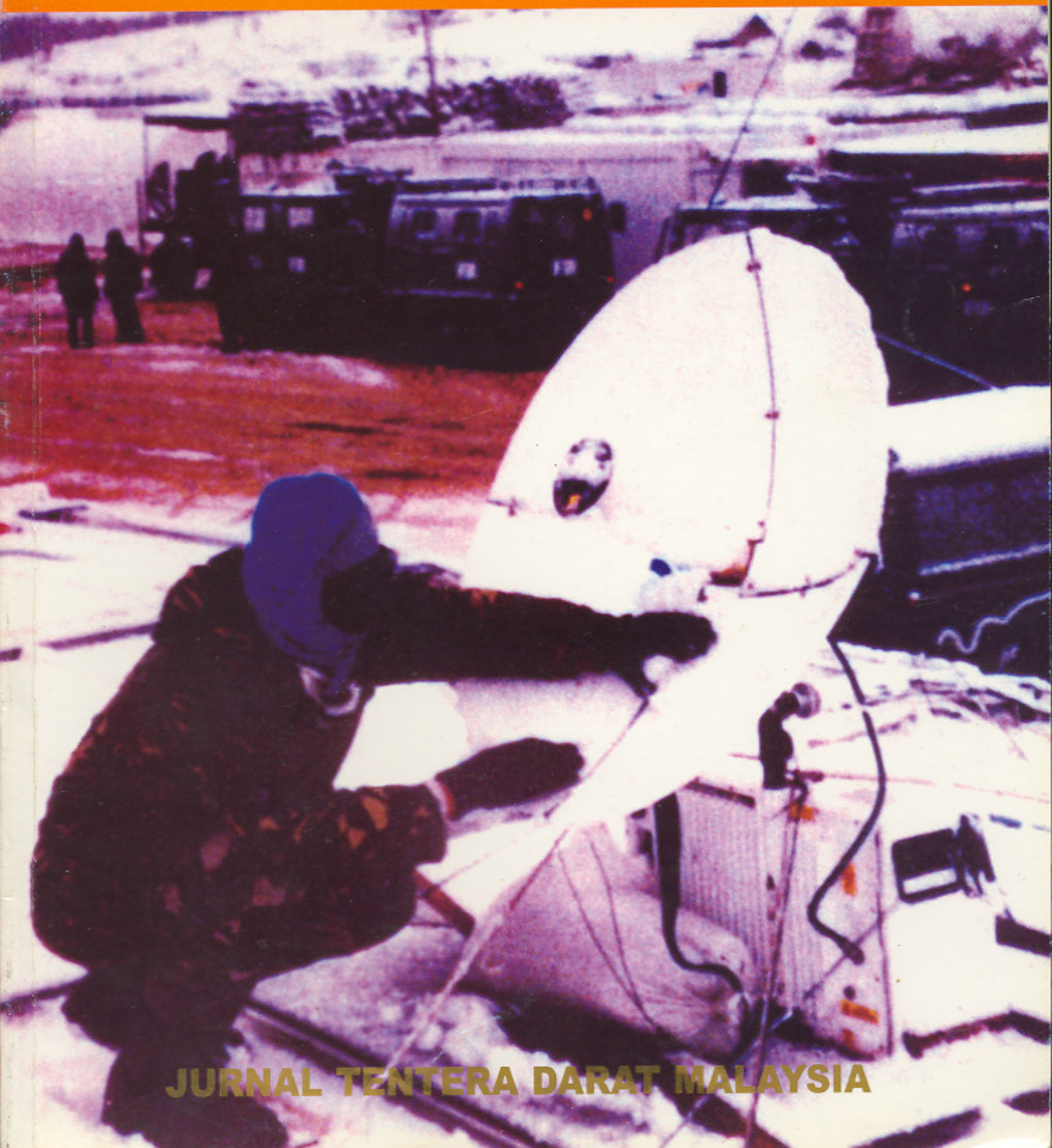
SOROTAN DARAT

33



JURNAL TENTERA DARAT MALAYSIA

KANDUNGAN
CONTENTS

21

46

89

PENUGASAN ELEMEN SEMBOYAN MALCON IV DI BOSNIA HERZEGOVINA

Mej Abdul Aziz bin Mahmud

"I know of no military operations which were not dependent to one degree or another on communications; the more difficult the operations the more crucial the dependence...."

General Sir Anthony Farrar Hockley

PENDAHULUAN

Menyelia dan mengkordinasi komunikasi dalam penugasan misi Pertubuhan Bangsa-Bangsa Bersatu(PBB) adalah merupakan tugas yang mencabar dan memerlukan taraf profesionalisme ketenteraan yang tinggi. Keperluan ini lebih ketara dalam penglibatan kita dengan tentera Negara-Negara Pertubuhan Perjanjian Atlantik Utara (NATO), yang keahliannya terdiri daripada negara maju dan mempunyai peralatan, doktrin, prosedur dan taktik yang lengkap lagi moden. Setiap negara yang diterima untuk melaksanakan operasi tentera NATO terlebih dahulu disahkan akan kemampuan dan taraf profesionalisme agar seimbang, dan berkemampuan melaksanakan operasi bersama mereka.

PERINTAH DAN KAWALAN

Penglibatan Angkatan Tentera Malaysia (ATM) di Bosnia Herzegovina (BiH) bermula dengan penghantaran kontinjen ATM atau MALBAT ke sana pada 29 Okt 93 dalam misi Pasukan Pelindung PBB (UNPROFOR) di bawah kawalan operasi (OPCON) PBB. Pada 20 Dis 95, Perjanjian Damai Dayton telah ditandatangani di Paris antara PBB dengan ketiga-tiga pihak yang bertelagah di BiH. Serentak dengan perkembangan ini, kuasa OPCON PBB telah diserahkan kepada NATO. Designasi MALBAT ditukar kepada MALCON di bawah Pasukan Implementasi (IFOR) yang kemudiannya menjadi Pasukan Penstabil (SFOR), mengambil alih tugas dari UNPROFOR untuk meneruskan mandat keamanan di BiH. Operasi SFOR di BiH dibahagikan kepada tiga sektor pemerintahan iaitu *Multi National Division South West (MND SW), Multi National Division North (MND N) dan Multi National Division South East (MND SE),* manakala Markas SFOR ditempatkan di Sarajevo.

Kontinjen Malaysia Keempat (MALCON IV) di BiH juga dikenali dengan *4th Malaysian Battlegroup (4 MBG),* di bawah pemerintahan OPCON MND SW, United Kingdom (UK) yang berpangkalan di Banja Luka. Selain daripada 4 MBG, terdapat lima pasukan tentera *(Battle Group)* yang lain di bawah pemerintahan MND SW. Semua aspek komunikasi dan keselamatan komunikasi (COMSEC) dalam kawasan tanggungjawab MND SW adalah di bawah Komander Sistem Maklumat Komunikasi (COMDCIS) yang juga merupakan Ketua Skn Semboyan Diraja (UK).

FAKTOR-FAKTOR YANG MEMPENGARUHI KEUPAYAAN KOMUNIKASI

Faktor Muka Bumi. Pada keseluruhannya, keadaan muka bumi negara BiH adalah 80 peratus bergunung-ganang dan selebihnya kawasan lembah dan rata. Purata ketinggian adalah antara 1,500 hingga 2,000 meter, yang kebanyakan kawasannya terbuka dan berbatu batan. Keadaan muka bumi sebegini sangat sesuai bagi perhubungan radio Frekuensi Sangat Tinggi (FST) gelombang terus dan Frekuensi Tinggi (FT) yang menggunakan gelombang bumi. Kawasan yang sesuai untuk menempatkan stesen ulang pancar (stesen rebro) mudah diperolehi dan didaki dengan menggunakan kenderaan beroda pada musim panas dan kenderaan berantai pada musim sejuk.

Faktor Cuaca. Keadaan cuaca di BiH dipengaruhi oleh empat musim setiap tahun. Kekerapan perubahan tekanan suhu di kawasan Balkan sering menyebabkan berlakunya angin kencang dan hujan ribut. Dalam keadaan cuaca yang tenang, komunikasi berada dalam keadaan baik, tetapi sekiranya berlaku angin kencang dan ribut, keadaan komunikasi menjadi sukar, namun masih boleh bekerja. Dalam keadaan tertentu, angin kencang bertiup sehingga 40 kmj terutama di penempatan stesen ulang pancar di kawasan tanah tinggi. Ketinggian yang paling sesuai untuk menempatkan stesen ini adalah antara 1,300 hingga 1,400 meter. Ini adalah kerana kebanyakan ketinggian yang melebihi paras tersebut, keadaan puncaknya berbatu batan tanpa pokok dan sering dilanda ribut salji. Tempat-tempat ini tidak sesuai untuk penempatan stesen ulang pancar manakala penyelenggaraannya pula rumit dan sukar didaki.

Frekuensi. Tentera British sangat mengambil berat dan menitikberatkan keselamatan komunikasi. Ia merangkumi keselamatan fizikal, keselamatan pancaran dan keselamatan maklumat/dokumen. Pengawalan frekuensi dilakukan oleh COMDCIS MND SW. Semua pasukan tentera diberi senarai frekuensi yang perlu digunakan dan bertukar setiap hari. Pada bulan Oktober 1997, semua pasukan tentera diarahkan untuk menggunakan frekuensi yang tetap disebabkan tahap siap siaga operasi di kawasan MND SW semakin rendah. Ini membolehkan semua pasukan tentera berhubung antara satu sama lain dalam komunikasi terbuka dengan menggunakan sistem kod gred rendah *(low grade code system)* yang sedia ada secara maksimum. Sepanjang misi MALCON IV, frekuensi yang sesuai digunakan di kawasan misi adalah antara 4.8 megahertz (mhz) hingga 5.5 mhz bagi FT untuk waktu siang dan 4 mhz hingga 4.5 mhz pula bagi waktu malam. Bagi radio FST pula menggunakan jalur frekuensi FST yang tinggi iaitu antara 50 mhz ke 70 mhz.

KEMUDAHAN YANG DISEDIAKAN

Radio. Dalam operasi MALCON di BiH, radio taktikal digunakan sebagai peralatan komunikasi utama untuk Komander memberi perintah dan kawalan kepada unit-unit di medan. Peralatan komunikasi yang digunakan adalah radio FST sebagai komunikasi utama dan radio FT sebagai sistem sandar. Jenis komunikasi yang disediakan adalah komunikasi statik antara Markas MALCON IV dan penempatan-penempatan, komunikasi bergerak dan komunikasi bergerak Armor. Semua peralatan radio FST dan FT yang digunakan boleh bekerja dengan baik di semua penempatan MALCON,

lebih-lebih lagi komunikasi radio bergerak kerana mempunyai peralatan yang lengkap yang dipasang dengan sistem komunikasi kenderaan (*Vehicular Communication System*). Komunikasi FT menggunakan radio *Scimitar H*, boleh berhubung di sepanjang jalan dari Kem Livno hingga ke Banja Luka (110 km *'crow flies'*), manakala radio FST pula mempunyai jarak komunikasi sejauh 30 ke 40 km yang menggunakan stesen ulang pancar di Gunung Ivovik (pada ketinggian 1,300 meter di banjaran gunung antara Livno dan Kuperes) iaitu 8 km dari Kem Livno. Adalah sukar untuk mencari stesen ulang pancar di kawasan berkenaan kerana kebanyakan jalan menuju ke puncak gunung dipenuhi dengan periuk api yang ditanam oleh pihak yang bertelagah.

Walkie Talkie. Selain daripada menggunakan komunikasi radio taktikal, *Walkie Talkie* digunakan sebagai rangkaian sandar untuk komunikasi perintah. Komunikasi ini sangat meluas digunakan bukan sahaja oleh tentera kita malahan oleh tentera NATO dan juga pihak-pihak yang bertelagah. Dengan menggunakan stesen pengulang (*Repeater Station*) di Gunung Ivovik, komunikasi *Walkie Talkie* dapat menghubungkan Kem Kuperes dan Kem Livno pada jarak lebih kurang 30 km. Namun demikian, komunikasi antara Kem Livno dan Kem Glamoc (salah satu penempatan elemen Mekanis) tidak dapat dihubungkan dan memerlukan satu lagi stesen pengulang di sekitar kawasan Koricina.

Satelit. Sistem komunikasi satelit MALCON menggunakan satelit komersial untuk berkomunikasi antara semua penempatan dan ke Malaysia. Sistem satelit yang digunakan ialah *International Maritime Satellite (INMARSAT)*, yang menggunakan dua daripada empat satelit iaitu *Atlantic Ocean Region East (AOR-E)* dan *Indian Ocean Region (IOR)*. Stesen Satelit Bumi (LES) di Burun, Holland atau Kuantan, Pahang pula untuk berkomunikasi ke Malaysia dan digunakan semua penempatan MALCON; yang menyediakan kemudahan sistem suara dan faksimile. Selain daripada sistem satelit *INMARSAT*, terdapat kemudahan komunikasi satelit yang diperuntukkan oleh PBB kepada MALCON yang diberi nama *Very Small Apperture Terminal (VSAT)*. Komunikasi *VSAT* dengan bantuan *International Satellite (INTELSAT)*, boleh menghubungkan semua pasukan NATO dan bukan NATO di bawah MND SW, juga menyediakan kemudahan sistem suara dan faksimile.

Radio 1 Kilowatt Mackey Adaptive. Peralatan ini sebagai sistem pendua kepada komunikasi ke Malaysia, yang menyediakan hanya sistem suara sahaja. Pengendalian sistem ini rumit dan memerlukan anggota yang mahir.

Petugas sedang menggunakan peralatan Mackey

Telefon. Penyediaan komunikasi MALCON adalah tugas utama Elemen Semboyan tetapi menyediakan telefon yang disewa dari Telekom BiH untuk kemudahan perkhidmatan dan anggota-anggota membuat panggilan ke Malaysia adalah tugas yang lebih utama sekiranya dilihat dari sudut moral. Setiap operator telefon

sentiasa diingatkan agar memberi perkhidmatan yang cekap dan memuaskan hati pelanggan. Sistem talian telefon ini juga digunakan untuk menghantar utusan ke Malaysia yang menggunakan kemudahan faksimile, di samping anggota-anggota membuat panggilan persendirian kepada keluarga masing-masing. Semua anggota dikehendaki membayar balik setiap panggilan yang dilakukan. Selain daripada itu, untuk mengurangkan bil panggilan telefon, kemudahan sistem telefon satelit dari syarikat *MC International, USA* diadakan. Sistem telefon satelit ini telah berjaya menjimatkan 65 peratus bagi setiap bil telefon anggota yang membuat panggilan persendirian ke Malaysia.

Pengurusan Surat Menyurat. Pengurusan surat menyurat merupakan satu lagi tugas penting Elemen Semboyan. Penghantaran surat dan bungkusan rasmi dari BiH ke Malaysia diuruskan oleh Pusat Komunikasi (PUSKOM) Elemen Semboyan. Semua surat dan bungkusan rasmi akan dikumpulkan oleh PUSKOM Livno dari penempatan-penempatan di Kuperes dan Glamoc dua kali seminggu. Surat-surat dan bungkusan-bungkusan ini akan dihantar ke PUSKOM Split untuk dihantar pula ke Malaysia menggunakan agen DHL. Semua surat dan bungkusan dari Malaysia yang tiba di BiH pula menggunakan perkhidmatan Kargo, Sistem Penerbangan Malaysia (MAS). Semua surat dan bungkusan akan dikutip oleh Pejabat Pos Split, juga dua kali seminggu dan diedarkan ke semua penempatan melalui Khidmat Hantaran Semboyan (KHS). Bagi tentera British, tugas pengurusan surat menyurat dipertanggung jawabkan kepada Markas Logistik di Split, manakala penghantaran surat-surat dan bungkusan-bungkusan pula melalui elemen KHS mereka setiap hari ke semua penempatan tentera British di BIH.

Komunikasi Dengan Agensi Awam. Selain daripada perhubungan menggunakan telefon biasa, Elemen Semboyan MALCON IV juga mengadakan rangkaian komunikasi kecemasan antara Markas MALCON dan pihak agensi awam seperti '*United Nation High Commission of Refugees' (UNHCR), Organization Security and Coordination Europe' (OSCE), 'International Police Task Force' (IPTF), 'European Community Monitoring Mission' (ECMM) dan 'United Nation Civil Agencies' (UNCA*). Komunikasi ini menggunakan *Walkie Talkie* agensi masing-masing yang diprogramkan dalam frekuensi yang sama dan membolehkan berkomunikasi antara satu sama lain sekiranya kecemasan. Dalam keadaan ini, MALCON ditugaskan untuk menyelamatkan agensi awam yang terlibat untuk dihantar ke kawasan selamat.

Komunikasi Pilihan Raya. Semasa Pilihan Raya Perbandaran Negara BiH yang telah diadakan pada 13 dan 14 September 1997, persiapan yang rapi telah dibuat oleh OSCE yang diberi tanggungjawab sebagai badan yang menguruskan pilihan raya, manakala pihak SFOR pula membantu dalam mengekalkan keamanan semasa pilihan raya tersebut. Selain daripada mengadakan Komunikasi Pilihan Raya dari Markas MALCON ke pusat mengundi OSCE, Elemen Semboyan MALCON IV juga bertanggungjawab untuk melatih pegawai penyelia pilihan raya tentang penggunaan peralatan, keselamatan perhubungan dan prosedur percakapan *walkie talkie* mereka. Di peringkat MND SW pula, latihan percubaan radio FST/FT *(VHF/HF Compatability*) telah diadakan dengan menggunakan semua peralatan radio komunikasi pasukan tentera bagi membolehkan Markas MND SW berhubung dengan semua pasukan tentera sekiranya perlu.

Pembaikan Peralatan Komunikasi Dan Elektronik. Bagi menentukan peralatan komunikasi dan elektronik yang rosak di kawasan misi diperbaiki, Elemen ini telah diberi tanggungjawab untuk pembaikan peralatan-peralatan tersebut di Bengkel Teknik Medan. Bagi peralatan komunikasi yang tidak dapat diperbaiki disebabkan ketiadaan alat ganti di pasaran tempatan atau memerlukan pembaikan khusus, akan dihantar balik ke Malaysia. Selain daripada itu, bengkel ini juga bertanggungjawab untuk memperbaiki alat-alat hiburan seperti

televisyen, perakam video, komputer dan alat penerima satelit *(satellite receiver)* bagi kemudahan anggota-anggota MALCON. Mengikut statistik pembaikan peralatan komunikasi dalam jangka masa operasi yang sama, didapati tahap kerosakan peralatan ini lebih rendah berbanding dengan peralatan yang sama di Malaysia. Faktor cuaca yang sejuk didapati telah mengurangkan kekerapan kerosakan terhadap peralatan komunikasi.

Janakuasa Elektrik Medan. Janakuasa elektrik medan Elemen Semboyan dianggap sebagai 'anak emas' oleh elemen dan diletakkan sebagai janakuasa siap sedia untuk membekalkan kuasa elektrik di medan sekiranya MALCON diaturgerakkan. Khidmatnya sangat diperlukan sekiranya kuasa elektrik terputus. Pada musim sejuk, purata suhu adalah bawah sifar darjah Celcius. Suhu ini akan bertambah sejuk sekiranya mengambil kira faktor angin, dan ditambah lagi sekiranya alat pemanas tidak berfungsi akibat ketiadaan kuasa elektrik. Penempatan-penempatan di *Ice Station Zebra*, Stesen Rebro Gunung Ivovik dan *Parking Area* di Split menggunakan janakuasa secara berterusan kerana ketiadaan bekalan elektrik di lokasi-lokasi tersebut.

'WINTERIZATION'

Persiapan '*winterization*' perlu dilaksanakan sebelum musim sejuk. *'Winterization'* adalah proses di mana Elemen membuat persiapan dari segi peralatan, pakaian dan aktiviti-aktiviti bagi menghadapi musim sejuk. Persiapan ini penting bagi menentukan segala pelaksanaan operasi tidak terjejas disebabkan tiada persiapan awal bagi menghadapi musim ini. Antara perkara-perkara yang perlu dilakukan oleh Elemen adalah seperti berikut:

* Menentukan semua minyak injin janakuasa dan kenderaan ditukar kepada minyak musim sejuk. Janakuasa hendaklah ditutup bagi mengelakkan dilitupi salji.

* Menentukan semua alat pemanas boleh berfungsi dan dibuat penyenggaraan.

* Menentukan semua kabel talian medan dilindungi dari terkena salji. Antena dan piring parabola pula dibersihkan sekiranya bersalji.

AKTIVITI-AKTIVITI DAN ANCAMAN PEPERANGAN ELEKTRONIK

Memang tidak dinafikan, ancaman peperangan elektronik di kawasan Balkan adalah besar kerana kebanyakan negara-negara di kawasan tersebut mempunyai tentera yang kuat dan moden. Penggunaan peralatan peperangan elektronik sama ada di darat, laut atau udara telah lama digunakan oleh mereka sejak Perang Dunia Kedua lagi. Ketiga-tiga pihak yang bertelagah berkemampuan melaksanakan aktiviti-aktiviti peperangan elektronik ke atas ketumbukan masing-masing. Mereka juga melaksanakan ancaman peperangan elektronik ke atas pasukan-pasukan SFOR untuk mengumpulkan maklumat bagi kepentingan masing-masing. Pengawasan aktiviti peperangan elektronik dipertanggungjawabkan kepada Pusat Kordinasi Peperangan Elektronik Divisyen (DEWCC) Komunikasi Pihak Atasan (MND SW). DEWCC MND SW mengadakan stesen pengawasan untuk mengawasi Spektrum Elektro Magnetik (EMS) dan menghindarkan pihak yang bertelagah dari mengeksploitasikan penggunaan EMS. Selain daripada itu, semua penempatan radio dan elektronik yang telah dikenal pasti diperiksa dari masa ke masa. Dalam satu kejadian di mana pihak Serb di bawah kuasa Rodovan Keradzic dari Pale telah berjaya menguasai siaran TV di selatan Republik Srpska dari kerajaan Serb di bawah Presiden Biljana Plasvic (yang di sokong oleh SFOR) berpusat di Banja Luka dengan melakukan pengejeman (*jamming*) ke atas stesen televisyen tersebut. Dengan berbuat demikian, mereka boleh menyiarkan propaganda mereka agar semua rakyat berpihak kepada mereka. Pihak SFOR

telah bertindak balas dengan melancarkan Operasi Bosanna, dengan melakukan pengejeman stesen televisyen Serb di Pale dan menyiarkan semula rancangan asal dari Banja Luka menggunakan satelit kepunyaan NATO.

KOMUNIKASI PIHAK ATASAN (MND SW)

Semua komunikasi pihak atasan (MND SW) adalah tanggungjawab Pasukan Semboyan Tentera British. Sistem komunikasi tentera British di BiH ternyata moden dan canggih. Walaupun Elemen Semboyan MALCON IV tidak mempunyai peralatan komunikasi secanggih tentera British, namun demikian kita patut berbangga kerana mempunyai anggota Semboyan yang kecekapannya setanding dengan anggota Semboyan Tentera British, NATO dan bukan NATO dalam penyediaan komunikasi di BiH; bak kata pepatah 'berdiri sama tinggi dan duduk sama rendah'. Anggota-anggota juga berkemampuan mengendalikan semua peralatan komunikasi yang disediakan oleh tentera British seperti berikut:

* ***Satellite Communication (SATCOM).*** MND SW menggunakan sistem *SATCOM* yang menggunakan satelitnya sendiri iaitu *Satellite Skynet 4 Charlie*. Terminal *SATCOM*nya menggunakan Stesen Satelit Bumi di Oakhanger, UK dan disambungkan ke terminal sistem *'EUROMUX' di Corsham, UK.* Jenis-jenis *SATCOM* yang digunakan adalah TSC 502, VSC 501, MOST dan Telekom British. Semua staf di Markas MALCON menggunakan kemudahan telefon dan faksimile melalui sistem ini untuk berhubung dengan rakan sejawat mereka di Markas MND SW dan pasukan-pasukan tentera lain.

* **Talian.** Talian telefon yang digunakan adalah dari Syarikat Telekom Bosnia (PTT) dan Telekom Croatia (HPT). Talian telefon yang menyeberangi *Inter Entity Boundry Line (IEBL)* di antara Republik Srpska dan Persekutuan Bosnia baru dipulihkan mulai bulan September 1997 yang mana sebelum ini tiada talian telefon yang menghubungkan kedua-dua wilayah akibat peperangan.

* **Geganti Radio (Radio Relay (RR).** Sistem RR hanya merangkumi kawasan di bahagian utara MND SW. Bagi bahagian selatan, sistem *SATCOM* digunakan untuk menghubungkan *EUROMUX.* Sistem *SATCOM* di Kem Livno telah ditukarkan kepada sistem RR pada penghujung tahun 1997.

* ***EUROMUX.*** *EUROMUX* di Ptarmigan merupakan kemudahan komunikasi *trunk* tentera British yang utama dalam perintah dan kawalan MND SW di kawasan tanggungjawabnya (KTJ). Sistem *EUROMUX* adalah sistem komunikasi tentera British yang mampu memproses data berdarjah sehingga ke peringkat Rahsia. Sistem ini menyediakan kemudahan suara, telegraf, faksimile dan *data transfer.* Ia dilengkapi dengan sistem *EUROMUX Management and Data System (EMADS)* yang berkeupayaan mengesan sebarang kerosakan sistem dalam litar *trunk.* Komunikasi *EUROMUX* menggunakan alat komunikasi *SATCOM* dan RR.

* ***Combat Net Radio (CNR).*** Rangkaian komunikasi utama ini menggunakan radio FST antara Markas MND SW dan semua pasukan tentera dalam Rangkaian Pemerintahan FST Divisyen MND SW. Setiap pasukan menempatkan Anggota Pautan Belakang *(Rear Link)* Divisyen seramai enam orang bagi setiap penempatan stesen ulang pancar. Selain daripada itu, terdapat dua rangkaian komunikasi lain dalam MND SW iaitu Rangkaian Komunikasi *Division HF Safety* dan Rangkaian Komunikasi *Aviation Flight Safety.*

* ***Secure Commercial Radio (SCR).*** *SCR* adalah rangkaian komunikasi radio yang mempunyai fungsi yang sama seperti sistem komunikasi *Walkie Talkie*. Ia boleh bekerja dengan selamat (*secure*) dan boleh memasuki rangkaian *EUROMUX*. Semua pasukan tentera disediakan sistem *SCR* untuk perhubungan di antara Komander dan Komander MND SW dalam kawasan liputan dengan menggunakan saluran yang telah ditetapkan.

* ***Walkie Talkie.*** *Walkie Talkie* yang terdapat di MND SW dibekalkan oleh PBB dan tentera British adalah dari jenama dan model yang sama digunakan oleh tentera kita. Dengan menempatkan beberapa penempatan stesen pengulang, komunikasi *Walkie Talkie* MND SW merangkumi keseluruhan KTJ.

* ***Tactical Satellite (Tacsat).*** *Tacsat* merupakan sistem komunikasi satelit taktikal mudah alih yang menggunakan sistem FST sebagai komunikasi alternatif untuk semua pasukan NATO dan bukan NATO. Ia menggunakan satelit yang sama dengan sistem *EUROMUX* tetapi mempunyai saluran tetuju berasingan iaitu dalam sistem FST. Komunikasi satelit taktikal digunakan untuk perhubungan di antara Markas SFOR, Markas Atasan (*HICOMD*) dan semua Markas MND di bawah naungannya. Kemudahan sistem yang disediakan adalah sistem suara dan data, yang bekerja dalam mod keselamatan. Sistem ini boleh dilengkapkan dengan penyesuai antara muka (*interface*) dengan radio taktikal FST.

* ***INMARSAT.*** Peralatan *INMARSAT* MND SW adalah sama dengan sistem *INMARSAT* yang kita miliki.

* ***Very Small Apperture Terminal (VSAT).*** Sistem *VSAT* yang digunakan adalah sama dengan sistem yang disediakan oleh PBB kepada kita.

* ***Communications Information System (CIS).*** *CIS* yang menggunakan sistem *Division Wide Area Network (WAN)* berkemampuan menghubungkan Markas MND SW dan semua pasukan tentera dengan menggunakan komputer bagi kegunaan PUSKOM dan staf-staf penting. Sistem ini berfungsi bagi menggantikan sistem fail '*data transfer*' yang sedia ada. Selain dari bertanggungjawab ke atas sistem komunikasi strategik MND SW, Cawangan Teknologi Maklumat (IT) CIS juga bertanggungjawab membekalkan program perisian '*anti virus*' yang terkini kepada semua pengguna dan menentukan semua komputer berada dalam keadaan baik.

PELAJARAN YANG DIPEROLEHI

Muka bumi yang terbuka dan bergunung-ganang serta cuaca yang dipengaruhi oleh empat musim banyak mempengaruhi keupayaan komunikasi di BiH. Penggunaan radio FST gelombang terus dan FT gelombang bumi, didapati sangat sesuai digunakan di rantau tersebut. Penggunaan radio FT yang menggunakan gelombang udara pula kurang sesuai disebabkan pengaruh cuaca yang tidak menentu. Mengikut teori, keadaan muka bumi yang ditumbuhi hutan mewujudkan suasana komunikasi yang paling sukar sekali[1]. Jika teori ini diambil kira untuk perbandingan, keupayaan komunikasi di Malaysia adalah lebih rumit dan sukar jika dibandingkan dengan di BiH. Ini adalah kerana kebanyakan muka bumi di Malaysia berbukit-bukau dan ditumbuhi oleh hutan tropika. Gelombang radio FST dan FT yang dipancarkan menggunakan gelombang bumi

[1] United States Army Signal School, Port Gordon, Georgia, **Conventional and Field Expedient Antennas, Pro Patria Vigilans, 1978,** hal 4-4.

akan tersekat dan dihalang oleh pokok-pokok dan bangunan-bangunan yang menyebabkan jarak komunikasi terhad. Untuk menambahkan jarak komunikasi, stesen ulang pancar perlu ditempatkan untuk komunikasi radio FST. Lokasi yang sesuai untuk stesen ulang pancar di kawasan tinggi yang mendominasi kawasan sekeliling pula sukar diperolehi. Biasanya kawasan ini ditumbuhi hutan dan sukar didaki. Penggunaan pesawat udara untuk menempatkan stesen ulang pancar di puncak bukit yang sukar didaki adalah salah satu cara untuk menambahkan jarak komunikasi radio FST. Sebagai alternatif, penggunaan radio FT menggunakan gelombang udara sering digunakan, namun penggunaannya terlalu terdedah dan tidak selamat dari aktiviti-aktiviti serangan elektronik musuh. Sebagai contoh, pancaran radio FT menggunakan gelombang udara frekuensi 6 mhz yang biasa digunakan boleh didengar oleh pihak musuh sehingga 700 km.

Keupayaan operator radio MALCON IV melaksanakan tugas adalah setanding dengan operator tentera British dan tentera-tentera lain NATO. Elemen Semboyan MALCON IV mampu menyelia dan mengkordinasi semua aspek komunikasi dengan baik dan berjaya melaksanakan operasi yang dipertanggung jawabkan. Dari segi pengetahuan dan pengalaman operator radio pula, Elemen Semboyan tidak banyak bezanya jika dibandingkan operator NATO. Namun, perbezaan yang ketara adalah dari segi sikap dan disiplin yang tinggi dalam pengendalian peralatan dan prosedur komunikasi. Selain daripada itu, operator kita kurang mempunyai sikap ingin belajar dan menimba pengetahuan baru semasa mengendalikan peralatan bagi meningkatkan mutu profesionalisme mereka. Pelaksanaan pelbagai operasi dalam misi ini memerlukan tindakan yang cepat dan pantas. Kesedaran di kalangan warga Semboyan menjaga keselamatan komunikasi perlu dipertingkatkan bagi mengelakkan ancaman aktiviti serangan elektronik musuh. Namun begitu mutu kepimpinan yang tinggi dari kalangan semua lapisan pemerintahan Semboyan di segi pengurusan sistem komunikasi menjadi faktor utama dalam membolehkan komunikasi dapat dilaksanakan dengan baik.

Sistem komunikasi MALCON IV tidak dibekalkan dengan sistem keselamatan yang sepatutnya. Bagi menghadapi situasi ini, sistem kod gred rendah yang sedia ada telah digunakan. Untuk meningkatkan taraf keupayaan keselamatan dalam sistem komunikasi pada masa hadapan, sistem keselamatan perlulah dibekalkan kepada rangkaian komunikasi pemerintahan taktikal bagi melindungi maklumat dari kebocoran.

Sepanjang penugasan di BiH, pelbagai sistem komunikasi digunakan oleh MALCON dan pasukan NATO. Kebanyakan pasukan NATO menggunakan radio FST dan sistem satelit taktikal sebagai rangkaian komunikasi pemerintahan taktikal. Sistem *EUROMUX* yang menggunakan satelit dan geganti radio, digunakan sebagai rangkaian komunikasi strategik utama untuk perhubungan semua pasukan di bawah perintah. Bagi MALCON, radio FST juga digunakan sebagai rangkaian komunikasi pemerintahan taktikal manakala sistem satelit INMARSAT dan talian telefon PTT BiH digunakan sebagai sistem komunikasi strategik utama. Talian sistem INMARSAT sukar didapati di BiH. Ini disebabkan ramai pengguna menggunakan satelit komersial tersebut. Talian telefon PTT BiH pula sangat terhad akibat kerosakan semasa peperangan. Pada keseluruhannya, sistem satelit sangat sesuai digunakan sebagai sistem utama komunikasi strategik dan taktikal kerana penggunaannya tidak kira masa, selamat, tidak memerlukan stesen geganti dan tiada jarak had perhubungan.

Selain INMARSAT dan talian telefon, radio '*1 Kilowatt Mackay Adaptive*' digunakan sebagai sistem sandaran kepada komunikasi utama perhubungan ke tanah air. Radio *1 Kilowatt Mackay Adaptive* yang dikenali sebagai sistem komunikasi jarak jauh menggunakan sistem radio FT, juga digunakan sebagai

komunikasi utama dalam misi PBB yang lain seperti di Somalia, Cambodia dan lain-lain misi PBB. Sistem ini digunakan sebagai sistem sandaran kepada sistem satelit dan talian kerana ada kalanya kemudahan satelit dan talian tidak dapat digunakan atau tidak ada kemudahan disediakan dalam misi tersebut. Konsep radio ini bekerja menggunakan gelombang udara dan banyak dipengaruhi oleh cuaca dan gangguan atmosfera. Dalam jarak lebih kurang 10,000 km dari Malaysia, gelombang udara yang dipancarkan akan '*hop*' sebanyak lebih kurang 10 kali sebelum sampai ke stesen penerima. Sistem adaptif radio ini secara automatik bekerja dalam frekuensi optimum (OWF) pada masa itu yang mana OWF sentiasa berubah-ubah; kesan gangguan atmosfera. Dalam penugasan MALCON IV, sistem ini tidak dapat berfungsi dengan baik dan kerap berlaku kerosakan. Perisian sistem adaptasi peralatan ini pula tidak berfungsi. Selain daripada itu, sistem ini tidak mempunyai antena dan antena '*mast*' yang sesuai bagi kegunaan di kawasan misi. Penugasan seperti misi ini memerlukan antena mudah alih (*transportable*) dan antena *'mast'* yang ketinggiannya lebih kurang 60 meter. Antena mudah alih yang sesuai digunakan adalah jenis antena '*Vertical Half Rhombic dan Slopping Vee'*.

Sistem komunikasi yang digunakan oleh elemen-elemen MALCON IV terdiri daripada pelbagai jenis peralatan komunikasi. Walau bagaimanapun hanya Elemen Mekanis mempunyai kemudahan sistem keselamatan. Ini membuatkan sistem keselamatan yang dimiliki oleh Elemen Mekanis tidak dapat digunakan oleh kerana sistem ini tidak saling khidmat (*non-interoperatability*) dengan sistem komunikasi elemen lain MALCON IV, jika menggunakan mod keselamatan. Pihak British menggunakan hanya satu jenis alat radio FST iaitu jenis UK 353 untuk komunikasi bagi semua pasukan yang terlibat dalam operasi gabungan *(Combined Arms Op)*. Ini membolehkan mereka melaksanakan operasi dengan lebih cekap.

Pengurusan anggota yang cekap merupakan salah satu faktor penentu kejayaan sesuatu operasi yang dijalankan lebih-lebih lagi melibatkan suasana operasi seperti di BiH dan misi-misi pengamanan lain PBB. Antara faktor yang menyebabkan prestasi anggota lemah dan moral yang rendah dalam sesuatu operasi ialah tidak yakin dan tidak mahir mengendalikan peralatan komunikasi, prosedur bekerja yang tidak menentu, suasana tempat kerja yang sentiasa tegang, keselamatan keluarga di kampung, perasaan tidak selamat, keadaan cuaca sejuk yang luar biasa, penduduk awam yang asing dan terdedah kepada ancaman serangan musuh. Semua faktor yang dinyatakan di atas memerlukan anggota yang mempunyai semangat kental, daya tahan dan disiplin yang tinggi untuk menghadapi situasi sedemikian. Sumber manusia adalah aset paling penting yang memerlukan pentadbiran sempurna bagi meningkatkan semangat anggota. Berbagai-bagai aktiviti dirancang oleh Markas MALCON dan Elemen Semboyan untuk menentukan semangat dan morale anggota sentiasa tinggi. Antaranya latihan sambil belajar, kursus pengendalian peralatan baru, aktiviti keagamaan, mengadakan tempat tinggal yang selesa, makanan yang bermutu, cuti rehat di dalam kawasan operasi, aktiviti riadah, kemudahan telefon yang selesa, peralatan hiburan termasuk bahan bacaan dan surat khabar dari Malaysia, berita semasa dari Internet, membeli belah di kedai '*Post Exchange' (PX)* dan aktiviti-aktiviti lain lagi. Namun apa jua aktiviti yang dilaksanakan, keadaan tegang dan tekanan di medan peperangan tetap ada dan memerlukan kesedaran dari setiap anggota yang terlibat. Latihan yang diberi kepada anggota dalam menyediakan komunikasi sebelum sesuatu misi mestilah menggambarkan keadaan realiti yang bakal dihadapi. Semua anggota Semboyan perlu diajar dan mahir untuk mengendalikan semua peralatan yang baru sebelum terlibat dalam misi bagi mengurangkan lagi tekanan kerja. Prosedur Tetap Operasi (PROTAP) komunikasi bagi penugasan PBB perlu diadakan dan dikemaskinikan bagi memudahkan lagi pengendalian peralatan komunikasi. Semua staf dan anggota pula perlu didedahkan dengan kesedaran betapa mustahaknya menjaga maklumat agar tidak bocor semasa membuat

pancaran komunikasi. Sistem komunikasi yang tidak selamat membuatkan keadaan menjadi bertambah buruk lagi.

Komunikasi *Walkie Talkie* adalah penting selain daripada komunikasi radio FST. Dalam operasi ini, komunikasi *Walkie Talkie* begitu aktif digunakan oleh staf dan elemen-elemen semasa melaksanakan tugas-tugas misi. Selain daripada pasukan NATO dan bukan NATO menggunakan radio ini, kebanyakan agensi awam juga menggunakan *Walkie Talkie* sebagai komunikasi utama mereka.

Statistik menunjukkan bahawa kerosakan peralatan komunikasi yang digunakan di BiH adalah kurang berbanding dengan kerosakan peralatan komunikasi dan jangka masa yang sama di Malaysia. Didapati kekerapan kerosakan sesuatu peralatan radio di BiH adalah lebih kurang enam bulan sekali. Ini menunjukkan bahawa dalam sepanjang misi MALCON IV, hanya sekali atau tiada langsung peralatan radio yang digunakan oleh elemen-elemen dimasukkan ke bengkel untuk pembaikan. Faktor cuaca yang sejuk didapati telah mengurangkan kekerapan kerosakan terhadap peralatan komunikasi. Walau bagaimanapun, kesahihan keterangan ini boleh dipersoalkan kerana tiada statistik perbandingan sebelum ini, namun pengalaman yang diperolehi boleh dijadikan sebagai asas ukuran.

Salah satu pengalaman yang diperolehi semasa bertugas di BiH adalah penggunaan frekuensi yang perlu ditukar setiap hari. Walaupun arahan penggunaan frekuensi yang perlu ditukar setiap hari nampak mudah tetapi hakikatnya adalah sukar. Ini memerlukan ketekunan dan disiplin operator radio yang tinggi untuk mematuhi segala arahan yang dikeluarkan. Setiap pasukan tentera di bawah MND SW diberi senarai frekuensi dan dikehendaki menggunakan frekuensi tersebut bagi kegunaan pasukan masing-masing. Sekiranya terdapat keperluan tambahan frekuensi baru, permohonan perlu dibuat kepada *COMDCIS MND SW* untuk kelulusan. Pasukan pengawasan keselamatan komunikasi (COMSEC) MND SW sentiasa mengawasi rangkaian pasukan tentera untuk menentukan arahan ini dilaksanakan. Teguran akan dibuat oleh *COMDCIS* sekiranya arahan ini tidak dipatuhi.

CADANGAN

Komunikasi Satelit untuk ATM. Sistem komunikasi satelit merupakan komunikasi yang utama digunakan untuk rangkaian komunikasi pemerintahan dan kawalan oleh MND SW, SFOR. Komunikasi satelit tidak memerlukan stesen geganti dan tiada had jarak perhubungan. Semasa peperangan Falkland pada tahun 1982, pihak British menggunakan komunikasi satelit jenis TSC 502 untuk komunikasi strategik dari Pulau Falkland ke UK.[2] Satelit yang sama juga digunakan oleh tentera British di BiH. Sistem komunikasi satelit ini sangat sesuai digunakan oleh ATM untuk komunikasi di peringkat Strategik dan Operasional. Memandangkan kos untuk menghantar satelit komunikasi ATM memerlukan perbelanjaan yang besar, kerjasama dengan syarikat telekomunikasi yang sedia ada boleh diadakan untuk mengadakan saluran tetuju khas bagi kegunaan komunikasi ATM.

Menggunakan Sistem Komunikasi Saling Khidmat Dalam ATM. Dalam sesuatu operasi gabungan semua pasukan, peralatan radio digunakan oleh Komander MALCON untuk berhubung dengan semua elemen di bawah naungannya. Peralatan ini mestilah mampu berkomunikasi antara satu sama lain agar perintah dapat diberi dengan cepat dan selamat. Ini memerlukan peralatan radio yang sama jenisnya atau sekurang-kurangnya saling khidmat antara satu sama lain. Oleh yang demikian, faktor saling khidmat diberi keutamaan dalam

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[2] Philip Warner, **The Vital Link: Theory of Royal Signal 1945-1985**, Loe Cooper Ltd, 1989, hal. 185.

perolehan peralatan komunikasi pada masa akan datang agar perbelanjaan besar yang dikeluarkan untuk membeli peralatan komunikasi tidak menjadi sia-sia kerana peralatan tersebut tidak dapat berhubung antara satu sama lain terutama dalam sistem keselamatan.

Menubuhkan Rangkaian Komunikasi Walkie Talkie Sebagai Rangkaian Pendua Kepada Rangkaian Perintah di Formasi Briged dan Divisyen. Rangkaian komunikasi *Walkie Talkie* MALCON IV dalam misi di BiH adalah merupakan rangkaian komunikasi yang penting selain daripada rangkaian komunikasi pemerintahan MALCON. Penggunaan *Walkie Talkie* telah digunakan dalam urusan pentadbiran dan operasi harian MALCON. Dalam Tentera Darat, operasi dan latihan lazimnya dilaksanakan di peringkat Briged dan Divisyen. Justeru itu, dicadangkan agar rangkaian *Walkie Talkie* ditubuhkan di peringkat Briged dan Divisyen mengikut konsep rangkaian komunikasi *Walkie Talkie* MND SW. Rangkaian ini seharusnya mampu untuk menghubungkan semua negeri dalam Malaysia. Walau bagaimanapun, pelaksanaannya sukar dan memerlukan banyak stesen pengulang. Adalah memadai jika stesen pengulang ini ditempatkan berhampiran markas formasi berkenaan yang berkonsepkan sistem telefon selular awam yang digunakan.

Mengadakan PROTAP Peralatan Baru. Semasa penugasan MALCON IV di BiH, anggota-anggota Elemen Semboyan telah didedahkan dengan beberapa peralatan baru. Peralatan-peralatan baru ini tidak terdapat dalam pegangan Kor Semboyan Diraja. Hanya latihan yang terhad diberi kepada anggota sebagai pendedahan sebelum berkhidmat di BiH. Semasa mengambil alih tugas, anggota didedahkan pula dengan pengurusan dan pengendalian sebenar peralatan ini. Masa yang terhad telah membuatkan keupayaan anggota terbatas untuk memahirkan diri dalam pengurusan dan pengendalian peralatan tersebut. Masalah ini menjadi lebih rumit lagi kerana ketiadaan garis panduan yang jelas bagaimana mengendalikan sistem komunikasi ini. Sebagai contoh, pengendalian peralatan INMARSAT memerlukan operator yang mengetahui kedudukannya pada masa itu, satelit yang perlu digunakan dan arah satelit tersebut. Selain daripada itu, operator juga perlu mahir memilih kod laluan satelit, kod negara dan kod LES yang akan digunakan. Pengendalian ini akan lebih mudah sekiranya terdapat satu PROTAP. PROTAP ini kemudiannya diajarkan kepada anggota-anggota sebelum diatur gerakan untuk operasi-operasi misi pengaman yang akan datang.

PENUTUP

Peningkatan penggunaan peralatan yang moden dan berteknologi tinggi telah membuatkan tugas-tugas komunikasi menjadi lebih mencabar dan memerlukan tahap kecekapan anggota Semboyan yang tinggi. Namun demikian, masalah yang timbul semasa melaksanakan tugas komunikasi seperti '*dead zone*', gangguan atmosfera, jarak komunikasi yang terhad, kerosakan talian, kerosakan peralatan dan lain-lain masalah komunikasi tidak dapat dihindarkan daripada berlaku. Jawapan untuk sejauh mana permasalahan ini akan berlaku bergantung kepada latihan yang sempurna, disiplin yang tinggi dalam pengendalian dan prosedur komunikasi dan tahap kepimpinan setiap peringkat anggota Semboyan dalam pengurusan komunikasi.

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*United States Army Signal School, Fort Gordon, Georgia, **Conventional and Field Expedient Antennas, 1978.***

Mejar Abdul Aziz bin Mahmud telah ditauliahkan ke dalam Kor Semboyan Diraja pada 11 April 81. Beliau telah memegang beberapa jawatan di peringkat Skuadron, Rejimen dan Formasi. Dalam tahun 1997, beliau terlibat dalam penugasan MALCON IV di Bosnia Herzegovina sebagai Ketua Elemen Semboyan. Menghadiri beberapa kursus kerjaya di IKED dan juga merupakan lulusan Maktab Turus Angkatan Tentera tahun 1995. Kini bertugas sebagai PS 2 Kom A di Pusat Peperangan Bersama, BOLP, Markas Angkatan Tentera.

Satu minit masa yang akan datang lebih berharga dari seribu tahun yang lampau. Terlewat satu minit tidak akan dapat diganti walaupun seribu tahun. Kelalaian satu saat akan merugikan kita buat selama-lamanya.

MEN AGAINST FIRE

Kol Shahruddin Hassim

INTRODUCTION

Combat power, defined by the US Joint Chiefs of Staff as *"the total means of destructive and/or disruptive force which a military unit can apply against the opponent at a given time"*, constitutes a vital element in the overall level of a nation's military effectiveness.[1] While combat power alone cannot ensure victory in battle, let alone in war, it's attainment and successful application certainly lays the groundwork necessary to attain such a victory. Combat power is said to compromise three basic elements: firepower, manoeuvre, and morale.[2] Firepower and manoeuvre encompass the technological, material, and tactical dimension of combat, whereas morale encompasses its strictly human dimension. While all these elements have been of vital importance to the success of military operations, it is the human element and its relationship to the other elements that has traditionally been the matrix from which combat effectiveness stems.

It will be the purpose of this discussion to explore aspects of this human dimension of combat, primarily as it relates to infantry soldiers on the battlefield and how selected military theorists have attempted to understand their performance. In this respect, particular attention will be given to the work of Charles Ardant du Picq, S.L.A. Marshall, and Paddy Griffith, three of the best known and widely read commentators on *'the sharp end of war'*.

DISCUSSION

Despite the key role that human action plays in combat, or indeed, the importance of combat in influencing the wider course of war, military historians and theorists have tended to concentrate their minds upon grander strategic or technological themes, or in the realm of tactics, on technical and material issues. In terms of the seemingly unquantifiable, and indeed at times irrational, realm of individual and small group psychology and behaviour at the *'sharp end'* comparatively few military writers have ventured into print. Being difficult to assimilate to the orderly requirements of history, the soldier's war has been, in the words of Roger Spiller, *"the great secret of military history "*.[3] Moreover, as Shelford Bidwell has observed, the problem of discovering what actually happens in combat itself lays on *"dangerous ground because the union between soldier and scientist has not yet passed beyond flirtation"*.[4] Yet whether history or psychology conceived as science are able to produce a definitive account or sound general theory of the combat experience is questionable at the very least. That has not prevented numerous military writers from trying however.

While memoirs and anecdotal material from individual combatants have been quite common, the first systematic

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[1] United State Depatment of Defence., ed. ***Joint Chiefs of Staff: Dictionary of Military Terms***, rev ed. Novato CA: Presido Press, 1991. P98

[2] Australian Army., ed. ***The Fundamentals of Land Warfare.*** Sydney Australian Army, 1993. p40

[3] **Ibid** p 40.

[4] Spiller quoted in Bill Mc Andrew "***The Soldier and the Battle***"in David Charters et al., eds. ***Military History and the Military Profession.*** Westport CN: Praeger, 1992. p 58

attempt to reconstruct battle through participants' first hand accounts appears to be the work of Captain Siborne after Waterloo. The masses of material he collected however, led to something of a *hodgepodge* of unconnected data rather than any great insight into the event. Somewhat more successful was the French soldier Colonel Ardant du Picq who in the 1860's adopted the novel approach of circulating questionnaires to veteran officers in order to get at *'the truth'* about combat. While the venture was not a great success, du Picq's own experiences led him to conclude that it was the psychological condition of the individual soldier above all, that determined his ability to perform the tasks assigned him.[5] In many of his conclusions, he was to foreshadow much of what S.L.A. Marshall would proffer a century later.

Fear and confusion, according to du Picq were the predominant conditions of modern combat:

> *'... the soldier is often unknown to his comrades, He is lost in the smoke, the dispersion, the confusion of battle. He seems to fight alone. Unity is no longer assured by mutual surveillance. A man falls, and disappears who knows whether it was a bullet or the fear of advancing further that struck him!'*[6]

Greater discipline and indoctrination imparted through small group cohesion and strong leadership by officers was, for du Picq the key to overcoming this state of affairs. The importance of the moral dimension, reinforced through training, was therefore paramount. For despite the increasing power of new weapons, it was the willingness of the soldier to close with the enemy that ultimately decided the contest.

While du Picq's reputation has not stood the test of time, his name being too closely associated with the origins of the pre-war French doctrine of offensive a outrance, certain of his conclusions nonetheless represent an important contribution to thought on the subject. Moreover, his influence, albeit unacknowledged, on the work of S.L.A. Marshall is clearly discernable.[7]

Writing in the immediate post second world war period when most military commentators were preoccupied with the implications of the new atomic age, Marshall was determined to recast the focus of attention to what he saw as *"at once the simplest and the most complex topic in the military art-man himself as a figure on the field of combat".*[8] As a member of the U.S. Army's historical detachment during the war, he devised a methodology that he hoped would provide not only an accurate account of combat, but a general theory of it. No doubt stemming from his previous experience as a journalist, Marshall's approach was to conduct intensive group interviews with all the participants of a combat action as soon as possible after the event.[9] While some of his findings endorsed accepted wisdom; others were to dramatically after it. Principal among these were his *'revelations'* about the *'so called'* ratio of fire.

Marshall believed that victory in battle was the sum total of a series of successive combats which in turn were determined by one factor above all others; the

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[5] See Colonel Charles Ardan du Picq. ***Battle Studies,*** translated from French by Col. Joh Greely & Maj. Robert Cotton. Harrisburg PA: The Military Service Publishing Co., 1947

[6] **Ibid** p116

[7] See Roger Spiller ***"S.L.A. Marshall and the Ratio of Fire:,*** in RUSI Journal (Winter 1988), for discussion of this point.

[8] S.L.A. Marshall. ***Men Against Fire: The Problem of Battle Command in Future War,*** 1947. Rpt: Gloucester MA: Peter Smith, 1978. p26

[9] Donald Graves, ***"Naked Truths for the Asking": Twentieth Century Military Historians and the Battlefield Narrative",*** in Charters, op. cit. p48

amount of fire brought to bear upon the enemy.[10] Yet while fire was the determinant of success, the crucible in Marshall's analysis was the willingness or lack thereof-of soldiers to deliver that fire at close quarters and in sufficient quantities. According to his research, they had not done so in the actions he had studied. Indeed *"in an average experienced (U.S) infantry company, only around 15 percent of men had fired their weapon in the course of a 'stern day's action'.* Moreover, not more than 25 percent of the men of '*the most aggressive*' companies had done likewise.[11] The causes of such low rates of fire were said to be psychological rather than material in nature. The *'heart of the matter'*, according to Marshall, was not the soldier's relationship with his weapon or with the ground , or even with the environment *per se*, but the soldier's relationship with himself and with those around him.[12] If soldier's were unable to call upon close and reinforcing bonds of the unit or lacked a resilience of mind and body instilled in training, they would more likely succumb to fear, confusion, and to the norms of their civil background which emphasised the immorality of killing. In Marshall's view, a lack of sufficient bonding and realistic training in the U.S Army had manifested itself in a low ratio of fire and a hesitancy in closing with the enemy, rather than outright flight, a course even more dangerous to body and reputation.

With some echoes of du Picq a century before, Marshall believed that the further development of small group cohesion, the encouragement of mutually reinforcing behaviour amongst individuals within units, and greater emphasis on fire training and leadership in realistic scenario's was essential to the future success of the Army.[13] Such was the power of Marshall's argument, personality, and influence, backed up by an impressive array of statistics, that a new found concern with the ratio of fire did indeed lead to changes in U.S. Army training.[14] In fact Marshall himself was eager to claim that information he compiled from the Korean War showing the ratio of fire at 50 percent, or twice that of the earlier conflict, stemmed not from a fundamental flaw in his methodology, but from an increased

Effective training is essential to overcome unforreseen threats

[10] Marshall, **op. cit.**p51 & Spiller, op. cit. p63 for discussion of this point.
[11] Marshall, ***Ibid.*** p56.
[12] ***Ibid.*** p38.

[13] The emphasis upon bonds within a unit resembles that of du Picq's who summed up his belief thus: "four brave men who do not know each other will not dare attack a lion. Four less brave, but knowing each other well, sure of their reliability and consequently of mutual aid, will attack resolutely. There is the science of the organization of armies in a nutshell". Du Picq, ***op. cit.*** p110.
[14] Graves in Charters, ***op. cit.*** p48.

consciousness of the problem of non-firers within the Army.[15]

The accuracy of certain of Marshall's key findings, specifically those relating to ratios of fire are now open to question however.[16] As Roger Spiller has shown, Marshall's conclusions were based primarily, upon his own instinctual beliefs rather than any formal method.[17] In fact, it appears he only occasionally asked soldiers about weapons fire, choosing to base his theory on a few selected examples which suited his purposes. Despite this, it should also be acknowledged that much of what Marshall had to say about combat generally is worthwhile. Not only did he shed considerable light upon the circumstances of those who actually did the fighting, his work remains among the most significant of its type.

Marshall went on to write numerous battle narratives on the Vietnam war too, a conflict which, though vastly different in certain respects, nonetheless exhibited many of the same features common to previous experience. Both du Picq and Marshall had observed that the psychological reluctance of soldiers to close with the enemy and to bring the full effect of their fire to bear, was a fundamental problem that had to be overcome if the fight was to be won. According to Paddy Griffith, such was also the case in Vietnam.[18] Griffith has observed that contrary to popular understanding. U.S. soldiers failed to utilised the full effect of their fire superiority in the attack, because of an excessive reliance on heavy supporting and defensive firepower. Such firepower it was thought, could accomplish the task of destroying the enemy without having to encounter him personally and take excessive casualties. As Colonel D.R. Palmer has observed, the theory of closing with the enemy using 'fire and manoeuvre' had in fact been replaced with the practice of holding firm through *'manoeuvre and fire'*, a defensive rather than offensive infantry posture.[19] Marshall himself noted that in his experience *'there had been no hand to hang to hand fighting in the literal sense. Every firefight had the nature of a small siege with the Americans holding the ramparts'.*[20] Moreover, as Griffith records, when attacks were mounted, many simply disintegrated due to the priority accorded to treating and evacuating casualties and the loss of mobility and morale that entailed. In Griffith's view, one must therefore look as much at the human element in the combat power equation as any other factors in explaining the ultimate American failure in Vietnam.

CONCLUSION

While the magnitude of firepower and the ability to manoeuvre has increased dramatically over time, the human factor of the combat equation has remained fairly constant. Moreover, as the work of such writers as du Picq, Marshall, and Griffith suggests, the human factor has remained a key determinant in shaping the final outcome of conflict. Indeed, until the time when computer and/or robotics technology are so advanced as to eliminate the need for direct human action on the battlefield, it will probably still be the human being in conjunction with his particular use of weapons and ground, that will have the greatest impact upon the course of events. The history of warfare certainly points to such a conclusion.

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[15] Major Russel Glenn. ***"Men and Fire in Vietnam"***, in Army (April & May 1989). p20.

[16] While the crux of Marshall argument was widely accepted within the U.S. Army, some were not so convinced. To Marshall's claim that "in the attack, half the men are in terror and the oher half are unnerved", one critic was moved to ask "Which half won the war". Tothat Marshall would probably have replied the 15 to 25 percent ho were able to overcome themselves and their situation and carrying the bulk of the fire load. See p61 of Men Against Fire. Quote from Graves in Charters, ***op.cit.*** p49.

[17] Spiller, ***op.cit.*** p69.

[18] See Paddy Griffit. Forward into battle: Fighting Tactics from Waterloo to the Near Future, 2nd rev ed. Swindon: The Crowood Press, 1990.

[19] Palmer quoted in Grifith, **Ibid.** p156.

[20] Marshall quoted in Grifith, **Ibid.** p157.

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THE MILITARY MIND: THE MILITARY MAN IN A CHANGING SOCIETY

Lt Kol Amiruddin bin Ismail

SYNOPSIS

*This is sequel to the article **Dilemma of Servicemen: A Case Study;** in which the writer try to explore into greater depth of why paradigm shift in the military organization is much more difficult to achieve than with the civilian counterparts. The study of the mind can be very intriguing and full of hidden mysteries. But what made its interesting is once able to understand the working of the mind, consciously or subconsciously, people could actually predict the next course of action that they would take and at the same time, can influence the course of action that they would make. This paper attempt to highlight previous studies made by significant researchers on the mind of the military man with intent for our higher commander to take heed and to take a more critical look within themselves the truth of this findings.*

THE MILITARY MIND: CONSERVATIVE REALISM OF THE MILITARY

The military mind may be approached from three viewpoints: (1) its ability or quality; (2) its attributes or characteristics; and (3) its attitudes or substances. Writers employing the first approach have normally emphasized the low calibre of the *"military mind."* The intelligence, scope and imagination of the professional soldier have been compared unfavourably to the intelligence, scope and imagination of the lawyer, the businessman or politician. This *"presumed inferiority"* has been variously attributed to the inherently inferior talents and abilities of the persons who become officers, the organization of the military profession which discourages individual initiative and the infrequent opportunities which an officer has actively to apply his skill.

The second approach holds that the uniqueness of the military mind lies in certain mental attributes which constitutes a military personality. Writers generally seem to agree that the military mind is disciplined, rigid, logical and scientific. It is not flexible, tolerant, intuitive or emotional. The continuous performance of the military function may well give rise to these qualities. Intuitively, one feels that these descriptions come close to the mark. But until more knowledge is accumulated about the personality traits of military men and other politically significant groups and also about the relation between personality, values, and behavior in social situations, this approach will not be very useful in analyzing civil-military relations.

A third and more fruitful approach is to analyze the substances of the military mind - the attitudes, values, views of the military man. This has customarily been done through one of the two techniques: to define the military mind in terms of contents, or to define it in terms of source. The former method describes certain values and attitudes as military in content, and then asserts that these values and attitudes are widely prevalent among military men. Emphasis has generally been focused upon two sets of attitudes assumed to be characteristically military: bellicosity and authoritarianism. The military man is held to believe that peace is stultifying and that conflict and war develop man's highest moral and intellectual qualities. He is also thought to be

opposed to democracy and to desire the organization of society on the basis of the chain of command. Irrespective of whether these conclusions are accurate, the method used in arriving at them is both subjective and arbitrary. The assumption that certain values are military and that military men therefore hold those values may or may not be true, but there is nothing in the procedure which requires it to be so.

The military mind is thus defined abstractedly as a Weberian ideal type in terms of which the beliefs of actual men and groups can be analyzed. Obviously, not one individual or group will adhere to all the constituent elements of the military ethic, since no individuals or groups are ever motivated exclusively by military considerations. The officer corps will adhere to the ethic only to the extent that it is professional, that is, to the one that it is shaped by functional rather than societal imperatives.

PERCEPTIONS OF THE MILITARY MIND

The Response to the Security Threats. A military man normally views with alarm the potency and immediacy of the security threats to the state. As Lord Salisbury once remarked: *"If you believe the doctors, nothing is wholesome: If you believe the theologians, nothing is innocents: If you believe the soldiers, nothing is safe."* The military man recognizes the continuing character of threats to the state, but he also stresses the urgency of the current danger. In estimating the security threats, the military man looks at the capabilities of other states rather than at their intentions. Intentions are political in nature inherently fickle and changeable and virtually impossible to evaluate and predict. The military man is professionally capable of estimating the fighting strength of another state, but judging its policies is a matter of politics outside his competence. It is the military responsibility to be prepared for any eventuality. The military *"opinion must never be coloured by wishful thinking."* The military man will be dealing with military fact, hard figures, grim realities of time and space and resources. Military planners of one country may prepare elaborate plans for a war with another country without necessarily indicating that it is the purpose of the first country to attack the second.

The Level and Sources of Military Strength. The concern of military men with the dangers to national security leads them to urge the enlarging and strengthening of the military forces available to protect the security of the state. The most common manifestation of this is the demand for a larger share of the national budget. The military man typically prefers regular troops to reserve forces and stockpiles of weapons to factories capable of building weapons. He wants force in being, not latent force. He also desires forces capable of meeting virtually every possible contingency. Consequently, the military man favours maintaining the broadest possible variety of weapons and forces provided that each weapons system is kept sufficiently strong so that it is capable of dealing with the threat it is designed to meet.

Military Obedience versus Professional Competence. The conflict between military obedience and professional competence usually involves the relation of a military subordinate to a military superior. It arises in two broad senses: operational and doctrinal. The former concerns the execution by a subordinate of a military order which in his judgement will result in military disaster. Assuming he has made his views known to his superior and the superior persists in his order, or assuming he does not have the opportunity to present his views, does the subordinate nonetheless obey? The purpose of obedience is to further the objective of the superior. If the subordinate is thoroughly

acquainted with this object, and circumstances unknown to the superior make it possible to achieve the object only through a disobedience of orders, the subordinate may then be justified in disobeying. Only rarely, however will this be the case. In operations, ready obedience cannot conflict with military competence: It is the essence of military competence.

The second possible manifestation of the conflict of military obedience with professional competence involves non operational doctrinal issues. Rigid and inflexible obedience may stifle new ideas and become slave to an unprogressive routine. It is not infrequent that a high command has had its thinking hierarchy to suppress uncomfortable new developments in tactics and technology. In a situation of this sort, to what extent may a junior officer be justified in disobeying his superiors to advance professional knowledge?

Military Image. The civilian perception of the military remains firmly rooted sire the past. Tough, however, style of life, his day-to-day tasks and his aspirations change as the technology of war is transformed, yet, outdated conceptions of the military establishment persist because civilian society prefer to remain uninformed. In Malaysia, the military profession does not carry great prestige. The once familiar edge of the military being a white profession, is non seen as another career opportunity and as one which offers an opportunity for social mobility for the socially underprivileged. It is also typical to assert that the military profession is disciplined, inflexible and in a sense, unequipped for political compromise. In this view, since the perspectives of men are fashioned by their daily tasks, the life of the military professional produces a pattern of mental traits which are blunt, direct and uncompromising. The military establishment is seen as an institution in which *"debate is no more at a premium than persuasion; one obeys and one commands."*

Military Discipline. The essential component of discipline according to Capt Ellis who wrote a prize-winning essay entitled *"Discipline: Its importance to an Armed Forces and the Best Means of Promoting or Maintaining it in the US Army"* in the Journal of Military Service Institution in March 1895 was rigid adherence to rules, regularity, subordination, and devotion to established government. A decade later in 1905 Captain M.B. Stewart help to locate the time at which the proposition became relevant that military discipline and authority would shift from authoritarian domination toward a greater reliance on manipulation, persuasion and group consensus. It represents the beginning of a more rational and more managerial approach to the problem of organizing men for combat. As of 1905, the US Army was in the process of reorganization into large-scale modern institution. He was aware that the social composition of the enlisted personnel would have to change; modern armies could no longer be manned by the outcasts of civil society. His formulations were prophetic of the *"team concept"* of morale: *"Succinctly, the atmosphere of the Army today is one of clean lives, honourable dealing, an enthusiastic devotion to country, an atmosphere enforced by a system of rigid discipline whose object is the correction and encouragement, rather than punishment of the individual."* He emphasised the positive techniques which he believed best insured military discipline: Interest in the material well-being of the soldier, the competence of leadership and the inculcation of *"confidence and self-reliance."*

By 1914, the doctrine of *"positive"* discipline was fully formulated by the military and have developed a concern with rationalizing its *"Human Relations."* The basic concepts are now perseverance, initiative, psychology and morale. Nevertheless, military power is not absolute and military law protects personal rights and liberties by limiting the powers of the commanders. Whatever depresses morale

weakens discipline. Training is the central issue, since discipline rests on organizational efficiency and technical competence.

Since the military establishment is a reflection of civilian social structure, this transformation in military authority reflects changes in the larger society. As the standard of living rises, tolerance for the discomforts of military life decreases. The skepticism of urban life carries over into the military than in previous generations, so that men will no longer act blindly, but will demand some sort of explanation from their commanders. Social relations, personal leadership, material benefits, ideological indoctrination and the justice and meaningfulness of war aims are now all components parts of military morale.

Military Leadership. Military leadership, if it is to be effective, must strive to imprint the organizational format of combat units on the entire military organization. To understand the logic of military authority is to understand the practices of combat commanders. In theory, military operations are best served by a hierarchical organization which can enforce coordination of its complex units. In practice, the maintenance of initiative in combat has become a requirement of more crucial importance than the rigid enforcement of discipline. The philosophy of discipline has adjusted to changing conditions. As more and more impact has gone into the hitting power of weapons, necessitating ever widening deployments in the forces of battle, the quality of the initiative in the individual has become the most praised of the military virtues. The technology of warfare is so complex that the coordination of a complex group of specialists cannot be guaranteed simply by authoritarian discipline.

The shift from domination to manipulation and persuasion involves the relative balance of negative sanctions versus positive incentives. Domination is defined as issuing orders without explaining the goals sought or the purposes involved. This was the spirit of the charge of the British Light Brigade. Manipulation implies ordering and influencing human behavior by emphasizing group goals and by using indirect techniques of control and they describe the organizational management when orders and commands are issued and the reasons for them are given. The objective of the effective military manager is not to eliminate differences in rank and authority. Instead, they seek to maximize participation in implementing decisions at all levels by taking into consideration the technical skills and interpersonal needs of all concerned. The sheer weight of military organization insures that most soldiers and officers will not resist minimum compliance; indeed, they have no alternative. But whether they will demonstrate initiative and determination depends upon the managerial and organizational skill of the military profession. The factors of discipline are enumerated as *"self-respect, leadership, efficiency, motivation, productivity, loyalty, morale, esprit de corps and conceptions of mission."* When military discipline was based on domination, officers had to demonstrate that they were different from the men they commanded. Today, leaders must continuously demonstrate their competence and technical ability, in order that they may command without resort to arbitrary and ultimate sanctions. The slogan in the old armed forces was *"Salute the bars, not the man,"* since authority was formal. But contemporary military roles depend on the qualities of the men who occupy professional positions.

The Dilemmas of Command. All organizations have inherent pressures toward human inertia. In the military, technologicalinnovation proceeds faster and more efficiently than organizational changes. It was inevitable that the rise of the militarymanager would generate new tensions and unresolved conflicts. Because the military establishment like other complex large-scale organizations is so difficult to

manage, and requires so many competent leaders, there is reason to believe that the introduction of enlightened policies may not necessarily produce commensurate positive results. On the contrary, the new managerial techniques require long periods of training and very high levels of organizational loyalty. As a result much confusion and tension exists in the military; officers with older traditions must adjust and readjust to the requirements of an increasingly technological organization.

Career Motivations. Given the prevailing emphasis on commercial values and business success in Malaysia, selection of a military career is often believed to be a weak career choice. Among segments of the civilian public, entry into the military is often thought of as an effort to avoid the competitive realities of civil society. In the extreme view, the military profession is thought to be a berth for mediocrity. The selection of a military career, like the selection of any career, represents the interplay of opportunity plus a complex of social and personality factors. In one sense, to say that the military is a mediocre career choice is an expression of a liberal ideology which holds that, since war is essentially destructive, the best minds are attracted to more positive endeavours.

In assessing the selection of a military career, three specific questions could be investigated. First, is it true that the military profession attracted persons whose basic intelligence was not equal to the intelligence of those in other professions? Second, is the issue perhaps not mainly one of sheer intelligence, but of motivation? Third, could it be that the underlying motivation for a military career is an expression of *"careerism,"* whereby a person seeks what he believes to be a noncompetitive and protected route to the achievement of limited ambitions?

With regards to the second question, the evidence contradicts civilians assumptions concerning career motives of the professional soldier. The meaning of career choice for the military elite suggests that while for many persons, and perhaps even for a majority, the military career represented the pursuit of a relatively secure, safe and promising prospect. For a substantial minority, the choice of a military career was a strong decision. To speak of a strong career choice means that a person feels that a particular occupation is singularly important to him, since he believes that it will give him the rewards and gratification's he wants.

For such persons, the military career had overtones of a *"calling,"* with a sense of mission. It represented a deliberate rejection of what was believed to be the limited horizons of the business world. In the urban commercial centre, the selection of a military career was frowned upon. Yet, through their families many urban candidates were exposed to an atmosphere in which being a soldier was thought to be honourable. But it was the rural background that gave special meaning to the military career. The virtues of physical prowness, social protocol and the general ideal of service to the community were still valued. The military career offered the strong-willed an opportunity to achieve these values; and, in turn, such career motivation made it possible for the armed services to pertuate the martial spirit.

Military Communities. Peacetime military life had its protocol and etiquette and prescribed sociability, punctuated at designated times by exercises in an atmosphere of routine. Military installations were self-contained and relatively isolated, with limited but stable social connections to the larger civilian society. The system of continual rotation and posting came to be a main ingredient of family and military community life. There can be no doubt that the military officer and his family became more a part of the larger society; but the relationship is hardly so much a pattern of integration . To adjust to the disruptions of postings and to the increased hostility or indifferences of neighbours, the military family lives mainly within its own world.

The military are sensitive to the needs of their families and are aware that the unhappiness of wives constitutes a major cause of resignation. They have developed an effective *"welfare state"* with family, medical and social services unparalleled by most civilian community. The military family has not demonstrated a consuming desire to isolate itself from the larger society. It recognizes the advantages that the military installation offers the same benefits to family living that come from collective action.

The Offences. By the nature of their lives, Servicemen are well used to observing rules and conforming to the values of the community in which they live. Serious criminal offences are committed only rarely by members of the Armed Services and conviction on a major charge brings rapid dismissal. Petty crime is more frequent e.g., haircuts, turnout, criminal damages, minor assault, these are fairly common charges leveled against Servicemen. No soldier is allowed to remain in the Service if he amasses a string of convictions, and any brush with the law is taken very seriously by a man's Commanding Officer (CO), but, as in society at large, it is young men between the ages of eighteen and twenty six who commit the greatest number of offences. Once past that age, most men settle down.

When men with families do find themselves in trouble, a proportion of the cases clearly show the offender being caught up in criminal activity as a direct result of being unable to solve personal problems whilst remaining a member of the military. Financial problems, for instance, which if disclosed would damage or finish a career, can tempt a man to commit fraud or theft. Sexual deviant and drug abusers too, find themselves unable to reveal their problem and, having to live a lie, aggravate their difficulties. These offences are examples of a military man needing help, but being afraid to ask for it.

The Military Ethics. The military ethics emphasizes the permanence, irrationality, weakness and the evil in human nature. It stresses the supremacy of society over the individual and the importance of order, hierarchy, and division of function. It stresses the continuity and value of history. It accepts the nation-state as the highest form of political organization and recognizes the continuing likelihood of wars among nation-states. It emphasizes the importance of power in international relations and warns of the danger to state security. It holds that the security of the state depends upon the creation and maintenance of strong military forces. It holds that war is the instruments of politic, that the military are the servants of the statesman, and that civilian control is essential to military professionalism. It exalts obedience as the highest virtue of military man. The military ethic is thus pessimistic, collectivist, historically inclined, power-oriented, nationalistic, militaristic, pacifist and instrumentalist in its view of the military profession. It is, in brief, realistic and conservative.

Military Intellectuals. In the military profession, self-criticism is an essential prerequisite in effecting change. But if it is to be more than self-castigation, self-criticism must have significant intellectual content. Intellectual ferment very often means stimulation from *"the outside,"* even though the *"outsider"* may be found within the profession. The rise of the military manager has meant that greater effort has been exerted among officers to keep abreast of intellectual currents outside the profession. Ironically, the military profession seems to be vulnerable to new fashions in intellectual life, even before they have been submitted to adequate scrutiny.

Although military leaders do not think of themselves as intellectuals, their approach toward intellectual activity is a curious mixture. The military profession, because it emphasizes education and schooling, has a formal respect for intellectual achievement. The military manager must be prepared to make use

of intellectual accomplishments, because he is so concerned with producing scientific solution to complex administrative and organizational problems. Since the destructive capacities of weapons have virtually eliminated trial and error, military commanders are required to do their military planning more effectively. In such a setting, the products of intellectual efforts are deeply respected, to the measure of their practical worth.

However, negativism toward intellectual pursuits among the military is rooted partially in the fear that unguided intellectualism produces irresponsibility. Clearly, action and responsibility for one's action are more valued than reflection in any organization where combat is the basic goal. Thus, despite its propensity to introduce technological changes, the military establishment remains resistant to sudden innovations or brilliant insights which might cause doubt and temporary paralysis. Manifestation of anti-intellectualism is the reduction of complex problems to technical formulations. Ideas are judged as practical or impractical after there has been a staff study by men who can exaggerate the power of their *"generalist"* thinking.

In describing intellectual pursuits among officers, the intellectual officer can be distinguished from the military intellectual. The intellectual officer is the soldier who brings an intellectual dimension to his job. He sees himself primarily as a soldier, and his intellectuality is part of his belief that he is a whole man. The military intellectual, although he is a professional soldier, his attachments and identifications are primarily with intellectuals and intellectual activities. He would have no trouble shifting from military to university life, for his orientation is essentially scholarly. He is generally denied or unequipped for the highest command posts. His position is essentially advisory, but in the military setting, the advisory post is institionalised and accepted.

A shift has been under way from engineering as a centre of intellectual ferment toward the social sciences. This shift reflects a change from a concern with the purely *"hardware"* aspects of the military establishment toward an interest in the broader political implications of military affairs. The military intellectual requires detachment from immediate policy questions in order to produce new ideas and new solution. On the other hand, he requires access to the military elite in a staff capacity if his endeavours are to be realistic and if they are to be brought to bear on the professional life of the military establishment.

Creativity in the Military. Sir Liddell Hart was asked whether he would like his son to go into the Army. To this his replied, *"No, because for all its good points, it is no place for a thinking man .... and the root of the trouble is the Army's fear of the truth."* Is the statement still valid? Thought are synonymous for creativity, but are thought and discipline compatible? Is there really scope for creativity in the military?

The military establishment, like most other establishment, has often reacted unfavourably to creative ideas. Field Marshall Erwin Rommel observed that prejudice against innovation was a typical characteristics of any officer corps which has grown up in a well-tried and proven system. Liddell Hart once lamented that the only thing harder than getting a new idea into the military mind is to get an old one out. Fortunately, despite such an adverse outlook, creative ideas continues to flow from those who refuse to let convention and taboos shackle their views and who possess sufficient courage and mental and physical energy to put thoughts to paper for the benefit of posterity. How each of the newly creative ideas is accepted depends on the prevailing political, economic and social mood and circumstances. Author Ward Just mentioned that an army officer has no time to think and

imaginative reflection is discouraged. According to him, tours of duty are rapid and designed to thrust a man into as many different situations as can be managed (ticket punching). The emphasis is on procedure, details, facts, nuts and bolts. The conditions which were favourable to creative thinking are based on two decisive assets ... time to think and environment which is conducive to creativity. Machiavelli wrote *'The Prince'* after being dismissed from office and banished to the family farm during the ensuing period of idleness. Mahan produced his greatest work while in the Naval War College for six years, undisturbed by pressure of peacetime and naval operation. Mao's strategic concept took shape in a Shensi Cave after the long march, while his Red Army regroup, reinforced, re-supply and retrained, far from the worries of war.

Strategic planners in our Ministry of Defence Kuala Lumpur have scarce opportunity to think. They are inundated with pressing problems. The pressure of ongoing operations routinely prevent much abstract contemplation or theorising. Senior officers too often equate dedication and devotion to duty with hours on the job, regardless of the circumstances. They boast that they work round-the-clock, seven days a week, scorning holidays and leaves. They are wracked by guilt if they are not engaged from dawn until long after dark. They expect the same fever pitch from subordinates. There is rarely an opportunity to stand back, take a breather, and see the forest instead of its trees. The constant grind leads to mental stagnation. The temptation thus is irresistible to put all project on a crash basis, a modus operandi that is death to creative thought.

Freedom of action, combined with freedom of expression and the absence of any need to justify, defend, support or conform to official policy, encourage thought of fancy and leads to creativity. Creative thinkers, whose mission is originality not current problem-solving, need much greater intellectual latitude than crisis manager. Directed approaches that specify what will be done under what condition are the *"kiss of death."*

Factors in Encouraging Creativity. Strategic ideas nowadays cannot be conceived in isolation. The modern creative strategic thinkers would need to work within the framework of a think tank team. Non conformance is to be prized. Unconventional experimentation should be encouraged and allow room for error. Pioneers who fear the consequences of failures are apt to be extremely conservative. Opportunities for extensive contact and discussion with other outstanding individual and institutions. Promotion and career prospect for those shunted into *'academia'* must be safeguarded. Adherent should not be overlooked in favour of those in *'action'* unit, otherwise the seemingly *'easy and quiet'* period outside the mainstream of soldiering become left-out for aspiring creative geniuses. Interpreter and practitioner of creative strategic ideas often need as much foresight, courage and energy as their creators.

Psychologist Dr Rollo May writes that *'Artist are the ones who have the capacity to see original views. They are the frontiers scouts who go out ahead of the rest of us to explore the future. We can tolerate their special dependencies and harmless idiosyncrasies. For we will be better prepared for the future if we can listen seriously to them. True artist refused to be tied down to mere military straight jacket and the tradition of not 'rocking the boat.'*

Loyalty, Honour and the Modern Military. Like many abstractions, loyalty is an often confusing, much abused concept. It has been employed by different people in different ages to mean a host of different things. One distorted idea about loyalty is the notion of a dedicated military professional as one who gives his unthinking consent to all orders issued to him, whose very honour is a function of his unquestioning obedience. Upon examination, it becomes apparent that this view of the

military man is troubling to professional military officers of the stereotyped *"military mind".* Quoting Colonel Malham M. Wakin of the USAF Academy faculty: *"We are concerned about a picture of a profession that leaves us feeling that a man must give up his rationality, his very creativeness, the source of his dignity as a man, in order to play his role as a soldier."* What should especially be concern in this view of the man of loyalty is twofold sort of thing. First, when soldiers have in fact wrapped themselves up in their jobs and obeyed orders unthinkingly, they have aided in perpetrating some of the gravest crimes in human history. Second, even given the evils that unquestioning obedience has helped produce, there is still a certain reluctance on the part of any thoughtful man to condemn a soldier for sincerely following orders and remaining loyal to his superiors. In the military environment, a set of related virtues - such as loyalty, obedience and discipline is necessary for the successful employment of military forces. If wars are to be with us for the foreseeable future, then how are we to strike a balance between the necessary virtue of loyalty in the military, and on the other hand the democratic social going of having every citizen become morally sensitive human being? This is the question which is to be addressed.

A Perspective on Loyalty. Whenever we speak of loyalty, we are speaking of a two-object context: a context in which one gives loyalty and another receives loyalty. Now, given this rather simple conceptual picture, what we will focus our attention to is the inspiring ofloyalty. That is to say, put ourselves in a commander's position and ask, *"What inspires men to be loyal to me?"* A single theme which forms the answer to that question is Trust. If a commander can inspire trust, he will at the same time inspire loyalty. Without trust, he may be able momentarily to compel compliance with his orders, but this compliance will not be the same as loyalty. Loyalty is not compelled; it is inspired. Where loyalty exists, obedience to orders is characterised by a certain kind of superior-subordinate relationship. Integrity is a crucial factor in inspiring men to give trust. Competence alone did not account for trust to be received. Authority alone too did not explain the sense in which trust is given, It was simply, the moral integrity of the man, an unmistakable hallmark, that inspired the trust and in turn the loyalty thrust upon him.

In a classic treatise on leadership in the sixteenth century, Machiacelli advised the prince that he need not be loved by his subordinates in order to lead them. He need only be feared. But Machiavelli's analysis of leadership was defective as Rousseau was to demonstrate two and a half centuries later. A man may obey you if he is afraid of you, but his obedience is a weak and fleeting thing. Remove the immediate grounds of his fear and you have removed his sole reason for obeying. But if the same man is loyal to you, his obedience will have been insured in a much more lasting way, for the attitude of loyalty is a stronger stimulus that the attitude of fear. Rousseau wrote: *"The strongest is never strong enough to be always the master unless he transforms strength into right, and obedience into duty."*

Conflicting Loyalties and the Military Ethics. Alexis de Tocqueville in 1831 noted that *'while democracies need armies, they inherently find these 'troublesome.'* The nation and the army have *'opposite tendencies'* which expose democratic communities to great dangers. The *'opposite tendencies'* between a political democracy and its armed forces are obvious. The former is oriented towards the individual with emphasis on personal freedom which is characterised by debate, attempted reconciliation between conflicting and inefficiency. The military, on the other hand, is necessarily group oriented with strong emphasis on rigid discipline and obedience. It is also unavoidably authoritarian if not totalitarian in approach, which means that it is a closed organization with its own jargon, expertise, customs and justice

system. As such, it is vulnerable to dangerous tendencies such as abuse of power, careerism and over-concern for image.

The military has had trouble maintaining its ethic at the best possible level is not surprising. Soldiers are, after all, not supermen, and the system has certain inherent weaknesses and tendencies that work against its own ethic. To speak about these weaknesses and deficiencies is sometimes considered trespassing on *"sacred ground."*

Many in the military, in fact seem to operate under the dubious assumption that criticism, even internal criticism of the highest order, is a form of disloyalty. Nevertheless, most genuine conflict of loyalties involving the military ethic often initially stems from the system itself. Power does tend to corrupt, and throughout history, military men have had no special immunity to what Will Durant aptly calls the *"poison of power."* Power is essential to the military ethics, but its possession does not necessarily enhance allegiance to that ethic. Indeed, the military commander rarely tolerates adverse comments from any subordinate source. It is no accident, therefore, that the military has its own public relations and justice system, and that it clings tenaciously to a system whereby a sterling career may be ruined by the single adverse rating by a superior.

The abuse of power so prevalent in the armed forces is not always the responsibility of the commander. In the military, as in all hierarchies, there are subtle tendencies at work which enlarge the power and in so doing, encourage its abuse. One of these is the inherent relationship that exists between an individual commander with real or potential power and those who are part of or are trying to become part of the *'inner ring'* that surround him. It is a maxim that 'authority comes to the leader from those who consent to do what he asks. Unfortunately, there has never been a shortage of followers, even if what is asked is obviously wrong. This stems partly from fear, partly from ambition and partly because of man's well-recognised affinity for a person-to-person type loyalty.

An area of conflict involving the military ethic is ambition. Like loyalty, ambition does not take its value from the objective it seeks. Thus, an officer who wants to win a battle to preserve his nation has a worthy and lofty ambition, while one who seeks the same victory to get another star or build a foundation for material gain violates his ethic. Conflict is largely generated by the military system itself. Rank is, after all, the basic hallmarks of success for the military man. It determines not only pay and status, but has much to do with an individual's self-esteem. General Max Von Hoffman, a German general in World War 1, confided in his reminiscences among his fellow officers, *"The race for power and personal positions seems to destroy all men's character." Liddell Hart also lamented what he saw as "the growing obsession with personal career ambition: "As a young officer I had cherished a deep respect for the higher command, but I was sadly disillusioned about many of them when I came to see them more closely from the angle of military correspondent. It was saddening to discover how many apparently honourable men would stop to almost anything to help advance their career."*

Concern for Images. One important factor which links the powerful who want to strengthen their positions and the ambitious who want to achieve positions of power is concern for image. Concern for image can have significant positive effects on any group. The Special Forces Group and the 10 Brigade Paratrooper have demonstrated the strong relationship between morale and the self-image that stems from rigorous training, personal accomplishment and belonging to the elite group. But concern for image can also have the unintended consequence of suppressing anything that might tarnish it.

The fact that the military has been over concerned with image is not surprising. As indicated earlier, it represents a basic weakness characteristic of closed societies. Still, concern for image to the point where truth is covered up is fundamental to the viability of our military ethic and the credibility of the military establishment. A false image, like camouflaged history *"not only conceals faults and deficiencies that could otherwise be remedied,"* it fosters false confidence and false confidence underlies most of the failures that military history records.

A recent and striking example of the twin failings of unwillingness to admit error and the hardening of doctrine into dogma involved the adoption of the so-called Zero Defect System. Taken from industry, this program sought professional and personal excellence to the point of minimum error. But interpreted literally, as some image-conscious and ambitious commanders were inclined to do, it automatically moved from the realm of the plausible and desirable to the impossible and impractical. In many instances, the program evolved into a *"zero error mentality,"* that is, the commander felt that his command had to be error free. Since these men did not generally distinguish between mistake and misfortune, the inevitable result was not so much a positive objective of excellence but a passive, even negative approach to the mission, one that preclude risk. In the end, many errors were made and consequently covered up, for the zero error mentality is automatically wedded to the grotesque philosophy that it is worse to report a mistake than it is to make one. Such a philosophy has had severe reverberations throughout the entire military system and, unavoidably, runs into headlong conflict with the military ethic itself.

CONCLUSION

In the Malaysian Armed Forces today, the young officer and Other Ranks who is beginning his military services comes from a society whose values do not support the rigidly conceived notion of discipline. That is to say, discipline is not valued for discipline's sake. The young Malaysian is attuned to questions concerning morality and war. He expects to be given a reasons when told to do something. He does not always accept established traditions without question. He is often suspicious of bureaucracy and its way. He is, in short, the type of person who leads respected military writers to say that *"the gap between the values held by a large percentage of Malaysian youth and those required for effective military services is probably larger today than ever before."*

There remains, however, at least one thing that such a young man or woman responds to today as well as in the past. He or she recognizes a man of integrity and can inspired to trust such a man. This trust can serve to close the gap between the values of the soldier and his commanders, for trust creates a sympathetic attitude and propensity to obey. If you trust someone, you give him the benefit of the doubt when it comes to doing what he tells you to do. Thus, the soldier of democracy can remain a moral agent, ultimately responsible for his actions, and can at the same time obey the orders of a person he trusts, on the presumption that the orders are legally and morally correct. This is a presumption that all Malaysian would like to be able to make about the military commander, and it is one which they are justified in making if the commander is a man of integrity.

The military life has long been considered a life of sacrifice, not a life of personal gain. It is essential that the emphasis remain on the former in developing a professional soldier. Given this perspective, and with the humility and wisdom characteristic of Plato's Republic, the modern soldier can revise Himmler's phrase *"My loyalty is my honour - my loyalty resides in a man of integrity, to whom I give my trust."*

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HYPOTHESES

Hypothesis 1: The military minds influenced by the environment of bureaucratic organization.

Hypotheses 2: There has been a significant change in that people joining the military services are those who has low basic intelligence compared to those joining other profession.

Hypothesis 3 : The majority of people joining the military profession are those pursuing a relatively secure, safe and promising prospect as compare to the minority who join the military as their last option.

Hypothesis 4: There has been a change in the basis of authority and discipline in the military establishment, a shift from authoritative domination to greater reliance on explanation, expertise and group consensus

Hypothesis 5 : The modern officer corps is a professional body and the modern military officer a professional man.

Hypothesis 6: Loyalty is primarily a function of trust, and that trust is usually given if integrity is perceived in the object of one's trust.

Hypothesis 7: Creative thinking in the military are suppressed because of discipline.

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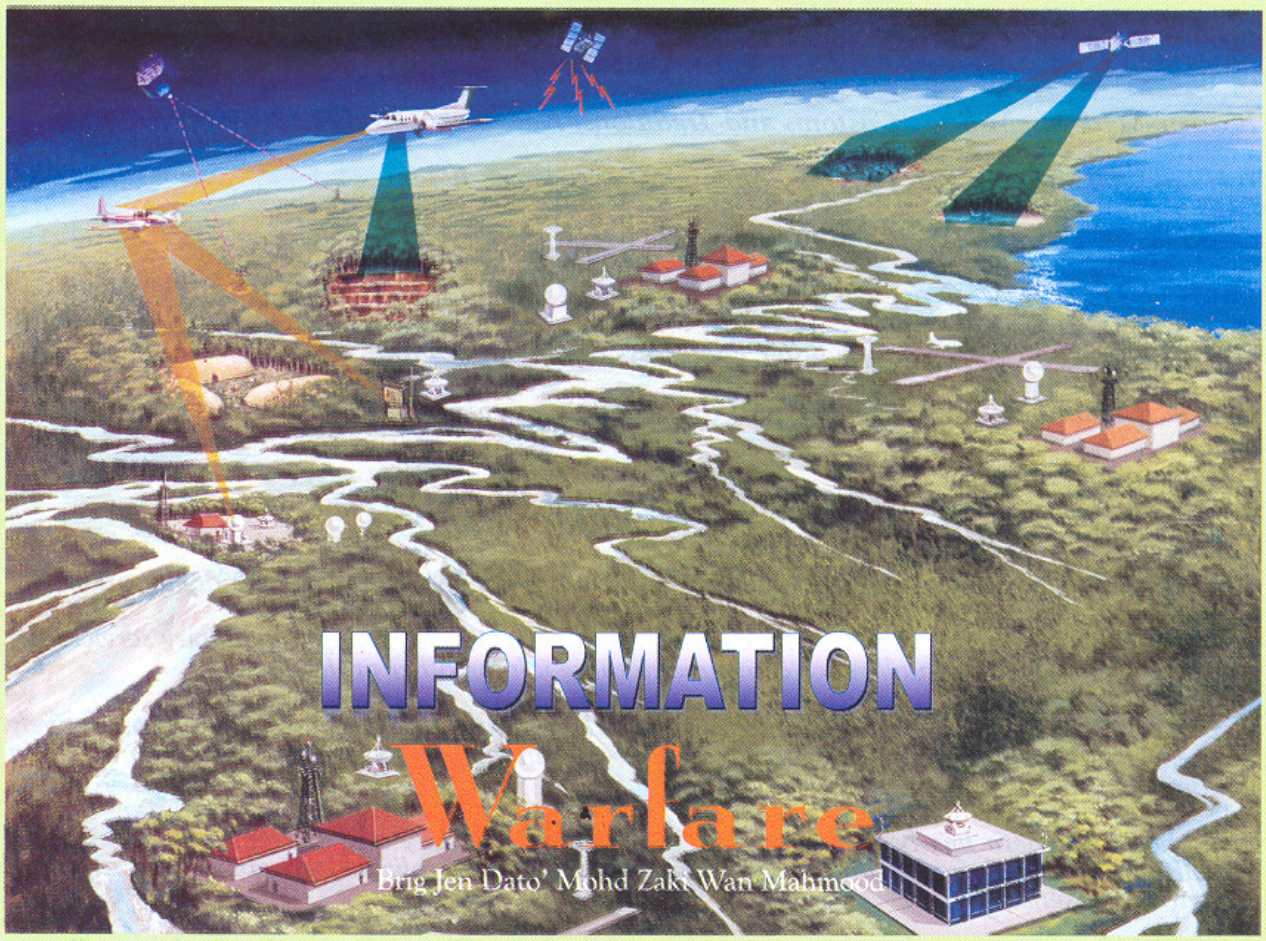

INFORMATION Warfare

Brig Jen Dato' Mohd Zaki Wan Mahmood

ROLES OF INFORMATION

Information is power. Whoever has information relevant to a given situation may exert his will over others. An aspired leader will strive to gather information pertinent to this fields of interest. His effectiveness over his subordinates and opponents is influences by the amount of accurate and relevant information available to him. Availability of information has a similar effect to a manager as well as to a military commander. With sufficient information decisions can be made and with accurate information effective plans are formulated. However, in a military environment information is more crucial. It determines victories and survival of a military force.

Functions of information to the military have never been questioned. Information guides staff and commanders in their thinking process and assist them in decision making. Accuracy and timeliness are two important factors to information. For the military, information gathered is processed into intelligence and have to be presented to commanders and staff efficiently and timely. Intelligence operations have been one of the major activities of the military. Intelligence dependence of military organizations is understandable. Strategic as well as tactical planning will required intelligence guidance. Inaccuracy, lateness or lack of intelligence may destroy military forces in battlefields. A nation whose military does not manage its intelligence effectively may find its territories being occupied by foreign military forces.

Apart from information being related to intelligence activities there are other important military functions which are dependence of information, such as logistics, administration and state of readiness. Compilation, transfer and

storage of these information have become more difficult as military forces become more sophisticated and their organizations grow larger. The need to have mobility by the military has added complication to information management. Furthermore, there are always the existence of threats from the adversaries, wanting to know of your capabilities, of what you know and what courses of action are likely to be taken by you. Some adversaries are interested in manipulating and destroying your information. The importance of safe guarding one's own information whilst obtaining those of the adversaries has long been realised, but action taken by commanders in many cases do not commensurate to its importance. Threats to military information systems exits during peace time as well in battlefields. Cases of espionage during peace-time between opposing major and super powers, as well as between smaller nations are abundant. There are also similar cases between friendly nation. Mark Urban describes in his book *"UK Eye Alpha"*, how high-tech monitoring was done onto the Chinese Embassy in Canberra in 1980's by the intelligence organizations of Australia, Britain and the USA. He also mentions that, *"the Sydney Morning Herold suggested that similar collaborative operations had been mounted against the Japanese, Malaysian, Indonesian, Russian, Iranian and Iraqi missions in Canberra"*. These cases are not necessarily confined to military information. They include commercial, technical, scientific, political and other issues of interest to the opposing parties.

Spying activities are known to have increased before and during war times. In battlefields military forces have intelligence units and information gathering units, which use every known method to gather information on the enemy. Commanders do normally have deception plans to confuse the enemy. False deployments and deceptive manoeuvers are normal activities in an effort to cover the truth.

The competitions between opposing parties in their efforts to safeguard own information and exploit those of the adversaries have lately turned their focus to electronic information systems. The demand by the military to have efficient information systems has resulted in the tremendous progress in the fields of communication and computers. The information technology's rapid advancement experienced in the world today is party the result of the military demand for efficient information management. It is obvious that processing and management of information are much more efficient using electronics, communications and computers. However, it is also obvious now that the application of information technology, tasks of safeguarding information are becoming much more difficult. Espionage and sabotage efforts appear to be so easy and very destructive.

Report on attack made by professionals, students and amateurs on computer systems appear regularly in the news. They are happening everywhere in the world since the 1980's. In the book *"Computer and Communications Security". J A Cooper writes, "... in November 1988 a worm crippled the operation of at least 6,000 computers connected to the Internet."* Another case was described by Tsutomu Shimomura in the Readers' Digest October 1996 issue. In his article *"Dual in Cyberspace"*, he relates how he traces assisted the police to arrest a professional hacker, who earlier had stolen information from his well-protected personal computer system connected to the Internet. It was a cyber battle between to professionals.

Computer attacks do hopped to large and well guarded systems. There have been many reports on attacks made on the systems in the Pentagon. It was reported by the Associated Press in the Malay Mail of the 24 May 1996, that it was estimated 250,000 attempts could have been

made in 1995 to penetrate US Military Computer Networks and 65 percent were successful. Similar report was also made by the US Defence Information System Agency. It appears in the Jurnal of Electronic Defence of December 1996 issue. These attacks were assessed to have obtained and corrupted sensitive and classified information by stealing, modifying and destroying data and softwares. In some cases they have crashed and shut down systems and networks. It was considered as a serious threat to US National Security.

Such incident confirmed the belief that modern information systems using information technology are exposed to attacks. Military forces are wary of their systems, as well as are taking advantage of the weaknesses of the information technology systems. A new dimension of warfare known as *"information warfare"* has appeared. It was reported in the Sunday Star of 12 May 1996 that the US Military is seeking *"information superiority"* through the application of information warfare, which is *"the capability to collect, process and disseminate and uninterrupted flow of information while exploiting or denying an adversary's ability to do the same."* The scope of information warfare in wide, but this paper will only look at the implications it has on the military.

INFORMATION CONCEPT

Within the military, information management is a clearly task. Every level of units and headquarters in a given chain of command is involved in managing information and commanders were made responsible for the safety and the efficient functioning of their information system. Conceptually the military information system may be in a format as given below in Diagram 1.

The chain of information activities and functions in Diagram 1 have been in practice in the military for a long time and it is not likely to change, though in some special cases certain agencies are bypassed. The concept of information flow may have not changed through the years, but the means and methods of information functions have, especially in the last decade, owing to the rapid advancement in electronics, communications and computers. The function of information acquisition is not discussed here. The paper will however discuss the transmission, processing and storage of information and threats related to these functions. These three functions are likely to be directly affected from information warfare efforts of adversaries. These efforts may be in the from of command and control warfare, intelligence based warfare or electronic warfare.

Troops, ships, aircrafts and other platforms acquire information and transmit them back to units and headquarters in the rear. They are also the recipients of orders, directives and instructions for execution. Units receive, process, store and transmit information forwards and rearwards. At the unit level, the volume of information for processing and storage are much less than at formation headquarters level. As the level of the headquarters increases these functions will increase in volume. The level of sophistication will increase too, especially in this era of information technology and multimedia application.

Methods of processing of information and the analysing of raw data into intelligence have, since these past years, been improved for better efficiency. With the advent of computers, the characteristics of speed, accuracy and thoroughness help in the task of processing and analysing raw information to an extent which was never possible before. The storage of large amount of information of computer files is made possible in digital form on computer disks, drums, tapes and diskettes. In most cases, information storage facilities are connected on line to the information system of local or wide area networks to ease accessibility and processing. Having information storage available on line is a must for most information systems, but this arrangement is the main cause for the information system to be most unsecured and most vulnerable to attacks. In a military environment information in computer files

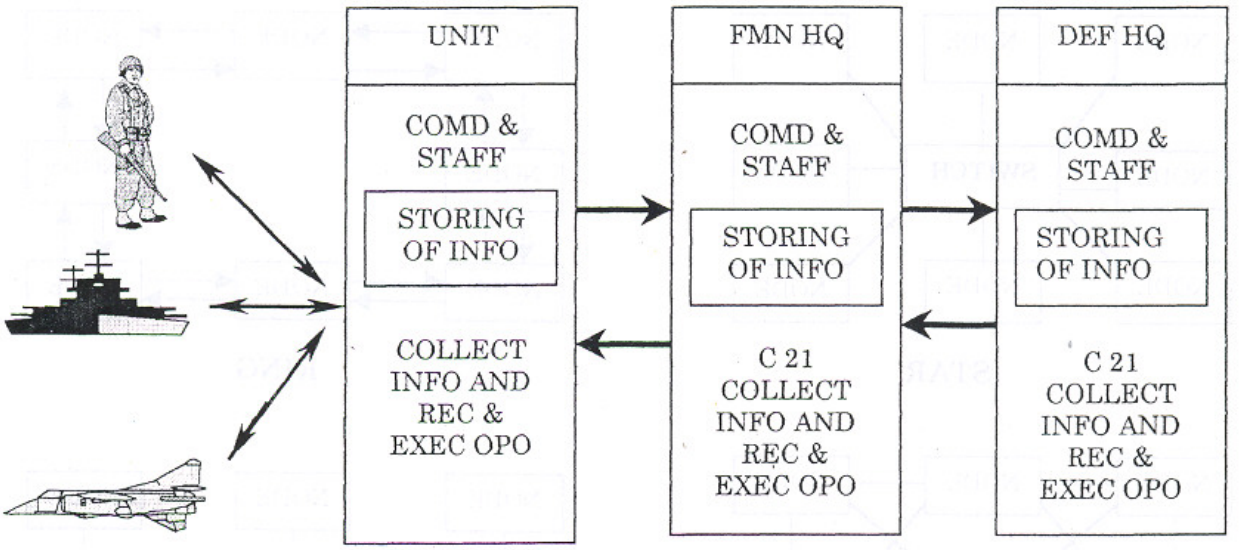

Diagram 1. Military Information Concept

include classified and sensitive information. In a command and control system information on own deployment, capabilities and contingencies as well as those of the adversaries' are made available in computer files on lines for easy access by authorised personnel within the network. The files are of interest an adversaries and some computer enthusiasts. They are attractive targets for attacks by hackers and crackers. Loss, damage or corruption of these computer files have a drastic effect on military operations.

Military organizations deployment are normally distributed nation-wide during peace-time, and in war-time they are deployed into tactical formations. Computer information systems of different military organizations are linked through communications into area networks. Intelligence, orders, instructions and other military files are accessible to every terminal in a given network. Functions performed by commanders and staffs are much more easy and efficient with the aid of computers in a networking. Speeds in information transfer using modern communication technologies, and efficient information using computer technologies, enable military commands to cope with military functions adequately in modern battlefields. The high rate of military mobility seen today is only made possible with the help of computers to speedily manage information. Computers and information technologies are proven to be important factors to force multiplier. Commanders must have the technologies to gain the upper hands over the enemy, or if not at least to be at par with them. However, insecured information systems will not be of any use to commanders.

Computers in a network are normally linked in one format or in a combination of formats. These network topologies however have weaknesses. They provide and easy access for unauthorised personnel to enter into any given information system. Any of the topologies (Diagram 2) chosen or a combination of them will expose the system for easy entry by attackers. A successful effort to penetrate at any point of the network will open up an avenue for an attacker to have access to files located at other parts of the network. An access to a network is that much more easy if any portion of a network is completely safe from crackers and hackers. Security measure from vendors provide false protection, since these measures are also available to the enemy.

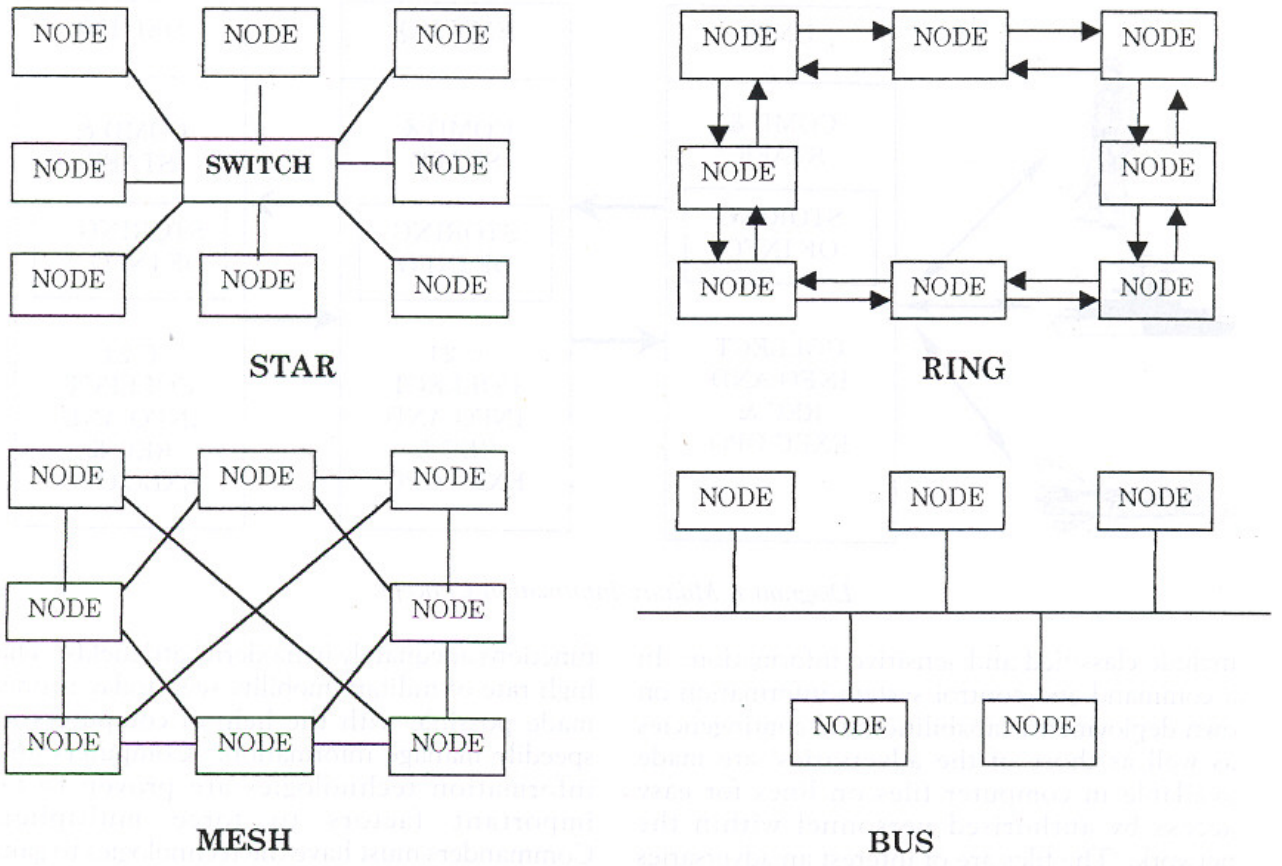

Diagram 2 . Basic Network Topography

Efforts by attacks are further made easier due to the existence communications and computer architecture (Diagram 3). An attacker needs normally to aims at any of the three parts within the architecture; at the processing, the communications or the storage part. From a processing centre, an information can be obtained by intercepting radiation emitted by the processing equipment. While information is being processed, electromagnetic pulses are radiated. These transmitted signals may be intercepted and read from distances away. More sensitive receiver system with narrow beam receiver antennae are able to receive and read these pulses from hundreds of meters away without the knowledge of the owner. In other cases, cables that provide communications link in an information system are being illegally tapped to intercept data on transmission. This is the easiest method of attacking.

In a more sophisticated method of attack, an attempt may be made by an attacker to enter storage facilities in order to have access to computer files, either to extract, to modify, to insert or to destroy information. The most common route of illegal entries into computer files known now is via the Internet. Any penetration into a computer system will permit the attacker to have access into the entire network if the part being attacked is connected to a node in a computer area network. These illegal activities of manipulating of information are further made easy if a computer system or equipment has been implanted or embedded with chips and software for purpose of these activities. Some of the known weapons used by crackers or hackers in their illegal activities are given in Annex A. The list is not exhaustive; some new ones will continue to appear from time to time.

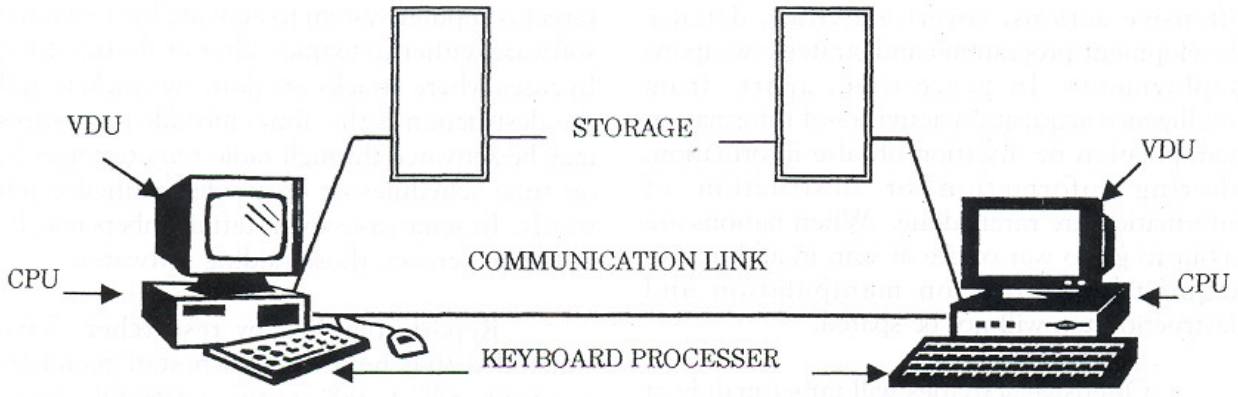

Diagram 3

INFORMATION SUPERIORITY

An ability to manipulate information belonging to others and to ensure the integrity of one's own information is a very attractive option to military commanders. A military forces that has achieved this ability will have every file in the information system belonging to the opponent transparent to its commanders and every information picture to be seen by the opponent is being manipulated by the commanders. Battlefield scenarios can be orchestrated by a commander who has superiority in information technology. Similarly, world politics may be controlled by nations with information superiority. Information superiority is likely to replace weapon superiority or nuclear superiority, for the latter two are least applicable in influencing a would order now, as well as into the next century. To exert one's will over other through the use of force is becoming more unpopular and will ultimately receive world-wide objection.

Nations which have realised the important roles to be played by information technology and information warfare have embarked into developing doctrines, concepts and tactics of information warfare. Organizations and procedures have been formulated to function towards achieving information superiority. Failure to realise and adopt into the military the importance of information technology and information warfare could *"lead today's militaries into premature obsolescence and greatly increase the risks that such forces will be incapable of effective operations"*. This conclusion was derived by the US Joint Chiefs of Staff Chairman General John Shalikashvili, as reported in the Sunday Star of 12 May 1996.

Information warfare is a new topic within the military circles. This revolution in military affairs is also discussed by Alfin and Heidi Toffler in their book, *"War and Anti War"*. There are varieties of definitions of information warfare emerged from these discussions. It is generally agreed that it constitutes actions taken to achieve information superiority by affecting adversaries' information, information processes and information systems, while protecting one's own. It can be developed by high-tech military, societies and terrorists. In its offensive form, attacks can only be made by high-tech military forces onto high-tech military opponents. In its defensive form, every military should develop its total protective cover over its information system and never to rely on vendors.

In an effort be superior in information a military force will attempt to steal information of high value from adversaries' information systems. During peace-time, efforts will concentrate on obtaining information on contingency plan, state of readiness, likely

offensive actions, covert activities, defence development programme and strategic weapons deployment. In peace-time, apart from intelligence acquisition activities of information manipulation by insertion of false information, altering information or destruction of information are rarely done. When nations are about to go to war or are at war, in addition to acquisition, efforts on manipulation and destruction too will not be spared.

Offensive activities will target mainly at information storage facilities. A successful attempt at the storage will open up access to all files. The offensive option of whether to steal, to corrupt or to destroy is left to the attacker. The other two areas where attempts are likely to be made are at the information processing centres and during transmission. Electro-magnetic emissions radiated during data processing are known to have been intercepted at some distance away. Unauthorised people may have access to classified and sensitive information through surveillance efforts of these emissions. Similar emission leakages may also take place along communication cable. Copper cable are more vulnerable as an information is easily obtainable by physically tapping them. Fibre-optic cable do not leak information, not for long though. Intelligence organizations of major powers are investing in fibre-optic research.

Apart from concentrating their attacks in the areas of hardwares or computers and communications equipment, adversaries may also develop their expertise in the field of software. To have access into foreign computer files, hackers or crackers are likely to have developed softwares that can sneak into storage facilities undetected, penetrating through various levels of security measure. Some foreign agent's software are embedded into the operating softwares, either in those purchased from off-the-self or specially developed by vendors. An attacker will need an on-line access into his target computer system to activate his intruding software, either to extract, alter or destroy files. In cases where attacks are done by crackers and the destruction is the aim, embedded softwares may be activated through radio remote controls, on time schedules or on predetermined catch words. In some cases own staff members may be bribed to activate those raiding softwares.

Report complied by researchers have concluded that help from own staff members constitute 80% to 90% to the successful attacks on information systems. The most common of which is the unauthorised transfer of files to a predetermined destination through the Internet. It would normally be done on payments. Own staff members could also be paid to destroy or alter files. In many other incidents their actions are uncalculated or accidental, such as using unauthorised diskettes which have been exposed to virus.

COUNTERMEASURES

Frightening number of cases of successful attacks on information systems are primarily due to managers and users who are ignorant of the existence of these threats. Systems are being developed and installed without sufficient protection or with commercial security measures which are far from being adequate for defence forces information systems. Commanders and managers who are not well versed with computer architectures, network topologies and information warfare threats could easily accept recommendations made by vendors. They may fall into a trap of having false security measures. On the other hand, if they have better understanding of the information warfare and damages such threats could cause, they would insist on better protections. A well prepared military organization will have information warfare policies and guidelines to protect its information systems.

Security requirements of an information system have to be given a serious thought, as early as during its development stage. In any project team, a security manager has to be appointed. He ensures all relevant security measures are included in the development plan. No implementation is allowed if a plan does not get the approval of the security manager. He answers directly to the most senior superior or commander in an organization. He briefs his superior regularly. The superior has to fully understand the subject matter, support this security manager and provide guidelines.

Procurement, installation and maintenance of the system have to be closely supervised by the security manager or his team members. His security requirements on software, hardwares and communications links have to be met by vendors. Information security instructions have to be produced by the security manager. Adhering to these security instructions are without exception. They are to be followed rigidly and their implementations are closely supervised by the information centre manager. These instructions will also include security requirements for personnel, physical and communications, as well as safety measures for protecting hardwares and software against damages cause by fire, water and electrical faults.

The best assurance for security of an information system is to have own personnel who are fully trained and well versed with information technology and information security as well as communications security to be involved in the development and the management of the system. These people are to educate and advise their superiors on the need for security and to train operators and other staff members who are directly or indirectly involved with the information system. These information and communication technology professionals are responsible to evaluate and upgrade security measures regularly, in order to be always ahead of the opponents. They have to establish research teams to develop security measures. Separate teams are also necessary to regularly mount mock attacks over own system to detect weaknesses. Above all, a military organization needs to have an incident response team, formed by experts in those field mentioned earlier. The team will react quickly, efficiently and effectively to computer security incidents before serious damages are caused.

SUMMARY

Computer and communications technologies are modern discoveries, which have become valuable assets to military organizations. Military forces can not afford not to have these assets. However, these assets are not without security risk. These benefits an risks derived from the application of computer and communications technologies have resulted in military forces developing information warfare capabilities. An armed forces with information superiority will have an edge over opponents. Organizations, doctrines and procedures have to be developed to strive for information superiority. Commanders who have the ability to control and manipulated information in battlefields are assured of not being surprised by the enemy. To achieve information superiority, commanders have to be certain their own system are protected. Commanders and staff officers have to realise the importance of having information system which are secure. It is the responsibility of commanders to ensure that information security measures are implemented successfully.

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"Dan kalau sekiranya penduduk sesebuah negeri beriman dan bertaqwa, nescaya kami bukakan kepada mereka keberkatan (pintu rezeki) dari langit dan bumi. Tetapi mereka mendustakan (membelakangi ayat-ayat kami) maka kami seksa mereka (dengan berbagai masalah) dari perbuatan mereka".

Surah Al-A'raf : 96

ANNEX A

WEAPONS USED IN INFORMATION WARFARE

1. **Bacterium** - A Virus designed to attach itself to the OS and exhaust computer resources.

2. **Chipping** - Embedded chips (integrated circuits) that fails to function on scheduled time, or blow up or transmit information on receipt of command signal.

3. **Electronic Jamming** - Use of powerful transmitter to block communications channels.

4. **EMP Bombs** - EMP (electromagnetic pulses) bombs detonate pulses to destroy electronics in computers and communications systems.

5. **HERF Gun** - HERF (high energy radio frequency) guns that shoot high power radio energy at electronic targets to damage electronic circuits.

6. **Logic Bomb** - Unauthorised destructive routine executed based on some predetermined parameter.

7. **Nano Machine and Microbes** - Tiny robots implanted into information centre, spread and crawl into computer to shut down electronic circuits.

8. **Rabbit** - A worm designed to replicate to the point of exhausting computer resources.

9. **Time Bomb** - Unauthorised destructive routine that are initiated at a specific time.

10. **Trap Door** - Hidden software or hardware mechanisms embedded in a cypher that permit system protection mechanisms to be circumvented.

11. **Trojan Gorse** - Computer programme that contains hidden functions such as copying or destroying a file.

12. **Virus** - Programme that copies itself into other programme.

13. **Worm** - Covertly inserted programme that overwrites data in a computer's memory.

APAKAH SENJATA KIMIA DAN BIOLOGI MERUPAKAN SENJATA NUKLEAR BAGI NEGARA MISKIN?

Mej Saiful Anwar Md Ali

PENDAHULUAN

Senjata kimia dan biologi telah wujud sejak dari zaman klasik lagi; bermula dengan bangkai-bangkai binatang yang dilontarkan ke dalam kota-kota dan kubu-kubu pertahanan menggunakan *"catapult"*. Sejarah membuktikan bahawa campuran bahan kimia mudah terbakar yang dipanggil *"Greek Fire"* telah dicipta pada tahun 670 Masihi dan digunakan sebagai bom api di dalam peperangan darat dan laut selama beberapa abad lamanya sehinggalah ke Zaman Pertengahan[1].

Peperangan biologi biasanya dirujuk kepada *'germ warfare'* atau *'bacteriological warfare'* dan mempunyai dua kategori. Yang pertama serangan dengan menggunakan *'living agent'* yang boleh menyebabkan penyakit kepada manusia, binatang atau tumbuh-tumbuhan dan keduanya menggunakan bahan kimia yang dipanggil hormon *('growth regulators')* dan digunakan untuk memusnahkan segala tumbuhan. Semasa Perang Boer, lebih ramai tentera yang mati disebabkan oleh demam tifoid jika dibandingkan dengan mati kerana pertempuran. Napoleon dengan sengaja telah membanjirkan bandar Mantua yang telah dikepong dengan harapan penyakit malaria akan melemahkan tentera Itali[2].

Merebakkan penyakit melalui kaedah ini amatlah berkesan dan ini dikenali sebagai wabak. Lihat sahaja di Jepun baru-baru ini, apabila 130 orang mati disebabkan oleh demam selesema *('Influenza')* termasuk 92 daripadanya mereka yang menjadi penjaga kepada pesakit-pesakit itu sendiri. Di Rusia pula 13 orang mati sejak November 1996 dan terus meningkat disebabkan oleh wabak ini. Moscow sahaja telah melaporkan bahawa 227,000 kes demam selsema dikesan dalam masa dua minggu pertama bulan Januari 1997[3].

Manakala peperangan kimia pula, penggunaan bahan kimia *('chemical agent')* yang terbahagi kepada tiga iaitu:

* Pertama, jenis gas *('war gas')* yang memberi kesan kepada tubuh badan.

* Kedua, jenis asap yang memberi perlindungan dari pandangan musuh.

* Ketiga, jenis kimia yang mengeluarkan api.

Ketika Perang Dunia Pertama, Jerman telah menggunakan gas beracun terhadap Rusia di Poland pada 31 Januari 1915, namun usaha mereka gagal. Bagaimanapun pada 22 April 1915, Jerman telah berjaya melancarkan *'cylinder attack'* dengan menggunakan gas kelorin terhadap pasukan Bersekutu (British dan Perancis) di Ypres. Walaupun maklumat perisikan memberi amaran berkenaan serangan tersebut, namun Tentera Bersekutu tidak

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[1] **The Encyclopaedia Britannica Inc**, 1969. London: William Benton Publisher: hal 641

[2] **Ibid**

[3] Akhbar **The Sun:** 23 Januari 1997.

mengendahkannya, dan akibatnya serangan itu telah memberi kejutan terhadap terup yang tidak bersedia. Ini telah memberi kejayaan yang besar kepada Jerman[4].

SENJATA KIMIA DAN BIOLOGI SERTA PENGARUHNYA TERHADAP KUASA DALAM STRATEGI

Contoh-contoh di atas menunjukkan kepada kita akan keberkesanan senjata tersebut dan impaknya ke atas sasaran apabila digunakan. Isu peperangan menggunakan senjata kimia dan biologi ini merupakan perkara yang penting kerana melibatkan doktrin militeri dan pembentukan tentera itu sendiri. Amerika Syarikat semasa pemerintahan Reagan telah mengambil langkah meningkatkan keupayaan peperangan kimia. Ini jelas, pada penghujung 1981, Kongres telah meluluskan peruntukan sebanyak AS$20 juta bagi tujuan membina instalasi peralatan bagi *'new nerve gas agent'* di Pine Bluff, Arkansas[5]. Ini adalah kerana mereka melihat bahawa peperangan kimia merupakan sesuatu yang tidak dapat dijangkakan, tambahan pula apabila mengetahui bahawa pihak Soviet dikatakan mempunyai keupayaan yang lebih tinggi dan bersedia untuk berperang dengan kaedah tersebut.

Peperangan kimia ini memang tidak dapat dijangkakan seperti mana yang dinyatakan oleh Jeneral Pershing bahawa *'Whether or not, gas will be employed in future wars is a matter of conjecture, but the effect is so deadly to the unprepared that we can never afford to neglect the question*[6]'. Oleh itu dengan memiliki senjata ini akan memberi kelebihan kepada sesebuah negara, walaupun perbelanjaan yang besar terpaksa dilakukan demi untuk mengekal dan mempertingkatkannya. Ini secara tidak langsung akan memberi kesan terhadap ekonomi negara kecuali jika negara berkenaan mempunyai ekonomi yang kukuh.

Seorang anggota tentera sedang menggunakan alat amaran bahaya' NBC' berkomputer

Penggunaan senjata ini boleh mempengaruhi negara lain dalam merencanakan strategi dan pertahanan negara. Sebagai contoh, penggunaan senjata kimia dari jenis racun tumbuh-tumbuhan *('herbecides')* dan gas pemedih mata oleh Amerika Syarikat secara meluas semasa Perang Vietnam telah menarik minat Soviet Rusia terhadap penggunaan senjata tersebut dan mengakibatkan penciptaan *'nerve agent'* dalam tahun 1970-an dan 1980-an[7]. Kedua-dua negara telah memberi penumpuan untuk memiliki dan menggunakan senjata ini kerana ia merupakan senjata pemusnah yang paling berkesan dan juga merupakan alat atau kaedah untuk meneutralisasikan instalasi nuklear

[4] **The Encyclopeadia Britannica Inc.**

[5] Kennedy, Robert. 1984. **The Defence of the West, Strategic and European Security Issues Reappraised.** USA: Westview Press: hal 202.

[6] **Ibid**.

[7] Krause, Joachim. 1992. **Chemical Weapon in Soviet Military Doctrine. Military and Historical Experience,** 1915 - 1991. USA Westview Press: hal 156 ,

pihak musuh. Hakikat ini boleh digunakan sebagai alat cegahrintang. Oleh itu, dengan memiliki senjata ini, sesebuah negara itu akan merasakan mempunyai kuasa yang lebih, dan ini pasti akan memberi kesan akan strategi dan dasar luar negara tersebut.

Seperkara lagi, pemilikan senjata ini akan mengakibatkan doktrin dan organisasi struktur ketenteraan negara tersebut juga turut berubah. Ekoran daripada penggunaan senjata ini, industri-industri hiliran lain akan turut sama berkembang seperti penciptaan dan pengeluar topeng gas, pakaian pelindung gas, alat-alat sistem penggera dan perlindungan awam. *Caramana untuk mengatasi pencemaran muka bumi, anggota tentera dan kenderaan, dan bagaimana pula ini dapat dimaktubkan ke dalam doktrin pertahanan kimia juga perlu dilaksanakan dalam memenuhi keperluan sebuah negara yang memiliki senjata ini* [8].

Namun terdapat sesetengah negara yang memiliki senjata ini tidak mengambil kira aspek-aspek tersebut disebabkan oleh teknologinya yang terhad. Pada mereka memiliki senjata ini akan menambahkan kuasa yang ada dan akan digunapakai dalam pembentukan strategi negara mereka.

SENJATA KIMIA DAN BIOLOGI SEBAGAI 'SENJATA NUKLEAR' NEGARA MISKIN?

Memang tidak dapat dinafikan bahawa kos pembikinan senjata ini memakan belanja yang lebih ekonomi jika dibandingkan dengan senjata nuklear. Akan tetapi jika dilihat dari segi penggunaannya, negara-negara besar telah memonopolinya bukan sahaja dari segi penggunaannya tetapi juga dari segi pemilikannya. Apakah kerana murah maka ia dikatakan sebagai 'senjata nuklear' negara miskin? Lihat sahaja peningkatan perbelanjaan yang telah dibuat oleh Amerika Syarikat bagi tahun 1978 hingga 1984[9]:

Tahun	Perbelanjaan (US $ (juta)	Peratus Peningkatan
1978	111	-
1979	123	9.8
1980	157	21.7
1981	267	40.0
1982	455	42.4
1983	810	43.8
1984	140	10.4

Begitu juga dengan Soviet Rusia yang dianggarkan mempunyai 20,000 hingga 700,000 tan agen senjata kimia dan terup yang terlatih dan dikhaskan untuk perang kimia dijangkakan berjumlah seramai 50,000 ke 100,000 orang. Mereka ini merupakan pakar dalam peperangan tersebut[10].

Walaupun peperangan kimia dan biologi kurang diberi perhatian akibat dari kemunculan senjata nuklear, namun negara-negara besar seperti Amerika Syarikat dan Rusia tidak akan melepaskan peluang untuk memiliki senjata tersebut. Pemilikan yang berterusan oleh Soviet Rusia ini dijelaskan apabila Pesuruhjaya Perang Soviet yang pertama L. D. Trotskij dalam ucapannya pada tahun 1920-an menyatakan:

> *"... wars can be avoided only if we fill the hearts of the imperialists and capitalist with intense fear of our strength of arms.... For the attacks of the enemy forces to be repelled, we must be armed with all of the latest means of defence which modern war technique can produce. The use of poison*

[8] **Ibid**: hal 61.

[9] Kennedy, Robert. **The Defence of West, Strategic and European Security Issue Reappraised**: hal 214.

[10] **Ibid**: hal 202.

gas in the latest war requires us to keep even this means of warfare in reserve for the defence of our nation against the enemy"[11].

Presiden Amerika Syarikat, Roosevert telah memberi amaran kepada Jepun pada tahun 1942 diikuti sekali lagi pada 8 Jun 1943 menyatakan bahawa *"Any use of gas by any Axist power ... will immediately be followed by the fullest retaliation upon ... military objectives throughout the whole extend of such Axist country"*[12]. Pada hakikatnya, senjata kimia amat berkesan sekali apabila digunakan terutamanya dalam peperangan. Tetapi, nampaknya penggunaan senjata kimia ini didominasikan oleh kuasa-kuasa besar sahaja. Pemilikan senjata ini oleh negara-negara kecil dianggap menjadi satu kesalahan dan membahayakan pihak yang lain.

Negara-negara Libya dan Iran misalnya, menjadikan senjata kimia dan biologi ini sebagai **'senjata nuklear'** mereka. Dengan memiliki senjata ini, negara mereka menjadi sebuah kuasa yang disegani dengan kos yang murah. Mereka juga tidak menghiraukan implikasi-implikasi penggunaannya kerana apa yang penting, mereka berupaya untuk mengganggu-gugat akan keabsahan kuasa-kuasa besar serta merencanakan strategi negara mereka dengan lebih efektif. Dalam krisis tebusan Iran umpamanya, Amerika Syarikat terpaksa menolak daripada mengambil sebarang tindakan kerana mengambil kira nyawa tebusan sekiranya mereka campur tangan. Ini menunjukkan Iran juga berada setanding dengan kuasa besar lain dalam menangani sesuatu isu. Menyentuh tentang senjata ini sebagai **'senjata nuklear bagi negara miskin'**, ia hanyalah merupakan *"journalistic hyperbole"* untuk menarik perhatian dan imaginasi rakyat, kerana keistimewaannya yang tersendiri dalam memusnahkan musuh.

[11] Krause, Joachim. **Chemical Weapons in Soviet Military Doctrine, Military and Historical Experience,** 1915 -1991: hal 36.

[12] **The Encyclopeadia Britannica Inc.**

KAWALAN PENGGUNAAN SENJATA KIMIA DAN BIOLOGI

Adalah menjadi kesukaran untuk menghapuskan senjata kimia yang telah sedia ada. Pemusnahan senjata tersebut akan meninggalkan bahan toksid yang merbahaya kepada manusia dan juga pencemaran kepada alam sekitar. Selain daripada itu, perbelanjaan yang besar perlu dikeluarkan untuk menghapuskan senjata berkenaan dan ini melibatkan beban yang tinggi kepada negara. Dalam era pasca Perang Dingin, memang tidak dapat dinafikan bahawa negara-negara yang tidak mampu memiliki senjata nuklear akan mengubah arah ke atas pemilikan senjata kimia dan biologi disebabkan kosnya yang lebih rendah. Sesebuah negara itu mungkin memikirkan bahawa mereka perlu menggunakan senjata tersebut bagi mencapai objektif tertentu, dan ini akan *'mencetuskan konflik dengan negara-negara lain'*. Masalah untuk melaksanakan verifikasi boleh timbul kerana tidak semua negara akan mendedahkan apa yang mereka ada untuk diperiksa. Negara Jerman misalnya, telah dilarang sama sekali untuk menghasilkan dan memiliki kereta kebal, kapal terbang dan gas dalam peperangan akan datang. Ini termaktub dalam Perjanjian Versailles yang mereka tandatangani. Namun mereka tidak menghiraukan perjanjian tersebut, malah mempertingkatkan lagi penyelidikan dan industri bagi ketiga-tiga perkara berkenaan. Tegasnya, dengan memiliki senjata ini, pengaruh sesebuah negara akan menjadi lebih berkesan terutama dalam pembentukan strategi untuk mencapai objektif yang telah digariskan.

Menyentuh tentang cegahrintang, ia berbeza dengan senjata nuklear kerana senjata nuklear mempunyai kredibiliti sedangkan senjata kimia dan biologi tidak, walaupun kedua-duanya dapat memainkan peranan sebagai cegahrintang. Lihat sahajalah bagaimana Saddam Hussien mencegah serangan oleh Amerika Syarikat dan sekutunya ke atas Iraq dengan serta-merta, biarpun tindakan yang diambil ke atas negaranya sama ada secara *"unilateral"* atau

"multilateral", dengan mengancam akan bertindak balas menggunakan senjata kimia. Amerika Syarikat mengambil masa hampir lima bulan sebelum membuat keputusan melancarkan serangan ke atas Iraq. Ini memberi masa yang cukup selesa bagi Iraq membuat persediaan. Jelas di sini senjata kimia bukan sahaja dapat bertindak sebagai cegahrintang malah memberi ruang masa yang agak lama kepada pihak yang memilikinya dalam membuat persediaan.

Setiap kali peluru berpandu Iraq jatuh ke bumi Israel, Amerika Syarikat merasa bimbang peluru tersebut mengandungi bahan kimia. Sekiranya ini berlaku, ia akan mengundang campur tangan Israel dalam kemelut tersebut. Hal seperti inilah yang seboleh-bolehnya dielakkan oleh Amerika Syarikat kerana impaknya terhadap negara-negara Islam lain.

RUMUSAN

Prospek terhadap penggunaan senjata kimia dan biologi ini sentiasa ada kerana senjata-senjata tersebut tidak dimusnahkan. Selagi ia masih terdapat dalam inventori negara-negara berkenaan maka kemungkinan penggunaannya masih wujud. Dalam konteks penggunaannya, terdapat *"strong points"* dan *"weak points"* pada tahap strategi ketenteraan dan keperluannya kepada doktrin-doktrin yang tertentu. Ia juga mempunyai impak psikologi yang tinggi apabila digunakan disebabkan oleh kasualti yang ramai. Penggunaannya yang meluas tanpa amaran akan menjadikan ianya sebagai agen pemusnah yang ganas. Kaedah-kaedah rawatan kepada mangsa-mangsa senjata ini haruslah difikirkan kerana ia akan memberi implikasi moral terhadap mangsa dan pihak yang lain.

Kenapakah peperangan kimia dan biologi diberi perhatian? Jika dilihat dari satu sudut ia adalah kerana peningkatan dan perkembangan teknologi terhadap mutu ke atas produk tersebut. Jika ianya dapat memberi keluwesan misalnya hanya benda-benda tertentu sahaja yang akan terjejas apabila senjata ini digunakan tanpa menjejaskan benda-benda lain, ianya akan memberi satu perkembangan yang baru. Selain itu juga, senjata ini boleh digunakan tidak seperti senjata nuklear yangmana mereka tahu bahawa senjata tersebut tidak akan digunakan. Pun begitu, ianya boleh digunakan dengan menyeluruh disebabkan teknologinya yang murah dan mudah diperolehi oleh Negara-negara Dunia Ketiga. Ianya sudah mencukupi jika dapat memberi kesan untuk membunuh.

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Mej Saiful Anwar Md Ali telah ditauliahkan dalam Rejimen Askar Melayu Diraja pada 23 Februari 1985. Beliau telah berkhidmat di beberapa pasukan dan Pusat Latihan seperti di 23 RAMD, PUSWATAN dan ATMA. Beliau adalah pemegang Diploma Pengajian Strategik dan Keselamatan dari UKM. Kini beliau sedang menuntut di MTAT.

"Kalimah yang baik adalah umpama sebatang pohon yang subur, pangkalnya (akar tunjangnya) tetap teguh di bumi, cabang dan pucuknya menjulang ke langit. Bandingan kalimah atau kata-kata yang jahat - baik itu, samalah seperti sebatang pohon yang tidak berguna dan mudah terbungkas akarnya dari muka bumi, tidak ada tapak untuk tetap dan terus hidup".

Surah Ibrahim: 26 & 25

FAKTOR-FAKTOR PENTING YANG MEMBAWA KEPADA CAMPUR TANGAN TENTERA DALAM SISTEM POLITIK NEGARA-NEGARA DUNIA KETIGA

Mej Mohd Radzi bin Abd Hamid

PENDAHULUAN

Evolosi sejarah manusia dan pembentukan sistem negara dan bangsa telah menunjukkan bahawa untuk mencapai objektif-objektif yang telah ditetapkan, sesebuah negara itu perlu kuat dan kukuh dalam aspek ekonomi dan institusi ketenteraan. Walaupun aspek ekonomi mempunyai kekuatan yang tersendiri *'that can influence both the rate and the direction of accumulation'* tetapi pada hakikatnya kedua-dua aspek ini saling bergantung atau berkaitan. Sungguhpun begitu, di negara-negara Dunia Ketiga, aspek institusi ketenteraan dilihat begitu penting dan mempunyai nilai yang boleh mendatangkan kesan pada kedaulatan negara.

Kekuatan sesebuah negara bergantung kepada cara mereka mentadbir kuasa tentera, keupayaan mengurus ekonomi dan mentadbir rakyat. Dewasa ini terdapat beberapa corak pemerintahan negara yangmana ianya dibezakan dengan campur tangan institusi ketenteraan. Terdapat negara-negara yang ditadbir secara mutlak oleh tentera seperti Burma, terdapat pula negara-negara yang ditadbir oleh kerajaan campuran tentera dan golongan elit seperti Indonesia dan ada negara-negara yang secara mutlak ditadbir oleh awam, dan tentera adalah sebuah institusi yang berlainan seperti Malaysia. Ini bermakna, fenomena campur tangan tentera dalam politik telah membentuk satu bentuk atau corak pemerintahan. Isu campur tangan tentera dalam politik adalah masalah Dunia Ketiga dan ianya bukan satu isu baru bahkan ianya telah berlaku beratus tahun dahulu. Terdapat beberapa pemikir yang cuba menukar isu ini seperti Janowitz, Lucien Pye, Nothlinger, Finer, Huntington, Thompson dan banyak lagi.

Hakikatnya, institusi ketenteraan adalah satu badan yang berasingan yangmana dilihat sebagai pendukung atau unsur pengukuh kerajaan yang memerintah. Sungguhpun begitu, ada institusi ketenteraan yang turut terlibat dalam politik. Persoalannya, apakah sebab-sebab yang memungkinkan atau memaksa tentera campur tangan dalam politik? Terdapat banyak sebab yang memungkinkan oleh pemikir-pemikir di atas dan ia dapat dirumuskan seperti kelebihan-kelebihan yang ada pada institusi ketenteraan, bentuk layanan dari pemerintah awam, kegagalan kerajaan awam memerintah negara, pengaruh kuasa asing terhadap tentera, tahap budaya politik masyarakat, kepentingan peribadi, hilang kuasa autonomi, wujudnya tentera kedua dan lain-lain lagi.

SEBAB-SEBAB PENTING

Janowitz mengatakan sebab yang terpenting menyebabkan tentera campur tangan dalam politik ialah ciri-ciri pelakuan institusi ketenteraan. Ciri-ciri ini melibatkan kebolehan pegawai-pegawai tentera, struktur kemahiran, kebolehan mengurus dan asal usul anggota tentera. Pendapat Janowitz ini tidak dipersetujui oleh Huntington. Beliau bertanyakan apakah ciri-ciri pelakuan tentera di negara-negara baru merdeka memudahkan penglibatan tentera dalam politik? Huntington berpendapat sebab-sebab yang penting ialah struktur dan institusi masyarakat itu sendiri yang mendorong tentera campur tangan dalam politik. Jika masyarakat benar-benar terlibat dan dimobilisasikan adalah agak mustahil untuk tentera campur tangan. Manakala Finer pula menekankan aspek motif dan keadaan-keadaan yang telah membuka peluang untuk tentera campur tangan. Beliau

lebih bersetuju dengan aspek budaya politik masyarakat [1]. Berdasarkan teori budaya politik ini, Finer telah mencadangkan empat peringkat campur tangan seperti berikut:

* **Mempengaruhi.** Politik ditadbir sepenuhnya oleh kerajaan awam. Institusi tentera adalah sama seperti elemen-elemen lain. Dalam peringkat ini, kerajaan boleh menerima atau menolak pendapat tentera.

* **Mengancam.** Peringkat ini sama seperti peringkat pertama tetapi tentera mempunyai kuasa yang agak lebih seperti disokong oleh rakyat. Pada peringkat ini, tentera boleh bertindak dalam bentuk campur tangan dengan tujuan agar kerajaan awam insaf atau sedar akan kelemahan mereka.

* ***"Displacement".*** Peringkat ini agak serius yangmana tentera bertindak menukar kerajaan awam yang sedia ada kepada kerajaan awam yang lain. Ini bermakna tentera cuma bertindak sebagai pihak penyelesai masalah.

* ***"Supplantment".*** Peringkat ini dimana tentera menggunakan kekerasan untuk merampas kuasa *(coup d' etat)* dan seterusnya menggantikan kerajaan awam.

Lucien Pye pula berpendapat faktor modenisasi organisasi tentera dilihat sebagai faktor utama yang menyebabkan campur tangan tentera dalam politik.

[1] Budaya politik adalah keseluruhan dari pandangan-pandangan politik seperti norma-norma, pola-pola orientasi terhadap politik dan pandangan hidup pada umumnya. Budaya politik mengutamakan dimensi psikologi dari satu sistem politik iaitu sikap, sistem, kepercayaan dan simbol yang dimiliki oleh individu-individu serta harapan mereka dalam sesebuah masyarakat. Atau dimaksudkan oleh Kavanagh sebagai *"as the overall distrubtion of citizen's orientation to political objects".*

Sungguhpun terdapat berbagai-bagai pandangan dan teori yang dikemukakan, penulis berpendapat dari semua idea-idea yang dikemukakan, sebab yang penting hanya lima sahaja iaitu kelebihan-kelebihan yang ada pada tentera, layanan dari pemerintahan awam, kegagalan kerajaan awam memerintah, tahap budaya politik yang rendah dan pengaruh kuasa-kuasa asing.

SEBAB 1 – KELEBIHAN-KELEBIHAN DALAM INSTITUSI KETENTERAAN

Sejak dari dahulu lagi sama ada sesebuah negara itu diperintah oleh penjajah atau kerajaan yang sah, institusi ketenteraan merupakan sebuah institusi yang paling berjaya dalam proses pemodenan sesebuah negara. Dalam sebuah negara yang baru merdeka, ia nampak lebih moden dan kuat kerana dipengaruhi oleh teknologi Barat atau penjajah. Ini bermakna tentera berada dalam semangat pembangunan berdasarkan teknologi moden dan mempunyai kemahiran dalam melakukan kekerasan. Pegawai-pegawai muda tentera dalam negara yang baru merdeka melihat masyarakat luar atau penjajah sebagai idola dan menjadi sungguh sensitif terhadap keperluan modenisasi dan kemajuan teknologi kerana tidak mahu ketinggalan.

Semasa bermulanya revolosi teknologi, tentera dipandang begitu rendah tetapi setelah teknologi berkembang, institusi tentera begitu berprestij dan berada pada skil sosial yang tertinggi. Perubahan teknologi ini menjadikan pegawai-pegawai tentera di negara-negara baru merdeka begitu peka kepada negara-negara yang mundur. Dengan adanya pegawai-pegawai tentera yang berorientasikan politik, maka keadaan mundur itu memudahkan mereka untuk campur tangan dengan tujuan untuk memajukan negara mereka.

Dalam membincangkan sebab di atas, kelebihan yang dimaksudkan adalah tentera mempunyai organisasi yang tersusun dan kemas, semangat tentera adalah berobjektifkan kepentingan bersama *(corporate interest), "Espirit de corps"*, dan kemahiran dan penguasaan terhadap senjata. Teori yang dipersetujui oleh Janowitz, beliau menyatakan ciri-ciri pelakuan institusi tentera adalah sebab terpenting yang menyebabkan tentera campur tangan dalam politik. Ciri-ciri pelakuan yang beliau maksudkan ialah kebolehan pegawai tentera yang dikaitkan dengan *"ethoe of public service"*, struktur kemahiran dan pengalaman, kebolehan untuk mengurus dan asal usul masyarakat tentera. *"The underlying rationale is that the organizational format to designed to carry out military functions, as well as experience in the `management of violence', is at the root of these armies ability to intervened politically"*[2].

* **Organisasi yang Tersusun dan Kemas.** Institusi ketenteraan mempunyai cara hidup yang tersendiri dan berbeza dari kehidupan awam. Secara tidak langsung, tentera dalam Dunia Ketiga merasakan mereka terpisah dari realiti masyarakat transisi dan menumpukan perhatian yang lebih kepada perindustrian. Boleh dikatakan di semua negara Dunia Ketiga, tentera darat adalah pasukan tentera yang terbesar jika dibandingkan dengan tentera laut dan udara. Ini membolehkan tentera darat campur tangan dan merampas kuasa secara bersendirian dan ia boleh mengawal tentera laut dan udara selepas rampasan kuasa tersebut. Pasukan-pasukan darat yang kecil dan terkawal seperti pasukan infantri boleh ditempatkan di tempat-tempat strategik yang mempunyai peluang untuk campur tangan dalam politik dan orientasi politik untuk campur tangan.

* Dalam organisasi yang besar dan tersusun, pegawai tentera yang mempunyai pengalaman mentadbir dalam mempersiapkan diri bagi jawatan-jawatan pentadbir tinggi dalam kerajaan seperti menjalankan tanggungjawab ketenteraan, perancangan strategi, ekonomi dan politik. Hakikat ini disokong oleh Janowitz:

> *"It is true, however, that as the military develops a more complexs technology and the nature of authority changes from domination to group consensus, many of the human-relations' skills of military leadership - concern for morale and internal communication - lead to greater transferability of skill to civilian political arena"*[3].

* Selain daripada itu, di negara-negara baru merdeka, pegawai-pegawai bahkan semua lapisan atau hirarki tentera berorientasikan politik yang tinggi. Pengalaman dan kemahiran profesional yang diperolehi telah melahirkan atau sekurang-kurangnya merangsang pegawai tentera untuk terlibat dalam politik. Dalam Dunia Ketiga terdapat tentera yang diasaskan melalui pergerakan kebebasan nasional oleh anggota-anggota yang terlibat secara aktif dalam politik yang membentuk institusi tentera, seterusnya melanjutkan kepentingan politik mereka sebagai pegawai tentera.

* Pengalaman yang diperolehi di Maktab Turus, mendedahkan mereka kepada perbincangan berkenaan dengan politik, menarik perhatian pegawai-pegawai tentera untuk dibincangkan. Menurut Janowitz:

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[2] *Janowitz,* 1964 : hal 32.

[3] *Janowitz,* 1964: hal 43.

"In some countries, officers received their basic military education abroad, or are send abroad for advanced training, which also has the consequence of strengthening political interests in general and fostering concern with social change rather than with fashioning a particular ideology"[4].

* **Kepentingan Bersama (Corperate Interests).** Institusi tentera moden mempunyai ikatan perpaduan kumpulan *(cohesion)* dan kebolehan tindakan kolektif yang kuat. Finer menjelaskan "modern armies as *cohasive and hierarchi"*[5]. Kedua-dua aspek ini merupakan elemen penting untuk tentera melicinkan pelaksanaan politiknya. Darjah perpaduan di kalangan tentera dilihat sebagai satu ikatan ketaatan untuk membolihkan rampasan kuasa.

* Disiplin yang tinggi akan menentukan darjah kekuatan dan perpaduan apabila merampas kuasa. Contohnya, dalam tentera Pakistan. Darjah perpaduan juga menentukan sama ada tentera menerima keagungan pemerintah awam seperti India dan Malaysia atau menolaknya seperti Burma.

* Faktor ini merupakan aspek penting yang membuatkan tentera campur tangan dalam politik. Sekiranya campur tangan berdasarkan faktor ini, maka selepas berkuasa matlamat tersebut akan mendorong dalam kecenderungan konservatif dalam mengekalkan dan melindungi status quo-ekonomi dan sosial. Dalam bab ini, Finer berpendapat:

"The military is jealous of its corporate status and privileges. Anxiety to preserve of the motives for intervention. In its defensive form it can lead to something akin to military syndicalism - an insistence that the military and only the military are entitle to determine on such matters as recruitment, training, numbers and equipment. In its more aggressive form it can lead to the military demand to be the ultimate judge on all other matters affecting the armed forces. As these certainly include foreign policy, and invariable include domestic economic policy and may well include all the factors making for morale, i.e. education and mass media of communication, such claim are bound to bring the military into conflict with the civilian government which traditionally occupies itself with such matters"[6].

* ***"Espirit de Corps".*** Dengan mempunyai sebuah organisasi yang lengkap dan ketaatan yang tidak berbelah bagi, secara tidak langsung semangat yakin dan percaya dalam satu kumpulan akan wujud di kalangan mereka atau lebih dikenali sebagai *"espirit de corps"*, situasi ini akan mewujudkan perpaduan, solidariti dan semangat, yang menggambarkan kesetiaan institusi tentera kepada negara termasuk campur tangan dalam politik.

Berdasarkan faktor-faktor di atas ialah organisasi yang moden, *"corporate interest"*, *"espirit de corps"*, kemahiran-kemahiran yang berkaitan, dan *"cohesion"*, dapatlah dinyatakan bahawa di negara Dunia Ketiga, organisasi tentera lebih tersusun dan moden berbanding dengan institusi awam. Situasi ini bukan sahaja membuka peluang tetapi profesion tentera itu sendiri membawa prestij moral yang penting dari sudut politik kepada mereka. Bukti yang paling

[4] ***Janowits,*** 1964: hal 62 & 63.

[5] ***Finer,*** 1962; hal 5.

[6] ***Finer,*** 1962: hal 41.

dekat boleh ditonjolksn ialah sejarah campur tangan tentera Burma dalam politik. Tentera Burma sejak ditubuhkan pada tahun 1942 telah mempunyai satu organisasi yang kuat. Ini disebabkan oleh penglibatan pegawai tentera dalam usaha-usaha mendapatkan kemerdekaan dari pihak British pada tahun 1948. Ini telah menjadikan institusi tentera Burma penting dalam sejarah Burma. Kekecohan yang berlaku telah menjadikan mereka kuat dan berpengalaman. Organisasi tentera Burma yang lebih tersusun dari pemerintah awam telah menyebabkan mereka merampas kuasa apabila kerajaan awam gagal mengatasi kemelutan negara yang menyebabkan berlakunya huru-hara yang tidak terkawal. Robert H. Taylor menggambarkan tentera Burma seperti berikut:

> *"... within the military, the officers corps has developed into a more unified and coherent group ...."*[7]

SEBAB 2: LAYANAN DARI PEMERINTAH AWAM

Pada mulanya di negara-negara yang baru merdeka, pihak awam berada di kedudukan yang paling tinggi, mempunyai kuasa dan tentera tertakluk pada kuasa tersebut dengan mempunyai bidang tugas yang terkeluar dari politik. Ini bermakna, tentera berkecuali dari menyokong mana-mana parti politik dan dilihat sebagai pihak yang bertanggungjawab untuk mempertahankan kedaulatan negara tanpa mengira jenis parti yang memerintah. Realitinya, tentera mempunyai kuasa yang luas dalam politik dan campur tangan mungkin berlaku jika mereka tidak berpuas hati terhadap layanan yang diterima dari pemerintah awam.

Di negara Dunia Ketiga juga, tentera mempunyai dua peranan utama iaitu sentiasa bersedia untuk mempertahankan kedaulatan negara dari ancaman musuh dan membantu pihak polis khususnya dalam menangani masalah ancaman dalam negeri. Tentera juga akan bertindak menggantikan polis sepenuhnya, jika polis gagal menyelesaikannya. Penglibatan dan pengalaman yang diperolehi telah mempertingkatkan ilmu politik mereka yang boleh dijadikan asas untuk campur tangan.

Dalam negara demokrasi, tentera dipisahkan dari awam tetapi di negara yang baru merdeka tidak berlaku sedemikian kerana tentera sentiasa terlibat dalam tugas polis untuk mengekalkan autoriti yang sah. Pengalaman ini dilihat sebagai satu pembelajaran tentang huru-hara dan ancaman dan bila masa yang sesuai untuk campur tangan atau merampas kuasa terutama darjah keabsahan awam merosot.

Di negara Dunia Ketiga yang baru merdeka selalu timbul tuntutan pihak tentera untuk membezakan diri mereka dari polis dan mahu mereka dianggap lebih penting dari polis. Tentera sama ada usulnya dari penjajahan atau pejuang kebebasan sentiasa berusaha agar tidak terlibat dalam tanggungjawab rutin negara seperti menekan pihak pembangkang atau menyelesaikan masalah jenayah. Mereka juga tidak suka diarah oleh pihak awam untuk bertindak keras atau menembak rakyat awam yang tidak bersenjata semasa demonstrasi kerana kebanyakan tentera berasal dari masyarakat yang sama.

Campur tangan pihak awam dalam urusan tentera seperti dalam proses kenaikan pangkat yang berdasarkan keturunan atau sahabat baik akan menyebabkan tentera tidak berpuashati. Contoh yang paling ketara ialah di Ghana, Presiden Nkrumah telah menyingkirkan beberapa pegawai tinggi tentera dan diganti dengan yang dikenalinya dan akan taat kepada beliau. Beliau juga telah menaikan pangkat pegawai tentera berdasarkan kesetiaan kepada beliau dan menubuhkan satu rejimen tentera yang bertanggungjawab terus kepada beliau dan bukan kepada pegawai tinggi tentera. Akibat

[7] **Finer**, 1962; hal 41.

dari campur tangan ini telah berlakunya rampasan kuasa tentera.

Disesetengah negara pula, tentera berpendapat mereka mempunyai hak atau wibawa untuk campur tangan dalam politik sekiranya kerajaan awam mengancam kepentingan tentera. Misalnya kerajaan awam telah mengurangkan perbelanjaan ketenteraan atau mengurangkan gaji dan elaun. Situasi ini dilihat oleh tentera sebagai boleh menjejaskan imej dan prestij mereka. Tambahan pula kebanyakan tentera bukannya dari golongan atasan tetapi dari kelas pertengahan atau tidak ada sumber pendapatan. Manakala Thomson dalam bukunya *"The Grievances of Military Corps - Makers"* menyatakan layanan yang tidak baik oleh pemerintah awam kepada tentera akan berlaku apabila tiada sokongan belanjawan. Contoh yang paling ketara adalah peristiwa yang berlaku di Ghana di bawah Nkrumah yangmana tentera bertindak melancarkan rampasan kuasa;

> *"Tentera menjadi serba kekurangan, kurang kelengkapan, pada hakikatnya telah diturunkan kedudukannya menjadi rakyat biasa. Menjelang Krismas dalam tahun 1965, ramai tentera telah tidak mempunyai peralatan dan pakaian serta peralatan-peralatan yang lain yang penting kepada harga diri, moral dan kecekapan tentera .... Adalah memalukan apabila melihat seorang tentera Ghana dengan pakaian seragam yang koyak rabak dan compang-camping, kadangkala tanpa sepatu semasa menjalani latihan"*[8].

Selain daripada itu layanan buruk dari kerajaan awam dalam bentuk polisi-polisi yang boleh mengancam *"corperate interest"* atau prestij tentera. Bukti ketara yang boleh dikemukakan di sini ialah rampasan kuasa tentera di Thailand pada 9 November 1947. Menurut Chai Anan, salah satu penyebab rampasan kuasa tentera pada tahun 1947 ialah polisi-polisi yang menggugat prestij tentera.

> *"... the Army, whose corporate interest and prestige were severely affected by several government policies, became disgruntled with Pridi and his group"*[9].

Situasi ini akan menjadi lebih buruk lagi jika tentera negaranya dibandingkan dengan tentera negara jiran yang lebih baik dan kuasa autonominya dihormati. Ini jelas menunjukkan mereka tertinggal dan seterusnya mereka akan campur tangan dalam politik atau melancarkan rampasan kuasa tentera.

SEBAB 3 - KEGAGALAN KERAJAAN AWAM MEMERINTAH

Di negara-negara Dunia Ketiga, kemajuan dan kemakmuran negara amat bergantung kepada pemerintahan awam yang ada pada masa itu. Ketidakcekapan pemerintah awam memerintah akan menyebabkan ekonomi negara merosot dan rakyat akan menghadapi masalah seperti peratus inflasi yang tinggi, kebuluran dan taraf hidup yang rendah. Situasi ini dilihat oleh tentera sebagai kegagalan pihak awam dan mereka bersedia untuk campur tangan sama ada apabila diminta atau terus melancarkan rampasan kuasa.

Situasi ini dapat dilihat di Burma semasa kegagalan pemerintah awam memakmurkan negara yang menyebabkan rakyat melancarkan rusuhan dan ketegangan tersebut diambil oleh anasir-anasir komunis untuk memperluaskan pengaruhnya. Tentera melihat situasi ini membahayakan kedaulatan Burma dan terus melancarkan rampasan kuasa untuk campur tangan dalam politik Burma. Tentera cuba memperbaiki kekurangan yang wujud dengan menggunakan kemahiran yang mereka miliki.

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[8] ***Nordlinger,*** 1986: hal 93 & 94.

[9] ***Zakaria & Harold,*** 1985: hal 83.

Begitu juga peristiwa yang berlaku di Thailand yangmana telah mengalami 17 kali rampasan kuasa.

Disesetengah negara Dunia Ketiga, wujud perlantikan pemimpin awam yang berdasarkan tradisi atau korupsi. Ini menyebabkan tentera cuba mendapatkan perhatian rakyat dan mencampuri urusan politik untuk membasmi rasuah, menyelesaikan masalah ekonomi dan melakukan perubahan politik. Ada yang menganggap rampasan kuasa sebagai alternatif untuk menyelesaikan masalah huru-hara dan amalan rasuah.

Kegagalan pihak awam biasanya disebabkan oleh ketiadaan pemimpin yang berwibawa. Situasi ini menjadi lebih buruk lagi apabila tiada sistem sosial moden. Sistem sosial ini diperlukan untuk mempertingkatkan kehidupan rakyat. Lucien Pye berpendapat:

> *"The democratic institution imported by Asian and African country have largely failed for lack of political leadership. May Asian and African political leader have lost much of the optimism of previous years. This failure has led in some countries to an immediate military takeover ...."*[10].

Kegagalan dan ketiadaan pemimpin yang karismatik serta parti politik yang stabil secara automatik diisi oleh tentera dalam proses pembinaan negara, yang lebih moden. Selain dari Burma, Thailand juga boleh dijadikan bukti untuk menyokong teori ini. Kerajaan di bawah pimpinan Thamrong telah gagal untuk menyelesaikan masalah ekonomi dan krisis politik yang meletus selepas Raja Ananda. Situasi ini dilihat oleh Chai Anan dan Suchit sebagai penyebab rampasan kuasa di Thailand pada 1947. Anan dan Suchit menggambarkan keadaan seperti berikut:

> *"Thamrong's Government continued to face unresolved economic problem and the political crisis atemming from the death of King Ananda. As the economic and political situation further the deteriorated in 1947, army units in Bangkok led by Phin Choonhavan, a retired General, seized power on November 1947"*[11].

SEBAB 4 - TAHAP BUDAYA POLITIK YANG RENDAH

Di negara-negara Dunia Ketiga, rakyatnya mempunyai orientasi atau budaya politik yang rendah dan tidak mengambil tahu soal keabsahan pemerintah. Mereka juga tidak tahu atau tidak faham pergolakan politik negara. Wujudnya ketidak setabilan politik dan kegagalan ekonomi membuatkan rakyat menerima tentera kerana organisasinya dilihat lebih tersusun dan berupaya untuk mengubah taraf hidup mereka. Teori ini dipersetujui oleh Janowitz:

> *"Changing technology creates new pattern of combat and thereby modify organisation beheaviour in the military. The more complex the technology of warfare, the narrow - are the differences between military and non-military establishments because more officers have managerial and technical skills applicable to civilian enterprise"*[12].

Krisis politik, sosial dan ekonomi yang membawa kapada kekacauan, mengakibatkan tentera menjadi *"restless"* dan dikerah bagi tanggungjawab pusat iaitu *"nation building"*. Pegawai-pegawai tentera banyak terdedah dengan pengaruh negara luar melalui latihan atau berkursus di seberang laut dan ini membolehkan mereka mengadili kepimpinan awam. Anggota tentera akan begitu

[10] ***Lucien Pye***, 1979: hal 820.

[11] ***Zakaria & Horald***, 1985: hal 82 & 83.

[12] ***Janowitz***, 1964: hal vi.

sensitif kerana masyarakat yang mundur adalah masyarakat mereka sendiri iaitu dari kelas bawahan. Oleh yang demikian, tentera merasakan bebas untuk menyokong, menghapus ataupun menggantikan kepimpinan awam yang tidak efektif. Hakikatnya, tentera merasakan bertanggungjawab untuk mengambilalih kuasa apabila ahli politik awam gagal memerintah dengan baik. Teori dibuktikan dengan pendapat yang dikemukakan oleh Presiden Ayub Khan:

> *"The politicians had made politics a profession and democracy a toy to fondle with. Their only business was to misguide the people by main fiery speeches and raining empty slogans from time to time and acquire personal power.... Their wish is that the same outmoded system should again return to the country where in disruption, misguidance and selfishness should have their play".*[13]

Di negara-negara Dunia Ketiga, rampasan kuasa tentera dianggap sebagai alternatif bagi menghadapi huru-hara, asah dan ancaman dari sayap kiri. David Chang berpendapat:

> *"The military corps is, at least temporarily a necessary or unavoidable measure for many new nations during the transitional period of modernnization and mobilization"*[14].

Teori tahap budaya politik ini juga dibincangkan oleh Finer yangmana beliau menegaskan seperti berikut:

> *"In lands of a lower political culture the need for legitimate will not and indeed has not proved a serious handicap to the military. But in countries of mature or advance political culture it will prove crippling"*[15].

SEBAB 5 - PENGARUH KUASA ASING

Antara sebab lain yang tidak kurang pentingnya adalah pengaruh kuasa asing terhadap tentera. Pengaruh yang dimaksudkan ialah pergantungan sesebuah negara kepada negara lain yang mungkin berlaku dari adanya pergantungan terhadap bantuan ketenteraan, ekonomi, latihan dan perjanjian-perjanjian lain. Pergantungan ini dilihat boleh mempengaruhi sesebuah negara jika ia hanya bergantung pada sesebuah negara sahaja seperti pergantungan Filipina kepada Amerika. Janowitz mengakui kebenaran teori ini dalam bukunya:

> *"Undoubtedly, foreign military assistance and officer training abroad have an impact on the military and its politics, domestic and foreign"*[16].

Pergantungan ini boleh menyebabkan negara yang memberi bantuan mengarahkan mereka campur tangan apabila berlakunya dasar-dasar yang boleh memudaratkan negara yang memberi bantuan atau tidak sesuai dengan mereka. Teori ini juga mengikut Janowitz boleh mendatangkan kesan politik yang negatif pada tempuh jangka panjang:

> *"Gradually, over the years, United State political and military authorities have become aware that such programmes have domestic political implication for new nations. They have become concerned that these programmes help develop pro-American loyalties among the officers of new nations. To this end, for example, more than one thousand US military assistance officers were given special training before they were send abroad"*[17].

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[13] ***David*** *W Chang*, hal 828 .
[14] ***Ibid***, hal 830.
[15] ***Finer***, 1962: hal 19.
[16] ***Janowitz***, 1964: hal 95.
[17] ***Janowitz***, 1964: hal 96.

Walaupun begitu, pengaruh asing bukanlah merupakan sebab tunggal atau sebab penting dalam mempengaruhi tentera untuk campur tangan dalam politik tetapi ia merupakan sebab sampingan yang penting dan pengaruhnya tidak boleh dinafikan terus.

> *"...the mechanics of political intervention of the military in the new nation, as in the old nations, involve both domestic and foreign policy. Clearly, domestic issues and domestic political objectives are overriding, but new nations continue to prepare for military intervention in support of foreign policy objectives"*[18].

KESIMPULAN

Sungguhpun sebab-sebab yang telah dibincangkan di atas ternyata penting tetapi pada dasarnya semua sebab-sebab yang dinyatakan adalah saling bergantung dan tidak boleh berdiri sendiri. Sekiranya tentera mempunyai organisasi yang tersusun sekalipun, mereka tidak akan campur tangan jika kerajaan awam memberi layanan yang sepatutnya kepada mereka dan rakyat mempunyai budaya politik yang tinggi. Begitu juga dengan bentuk layanan dari pemerintah, walaupun tidak memuaskan hati, tetapi jika tidak disokong oleh organisasi yang kuat, nescaya tentera tidak yakin boleh berjaya untuk merampas kuasa. Situasi yang sama juga berlaku pada sebab ketiga, walaupun kerajaan awam gagal memerintah, tetapi jika rakyat tidak mengambil kisah atau tidak mempunyai budaya politik yang tinggi dan organisasi tentera sendiri goyah, ia juga tidak memungkinkan campur tangan tentera. Walaupun tahap budaya politik masyarakat sederhana tetapi terdapat peristiwa-peristiwa rampasan kuasa oleh tentera tetap berlaku seperti rampasan kuasa di Burma pada tahun 1968.

Pengaruh kuasa asing dilihat sebagai telah membuka minda masyarakat tentera bukannya dipengaruhi oleh negara lain. Antara sebab-sebab tersebut, penulis lebih bersetuju mengatakan bahawa peluang untuk campur tangan tentera dalam politik bergantung kepada keadaan masyarakat negara tersebut. Peluang ini wujud apabila rakyat tidak lagi percaya pada kepimpinan awam dan bergantung kepada institusi tentera. Budaya politik masyarakat diukur dari keyakinan masyarakat terhadap kepimpinan awam. Jika budaya politik rakyat begitu kuat dan yakin dengan pemimpin awam, maka tentera tidak mempunyai peluang, dan jika dilakukan juga rampasan kuasa tentera, peratus kegagalan adalah tinggi. Lagipun anggota tentera yang datangnya dari masyarakat yang sama tidak akan bertindak begitu, jika masyarakat atau keluarganya hidup dengan senang lenang. Dalam situasi ini, peluang untuk campur tangan tidak akan wujud. Walaupun berlaku rampasan kuasa tentera tetapi ia tidak akan bertahan lama. Ini dapat disimpulkan bahawa peluang untuk tentera campur tangan dalam politik adalah bergantung kepada peringkat budaya politik masyarakat. Teori ini dipersetujui oleh Finer:

> *" The military's oppotunity - and its public welcome - both derive from the level of political culture. The level (i.e. the completeness) to which the military press their intervention also depends on this. This forms the subject of the next chapters"*[19].

Finer dalam bukunya, *" The Man on the Horseback"*, membincangkan empat peringkat campur tangan. Finer menegaskan bagi tahap mempengaruhi dan mengancam, ia cuma berlaku di negara Dunia Ketiga yang budaya politik masyarakatnya tinggi atau maju. Manakala bagi tahap menukar atau penggantian, ianya berlaku di negara-negara yang budaya politik masyarakatnya rendah.

Kesimpulannya, sebab-sebab tersebut adalah saling bergantung ke arah menyebabkan tentera untuk campur tangan dalam politik. Jika berlandaskan satu sebab sahaja, campur tangan tidak mungkin akan berlaku tanpa disokong oleh sebab-sebab lain.

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[18] ***Ibid***, hal 100.

[19] ***Finer***, 1962 : hal 76.

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Mej Mohd Radzi bin Abd Hamid telah ditauliahkan pada 30 Jul 1986 ke dalam Kor Rejimen Askar Melayu Diraja. Antara jawatan yang pernah disandang adalah PS 2 Perjawatan A di Cawangan P & P, Markas Tentera Darat. Beliau telah menghadiri Kursus *'Grade II Staff and Tactics* di Sekolah Taktik, New Zealand. Beliau adalah pemegang Diploma Lanjutan Pengajian Strategik dan Keselamatan dari UKM dan Diploma Teknologi Maklumat dari Kolej SAL. Kini beliau berkhidmat di 21 RAMD.

LEADERSHIP

Kol (R) Mohd Ariffin bin Che' Mat Din

Leadership is an art of influencing subordinates, in such a way that they give their willing obedience, to achieve organisational goal[1]. In its basic sence, the leader gets things done through people. Implied in this is that, leadership is influence [2]. Also implied, is the fact that good leadership has an ethical dimension in it. True leadership must be for the benefit of the followers, not the enrichment of the leaders[3].

For leadership to suceed in its true from, there should be a strong complimentarily between its three components, as depicted in Figure 1.

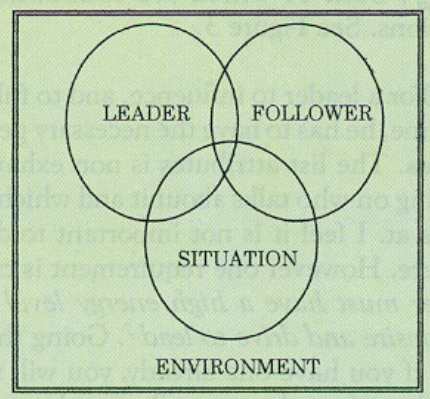


Fig. 1. Component of Leadership
Source: Stogdill

Without leaders, organization will be disorientated in disharmony. Without followers, we do not need leaders. The situation, a third components however dictates how the art of leadership is to be practiced and implemented. We will discussed these component in turn, later.

Let us relate leadership into its crude, but basic form. Translated to Bahasa, the *"kepala"* or the head, is what the leader is all about. Located on top the human body (simbolising status), the head scans the environment using the eyes and ears, the brain formulates the decisions and strategy, and the mouth verbalised the direction. These in the nutshell, is what the *"kepala"* or leader does. The follower on the other hand, the *"kakitangan"*, executes whatever is directed by the *"kepala"*. Whilst the *"kepala"* uses brain, the *"kakitangan"* uses brawns. This the crude analogy of the head to its employees.

THE REAL BOTTOMLINES

What is the bottomlines in leadership? Many will say that is the accomplishment of a mission. I partly agree with this. But what is the point of capturing an objective with so much casualties inficted? On achieving a huge net profit for the organisation, at the expense of its people?

Time Magazine dated 15 July 1974, carried a selection of opinions by various historians, writers, militarymen, businessmen and others, on the subject; *"who were history's greatest leaders"?* Some said that its was Hitler, other said Gandhi, Buddha, Lincoln and the like. But Jules Wassermann, a US psychoanalyst put the standars straight by giving the correct criteria to judge, and I totally agree with him. He said leaders must fulfill three functions, namely:

* They provide for the well being of the led.

* They provide a social organisation in

[1] Stogdill.
[2] John Maxwell, Leadership 101.
[3] Warren G Bennis.

which people feels relatively secured.

* They provide them with one set of beliefs.

With the above criteria, Wassermann search history, analysed personalities and included that *'people like Pateur and Slake are leaders in the first sense. People like Gandhi and Confucius, on one hand, and Alexanders, Caesar and Hitler, on the other hand, are leaders in the second sence, Jukes and Buddha belongs to the third category alone'.* Suprisingly as a Christian, he unbiasedly pronounced, *'perhaps the greatest leaders of all times was Prophet Muhammad, who combined all three functions. To a lesser degree, Mosses did the same'.*

Many years later in the late 80's, George Bernard Shaw remarked, *'if a man like prophet Muhammad were to assume the leadership of the modern world, he would succeed in solving its problem that would it the much needed peace and happiness'.* This is the crux of leadership. Not saying that mission accomplishment is not important, I feel the real bottomline is what happens to the human beings in the organisation, and the human being the organisation sought to serve in larger society. Since *'man is the purpose of development, and man is the main resources of development*[4]*, the ultimate leader is "one who is willing to develop the follower to the point that they eventually surpass him in knowledge and ability*[5]*.*

Good leadership moves people *in a direction that is genuinely in their long term best interest*[6]. It does not much people off a cliff. It does not waste their scarce resources. It does not built the dark side of their human nature. In this sence, Hilter may have display strong leadership qualities, but obviously not effective leadership.

THE LEADER

The major bone of contention when we discuss the leader, has been whether leaders are born or made. Without splitting hairs, let just say that *'leadership can be learn'.* The fallacy however is, tutors on the subject of leadership tend to profess that they are better leader than the student, and this is emotionally untrue.

Earlier, I stated that leadership is influence. This suggests that a leader moves a group of people in some direction through (mostly) non-coercive means. Figure 2 shows effect and implications of the means used.

Most leaders modify the behaviour of the followers through *'agenda setting and network building',* both of which are foundations to motivations. See Figure 3.

For a leader to influence, and to fulfil the bottomline, he has to have the necessary personal attributes. The list attributes is non exhaustive, depending on who talks about it and which angle he looks at. I feel it is not important to discuss them here. However one requirement is crucial. *A leader must have a high energy level and a strong desire and drive to lead*[7]. Going through the list, if you have one already, you will realise that only a few these attributes do seem to arrive at birth, hence the old homily that leaders are born, gets little support. Indeed a huge majority come after birth, during early childhood, through formal education and carrer experiences.

At the early stage, I also stressed that there is an ethical dimension in the art of leadership. This means that the inputs (leader

[4] To be read in conjunction with my former article on the ***Overview of Management.***
[5] Fred A Manske. Jr.
[6] John P Kotter.
[7] Atilla the Hun.

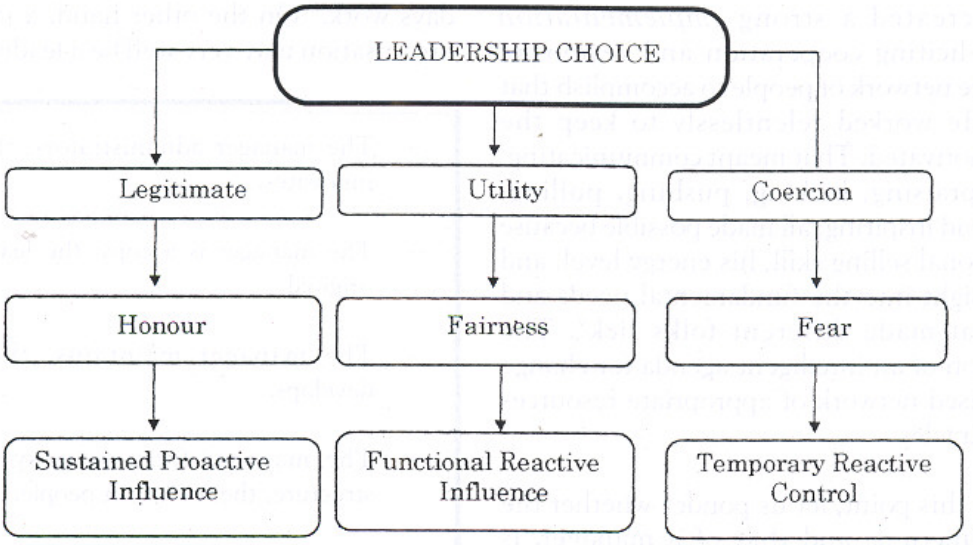


Fig. 2 . Power Process Effects
Source: Stephen Covey

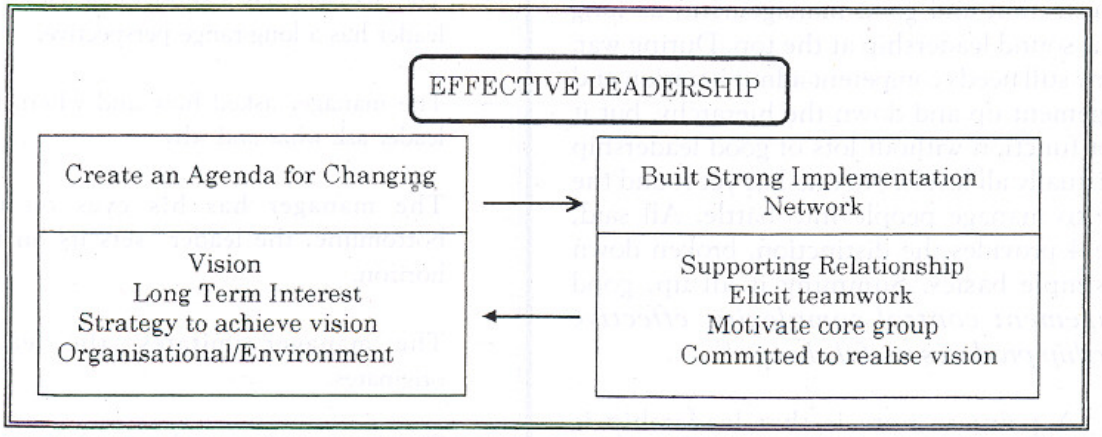


Fig. 3 . Effective Leadership and Behaviour Modification Sources:
John Kotter, The Leadership Factor

and the led), the process (the means in the environment) and the outputs (the consequences) must be within the bounds of morality. *Leadership must be principles-centered* [8]. When Hilter wanted to renunify Germany in World War II, he had all the makings of an effective leader. But when he moved to capture the world, he ceased to be one. So it was with Saddam Hussein, or Botak Chin for that matter. What then do we call these people? Let's just say it is not within the context of the article.

How does the leader serve the long term best interest of the group? Figure 3 again provides the answer. Let us use this model on Lee Iacocca and Chrysles. Firstly, Lee *created an agenda for change.* He set a new vision which provides a legitimate long term interest to parties involved. He crafted a sound strategy to move Chrysler towards that vision. Having done

[8] Steven Covey.

that, he created a strong *implementation network* eliciting cooperation and *teamwork* from a large network of people to accomplish that agenda. He worked relentlessly to keep the network motivated. That meant communicating, cajoling, praising, kicking, pushing, pulling, coaching and inspiring; all made possible because of his personal selling skill, his energy level, and a keen insight into the fundamental needs and values that made different folks tick[9]. The combination of an intelligent agenda for change and energised network of appropriate resources worked miracles.

At this point, let us ponder whether the leader's functions and that of a manager, is similar or different? Or are they mutually exclusive? Consider this. A peacetime army can perform its functions adequately with good administration and good management, as long there is sound leadership at the top. During war, an army still needs competent administration and management up and down the hierarchy, but it cannot function without lots of good leadership and virtually all levels. No one has yet found the recipe to manage people into battle. All said, Figure 4 provides the distinction, broken down into simple basics. Summing it all up, good *management control complexity, effective leadership produces useful change* [10].

A point to note is that leadership is timed-based. No leader is an eternal leader, except for Allah SWT[11]. Leaders normally have times-up from their lead roles. A leader crease to be one, when he becomes a follower. He may be leader to his subordinates, but to his boss, he is just another follower. Well, they are on a different playing field. A leader also ceases to be a leader , if he moves out of the paradigm of the leadership model, into a different plain, for example, going home after the days work. On the other hand, a janitor in an organisation may very well be a leader in his own

~	The manager administrators, the leader innovates.
~	The manager is a copy, the leader is an original.
~	The manager maintains, the leader develops.
~	The manager focuses on system and structure, the leader on people.
~	The manager relies on control, the leader inspires trust.
~	The manager has a short range view, the leader has a long range perspective.
~	The manager asked how and when, the leader ask what and why.
~	The manager has his eyes on the bottomline, the leader sets its on the horizon.
~	The manager imitates, the leader originates.
~	The manager accepts the status quo, the leader challenges it.
~	The manager is classic good soldier, the leader is his own person.
~	The manager does thing right, the leader does the right thing.

Fig. 4 . Understand the Basics

home, or a community chief in his village. The point is different settings provide different roles for different persons. Flexibility and adaptability are important. Remember, a leader will always

[9] Iacocca and Novak
[10] John Kotter
[11] A-Quran. Al-Fatihah

remain a leader so long as he has followers directly in a given situation. Leadership should not be misconstrued with appointment, power, rank and authority which are merely tool that aid in leading.

THE LED

The day of *Pak Pak Lang* [12] is over. So is *'the cry of yours not to question why, yours, but to do or die ....'* Today's follower even with the vast know-how, will not move without being told the know-why, the guiding philosophy that will promise to serve their long term interest. No follower, given a choice would want to perform only for short term investment. Loyalty and commitment are short-lived. The long term interest should not only be there, but it must be seen to be there. This is a great challenge to the leader. Transparency and open communication are the mainstay.

With the know-how's, and the trend towards empowerment, followers are more akin to the concept of terms and small groups, as opposed to the traditional matrix organisation. Who need leaders when all participants and team members can decide for themselves? After all, leaders only add another bureaucracy in their efficient functioning. Most succesful companies have adopted and practised this well. This being the case the challenge to leadership is further compounded. From my point of view, whatever structure or concept adopted, it is the leader that provides direction and coordination of these teams that will end up the beneficiary.

In the ealier paragraphs, I mentioned that it was unimportant to discuss personal attributes of a good leader. This is because, one tends to make a wish list of all desired attributes ideal for oneself, and element of bias takes the fore. The important thing is *'what and how the follower feel their leaders should be that matters'*. If Traits Theory of leaderships to be studied on a leader, then it should be looked on this angle, not from the perspective of the leader.

Much has been said about selecting the right person to asssume formal leadership position in an organisations. The same can be said of the followers. But the right for *hire and fire* lies with the leader, not the follower. It is the responsibility of the leaders to garner the support and commitment of the followers at all time. After all, it is through them that he get the job done. How does the led remain commited at all times? Figure 3 again. Indeed, it is a viscous cycle. The know-why provides the binding spirit for the team to flourish. the relationship of the group, strong enough to elicit teamwork commits them to succeed. The peers, the informal leaders and the unofficial champions in the group, tick the smaller parts into automated movement forward. All these are difficult to achieve, but not impossible. The bottomline here is whilst the leader provides drivers for success, through motivation and alignment, the committed team will not want to fail the leader, so long as they see that it is done for them, not for the leader, as I said earlier. This is the *'nirvana'* that all leader-follower entity would like to reach. The ultimate therefore is not mission accomplishment, but reaching the *'nirvana'*....

The development level of follower is at Figure 5. The *'nirvana'* is in achieving high competence and high commitment.

[12] An Old Child's game of follow the leader.

LOW	MODERATE	MODERATE	HIGH
D1	D2	D3	D4
Low Competent	Some Competent	High Competent	High Competent
High Competent	Low Competent	Variable Competent	High Competent

DEVELOPING → DEVELOPED

Fig. 5 . Development Level of Followers
Source: Blanchard's Situational Leadership Model

THE SITUATION

Whilst we discussed the first two component as relationship, it is the situation that impact greatly on such relationship. There are many way to describing the situation, and how it influences style, behaviour, task, etc etc.

Figure 6 one way. Tannenbaum and Schmidt suggest the situation like this analogies the peace-war or stable-conflict situation, where authority is held or disbursed. The leadership style that can be adopted, range from exploitative authoritarian, to one of a participative model. Notice that there are no extremes both ways. I suppose on the top extreme is dictatorship, which is not leadership. There is a marked difference between being authoritative (leadership style) and a dictator. On the other hand, the bottom extreme position would not constitute leadership either. Likert's 4 System model suggest the continuum range from exploitive authoritarian, benevolent authoritarian, consultative democracy and participative democracy.

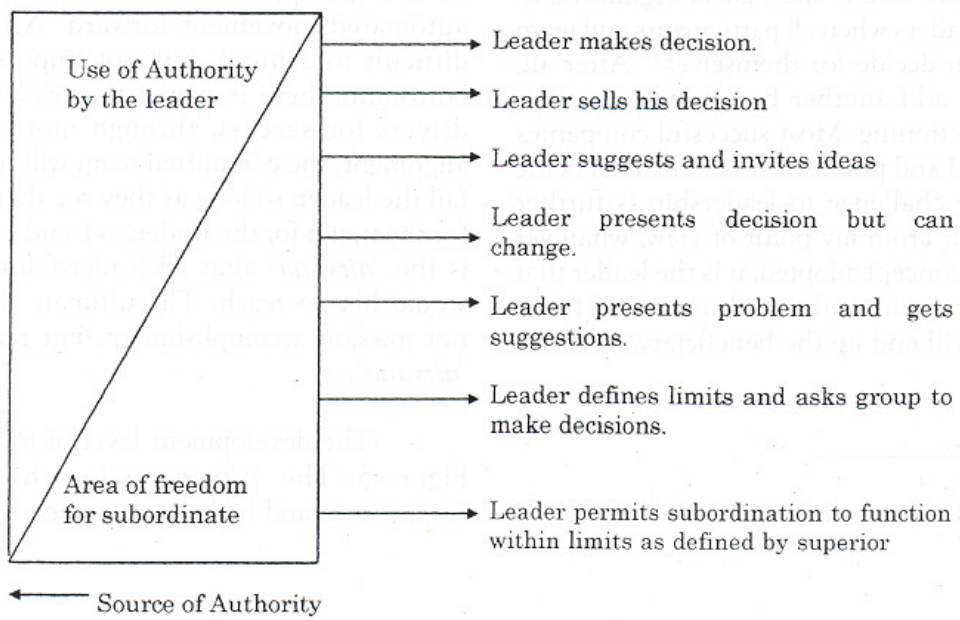


Fig. 6 . Autocratic - Democratic Continuum
Source: Tannenbaun and Schmidt

Figure 7 is yet another way, which gives the leadership grid that distinguishes the leader's concern over people or task. Grid 9.9 is a *team player,* who has high concern for both people or tasks. Grids 5.5 takes the middle stand, as the name *middle of the road* implies. Leader at grid 1.1 is the *improvised* since he has no concern whatsoever to both people and task. Grid 1.9, known as *Country Club* is so concerned with people, whilst grid 9.1 is only concerned with task accomplishment. The ideal is to strike an amicable balance.

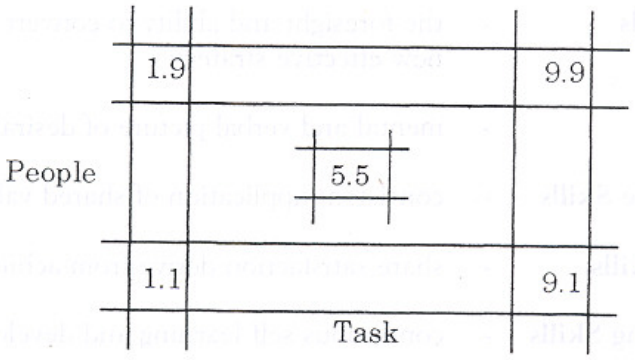


Fig. 7 . Leadership Grid
Source: Blake and Mouton

Figure 8 is another situational model:

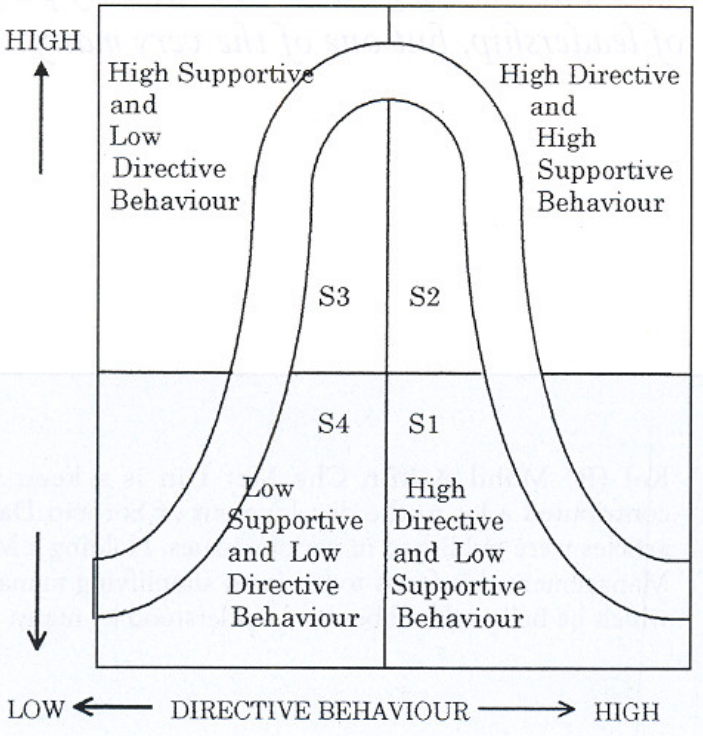


Fig. 8 . The Four Leadership Style
Sources: Blanchard

SUMMARY

So, what is leadership all about? It is about relationship. A relationship between the *"kepala"* and the *"kakitangan"*, or the leader and the led. The leader provides a conducive and a legitimate long term to the followers, who in turn reciprocate by not failing him. This is the bottomline. This relationship is practised in a variety of syle, depending on the situation. For the practice of good leadership, a leader must possess the following skills:

* **Anticipatory Skills** - the foresight and ability to convert broad vision into new effective strategy.
* **Visioning Skills** - mental and verbal picture of desirable future state.
* **Value Congruence Skills** - consistent application of shared value, motives and goals.
* **Empowerment Skills** - share satisfaction derive from achievement.
* **Self Understanding Skills** - continuous self learning and development.

'Remember, achieving goals is not the only purpose of leadership, but one of the very many'.

Kol (R) Mohd Ariffin Che Mat Din is a keen writer who had contributed a lot to the development of Sorotan Darat. Many of his articles were published in various issues. Holding a Masters Degree in Management, his focus today is on simplifying management concept, which he believed had been misunderstood by many.

THE PROSPECT OF RELIABILITY AND MAINTENANCE OF THE EQUIPMENT IN THE ARMY

Mej Ahmad bin Abdul Rahman

INTRODUCTION

A large percentage of defence spending is devoted to maintaining equipment. Consequently, when more efficient maintenance concepts are developed, these concepts are incorporated into developmental and fielded equipment whenever possible. One of the underlying assumptions of maintenance theory has always been that there is a cause - and - effect relationship between scheduled maintenance and operating reliability. It therefore followed that the more frequently an equipment is overhauled, the better protected it is against the likelihood of failure. The only problem is in determining what age limit is necessary to ensure a reliable operation. Over the years, however , it was found that many types of failures could not be prevented no matter how intensive the maintenance activities were.

Reliability is built into the productions at the factory and preserved during the packaging, storage and shipping phases, we as the user do not use and maintains the equipment correctly, full performance cannot be expected.

With the current economic crunch, the army need to emphasis more on the reliability and maintenance of the equipment in order to maintain the capability of the system while controlling the cost.

OBJECTIVE

The objective of reliability and maintenance is to maintain the capability of the system while controlling costs. The important of this parameter in the national defense posture becomes even more obvious when we consider that each branch of the Armed Services spends one third of its budget on system maintenance activities. Good organisation maintain a system while keeping maintenance and breakdown costs under control. Reliability and maintenance protect both an organization's performance and its operations. Systems must be designed and maintained to reach expected performance and quality standards.

DEFINATION

Reliability. Reliability is defined as the probability that item will perform in its intended function for a specified interval under stated conditions. Reliability for repairable systems, is the probability that an item will perform its intended function for a "*specified interval*", under "*stated conditions*", at a given age, if both corrective and preventive maintenance are performed in a specified manner. The meaning of the terms "*stated conditions*" and "*specified interval*" are important to the understanding of reliability. The term "*stated conditions*" refers to the complete definition of the scenario in which the system will operate. For a ground combat vehicles, these conditions include climatic conditions, road surfaces and loads that would be experienced during a selected mission profile. These condition should reflect operational usage. The term "*specified interval*" refers to the length of the mission profile. This interval may include multiple factors. For example, an air defense system mission profile will define an interval

containing X round fired, Y hours of electronics on - time and Z miles of travel. For a simpler system, say an air - burst artillery round, the interval may include a single event, i.e. round detonation.

Qualitative reliability design factors are used when quantitative characteristic are not essential or useful. The design factors are :

* Simplicity.
* Use of proven components.
* Improvement of stress-strength relationship.
* Redundancy.
* Protective techniques.
* Local environmental control.
* Elimination of critical failure modes.
* Self-healing.
* Detection of impending failure.
* Use of preventive maintenance.
* Tolerance of evaluation.

Maintenance. Maintenance is defined as all actions required to retain an item in, or restore it to, a specified condition. This include diagnosis, repair and inspection:

* Preventive maintenance is defined as systematic inspection, detection, and correction of incipient failures either before they occur or before they develop into major defects. Adjustment, lubrication, and scheduled checks are included in the definition of preventive maintenance.

* Corrective maintenance is defined as, that maintenance performed on a non - scheduled basis to restore equipment to a satisfactory condition by correcting a malfunction.

Some physical design features affect the speed and ease with which maintenance can be performed. These features are qualitative maintainability design factors:

* Accessibility.
* Labeling / identification.
* Interchangeability.
* Safety.
* Simplicity.
* Modularization.
* Fasteners and connectors.
* Diagnostics.
* Repair policy.
* Standardization.

UNDERSTAND THE FAILURE

For better understand reliability and maintenance, a knowledge of failure is required. A failure is an unsatisfactory condition. Any identified deviation from the original condition which is unsatisfactory to a particular user is a failure. The exact division between satisfactory and unsatisfactory conditions depends upon the function of the item, the nature of the equipment in which the item is installed, and the operating context in which the equipment is used. This determination of failure will vary from one operating organization to another. However, within each operating organization, unsati sfactory conditions must be clearly defined. Because of unsatisfactory condition can range from the complete inability of an item to perform its intended function to some physical evidence that will soon be unable to do so, failures must be further classified as either *"functional failures"* or *"potential failures"* . A *"functional failure"* is the inability of an item or the equipment containing it to meet a specified performance standard. It requires specific performance standard, thus generating an identifiable and measurable condition for functional failure for an item, it must have a clear failures. A *"potential failure"* is an identifiable physical condition which indicates a functional failure is imminent. The ability to identify a potential failure permits the maximum use of an item without suffering the consequences associated with a functional failure. Items are removed or repaired at the potential failure stage, so that potential failures preempt functional

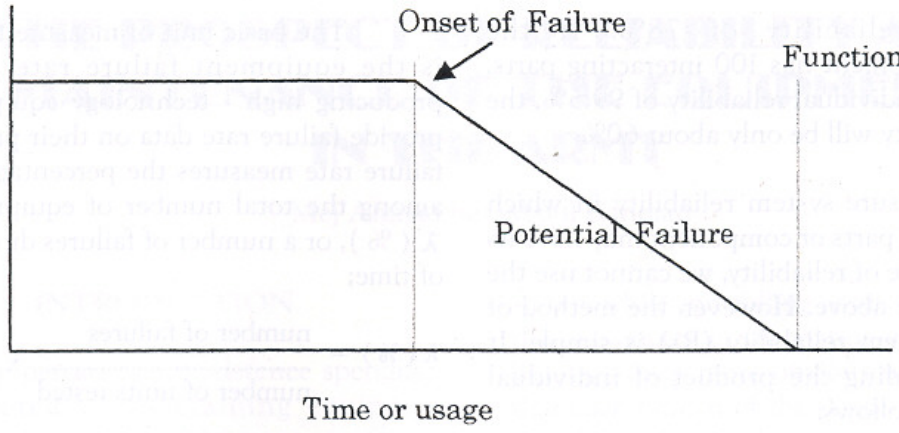


Fig. 1 . The Relationship of Functional and Potential Failure

failures. Figure 1 shows the relationship of functional and potential failures.

THE TACTICS

There are four tactics for improving reliability and maintenance of equipment and vehicles as well as the systems that produce them. The four tactics are organized around reliability and maintenance.

The reliability tactics were:

* Improving individual components.
* Providing redundancy.

The maintenance tactics were:

* Implementing or improving preventive maintenance.
* Increasing repair capabilities or speed.

RELIABILITY TACTICS

Systems are composed of a series of individual interrelated components, each performing specific jobs. If any one components fails to perform, for whatever reason, the overall system (for example a gun system or vehicle) can fail:

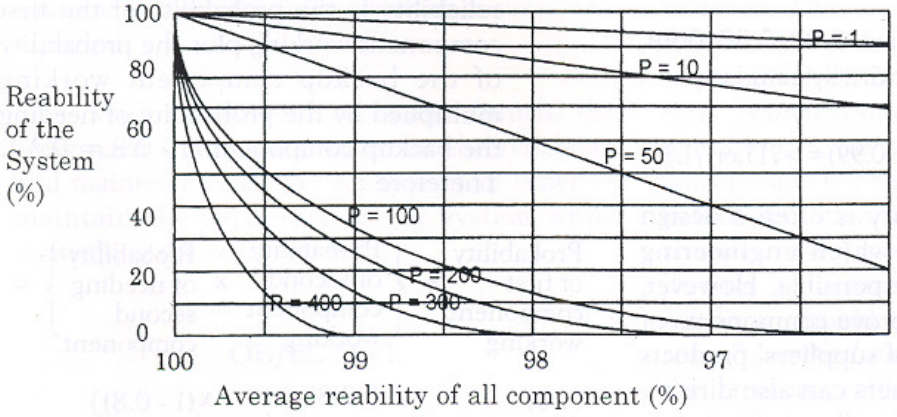


Fig. 2 . Overall System Reliability as a Function on Number of Component and Component Reliability with Component on Series.

* **Improving Individual Components.** Failures do occur. That failures occurs is an important reliability concept. Figure 2 shows the number of components in a series increases, the reliability of the whole system decline very quickly. A system of P = 50 interacting parts, each of which has a 99.5% reliability, has

an overall reliability of 78%. If the system or equipment has 100 interacting parts, each with an individual reliability of 99.5%, the overall reliability will be only about 60%.

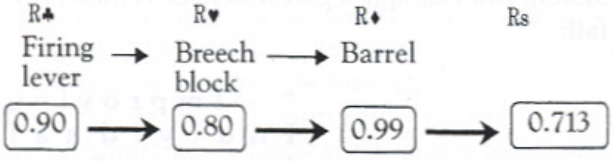
To measure system reliability in which each individual parts or component may have its own unique rate of reliability, we cannot use the reliability curve above. However, the method of computing system reliability (Rs) is simple. It consists of finding the product of individual reliability's as follows:

where $R_{\clubsuit}$ = reability of component 1

$R_{\heartsuit}$ = reability of component 2

$R_{\diamondsuit}$ = reability of Component 3

From the graph above, let assumes that the reliability of an individual Component does not depend on the reliability of other components (that is, each component is independent). Here reliability's are presented as probabilities. A 0.90 reliability means that the unit will perform as intended 90% of the time. It also means that it will fail 1 - 0.90 = 10% of the time. We can use this method to evaluate the reliability of a gun firing system:



If the individual reliability's are 0.90, 0.80, 0.99, then the reliability of the entire system is :

$Rs = R_{\clubsuit}R_{\heartsuit}R_{\diamondsuit} = (0.90)(0.80)(0.99) => 713$, or 71.3%

Component reliability is often a design or specification issue for which engineering design personnel may be responsible. However, the user may be able to improve components of systems by staying abreast of suppliers' products and research efforts. The users can also directly contribute to evaluation of supplier performance.

The basic unit of measure for reliability is the equipment failure rate (λ). Firms producing high - technology equipment often provide failure rate data on their products. The failure rate measures the percentage of failures among the total number of equipment tested, λ (%), or a number of failures during a period of time;

$$\lambda(\%) = \frac{\text{number of failures}}{\text{number of units tested}} \times 100\%$$

$$\lambda(N) = \frac{\text{number of failures}}{\text{number of unit - hours of operating time}}$$

Mean Time Between Failures (MTBF). The most common term in reliability analysis is the Mean Time Between Failures (MTBF), which is the reciprocal of λ:

$$MTBF = \frac{1}{\lambda}$$

* **Providing Redundancy.** To increase the reliability of systems, redundancy (*"backing up"* the components) is added. Redundancy is provided if one component fails, and the system has recourse to another. For instant, say reliability of a component with reliability is 0.80. The resulting reliability is the probability of the first component working plus the probability of the backup component working multiplied by the probability of needing the backup component (1 - 0.8 = 0.2). Therefore :

Probability of first component working + { Probability of second component working x Probability of needing second component } =

$(0.8) + \{(0.8) \times (1 - 0.8)\}$

$0.8 + 0.16 = 0.96$

MAINTENANCE TACTICS

There are two type of maintenance; preventive maintenance and corrective maintenance. Preventive maintenance involves performing routine inspections and servicing and keeping facilities in good repair. These activities are intended to build a system that will find potential failures and make changes or repairs that will prevent failure. Preventive maintenance is much more than just keeping machinery and equipment running. It also involves designing technical and human systems that will keep the productive process working within tolerance; it allows the system to perform. The emphasis of preventive maintenance is on understanding the process and allowing it to work without interruption. Corrective maintenance occurs when equipment fails and then must be repaired on an emergency or priority basis.

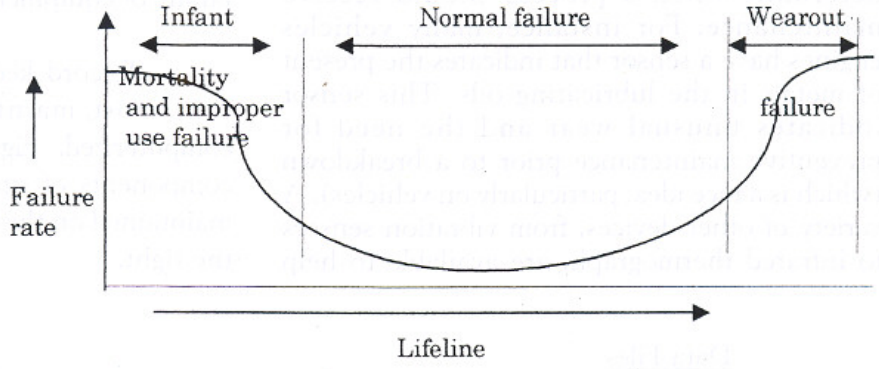


Fig 3. Lifetime Failure Rates

* **Implementing Preventive Measure.** Preventive maintenance implies that we can determine when a system needs service or will need repair. Diagram 3 indicates that failure occurs at different rates during the life of the equipment. This failure rate may follow different statistical distributions. A high initial failure rate, known as infant mortality, exists initially foe many products. This is the reason why many electronic firms *"burn-in"* their products prior to shipment. That is to say, many firm execute a variety of tests to detect *"start-up"* problems prior to shipment. Other firms provide 90 day warranties. We should note that many infant mortality failures are not product failure per se, but failure due to improper use. This fact points up the importance of operations management's building a maintenance system that includes training and personnel selection.

Once the product, machine, or process *"settle-in,"* a study can be made of the *Mean Time Before Failure* (MTBF) distribution. When the distributions have a small standard deviation, then we know we have a candidate for preventive maintenance even if the maintenance is expensive. Once we have a candidate for preventive maintenance , we want to determine when preventive maintenance is economical. Typically, the more expensive the maintenance, the narrower must be the MTBF distribution. Additionally, if the process is no more expensive to repair when it breaks down than the cost of preventive maintenance, perhaps we should let the process break down and then do the repair. However, the consequence of the breakdown must be fully considered. Some relatively minor break down have catastrophic consequences. At the other extreme, preventive maintenance cost may be so incidental that preventive maintenance is appropriate even if the distribution is rather flat (that is, it has a large standard deviation). In any event, all machine operators must be held responsible for preventive maintenance of their own equipment and tools.

A variety of sensing devices exist to help determine when a process should receive maintenance. For instance, many vehicles engines have a sensor that indicates the present of metals in the lubricating oils. This sensor indicates unusual wear and the need for preventive maintenance prior to a breakdown (which is a nice idea, particularly on vehicles). A variety of other devices, from vibration sensors to infrared thermograph, are available to help determine preventive maintenance requirements. Additionally, with good reporting techniques, unit can maintain records of individual processes, machines or equipment. Such record can provide a profile of both the kinds of maintenance required and timing of maintenance needed. Maintenance equipment history is an important part of a preventive maintenance system, as is a record of the time and cost to make the repair. Such records can also contribute to similar information about the family of equipment as well as suppliers.

Record keeping is of such importance that most maintenance systems are now computerized. Figure 4 below shows the major components of such a system with files to be maintained on the left and reports generated on the right.

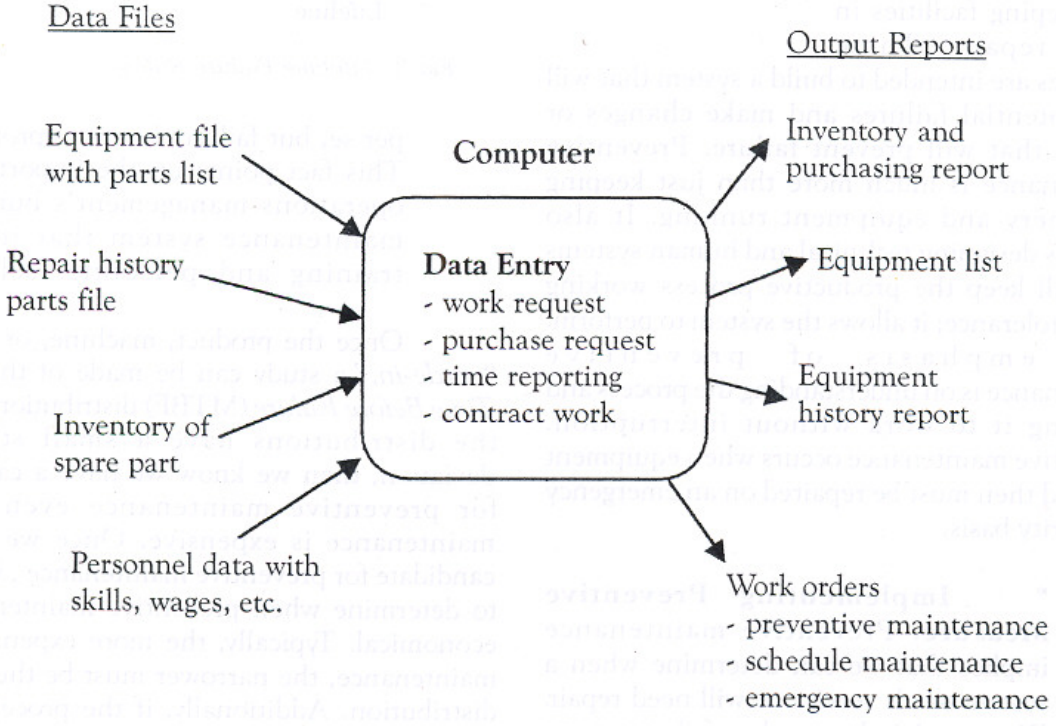


Fig 4. A Computerised Maintenance System

The relationship between maintenance and corrective maintenance as shown at Figure 5. Operation managers need to consider a balance between the two costs. Allocating more money and crew to preventive maintenance will reduce the number of breakdowns. But, at some point, the decrease in breakdown maintenance costs will be less than the increase in preventive maintenance costs, and the total cost curve will begin to rise. Beyond this optimal point, the

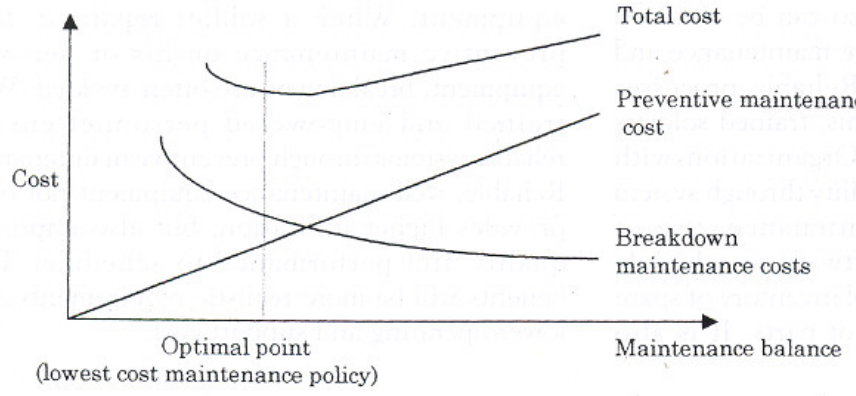


Fig 5. Maintenance Cost

organization will be better off waiting for breakdown to occur and repairing them when they do.

Unfortunately, these cost curve seldom consider the full costs of a breakdown. Many cost are ignored because they are not directly related to the immediate breakdown. For instant, the cost of inventory maintained to compensate for this downtime is not typically considered; and downtime can have a devastating effect on morale. User may begin to believe that performance to standard and maintaining equipment are not important.

Assuming that all costs associated with downtime have been identified, the operations staff can compute the optimal level of maintenance activity on a theoretical basis. The analysis, of course, also requires accurate historical data on maintenance costs, breakdown probabilities, and repair times.

* **Increasing Repair Capabilities.**

~ When neither reliability nor preventive maintenance has been achieved, operation managers need good repair facilities. Enlarging or improving repair facilities can get the system back in operation faster. A good maintenance facility should have these six features :

. Well trained personnel.

. Adequate resources.

. Ability to establish a repair plan and priorities.

. Ability and authority to do material planning.

. Ability to identify the cause of breakdown.

. Ability to design ways to extend MTBF.

~ However, not all repairs can be done in organization's facilities. Officers must therefore decide where repairs are to be performed. Consistent with employee empowerment, a strong case can be made for soldiers maintaining their own equipment, but this type of repair may also be the weakest link in the repair chain. Not every soldier can be trained in all aspect of equipment repair.

~ Whichever preventive maintenance policies and techniques organization chooses must include an emphasis on soldiers' accepting responsibility for the maintenance they are capable of doing. Soldier maintenance may be only of the *"clean, check and observe"* variety, but if each soldier does those activities within his or her capability, the officer has made a step toward employee empowerment and toward maintaining system performance.

CONCLUSION

Reliable systems and equipment are a necessity. In spite of our best efforts in getting

reliable components, systems sometimes fail. Consequently, backup components are used. Reliability improvements also can be obtained through the use of preventive maintenance and excellent repair facilities. Reliable processes require well - design - systems, trained soldiers and good record keeping. Organization with reliable system achieve reliability through system design and effective maintenance, use of sophisticated computer software to schedule maintenance projects, control inventory of spare parts and track the failure of parts. It is also important for the organization to give their soldiers a sense of *"ownership"* in their equipment. When a soldier repair or does preventive maintenance on his or her own equipment, breakdowns are often avoided. Well trained and empowered personnel ensure reliable systems through preventive maintenance. Reliable, well maintenance equipment not only provides higher utilization, but also improves quality and performance to schedule. The benefits will be more realistic requirements and lower operating and support cost.

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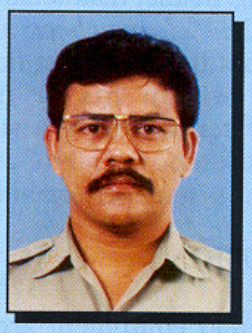

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GIULIO DOUHET - THEORY OF AIR POWER AND IT'S VALIDITY

Mej R Anthony Raja Gopal

"Victory smiles upon those who anticipate the changes in the character of war, not upon those who wait to adapt themselves after the changes occur.[1]

Giulio Douhet
(1869 - 1930)

SYNOPSIS

The advent of industrial revolution, that gave birth to air plans drastically changed the face of warfare. From being merely a business on the surface, air power or what had been termed as 'the third dimension' in warfare has changed the art of warfare beginning with the great war. Air power predominates modern warfare. With the Army moving towards a quality, highly mobile and compact force with a punch via-a-vis a Combined Arms Forc, exacting fire power has become the order of the day. Primarily a concern of the air force, fire power from the air force in support of ground operations has but become a critical necessity to the army. Guilio Douhet, the Italian Military Theorist often acknowledged as the father of air power has done more than his share for the development of the air power doctrine. This short essay analyses the validity of his theories with the fervent hope that the eager beavers of the Army be more enlightened on the limitations and capabilities of air power.

INTRODUCTION

The importance of air power as the predominant instrument of warfare gained in force when it came from men who had been subjected to the tests of actual warfare. Military writers and air power theorists like the Russian military pilot Alexander de Seversky, American General William '*Billy*' Mitchell and Italian Giulio Douhet have all contributed enormously to the

[1] **Giulio Douhet, The Command of The Air, Trans. Dino Ferrari** (1942: *New Imprint, Washington DC;* Office of History, 1983. p 30.

evolution of the doctrine of air warfare. For Mitchell and Douhet, leading protagonists for the Doctrine of the supremacy of aircraft and whose writings played a large part in the evolution from a simple faith in that doctrine to its use as the basis for theories of tactical employment of forces and the selection of objectives. In the United States, Douhet's and Mitchell's broad concepts of air power were translated into an elaborated doctrine of employment for operations against the enemy industrial web, was the work of the U.S Army's Air Corps Tactical School. Protagonists they were, for Mitchell it was a matter of persuading the public to sell his theories while Douhet wrote more specifically for a professional military audience. Among his peers, Giulio Douhet stands out for his originality and convictions on his theories of air power.

BACKGROUND

Giulio Douhet was born in Caserta, Italy in 1869. He entered the Italian Army in 1896 as an Artillery officer, a product of the regular Italian course for commissioned rank.[2] Possessing a knack for science he argued for motorization of the Army. He further displayed his scientific bent by experimenting with gases at low temperature. It was in 1909 that he published his first article on the possible uses of manned flight and its possible uses in war. This was also the year when aviation pioneers Wilbur and Orvill Wright went to Italy to train first pilots for the Italian Government. In 1912, Italy's first aviation battalion was created with Douhet as it's commander. In 1914, he was appointed as Chief of Staff to the Milan Division in World War II. By 1915, he had already conceived the image of total war, and of that shattering civilian morale by air attack which played a large part in the later evolution of his thoughts. He was also advocating the *'destruction of nations'* from the air as a military measure [3]. In his appointment as Chief of Staff, Douhet continually clashed with higher command on the creation of an independent air force. Being stubborn and egoistic in character, he was critical of the then existing policy of the Italian supreme military staff. By the end of 1916, his criticism of Italy's wartime leadership outraged the authorities and this resulted in his being court martialled and subsequently imprisoned for one year. By 1918, Douhet was appointed the Director of Italy's Central Aeronautical Bureau. In 1921, he attained the rank of Major General and published his first and most famous book *'The Command of the Air'.* Douhet died in Rome in 1930.

AIR POWER IN WORLD WAR I

Before embarking on Douhet's theory of air power it would serve to better understand at least briefly how air power was used in World War I. Though much thoughts about the role of air power in both the civil and military applications were conceived prior to the great war, the aircraft of the period were generally constructed primarily of wood, canvas and bailing wire. They were generally used for the following purposes:

* Reconnaissance of enemy territory - as an extension of the *'eye of ground commanders just as balloons'* had been used since the French Revolution.

* Range finder for artillery - what is air observation posts for artillery ranging in modern times.

* Air to air combat and for ground attack - in its limited role for engaging interlopers and dropping gravity bombs; and,

[2] **Earle: E. M. Makers of Modern Strategy,** Princeton University Press, USA, 1973. p 487.

[3] **Ibid.**, p. 488.

* Strategic bombing.

It could be seen from the limited roles they played, it was not for not wanting to employ the battle planes for more sophisticated roles that the military theorists envisaged but the not so effective and their restricted uses were in effect due to the technical limitations inherent in the aircraft themselves.

DOUHET'S THEORY OF AIR POWER

COMMAND OF THE AIR

The theory of command of the air is central to all theories expounded by Douhet. He defines command of the air as *'the capability of air force to prevent enemy from flying while retaining the ability to fly oneself'*. He argued that command of the air is important because:

* Enemy advance on land and sea will be stalemated

* Only the air force is capable of delivering sufficient punishment to cause defeat on the enemy.

* It is necessary for both the defense and offense.

In order that command of the air could be achieved, Douhet suggested that enemy war making capabilities, especially his aircraft facilities and factories should be attacked and destroyed even before they are able to be air borne. He used a simple but effective analogy of birds, eggs and nests to represent airplanes, resources and basing support structures to illustrate his point. *'It is not enough to shoot down all birds in a flight if you want to wipe out the species; there remain the eggs and the nests .... Destroying an enemy's airplanes by seeking them out in the air is, while not entirely useless, the least effective method. A much better way is to destroy his airports, supply bases, and centers of production'*[4]. The validity of command of the air was unquestioned during World War II, as it is now. The German *'blitzkrieg'* of World War II was made possible due to *'Goering's'* Luftwaffe. Likewise, the subjugation of Saddam Hussein's land forces in the 100 hours 1990 Gulf War was complete due to the coalition's command of the air.

ROLES OF SURFACE FORCES AND TACTICAL AIR SUPPORT

Douhet's views on the role of surface forces by which he means the Army and the Navy was inclined more to what they should do in relation to the Italian geographical situation. Indeed, Douhet wrote as an Italian, and he tested his theories by applying them to Italy, a nation with its principal potential enemies situated within a short distance by air, and with land frontiers by mountain barries against rapid development of a surface attack. [5] He theorized that the role of the surface forces is purely defensive. He further emphasized that techonoly will favour defense. In fact he did not favour expenditures for any kind of defense against air attacks. Douhet illustrated that for instance, if a World War 1 soldiers in trench in a defensive position had a gun that fired one shot per munite and the attacker took one minute to cross the terrain to the entrenched soldier, two attackers could overrun the position. If however, the defender had a weapon that could shoot 100 rounds per minute, 100 victims and 1 (one) victor would be needed to take the defended ground. If obstacles are in place and these could delay the attacker for a further 5 minutes, then it would take 500 victims before the last attacker took out the defense.[6] This simple mathematical illustration thus gave birth to the concept of force multiplier in military planning.

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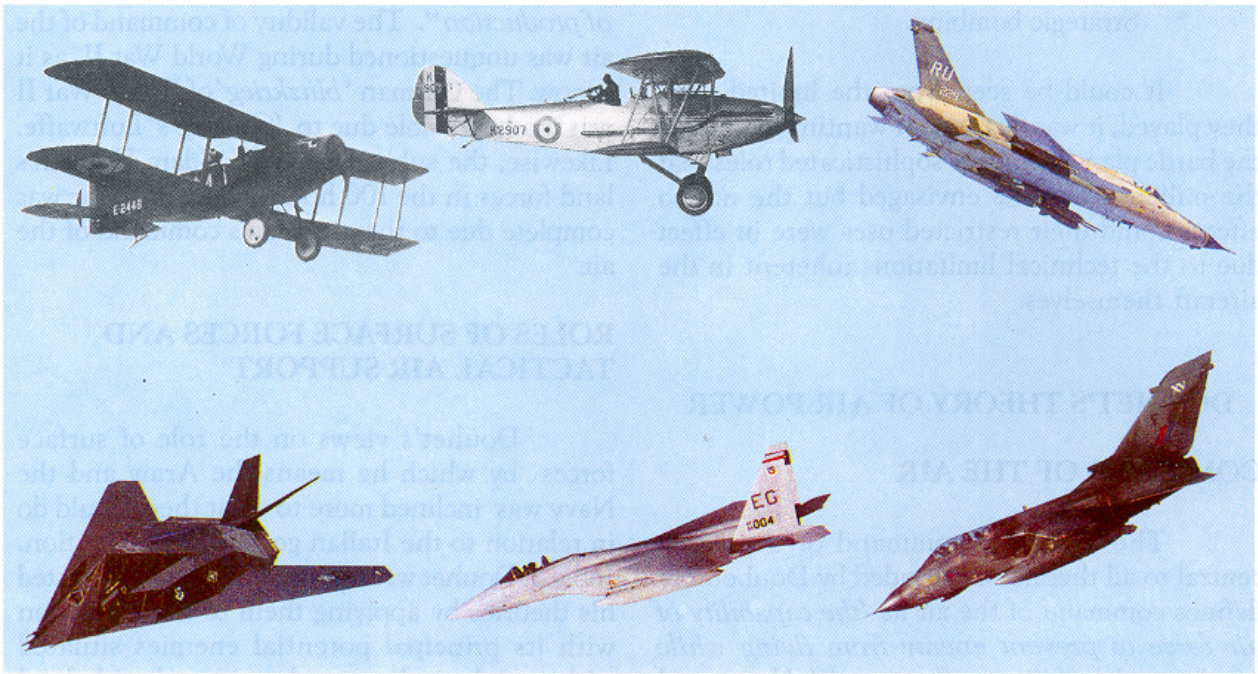
[4] Douhet, **op cit**, p 34.
[5] Earle. E. M. **op. cit.**, p 499.
[6] Estes, Richard. H, Giulio Douhet: **More On Target Than He Knew**", in Air Pwer Journal, Winter, 1990; p 69.



Series of fighters' aircraft from World War 1 to date

With such a situation it is only true that there will eventually be a stalemate in defense.

Thus, in Douhet's opinion it is left to the *'third dimension'*, vis-a-vis the air force to take on the offensive. Douhet was convinced that aircraft are offensive weapons against which there are no effective defense. In this, he reasoned that:

* Aircraft can over fly distances that hold surface forces.

* The aircrafts are not limited to prescribed routes of advance.

* Anti aircraft artillery are ineffective - this reasoning of Douhet stems from the fact that there was indeed a shortage of anti- aircraft artillery then.

* Aircraft for fighter defense are ineffective thus there is slim chance of air interdiction.

* Aircraft should be developed into self-defending bombers (battle planes).

We are only well aware that Douhet has been proven wrong time and again over the validity of this theory over the years. Douhet's assertions that surface forces (navy and army) should only restrict themselves to the defense had been proven fallacious during World War II; as it is under the present circumstances. While it is still true that aircraft are not limited to prescribed routes or can over fly distances that hold surface forces, it is utterly misleading to assert that anti-aircraft artillery are ineffective. Nations are spending a sizeable portion of their defense budget on modern weaponry for air defense. In fact it is not incorrect to presume that air defense artillery is the answer for poorer nations that depend on a doctrine based mainly on defense. Fighter defenses are much more necessary than the field air defenses for a mere fact that they are able to interdict the enemy even before he has reached own airspace. Equally invalid is Douhet's suggestion that no

expenditures be spared for defense against air attacks. It is indeed surprising that while he was advocating massed air attacks through strategic bombing he was also asserting no expenditure be spared for defense against air attacks on these targets.

TOTALITY OF WAR AND SELECTION OF OBJECTIVE

Douhet argued that wars are characterized by a character of national totality in that the entire population will be involved and all the resources of a nation will be utilized in a war. With this as a basis he advocated the organization of national defense through a central ministry. He envisaged that principle objectives to be attacked by the air force are population, industrial and economic centers. He had even suggested that the earlier the air attack the better it is. He reasoned that waiting for official declaration of war could prove disastrous since the opponent himself may go for a pre-emptive strike.

He further opined that attacks on civilian objectives are justified because of the totality and the unrestrained nature of war. Douhet further theorized that population centers lack effective air defense. He asserted that it is imperative to shatter the civilian morale since population centers are the Center of Gravity and their destruction will lead to rapid collapse and eventual quick termination of war. To him rapid termination of war is necessary since it is more humane than a long dragged out war. To assist in this Douhet opined that all available types of ordnance such as high explosive, poison gas,incendiary and chemical weapons be used on population centers. He suggested that using strategic bombing, targets such as armament factories, factories producing ball bearings, installations and bases should be destroyed. However Douhet appeared to be unsure of what tactical targets are or what the significance of their destruction would be. In fact, he was willing to ignore completely the destruction of surface forces or the requirement for air support to ground troops. His conception of destruction from the air, was worked out to mathematical nicety. Similar to his computations of machine guns, he tacitly assumed a uniform bombing pattern. 20 tons of bomb would suffice *'for the complete destruction of everything in a circle 500 meters in diameter. He assumed that with a fleet of 1000 bombing planes 50 such places could be destroyed* [7]. This mathematical summary of Douhet was proved wrong during the 1940/41 German blitz on London, Coventry and other targets or the RAF raids on Berlin and other German cities during World War II. The targets engaged during these periods were of hard structures and thus proved a fallacy of Douhet's mathematical conclusions. Clearly, Douhet had failed to clearly see the necessity to consider the nature of targets in his calculations.

With the exception of Japanese surrender during World War II, an arguable consequence of bombing of Hiroshima and Nagasaki; both population centers, Douhet's assertions that nations will be rendered submissive merely by the bombing of population centers does seem to be invalid. For instance, the British will was not broken despite massive German bombing on population centers during the Battle of Britain. The North Vietnamese will was left intact even after the carpet bombing during the '*Tet*' offensive though the objectives were dissimilar to that of World War II. On hindsight, even the eventual surrender in the Japanese case, was not a unanimous decision of the supreme military council but the will of the Emperor. The atom bomb, though a fearsome weapon, was not the sole cause of the surrender. [8]

TACTICAL AIR SUPPORT

Douhet, like Mitchell was an early advocate for an independent service for the air

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[7] Earle. E.M. **op. cit.**, p 491.
[8] Hoyt. Edwin. P, **JAPAN'S WAR: The Great Pacific Conflict,** Mc Graw - Hill Book Company, 1986., p 420.

force. In 1909, he wrote, *'The Army and Navy must look upon air planes not as auxiliaries to be put to use in certain circumstances only, but rather as a third brother, younger but no less important, in the great warrior family*[9]. He held the view that auxiliary aviation (one that is integrated with the army or navy) is worthless because:

* **It is superfluous** - because he argued that strategic targets are always engaged earlier (Strategic bombing); and,

* **They are harmful** - because they divert what little assets available for support of ground forces from strategic bombing.

* Efforts of auxiliary aviation would not be decisive

The validity of this theory may well have served Douhet's era well but the current technological advances and the nature of warfare necessitates the separation of air force into a single service. Almost all nations in the world have their air force as a single service. However technological advances have also given way to effective integration of the three services. Most advanced militaries have their own aviation incorporated into the army and the navy.

CHARACTERISTICS OF BATTLE PLANE

Douhet believed that the air plane has revolutionized war. He further held the view that the only air plane type needed would be the battle plane. Ever a nationalist, he envisioned that the air plane is the key to national power and other than purely military uses it is also an instrument for making Italy a major commercial center. He was in fact proposing all the time that an aircraft should be built to serve both military and civil purposes as and when required. On military use, he opined that battle planes alone should be sufficient to exert the pressure necessary on the enemy by conducting strategic bombing. His denial of the value of tactical air power vis-a-vis close air support, battlefield air interdictions, aerial combats or other tactical roles in support of ground forces was proven wrong countless number of time. He suggested that the battle planes should be:

* Armored since enemy interdiction on them will be nullified.

* Self defending and well armed to strike both the ground and air targets and are capable of fighting their way to and from targets.

* Well equipped with fire power for what really determined victory rather than speed.

* Flying in dense, massed formations to provide mutual support.

Douhet had not envisaged what form of defenses could be developed or evolved for the future as a defense against air attacks. Though acknowledged to be scientifically bent, it is surprising that Douhet had failed to foresee possibilities for an effective air defense. On his argument for armed and armored self defending bombers, it would be easy for us to observe that Douhet was yet to see the development of technology in aviation and what a speedier, lighter and highly maneuverable air plane is capable of. In this assertion, Douhet had failed to see any likely opposition to battle planes and it can only be assumed that he was influenced by the static nature of the Great War. The evolution of air defense radar, modern air to air and surface to air missiles, radar evading planes as well as the evolution of air warfare doctrines such as fighter cover for bombers, dog-fights, the necessity for increases in aircraft range and their pay load have all but put dent in Douhet's argument for battle planes.

CONCLUSION

It may seem at first glance that events since Douhet's time disprove his theories about

[9] Donnini. Frank. P, Douhet, **Caproni and Early Air Power, in Airpower History**, Vol 37, No 2, Summer 1990.

air power. While many of his basic concepts of air power doctrine have turned out to be fallacious or inappropriate, it cannot be denied that he influenced many in a number of ways. A closer scrutiny of his theories will reveal that Douhet had been original in his thinking and that whatever shortcomings in his theory of air power exist only because he was not universal in his thinking or that he indeed lacked the *'birds' eye view'* of the tactical battle area. His assertions and opinions, of which he had been vehement were the result of his relating his theories to the Italian situation. Though he had a knack for things scientific and mathematical he lacked the experience of flying professionally like *'Billy'* Mitchell; hence his weaknesses in accessing the tactical implications of his theories. The most significant weaknesses of his theories are as follows:

* That there is no possible defense against aircraft.

* That civilian morale could be shattered by bombing alone.

* That it is easy to attain command of the air.

* He was too optimistic of results that could be achieved by targeting industrial and population centers.

* That the role of the surface forces is not decisive and that they are suitable for only defensive roles.

* That he could not ascertain the possible advances in technology that would result in aircraft being expensive, performing a multiple of roles in the modern battlefield.

From what has been listed, it may seem that Douhet would indeed face a hard time fending off modern day military critics. However, the greatest contribution of Douhet far outweigh the weaknesses of his theories of air power. The command of the air is still considered extremely vital in the modern day battle field. Surprise attacks and concentration on enemy's air assets from the onset of the war is critical for the attainment of success in ground operations and this has been amply proven correct as in the 1990 Gulf War. Some of his theories of air power were not followed to the book during World War II. For example had Germany kept up more concentrated attacks on Britain over a longer period of time and spent more or equal effort on developing their air potential as compared to their development in tanks and artillery, the efficacy of World War II may well have been different in history.

Just as Douhet had failed to foresee the marvels of technology in air power it may as well be the case with us that there is more to come in technology of warfare. However there is still scope for modern technology to prove Douhet right in his theory of air power if we can only re-examine his dictum that *'those who are caught unprepared will find it not only too late but they cannot even get into the drift of things'.*

Mej R. Anthony Raja Gopal was commissioned into the Royal Malaysian Artillery Corps in December 1976. Apart from his mandatory tour in the Artillery Regiment serving in various appointments, he had also served as an Instructor at Royal Military College and later as Directing Staff at the All Arms Tactics Division in PULADA. He has also attended various courses both locally and overseas. Major R. Anthony graduated from the Singapore Command and Staff College in 1992. Currently he attached to HQ Army Training Command as SO2 Training System.

KAJIAN PERISTIWA PENGEBOMAN STRATEGIK TENTERA BERIKAT KE ATAS BERLIN; PENGKHUSUSAN TERHADAP OPERASI THUNDERCLUP

Mej Azmi bin Mohd

... The destruction of Dresden remains a serious query against the conduct of the Allied bombing. We see to it that our attack do not do more harm to ourselves in the long run then to the enemy's war efforts ...

Winston Churchill, 28 March 1945.

PENDAHULUAN

Ungkapan di atas lahir oleh Perdana Menteri British semasa menyingkap kembali peristiwa pengeboman strategik Tentera Berikat ke atas Dresden pada 13 dan 14 Feb 1945 dalam Operasi Thunderclup. Tragedi yang sangat menyayat hati ini telah mengorbankan puluhan ribu nyawa dan mencederakan hampir 130,000 orang awam Jerman yang melarikan diri dari kekejaman tentera Rusia semasa Perang Dunia Ke-2. Pengeboman ini dianggap sebagai satu contoh *'of aerial overkill and it came to be one of the most controversial actions of the entire World War 2'.* Tragedi ini bukannya sesuatu yang tidak disengajakan malah ia dianggap sebagai *'the most pitiless raid, and the hardest to justify to those who carried out the operation ....'*

SEJARAH KEWUJUDAN KUASA UDARA

Dengan terciptanya kapal terbang pada tahun 1900, era perang Abad Ke-20 telah terjerumus ke dalam dimensi ketiga setelah operasi di daratan dan lautan. Namun secara realitinya penggunaan kapal terbang sebagai *'war machine'* telah digunakan buat pertama kalinya semasa perang Libya pada tahun 1911-12 oleh tentera Itali ketika menentang Turki. Semasa perang tersebut, Leftenan Cavatti seorang juruterbang tentera Itali telah menggugurkan 4 butir bom seberat 4.4 paun setiap butir dari pesawat yang dipandunya ke atas tentera Turki pada 1 Nov 1911. Kesan daripada peristiwa ini maka kuasa udara telah lahir sebagai satu instrumen yang mempunyai kuasa impak yang kuat, berkesan dan menggerunkan. Justeru itu, para penganalisis strategi peperangan telah mengolah doktrin kuasa udara untuk memastikan kebergunaan dan kegunaan kuasa ini mencapai tahap yang maksimum. Menurut R. J. Overy melalui bukunya yang berjudul *'The Air War'*, salah satu elemen dalam doktrin kuasa udara ialah pengeboman strategik. Elemen ini telah diberi peranan yang sangat penting semasa Perang Dunia Pertama dan *`masih penting - tetapi kontroversi - peranannya semasa Perang Dunia Kedua'.* Keberkesanan kuasa udara khususnya pengeboman strategik terbukti tetap unggul dan ianya amat terserlah semasa Perang Teluk pada tahun 1990 di mana menyaksikan *`an air campaign of well orchestrated, coherent and integrated use of air power which was decribed as the most successful military achievement in modern warfare'.*

Menyedari akan hakikat bahawa kuasa udara ini sangat penting bagi sesebuah negara, maka ramai negarawan dan pemimpin tertinggi tentera memberi pelbagai tanggapan mengenainya. Antaranya Lord Tedder, Marshal of The Royal Air Force berpendapat; *'the outstanding and vital lesson of the last war i.e Second World War is that the air power is the dominant factor in this modern world and that, though the methods of exercising it will change, it will remain the dominant factor as long as power determines the fate of nations'.* Winston Churchill pula menganggap kuasa udara sebagai *'for good or ill, air mastery today the supreme expression of military power. And fleets and armies, however necessary and important, but must accept subordinate rank'.* General Spaatz dari US Airforce mempunyai pandangan seperti berikut; *'the next war will be preponderantly an air war ..., attack can now across the Arctic Regions, as well as across oceans, and strike deep ... into the heart of the country. No section will be immune. The Pearl Habour of a future war might well be Chicago, or Detroit or Pittsburgh, or even Washington'.* Kesimpulan dari pendapat ini jelas menunjukkan bahawa era perang zaman moden akan tertumpu kepada penggunaan kuasa udara. Pengeboman strategik sebagai elemen utama dalam kuasa udara akan terus memainkan peranan yang sangat penting di dalam membuat sebarang percaturan.

TEORI DAN KONSEP PENGEBOMAN STRATEGIK

Teori dan konsep pengeboman strategik mula diperkenalkan oleh Jeneral Giulio Douhet pada tahun 1921 dengan tercetaknya buku *'IL Dommodell Aria (The Command of Air)'.* Douhet berpendapat sesuatu peperangan mampu ditamatkan dalam masa yang singkat jika kuasa udara diatur gerakan secara lebih strategik. Dengan menguasai ruang udara maka ianya akan menyumbang kepada faktor penentu sesuatu misi. Pengeboman strategik ke atas pengkalan ketenteraan dan awam akan menjatuhkan moral rakyat negara terlibat dan sekali gus akan menamatkan sesuatu peperangan dengan lebih cepat. Objektif pengeboman strategik tidak bertujuan untuk memusnahkan angkatan musuh secara terus tetapi bermatlamat untuk mengurangkan kemampuan musuh untuk terus berperang dengan menghindarkan mereka dari menggunakan sumber ekonomi sendiri di samping meranapkan moral rakyat negara terbabit.

Lord Trenchard salah seorang akitek pengeboman strategik yang juga dikenal sebagai *'independent bombing'* era Perang Dunia Ke-2, berpegang teguh kepada konsep ini. Beliau berpendapat pengeboman ke atas moral adalah 20 kali ganda lebih berkesan daripada pengeboman ke atas material. Lantas ianya menjadi daya tarikan kepada pengkaji teori peperangan untuk meletakan moral sebagai sasaran utama di dalam merangka sesuatu strategi. Mengikut catatan sejarah, konsep ini diaplikasikan secara meluas semasa Perang Dunia Ke-2 sama ada di pihak Berikat mahupun pihak Jerman. Antara pengeboman strategik yang paling *'significant'* dalam sejarah Perang Dunia Ke-2 yang dilaksanakan oleh Tentera Berikat ialah melalui Operasi Thunderclup iaitu pengeboman strategik ke atas bandar-bandar utama Jerman seperti Berlin, Chemnitz, Cottbus dan Dresden. Operasi Thunderclup mendapat kritikan yang hebat dari pelbagai pihak akibat dari kesan yang ditinggalkan olehnya sehingga menjadi satu catatan hitam dalam sejarah Perang Dunia Ke-2.

PERANCANGAN OPERASI THUNDERCLUP

Idea untuk melaksanakan Operasi Thunderclup lahir dari kegagalan beberapa siri operasi yang terdahulu oleh pihak Berikat untuk menangkis serangan *'Vergeltungswaffe eins (V-1)'* pihak Jerman. Lima bulan sebelum serangan pihak Anglo-Amerika ke atas Perancis dilakukan

pada 6 Jun 1945, pelbagai pihak dalam Tentera Berikat telah terlibat dalam perdebatan hangat dalam usaha untuk mencari satu formula bagaimana kuasa udara Tentera Berikat boleh diatur gerakan secara yang terbaik. Satu pihak menyarankan agar pengeboman dilakukan ke atas jaluran komunikasi di Belgium dan Perancis terutama *'the rail mashalling yard'*. Satu pihak lagi mengesyorkan agar industri minyak di Jerman dijadikan sasaran utama. Kedua-dua strategi ini bertujuan untuk mengurangkan secara drastik kemampuan pihak Jerman di samping menguatkan cengkaman ke atas *'breach-head'* Tentera Berikat. Misi ke atas jaluran komunikasi berjaya dilakukan dengan jayanya tetapi serangan ke atas industri minyak dalam bulan Mei 1944 hanya berjaya menimbulkan rasa sensitif dan keresahan yang mendalam kepada pihak Jerman. Bertitik tolak dari episod ini, industri minyak telah dijadikan sasaran utama oleh pihak Amerika di dalam mengolah pengeboman strategik mereka.

Keutamaan pengeboman strategik juga diberikan ke atas pusat senjata sulit V-1 pihak Jerman melalui Operasi Crossbow. Keutamaan ini telah memberi sumbangan secara tidak langsung kepada idea untuk membangunkan Operasi Thunderclup. Kegagalan Operasi Crossbow kian terserlah pada bulan Julai 1944, bilamana sejumlah besar serangan V - 1 gagal ditangkis. Keadaan ini mendorong kepada keperluan untuk bertindak balas dengan *'counter-terror raid'* ke atas Jerman. Bagi tujuan tersebut pihak Amerika telah menggubal satu lagi operasi yang dikenali sebagai Operasi Shatter. Operasi ini mencadangkan pengeboman strategik ke atas lebih 100 buah bandar di Jerman dalam sehari untuk menyedarkan rakyat Jerman akibat yang akan mereka terima iaitu; pertama, *their vulnerability,* kedua, *'their defencelessness', ketiga, 'the scope of the Allied power',* keempat, *'the fact that no city in Germany was too insignificant a target',* dan kelima, *'the inability of the Luftwaffe to protect the homeland'.* Namun idea ini dianggap tidak ekonomi dan tidak efektif oleh kebanyakan pegawai tertinggi Tentera Berikat termasuk ACM Arthur Tedde iaitu pembantu Jeneral Dwright D. Eisenhower, *Commander in Chiefs of the Combined Allied Forces* dan juga Charles A. Portal.

Idea untuk melaksanakan *'reprisal raid'* ke atas V - 1 tidak terhenti di sini malah pada 5 Julai 1944, Jeneral Henry H Arnold bersetuju dengan cadangan *'that the time might wellcome in the not too distant future when all out war attack be with every means at our disposal on German civillian morale might be decisive'.* Cadangan ini telah dikemukakan kepada Churchill dan dibahaskan dengan sekutunya Amerika pada hari berikutnya untuk mengenal pasti bentuk serangan yang paling ideal ke atas moral rakyat Jerman. Pada 22 Julai 1944 syor ini diterima secara umum. Objektif serangan ini bertujuan untuk mempengaruhi pemikiran pihak berkuasa Jerman untuk menyerah diri, melainkan operasi menampakkan kejayaan, pengeboman akan diteruskan ke atas sasaran ekonomi dan ketenteraan. Komiti yang bertanggungjawab ke atas pengolahan strategi ini mengenal pasti Berlin sebagai sasaran utama disebabkan kepentingan strategiknya. Pengeboman ke atas Berlin akan memberi kesan ke atas kerajaan Jerman dan pihak berkuasa tertingginya melalui pemusnahan jentera pentadbiran awam dan jaluran komunikasi yang kritikal. Berlin juga mempunyai kelebihan dari sudut operasi kerana *'free from weather restriction (its size made it easy to locate on radar scope) and could be attacked on short notice because both air forces knew the route to and defenses of the city'.* Sebanyak 20,000 ton bom dicadangkan untuk digugurkan dalam tempoh 4 hari 3 malam. Draf terakhir mengenai pengeboman strategik ke atas moral awam pihak Jerman akhirnya diluluskan dan diberi kata kod ***'Thunderclup'.***

Mengikut butiran terperinci yang digariskan dalam operasi ini, sebanyak 2,000 pesawat pengebom dari *'8th Air Force America'*

akan menggugurkan sebanyak 5,000 ton bom *'under visual conditions'* ke atas dua setengah batu persegi di bahagian tengah Berlin dimana dijangkakan seramai 375,000 penduduk akan turut terlibat. Mengikut perangkaan, hampir separuh daripada jumlah tersebut akan mati dan setengah lagi akan mengalami kecederaan yang serius. Jika keadaan memerlukan, pengebom dari *'15th Air Force'* juga dari Amerika akan membantu, dan pada sebelah malamnya pengeboman oleh *Bomber Command RAF.* Yang jelas butiran ini amat berbedza dengan apa yang telah dipersetujui oleh Amerika. Oleh yang demikian maka timbul perbalahan mengenai pelaksanaannya di antara pihak British dengan Amerika mengenai jenis sasaran yang akan dibom. Amerika lebih berminat untuk mengebom *'military targets'* berbanding dengan *'morale targets'* , manakala pihak RAF lebih berhasrat untuk mengebom *'morale targets'.* Minat Amerika untuk menyerang hanya sasaran yang mempunyai kepentingan ketenteraan adalah selaras dengan polisi negara tersebut yang menyebut *'it is contrary to our national ideals to wage war against civilian'.*

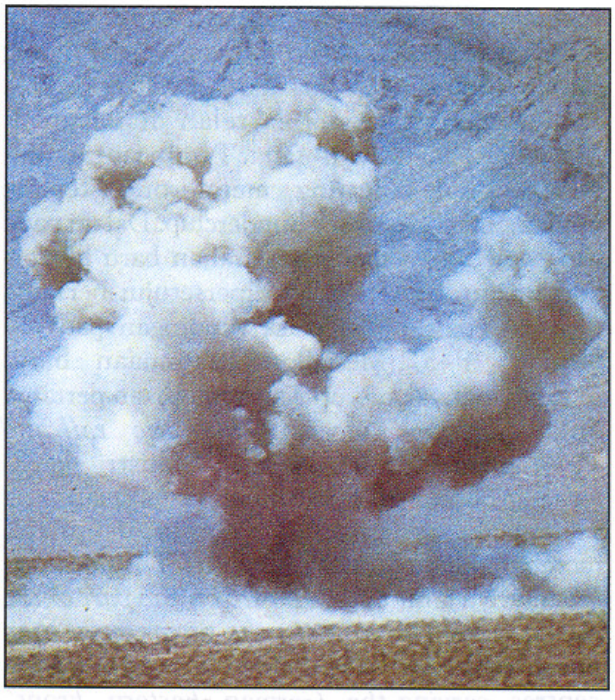
Kegagalan Angkatan Darat Tentera Berikat mencapai kemajuan dan ketidak mampuan mereka untuk menghadapi serangan senjata V menimbulkan keresahan panglima-panglima tentera udara Tentera Berikat. Keadaan ini telah mendorong kepada peningkatan minat terhadap Operasi Thunderclup. Namun pada bulan September 1944, senario bertempuran telah berubah di mana pihak Tentera Berikat telah berjaya memusnahkan pusat pelancar senjata V di Perancis. Keadaan ini menurut firasat pihak Berikat akan memaksa tentera Jerman menyerang London menggunakan roket jenis V - 2. Tanggapan ini membuatkan Tentera Berikat menimbangkan kembali rancangan terhadap Operasi Thunderclup. Pada 9 September 1944, arahan bersiap sedia telah dikeluarkan kepada '8th *Air Force', `to drop plans to hit military objectives and ready to drop bombs `indiscriminately' on the city'.* Arahan ini seiring dengan rancangan pelaksanaan Operasi Market Garden di Holland. Melalui operasi ini adalah diharapkan Tentera Berikat mampu menembusi pertahanan pihak Jerman dan seterusnya mendirikan *'bridgehead across the Rhine',* dalam masa yang sama Operasi Thunderclup akan dilancarkan. Namun Operasi Market Garden ternyata gagal. Kegagalan ini mewujudkan keadaan *`stalemate on the Western Front'* dalam bulan September 1944.

PELAKSANAAN OPERASI THUNDERCLUP

Tentera Berikat menyambut tahun 1945 dengan gerakan ofensif musim sejuk. Pada 12 Januari 1945, tentera Soviet berjaya menembusi pertahanan Jerman di Silesian dan terus mara sehingga *'Order River'.* Dalam masa yang sama, perbincangan dua hala di antara pihak Soviet dengan Amerika telah diadakan di Marseilles, Malta dan Yalta. Perbincangan ini secara tidak langsung mendorong kepada implementasi Operasi Thunderclup. Dalam pada itu, persetujuan mengenai arahan baru ke atas keutamaan sasaran telah dipersetujui bersama oleh RAF dan AAF semasa rundingan pada 12 Januari 1945. Mengikut keutamaan baru, industri minyak merupakan keutamaan pertama diikuti dengan *'German domestic rail and water transportation system'.* Industri kapal terbang dan kapal selam diberi keutamaan yang kurang penting. Keinginan untuk membangkitkan semula Operasi Thunderclup sebenarnya lahir dari *'a desire on the part of the Anglo-American to assist the progress of then Soviet offensive by knocking out transportation centres serving the German Eastern Front'.* Bagi tujuan ini, Berlin sebagai pusat pentadbiran dan menjadi nadi jaluran komunikasi adalah sasaran utama. Arahan rancangan Operasi Thunderclup sekali lagi dikeluarkan kepada *'8th Air Force'* pada 16 Januari 1945.

Pihak British juga telah mengkaji semula pelaksanaan Operasi Thunderclup. Pada 22

Januari 1945 kajian terperinci ke atas sasaran yang dikenalpasti telah dikeluarkan kepada *'Director of Bomber Command'*. Operasi Thunderclup akan dilancarkan seiring dengan kemuncak gerakan ofensif tentera Soviet. Di samping pengeboman ke atas Berlin, turut disenaraikan sebagai sasaran ialah Dresden, Leipzig dan Chemnitz kerana mempunyai kepentingan jaluran komunikasi dengan Berlin. Saranan pihak British untuk mengebom bandar-bandar selain daripada Berlin tidak dipersetujui oleh Amerika. Amerika telah menggariskan keutamaan seperti berikut; pertama, industri minyak *(visual)*, kedua, Berlin *(blind or visual)*, ketiga, Ruhr, keempat, Munich dan kelima, Hamburg. *'8th Air Force'* pula akan melaksanakan tugas berikut; pertama, memberi



Kesan pengeboman pesawat pejuang - Gambar hiasan

perlindungan kepada pesawat pengebom, kedua, memusnah-kan industri minyak dan ketiga, *`to interrupt traffic from West to East toward Berlin and Dresden'*. Plan Operasi Thunderclup telah dikeluarkan oleh pihak Amerika pada 28 Januari 1945.

Penantian Operasi Thunderclup akhirnya tamat pada 3 Februari 1945 bila *'8th Air Forces'* menyerang Berlin. Sebanyak 1,000 buah pesawat B-17 digunakan dalam misi ini. 932 daripadanya digunakan untuk mengebom melalui *`visual method'*, menggugurkan sejumlah 2,279 ton bom *(`25 tons of them incendiaries'). 'The Third Division'* yang juga turut serta melaksanakan pengeboman secara visual menggunakan bantuan radar. Kesan daripada pengeboman ini jelas menunjukkan kemusnahan yang dahsyat berlaku ke atas *`Anhalter railway-station, Tempelhof marshalling yard and the Schlesischer rail station (secondary aiming point on the Thunderclup targets list)'*. Di tengah bandar Berlin, pusat industri dan kawasan penduduk awam mengalami kemusnahan yang sangat teruk, dengan pejabat kerajaandi Wilhelmstrasse, termasuk *`Air Ministry, Riech Chancellory, Foreign Office, and Gestapo Headquarters (primary aiming point on the Thunderclup target list)'* menerima beberapa serangan. Namun begitu, serangan ini tidak mampu menamatkan peperangan meskipun telah meragut hampir 20,000 nyawa.

Kemuncak bagi Operasi Thunderclup adalah pengeboman ke atas Dresden pada 13 dan 14 Februari 1945. Serangan bermula pada jam 1015 pagi 13 Februari dengan 245 RAF Lancaster *'begin one of the ruthless air raid of the whole war, dropping their deadly two-ton bombs and tons of thousands of incendiaries on the undefended city'*. Serangan ini disusuli pula dengan 550 buah pesawat pengebom RAF. Memburukkan lagi keadaan, sepuluh jam kemudian, Dresden pula diserang oleh *'8th Air Force'* dengan 450 buah pesawat B-17 bagi meneruskan siri pengeboman ke atas bandar yang bersejarah dan tidak mempunyai kepentingan strategik ini. Akibat dari serangan ini, bandar Dresden hangus sama sekali. Bahang kepanasan memuncak sehingga mencapai 1,000 darjah Celsius dan berkemampuan mencairkan besi. Puluhan ribu orang awam yang berlindung di

bawah tanah turut terkorban disebabkan api kebakaran telah menghapuskan oksijen yang berada di udara. Ditafsirkan seramai 25,000 orang awam terkorban dan 130,000 lagi mengalami kecederaan serius.

PENGAJARAN DARIPADA OPERASI THUNDERCLUP

Operasi Thunderclup bermula dengan rancangan untuk bertindak balas ke atas senjata 'V' Jerman dan dibangunkan kemudiannya menjadi satu strategi untuk memaksa Jerman menyerah kalah. Ia seterusnya *'generated into an attempt to demonstrate the force of America air power and America dedication to the principle of Allied unity to the Soviet'.* Pengajaran yang paling penting dari peristiwa ini memperlihatkan bagaimana kuasa udara memainkan peranan penting dalam strategi dan fungsi perikatan.

Kekuatan Tentera Berikat terletak pada kuasa udara. Kuasa udara telah digunakan sebagai senjata utama untuk menentang musuh. Tentera Berikat beranggapan, untuk menamatkan peperangan dengan lebih cepat, keupayaan dan kemampuan kuasa ketenteraan pihak Jerman mestilah dikurangkan. Sehubungan dengan itu, kuasa udara sebagai satu elemen dalam kuasa ketenteraan adalah instrumen yang terbaik untuk mencapai strategi mereka. Maka penggunaan kuasa udara digunakan untuk melancarkan pengeboman strategik ke atas *'morale targets'* telah membentuk strategi pihak Tentera Berikat. Timbul pula persoalan sama ada ianya berkesan ataupun tidak melalui Operasi Thunderclup. Jika diteliti melalui kesan dan kejayaan yang diperolehi dari operasi ini, jelas strategi Tentera Berikat ternyata gagal. Malah ianya mendatangkan kesan yang amat buruk ke atas reputasi kuasa udara Tentera Berikat. Tetapi disebalik itu, melalui operasi ini telah berjaya menonjolkan imej kuasa udara Tentera Berikat pada kaca mata pihak Soviet.

Operasi Thunderclup juga turut memberi kesan yang mendalam ke atas fungsi perikatan dalam konteks kuasa. Tanpa penyertaan Amerika dan Soviet, British nyata tidak mampu membendung dan berhadapan dengan tentera Jerman. Kejayaan Tentera Berikat memerangi tentera Jerman khususnya adalah sejajar dengan fungsi perikatan dalam konteks kuasa seperti yang diunjurkan oleh Ken Booth yang menyebut *'alliance are therefore one means whereby national military power is augmented in order to help achieve the objectives set by policy'.*

PENUTUP

Sesungguhnya Operasi Thunderclup telah berjaya membuktikan kepentingan kuasa udara dalam strategi. Segala kepincangan yang berlaku mungkin lahir dari kesilapan teknikal ataupun sengaja diadakan. Richard G Davis melalui rencananya *'Operation Thunderclup', 'The US Army, Air Force And The Bombing of Berlin'* berpendapat ianya berlaku disebabkan Amerika ingin menggunakan operasi ini sebagai *'means to impress their Soviet allies with their ability to aid them and, equally, to demonstrate to the Soviet the capacity of America heavy bombers to damage heavily any potential foe'* ada kebenarannya. Hanya mereka yang bertanggungjawab terhadap perancangan dan pelaksanaan Operasi Thunderclup sahaja yang boleh memberi jawapan yang tepat. Apakah sejarah hitam Operasi Thunderclup akan berulang pada masa depan? Hanya dua pelaku yang bertanggungjawab ke atas pelaksanaannya iaitu Amerika dan British sahaja yang mampu menjawab. Keghairahan kedua-dua pelaku untuk menyerang Iraq dengan menggunakan kuasa udara seharusnya mengambil iktibar dari pengajaran yang diperolehi dari Operasi Thunderclup.

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