

# Revolution in Military Affairs- Need to Blend Security and Modernisation

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**Abstract** :The aim of this paper is to study the concept of RMA with reference to India and its neighbour and the way RMA is contributing to National Security of India. This paper will examine the motives for India to adopt new practices associated with the latest RMA and its current situation. The factors that might enable and constrain the Indian armed forces in adapting to the new military technological and operational requirements will be identified.

This paper shows different aspects of modernization in technology for security in India, its objective, functions, threats, challenges etc. and finally conclusion.

**Index Terms** -Revolution in Military Affairs, National Security, Information warfare, Security, Modern weapons, India's Military Technology.

## I. INTRODUCTION

*“Armies that could reach further hit harder and get there faster, usually won, while the range restricted, less well armed and slower armies lost. For this reason a vast amount of human creative effort has been poured into extending the range, increasing the fire power, and accelerating the speed of weapons and the armies.”*

– Alvin Toffler

The revolution in military affairs (RMA) debate has been quite intense amongst military and academic specialists concerned with military affairs. There is a strong belief that there is an RMA taking place in the world, particularly in the technologically advanced military forces. A common theory put forward ascribed the origin of the RMA debate to Russian writings, in particular those of Marshal N. V. Ogarkov on a military-technology revolution in the early 1980s, thereby giving the RMA a technical colour. This was natural as much of these writings referred to the impact of modern technologies on the battlefield. Soviet literature in the 1970s and 1980s suggested that the use of technologies such as those for reconnaissance could enable destruction bordering on annihilation of armoured formations at depths of hundreds of kilometres in periods less than an hour.<sup>1</sup> These writings, which had been translated by Americans in the mid-1980s, suggested that a new era of warfare had dawned wherein conventional weapons would have the military effects of tactical weapons, without the side effects of nuclear explosions. This military-technical revolution as visualised by the Soviets did not find willing acceptance in the West till the Gulf War of 1991, which saw the virtual collapse of Iraqi military power. This war also enhanced the notion that weapons of war that were high technology, high cost, and, hence, less in numbers were more effective. The quality versus quantity balance shifted significantly towards the former, which has continued to be reinforced through statistical data regarding such weapons being quoted since the war. The post-Gulf War period has seen an amalgamation of the military-technical revolution theory and the high-tech war approach to form what is now a highly discussed subject, although not as clearly understood, and is termed as the RMA.<sup>1</sup>

There is growing understanding among the military planners that human warfare is entering the stage of Information Warfare (IW) following the stage of mechanized warfare. The essence of this shift is provided by the revolution in information technology in the field of warfare. RMA has five distinctive features. First, weapons and equipment have become more intelligent oriented, where in precision guided long distance attacks are increasingly playing a critical role in operations, and are increasingly becoming the main form of attack. The second perspective is that the RMA has allowed force structures and systems to become more streamlined. This has been possible through rightsizing and readjusting force structures leading to force optimization, but with stronger combat capabilities. Third, a consequent result of above has been automation of command and control (C2) systems, which have incrementally moved from Command, Control, Communication and Intelligence (C3I), to Command, Control, Communications, Computers and Intelligence (C4I), Command, Control, Communication and Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) and now Command, Control, Communication and Computers, Intelligence, Information, Surveillance and Reconnaissance (C4I2SR) in order to meet the demand for real time, robust, reliable and efficient command and control systems. Fourth this has led to spatial expansion of warfare, from traditional three dimensions, i.e., land, sea, and air, to five dimensional that includes in addition, the spatial and electromagnetic dimensions. Implication of above is that anybody who controls the information will gain the initiative in high tech battlefield. Finally, and most importantly, operations are becoming more system-oriented requiring not only a high degree of system integration but the integrated application of power in all five dimensions leading to warfare being transformed into completed operations of system versus systems. This is increasingly impacting on the need for integration and jointness.

It is in this fast changing and emerging technological environment that India has to come up with reasonable response to the latest RMA. The underlying perception in India is that response of necessity to the RMA debate will be structured taking into account not only the changing global military trends but also its regional security environment. However the debate is mired at two levels. At one level given the continuing boundary dispute and the ongoing proxy war the dominating perception is to look at national defence in a purely territorial construct, largely from the attrition mindset. Consequently force modernisation and force development models too are looked from single service capability development requirement with joint perspective always being at best a minimum essential. This has created in force development strategies a mindset of force multiplication effect that is essentially weapon system centric. No wonder the entire modernisation philosophy of the services is centred on weapons system procurement (hardware) rather than system integration, in system of system approach.<sup>2</sup>

Second, and more important, is the overall perspective of force development. Our model continues to be based on force modernization essentially to deal with obsolescence factor more as an attempt to maintain notional conventional edge against Pakistan, rather than part of well thought out force transformation strategy that takes into account changing nature of war. In fact, we continue to persist with old doctrines and thinking which look at force application models based on limited to full spectrum wars while talking about full spectrum capability. Lack of joint ness and system integration is creating another serious problem that is of capability enhancement and synergizing our capabilities. This is leading to duplication in capabilities; independent force development models that have no common threat perspective. The result, despite sending huge sums on force modernization and induction of weapon systems, there is limited or marginal accretion to overall capabilities.<sup>3</sup>

And even more important, is the fact that given close collusive relationship with China we will have to incrementally deal with technologically advanced military Pakistani military with improved information, surveillance, reconnaissance (ISR) capabilities, networked command and control elements with long range precision fires and greater degree of system integration. In such a milieu, jointmanship and integration among the Indian Armed Forces and other defense support agencies would be the two major leitmotifs of RMA under Indian conditions to meet the challenges to our security.

## II. COMPONENTS OF RMA IN INDIA

Indian army doctrine says that “The backbone of RMA is a C4I2SR system which facilitates dominant battle-space awareness and will therefore constitute a major thrust area. Five major components of RMA are Information Warfare, dominant man oeuvre, precision engagement, full dimensional protection and focused logistics. Advances in C4I2SR also make possible a new concept in war fighting viz. NCW (Network Centric Warfare).”

In addition technology, doctrine, training and organizational structure are also important components of RMA.<sup>4</sup>

## III. RMA AND INDIA

The Indian experience in RMA could be considered under two parts. The larger part devoid of RMA and the smaller part with definite sparks of RMA. From 815 AD onwards, the Indian experience in RMA can be described as a "Period of little experience". Considering India under the Mughals, there is no doubt that the Mughal Empire stretched far and wide. The Mughals had powerful armies and subordinate allies in India. But can we call this an Indian experience? It probably belongs more to the RMA of invading forces in consolidating their hold over existing Indian states. A result of RMA brought in from outside - the artillery by Babur, initiative and military craft by others. Apart from huge armies, ponderous in nature, and employing attrition as a central theme of war, one cannot discern much of RMA even during the Mughal period. During the 17th and 18th century – when India was the richest nation in the world, its military lacked two main ingredients for RMA, i.e., dynamic doctrine and modern tactics. Hence its defeat, time and again at the hands of opponents inferior both numerically and in firepower - but opponents equipped with RMA.

The RMA of extremely disciplined troops fighting as a coherent and well-drilled team versus multitudes of Indians, who would break into unorganised, chaotic, individual warfare of the centuries past. While analysing the Indian way of warfare, Philip Mason credits Indian soldiers with unmatched courage, superior horsemanship and skill at arms. But at the intellectual level he states, "Indians had not really given thought to the problem of war; no one had really cudged his brains as to how to concentrate the maximum possible fire on a given section of the enemy's line; no one had given attention to the point that practice for the crew could turn a gun that fired four rounds an hour into one that fired eight." The positive experience, apart from the Maurya and Gupta periods comes much later and in small parts. Southern India remained independent to a large extent from 10th to 12th century. The kingdoms of the Pallavas and the Cholas, in South India fluctuated in their size and fortune. However, history does not reveal much of RMA in their methods of warfare.<sup>5</sup>

Our national leadership and strategists attempting to pursue and master the current RMA, would face the following key decisions:

- Should the RMA be pursued at all?
- What is the appropriate pace of change?
- Which path of change should be taken?
- How can the culmination point of the revolution be recognized and what should be done when it is reached?
- How can increased combat effectiveness be translated into strategic gain?

Why should India actively pursue the current RMA? For five good reasons:

- It can significantly enhance our combat effectiveness in the immediate neighbourhood.

- A military force built around stand-off and precision weapons and disruptive information warfare capability would, because of markedly decreased enemy civilian casualties and reduced collateral damage, be more politically employable than our traditional sledgehammer military.
- By thus removing some of the fetters on the use of military power, the RMA could augment our non-nuclear deterrents.
- We need to pursue the current RMA if only to avoid sliding first into, strategic inferiority and then into strategic oblivion. What we will do well to remember here is that technological development is relatively the easy part of a RMA; reshaping attitudes and adapting organizations, indoctrinating, educating and training can be extraordinarily difficult and can take eons to accomplish.
- With credible evidence of China pursuing the current RMA fairly actively and Pakistan stirring to look in that direction, India with her very significant and cutting-edge IT advantage, would be committing military hara-kiri if she did not plunge headlong into the RMA and stayed ahead at least of her neighbours.

The threats expected in the next two decades will have a major effect on our force development. At one end would be a peer rival or perhaps a coalition of competitors organised along a hi-technology RMA alliance. Next would be regional aggressors with large but less developed military forces. Pakistan and China already have weapons of mass destruction deliverable via ballistic or cruise missiles. They also have or would shortly have some hi-tech capabilities such as the ability to wage limited space operations and information warfare.

Next on the spectrum would be our internal threats such as the Jihadi, naxalite and externally funded terrorists. Some of these will remain primitive and rely on the traditional guerrilla tools of small arms, RPGs, mortars, mines and IEDs, while many will have adopted fair amount of technology. The final pole of the spectrum will include externally funded criminal organizations, some using traditional methods of violence while the others resort to economic subversion, ecological terrorism or information warfare. We will confront some or all of these types of enemies in the coming decades, to be sure.<sup>6</sup>

India is spending billions of dollars to revamp its overall military machine. In 2011-12 Indian GDP (nominal) stood at \$1.676 trillion and GDP (PPP) was at \$4.457 trillion. GDP growth was at 6.5% in the FY 2012 and it is expected that Indian economy will see growth up to 7.5% in the next year.

Such a huge economy allows India to allocate billions of dollars for the revitalization of its ailing military machine. As of today the Indian army has strength of about 1,129,900 active and 960,000 reserve personnel. To maintain this huge force, India is continuously increasing its defence budget. In 2012, India's military budget stood at \$46.8 billion. The level of funds for defence will increase in future. According to V.K Mishra Indian military is likely to spend over \$235 billion on acquisitions over the next 10 years till 2020-2021.<sup>7</sup>

This data is somehow ensuring that India has well realized the importance of current RMA and its execution in National Security. And now India is spending a large share of its budget on its National Security and RMA as a whole.

#### IV. AN RMA ORGANISATION IN INIDA

So far as they are part of a conventional institution, armed forces for example, personnel are constrained in their creativity. A new, autonomous RMA organization composed of analysts rather than advocates can predictably do what the RAND Corporation did for nuclear strategy in US in the 1950s. While remaining affiliated to the Ministry of Defence, this RMA organization should be staffed by a mix of civilians, armed forces officers on short deputations and armed forces officers (both serving as well as retired) who will spend the remainder of their career in the development and implementation of the RMA.

The Air Force's vision of air and space warfare, through 2020, calls for "developing core competencies built on a foundation of quality personnel and integrated by battle-space awareness and advanced command and control. A favourable air and space situation or superiority will allow us freedom from attack and freedom to attack, while the Air Forces ability to attack rapidly anywhere in the region will continue to be decisive. Rapid intra and inter- theatre mobility and multi-role air craft will help us respond quickly and effectively to unexpected challenges. Precision engagement will enable the Air Force to reliably apply selective force against specific targets simultaneously to achieve desired effects with minimal risk and collateral damage.

Information superiority will allow the Air Force to gain and exploit information, defend own and attack enemy's information systems while denying him the ability to do the same to us.<sup>8</sup>

Pursuit of a genuine RMA lies at the heart of the crucial need to prepare today, for an uncertain tomorrow. It also has not-subliminal an air power content. As Air Forces and Navies the world over see it, 'RMA' could well be termed as a 'Revolution in Military Aviation'. If long reach, rapid response, speedy advance and quick results are the heart of the military matter in fast and decisive engagement, military aviation, irrespective of which service is called upon to meet that need, would seem to be the more appropriate repository and tool of the RMA.<sup>9</sup>

#### V. WHAT WE NEED TO DO?

The system continued to suffer as the budgetary control (varying between 2 and 3 percent of GDP) kept modernisation at slow pace. Until Pakistan forced the Kargil War on India in May 1999, the Services maintained nothing more than a mere status quo. Even with the post Kargil War improvements with a onetime budget hike of 10 percent for the financial year 2000-2001, RMA was nowhere in the Indian Armed Forces. The reasons for this slow effort are the reluctance to integrate defence resources, agencies and evolve long term security strategies.

- The progress on integrating the MOD and the Services has remained tardy and a victim of bureaucratic manipulations-cum-political skullduggery. Consequently, lack of unanimity of decision on common issues of doctrines including RMA continues to haunt the Indian defence.



- India's intelligence, surveillance and strategic target acquisition besides operational logistics remain compartmentalised. Overall integration of all these to acquire and provide 'dominant battle space knowledge' as the RMA envisages, needs to be considerably enhanced.
- A review of the past must enable us to select a correct mix of doctrine and strategy and appropriate force structure for the future. To exploit RMA we will have to address all the three components of the RMA. That is, doctrinally we must decide to use our Armed Forces in an optimum mix of defence and offence. Defence at minimum level to guard against likely threat in addition to sufficient offensive capability to deter war and win when forced into one. We cannot afford liberal doses of both defence and offence even when we are much better off economically. The easy choice is to have a bit of each Service and its components. The smart choice would be to tackle the difficult question of which service/component to have priority over the other. We could also decide to postpone deterrence capability for some years till we are better off economically, as has been done so deliberately by China with its four point modernisation starting in 1978. This requires debate and deliberation at the highest as well as widest level.<sup>10</sup>
- Technologically, we need to master all the disciplines to contemporary cutting edge standards. But it must be noted that, even if we had the requisite brainpower, it would have to be supported by tremendous amounts of R&D. This R&D too, needs to be focussed and accountable to end users. It cannot be left to the scientist alone. We need to select technologies which will be essential in tomorrow's wars. And we need to adapt the technologies that we are good in to the needs of warfare. Today, software is at the heart of all marvels of science and technology. Can we utilise this expertise in software for our military needs? This would require a national effort. Good tactics can only evolve from realistic training. We need to do a critical examination of how we train. We need to move away from the tactics of attrition warfare to tactics with least attrition and yet enabling military objectives. This is most applicable in air warfare. In air war, each combat sortie is akin to a battle on the ground. While in short wars, a few surface units indulge in more than one battle, in air war each aircraft and pilot fights many battles each day. If he loses a battle, he is virtually ruled out for the rest of the war.<sup>11</sup> Integration and coordination are two sides of a coin, especially in military affairs-the research and development specifically. The DRDO and other defense oriented industry and R&D requires both boost and accountability to achieve RMA.
- While some degree of 'weaponisation' of nuclear weapons has been achieved, we are still far from formalizing our nuclear doctrine and its command & control. The armed forces are also not sufficiently prepared to fight in a nuclear environment.<sup>12</sup>

## VI. CONCLUSION

We need to prioritise sensors, processors and their communication network as one important field. These form the heart of aircraft, UAVs, space vehicles and other networks of warfare. Their integration demands most complex software. Ability to secure them along with the ability to attack the adversaries' system is again a function of software – though of a specialist kind. As we march into the millennium, India is well placed to harness the three components of RMA to realise its dream of great power status. Whether it translates this dream into reality shall depend squarely on the shoulders of our leadership at all levels.

Keeping pace with the RMA will require review of existing defense resources, to instill efficiency, economy and modernization through integrated and accountable systems. For India, the challenge is immediate and needs to be handled on a war footing.

*"The intractable problem of today is not how to cope with modern technology that is advancing at a dizzying pace but how to grapple with the available technology and use it in ingenious ways to fulfill the felt needs of their people."*

-Kenneth Boulding

## REFERENCES

- [1] Ajay Singh, Revolution in Military Affairs: 4-Dimensional Warfare, Research fellow, Institute of Defence and Strategic Analysis, Available online <http://www.idsa-india.org/an-may8-2.html>
- [2] Arun Sehgal and Vinod Anand, Revolution in military affairs & Jointness, Journal of Defence studies, Vol.1 No.1, Pg.114
- [3] Briefing by Lt. Gen. Michael Moseley, Coalition Forces Air Component Commander, on April 5, 2003, available online [www.dod.mil/transcripts/2003/tr20030405](http://www.dod.mil/transcripts/2003/tr20030405).
- [4] Indian Army Doctrine (2004).
- [5] Air Commodore A K Tiwary, Indian Experience in RMA, Bharat Rakshak Monitor, Vol.6(1), Jul-Aug 2003.
- [6] S.G.Inamdar, RMA: A Selective Monographic Overview, Journal of Defence Studies, Winter 2008, Vol.2 Issue 2, New Delhi. Available online [www.idsa.in/jds/2\\_2\\_2008\\_RMAASelectiveMonographicOverview\\_SGInamdar](http://www.idsa.in/jds/2_2_2008_RMAASelectiveMonographicOverview_SGInamdar)
- [7] MasoodUr.Rehman, 'Network Centric Warfare Capabilities in the Indian Military', South Asia Strategic Stability Institute, Weekly Pulse, June 08'2012, Islamabad.
- [8] S.G.Inamdar, No.6
- [9] Ibid.
- [10] Air Commodore A K Tiwary, No.5
- [11] Ibid.
- [12] Khanduri Chandra B.(Brig.), Revolution in military affairs-II, Institute of Peace and Conflict Studies, 476, 2 March 2001, New Delhi.