# SECTION 15

# FORMAT: TERRAIN ANALYSIS REPORT

For :
By : Date:

References:

A. Bangladesh Sheets _____.
B.

**Period Covered**

1. From _____ to _____

2. Weather Condition During Ground Reconnaissance.

**Area Bounded by**

3. Refer to Annex A, an Overlay showing boundary of the area under study.

Division of Area. Brief descriptions summarizing the terrain intelligence for each area may be printed on the back of the terrain study map.

4. Sector A
5. Sector B
6. Sector C

} An overlay as Annex showing different sectors.

**Purpose and Limitation**

(This statement should include the scope of the study in area, time and subject matter and any information on the tactical situation, mission or method of operation that is pertinent to the study)

7. **Purpose**. To analyse the area bounded by . . . . . .

8. **Limitations**. Identify restraints and constraints. Information presented is based on mission, intents, data obtained from maps, physical recce, other intelligent sources, climatic study, interrogation/interview, interference etc.

## SECTOR A

### General Description of the Area

9. **Synopsis.** State briefly the impact of terrain on military operations.

10. **Climatic Conditions**. Describe predicted meteorological conditions for the period, based on climatic data. Present data graphically whenever possible.

a. **Temperature**. Frequency of occurrence of temperatures during the period.

b. **Winds**. Give frequency of occurrence of founds with velocity and direction.

| Ser | Month | Direction | Velocity (Nautical Mile) | | Type |
|---|---|---|---|---|---|
| | | | Maximum | Minimum | |
| 1. | | | | | |

c. **Precipitation**. Frequency of occurrence of precipitation by type and amount.

d. **Visibility**. Expected visibility by distance when applicable. Give graphic data on:

(1) Time of sun rise and sun set.
(2) Time of moon rise and moon set.
(3) Time of twilight.
(4) Effect of fog, mist, haze and other influences on visibility.

e. **Cloudiness**. Frequency and time of occurrence of various cloud conditions, when applicable.

f. **Humidity**. Describe only when significant.

g. **Electrical Disturbances**. Describe only when significant.

h. **Natural Calamities**. Cyclone, flood, draught etc that occurred in most severe conditions in last 20 years and its effect on move of men and material in military operations.

11. **Topography**. The use of topographic map overprint to emphasize particular characteristics is recommended. If pertinent, describe the following characteristics by written or graphic means:

a. **Relief and Drainage System**. Use ridge and streamlining, contour, emphasis, hill topping of relief shading to outline the ridge valley systems, use numbers, words, standard symbols to indicate critical relief or drainage conditions.

b. **Vegetation**. Indicate location, type and size of forests, density of plantation, existence of under growth, location, type and density of other significant vegetation.

c. **Surface Materials**. Type and distribution of soils, subsoil's, and bare rock in the area, traffic ability under various weather conditions.

(1) **Soil Analysis**. Soil should be identified by field/laboratory method, strength of soil should be formed by CBR method, effect of soil on vehicle, equipment, maintenance and movement; effect of soil on construction of horizontal and vertical structures, dust control of any palliative suggested.

(2) **Ground Water**. The depth of water table beneath the surface; effect of water table on cross country movement, underground construction e.g command posts, fortifications, trenches etc.

(3) **Traffic ability**. It should be covered in details in term of move of persons, vehicles of different load classes and the constrains the ground provides technically.

d. **Coastal Hydrography**. Describe when applicable i,e for southern part of Bangladesh. Use graphic means whenever possible.

(1) **Sea Approaches**. Nature of approaches, bottom conditions, obstacles, gradients and coastal structures.

(2) **Beaches**. Dimensions, bed condition, traffic ability and exits.

(3) **Tides and Currents**. Expected time of occurrence and stage of tides, currents by direction, velocity and duration.

(4) **Sea and Surf**. Height of sea, type of surf, width of surf band, height of surf, and expected duration.

12. **Manmade Features**. (Describe fully the significant manmade feature i.e roads, railways, bridge, tunnels, towns, buildings, fortification airfields and canal/ branches/distributors/minors etc.

a. **Roads and Tracks**. Show on trace giving the following for each road/ track:

(1) Name of road/track (eg road Jashore-Narail).
(2) Type.
(3) Width.
(4) Route classification.
(5) Kacha extension on each side of road/track.
(6) Obstructions enroute (incl bridges).
(7) Engineer effort required for improvement or maintenance etc.
(8) Distances. Give distances between major/important towns. Attach a distance chart as an Annex.

b. **Railways**.

(1) Main Lines. With important railway stations.
(2) Branch Lines. With important stations.
(3) Loading/Unloading Ramps. Number available with capacity.
(4) Sites for Erecting Mobile Ramps.
(5) Sidings. Number available with capacity.
(6) Level Crossings.

c. **Telephones**. Existing facilities

(1) Civil
(2) Military
} Capacity of exchange and lines presently in use.

d. **Airfields and Air Landing Grounds**.

(1) Location.
(2) Type of Runway i.e Tarmac, earth etc.
(3) Load classification.
(4) Any noticeable ground facilities i.e rider, arresting barriers, underground fuel tanks, bomb dump etc and night landing facilities.

e. **Baulk Anchorage**. Show on trace with classification and give the following details for bridges on each road/route:

(1) **Road (Jashore-Narail).** Example

(a) Name, Grid Reference of Bridges.
(b) Length and width.
(c) Depth.
(d) Load Classification.
(e) Type of construction i.e brick, concrete, also type of superstructure.
(f) Division - State type if existing, otherwise indicate engineer effort required for preparation if required.
(g) Any other information.

f. **Bridges and Crossing Sites**. Show on trace with classification and give the following details for bridges on each road/route.

(2) **Road (Jashore-Narail)**. Example

(a) Name, Grid reference of Bridge.
(b) Length
(c) Width
(d) Load classification.
(e) Type of construction i.e brick, concrete, also type of superstructure.
(f) Division – State type if existing, otherwise indicate engineer effort required for preparation if required.
(g) Any other information.

13. **Natural Features**.

a. **Canal/Branches/Distributaries/Minors**. Show on trace and give the following details of each:

(1) Name of Canal/Branch/Distributary/Minor.
(2) Depth.
(3) Wet span.
(4) Height of banks from ground level and water level.
(5) Speed of current.
(6) Width from backseat to backseat (to determine the length of bridge required).
(7) Whether crossable by A/B vehicle without engineer efforts. Give location etc of such sites.
(8) Any syphon or aqueduct with exact reference.

b. **Rivers**. Show on trace and give the details as per para 13a. Also including:
(1) Bed condition.
(2) Existing fords and their location with capacity.
(3) Ferry sites with load capacity.
(4) Possible crossing sites-also indicate condition of approaches and engineer effort required if any.
(5) Local resources available i.e boats, shingle, timber etc.

14. **Crossing Sites**. Give a summary of all crossing sites on manmade and natural obstacles.

15. **Built up Area**.

a. Size.
b. Routes through.
c. Possible Diversions.
d. Social conditions-refers particularly to trans-frontier areas.
e. Industrial/Commercial complex, local markets like hats/bazaars with time of assembly etc.

16. **Military Aspects of the Terrain**. From an analysis of data on natural and manmade obstacles, soils traffic ability, climate, topography, coastal hydrography and other terrain factors, determine the following military aspects and describe them by written or graphic means. Use of and overlay to the basic topographic map is recommended:

a. **Observation**. The effect of terrain factors on observation from the ground, from the air and by means of electric or sonic devices.

b. **Field of Fire**. The effect of terrain factors on the ability of flat and high-trajectory weapons to deliver projectiles to a target. Consider nuclear weapons when applicable.

c. **Concealment**. The capability of the terrain to provide concealment for men, equipment and installations. Consider the effect of terrain on concealment by artificial means.

d. **Cover**. The capability of the terrain to provide cover for men, equipment, and installations. Consider the problem of cover from flat-trajectory, high-trajectory, and nuclear weapons when applicable.

e. **Obstacles**. The capability of the terrain to delay the advance of military forces or impede military operations. Consider both natural and manmade obstacles.

f. **Movement**. The ability of troops and equipment to move through the area. Use standard cooler code to describe movement conditions. Use specific terms of movement whenever possible; i.e vehicular, cross country and foot.

g. **Key Terrain Features**. Terrain features which appear to be critical, such as a dominant height, a highway, a communication centre or an airfield.

h. **Avenues of Approach**. The avenues of approach to the objective. Consider existing routes of movement, possibilities of cross-country movement and amphibious, airborne or air mobile operations when applicable.

17. **Engineering Aspects of the Terrain**.

(1) **Construction Sites**. Indicate area suitable for construction of roads/bridges, airfields, defence complex etc.
(2) **Construction Material**. Indicate location of rock, gravel, sand, timber and other natural construction material.
(3) **Water Supply**. Indicate location of portable water and also for constructional use.
(4) **Electric Supply**. Indicate location and voltage available.
(5) **Industrial Installations**. Indicate location, type and capacity.

18. **Maps and Charts (as annexs to the report)**. Maximum use is made of maps and charts, Among these are topographic, traffic ability, geological, soils, hydrographic charts, town plans, road maps or overlays which are designed to answer specific questions of commanders are explained here :

a. **Cross-Country Movement Maps**. This is sometimes called an "avenues of approach map". It tells the best routes by which various kinds of vehicles can get to an objective when they cannot use prepared roads and also shows what part of the terrain cannot be crossed by these vehicles.

b. **Line of Communications Maps**. Lines of communication are all the routes – land, water and air – which connect an operating military force with a base of operations and along which supplies and reinforcements move. It would also be needed for planning how to interrupt enemy supplies. This map differs from the CCM map in that it shows routes over which supplies rather than deployed force will move. So it depends more heavily on existing roads, railroads and airfields or places where they can be built.

c. **Zones of Entry Maps**. Zones of entry are any area that is used for access to enemy-held territory. They may be helicopter landing zones (HLZ), paratroopers drop zones, beaches or river crossings.

d. **Cover and Concealment Maps (CCM)**. This map is important both for planning, protection of friendly forces and for judging where the enemy might be located. It is especially important in area where guerrilla forces might be operating because it helps the commander to decide where a guerrilla attack might come from.

**Sector-B**

**XXX**

**Sector-C**

**XXX**

XXXXXXX
Capt
For OC, XXX Fd Coy Engrs

Annexes:
A.
B.
C.
D.

Distr:

Extl:

Act:

Copy No

XXX XXX

Info:

XXX XXX

Internal:

XXX XXX