A Glimpses of Sponsored Research and Consultancy

Chhattisgarh Swami Vivekanand Technical University

CHHATTISGARH SWAMI VIVEKANAND TECHNICAL UNIVERSITY, BHILAI

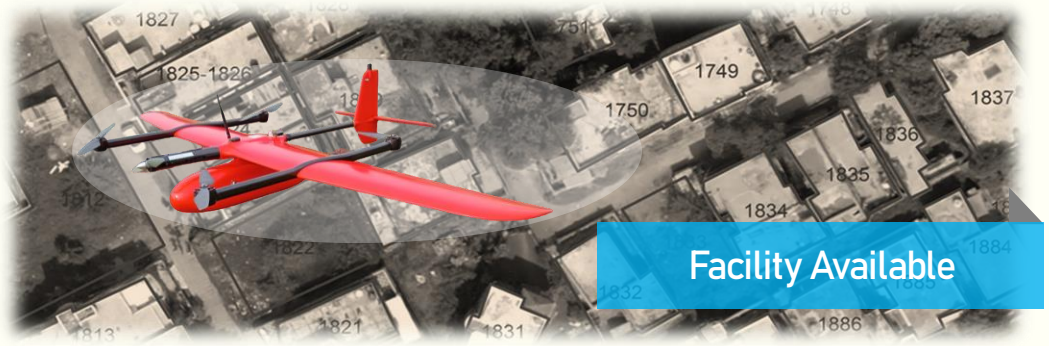
(State Government University)

Welcome

Chhattisgarh Swami Vivekanand Technical University (Bhilai) was established by an act (No. 25 of 2004) of legislature passed by the Chhattisgarh State Govt. Assembly vide notification no. 639/21- A/Praroopan/04 dt 21st January 2005 to incorporate a University and Technology for the purpose of ensuring systematic, efficient and quality education in engineering and technological subjects including Architecture and Pharmacy at Research, Post graduate, Degree and Diploma level. The University since its inception in the year 2005 is striving hard to emerge as one of the nation's prominent Universities to fulfil its commitment to the service of state and nation. The University started identifying the frontier area of research and development programmes for the benefit of the society.

Sponsored Research and Industrial Consultancy

CSVTU, Bhilai is the foremost organization in the field of engineering consulting services, advance surveying and geospatial technology in the entire Chhattisgarh state as well as with the neighbours. The University is dealing with the Hydroinformatics and Geospatial technology to provide consultancy support in various engineering applications for the benefit of the Government departments and the Private agencies.



Facility Available

Experts and staff:

- Highly qualified and experienced Faculty / Scientist / Engineers / Research scholars of University as well as affiliated Institutions (Engineering & Diploma).

Advanced Survey Equipment:

- Hybrid Unmanned Arial Vehicle (UAV) for any time anywhere High resolution image acquisition facility with inbuilt GNSS.
- Multiple DGPS with RTK and Radio facility
- Electronic Total Stations

Software (Licensed):

- Hydrological Modelling software- Bentley: WaterGEMS; SewerGEMS; StormCAD; CivilStorms, PCSWMM, MIKE URBAN+, MIKE HydroBasin, MIKE Flood 1D 2D, MIKE SHE
- Groundwater Modelling software- Visual Modflow flex, Feflow, Hydro Geo-analyst
- Image processing- ERDAS with LPS, ERDAS Apollo, TERRA SAT, Global Mappers
- GIS Software- ARCGIS, ARGIS Pro, Geomatica
- Drafting Software- AUTOCAD
- Survey Software- Trimble Business Center
- Statistical Software- SPSS, MATLAB
- Geo-web Hosting Software

Hardware:

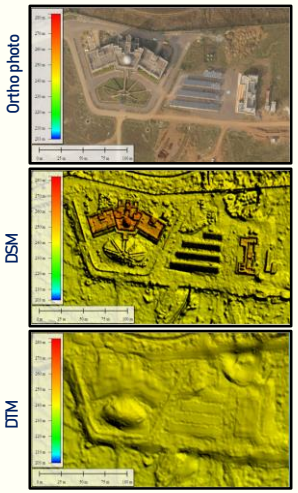
- Blade Server
- Workstation
- Geo processer
- Plotter and Printers
- 3D Printers
- High end Desktops and Laptops
- 3D monitors with Topo mouse
- Current flow Meter
- Water Level Indicator
- Double Ring Infiltrometer
- Augmented Reality (AR) sandbox to understand 3D topography and its effects

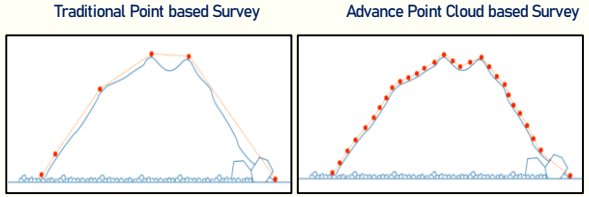
CSVTU has a facility of web service-enabled server system to run the enterprise applications, as well as the data storage facility in dual, fail-safe mode. University has real-time interface Profession software packages for comprehensive large data acquisition, management, and distribution from the cloud.

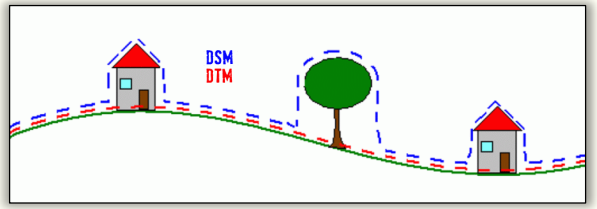
CSVTU Activity

Activity for projects:

- Identification & Demarcation of study area by UAV/DGPS/ETS survey wherever necessary and documentation of records including clear marking of boundary and preparation of geo referenced maps for area of interest under various projects.
- Establishment of Base Station by Multi / Dual frequency DGPS receivers with Survey of India / Forest Survey of India Ground Control Points as reference.
- Capturing the panoramic view of Base stations with radio antenna in at least three or four different directions for future documentation (photograph by Controller for proof).
- Acquisition Ground Control Points by RTK Mode of DGPS survey or ETS survey (shadow area) for Cadastral / Compartment / Stock map geo rectification.
- Conversion of all the DGPS / ETS observation in GIS environment.
- Acquisition of Satellite / UAV imagery for superimposition of notified area boundary in real earth position.
- Photogrammetric processing of Satellite / UAV imagery.
- Geo ratification of Cadastral / Compartment / Design map.
- Land area Statistic generation and assessment with ancillary information (Cadastral / Compartment / Design map / Land Records / RoR).
- Creation of different georeferenced thematic maps with area and their coordinates in geographic coordinate system of WGS1984 Datum of the respective Universal Transverse Mercator (UTM) grid zone.
- Analysis of acquired/ generated data in scientific manner.
- Planning and Designing as per user requirements.
- Feasibility and Estimate analysis of the Project.
- Compilation of final detail project report.
- Capacity building / Field training to field staff & officers of the concerned forest division.







Topographic Elevation Models for Inventory Height and Contouring

Project's Completed & Commenced

Sl.	Year	Project Title
1	2020	Aerial mapping and DGPS survey of the Talpuri Twin City Park area, Funded by Chhattisgarh Forest Department
2	2020	Design Calculation and Network Planning of Under Ground Pipe Line Irrigation System with Aerial Mapping using UAV in Masturi block, Chhattisgarh, Funded by M. B. Construction, Ahmedabad, Gujrat / Water Resources Department, Chhattisgarh Government, Bilaspur
3	2020	3D UAV Mapping and Designing-Estimation of Watershed Restoration Plan in Patan Block, Durg, Funded by MGNREGA, Zila Panchayat, Chhattisgarh Government, Durg
4	2021	Preparation of Detailed Project Report (Designs, Estimates & Drawings) of Group Water Supply Scheme Using Aerial Survey in Jungera Block, Funded by Jal Jeevan Mission Public Health Engineering Department, Chhattisgarh Government
5	2021	Preparation of Detailed Project Report (Designs, Estimates & Drawings) of Group Water Supply Scheme Using Aerial Survey in Hirapur Block, Funded by Jal Jeevan Mission Public Health Engineering Department, Chhattisgarh Government
6	2021	Preparation of Detailed Project Report (Designs, Estimates & Drawings) of Group Water Supply Scheme Using Aerial Survey in Lohara Block, Funded by Jal Jeevan Mission Public Health Engineering Department, Chhattisgarh Government
7	2021	Preparation of Detailed Project Report (Designs, Estimates & Drawings) of Group Water Supply Scheme Using Aerial Survey in Belrgaon Block, Funded by Jal Jeevan Mission Public Health Engineering Department, Chhattisgarh Government
8	2021	Preparation of Detailed Project Report (Designs, Estimates & Drawings) of Group Water Supply Scheme Using Aerial Survey in Saloni Block, Funded by Jal Jeevan Mission Public Health Engineering Department, Chhattisgarh Government
9	2021	Preparation of Detailed Project Report (Designs, Estimates & Drawings) of Group Water Supply Scheme Using Aerial Survey in Deopur Block, Funded by Jal Jeevan Mission Public Health Engineering Department, Chhattisgarh Government
10	2021	Preparation of Detailed Master Plan of Pt. Ravi Shankar University Raipur using Aerial mapping, Funded by Pt. Ravi Shankar University, Raipur, Chhattisgarh
11	2022	Preparation of Detailed Project Report of Green Field Project (Jhiriya West O/C) including UAV Survey and Mapping in Madhya Pradesh, India, Funded by South Eastern Coalfield Limited, Hasdeo Area
12	2022	Advanced Surveying and Slope Stability Analysis of Podimar Ash Dyke at Hasdeo Thermal Power Station, CSPGCL, Korba, CG, Funded by CG State Power Generation Company Ltd.
13	2022	Advanced Surveying and Slope Stability Analysis of Daganiyakhar Ash Dyke at Hasdeo Thermal Power Station, CSPGCL, Korba, CG, Funded by CG State Power Generation Company Ltd.
14	2022	Advanced Surveying and Slope Stability Analysis of Lotlota Ash Dyke at Hasdeo Thermal Power Station, CSPGCL, Korba, CG, Funded by CG State Power Generation Company Ltd.
15	2022	Integrated Hydrological Study on the Impact of Coal Mining on the Base Flow in the Down stream of Jhiria West OCP (1.5 MTY), Funded by South Eastern Coalfield Limited, Hasdeo Area
16	2023	Consultancy services for Annual Certification of Dindholbhata Ash Dyke, JhabuAsh Dyke, Gorhi / Pandripani Ash Dyke, and Auraikala Ash Dyke in accordance with latest notification of MoEF&CC dt. 31.12.202, for FY2022-2023

1) Title of Project:

PROOF OF CONCEPT FOR TALPURI TWIN CITY PARK

Name of Funding Agency: Office of Divisional Forest, Durg Division, Durg, CG

Completion of Project: 2019

Summary of Project:

Office of Divisional Forest, Durg Division has assigned the task of Proof of concept for Talpuri Twin City Park to Swami Vivekanand Technical University (CSVTU) for survey the area. As per the departmental recommendations, Ortho photos pertaining to Talpuri area are to be geo-referenced and verified the ground location using DGPS survey. To achieve the goal, university generated the following data through Ultra-High resolution and precision aerial mapping using a professional Unmanned Aerial Vehicle:

- Imagery of 5 cm resolution for identification of departmental assets
- Digital Surface Model (DSM) signifies the assets elevation from MSL
- Digital Terrain Model (DTM) signifies the Terrain Topography from MSL
- 3 dimensional model of surveyed area
- Topographic contours in 25 cm interval

On the basis of advance survey, Maps and final report was prepared and submitted to the Office of Divisional Forest, Durg.

2) Title of Project:

ASSESSMENT OF ESTIMATES OF CONSTRUCTION OF AHIRAN TO GAJRINALA LINK FOR WATER AUGMENTATION FOR WATER SUPPLY, BILASPUR SMART CITY, CG

Name of Funding Agency: Water Resources Department Bilaspur, Government of Chhattisgarh

Completion of Project: 2020

Summary of Project:

The assessment report on financial feasibility of project cost is prepared based on the DRP and survey details provided by Water Resources Department, Government of Chhattisgarh. The project report includes two parts namely unit-I "Head Works" and unit-II "Canal Works/Distribution" which has been evaluated and costs 28,620 lakhs and 43,431 lakhs respectively; the cost of project would be 72,051 lakhs which was similar cost proposed by the WRED Bilaspur. To achieve the goal, university used the following data cost provided by WRD:

- Topographical Survey: include Chain & Compass survey, double levelling for transfer of B.M.
- Geological Survey: include Drilling and Analysis
- Property Survey: includes survey for Land scheduling and Socio Economic condition.
- Material Survey: includes Soil testing, aggregate testing.
- Miscellaneous: includes Licensing and Departmental Clearance work, Transportation, Ancillary data and Consultancy charges.

On the basis of DRP and survey details university prepared the final report and submitted to the Office of Water Resources Department, Bilaspur.

3) Title of Project:

A STUDY ON THE RECENT FLOODS IN THE TERRITORIES OF CHHATTISGARH UPSTREAM OF HIRAKUD DAM

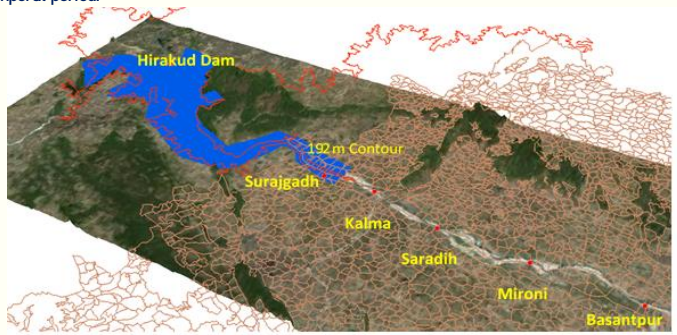
Name of Funding Agency: Water Resources Department, Government of Chhattisgarh

Completion of Project: 2020

Summary of Project:

The assessment work of the Catchment area of Hirakud dam is 83,400 sq km. Out of which 75,229 sq km area is in Chhattisgarh state and only 8,171 sq km area falls in the state of Odisha was assigned by Water Resources Department, Government of Chhattisgarh. The project report includes assessment of flood affected area by Hirakud reservoir in Chhattisgarh by Geospatial approach and Line department archival data. To achieve the goal, university used the following data:

- Satellite Imagery of different temporal period.
- Digital Elevation Model (DEM).
- Ancillary data of Hirakud Dam.



The Detail report has been submitted to the Office of Water Resources Department, Raipur.

4) Title of Project:

PLANNING & DESIGN OFUGPL IRRIGATION SYSTEM OF KHARUNG LEFT BANK CANAL IN MASTURI BLOCK OF BILASPUR DISTRICT, CHHATTISGARH
(UNDER GRAVITY FLOW)

Name of Funding Agency: Water Resources Department Bilaspur, Government of Chhattisgarh

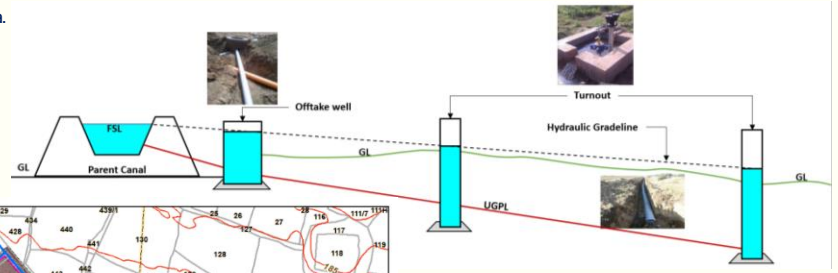
Completion of Project: 2020

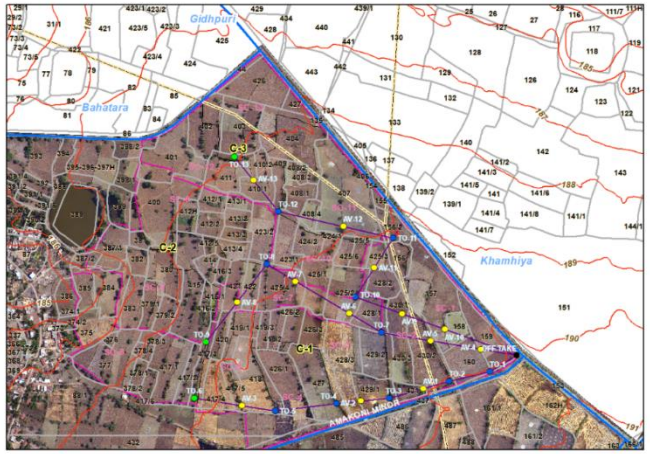
Summary of Project:

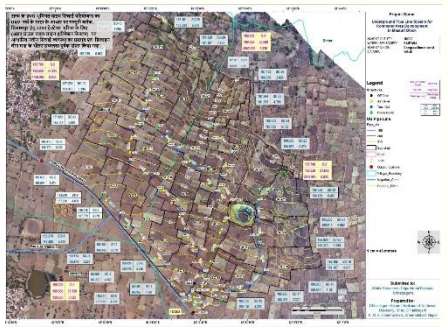
Office of Water Resource Department, Bilaspur Division has assigned the task of Planning & Design of UGPL irrigation system (Under Gravity Flow) for Machaha, Aamakoni, Hardi, Rahtator, Kukurdikera Minors & Domgaon, Manikchauri, Salheghori branch canal of Kharung left bank canal in Masturi Block of Bilaspur district, Chhattisgarh Under Command Area Development & Water Management Works to Swami Vivekanand Technical University (CSVTU). As per the departmental recommendations, Ortho photos pertaining to surveyed area are to be geo-referenced and verified the ground location using DGPS survey. To achieve the goal, university generated the following data through Ultra-High resolution and precision aerial mapping using a professional Unmanned Aerial Vehicle:

- Imagery of 5 cm resolution for identification of pipe line design
- Establish Ground Control Stations for prices location and georeferencing
- Digital Surface Model (DSM) signifies the ground feature elevation from MSL
- Digital Terrain Model (DTM) signifies the Terrain Topography from MSL
- Design 3 dimensional model of surveyed area
- Topographic contours in 25 cm interval
- Digital Cadastral Map of Command area

This study encompasses detailed drawing and design of Under Ground Pipe Line (UGPL) irrigation System. The report consists three volumes based on water users of the planning area, viz Bahtara, Bhatchaura, Kukurdikera and each volume consists of Outlet wise detailed design of UGPL irrigation system in planning area.







5) Title of Project:

DESIGN-ESTIMATE AND PLANNING FOR NARWA RESTORATION USING HIGH RESOLUTION 3D UAV MAPPING - PAUHA TO KURMIGUNDRA NARWA, PATAN BLOCK OF DURG DISTRICT, CHHATTISGARH

Name of Funding Agency: Zila Panchayat, Durg, Government of Chhattisgarh

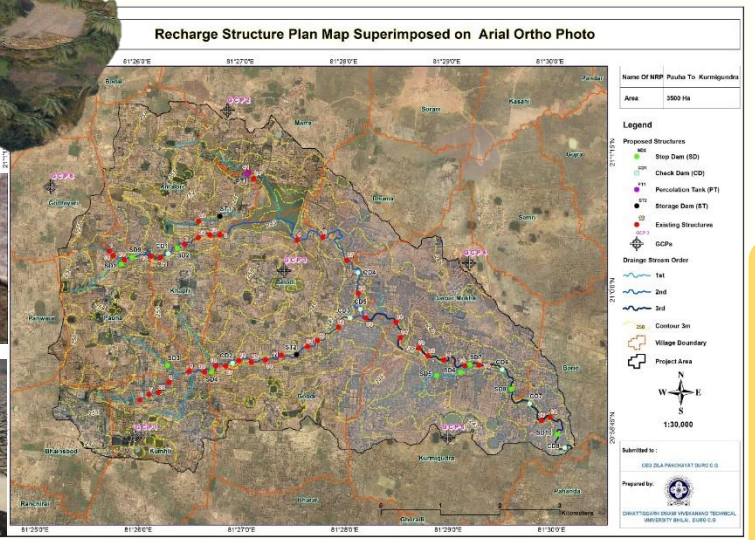
Completion of Project: 2021

Summary of Project:

Office of The CEO Zila Panchayat, Durg initiated the restoration of Pauha to Kurmigundra Narwa (natural drainage) of Patan block, on advance level with higher accuracy, for that Chhattisgarh Swami Vivekanand Technical University (CSVTU), Bhilai, has identified and assigned the task of Design-Estimate and planning for narwa restoration using high resolution 3D UAV mapping. As per the departmental recommendations, establishment of Ground Control Stations and Ortho photos pertaining to the watershed has been geo-referenced and verified the recharge location using DGPS survey. The project report includes two parts namely "Technical Layout for Proposed Recharge Structures" and "Quantity and Financial Layout for Proposed Recharge Structures". To achieve the goal, university generated the following data through Ultra-High resolution and precision aerial mapping using a professional Unmanned Aerial Vehicle and DGPS:

- Imagery of 7 cm resolution for identification of pipe line design
- Establish Ground Control Stations for prices location and georeferencing
- Digital Surface Model (DSM) signifies the ground feature elevation from MSL
- Digital Terrain Model (DTM) signifies the Terrain Topography from MSL
- Design 3 dimensional model of surveyed area
- Topographic contours in 50 cm interval
- Estimate the Quantity and Financial Layout for Proposed Recharge Structures

In this report 19 new artificial recharge structures with location and hydraulic design are proposed to store the 433 million litter water i.e. increase 4169 million litter surface water runoff of entire catchment. The total cost of the construction of proposed structures estimated as Rs. 1,19,49,000.00.



6) Title of Project:

Survey, Designs, Drawings, Estimates & Report for Group Water Supply Scheme Under District water & sanitation mission (Jal Jeevan Mission)

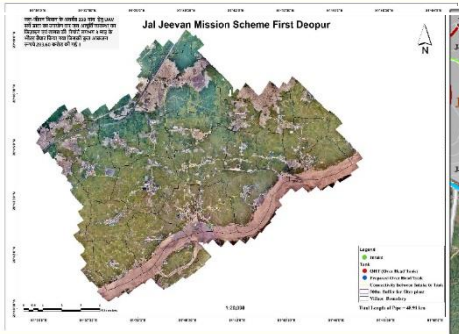
Name of Funding Agency:	Public Health Engineering Department(PHED) Government of Chhattisgarh
Completion of Project:	2021

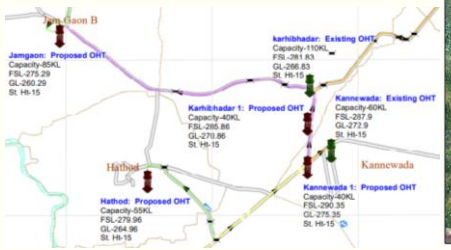
Summary of Project:

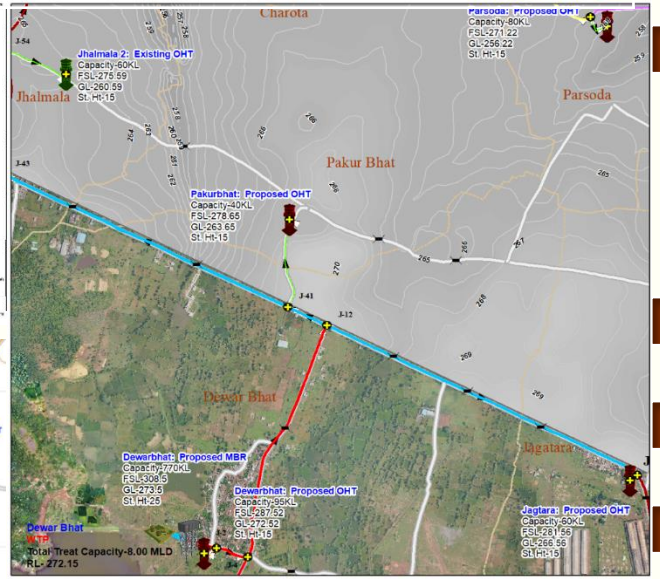
Jal Jeevan Mission, is envisioned to provide safe and adequate drinking water through individual household tap connections by 2024 to all households in rural India. The programme will also implement source sustainability measures as mandatory elements, such as recharge and reuse through grey water management, water conservation, rain water harvesting. Office of The Member Secretary and Executive Engineer DWSM has assigned the task of UAV Survey, Designs, Drawings, Estimates & Report for Group Water Supply Schemes, to Chhattisgarh Swami Vivekanand Technical University (CSVTU), Bhilai, As per the departmental recommendations, precise ground elevation and Ortho photos pertaining to the water scheme has been geo-referenced and verified to estimate total cost for water supply using advance survey and analysis technique. To achieve the goal, university generated the following data through Ultra-High resolution and precision aerial mapping using a professional Unmanned Aerial Vehicle and DGPS:

- Imagery of 7 cm resolution for identification of pipe line design
- Establish Ground Control Stations for prices location and georeferencing
- Digital Surface Model (DSM) signifies the ground feature elevation from MSL
- Digital Terrain Model (DTM) signifies the Terrain Topography from MSL
- Design 3 dimensional model of surveyed area
- Topographic contours in 50 cm interval
- Estimate the Quantity and Financial Layout for Proposed Recharge Structures

The work of 239 villages has been completed under 6 group water supply schemes in the project.







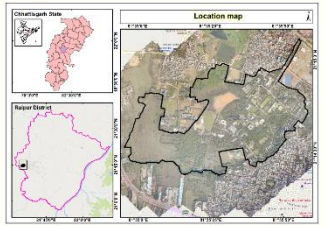
7) Title of Project:

Preparation of Detailed Master Plan of Pt. Ravi Shankar University Raipur using Aerial mapping

Name of Funding Agency:	Pt. Ravishankar Shukla University (PRSU) Campus in Raipur, Chhattisgarh
Completion of Project:	2022

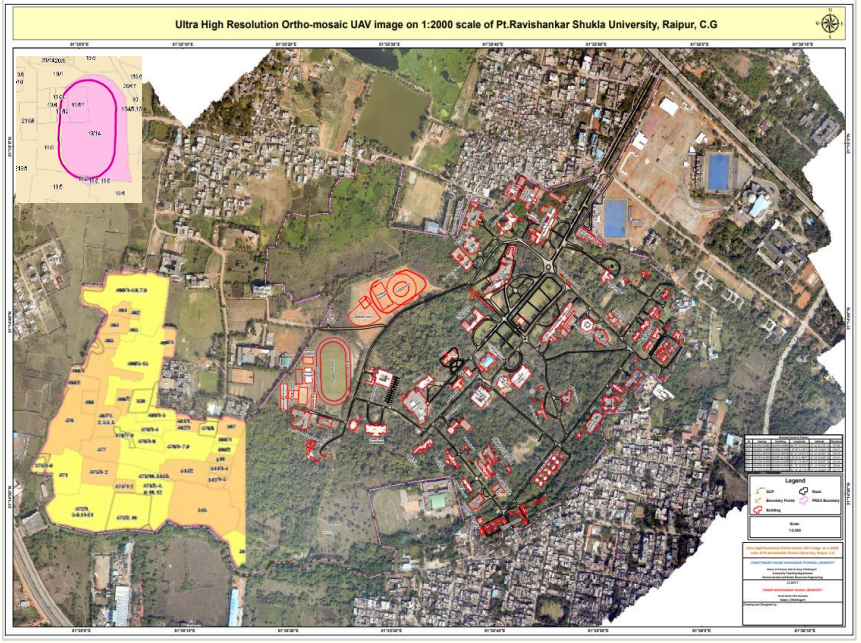
Summary of Project:

Pt. Ravisankar Shukla University, Raipur has assigned the task for advance survey work to CSVTU, to assess the capabilities of these increasing spatial resolutions of UAVs and hybrid survey systems for updating/resurveying land information, such as the land parcel shape and its actual earth 3D position were considered of an area of 300.17 acres along with preparation of master plan and land schedule map of PRSU campus, Raipur. As per the departmental recommendations creation of accurate land records for administrative planning an ortho-photo is used and cadastral maps with information statistics was collected from Bhu-naksha portal. For the identification of exact boundary of PRSU ortho-photo of campus is validated with RTK survey points and GCPs. To achieve the goal, university generated the following data through Ultra-High resolution and precision aerial mapping using a professional Unmanned Aerial Vehicle and DGPS:



- Imagery of 5 cm resolution for identification land parcel shape
- PRSU Boundary Superimposed on Survey of India (SOI) Topo-sheet Map
- Establish Ground Control Stations for prices location and georeferencing
- Digital Surface Model (DSM) signifies the ground feature elevation from MSL
- Digital Terrain Model (DTM) signifies the Terrain Topography from MSL
- Topographic contours in 50 cm interval for drainage treatment of of university Campus
- DGPS survey coordinates of university Campus
- Details of existing Khasra record (extracted from Bhu-naksha)

On the basis of advance survey, maps and final report was prepared and submitted to the Pt. Ravishankar Shukla University (PRSU) Campus in Raipur, Chhattisgarh.



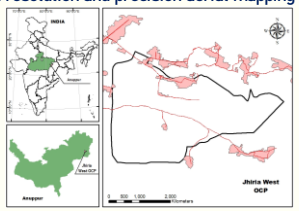
8) Title of Project:

Preparation of Detailed Project of Green Field Project (Jhiriya West O/C) Including UAV Survey and mapping in Madhya Pradesh, India.

Name of Funding Agency:	South Eastern Coalfield Limited, Hasdeo Area Madhya Pradesh
Completion of Project:	2022

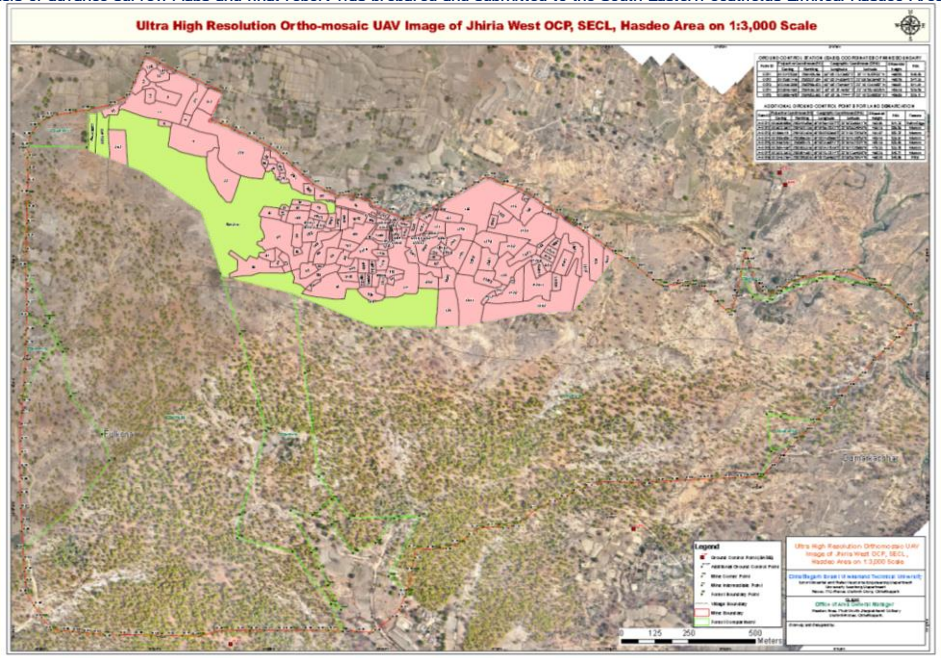
Summary of Project:

The South Eastern Coalfields Limited, Hasdeo Area, issued work order to conduct aerial survey and prepare a detailed survey report using UAVs and hybrid survey systems for updating/ resurveying land information, such as the land parcel shape and its actual earth 3D position. Survey was considered to carried out for an area of 427.993 hectare along with preparation of 30 X 30 meter Grid Plan and Land Schedule Map of Jhiria West OCP, SECL, Hasdeo Area using professional Unmanned Aerial Vehicle and Dual Frequency DGPS instrument. The improvised Advanced Hybrid Survey Techniques consist of a complete survey that produces highly processed three-dimensional data with high precision. The study also compares series and tape surveys conducted by traditional survey methods with enhanced hybrid surveys for Jhiria West OCP boundary and being submitted herewith. To achieve the goal, university generated the following data through Ultra-High resolution and precision aerial mapping using a professional Unmanned Aerial Vehicle and DGPS:



- Imagery of 5 cm resolution for identification land Information
- Jhiriya West O/C Boundary Superimposed on UAV Based Ortho-photo
- Establish Ground Control Stations for prices location and georeferencing
- Digital Surface Model (DSM) signifies the ground feature elevation from MSL
- Digital Terrain Model (DTM) signifies the Terrain Topography from MSL
- DGPS survey coordinates of Jhiriya West O/C
- Details of existing Khasra record (extracted from Bhu-naksha)

On the basis of advance survey, Maps and final report was prepared and submitted to the South Eastern Coalfields Limited, Hasdeo Area Madhya Pradesh.



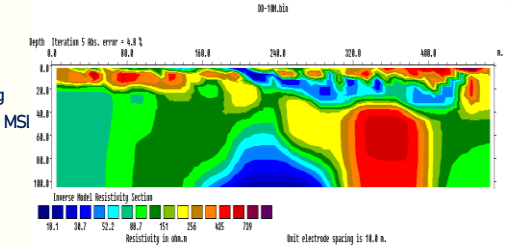
9) Title of Project:

Integrated Hydrological study on the impact of coal mining on the base flows in the downstream of the Jhiria West OCP (1.50 MTY) as per MoEF&CC

Name of Funding Agency:	South Eastern Coalfield Limited, Hasdeo Area Madhya Pardesh
Completion of Project:	On-going

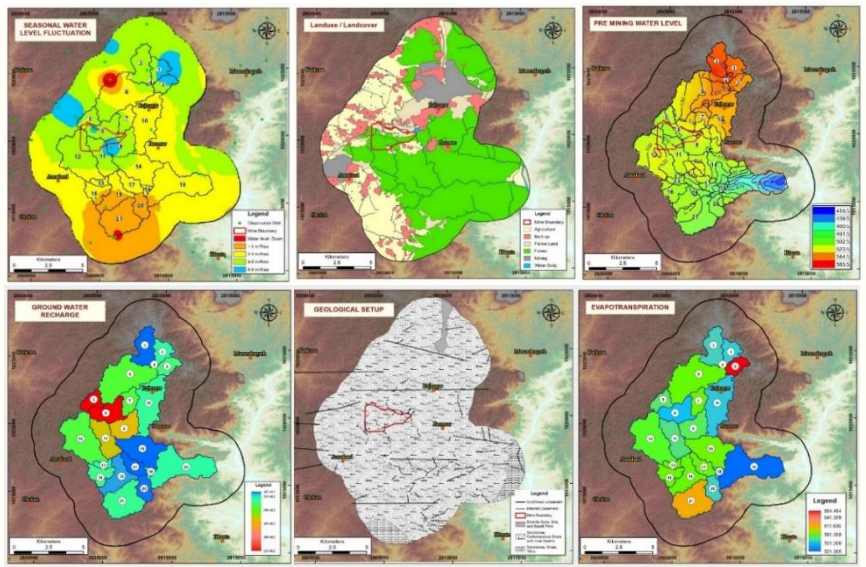
Summary of Project:

The South Eastern Coalfield Limited, Hasdeo Area has assigned the task for Integrated Hydrological study on the impact of coal mining on the base flows in the downstream of the Jhiria West OCP (1.50 MTY) as per MoEF&CC. This study is going to conduct in two parts first part covered the UAV survey for demarcation of mine boundary, land-use mapping, delineation of contours of less than 50cms along with hydrographic survey for the collection of soil data (ex. Filed infiltration capacity, conductivity etc), pre-monsoon groundwater water table, rainfall records, climatic datasets, geology & lithology, bore log records etc. for surface water and groundwater modeling using SWAT and MODFLOW respectively. The second part covers the similar assessment of hydrological parameters from the field to simulate the integrated surface water and groundwater modeling for assessment of the impacts of pre and post mining activity on the base flows. To achieve the goal, university generated the following data through Ultra-High resolution and precision aerial mapping using a professional Unmanned Aerial Vehicle and DGPS:



- Imagery of 5 cm resolution for identification land Information
- Jhiriya West OCP Superimposed on UAV Based Ortho-photo
- Establish Ground Control Stations for prices location and georeferencing
- Digital Surface Model (DSM) signifies the ground feature elevation from MSL
- Digital Terrain Model (DTM) signifies the Terrain Topography from MSL
- Design Surface Water Model (SWAT)
- Topographic contours in 50 cm interval
- Conducting Field Test for water level measure and infiltration measure
- Jhiriya-Kulhariya watershed delineation

This Project is Proposed for two phase pre-mining and post-mining Integrated Hydrological study respectively, Interim report has been submitted to the South Eastern Coalfield Limited, Hasdeo Area, Madhya Pradesh.



10) Title of Project:

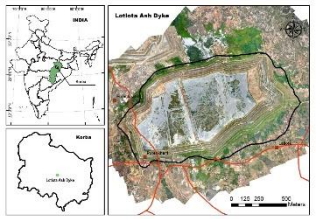
Study the slope stability analysis with advanced survey of three Ash Dyke at Hasdeo Thermal Power Station, CSPGCL, Korba, C.G., India. .

Name of Funding Agency: Chhattisgarh State Power Generation Company Limited
Completion of Project: 2022

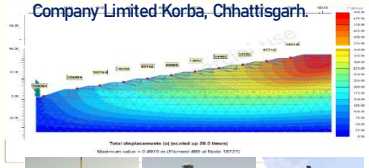
Summary of Project:

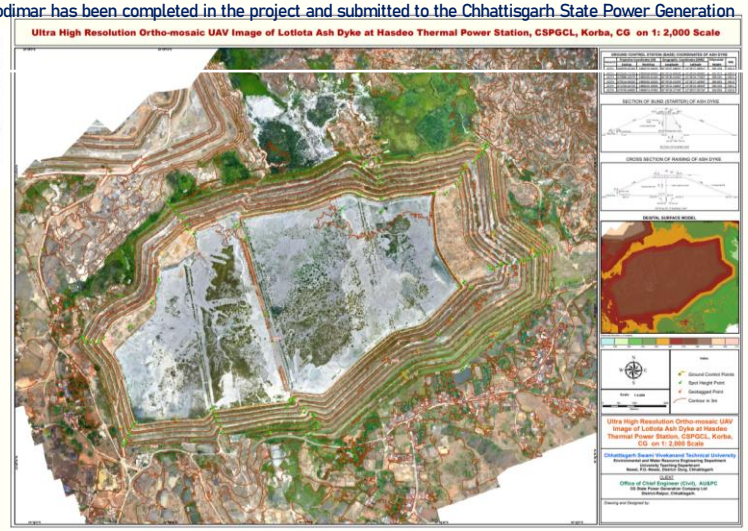
The Chhattisgarh State Power Generation Company Limited has assigned the task for "advanced surveying and consultancy services for raising of pond(s) and checking the stability of three ash dyke at HTPS and KTPS, CSPGCL, Korba". In this regard Chhattisgarh Swami Vivekanand Technical University (Bhilai) proposes providing its services to carry out scientific investigation to fulfil above mentioned scope. In India, a large amount of fly ash is produced as the number and capacity of coal-fired thermal power plants grows. Only 40-50 percent of fly ash is being used, with the remainder being disposed of and restored in an ash pond with a dyke to reduce land waste. Because seepage analysis is not taken into account while designing ash dykes, their failure rate is substantially higher than that of dams. As a result, engineers must prioritize the development of a safe ash dyke, as its failure might cause havoc with the safety of those who live nearby. It results in economic losses as well as pollution of the environment and water, which is hazardous to both human and aquatic life. In this study, the major objective is to analyse the stability of three ash dyke of HTPS and KTPS, Korba, using Finite Element Model in PLAXIS environment under the three conditions: (a) Dry condition – Gravity loading/ loading due to self-weight, (b) Submerged condition - Fully saturated case and (c) Earthquake loading condition. The Soil lab test were conducted for core and soil fill material of the starter dyke, sand filter of the raising and the ash fill of the raising to achieve the field parameter values to FEM model input. To achieve the goal, university generated the following data through Ultra-High resolution and precision aerial mapping using a professional Unmanned Aerial Vehicle and DGPS:

- Imagery of 5 cm resolution Ash Dyke Extension Information
- Establish Ground Control Stations for prices location and georeferencing
- Digital Surface Model (DSM) signifies the ground feature elevation from MSL
- Digital Terrain Model (DTM) signifies the Terrain Topography from MSL
- Topographic contours in 50 cm interval
- DGPS survey coordinates
- Conducting Field Test to extract soil properties



The stability analysis with advanced survey of of three Ash Dyke, two of Hasdeo Thermal Power Station (HTPS): Lotlota and Daganiyakhar and one from Korba Thermal Power Station (KTPS): Podimar has been completed in the project and submitted to the Chhattisgarh State Power Generation Company Limited Korba, Chhattisgarh.





11) Title of Project:

Consultancy services for Annual Certification of Dindholbhata Ash Dyke, JhabuAsh Dyke, Gorhi / Pandripani Ash Dyke, and Auraikala Ash Dyke in accordance with latest notification of MoEF&CC dt. 31.12.202, for FY2022-2023.

Name of Funding Agency: Chhattisgarh State Power Generation Company Limited
Completion of Project: Perpetual

Summary of Project:

The Chhattisgarh State Power Generation Company Limited has assigned the task for "Annual Certification of Dindholbhata Ash Dyke, Jhabu Ash Dyke, Gorhi / Pandripani Ash Dyke, and Auraikala Ash Dyke in accordance with latest notification of MoEF&CC dt. 31.12.202, for FY2022-2023". In this regard Chhattisgarh Swami Vivekanand Technical University (Bhilai) proposes providing its consultancy services to carry out scientific investigation to fulfil above mentioned scope. The current study includes the implementation of guide line on annual certification of Coal Ash Ponds for the analysing slope stability of the four ash dyke of CSPGCL considering the upstream construction method. For this purpose, the material properties will be obtained through either lab testing of the materials obtained during sample collection or may be collected from the department. Major elements and Scope of work are following:

- Reconnaissance and Topographic Survey.
- Field visit for soil(s) properties and measuring the RL at different locations on and near the ash pond/available at the CSPGCL site.
- Study feasibility for stabilization and reclamation of ash dyke.
- Slope stability analysis for the existing ash dyke(s) as per the latest notification of MoEF&CC, GoI.
- Slope stability analysis for ultimate height with buttressing under static and earthquake conditions as per IS 7894.

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