

# District Adhoc Wireless Surveillance Communication System Using Drone Technology



*An Initiative by:  
District Administration, Rudraprayag  
Uttarakhand.*



# Genesis Of the Initiative

- A massive disaster in 2013 in Kedarnath.
- In October 2017 Hon'ble Prime Minister of India laid the foundation stone of five major reconstruction works in Kedarnath.
- The Hon'ble Prime Minister instructed the state authorities to do the live monitoring of reconstruction works through Drone.
- This responsibility was entrusted to the District administration, Rudraprayag.



# Planning For the Initiative

Planned in two phases:

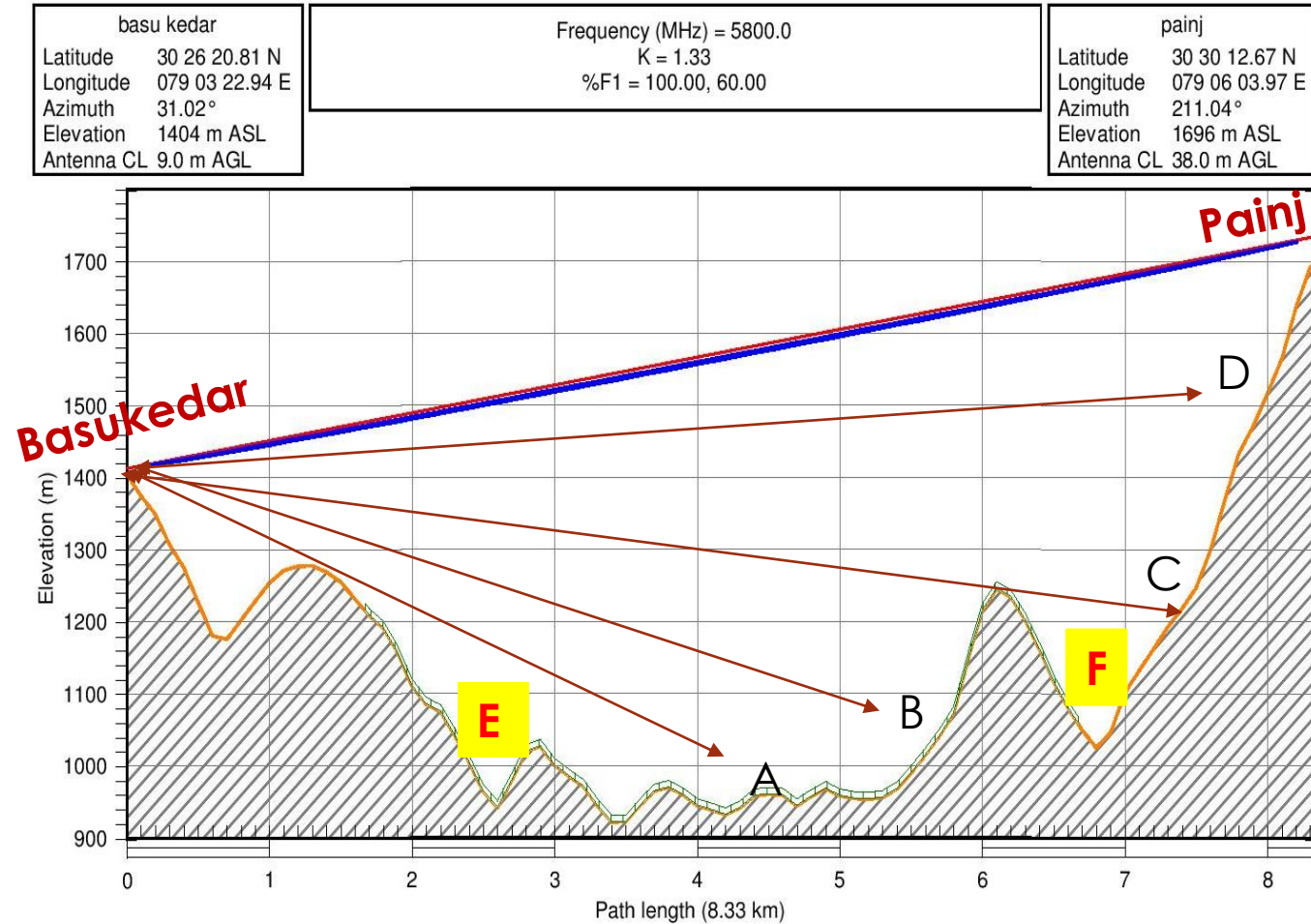
(I) Setting up of Network

(II) Integration with Drone and live telecast

# Setting up of Network

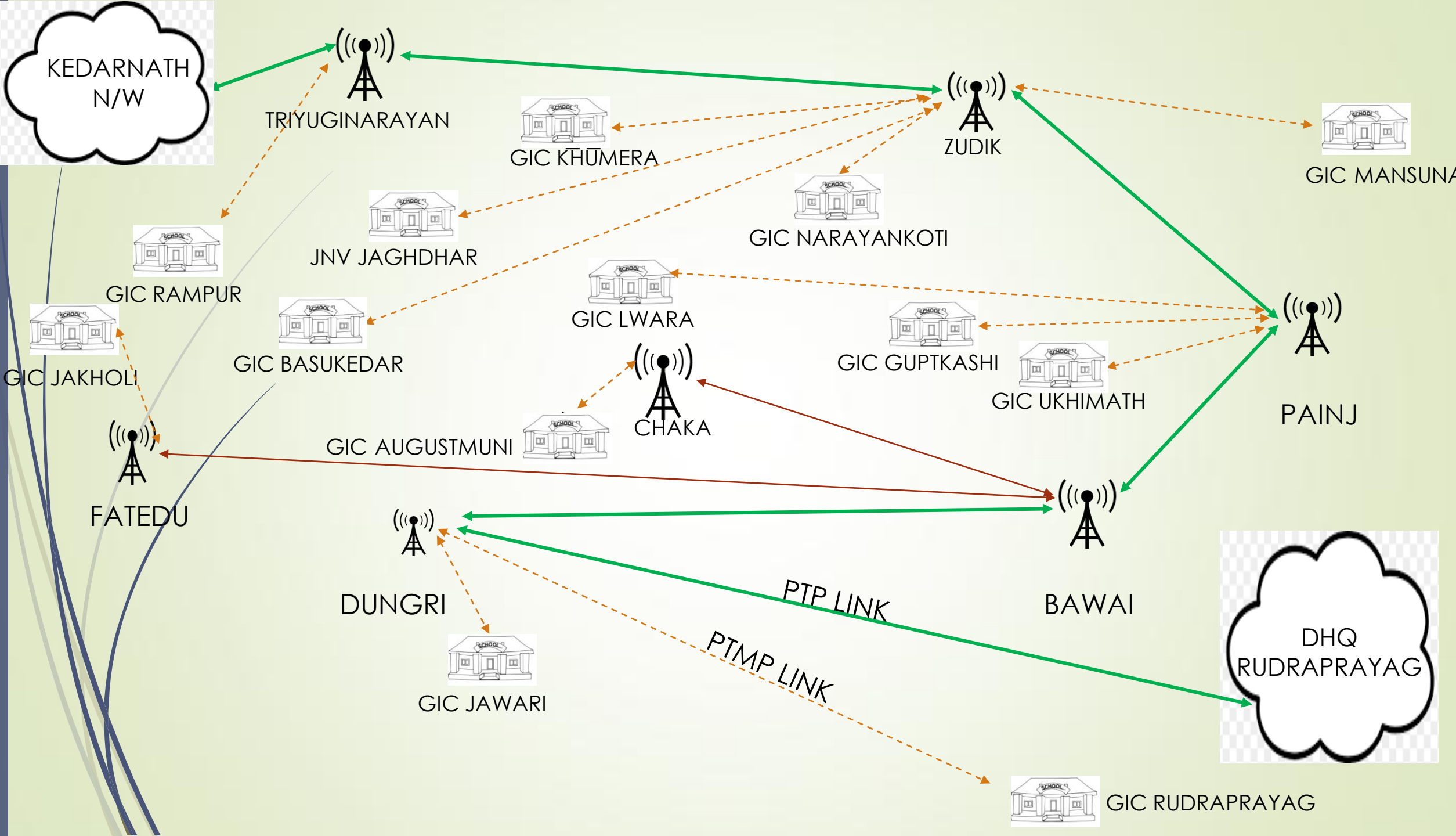
## RF based network, 110 km stretch was set up with following specifications:

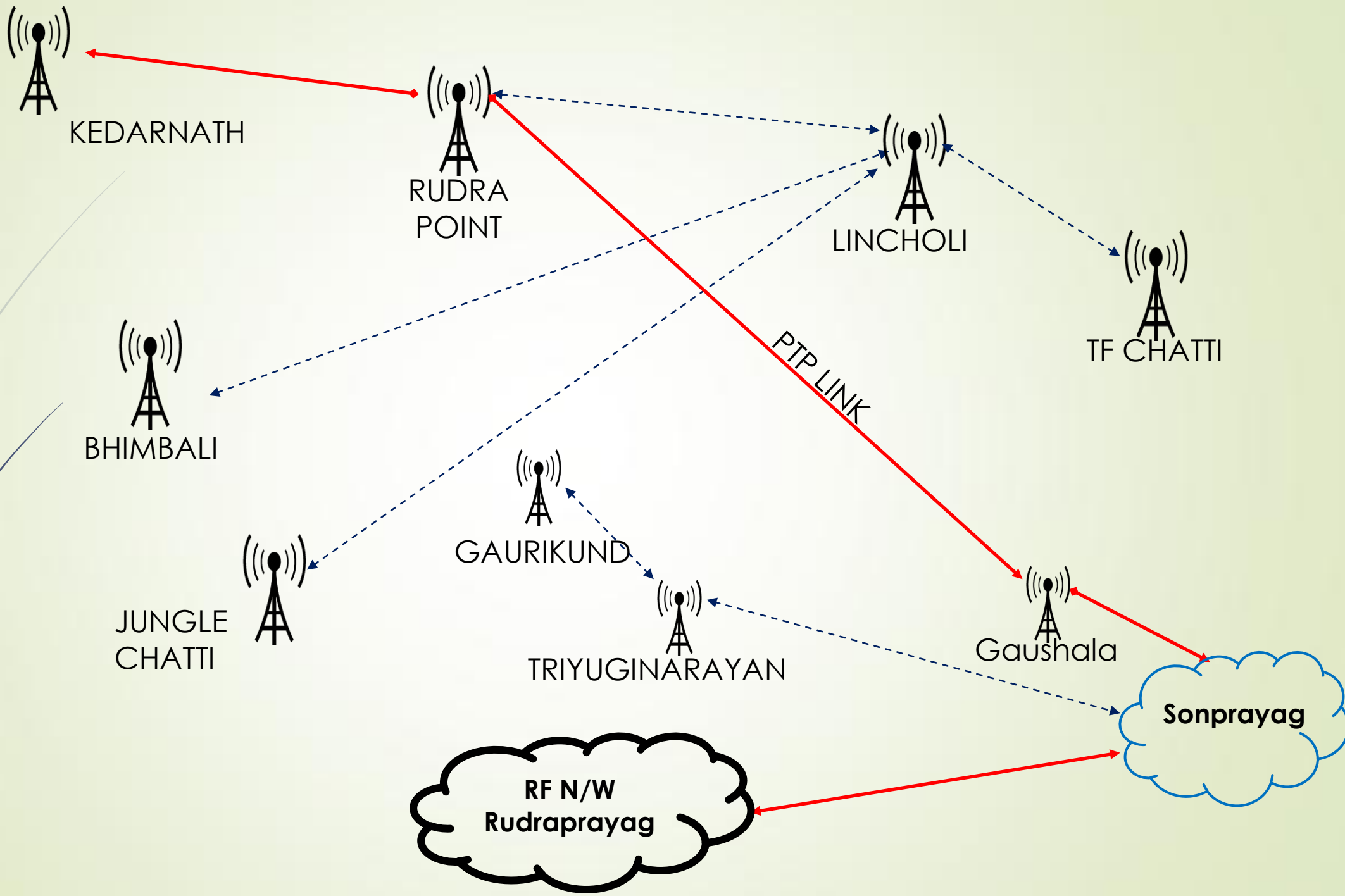
- ▶ PTP and PTMP RF Network
- ▶ UBR with IP66 rating
- ▶ Hopping Technique
- ▶ Works on 2.4 GHz and 5.7 GHz
- ▶ Power back up of 40 hours
- ▶ Sectorial antenna with 120 degree beam width (Two at a POP site)
- ▶ Fulfills guidelines of DOT and SACFA
- ▶ Adhoc nature
- ▶ Integrated with NIC, SWAN and internet



A SAMPLE OF 8.33 KM LOS Profile

**Largest RF network owned by any district administration**









KEDARNATH  
Kedarnath

Rudra Point

JUDDIK TOWER

PAINJ TOWER

Basu Kedar

BASUKEDAR

CHAKA

BAWAI

DHQ  
Rudraprayag

DUNGRI

TRIYUGINARAYAN

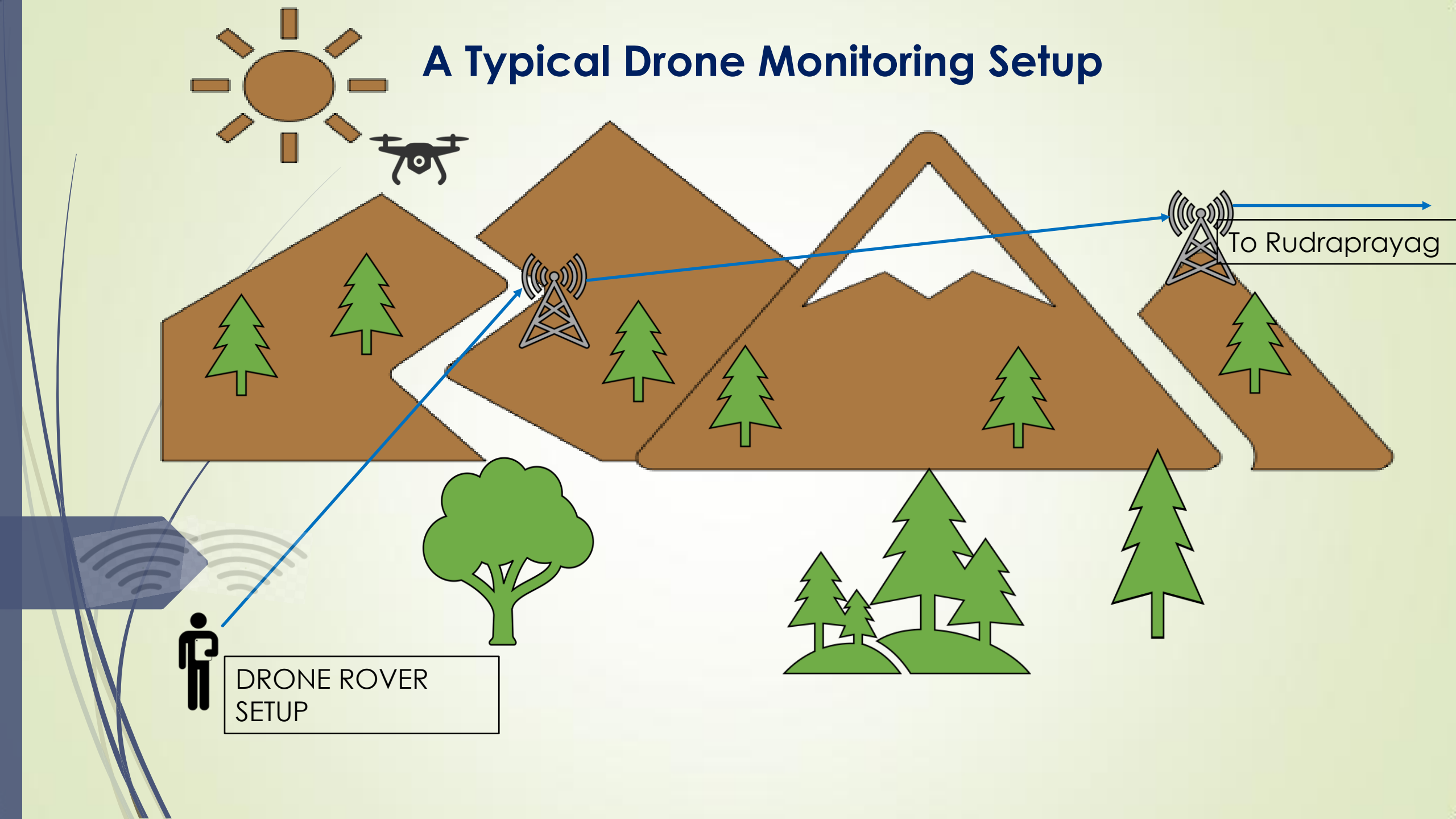


# Integration of Drone with RF Network

- Integration of drone with RF network was the innovative process of this initiative.
- Chipset level changes were done on drone handheld hardware.
- Live feed from drone was successfully transmitted over IP network.
- Extra three batteries were provisioned for each drone to get minimum 1 hour flying.
- For Adhoc services, a rover communication type system was provisioned with a backup of 4 hours.



# A Typical Drone Monitoring Setup



# Direct to Hon'ble PM.....





# Key Outputs of the Initiative

## 1. Real Time Monitoring of Reconstruction/ Development Projects at Shri Kedarnath Dham.





## 2. Real Time Monitoring of Disaster Mitigation and Rescue Operations.





### 3. Real Time Monitoring of Shri Kedarnath Yatra





## 4. Real Time Monitoring of Mega Projects





## 5. Intranet Based e-Education



# Words Of Appreciation.....

## Kedarnath reconstruction projects being monitored through drones: Amit Shah

PTI | Oct 12, 2019, 14:57 IST

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Union home minister Amit Shah (PTI photo)

NEW DELHI: The Kedarnath reconstruction projects including the laying of all-weather roads leading to the shrine are being monitored through drones, thereby reducing the need of physical inspection, Union home minister Amit Shah said on Saturday.

Emphasising on the need to use technology for good governance, Shah while

addressing the 14th annual convention of the Central Information Commission (CIC) here, said that the government has used technology in several initiatives like Jan Dhan accounts, Aadhaar, mobile and usage of Gem portal for purchasing.

"Now, there has been work going on at Kedarnath... all-weather roads are being constructed, they are being monitored online. You would get surprised that we don't need to send inspector on the spot as all the monitoring work is being done online using drones. It is the successful usage of online monitoring," Shah said.

Launched by Prime Minister Narendra Modi in 2017, the ambitious all-weather roads project would smoothen the annual pilgrimage to the four famous Himalayan shrines.