

Search & Rescue (SAR) Masterclass

Comprehensive overview of ICAO Annex 12, AIP India Chapter 11, and CAR Section 9.

Regulatory Application

DGCA CPL/ATPL Examination preparation for Air Regulations.

⚠ Exam Tip

SAR is a high-yield topic; mastery of numerical data (frequencies, timeframes, signal sizes) is non-negotiable for passing.

⚠ **DGCA Exam Alert: High Probability:** Expect 2-3 direct questions from this specific module in your Air Regulations paper.



The Global Mandate: Unbroken SAR Coverage



High seas coverage is determined by Regional Air Navigation Agreements.



DGCA Exam Alert: High Probability: Contracting States shall establish SAR services on a 24-hour basis. (Referenced from actual MCQ Q11).

24

HOURS: Services must operate on a 24-hour basis.

365

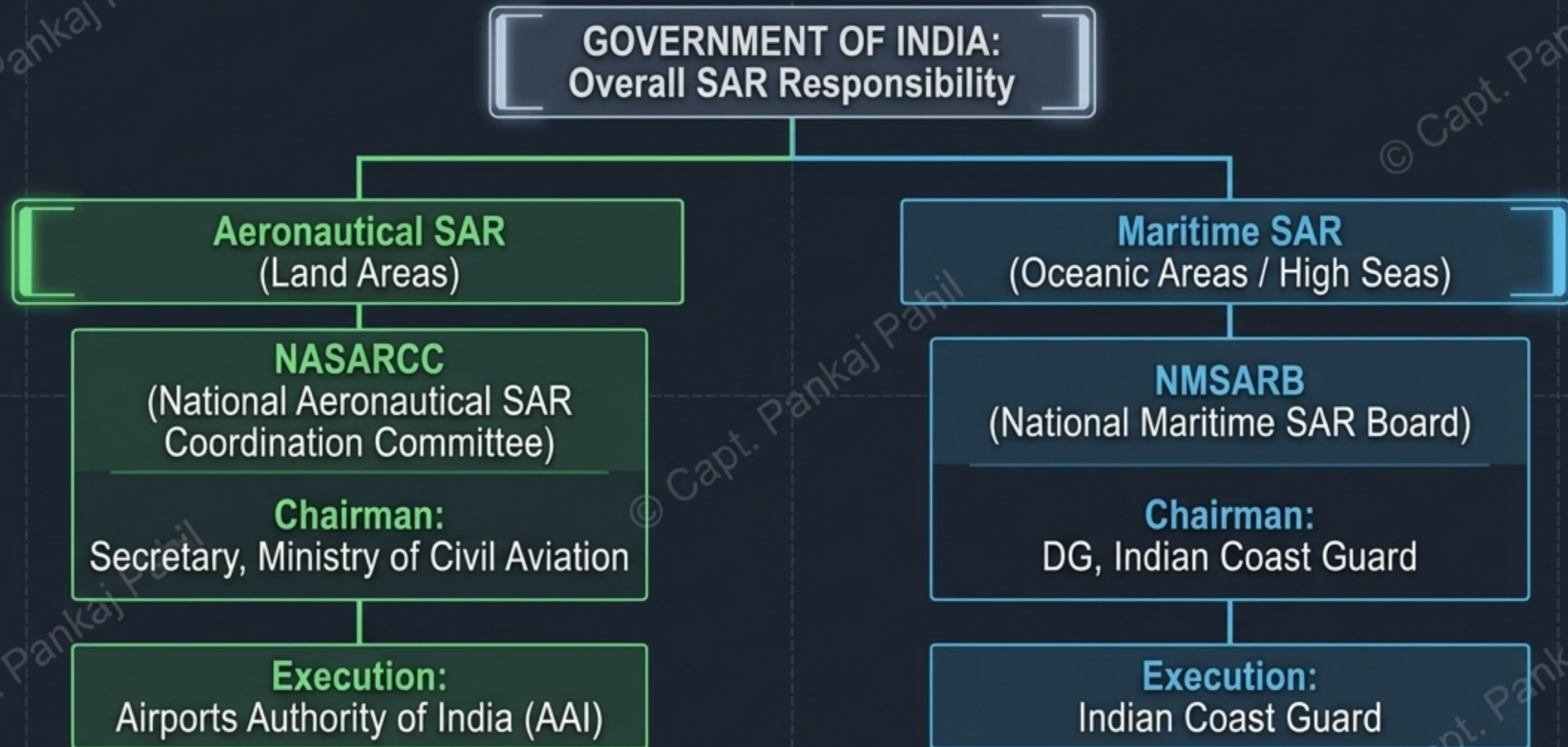
DAYS: Per Year — No Exceptions.

0

OVERLAPS: Neighboring Search and Rescue Regions (SRRs) must be completely contiguous with zero gaps.

India's Dual-Command SAR Framework

16:9



DGCA Exam Alert: High Probability: Identify the chairman of NASARCC versus NMSARB. Land = Secy, Civil Aviation. Maritime = DG, Coast Guard.

The Four Pillars of Indian Aeronautical SAR

Aeronautical RCC Network

Airports Authority of India (AAI) coordinates SAR through four Rescue Coordination Centres (RCCs) matching their respective FIR regions.



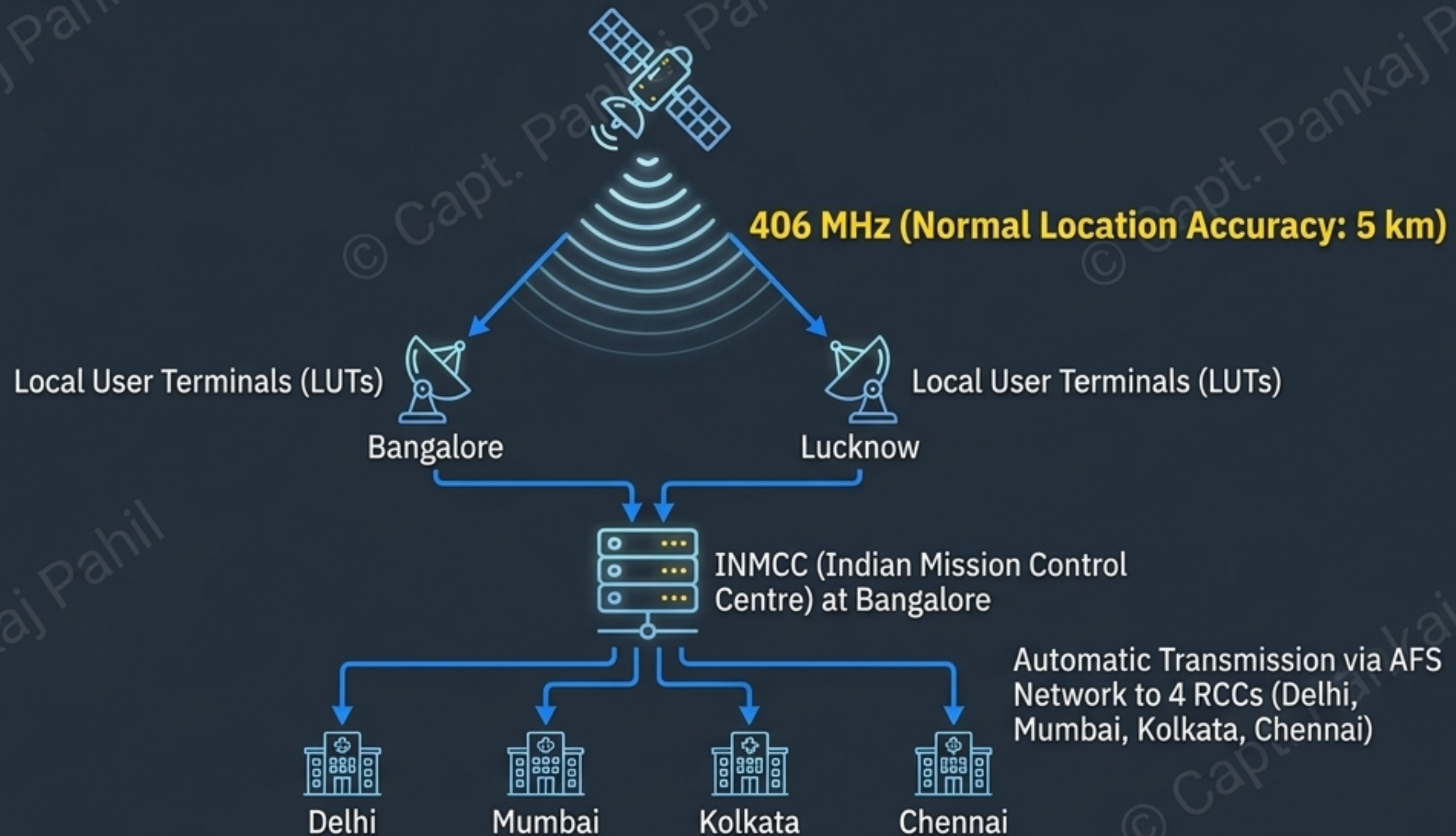
Note: The Indian Coast Guard handles 3 distinct MRCCs (Mumbai, Chennai, Port Blair). Do not confuse aeronautical and maritime centers.



DGCA Exam Alert: High Probability: Contracting States shall establish a rescue co-ordination centre in each search and rescue region. (Referenced from MCQ Q12).



COSPAS-SARSAT: Satellite-Aided Distress Tracking



DGCA Exam Alert: High Probability: COSPAS-SARSAT is a SAR satellite-aided tracking system operating on 406 MHz. (Referenced from MCQ Q9).

Essential SAR Equipment and Supply Drop Protocols

Communications



WARNING: These frequencies, particularly 121.5 MHz, may **NOT** be routinely monitored by maritime vessels. Carry International Code of Signals.

Supply Drop

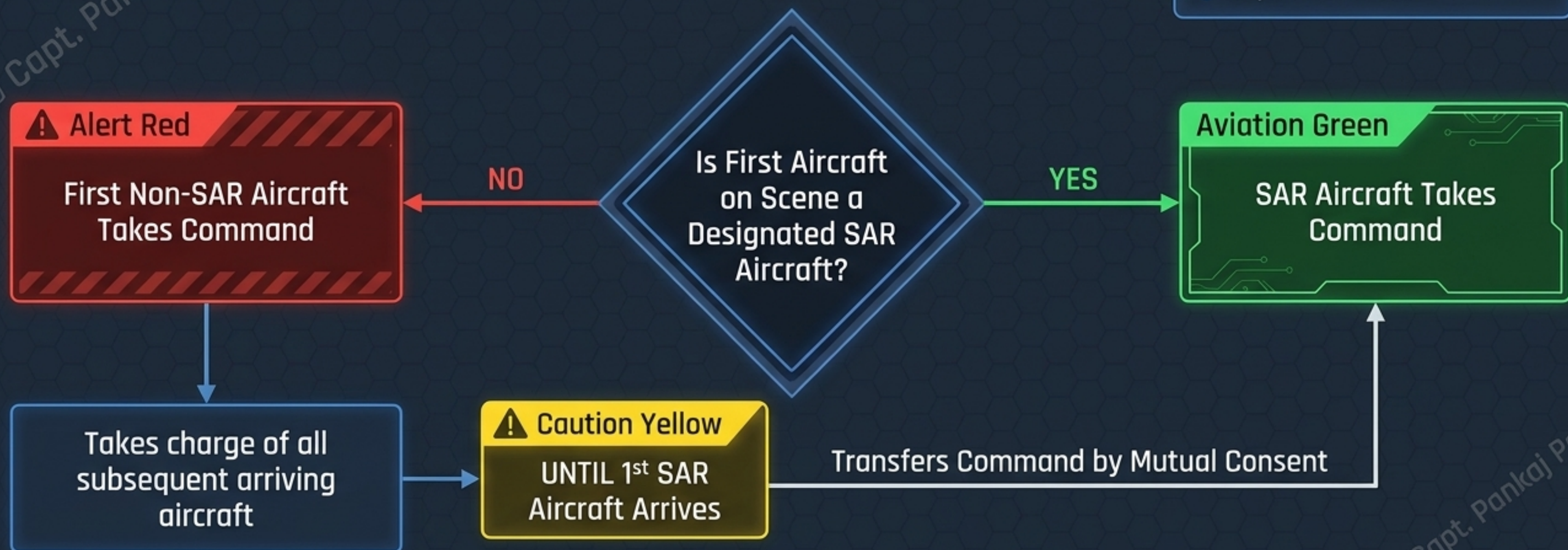


DGCA Exam Alert: High Probability: Survival equipment dropped containing food and water will be indicated by streamers of **BLUE** colour. (Referenced from MCQ Q8/Q17).

First on Scene: Establishing Command and Control

First to Arrive Duties

- ✓ Keep craft in distress in sight
- ✓ Determine the position
- ✓ Report to RCC/ATS



⚠️ DGCA Exam Alert: High Probability: Command of the situation is the responsibility of the first arriving aircraft, then by mutual consent to the arriving SAR helicopter. (Referenced from MCQ Q2).

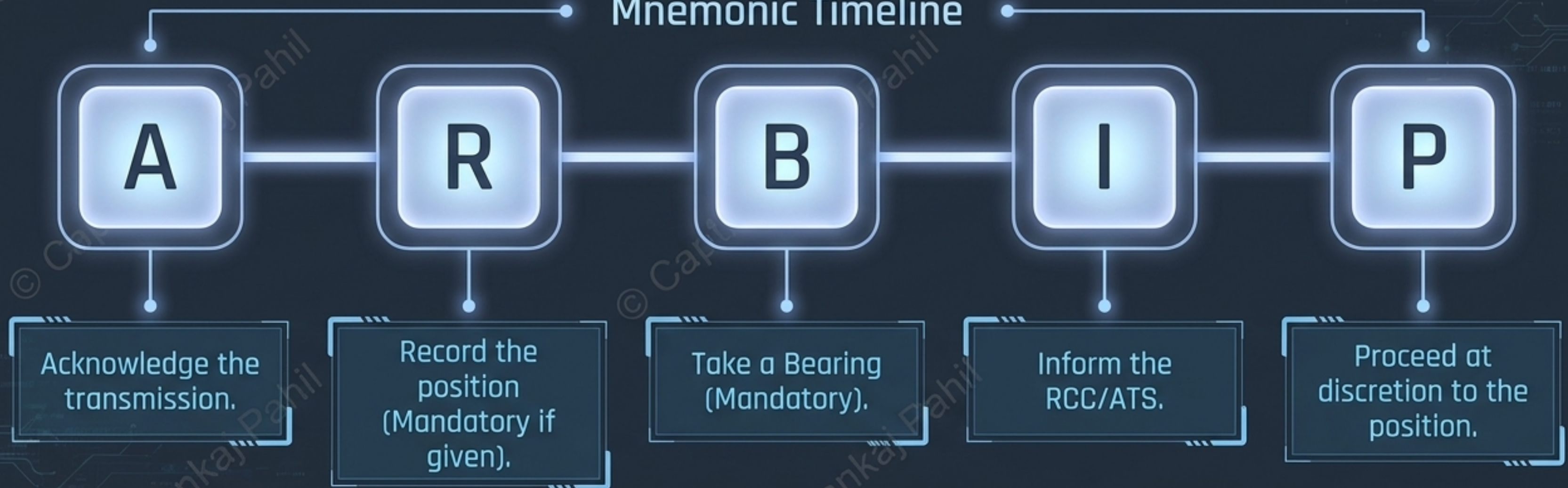
The A-R-B-I-P Distress Intercept Methodology



LEGAL QUALIFIER: IF FEASIBLE.

The pilot must execute these actions if physically and operationally possible, but is not bound if it endangers their own flight.

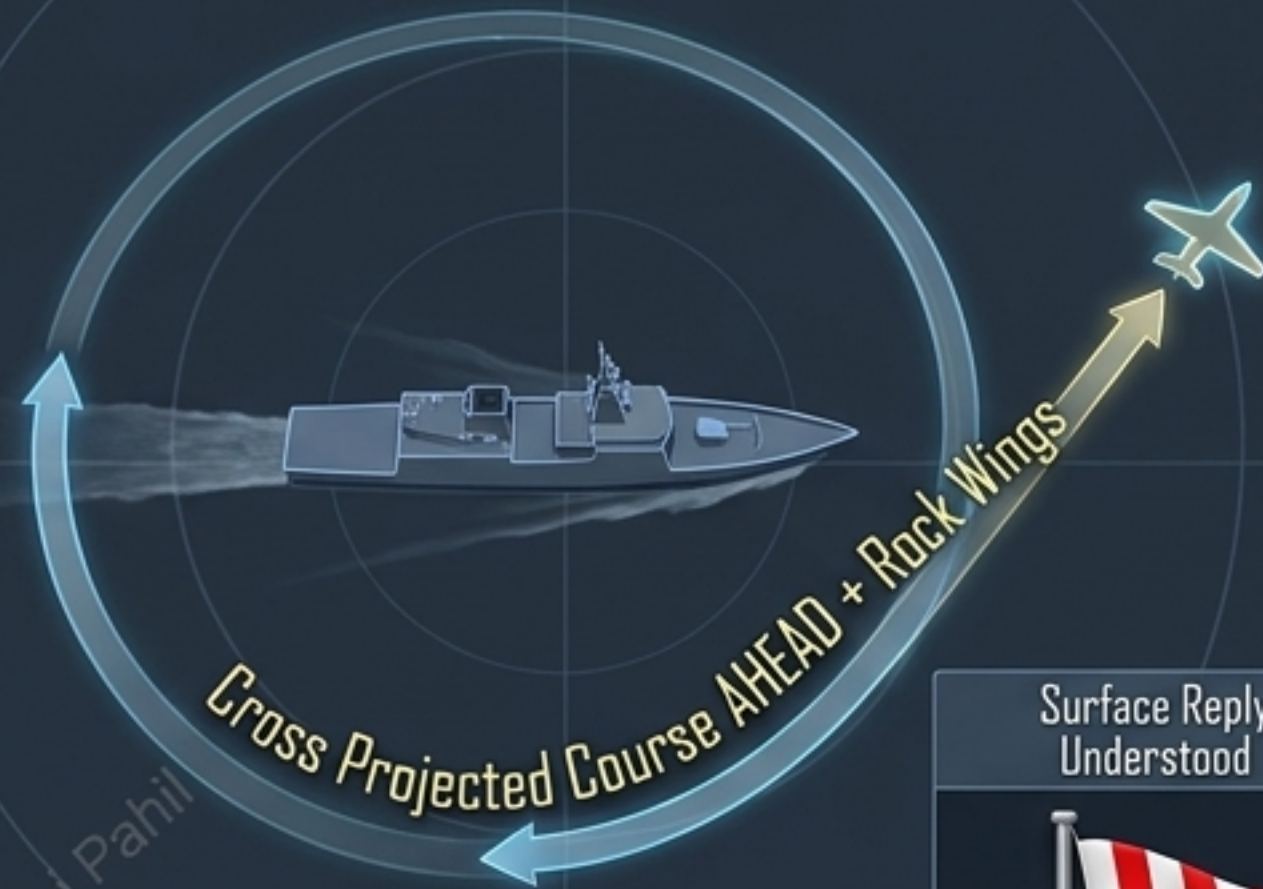
Mnemonic Timeline



DGCA Exam Alert: High Probability: When intercepting a transmission, the PIC shall record the position AND if possible take a bearing. (Referenced from MCQ Q15).

Directing Surface Craft Without Radio Contact

Follow Me



Surface Reply Understood



Noist Code Pennant
(Red/White vertical stripes).

Assistance No Longer Required



Surface Reply Inability to Comply

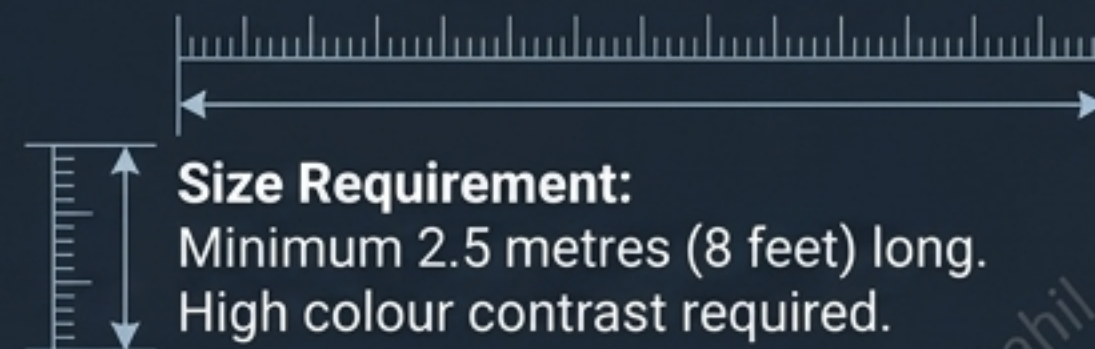


Hoist Flag N
(Blue/White checkered square).



Caution Yellow: DGCA Exam Alert: High Probability: Rocking wings is the primary visual signal; throttle/propeller pitch changes are secondary sound signals due to ship noise.

The Survivor's Visual Lexicon



1 V Require Assistance	2 X Require Medical Assistance	3 N No or Negative	4 Y Yes or Affirmative	5 ↑ Proceeding in this direction
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DGCA Exam Alert: High Probability: Ground signal 'X' indicates 'Need medical assistance' (MCQ Q6).
Ground signal 'V' indicates 'Require assistance' (MCQ Q3).

The Rescue Unit Diagnostic Table

No.	Message	Code Symbol
1	Operation Completed	LLL
2	We have found ALL personnel	<u>LL</u>
3	We have found ONLY SOME personnel	++
4	We are not able to continue. Returning to base.	XX
7	Nothing found. Will continue to search.	NN

3 letters = Totally Complete

2 letters = Complete set of people

Plus signs = Added some, but not all

X = Wrong/Stopped

N = Nothing



DGCA Exam Alert: High Probability: 'LLL' in the ground-air visual signal code for rescue units means 'Operation completed'. (Referenced from MCQ Q4).

Airborne Acknowledgement Protocols: Day vs. Night



DAYLIGHT HOURS



Rocking the aircraft's wings



DARKNESS HOURS



Flashing on and off **TWICE** the aircraft's landing lights (or navigation lights)

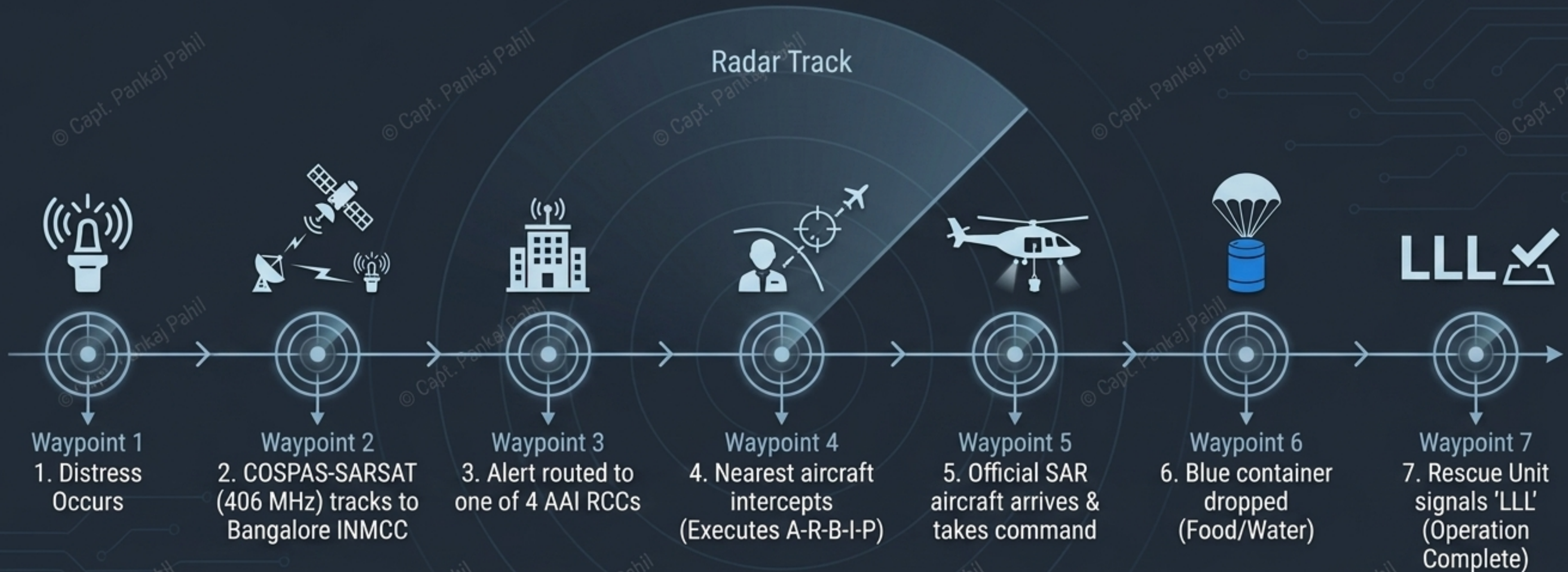


WARNING: Lack of the above signals strictly indicates that the ground signal is NOT UNDERSTOOD.



DGCA Exam Alert: High Probability: At night, acknowledge ground signals by switching landing/navigation lights on and off **TWICE**. (Referenced from MCQ Q7).

Mission Synthesis: From Distress Alert to Recovery



Caution ` DGCA Exam Alert: High Probability: Synthiesizing multiple regulations—remember that RCCs manage the big picture, but the first PIC on scene manages the immediate airspace.

DGCA Exam Alert: Rapid-Fire Recall Matrix

HUD Diagnostics Dashboard



FREQUENCIES & TECH

- ✓ **SAR Hours:** 24/365
- ✓ **Satellite:** 406 MHz (COSPAS-SARSAT)
- ✓ **Vessel Comms:** 121.5 MHz, 2182 kHz, 4125 kHz


LOCATIONS & ORG

- ✓ **AAI:** 4 RCCs (Delhi, Mumbai, Kolkata, Chennai)
- ✓ **LUTs:** Bangalore & Lucknow
- ✓ **INMCC:** Bangalore

COLORS & CODES

- ✓  **Food/Water Drops:** BLUE Streamers
- ✓  **Survivor X:** Need Medical
- ✓ **LLL Rescue LLL:** Operation Completed

PIC ACTIONS

- ✓ **Intercept:** A-R-B-I-P
- ✓  **Night Acknowledge:** Flash Lights TWICE
- ✓ **Minimum Symbol Size:** 2.5m (8ft)



DGCA Exam Alert: High Probability: Every single data point on this slide has appeared in past DGCA CPL/ATPL examinations. Screenshot this matrix.