nd Winner in “Chess” Inter Hostel Sports Meet, Delhi University

2016: Appointed as “Observer” in Delhi University Annual Examination 2016

2019: MMEAI (Life Member) Mining Engineer Association of India MEAI

12. Societal Contributions

Quality assessment of coal helps to quantify the efficient use of coal and reduces the import quantity of coal for coal-based thermal power plants followed by low-cost electricity and the reduction of environmental pollution.

Research works on environmental toxic elements contamination effect on human health focus on the identification of anthropogenic sources of arsenic menace in and around 21 thermal power plants & coal mining areas of India (covered whole West Bengal and Singrauli Industrial areas).

First time reported with experimental observation on the source of fluoride contamination due to anthropogenic activities (coal based thermal power plant and coal mining) and geologic formation of Chotanagpur granite gneissic complex in Singrauli Industrial area with spatial distribution through remote sensing & GIS technique.