Chapter-4

Military Geography of East Pakistan

Introduction

Strategist of repute Baron De Jomini, avers, “If a general desired to be a successful actor in the great drama of war, his first duty is to study carefully the theater of operations so that he may see clearly the relative advantages and disadvantages it presents for himself and his enemies.”¹ The French term *Coup d’Oeil* (an eye for the ground) coined by Fredrick the Great, appears to symbolize the intellectual capacity of military commanders to evaluate geography and apply that evaluation, to the successful prosecution of war. ‘*Coup d’Oeil* views geography as the relationship among what a commander can do with the ground, what his opponent can do with the ground, and how they will interact on the ground.’² Military geography of a country has great influence on formulation of the war strategy and military operation. ‘This aspect of geography is the relationship of some, or the total of all the environmental factors such as relief, climate and weather, vegetation, soils, lithology, drainage characteristics, and cultural features—to the solution of military tactical and strategic problems’.³ It is therefore imperative that a detailed study of the military geography of East Pakistan as obtaining in 1971 is a pre requisite to assess the effect of terrain and topography on the war strategy adopted by the opposing forces related to the deployment of force, timing of the campaign and tactical conduct of operations.

Military geography must be able to assist the commander:

1. To envision the military end state, where his forces must be at the desired end state.
2. To envision a sequence of events in the medium of time, space and mass which gets his forces to the desired end state.
3. Envision how to apply resources operational and logistical which will carry the force through the sequence of events with sufficient strength to achieve the desired end state.

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The Land

Pakistan was constructed as a geographical rarity with two wings, East and West separated by 1000 miles sandwiched by India, with no land route connecting them. East Pakistan was curved out of the provinces of Bengal and Assam of British India. It was bounded by three sides by India’s five north-eastern states: West Bengal to the West, Meghalaya to the North, Cachar District of Assam and Tripura to the East and the fourth side by the Bay of Bengal. A small portion in the south east near Chittagong and Cox's Bazar bordered with Burma (Myanmar). East Pakistan was typical riverine terrain, except for the hilly areas in the Sylhet and Chittagong, remaining part of the terrain of this country was plain. Important geographical statistics are as stated below:\(^5\)

a) Total Area- 144,000 sq.km
b) Land- 133,910 sq km
c) Water- 10,039 km
d) Land Boundaries-4246 km
   i) With India-4053 km
   ii) With Burma-193 km
   iii) Coastline 580 km

Population

East Pakistan had a population of 75 million as of 1971. Average density of population was 922 persons per square mile; in some parts it rose to 1500 per sq mile. Among her population, almost 98% were Bengalis, balance were Urdu speaking Bihari Muslims and members of various tribal groups mainly living in Chittagong Hill Tract. From the religion group point of view, about 82% were Muslims, 17% were Hindus, remaining were Buddhists, Christians and practitioners of Tribal religion.\(^6\)

River System

East Pakistan had approximately 700 rivers including tributaries which flow through the waterway of total length around 24,140 km. The rivers of East Pakistan stand out as a special mark in the physiography of East Pakistan and have great influence on its population in terms of irrigation, water transportation and fishing etc. During monsoon,
the rivers get flooded and cause hardship to the people and many a times it becomes devastating causing enormous damage. There were three major rivers in East Pakistan namely, Padma (known as Ganga in India), Jamuna (known as Brahmaputra in India) and Meghna. These major rivers naturally divided the country into four sectors. They are:

1. South Western Sector (area south of Padma).
2. North Western Sector (lying between Padma and Jamuna).
3. Central Sector (lying between Jamuna and Meghna).

River system of East Pakistan can be divided into five major networks as stated below:

The Jamuna-Brahmaputra Network
It is 292 km long and extends from northern East Pakistan to its confluence with the Padma originating from Tibet and flowing through India’s Arunachal Pradesh and Assam and then to East Pakistan. At the point where Brahmaputra meets the Tista River in East Pakistan, it becomes known as Jamuna. Subchannels of Jamuna had been continuously shifting, as a sequel formation of ‘chars’ (silt islands) occurs. Because of the continuous shifts, its banks are devoid of human habitation.

Padma-Ganges Network
It is divided into two sections a 258 km segment, the Ganges which extends from the western border with India to its confluence with the Jamuna some 72km west of Dhaka and a 126 km segment the Padma., which runs from the Ganges-Jamuna confluence to where it joins the Meghna River at Chandpur.

Surma-Meghna
This is the third river network system which runs from the north-eastern borders of India to Chandpur, where it joins Padma. It is the longest river network of East Pakistan having a length of 669 km.
Padma-Meghna Network
Below Kalipur, this river gets the name Meghna. It is 145 km long which flows to the Bay of Bengal.

Karnaphuli
It is the fifth river system which flows through the region of Chittagong and Chittagong hills and runs to the west and south west and to the sea. The port of Chittagong is situated on the banks of Karnaphuli.

Map No.4-Depicting Topography of East Pakistan

The Climate.
The climate of East Pakistan (now Bangladesh) is characterized by high temperatures, heavy rainfall, and often excessive humidity and fairly marked seasonal variations. It has a tropical monsoon type climate and has six seasons. The summer is hot and humid
with a prolonged rainy season from June to September at times spilling over to October and a dry season in the cooler months from October to March. January is the coolest month while April is the warmest month. Average annual rainfall is 200 cm.

<table>
<thead>
<tr>
<th>Table No.5- Average Temperature and Rainfall</th>
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<tbody>
<tr>
<td>Jan</td>
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<tr>
<td>Max Temp(0c)</td>
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<tr>
<td>Minimum Temperature</td>
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<td>Rain fall in mm.</td>
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(Source: http://www.virtualbangladesh.com/bd_geog_climate.html)

In the early summer (April-May) and late in the monsoon season (September-November) storms of very high intensity with wind speed of 100-150 miles/hour occur in the coastal districts particularly those flanking the Meghna estuary causing great losses of life and property. Bhola cyclone of November 1970 can be cited as an example of the worst kind of devastating cyclone, which the East Pakistan suffered.

**Sector-Wise Terrain Analysis**

**North Western Sector**

It is bounded by Indian border (mainly West Bengal) to its North and Western side and on the east by the Jamuna River and south by the Ganga River. From Indian point of view, this sector assumed great strategic importance as it was adjacent to Siliguri corridor which is gateway to north eastern states of India, Sikkim and Chumbi Valley. China an ally of Pakistan can threaten India in this sector if it decides to join war with Pakistan. Shilliguri corridor is a vulnerable area for India which the war planners had to keep in mind.

Bogra and and Rangpur were important communication centers. Rangpur was also an important cantonment. Other important places were Dinajpur, Pirganj, Gaibanda, Nator,
and Bera. Road Tituliya to Bogra and Bera was an all weather road in this sector which connected Kushtia and Jessore by a ferry near Hardinge Bridge.

In addition, an offensive operation in the narrow waistline in between Hilli and Gaibanda would pose a great problem to the Pakistani defenders as it had strategic consequences. While considering Dacca as the final objective; this sector provided the longest approach. There were no bridges on the Jamuna River to connect with the Dacca Sector. Thakurgaon had a small airfield for the light aircraft.

**South-Western Sector**

The river Ganga flowed on the north and east of this sector and on the south layed the Bay of Bengal and in its west it had border with India. Communication point of view, this was an important sector as important towns such as Jessore, Jhenida and Magura were located here: other important communication centres in this sector were Faridpur, Kustia, Khulna and Chalna. Amongst these, Jessore was well known for its cantonment. Jessore also could be considered as a strategically important town which controlled communication to Chalna port and the capital city Dacca. Magura was another important communication center on whose east River Madhumati flowed. Magura controlled the ferries across Madhumati, Faridpur and Goalando Ghat. Chalna was developed as the second biggest port in East Pakistan which gave axis to open sea and thus to West Pakistan and the rest of the world. From there existed a strategically and commercially important road communication between Hardinge bridge to Chalna connecting Jhenida, Jessore and Khulna.

This sector was closest to Calcutta from the point of view of an invasion to Dacca. Distance wise it was the second nearest approach from the Indian border. However, it must be noted that Dacca could not be reached with single mode of communication.

**Eastern Sector**

This sector had a common boundary with North eastern states of India, Meghalaya on the north and on its east were Tripura, Mizoram, and some parts of Burma. The Bay of Bengal was on its south and Meghna on the west. This area had mixed type of terrain unlike other sectors. Area around Chittagong Hill Tracts, Lalmai Hills (Comilla) and
Sylhet had hilly terrain. Sylhet, Comilla and Chittagong were the important towns in this sector. Chittagong and Cox’s Bazar were two important sea ports. Ashuganj, Chandpur and Dandkandi were important ferries. Comilla had an all-weather airport and this important town was connected with Chittagong, Chandpur, Sylhet and Dacca with rail and also had road connection with Chittagong, Chandpur, Sylhet and Daudkhandi. Strategically Comilla therefore assumed significant importance; capture of which will create a great blow on the defender. Chandpur was an important link between Chittagong and Dacca. It was also a road and rail terminus connecting Comilla and Akhaura.

It is important to mention that the bridge over Meghna at Ashuganj was not meant for road traffic. It had a meter gauge railway connecting Akhaura, Mymensuigh and Dacca. Communication with Silchar of India was existing before partition and could be refixed with some effort if needed. Approach to Dacca through this sector was the shortest from India.

Central Sector

This sector had been the gravitas centre because of the location of East Pakistan’s capital city Dacca. Shape of this sector resembles an inverted triangle with the international border as its northern base and Dacca at its southern apex. The Meghna on the east and Jamuna on the west form the other two sides of the triangle. To reach Dacca one needs to clear Tangail, being an important communication centre on its approach road. To reach this sector particularly for Dacca from northwestern or southwestern sector, ferries had to be used as there was no road link. Only from eastern sector Chandpur, Daudkandi and Bhairab Bazaar had road link to Dacca.

While moving from Meghalaya towards Dacca; Brahmaputra, a local tributary of Jamuna could be crossed at the ferries of Jamalpur and Mymensingh vis-à-vis other approaches which were more interspersed with rivers. Brahmaputra which was about 100 feet wide was the only water obstacle to be crossed by ferry. However, this approach from India is the second longest approach.
Communication Systems

Roads and rail communications for the undivided Bengal as well as Assam developed with focal points Calcutta and Chittagong. Most of the important roads and rail routes ran south to north. Roads and railways running east to west had to cross many rivers and streams which were not always bridged. Dacca being district town during British Indian era was not part of the main communication network. Only after the birth of Pakistan and after becoming capital of East Pakistan, Dacca gained prominence. Because of the step motherly treatment that it received from the colonial mindset Pakistan government, there was bare minimum development of the communication system.9

Capital city Dacca was surrounded by Brahmaputra, Jamuna and Meghna rivers in east and west and delta areas on the south. Thus Dacca enjoys natural protection from three sides which an invader had to factor in his attack plan. It is also worth mentioning that since pre partitioned era, Dacca was linked with other prominent towns in East Pakistan; but there was no direct road linkage from India. Dacca could not be reached without crossing at least one major river.

North Western and South Western sectors were linked by the Hardinge Bridge over the Ganga, but this bridge was not meant for vehicular traffic. Meghna River divided the eastern part into two i.e. eastern and central sectors. Rail Bridge at Ashugang over Meghna linked the two and connected Chittagong with Dacca, Mymensingh, Jamalpur etc. From the strategic as well as tactical point of view both the bridges were of great significance.

In addition to the big rivers discussed above, there were numerous other rivers such as Madhumati, Karatoya, Surma and their tributaries whose size during monsoon season became very large when they were in spate. State operated water transportation system were an integral part of the popular communication system. There were various types of rivercrafts and boats were extensively used by the locals which were their lifeline. About the communication system in East Pakistan, Lt General A.A.K. Niazi, Commander of East Pakistan Forces succinctly said, “Here the communication system is unique in the world; it is waterway-railway-roads, in that order, while in the rest of the world it is the other way round. To get from Dacca to Jessore: upto Narayanganj the journey would be by train or road, from Narayanganj to Khulna or Goalando Ghat by steamer, and from there to
Jessore by broad gauge railway. A crow’s flight distance of seventy five miles from Dacca to Jessore would take two days and involve three trans-shipments.\textsuperscript{10}

**Railways**

East Pakistan had approx 1700 miles of railways; of which two third was metric gauge and one third was broad gauge. Broad gauge covered Khulna, Chilhati, Benapol, Faridpur, Bhatiapara, Kumarkhali ghats and Sirajganj. Ishurdi used to be the focus of most of the traffic. Paksay was HQ for the railways commercial and transportation district which covered the whole broad gauge System.

The main meter gauge system was in the Eastern and Central Regions with controlling HQs at Dhaka and Pahartali(Chittagong). Bhairab Bazar(Dhaka) sector included Narayanganj, Jagannathganj Ghat, Jamalpur-Bahadurbud Ghat, Tongiti Chhatak via Akhaura.Chittagong (Pahartali) controlled rail/communication from South of Akhaura in Chittagong-Akhaura, Lakshan, Chandpur, lakshan-Noakhali, Feni-Belonia and Chittagong-Doa. The river ferries at Jagannathganj-Sirajganj and Bahadurabad-Fulchari were maintained by the railways in addition to the large bridges at Paksey, Bhairale and Mymensingh.

The railway system linked at nine places with the Indian Railways at the time of division of British India. But during 1971 they were not operational.

**Inland Water Transport**

Being a riverine country and also with innumerable khals, bils etc. communication by waterways assumed great importance in East Pakistan. Inland water transport Authority (IWTA) estimated that there were approx 5000 miles of waterways during the rainy season which shrink to 2500 miles during summer. From May to November the waterways are busier than all the other forms of communications put together. As per IWTA there were 203,072 passengers carrying boats (Dingi, Pansni, Goyna, Sampan etc.) The core of the water transport system was made up of 172 steamers, 887 motor vehicles, 6 oil tankers and 713 dumbcrafts(mostly jute barges).\textsuperscript{11}
Availibility of local water transport resources have been analyzed which were used by Mitro Bahini during Bangladesh campaign. Various types of river crafts were used for transporting men and material during the liberation war.

**Important Ports**

Chittagong and Chalna were the two major ports of Bay of Bengal. Other important ports were Cox’s Bazar, Chandpur and Khulna.

**Airfields**

Airfields were located at Dacca, Jessore, Ishurdi, Sylhet, Shamsher Nagar, Comilla, and Chittagong. These airfields had different capabilities in terms of type of aircrafts that can be operated. Some needed repair and upgradation for sustained operation.

**Map No.5**

(Map Showing Seaports and Airports in Bangladesh and in adjacent India)
Map No.6

Map Showing Major Metalled Roads in East Pakistan in 1971
(Source: Niazi, Betrayal of East Pakistan, p. 59)

Roads
By 1970, East Pakistan had approx 2,397 miles metalled roads. These were connected by unmetalled feeder roads linking remote interior villages with the urban township. The metalled roads were raised some fifteen feet or so above the surrounding country side. Nearly all the unmetalled roads were dusty during the dry season and muddy in the rainy season. From Indian side roads leading to the various sectors of East Pakistan were as under.\textsuperscript{12}
a) **Southwestern Sector:**

b) **North Western Sector:**
   i. Balurghat Gobindganj-Bogra-Bera. From Bogra, a road connected with Nator-Harding Bridge-Jhenida.
   ii. Siliguri-Dinajpur-Rangpur-Bogra.
   iii. Jalpaiguri-Domar-Rangpur-Bogra.

c) **Central Sector:**
   i. Tura-Jamalpur-Tangail-Dacca.

d) **Eastern Sector:**
   i. Shillong - Jaintiapur to Sylhet
   ii. Kailashahar-Maulavi Bazar-Sylhet
   iii. Agartala-Akhaura-Ashuganj
   iv. Sonamura-Comilla-Daudkandi.
   v. Comilla-Lalmari-Chandpur
   vi. Chuaddagram-Laksham-Chandpur

Within East Pakistan, it would thus be seen that the road system has been linked up within the frame of five major routes. They are:
Route 1. Teknaf-Cox’s Bazar-Chittagong-Comilla-daudkandi-Dacca-Aricha(360 miles).
Route 2. Comilla-Brahmabaria-Maulavi Bazar-Sylhet-Sunaumgang
Route 3. Nagarbari-Bogra-Rangpur-Dinajpur-Tetulia
Route 5. Barisal-Faridpur-Goalundo-Jhenida-Chuadanga-Meherpur

**Important Towns and Communication Centres.** (Nodal Points/Strong Points)
a) North West Sector – Bogra, Rangpur, Dinajpur, Pirganj, Gaibanda, Nator and Bera
b) South West Sector – Magura, Faridpur, Kushtia, Khulna and Chalna.
c) **Eastern Sector** – Chandpur, Ashuganj, Sylhet, Maulvi Bazar, Bhairab Bazar, Comilla, Daudkhandi, Chittagong.

d) **Central Sector** – Dacca, Mymensingh, Tungi and Tangail.

**Topography Related Problems for the Defenders**

The water table was about four to five feet, so unlike other places here, weapons pits to be built up rather than dug down, making them conspicuous. Whichever way they were made, the rain water filled the trenches. Trans sector movement of troops between Dacca and Rajsahi or Khulna had to be by rivercrafts or by air. Niazi mentions that though Dacca sector (Central Sector) had “good interior lines of communication, but switching of forces from one sector to other was not possible due to the huge river obstacles” 14.

**Topography on the Indian side of the Border States**

Topography particularly the communication systems on the Indian side of the border needs to be analyzed to facilitate correlate axis of maintenance for the operational logistic support and engineering effort required to reconnect the communication system between India and East Pakistan so that the invading force could carry out operations unhindered. Calcutta and Siliguri were two big communication centres from where there were pre Independence Day communication networks already existing in East Pakistan which in border areas for some distance were in disuse state as they were not operational. However, with some engineering effort they could be linked when and where needed based on the operational plan. Road and rail network opposite central and eastern sectors of East Pakistan were well developed. Gauhati was also a major communication center which had good road, rail and air connectivity, but it was not in close proximity of the international border.

Another not so developed communication center was Dharmanagar which had a meter gauge rail link with Lumding. Tripura was a remote sector which was least developed. Having examined the topography of the Indian side of the border states one can conclude that the major portion of the military operation could be launched from West Bengal and Assam but not from Tripura. Indian side had three highly developed airfields at Calcutta,
Shilliguri and Gauhati from where Indian Air Force (IAF) could provide air support for the offensive operation. Therefore, from the point of view of turnaround, IAF could provide support to operations in western and northern sectors of East Pakistan. Airfield at Silchar reduced the range of operation for the IAF because of the distance.\textsuperscript{15}

**Deductions from the Analysis of Topography & Terrain.**

1. Important Roads from India To East Pakistan during Bangladesh Campaign were as under:\textsuperscript{16}

2. Timing of Launching Military Operation. From the point of view of climate, and weather it is deduced that November to January can be considered as the appropriate campaigning season.

3. Blockade/Denial/Destruction of Sea/Airports. Seaports at Cox’s Bazar and Chalna to be blocked to shop reinforcement of troops and military hardware, logistics supply. Airports at Dacca, Chittagong, Comilla, Shamshernagar, Sylhet, Jessore, Ithurdi(Pabna), Lalmanirhat be made ineffective during the initial stage of the operation so that PAF is made defunct. However, a few airfields if required could be used for own buildup.

4. Major Engineering efforts would have to be planned to reconnect some old rail/road links and adequate bridging equipments need to be ensured for ensuring logistics supply in keeping pace with the advancing force.

5. Nodal points (Fortresses). Pakistan army would likely to deploy troops in the following communication centers (nodal point/strong point/fortress concept of defence):
   a) **North West Sector**-Bogra and Rangpur.
   b) **Southwest Sector**-Magura, Jessore, Khulna, Chalna. Magura was vital as it controlled road approaches to Madhumati ferry, Goalanda Ghat and Faridpur
c) **Eastern Sector**-Chandpur and Ashuganj  
d) **Central Sector**-Tangail

6. Capture of Dacca by the invading force should be the ultimate objective to serve politico-military strategic purpose. Best geographical approach to Dacca from the Indian point of view was through the central sector entering it from the northern direction, though distance wise reaching Dacca via eastern sector would have been shortest.

7. Being a riverine terrain, cross country vehicular movement will be highly restricted, so would be the employment of tanks. At the selected places, bridges have to be laid.

8. Defenders will base his defences on the communication networks and will make use of rivers and other water obstacles extensively.

9. Poor roads near the international border and limited number of metal road and bridges on the rivers will slow down logistics support which will require adequate planning and proper grouping of the support services to ensure matching support of operational logistics.

10. Airfields at:- Kurmitoala, Tejgaon(Dhaka), Jessore, Khulna, Thakurgaon, Rangpur, Sylhet, Feni, Shamshern agar have to be taken care of by the IAF. PAF bases need to be made non operative. Use of air fields by the Indian Defence Forces, in subsequent stages of operation, was to be part of the Air Force operational plan.

11. Except for the eastern sector which was hilly, the ground configuration in other three sectors was mostly same. 

17. Tanks could be employed in north –western sector and to some extent in south western sector.

12. Following were to be considered as important strategic objectives, capture of which will make defenders defence untenable, thus ensure speedy progress of offensive operation by the invading force:

a. **North-Western Sector**: Bogra is the most important communication centre in this sector. Domination of area line joining Hilli-Gaibanda will split the defenders into two halves. Bogra controlled ferry at Bera gateway to Dacca and assumes an important military objective whose capture will enable invading force to speed up operation.
b. South-Western Sector: Khulna, Jessore, Jhenida and Magura are important towns which were likely to be defended strongly. Their capture could dis-organize Pakistani forces deployed in this sector.

c. Eastern Sector: Capture of Meghna bridge will isolate Dacca from Chittagong, Comilla, Syllhet, Maulavi Bazar, Sylhet and air field at Ahamsher Nagar. These places should be considered as likely objectives. Naval blockade of Chittagong is considered a must.

d. Central Sector: Dacca—the pen ultimate objective located in this sector; capture of which will ensure over all victory.

**Conclusion**

Military implications of terrain elements is an integral function of effective military planning, both tactical and strategic. Geographic intelligence from the study of military geography of the country where an invasion has been planned will form part of the overall intelligence spectrum. Aspects like accessibility: options of physical entry into the campaigning area by getting information on all means of communication systems are an important aspect for war planning. Evaluation of accessibility continues till the operation ends. Operational logistics and maintenance including post campaign support to the invaded country also fall within the ambit of accessibility assessment. Mobility is another aspect which is assessed though the study of transportation networks and existence of various obstacles. In case of East Pakistan, rivers, bridges, climatic factor like rainy seasons had to be considered both at strategic as well as tactical level. Vulnerability is another aspect which is the study of ‘opponents capability to interdict’ the axis of attack and axis of maintenance. Other aspects that emerges out of the study of military geography and terrain analyses is ‘communicability’ i.e. effect of terrain on the communication system through which command and control during war is an inescapable requirement. Last but not the least is the assessment of the aspect of ‘availability of local resources’. In Bangladesh campaign, river crafts, local resources like civil hospital facilities, manpower, makeshift bridging materials, petrol dumps etc. were used. Soldiers use geography unconsciously: so said Brinkerhoff. Eye for the ground and its proper use is a must even for the most basic tactics ‘fire and move’.
All the military strategists like Sun Tsu, Napoleon, Jomini, Friedrick the Great, Clausewitz, Liddle Hart etc. have emphatically highlighted on the importance of geographical elements on the conduct of military operations. In the instant campaign, both the defending as well as the invading force made good use of terrain. Mukti Bahini too while operating following guerrilla tactics made use of terrain in lines of what Sun Tzu advocated that terrain can be used as a force multiplier by the smaller force and a force inhibitor against the larger force.\textsuperscript{22}
End Notes & References: Chapter-IV


9. Ibid, p.3.


15. Singh, Lachhman, p.11.


