

INTEGRATION OF NATIONAL COMMUNICATION RESOURCES TO ENHANCE THE OPERATIONAL CAPABILITY OF BANGLADESH ARMED FORCES

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INTRODUCTION

Development in the field of communications, including Information and Communication Technology (ICT), is considered to be one of the most important technological developments achieved since the World War II. Bangladesh (BD) has not fallen behind in this respect. Telecommunication sector of BD has kept pace with other countries of the world. Much progress has been made in telecommunications field and the credit of development can be given to individual organisations. There has been no significantly developed integrated approach as regard to utilisation and resource sharing in this field.

Proper exploration and integration of communication resources will enhance BD Armed Forces ability in providing and maintaining communications both during peace and war. Such integration can serve the purpose of providing operational communications as well as provide alternative means of communications. Moreover, providing communication to unconventional forces can be facilitated through such integration. The best possible method of integration involves the use of communication resources or system during peacetime and to automatically switch to another mode during wartime.

The integration of communication resources is a vast subject. It covers not only integration of such resources through optimum use of equipments and channels, but also integration of aspects like Signal Intelligence (SIGINT), Electronic Warfare (EW), frequency management, communication equipment manufacture, etc. This paper will examine the integration of all such aspects. It will focus on national communication resources of organisations that have the set up needed to support communication needs of the Armed Forces. In addition, the research will critically analyse the prospects and challenges of integrating such resources leading to multiple options of operational and tactical communications for the Armed Forces. The financial aspects will only be highlighted to give a preliminary idea of the likely cost involvement for integration.

AIM

To evaluate available national communication resources for integration with military communication with a view to suggesting integration options to enhance the operational capability of the Armed Forces.

EVALUATION OF THE COMMUNICATION RESOURCES OF THE ARMED FORCES

Evaluation of the Communication of Bangladesh Army

Communication from Army Headquarters (AHQ) down to unit(s) in the formations is based on the scale of communication set in 1994.¹ Such scale does not cover the communications aspects of inter services, Signal Intelligence (SIGINT), including communication need basing on the peculiarities of different formations area of responsibility (AOR). The concept of blending conventional warfare with unconventional warfare (UCW) calls for a flexible communication plan (COMPLAN) to support operational plans.

At present, the army depends on a single communication backbone provided by the Bangladesh Telegraph and Telephone Board (BTTB). A communication network using the Bangladesh Air Force (BAF) microwave system is near completion. Communication with forces deployed in the AOR is not possible with existing resources to support the operational plan of the formations. Besides, appropriate communications through Air Defence Operation Centre (ADOC), Air Support Operation Centre (ASOC), the navy and under joint control have not yet been developed and, as such not yet tested. Development in the field of ICT is another grey area, which needs adequate expert staffing and implementation at all levels. On the other hand, existing workshop facilities including Research and Development (R&D) facilities have not been utilised to fulfil present day needs. Procurement of spares is a matter of concern due to multiple origins of the equipment as well as non-standardisation affects and timely repair of communications equipment.

EW and SIGINT Aspects. EW development is another grey area. The absence of EW capability can affect High Frequency (HF) radio communication at all levels. As far as SIGINT aspects are concerned, the Army has only authorisation of manpower in the formation signal units to monitor own communication nets.

1. Lieutenant Colonel Saleem Ahmad Khan, Optimising the Communication Resources of an Infantry Division, Bangladesh Army Journal, 40th issue, December 2006, Dhaka, p. 47

Future Plan and Comments. Instead of quantifying the scale of communications, only the means of communication (circuit/media/link) needs to be mentioned to assist in preparing a flexible COMPLAN. A ten year ‘Perspective Plan’² has been prepared by AHQ, Signals Directorate, which covers a phase-wise implementation with respect to development of communication and procurement of modern communication equipment including commercial version wireless equipment. The future plan focuses on secured fibre optics based on utilizing BTTB as the main backbone by 2008 - 2009.³

Evaluation of the Communication of BD Navy (BN)

As per Draft Joint Warfare Doctrine and likely concept of operations of Bangladesh Navy (BN), communication systems need to be developed to support the joint and maritime operations. BN may have to take over control of all coastal radio stations and promulgate radio policy for adoption by ships during war as part of Naval Control of Shipping (NCS).⁴

Telecommunication is generally used in shore establishments. BN has a contract with Grameen Phones (GP) to provide fibre optics link between the naval bases. Global Maritime Distress and Safety System (GMDSS),⁵ needs to be incorporated in few naval ships⁶ to provide support for maritime search and rescue (SAR) operations. Besides, communication with Army, ADOC, ASOC and under joint environment is required to enhance BN’s operational capability.

EW and SIGINT Capability. BN needs tactical EW capability due to its dependency on radio communication.⁷ It uses an EW simulator in its School of Maritime Warfare and Tactics (SMWT). Through the simulator, basic to advanced level training is imparted on EW. BN needs to acquire SIGINT capability to monitor communication nets of the adversary and must acquire EW systems in all its ships and communication centres.

2. AHQ, Signals Directorate, Perspective Plan for Corps of Signals–2003.

3. Brigadier General Rafiqul Islam, ndc, psc, Director Signals, Signals Directorate, AHQ, a personal interview by the author on 23 April 2007.

4. Vice Admiral Sarwar Jahan Nizam, ndu, psc, the Chief of Naval Staff, during a lecture before AFWC 2007 on Dealing with Maritime Challenges of a New Era on 09 August 2007.

5. “GMDSS is specifically designed to automate ship’s radio distress alerting function and as a consequence does not need to focus on human watch keeping on distress channels. Few BN communication centres and ships have GMDSS communication as per requirements of the International Maritime Organisation. GMDSS comprises Emergency Position-Indicating Radio Beacon (EPIRB), INMARSAT and high power HF wireless set, Search and Rescue Radar Transponders, Digital Selective Calling (DSC) on Medium Frequency (MF), HF and VHF maritime radios.” at <http://gmdss.com.au/requirements.htm>.

6. Captain AKM Jashimuddin Sarker, Chief Nautical Surveyor, Department of Shipping, Government of Bangladesh, personal interview by the author on 04 June 2007.

7. Commander Nazrul Islam, psc, BN, Acting Director Communication, Naval HQ, Banani, Dhaka, a personal interview by the author on 22 March 2007.

Workshop Facilities. The workshop of BN at Chittagong undertakes repair of Printed Circuit Boards (PCB). Besides, communication equipment and accessories from merchant ships awaiting breaking are taken to BN workshop (known as Bhatary Store)⁸ for repair and subsequent utilisation. These equipments may be used by the UCW Forces of the services, if necessary.

Future Plan and Comments. The major problems of communication equipment in BN are non-standardization resulting from the procurement of various types of equipments of different origin. BN will connect all shore installations through the BAF microwave system by 2008. Besides, Wide Area Network (WAN) will be extended to all bases by 2008 through GP fibre optics.⁹

Evaluation of the Communication of BAF

BAF communications depend on telecommunications through microwave system as far as communication of ADOC is concerned. Due to absence of a dedicated joint control or coordination, the microwave project is facing operational and maintenance difficulties.¹⁰ BAF has recently laid fibre optics from Air HQ to BAF Base Kurmitola as a part of introducing secure communication means.

EW Capability.¹¹ BAF has limited EW capability. The identification of friends and foe (IFF) is another grey area. IFF integration of BAF assets and BN ships are essential to support the Campaign Plan. EW integration is required through BAF Radar Squadron, Air Defence Artillery (ADA) regiments of army and BN ships to secure the air defence network of the country.

Workshop and R&D Facility. BAF has a well established workshop and R&D facilities. It has developed a number of cost effective projects which are already in use.¹²

8. Brief on BN Dockyard during a visit on 23 July 2007.

9. Lieutenant Commander Abedin, Information Technology Directorate, Naval HQ, personal interview by the author on 09 August 2007.

10. Brigadier General Rafiqul Islam, No. 4 on 03 August 2007.

11. Group Captain Fuad Bin Ali, Director Communication and Electronics, Air HQ, during a seminar on 'EW Aspects of the Armed Forces' for AFWC-2007 on 17 May 2007.

12. Brief on No 205 Maintenance Unit of BAF during a visit on 05 June 2007.

NECESSITY FOR INTEGRATION OF NATIONAL COMMUNICATION RESOURCES

Integration Necessity During Peace and War

The present communications set up of the Armed Forces cannot meet the future requirements for joint operations. Besides, since the Armed Forces often is deployed for operations other than war, for better command, control and communication (C3), an integrated communication system is essential. In addition, Joint Forces (JF) and Joint Task Force (JTF) may also be formed to conduct campaigns necessitating integrated and additional communication resources. Therefore, providing communications to the elements of Joint Command Centre (JCC), ADOC, ASOC, etc. will need an efficient integrated approach with multiple communication means.

During the Gulf War 1991, strategic, operational and tactical communications were duplicated by high quality civilian landlines.¹³ In the Battle of Grozny (1994), civilian communications system (mobile communication network) was used along with military communications both by the Russian Army and the Chechen rebels.¹⁴ Thus study of military history suggests integration of civil communications resources act as an aid and multiple communications means for conducting military operations.

Existing Cost Factor on Communication by the Armed Forces

The Bangladesh Armed Forces constitute a substantial amount of revenue to BTTB and GP each year. Approximately Taka 7, 00, 00,000 (seven crore) is paid each year for utilizing a dedicated channel.¹⁵ Resource sharing or integration with national communications assets may not require paying such a huge amount. On the other hand, cost of military communication equipment is another grey area, where the cost of military versions, maritime versions, etc may be a factor which can restrict appropriate integration during the procurement process. The availability of military version communications equipment is also a factor. Some percentage of commercial version communication equipment, which is much cheaper compared to military version equipment, may save communication equipment costs for the Armed Forces. However, specific

13. M A Rice and A J Sammes, Command and Control : Support System in the Gulf War, Vol.12, BRASSEY's, London, New York, p. 34

14. Timothy L. Thomas, The Battle of Grozny: Deadly Classroom for Urban Combat at <http://www.carlisle.army.mil/usawc/Parameters/99summer/thomas.htm>.

15. Major Abu Zafor Salahuddin, General Staff Officer-2, Signals Directorate, AHQ, personal interview by the author on 23 April 2007.

requirement of communications equipment under maritime environment and for aircraft operations may necessitate purely military version equipments. It may be mentioned here that the Australian Defence Forces and a few other defence forces of Asia, Europe and Africa use Barrett communication equipments, which are commercial communication equipments.¹⁶

Policy Guidelines

National Telecommunications Policy and National Telecommunication Act.¹⁷ The BD Government formulated the National Telecommunications Policy in 1998 and enacted the National Telecommunications Act 2001. It made the BD Telecommunication Regulatory Commission (BTRC) the sole authority with respect to policy implementation of Telecommunications Act. It may be mentioned here that, under the amendment to Act, as per Gazette notification dated 16 February 2006,¹⁸ it can use communication resources of any organisations, when necessary.

ICT Policy.¹⁹ The BD Government has also formulated an ICT policy to build an ICT-driven nation comprising of a knowledge-based society, e-governance, and on-line ICT-enabled services. According to the policy, infrastructure and services should be provided by a multiplicity of enterprise, such as BTTB, BD Railways (BR), Power Development Board (PDB), Rural Electrifications Board (REB), etc. In addition, the Armed Forces could use ICT to the fullest extent to increase its effectiveness.

Support to ICT (SICT) Task Force.²⁰ Considering the importance of ICT, the Government of BD formed a national ICT Task Force with the Prime Minister as its Chairperson in 2002. As part of one of its projects, backbone connectivity (through fibre optics) of the Armed Forces Division (AFD) computer network with the Prime Minister's Office and three services HQ will be completed by 2007 – 2008.

Policy Guidelines within the Armed Forces. AFD formed a Tri-service committee for implementation of a Joint Service Integrated Communication Network in 2003.²¹ As a part of this network, BAF microwave is being shared by the services as joint communications backbone. Regarding integration of

16. "Excerpts for the users list of Barrett communication equipment" at www.barrettcommunications.com.au.

17. Justice Mohammad Abdus Salam, Commissioner, BTRC, An Introduction of the BTRC, 2005.

18. BD Government Gazette Notification dated 16 February 2006.

19. Bangladesh Government ICT Policy.

20. <http://sictgov.org>.

21. AFD letter number AFD/2826/OPO/C dated 19 April 2003.

national communication resources, numerous steps have been undertaken by the Army including practice of integration during collective exercises, maintenance and updating database of the national communication resources, etc. As regards the BN and BAF, they have no policy guidelines on such integration.

Comments on the Policy Guidelines. As far as government policy guideline is concerned, integration of national communications resources is a priority for the Armed Forces. But Government policy guidelines do not cover the integration aspects of national communication resources with military communication. Representation by defence personnel in the policy making body of the government can assist in taking care of defence, security aspect of planning and development of communications means and resources. Such defence representation is already there for the development of road network of the country. Representative from the Armed Forces can be utilized as commissioners in BTRC and members in SICT Task Force to coordinate communications matters at the strategic level.

APPRAISAL OF THE COMMUNICATION RESOURCES OF GOVERNMENT ORGANISATIONS

Bangladesh Rifles (BDR)²²

BDR maintains communication from HQ down to the Border Out Post (BOP) level using different equipments. At present, it has monitoring sets at Sector HQ level with limited monitoring capability. Compatibility of communications is an issue as BDR is supposed to fit in the respective formation operational plans when it comes under OPCOMD of Army. ADOC may also depend on BDR to communicate with Mobile Observer Units (MOU) to cover gap in low level radar coverage. The Armed Forces may explore the possibility of extracting SIGINT through BDR monitoring nets.

Rapid Action Battalion (RAB)²³

RAB has fast, efficient and secure modern communication systems, including microwave and Management Information System (MIS) network, and Internet Phone (IP) since subscribers have internet connectivity. This is the cheapest type of communication at the user end (an IP costs approximately US \$ 100). Integration with RAB requires incorporation of terminal equipment at the subscriber level and the use of minimum accessories by the Armed Forces.

22. Colonel Md Saiful Islam, psc, Director Communication, HQ BDR, personal interview by the author on 08 March 2007.

23. Commander Moin, psc, BN, Director and Major Mohammad Jobaer, Deputy Director, Communication and Management Information System (MIS), RAB HQ, personal interview by the author on 22 April 2007.

BTTB²⁴

BTTB has the biggest communications network in the country. BTTB cell phone (Teletalk)²⁵ provides mobile communication all over the country. BTTB's SEA-ME-WE-4 project²⁶ has connected BD with the rest of the world through a secure fibre optics network. Integration with this network will allow the BD Armed Forces to get connected with the information super-highway through submarine cable.

Maritime Communication.²⁷ BTTB has approved a project on GMDSS in collaboration with the Ministry of Shipping. Under this project two base stations at Silimpur (Chittagong) and Mongla, one monitoring station in Dhaka and microwave links will be installed along the coastal belt to communicate with ships. It may be mentioned here that the project has not been planned to integrate with the BN and BD Coast Guard (CG) communication systems. Such integration, however, would have assisted in providing maritime safety.

Workshop and Factory Based Facilities. As regards the repair of communication system or equipment, BTTB depends on vendors as per agreement and not on the Telephone Shilpa Sangstha (TSS) any more. However, it retains some capability to manufacture telephones and accessories.

Comments. Armed Forces need to depend on BTTB for peace and wartime communication through the latter's dedicated fibre optics backbone. BN should be integrated with maritime communications project. Communication equipment manufacture for the Armed Forces by TSS may be explored but this necessitates a separate study. Teletalk's service can be utilised to maintain smooth communications during any crisis. Above all, appropriate representation from the defence establishment at the policy-making level of BTTB is required to deal with planning and development of communication means and resources. It may be mentioned here that such representation existed in the 1980s.²⁸

24. Lieutenant Colonel Ziaur Rashid Safder, General Manager (Security and Surveillance), BTTB, personal interview by the author on 08 March 2007.

25. <http://www.teletalk.com.bd>.

26. "Excerpts from Submarine Cable Layout" at www.SEA-ME-WE4.com.

27. "A presentation paper by BTTB in May 2006" at www.bttb.gov.bd.

28. Major General Manzurul Alam, ndc, psc (Retd), Chairman BTRC, personal interview by the author on 5 September 2007.

BR²⁹

BR has developed fibre optics based digital telecommunication network for its own use along railway lines connecting nearly 250 railway stations and has also leased it to GP. Armed Forces may integrate the resources of BR in likely deployment areas to meet future operational needs without disturbing railway communications and the GP network.

Power Generation Organisations

Power Grid Company BD (PGCB), a sister organisation of PDB, is now establishing its own fibre optics network through Optical Fibre Ground Wire (OFGW) throughout the country. REB has its own VHF and HF radio communications network with forty-three HF stations and a few hundred VHF/UHF terminals. As an additional circuit for operational emergencies, Armed Forces could use dedicated OFGW. Radio communications of REB can be used in case of emergency through integration with existing military radios.

Gas Transmission and Distribution Organisations

Titas Gas Transmission and Distribution Company Limited (TGTDCL) uses the UHF link to connect gas fields.³⁰ In addition, they have a vast VHF/UHF radio network. Gas Transmission Company Limited (GTCL)³¹ uses microwave and VHF communication to connect gas fields within operational areas. Its microwave channels can be utilised by the Armed Forces, if necessary.

Bangladesh Red Crescent Society (BRCS)³²

BRCS has a wide wireless network in coastal areas with HF and VHF stations. Wireless sets use solar panel chargers with deep cycle batteries to charge batteries in the coastal areas in the absence of regular supply of power. With one full charge, equipments can sustain themselves for five to six days without sun light. Communication network is designed for use during the disaster management under the Cyclone Preparedness Programme (CPP). Armed Forces, especially BN can use the communication resources of BRCS during any natural disaster and also during war while operating in the coastal areas.³³

29. HQ Army Signal Brigade, Integration of National Communication Resources to Enhance Military Communication : Prospects and Challenges, Formation Project Study Paper 2005.

30. Aminesh Chakma, Telecom Officer, TGTDCL, personal interview by the author on 31 May 2007.

31. "Excerpts from GTCL information on Communication Network", at <http://www.gtcl.org.bd>.

32. Nazrul Islam, Assistant Director, CPP, BRCS, personal interview by the author on 04 June 2007.

33. BRCS, 'CPP At a Glance' dated February 2002.

APPRAISAL OF PRIVATE OWNED COMMUNICATION RESOURCES

Mobile Phone Operators

The mobile network of GP³⁴ covers almost 98 percent of BD, excluding hill districts. To use GP communication facilities, adequate time (approximately 3 to 4 months)³⁵ should be given to the organisation, as it does not have any spare channels for use by the Armed Forces. Network coverage of Aktel³⁶, Citycell³⁷, Banglalink³⁸ and Warid Telecom³⁹ is less than GP, but they depend on either fibre optics / microwave based backbone.

Other Telecommunication Operators

People's Telecom and Information Services Limited (Peopletel)⁴⁰ is the first private nationwide Public Service Telephone Network (PSTN) operator. It connects 199 upazillas. National Telecom Limited (NTC)⁴¹ is another nationwide joint venture PSTN operator, which has its own fibre optics and microwave links. However, it does not operate in the Dhaka region. Other companies, operating in the field include Rangs Tel, One Tel, Jubok Phone, Dhaka Phone, etc. These companies provide wireless based telephone connections in different region of the country by using the backbone of other organisations.

Having own mobile network will definitely bring dramatic changes in Armed Forces operational efficiency. It could be mentioned here that after the bombing that took place in London on 07 July 2005, the mobile system collapsed due to simultaneous use by users.⁴² It should be mentioned that foreign investors in the telecommunication sector needs to be chosen from trusted diplomatic allies only, so that they do not turn their faces away when the country is facing external threat.

34. "Excerpts from GP information on communication", at <http://www.grameenphone.com>.

35. Md Shafiqul Islam, Chief Technical Officer, Technical Division and Kazi Md Saiful Alam, Deputy General Manager Regulatory & Interconnection, GP Limited, personal interview by the author on 29 March 2007.

36. <http://www.aktel.com>.

37. <http://www.citycell.com>.

38. <http://www.banglalinkgsm.com>.

39. <http://www.waridtel.com.bd>.

40. [http:// www.ptelco.net/ptis/index.php](http://www.ptelco.net/ptis/index.php).

41. [http:// www.nationalphone.net](http://www.nationalphone.net).

42. Major Wakelin, Operations Officer, United Kingdom Strategic Command Team, during discussion on Crisis and Consequence Management in National Defence College on 14 August 2007.

EVALUATION OF SIGINT AND FREQUENCY MANAGEMENT ASPECTS OF INTEGRATION

SIGINT Aspects

Intelligence organisations have limited the monitoring capability of communication nets, but they do not share SIGINT. Operations-related data can be recorded through monitoring and shared with formations / bases communication units or organisations of Armed Forces for subsequent analysis. BAF has developed a ‘Voice Recorder’ of the communication net.⁴³ Such device can be used for SIGINT by the concerned establishment of the Armed Forces. BAF Radar Stations have also RT scanners for monitoring the communication net.

The recently established Joint Monitoring Cell may continue functioning under intelligence organisations and analyse information received through SIGINT of different organisations.⁴⁴ Besides, intelligence data bank may also be developed by the cell for subsequent use by the Armed Forces as operational intelligence.

Frequency Management Aspects

Since ‘Radio frequency spectrum’ is a finite resource, it requires effective utilisation of the spectrum. BTRC has National Frequency Allocation Plan with the aim that all government, non-government and civil organisations only use the authorised frequency. It is necessary to allocate frequency within the three services to ensure optimum use of the frequency spectrum. Efficient allocation and management of frequency will become a key coordination issue while planning for integration of communication resources.⁴⁵

43. During a visit to No 205 Maintenance Unit of BAF Base at Kurmitola, a demonstration was organized showing recording of voice in a wireless net through the developed ‘Voice Recorder’ on 05 June 2007.

44. Major General Manzurul Alam, No. 39

45. “National Frequency Allocation Plan Version 3.1” at <http://www.btrc.gov.bd/final-nfap-v3-1.pdf> dated July 2005.

Integration OPTIONS of National Communication Resources

Integration Options in General

By using commercial communications equipment, Armed Forces personnel are likely to avoid using conventional communications means. This may make them indifferent to improving conventional means.⁴⁶ Such a situation will be disastrous. However, using the communication channel as the backbone will not cause such problem. Conversely, there may be restrictions against using private communication resources for military use in some cases. The use of private resources by the Armed Forces may lead to legal issues and such resources may become legitimate military targets by opposing forces.⁴⁷

Civil resources may be used as an alternative means of communication. There is thus a need to select potential access points⁴⁸ around the country to get connected with communication systems earmarked for use by the Armed Forces. Preparation of the access points should be the responsibility of resource owners. It may be mentioned here that the Peoples' Liberation Army of China uses access point throughout the country for smooth military communication.⁴⁹ Interfacing devices⁵⁰ may also be used for connecting at access points to ensure compatibility.

Integration Options at the Individual Services Level

Necessary coordination may be made to interface terminal equipments in all BAF microwave stations for use by the army to communicate in deployment areas whenever necessary. The fibre optics link between Air HQ to BAF Base Kurmitola may be extended to Civil Aviation at the Zia International Airport and thereafter from other bases to respective airports to enhance the operational capability of BAF. BN may take support from the Army for establishing a communication link up to Mongla and Kaptai to connect its installations. There BN can use the wireless equipment of BRCS during disaster management and man the coastal radio stations during a war.

46. Brigadier General Md Abdul Hannan, psc, Commander Army Signal Brigade, personal interview by the author on 27 March 2007.

47. Ibid.

48. "Access Point (also a node) is a network junction or connection point. Every terminal equipment, computer, hub and switch is a node".

49. Major Syed Muzakkir Ahmed, General Staff Officer-2, Signals Directorate, AHQ, personal interview by the author on 02 September 2007.

50. "Interfacing Device is used to bridge two different types of communication equipment together to perform a common task. For example, Modem".

EW. EW capability of BN can be shared by BAF at the tactical level and EW simulator at SMWT can be shared to train Army and BAF personnel. However, for this purpose, a separate feasibility study is necessary.

Integration Options under the Joint Environment

Joint Communications Aspects. Joint integrated communications system has already been approved and the implementation process required to do so is now underway.⁵¹ In order to extract further advantage from the microwave network of BAF, the Army and BN should also plan to establish WAN through the network. A separate organisation under AFD is required to administer joint communication aspects.⁵² Like the Engineer-in-Chief (E-in-C) and the Directorate General Medical Services (DGMS), a Signal Officer in Chief (SO-in-C) may be introduced at the joint services level to deal with tri-services communication.⁵³ This is the practice in the Indian and Pakistan Army. A proposed structure including responsibilities of SO-in-C's Branch under AFD is provided at Annex A. Establishment of a Joint Services Communications Unit is also necessary to handle joint communications of the Armed Forces. It may be mentioned here that a Signal Company in AFD (strength 232) has been kept under suspended animation as per revised TO&E of AFD, 1999.⁵⁴ Same Signal Company can be restructured as, 'Joint Services Communication Unit' (modified organisation including their terms of reference is at Annex B) and is to be placed under SO-in-C's Branch. Taka 52,64,00,000 (fifty two crore sixty four lacs) approximately will be required to raise the SO-in-C's Branch along with the unit (details are at Annex C). In addition, all joint communication nets⁵⁵ (command, logistics, movement control, special net, ADOC and ASOC nets) must have multiple secured options through appropriate integration.⁵⁶ It may be mentioned here that the Capital Air Defence Command Centre of Beijing, China deploys multiple communications means (fibre optics, wireless and satellite) throughout China for effective air defence communications network.⁵⁷ A suggested diagram of a joint communication net is depicted at Annex D.

51. Group Captain Fuad Bin Ali, No. 65

52. Wing Commander M A Samad Azad, Officer Commanding 205 Maintenance Unit BAF, personal interview by the author on 22 March 2007.

53. Major General Manzurul Alam, No. 39

54. Lieutenant Colonel Md Nazrul Islam, General Staff Officer 1 (Communication, Computer and Intelligence), AFD, personal interview by the author on 02 April 2007 and 02 September 2007.

55. Draft Joint Warfare Doctrine, May-2006, AFD, Pp. 3-10

56. Army Headquarters, General Staff Branch, Military Training Directorate, Staff Duties in the Field – 2006.

57. Brief on Capital Air Defence Command Centre, Beijing, China during visit by AFWC 2007, 12 September 2007.

Integration through BTTB and BR Resources. BTTB fibre optics can become the main backbone for the Armed Forces. BN can also be integrated with BTTB's maritime communications system. Approximately Taka 17, 20, 00,000 (seventeen crore twenty lacs) will be required to integrate with the fibre optics communications backbone of BTTB. Besides, around Taka 1, 27, 50,000 (one crore twenty seven lacs fifty thousand) will be required to pay yearly rental charges to use such a backbone.

Alternative Means of Communication. The microwave system of RAB, OFGW of PGCB and the microwave network of gas transmission and distribution companies could be an alternative means of communication. A proposed integrated communication backbone for the Armed Forces is given at Annex E. Having alternative means of communication within the financial constraint as per priority will certainly give flexibility to prepare COMPLAN.

Mobile Communication. Teletalk's mobile communications system (through some special arrangement) can be used by the Armed Forces for mobile communication. The Armed Forces may coordinate with the operator to extend network coverage near the likely deployment areas for ensuring uninterrupted network coverage.

SIGINT Aspects Integration. Monitoring capability/resources of intelligence organisations, BAF and BDR needs to be integrated/utilised for intelligence gathering and providing update of opposing forces by the services. Through the integration of such nets, missing links of information could be bridged to enhance the combat readiness of the services (proposed SIGINT network is shown at Annex F).

Communication Equipment Manufacture and Workshop Facilities Aspects of Integration. The TSS of BTTB may be reorganised for manufacturing communications equipment for the country as well as for the Armed Forces. Besides, there is a scope to integrate workshop facilities of the three services to go for limited production and repair support. BAF may take the lead in this regard, as it is better equipped than the workshops of the other two services. Such integration will also reduce pressure on the defence budget and will help make defence communications more self-reliant.

ICT Aspects Integration. The Armed Forces need to integrate voice communication first as data communication needs stable network. Maintaining data storage at different levels is necessary, so that the data can be accessed and shared by users through browsing web (like YAHOO, MSN, etc).⁵⁸ Websites of Army, Navy and Air Force can also be integrated under AFD as the 'Official Website of Bangladesh Armed Forces'.

58. Lieutenant Colonel Mustafizur Rahman, te, General Staff Officer-1, Information Technology Directorate AHQ, personal interview by the author on 29 March 2007.

Likely Difficulties and Impediments of Integration

Integration may pose some difficulties in implementation. Following are likely impediments which may be encountered during the integration process:

- a. Absence of a specific policy guideline issued by the government and the Armed Forces on use of national communications resources in terms of training, utilisation, coordination, budgeting aspects, etc. It can be pointed out here that BD does not have a national communications policy integrated with the military communications system.
- b. Some of the existing wireless equipments used by the Armed Forces and not fully compatible. This problem is even more evident while integrating the radio sets with other organisations in terms of frequency range, channel spacing, etc.
- c. Due to non-availability of appropriate access points and multiplatform communications means and resources of different organisations, the Armed Forces may not be able to access them. Even if they are available, it will be difficult to utilise them due to non-availability of appropriate interfacing devices.

RECOMMENDATIONS

After focusing on the national communication resources and analysing viable options for integration, we can make the following recommendations:

- a. A policy needs to be formulated on integration of national communication resources at the national level. Subsequently, a similar policy for the Armed Forces may be formulated.
- b. To ensure defence and security requirement and implementation of issues relating to national communication resources, a commissioner (Brigadier General / equivalent) of BTRC, an appropriate member of SICT Task Force (Brigadier General / equivalent) and a member of BTTB (Colonel / equivalent) could be chosen from the Armed Forces.
- c. To establish appropriate links with national level and Armed Forces, SO-in-C's Branch may be raised under AFD to facilitate better integration, coordination, management and development of communication of the Armed Forces in line with national policy. Side by side, a Joint Services Communication Unit may also be raised as part of Forces Goal – 2020 to support SO-in-C's Branch and take responsibility of joint communications. A separate budget may also be allocated for joint communications and integration aspects.

- d. The Armed Forces should use dedicated BTTB fibre optics as the main communications backbone. PGCB fibre optics can then be alternate to the main backbone. Communication is backbone of RAB, BR and GTCL will remain as reserve. BAF microwave system may, therefore, be the alternate microwave backbone to the main BTTB fibre optics backbone. Teletalk's mobile communication can be used by the Armed Forces.
- e. National Communication Resources can be utilized during peacetime by the services to enhance a confidence building, cooperation, identification of shortcoming and limitations, etc.

CONCLUSION

The integration of communication is a vast subject. It encompasses integration through communications equipment and channels/media, SIGINT, EW, frequency management, communications equipment manufacture and other related subject matters. The above analyses of communication resources and their implications for the Armed Forces clearly indicate the need for massive integration with national communications resources to fulfil present and future communication need.

Such integration is necessary to support peacetime and war-time needs. Future wars will be of short duration and based on technological superiority. The integration of communications is a must; number of the alternative means of communication has to be readied for the Armed Forces. The nature of opposing forces supporting the UCW and the requirement of a total People's War as well as cost factor involved in communications mustering of adequate resources need to be given due consideration. Although Government policy guidelines specify integration of national communications resources, a clear cut guideline regarding military communication integration is still needed.

Analyses of the huge communication resources of the government and private organisations reveal the need for supporting the Armed Forces as it attempts to enhance its operational capability. Communication resources of organisations such as SIGINT, EW, communication equipment manufacturing and ICT are to be integrated as far as possible.

Integration options with national communication resources available has advantages and disadvantages, but may be implemented to have main as well as alternate secure communications backbone for the BD Armed Forces. Joint communication aspects can also be augmented and supported through available options of integration. Though budget requirement seems high, implementation

of these options will definitely enhance the operational capability of the Armed Forces and will prove to be cost effective in the long run.

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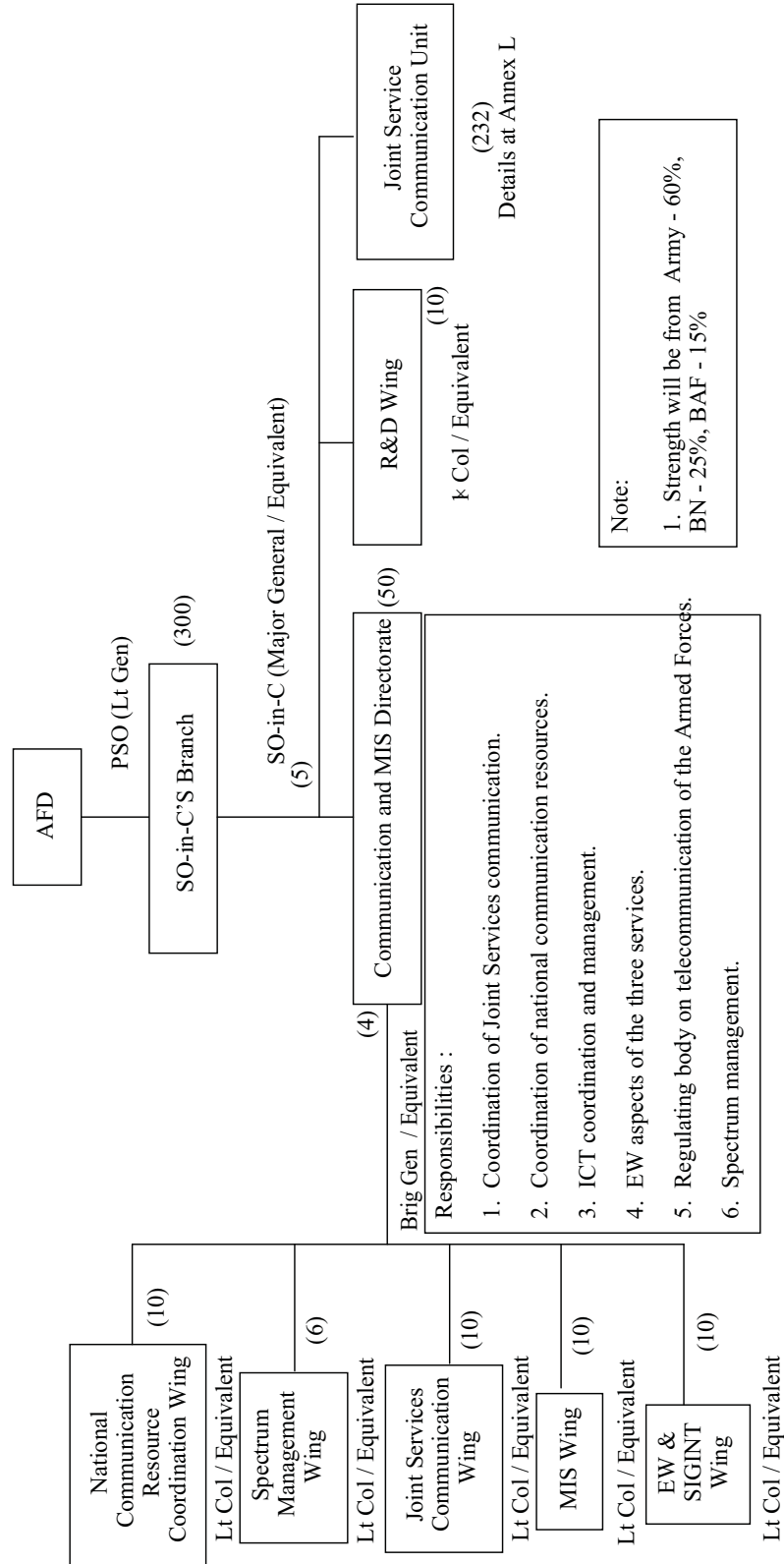
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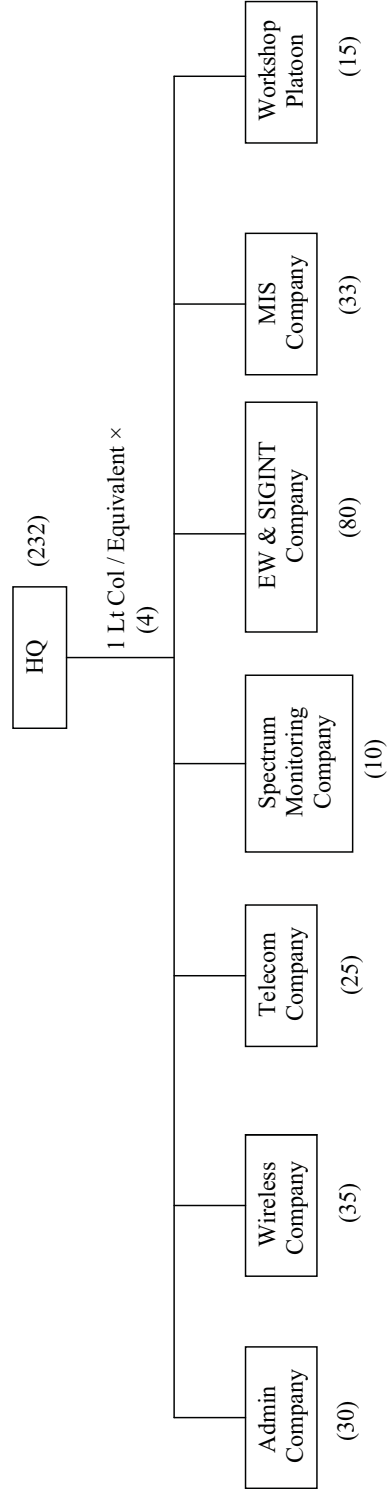
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PROPOSED SO-IN-C'S BRANCH IN AFD



ANNEX B

PROPOSED STRUCTURE AND RESPONSIBILITIES OF JOINT SERVICES COMMUNICATION UNIT



Responsibilities :

1. Operations and maintenance of communication of JCC and its elements.
2. Operations and maintenance of communication between JCC, three services HQ, HQ JF, HQ JTF.
3. Allocation of frequency and spectrum management.
4. ICT management and operations of Official Website of the Armed Forces.
5. EW support, monitoring and analysis of SIGINT.
6. Administrative support to SO-in-C's Branch.

Note:

1. Strength will be from Army - 60%, BN - 25%, BAF - 15%

Source : Prepared by the Author

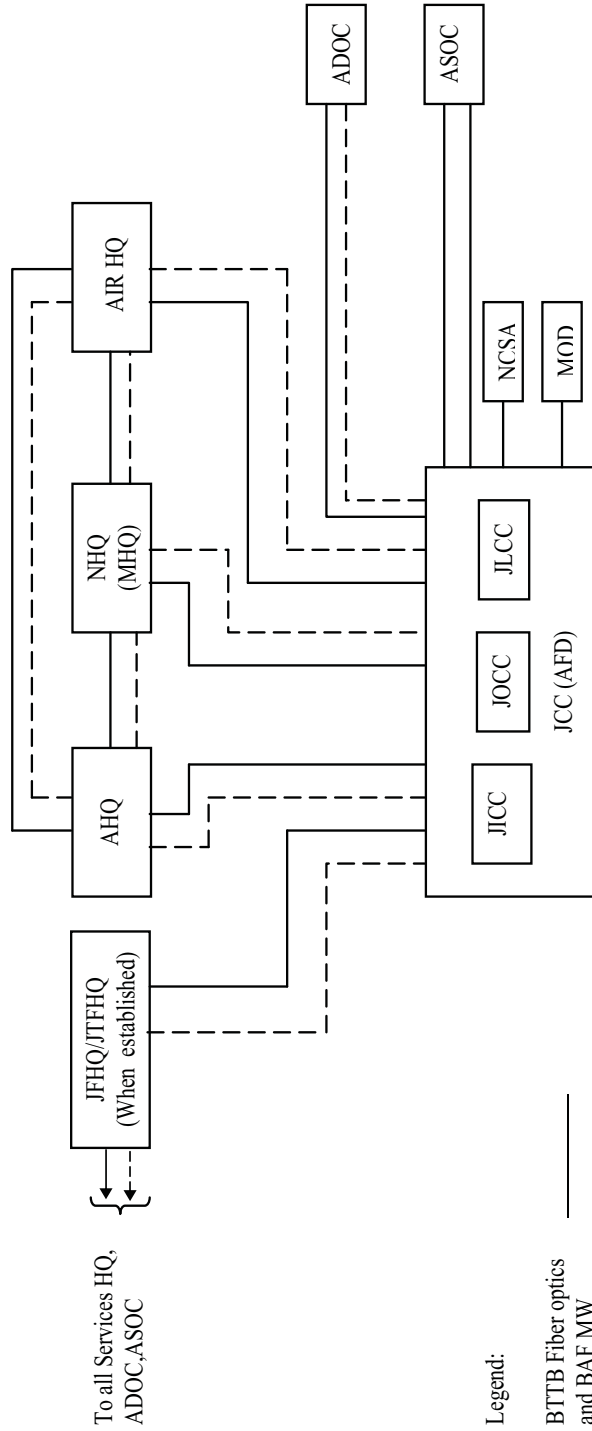
ANNEX C

TENTATIVE BUDGET REQUIREMENT OF RAISING JOINT SERVICES COMMUNICATION COMPONENTS

(Taka in Laacs)

Serial	Components	Recurrence Expenditure / Year							Non- recurrence Expenditure				Grand Total
		Pay & Allowances	POL	Food	Ammo	Ord-nance	Misc	To-tal	Accom-modation	Equip-ment	Ve-hicle	Total	
1.	SO-in-C's Branch (Excluding Joint Services Communication Unit)	25	2	7	1.5	4	.5	40	352	7	78	437	477
2.	Joint Services Communication Unit (excluding EW and SIGINT Company)	70	10	15	3	3	2	104	550	1500	1400	3450	3554
3.	EW and SIGINT Company	15	2	2	1	2	1	23	100	1000	100	1200	1223
	Total	110	14	24	5.5	9	3.5	167	1002	2507	1578	5087	5264

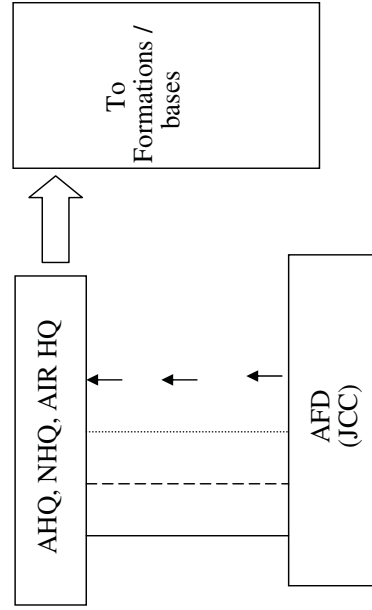
PROPOSED JOINT COMMUNICATION NETWORK



Note: Communications will be provided by proposed
Joint Services Communication Unit.

Source : Prepared by the Author

PROPOSED INTEGRATED COMMUNICATION BACKBONE FOR BD ARMED FORCES

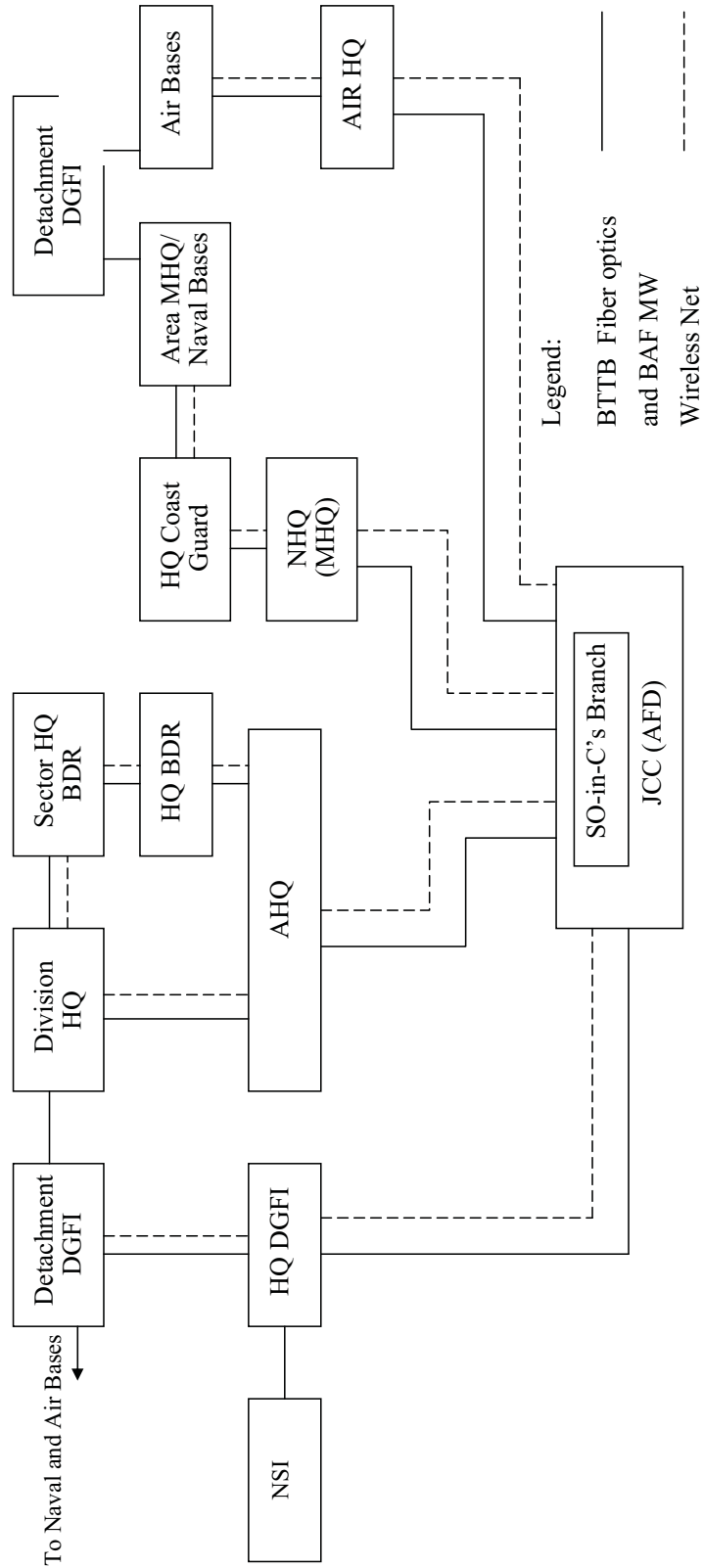


Legend:

1. Main Backbone (BTTB Fiber optics) ———
2. Alternative Backbone (PGCB Fiber optics) - - - - -
3. Res Backbone (RAB, BR and GTCL Fiber optics / MW) → → → →
4. Alternative to main backbone (BAF MW)

Source : Prepared by the Author

PROPOSED JOINT SIGINT NETWORK



Source : Prepared by the Author

Author

Lieutenant Colonel Saleem Ahmad Khan, afwc, psc, te, Signals was commissioned on 25 December 1986. Besides his unit service in three different signals units, he served as the operations staff officer in an infantry brigade; physical training and sports officer including platoon commander in Bangladesh Military Academy; and an instructor in School of Signals. He has commanded a signal unit. He has served in Army Headquarters in Military Secretary Branch and Military Operations Directorate as grade two staff officer. He was a staff officer in the United Nations Assistance Mission in Sierra Leone. He is a graduate both from Defence Services Command and Staff College and National Defence College. He has undergone Bachelor of Technology from Jawaharlal Nehru University, New Delhi. He obtained Master in Defence Studies and Master in War Studies from National University. At present, he is the General Staff Officer 1 of an Infantry Division.