

Geospatial Data
Analysis & Exploitation
by
Armed Forces

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PREVIEW



Environmental Realities



Geospatial Data



Situational Awareness



Policies ?



Way Ahead

REALITY CHECK

Paper Maps to Digital Data



What was once exclusive to Armed Forces;
Now available in public domain

SPATIAL CONVERGENCE

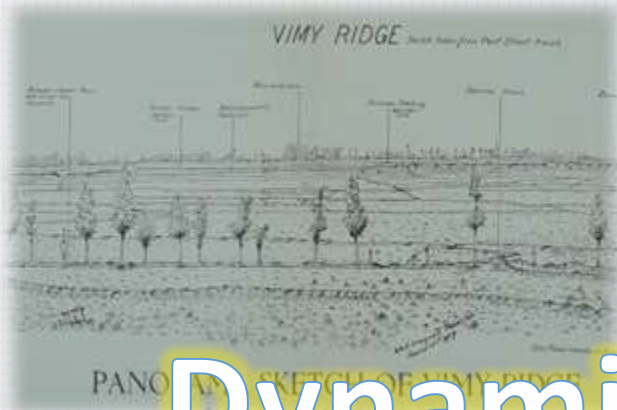


DATA AVAILABLE TO PUBLIC



Increasing Spatial Awareness

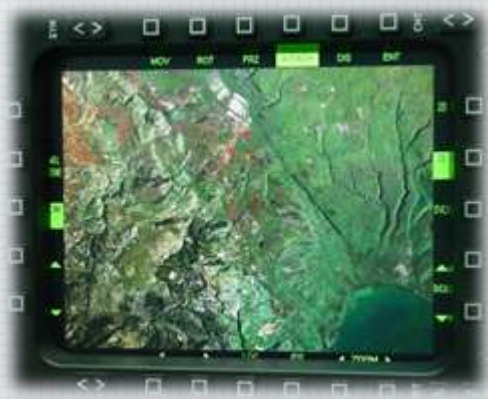
ARMED FORCES : SHIFT TO DIGITAL ARMY



Dynamic Maps Essential

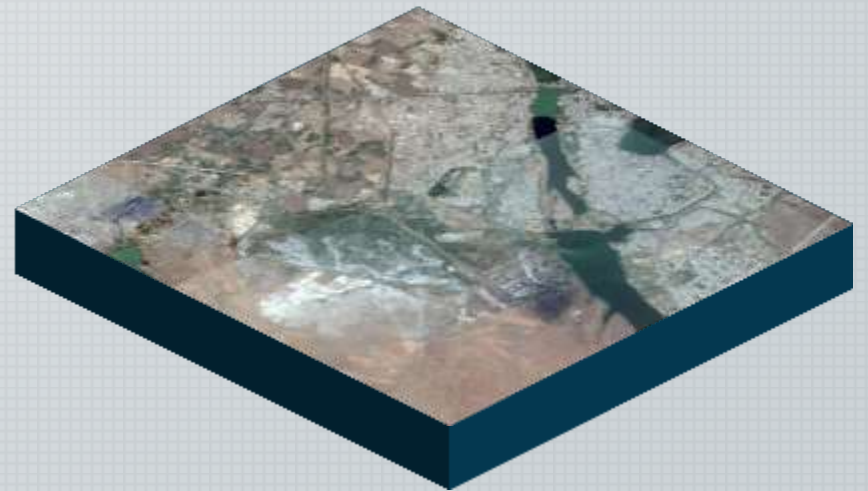


For Dynamic Situations





Need to think beyond imagery & maps;
These alone do not constitute Geospatial data



GEOSPATIAL DATA

- Multiple sources and sensors with varying Spatial, Spectral and Temporal Resolutions.
- Aerial Platforms & UAVs.
- Analyzed inputs.
- HUMINT inputs, Terrestrial Sensors.
- Attributes collected on ground.
- Crowd sourcing.



GRANULARITY : LEVEL OF DETAIL

Larger Perspective; Smaller Scales



Local Perspective; Larger Scales



NO EASY DAY

THE ONLY FIRST
HAND ACCOUNT OF THE
**NAVY SEAL
MISSION
THAT KILLED
OSAMA
BIN LADEN**

MARK OWEN
WITH KEVIN MAURER

“A woman from the **National Geospatial Intelligence Agency**, took care of the maps and satellite images for us. She provided any detail big or small.

I studied the door leading to the guesthouse. I asked her if they opened inwards or outwards.

She was back in a few minutes and told me ‘**double metal doors, open outwards**’.”

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SHARED SITUATIONAL AWARENESS



SEAMLESS EXCHANGE OF LOCATION BASED
INFORMATION TRANSGRESSING
HIERARCHIES, AFFILIATIONS & SYSTEMS

ESSENTIALS : SITUATIONAL AWARENESS

Base Geospatial
Data



Computing
&
Navigation



Robust Data
Networks



Armed Forces

Int Agencies

Spatial

SDI

CAPF

Data

Infra

Mapping Agencies

State Police

Collaborative Framework

Remote Sensing Agencies



ANALYSIS & EXPLOITATION

Access to Data

Open Source;
Commercial Tech



Def Spatial
Data Infra

Power to the Edge

ANALYSIS & EXPLOITATION



Availability for analysis

HIGH



Data Exchange

LOW



Exploitation

MED



Dissemination

LOW

OPEN SOURCE



Zoomify



Leaflet



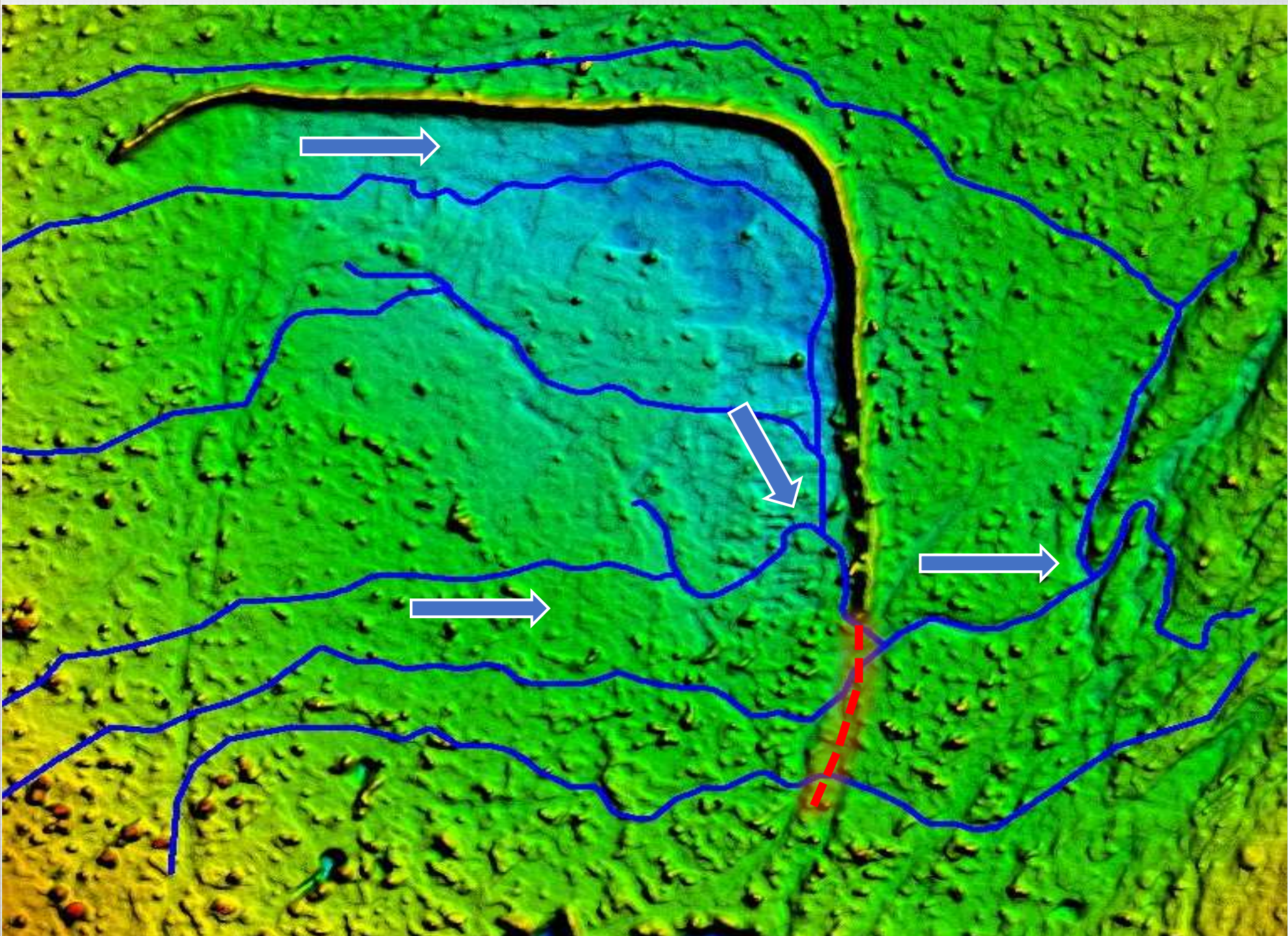
Mukhyamantri Jal Swavlambhan Yojna

Water Conservation

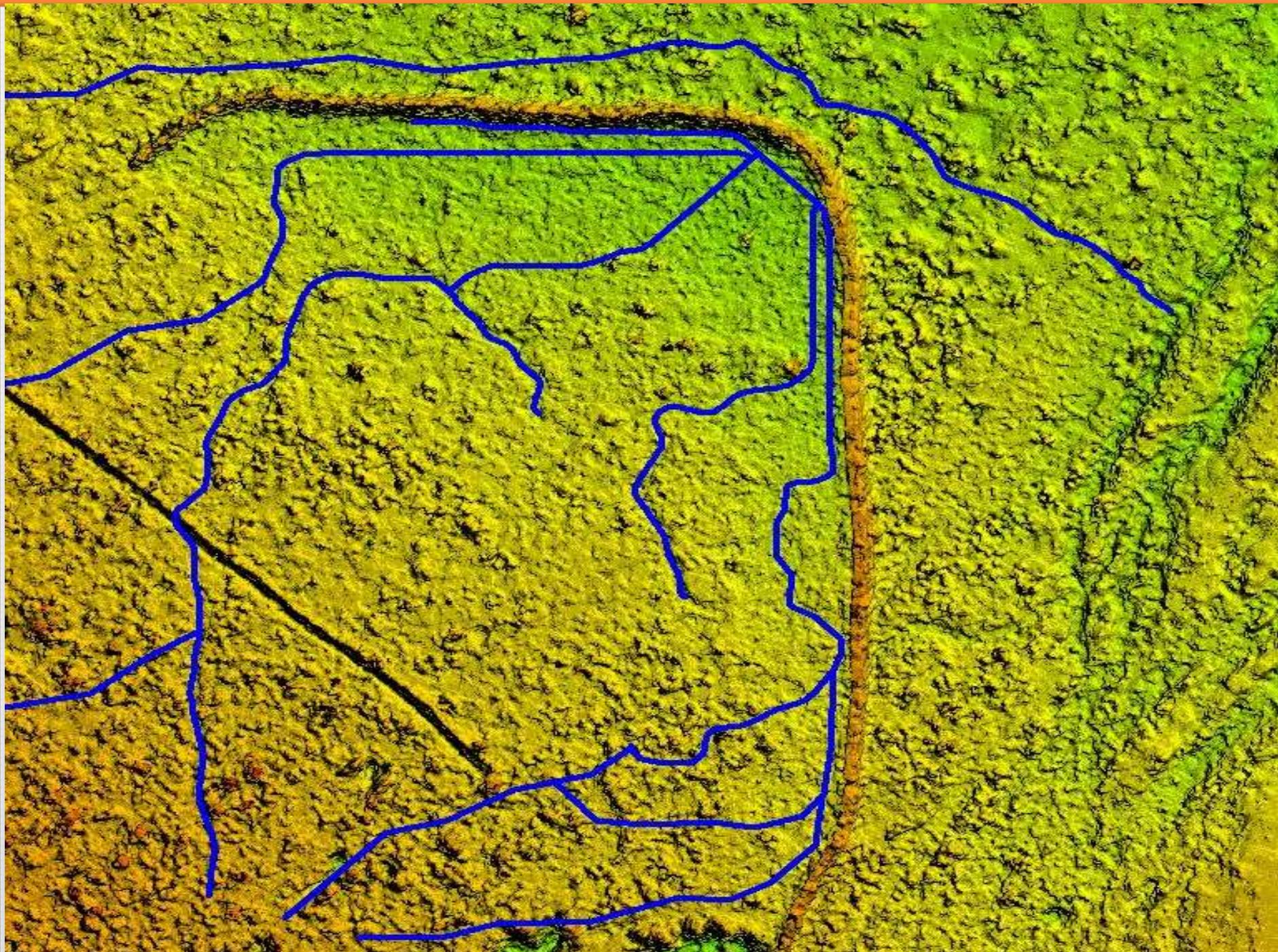


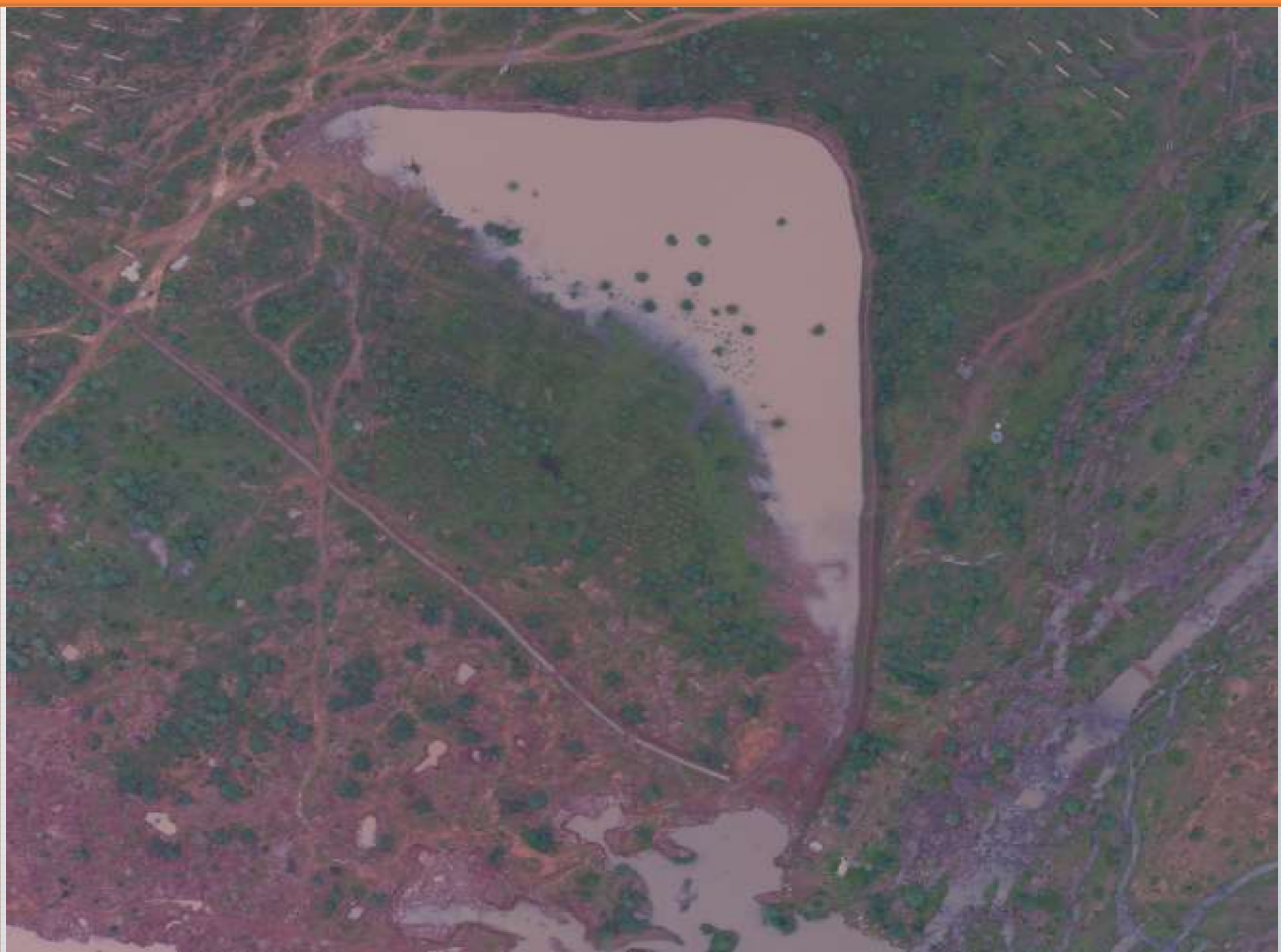

PIX4D
simply powerful

The logo for PIX4D is located in the upper right corner. It features a stylized green and yellow graphic above the text "PIX4D" in a bold, sans-serif font. Below this, the tagline "simply powerful" is written in a smaller, italicized font.











OpenDroneMap



OpenDroneMap

Agisoft

Features - Professional Edition

- 3D visualization
- Orthomosaic
- DEM
- DSM
- DSM with vegetation
- DSM with elevation
- DSM with slope
- DSM with aspect
- DSM with curvature
- DSM with roughness
- DSM with roughness
- DSM with roughness

Leaflet

an open-source JavaScript library for mobile-friendly interactive maps

Overview Tutorials Docs Download Plugins Blog

Distances and area



Start point

$26^{\circ} 59' 57.67'' \text{ N} / 75^{\circ} 43' 27.24'' \text{ E}$

26.999352 / 75.724232

Path distance 714 Meters (2,341 Feet)

Area 6.28 Acres (2.54 Hectares)

Cancel Finish measure

POLICIES



**National Map
Policy 2005**

**Remote Sensing
Data Policy 2011**

**National Geospatial
Policy?**

**Easy to Draft Policies;
Challenge lies in Implementation**

CHALLENGES



○ Perceptions, policies & adaptation by organization

○ Security concerns

○ Interoperability; Protocols & standards

○ Net centricity

○ Combat geospatial support

WAY AHEAD

- **Top down approach essential.**
- **National Effort, Central Agency.**
- **Review of policies.**
- **Indigenous developments.**
- **Defence Spatial Data Infrastructure.**
- **Products & services driven by user requirements.**
- **Defining standards.**

JAI HIND