

**COMPREHENSIVE UNDERSTANDING OF MINING-INDUCED
ENVIRONMENTAL RAMIFICATIONS AND ITS INFLUENCE ON
LANDSCAPE DYNAMICS**

Dissertation submitted in the partial fulfilment of the requirements for the award of the
degree of

MASTER OF SCIENCE

Submitted by
Ruthi Veibiakkim

Supervisor
Prof. P. K. Joshi



Spatial Analysis and Informatics Lab
School of Environmental Sciences
Jawaharlal Nehru University
New Delhi-110067

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“Some beautiful paths can’t be discovered without getting lost.”
– Erol Ozan

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LIST OF ABBREVIATION

AMD	– Acid Mine Drainage
AoI	– Area of Interest
ASTER	– Advanced Spaceborne Thermal Emission and Reflection Radiometer
CBM	– Coalbed Methane
CCSI	– Columbia Center for Sustainable Investment
CMPDI	– Central Mine Planning and Design Institute
CSIR	– Council of Scientific and Industrial Research
DEM	– Digital Elevation Model
EJH	– East Jaintia Hills
ERDAS	– Earth Resources Data Analysis System
ESA	– European Space Agency
ESRI	– Environmental Systems Research Institute
ETM+	– Enhanced Thematic Mapper Plus
FCC	– False Colour Composition
FCL	– Forest Cover Loss
FE-SEM	– Field Emission Scanning Electron Microscope
FT-IR	– Fourier-transform infrared spectroscopy
GIS	– Geographical Information System
GSI	– Geological Survey of India
HRS	– High Resolution Satellite
IIT	– Indian Institute of Technology
IRS	– Indian Remote Sensing
IVI	– Importance Value Index
OA	– Overall Accuracy
OPMAs	– Open Pit Mining Areas
LFT	– Landscape Fragmentation Tool
LPI	– Largest Patch Index
LULC	– Land Use and Land Cover
LULCC	– Land Use and Land Cover Change
MECL	– Mineral Exploration Corporation Limited
MLC	– Maximum Likelihood Classifier
NASA	– National Aeronautics and Space Administration

NIR	– Near Infrared
NDVI	– Normalized Difference Vegetation Index
NDWI	– Normalized Difference Water Index
NDBI	– Normalized Difference Build-up Index
NER	– North Eastern Region of India
OLI	– Operational Land Imager
PLAND	– Percentage of Landscape
PRISMA	– Preferred Reporting Items for Systematic Reviews and Meta-Analyses
RS	– Remote Sensing
SCCL	– Singareni Collieries Company Limited
SAVI	– Soil Adjusted Vegetation Index
SDGs	– Sustainable Development Goals
SIG	– Signature
SWIR	– Short Wave Infra-red
TA/CA	– Total (Class) Area
UNDP	– United Nations Development Programme
UNESCO	– United Nations Educational, Scientific and Cultural Organization
UN-SDSN	– United Nations -Sustainable Development Solutions Network
UTM	– Universal Transverse Mercator
WCI	– World Coal Institute
WGS	– World Geodetic System
WEF	– World Economic Forum
WoS	– Web of Science
XRD	– X-Ray Diffraction



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The document is part of thesis part of PhD/MSc/MA research work carried out at the Jawaharlal Nehru University. Purposefully limited pages are shared to avoid copyright and other issues. However, the full thesis can be shared on request.

The complete thesis can be obtained from Prof P K Joshi (pkjoshi27@hotmail.com or pkjoshi@mail.jnu.ac.in).