

## DEFENCE AND HOMELAND SECURITY SOLUTIONS

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### PERSPECTIVE OF DEFENCE AND HOMELAND SECURITY

Defence planning for peace time as well as for war time is heavily dependent on good quality maps for effective execution. The geospatial data can assist in effective anti-crime operations and internal security as well as solutions to deal with insurgencies. The role of GIS to support mission planning, command & control and tactical operations becomes imperative. The digital maps are also used for efficient troop and supplies movements within the country – optimizing logistic operations. Apart from the army, the navy and air force use maps for their movement planning and monitoring both in time of peace and war. Today GIS has become an important technology for the Defence and Security establishments worldwide solely due to its unique capability of bringing forth the area of interest as it is on ground and the power it gives to the military commanders in tackling any crisis.

India is physically situated in a difficult position, juxtaposed as it is between two nuclear neighbours with whom border issues remain to be resolved, along with the threat of terrorism and insurgencies on one hand, and Naxal Maoism in her hinterland on the other. All this requires India's Security Forces to be exceedingly nimble on its feet so that they can move to any crisis location at a very short notice. This movement of armoured cavalcade is dependent upon the terrain conditions and the latest position of the problem location. It is here that GIS stands out as the only contender that can accurately and expeditiously help in information dissemination between different command units as well as help in planning military move.

### MAPMYINDIA OFFERINGS

MapmyIndia is a pioneer of digital mapping since 1995, with a high capital structure. MapmyIndia owns and maintains precision, GIS data holdings for the whole country and hence can provide visual information that helps defence industry. Although, Satellite, Aerial imageries are being used in defence operations, overlaying them with Geospatial data along with the relevant attributes, makes it a potent combination of geospatial intelligence analytics that can make the GIS infrastructure for Defence & Security much more responsive to their needs.

### I. MAPPING & SURVEYS: MAPMYINDIA CAN PROVIDE GIS-READY GEO-SPATIAL DATA OF INDIA AND CAN UNDERTAKE WIDE VARIETY OF SURVEYS FOR CREATING GIS MAPS

#### - GIS READY ALL INDIA MAPS

- High resolution Large scale land based maps of the country
- With regular approvals from Ministry of Defence
- Continuously updated through 15 yrs of surveying and mapping of India
- Large team of approximate 500 expert survey professionals with latest technology are spread country wide conduct physical surveys to update and maintain this data
- High resolution 2-D base maps with transportation network, administrative boundaries, Landuse, VA/VP locations, Major Landmarks, Building level data etc.

#### - DEFENCE SPECIFIC MAPPING & SURVEYS – MapmyIndia has large team of surveyors and data processing experts to carry out specific projects for Defence like

- Cantonment mapping
- Country border fence mapping
- Mapping of Assets such as Underground Optical Fiber Cable (OFC) Routes
- VA/VP locations mapping
- Updation, Digitisation and Geo- referencing of existing disparate Defence Maps (Paper and Digital)

Tools and techniques used by MapmyIndia to deliver such solutions include

- DGPS Survey
- Image Registration and Geo-referencing
- Auto level survey for precise contouring
- Total (Theodolite based) Station survey

- Superimposition of Landbased survey parameters on Satellite Imagery
- Superimposition of height data collected (of man -made structures including Towers, buildings) through Auto Level / Total Station survey on Landbase & Satellite Imagery

#### - 3-D MAPPING

- Contours, Spot heights, DEM/DTM (Digital Elevation/Terrain Models)
- DSM (Digital Surface Model) with building heights,
- Realistic 3D building models and 3D city models

## II. GIS-GPS INTEGRATED SOLUTIONS: MapmyIndia has superior customized solutions for Convoy Navigation and Tracking

### - MapmyIndia Unique Proposition:

- Customized devices based on suitability for Indian conditions such as road quality, hilly terrain or coastal areas, climatic conditions, signal quality
- Can meet the lifecycle requirement
- Can work with non GPSs satellite navigation systems as well
- Expertise and capability to work in GSM, BWA, CDMA and narrow band FM ( combat net radio), UHF/VHF radio, SATCOM

- **Devices:** MapmyIndia has road navigation equipment with best -in-class maps and software. MapmyIndia tracking equipments are world class tracking devices integrated with tracking application. These are:

#### ❖ Road navigation equipment with maps and software

- Portable ( PND)
- Portable and connected( Carpad)
- Fixed and connected ( In-dash)

#### ❖ Tracking equipment

- Vehicle tracking
- Personal tracking
- Asset tracking

- Solutions: MapmyIndia's expertise in building superior quality solutions which can provide very timely information for quick decision making helps in delivering several application solutions for Defence and Homeland Security.

### **MapmyIndia Unique Proposition:**

- We can deploy your solutions on your private network
- We can provide virtual web based support
- Development of solutions based on open source as well as platform choice of the customer
- Support at point of presence of local contact that is covered pan India with technically qualified staff
- Emergency response, Tracking and Dispatch solutions

#### ❖ Estate/ Cantonment Patrolling

- Real Time/ Passive tracking of 'On Foot' Personnel using Soldier wearable GPS/ non- GPS Devices
- Real Time/ Passive Vehicle based tracking using rugged onboard GPS/ non- GPS devices
- Mapping of Complete Estate/ Cantonment Perimeter with Ingress and Egress Routes and Control Points
- Mapping of Cantonment Estate and Assets (Movable/ Immovable) on the GIS Map for effective patrolling and understanding of Sensitive Installations/ area
- Auto/ User initiated Panic alerts in response to Distress Calls from the personnel
- Identification of Distress location and position of adjoining QRTs on the GIS Map
- Daily, Weekly/ Monthly Reports on Patrolling Effectiveness, Route Adherence, perimeter breaches, and security drills etc.

#### ❖ Advance Team Intelligence Collection

- Rugged, User friendly and environmentally adapted 'In-Field Mobile' Device running an Intelligence Collection Application
  - Captures Geo Tagged Pictures, GPS/ Non-GPS Coordinates, Non-Spatial Data, Point of Interests, Waypoints etc.
  - User defined applications for including fields, type of data collection and frequency of such collection
  - Transfers Live to the Control/ Situation Room/ Tactical Teams or directly to HQ through User Defined Wireline or Wireless media
  - Data once captured can be plotted directly onto a GIS Platform and used for Operational/ Int Planning
- ❖ Convoy Security Solution
- GPS and Non GPS Based Convoy Security Solutions
  - Provides ROVER facilities to Commanders, Designated vehicles and convoys.
  - Can be hosted on the User Provided or User Defined Captive/ Personal Network or on the Public NW ie Internet
  - Secure Data Tunneling between Devices and Control room
  - Can be accessed from remote locations over User Defined Radio (incl CNR)/ GSM/ CDMA/ 3G/ BWA or any other Mobile Platform
  - Gives Live Tracking on a rich GIS Map with Street/ Road Level Details and Point of Interests ie Control Points, Check Posts, Contours, Water Bodies, Sensitive Areas, Borders, User pre-Defined information etc.
  - Alerts of Route Deviation, Speed Adherence, Undue Stoppages etc
- ❖ Command, Control & Dispatch
- Mapping of Personnel and Weapon Assets in different nomenclature (Movable/ Immovable) on a rich GIS Map
  - POI Information like location and quantum of reserves, QRTs, travel times, available routes, Boundaries, Patrolling routes with timings, Emergency Services, on the digital GIS map
  - Location mapping of Incoming Distress Calls and auto/ operator defined alerts/ Panic Buttons to Commander/ Reaction teams
  - Call logging with filing of Radio logs
  - MIS Reporting in Excel, HTML or other user defined formats
  - Application Tools to identify graded responses in terms of manpower and weapon resources to address the impending situation
  - Updates on Status, emerging Situation and availability of uncommitted resources
  - In Vehicle/ Mobile unit for transfer of navigation information, Geo Coordinates and updated reports to the identified reaction teams
- ❖ Personnel Tracking
- Real Time/ Live tracking of Personnel and their Assets when in operations, patrolling, in reserves, etc.
  - Live position of all personnel and the assets in user defined proximity is displayed on rich GIS map
  - Commanders/ Control Room can track the Route deviations caused due to any error, resistance or physical obstructions
  - Situation updates provided to Control Room thru alerts from these devices
  - Effective for Estate Tracking, Asset Patrolling, Ammunition Guards etc.
- ❖ Surface Navigation
- All India Rich Street Level digital maps covering 4000 cities, which help in navigating from a Point A to B in the shortest possible manner
  - Provides turn by turn voice and data inputs for directing to the destination
  - Gives ETA, Current Speed, Time to Go on the screen of the Handheld, dashboard or vehicle mounted device
  - Provides close check on Control points, 'on the way' Point of Interests like Water Bodies, Bridges.
  - Currently available are seven million Point of Interests in the repository and any numbers may be added as defined by the User
  - Different Zoom levels available for in depth navigation
  - 3D Map Data Content is also loaded



## MAPMYINDIA EXPERIENCE WITH DEFENCE AND HOMELAND SECURITY

- Supply of GIS software to Indian army
- Client Server base application for monitoring naval ships through radio signals
- Supply of large scale digital maps for parts of the country to Ministry of defence
- Supply of road navigator to defence personnel
- Large scale mapping of J&K State
- Supply of digital maps and tracking solutions to CI Unit and mechanized forces



Tracking solutions provided to defence & homeland security