GEOSPATIAL – AN ESSENTIAL TOOL FOR MODERNISATION

AN INTRODUCTION

- ITBPF conceived & raised on 24 October 1962.
- Guarding 3488 km long Sino-Indian Borders in greater Himalayas. BOPs from 9000 ft to more than 18750 feet.
- Mountain warfare skilled troops.
- ‘ Eyes & Ears’ of Govt of India and first responders in Himalayas in case of natural calamity.

NATURE OF BORDER

- ✓ Inhospitable Terrain
- ✓ Extreme cold conditions
- ✓ 64% forward posts on foot
- ✓ Inadequate Infrastructure

CONVENTIONAL BORDER GUARDING TECH

- ✓ ‘ Gun & Guard ’ concept
- ✓ Static obsn posts
- ✓ Long Range & Short Range Patrols (foot & animal)
- ✓ Use of traditional Maps
- ✓ Use of HF/VHF sets for passing of info

ROLE OF THE FORCE

The role of the Force as defined by Committee of Secretaries, Government of India, are enumerated below:-

(a) To keep vigil on ingress routes and prevent border violations in co-ordination with other Security Forces.

(b) To provide a sense of security to the population living in border areas.

(c) To control trans-border traffic, crimes (including smuggling) and unauthorized civilian's ingress and egress, in co-ordination with the I.B.

(d) To provide protection and all facilities to I.B. to enable it to carry out, both during peace and war, it's assigned tasks.

(e) To function under the operational control of the Army as may be required in sensitive areas.

(f) To function in a role similar to that of the Border Security Force in a war situation.

FUNCTION and TASKS

- ✓ Vigil on the northern borders (India-China border), detection and prevention of border violations, and promotion of the sense of security among the local populace.
- ✓ Check illegal immigration, trans-border smuggling and crimes.
- ✓ Restore and preserve order in any area in the event of disturbance.
- ✓ ANO .
- ✓ Disaster management in Himalayan areas – earthquake, floods, avalanche etc.
- ✓ ITBP is also providing security to the pilgrims during Annual Kailash Mansarovar Yatra since 1981.

TERRAIN CHALLENGES

- **Inhospitable, inaccessible terrain & very cold climate along 3488 kms undelineated India-China border is our biggest challenge.**

- **Physical Border not delineated, defined**

  So Fencing & Flood lights concept not applicable

- **Harsh & Inhospitable living conditions 9000 feet to 18750 feet operating limit : 19000'**

- **Due to steep heights, valleys, cliffs and gorges linear observations not possible. Hence, need for GIS.**

BORDER SURVEILLANCE TOOLS

IN PRACTICE:

- BOPs
- Ops & LPs
- PATROLS (LRPs, SRPs & JOINT PATROLS)
- AERIAL RECCE & WASO
- LORROS
- OPTICAL DEVICES & NVDs
- HHTIs
- SATELLITE IMAGERIES & AERIAL PHOTOS
- OTHER INT ASSETS
- OPEN SOURCE INT

WHAT ALL RQRD ...?

VIDEO Surveillance (WAN required)

RADAR Surveillance

} Tower based

OPTRONIC SVL (high powered telescope / periscope, spotterscope)

Command & Control Centers (HF, VHF ,UHF)

SECRURE COMMN. (LINE AND Encryption devices)

Portable Mobile COMMN (Limited network)

UAVs, Aerostats

Sensor Equipped Vehicles

Intelligent Fencing

Border Check points

Sensor and Data fusion

Geo info sys integration.

TECH. CHALLENGES

QRs of manpower needs change

Mind set for use of Tech.

Rapid change in Eqpt/inventory

BORDER

Its question of perception; how one sees the BORDER ? As a Barrier or Bridge ? Well…If Barrier, then let it be unobtrusive That is where GIS will play its part.

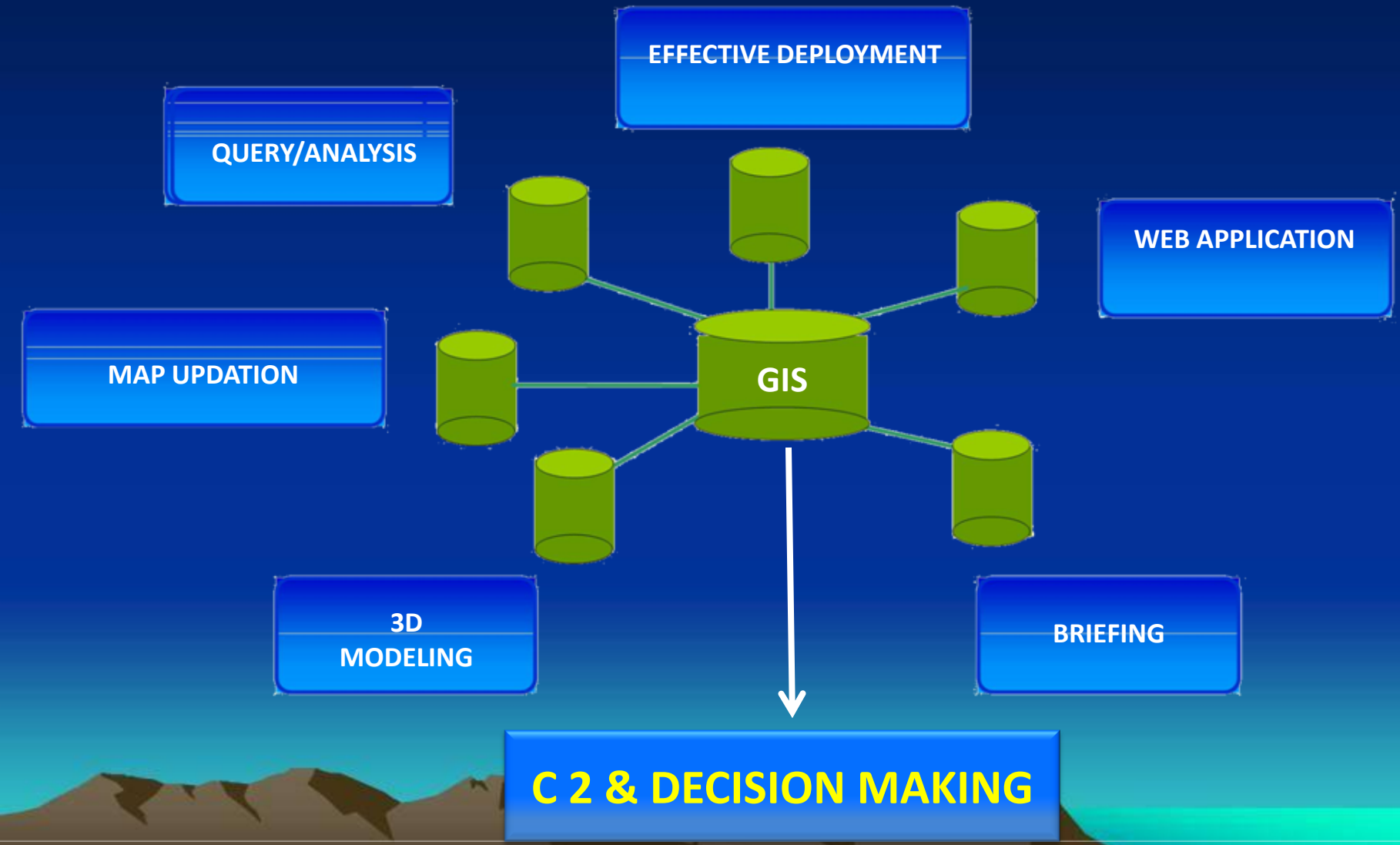
Geospatial Technology thus forms an important part of ITBPF's modernisation programme

How can geospatial technology aid ITBPF in carrying out its tasks ?

AIM

- To build a ‘virtual fence’ along the India-China border, that is, to have 24x7 real-time surveillance of the border
- Provide better situational awareness to our men fighting naxals
- Improve our disaster management capabilities

WHAT GIS SHALL OFFER



How do we achieve these aims?

By building data-infrastructure of our AoR

Creating the database

Data mining

Frequent updation of data

Accessing the database

Capacity building


Creating the database

DIGITAL MAPS

Presently ,to understand our terrain we use 2D paper maps, now age of digital maps is dawning . So we are in process of digitising maps by:

a) Digitise existing maps

b) Create latest maps in digital format

c) Set up a mechanism for regular updation of maps

BUILD a GIS

Build a GIS

Data collected will be processed and different layers of information will be placed on these digital maps.

LAYERS

- Satellite images
- Digital elevation models
- Range of temperatures
- Habitation
- Natural surroundings – rivers, roads, treks, crossing points, snow, cliffs , water points, etc.
- Proneness to natural disasters, etc.
- Own & enemy dispositions
- Naxal infested regions

Disaster Management

- **Pre-disaster**

  Create digital maps and build appropriate GIS layers (that is, categorise areas based on their proneness to disasters – earthquake, floods, avalanche etc.)

- **Post-disaster**

  - Latest imagery to access and analyse damage and plan accordingly
  - Regular monitoring of area through airborne sensors, etc.
  - Reliable Communication

Data effective only when it is frequently updated

- Regular surveillance of areas through satellites, sensors, UAVs
- Human intelligence – regular patrolling, inputs received, etc.
- Information received from other agencies

Accessing the database

For an effective C2 system

Central repository of data

Dissemination of data at different levels

Futuristic soldier

The soldier at the end of the chain should be able to access the information that's relevant to him. Hence, we plan to equip our soldiers with advanced weaponry, communication network and instant access to information

Capacity building

Training our men in the latest technology


THANKS