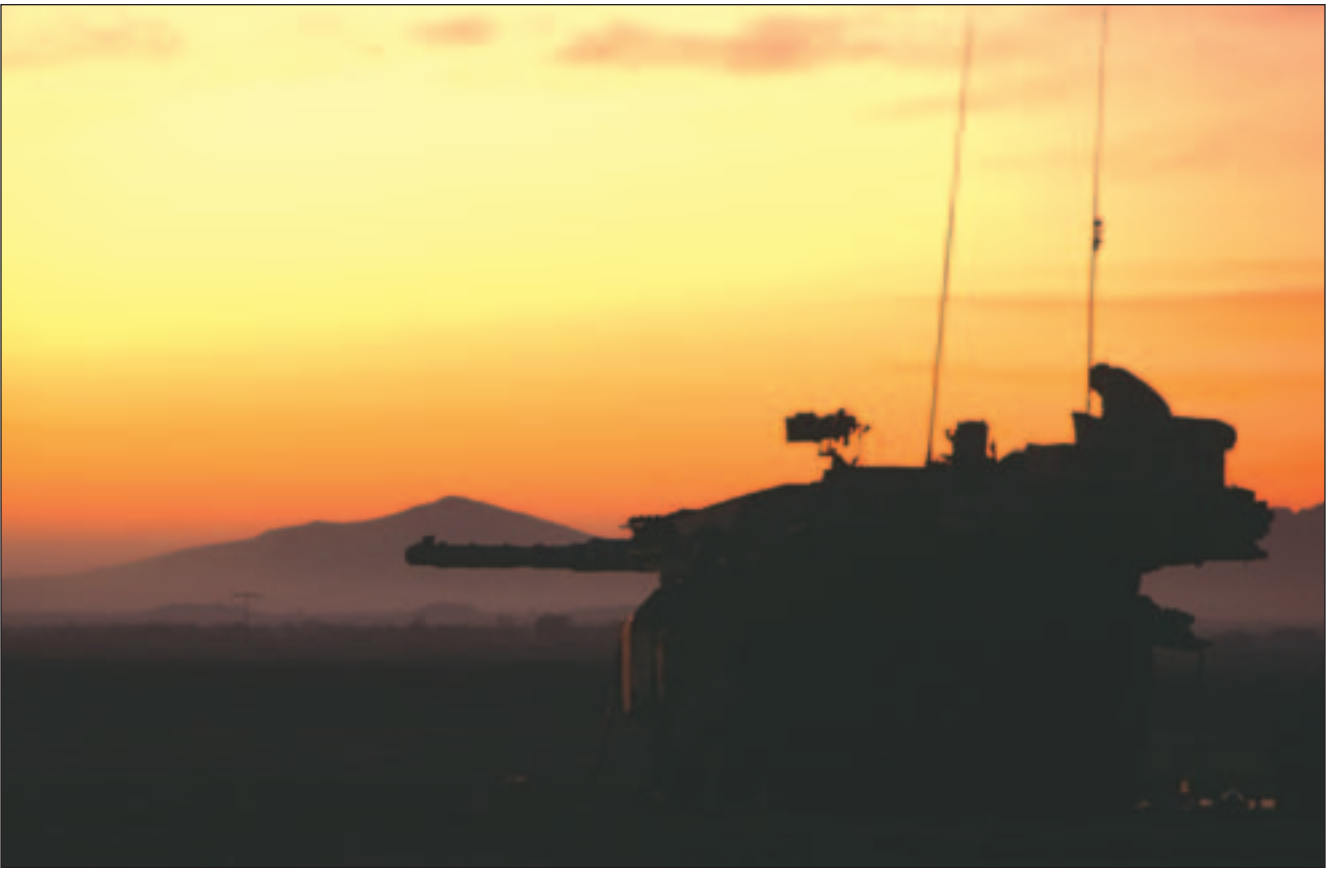


DND photo AS2006-0898a by Sergeant Dennis Power, Army News-Shilo



A Leopard tank at sunrise in the desert in Zhari, west of Kandahar, during Operation Baaz Tsuka.

# CHASING THE SILVER BULLET: THE EVOLUTION OF CAPABILITY DEVELOPMENT IN THE CANADIAN ARMY

by Major Andrew B. Godefroy CD, PhD<sup>1</sup>

“The key to the Combat Development process is the concept – who we must fight, where, according to what doctrine and with what equipment. Simply stated, the concept is what we must do to achieve success in battle.”

– Major D.A. Gronbeck-Jones,  
Canadian Army, 1982<sup>2</sup>

## Introduction

Even when not at war, professional volunteer armies continue to think about future conflicts; in particular, what they might be like, where they might take place, against whom, and, if possible, why they might occur. Also, armies smart enough to think ahead do what they can to be ready for the next conflict by examining future concepts, preparing doctrine, developing the proper physical, intellectual, and social capital for their armies, and by training their soldiers for tasks both possible and probable. Yet, despite the best efforts and preparations of any army, predicting the future is almost always fraught with uncertainty. What Canadian soldier stationed in

Lahr in 1988, for example, anticipated that they might find themselves in Sarajevo in 1992, in Mogadishu in 1993, or in Kabul in 2003?<sup>3</sup>

To mitigate the potential risks posed by future conflicts, the Department of National Defence (DND) and the Canadian Forces (CF) continuously conduct a series of parallel activities currently led by the Chief of Force Development (CFD) to create the joint integrated force required by the DND/CF to provide for the defence of Canada and its national interests. These activities include an ongoing consideration of the future security environment (FSE) and the creation of various planning scenarios, based upon that environment, the analysis of capabilities required to operate successfully in that environment, and the development of future concepts to deliver those needed capabilities to the Canadian Forces. In turn, each of the three services is then tasked to

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Gentleman Cadet No.168 William Charles Giffard Heneker

carry out detailed capability development for its specific environment, as well as for those areas that bridge into other joint, inter-agency, multinational, and public (JIMP) domains.<sup>4</sup>

Contrary to popular perception, this activity stems from a long tradition of innovative and enterprising capability development within the CF.<sup>5</sup> Within the army specifically, the practice of capability development (originally known as combat development), may be traced back as far as the late 19th Century, through a formalized process similar to what we know today has existed within the land staff only since the end of the Second World War.<sup>6</sup> This formalized process generally has consisted of four phases – the first two being the conceptual and doctrinal design of capabilities, and the second two being the building and management of those capabilities through their entire life cycle.

As sound a process as it is, capability development is still subject to a long list of constraints and restraints, most notable among them politics, personalities, financial limitations, a lack of resources, time, professional culture, and ethos. And, of course, not knowing what might happen tomorrow might well affect a multi-year plan. However, such constraints and restraints are to be expected, and

**“Conceptual and doctrinal design often begins with a series of ideas examined within the context of possible future security environments.”**

the mitigation of their effects is directly proportional to the amount of resources invested at the earliest stages of capability development.

A complete examination of the Canadian Army’s capability development process since the end of the Second World War is one of many projects currently underway within the army’s Directorate of Land Concepts and Doctrine (DLCD), and this article is intended to offer a concise overview of the conceptual and doctrinal design portion of that process.<sup>7</sup>

### A Legacy of Looking Ahead

“Should any officer ... happen to peruse these notes, and should he, perchance, come across any thing which may be of use to him, the following pages will have served the purpose for which they were written.”

– Lieutenant Colonel W.C.G. Heneker,  
*Bush Wars*, 1907<sup>8</sup>

Conceptual and doctrinal design often begins with a series of ideas examined within the context of possible future security environments. Some of the earliest recorded Canadian assessments of the future security environment date back to the 19<sup>th</sup> Century, when authors employed literary fiction and illustrated narrative to describe what they thought the army of the future might look like and how it may be required to fight. In 1883, for example, author Ralph Centennius produced a pamphlet entitled *The Dominion*, in which he predicted the state of Canada and the nature of warfare circa 1983.<sup>9</sup> This was followed six years later by W.H.C. Lawrence’s *The Storm of ‘92: A Grandfather’s Tale Told in 1932*.<sup>10</sup> In this fictional memoir that portrayed a war between Canada and the United States in 1892, Lawrence described in detail hypothetical actions between American forces and Canadian militia, the latter of which held the invaders at bay until reinforced by colonial units from across the British Empire. Although not initiated by the Department of Militia and Defence, these stories were perhaps the first works of fiction dealing with future Canadian military ‘what if?’ situations ever published in Canada.

Canada also produced a number of soldiers who became serious students, scholars, and practitioners of the art of land warfare, but prior to the First World War very few of these men served in Canada’s army. Instead, and for many reasons, often the best and brightest of military culture at the very beginning of the Canadian Army’s existence served in the British Army instead, and, as a result, their legacy has either been consumed by the army in which they served, or worse, has been forgotten by historians completely.<sup>11</sup>

Take, for example, the career of William Charles Giffard Heneker. Born in Sherbrooke, Quebec in August 1867, he received his early education at Bishop's College in Lennoxville before entering the Royal Military College of Canada (RMC) in September 1884 as Gentleman Cadet #168. Graduating in 1888, he was "poached" by the War Office in London and offered an Imperial commission in the Connaught Rangers. Heneker accepted this offer and headed overseas, where he later served as an infantry captain in Western Africa. Between 1897 and 1906, Heneker saw action in no less than a dozen separate small campaigns, ranging from peacetime military engagement to major combat operations, earning him the Distinguished Service Order (DSO) for his efforts. More importantly, perhaps, he employed his tremendous experience to write and publish in 1907 a 196-page book titled, *Bush Warfare*,<sup>12</sup> an astute, articulate, and detailed study of small wars that was perhaps intended to advance if not supercede the ideas initiated by Charles Callwell's well-known 1896 publication, *Small Wars: Their Principles and Practice*.<sup>13</sup> Almost completely forgotten to both British and Canadian military historians today, this book served as one of the trilogy<sup>14</sup> of small war bibles for the British Army until well after the First World War. In 1934, the War Office institutionalized

the lessons of men like Callwell and Heneker, when it released its own internally produced manual entitled *Notes on Imperial Policing*.<sup>15</sup>

Heneker went on to serve in India and the northwest frontier before returning to Europe as a brigade commander on the western front during the First World War. In 1920, he was appointed the commander of the British Army on the Rhine, and then later served as commander of the Inter-Allied Commission of Management in Upper Silesia, stabilizing the tenuous borders between Germany and Poland. He retired in 1932 at the rank of full general after serving as Commander-in-Chief of Southern Command, India. Yet, despite this amazing career, Heneker is completely unknown in the Canadian military lexicon, and, like many of his colleagues, he has yet to be recognized by Canadian military historians, either for his innovative approach to operations in complex terrain that influenced later British and Canadian doctrines or even for his general writings on the relationships between conflict and diplomacy.<sup>16</sup>

From individual thinkers and practitioners to more formal research and development organizations, the practice of capability development in the Canadian Army matured slowly through the First World War before becoming truly institutionalized during the Second World War. Between 1939 and 1945, the army committed itself to capability development and doctrinal design, operational research, and lessons learned. Although certainly not perfect, this activity laid the groundwork for a permanent post-war army capability development process that would serve the land forces during the Cold War and beyond.<sup>17</sup>

In 1946, the newly authorized post-war Army Headquarters (AHQ) included staffs whose responsibilities included, perhaps informally at first, some level of independent combat development. This evolved as the Soviet threat to both Canadian and allied security became better understood, so that, by the late 1940s, combat development organizations existed within the Army, formed around experienced wartime officers and men, and tasked to examine the criteria needed to prepare Canadian land forces for future wars, as well as for operations other than war.<sup>18</sup>

Two possible future battlefields in particular – the atomic battlefield and the arctic battlefield – were given considerable attention, due to the significant likelihood that the Canadian Army might find itself fighting in these environments. Both of these possibilities also presented unique challenges. One solution put forth to protect the now vulnerable Canadian northern region was a new concept known as the Mobile Striking Force (MSF), which in theory consisted of an air transportable brigade group with three troop carrier squadrons and two light bomber squadrons. The organization evolved into a recognizable force by the early 1950s, at about the same time as the army was also engaged in combat operations in Korea.<sup>19</sup>



Lieutenant-General Sir William Heneker

RMC archives

**“The atomic battlefield presented challenges that were even more difficult for those working on future concepts.”**

The atomic battlefield presented challenges that were even more difficult for those working on future concepts. The largest dilemma was the obvious fact that once a battlefield devolved into a nuclear exchange, there was some doubt as to what effect, if any, an army

might have on the outcome of the battle. In 1949, an article in *The Canadian Army Journal* speculated about the nature of infantry warfare circa 1965, and the description reveals an interesting insight into how Canadian Army thinkers of the day thought the future battles might have been fought.<sup>20</sup> Atomic battlefields were an obvious concern, but the article also demonstrates an interesting forecast of future individual soldier capabilities that is remarkably close to some of what Canadian infantry require today.

Combat development further matured during the late 1950s. The army’s Director of Military Training (DMT) became responsible for doctrine, while the Director of Combat Development (DCD) oversaw future concepts. Doctrine was defined as methods of fighting with current organizations and equipment, and included plans covering capabilities already under development. Everything else beyond this was considered the future concepts of combat development, defined as “the research and development of concepts and tactics, organization, and logistics for the army in the field.”<sup>21</sup> The DCD divided its study of the field into two periods, the long-range period (1965-1970), and the very long-range period (1970 onwards).

The Combat Development and Tactical Doctrine Committee met reasonably regularly between 1959 and 1964 to discuss capability development for the Army, and, despite the reduction of tangible commitments to the physical development of its army of tomorrow, the land staff was able to continue its study of future land warfare without any serious impediment. In fact, as one Deputy Chief of the General Staff noted:

“The professional reason [for participating in combat development] is that there ought to be no excuse for the Canadian Army being anything but first class in its thinking. We may not be able to match our more purposeful allies in the scope of our activities and the range of our equipment. We may intend to base our equipment and hence our organization on US or UK decisions, but we reserve the right to decide for ourselves in each case whom we will follow.”<sup>22</sup>

In 1959, the DCD produced report CDY 59-2-1, “The Canadian Army Tactical and Logistic Concept 1966-1970.”

**“General army concept development, as well as individual branch studies, drove initial CDC work on the future Army.”**

The aim of the study was to produce an operational concept for the employment of the Canadian Army in both nuclear and non-nuclear warfare during the specified time frame. The concept emphasized nine key points, including firepower and mobility, decision through destruction, compatibility and interoperability, and the human factor. From this, the Army Tactics and Organization Board set out to implement the strategy and concept. However, its efforts were soon overtaken by the events surrounding the army’s administrative unification with the other services.

In the mid-1960s, the Canadian Army was integrated bureaucratically with the Royal Canadian Navy (RCN) and the Royal Canadian Air Force (RCAF) as part of the Department of National Defence plan to unify the Canadian Forces together as a single entity. Army strength was reduced from nearly 50,000 in 1963 to around 40,000 by 1968. The savings generated through force reduction assisted in part in securing the funding needed to deliver to the army new armoured personnel carriers, self-propelled artillery, mortars, and other equipment, but unification combined with force reductions and changes in Canadian national security and defence policy all served to decapitate the realization of even the most robustly thought out strategic future army concepts. In order to retain some degree of combat effectiveness not to mention saliency with its allies, the army had to rationalize its existing force employment concepts within the new political context of the Trudeau government.

### **Building a Flexible Response**

**A**nother important development during this period influencing future Canadian land forces conceptual and doctrinal design was the NATO decision to renew its non-nuclear conventional warfare capabilities. As a result of the American assessment that general nuclear war seemed less likely in the future, in 1961, President John F. Kennedy directed his Secretary of Defense to begin a reorganization and modernization of the United States Army’s divisional structure in order to provide a robust force for conventional warfare. The decision marked a move away from the design of atomic battlefield force structures, based upon a strategy of Mutually Assured Destruction (MAD) towards a more flexible response to the wide-ranging Soviet threat. It was also a decision that resulted in considerable implications for the future of not only US ground forces, but those of its allies as well.<sup>23</sup>

Changes in NATO strategy led AHQ to conduct a series of ABCA Army Standardization Combat Development Studies between 1965 and 1972, with the overall common aim being to develop a viable deterrent to Soviet Bloc, and more specifically, the Soviet ground forces positioned in Central and Eastern Europe.<sup>24</sup> This created the initial parameters for long range (1986-1995) Canadian army combat development. However, further



political and departmental reorganization within DND following the publication of the 1971 White Paper on Defence delayed the production of tangible results once again.<sup>25</sup> It was not until 1974 that the army was able to re-focus some effort on conceptual and doctrinal design of future forces and to stand up a formal Combat Development Committee (CDC).

As chairman of the CDC, the Commander of Force Mobile Command (FMC) and his vice-chairman, the Chief, Land Doctrine and Operations (CLDO), organized a series of conferences and working groups that included membership of all general officers in land force appointments as well as representation from all formations, headquarters, teaching establishments, and relevant NDHQ staffs. The CDC was tasked first to define the institutional problems resulting from the existing army combat development process and then to decide upon a course of action to correct those problems. Next, within the context of the ABCA Combat Development objectives, the CDC was tasked to conceive and design the Canadian army's likely contribution to this goal – the concept, design, and doctrinal development of a modern mechanized corps that would, in all likelihood, be embedded within NATO's Central Army Group (CENTAG).

General army concept development, as well as individual branch studies, drove initial CDC work on the future Army.<sup>26</sup> Beginning with political direction, strategic assessments, and technological forecasts, a purely notional capabilities-based future force employing the army corps as the end state model organization was conceived between 1975 and 1979. This model was forecasted partially upon the assumption that the 1986-1995 timeframe would witness a more fluid and violent battlefield, including capabilities on both sides to hit harder and deeper all along the Forward Edge of the Battle Area (FEBA).<sup>27</sup> As well, the Vice Chief of Defence Staff (VCDS), Lieutenant-General R.M. Withers, directed that the studies consider all phases of war with emphasis upon sustained operations against a sophisticated enemy in high intensity war.<sup>28</sup>

The CDC opted for a capability driven systems based approach to combat development and focused upon the conceptual design of a future army corps.<sup>29</sup> This construct was then used to identify possible defence research and development projects for the future army. This was then further ameliorated into an operational concept that identified capability requirements, possible force employment concepts, personnel requirements, and possible chains of command. From this, each branch of the army designed



General Ramsey M. Withers, when Chief of the Defence Staff.



Force Mobile Command badge

conceptual organizations and structures to meet the established capability and force employment requirements, which then were tested in seminar and operational research war games. The war games both validated and disqualified various ideas for organizations and equipment, helping to refine further the final conceptual product.<sup>30</sup>

This work formed the basis for what would later be known as the Combat Development (CD) Process.<sup>31</sup> Once the concept had been approved, the Army Doctrine and Tactics Board (ADTB) examined tactics, techniques and procedures (TTP) for the concept and made further changes as needed. Once this process was complete, doctrine and training manuals were then produced. During this period, the Canadian Army also began publication of the *Army Doctrine Training Bulletin*, with the first issue disseminated out to the army in September 1980.<sup>32</sup>

Once the various branches of the army completed their initial investigations and analyses, the CDC amalgamated all the various capability, organizational, and branch studies into a single omnibus analysis known as the Land Force Combat System Study (System Study).<sup>33</sup> This was then reviewed by DND, where it was well received and rapidly confirmed. The ATDB noted the following year: "Recent approval of the Land Force Combat System Study 1986-95 (System Study) by the Combat Development Committee marks a milestone in the resurgence of combat development in the Army."<sup>34</sup>

Further refinement of the concept took place between 1981 and 1984, with the doctrinal design for the army organization later labeled 'Corps 86' beginning in 1985.<sup>35</sup> Although the concept and design were sound, given the period in which they were produced, both physical assets and manning levels within the army were beginning to suffer and Corps 86 never materialized, despite the release of a new White Paper on Defence in 1987.<sup>36</sup> Even the adoption of a 'total force'

concept within the army during this period, refocusing the army's Primary Reserve closely to the needs of the Regular Force, was inadequate to meet the full demands of the concept.<sup>37</sup> Thankfully perhaps, politics ended the Cold War before NATO and its resource constrained land forces were required to do so.

### Beyond the Cold War

With the rather abrupt end to the Cold War in 1990, NATO armies specifically conceived and generated to provide a viable deterrent to the Soviet military threat in Central Europe suddenly found themselves without a main adversary.



DND photoREFC82-238

Lieutenant-General Andrew Leslie, Chief of the Land Staff



As a result of this somewhat less expected change in the environment, many western governments re-evaluated their military commitments in Europe, and considered what changes, if any, were forthcoming for forces originally designed to fight a European War that was less and less likely to ever happen in the near future. Many perceived the end of the Cold War as the beginning of a new and perhaps brighter future for international relations. United States President George H. Bush later described this rapid change in the security environment at this time as the beginning of a "New World Order".<sup>38</sup> Although he was more likely alluding to a change, and not necessarily an improvement, in the international security environment, many NATO countries sought to capitalize upon what became known as the perceived Cold War "peace dividend." Among these nations, Canada identified its source of income through the restructuring and reduction of its standing military, and the apparently redundant land forces then stationed in West Germany were considered an "easy first target."<sup>39</sup>

In June 1990, the CLDO directed the army staff to complete the modernization of Corps 86 to Corps 96, and to amend all army manuals to reflect the updated force structure concept by 1993.<sup>40</sup> The focus remained largely on conceptual development and doctrinal design of a Canadian Army oriented towards high intensity warfare against large-scale Soviet-like forces. Although officially the army had replaced the words *Soviet* and *Enemy* within its official publications with the word *Fantasian* in early 1991, Corps 96 remained conceptually poised to fight the *Fantasian's* more physically real Soviet cousins.<sup>41</sup>

These actions were telling of an army facing an uncertain future. The Cold War adversary was gone and the government seemed either unwilling or unable to engage in regional major conflicts. However, the government did retain its existing commitments to various UN missions, and, in June 1991, the army authorized the creation of

doctrinal manuals and tactics, techniques, and procedures designed specifically for peacekeeping, as well as for other UN contingency operations.

The CF initiated a review of its entire force structure following the announcement of the revised defence policy on 17 September 1991. The army, in turn, reviewed its own complete spectrum of structuring considerations relevant to organizing, manning, equipping, and training. Aside from the ministerial defence policy direction, the guidance from the Chief of Defence Staff (CDS) was clear: "Build an elemental Army that can fight."<sup>42</sup>

The defence policy review had considerable impact upon the existing Canadian Army force structure. In particular, it directed the maintenance of combat capable land forces ready to implement defence policy at home and abroad, and capable of mobilizing ready reserves for reinforcement and eventual sustainment; the maintenance of a brigade group earmarked for and capable of rapid deployment anywhere in the world, including NATO's area of operation; the reduction of forces stationed in Europe to a mechanized battle group of approximately 1100 troops (to be known as the Stationed Task Force or STF), to be employed alongside Allied NATO forces in the defence of Central Europe; the continued assignment of the Allied Command Europe Mobile Force Land [AMF(L)] Battalion Group to NATO's northern flank and to the NATO Composite Force; the continued deployment of troops on existing UN and other peacekeeping commitments, as well as the continued maintenance of a unit of battalion size on standby in Canada for future UN operations; and the continued involvement in domestic roles, such as drug interdiction and assistance to civil authorities.<sup>43</sup>

Given these requirements, the Directorate of Land Doctrine and Operations (DLDO) conducted another force structure review, but appreciated that any structure

decided upon would be affected by three major factors. The first factor was the reorientation of land forces' attention away from the European focus of the 1987 Defence White Paper and towards new priorities projected for the army in the 'new world order' of the 1990s. The second factor affecting concept development was resources. Many countries, including Canada, wrongly predicted that the end of the Cold War would be followed by a long period of stability, and they drastically reduced their defence budgets as part of collecting their 'peace dividend'. The government of the day made it very clear to DND that it could expect no growth in currently allotted resources or funding, and in fact, that funding would likely be further reduced throughout the early 1990s. Given this growing resource constraint, the third factor considered was the need to seek balance, in keeping with the projected shortage of resources over the next several years.

Given these three factors, a future land force model was conceived in early 1991, based upon very few essentials. The army had to design a field force large enough to fight; it had to maintain the army's training establishment and professional expertise; it had to retain the capability to conduct contingency operations; and it had to provide accommodation for Canada's geographical, demographic, and linguistic balance, non-negotiable political objectives, and future constraints and surprises. The final analysis produced a new land force structure concept along three main lines of operation, upon which the 'future' army of the 1990s would be developed.<sup>44</sup>

The first line was 'General Purpose Combat Capability,' chosen due to the fact that increasing defence budget cuts across DND during this period did not afford the army the luxury of organizing, equipping, and training land forces for a single level of conflict or specific task. Despite this basic logic, however, the descriptor 'General Purpose Combat Capability' was often criticized both inside and outside of the army as unachievable, given the limited resources then available. Although the concept certainly satisfied both the requirements of the defence policy review and the budget, it did less for future army capability development. In essence, it was something of a "Catch-22." The army could not afford to do everything well, so it looked instead to create a generalized capability that ultimately would be incapable of doing anything very well.<sup>45</sup>

The second main line of operation was the realization of the Total Force concept. The 1987 White Paper on Defence declared that the "distinction between regular and reserve personnel must be greatly reduced," and Total Force aimed to assist with personnel sustainment, as well as to address some of the problems of conflicting responsibilities arising from multiple tasking. Assistance

with personnel sustainment was critical; it was felt that the number and scope of operational commitments for the army were unlikely to change for the foreseeable future, and that sufficient personnel resources to meet those requirements did not exist solely within the shrinking regular force. Eliminating multiple taskings would take more time. This often occurred as a result of confusion over determining to which chain of command various militia and reserve organizations belonged, and who had the authority to task them.

The third main line of operation was the return to a regional command framework. Already partially implemented by 1990, it was perceived as the logical solution to fundamental flaws in the existing land force structure, and it promised to improve every aspect of the way the army was generated, deployed, and supported in the future. The belief was that the regional command structure concept was organizationally sound, would reduce the perceived excessive span of control at army level, decentralize many responsibilities, and eliminate a number of subordinate headquarters. The regional command structure concept was also labeled as the keystone to the Total Force concept by placing all Regular and Reserve army units within a particular geographical area under the command of a single officer. Finally, it was seen as a means to facilitate future efforts to separate what was to become designated as the field force from the rest of the army infrastructure.

The decision to implement a regional command structure within the army also had other objectives. Most importantly, perhaps, it was seen as a facilitator for reintegrating the army into Canadian society, including necessitating "a routine interface between headquarters and governments at all levels."<sup>46</sup> As well, the regional command structure was expected to create a unified and higher profile total force presence better attuned to regional considerations and better organized for territorial roles.

Restructuring of the land force (the official name of the army at this time) was well underway by the end of 1991. FMC, which became simply known as Mobile Command in 1990-1991, was replaced by the future land force structure and again was renamed to become Land Force Command Headquarters (LFCHQ). Remaining in St. Hubert, Quebec, LFCHQ was significantly smaller than its predecessor, although it exercised overall command and control of all land forces. It also had fewer subordinate commands than its predecessor, overseeing only five area commands (Northern, Western, Central, Eastern, and Atlantic), composed of a total of 14 districts (reduced from 21), and a division level tactical headquarters located in Kingston, Ontario.

**"The defence policy review had considerable impact upon the existing Canadian Army force structure."**

**"The proposed future army would resemble little of its Cold War predecessor."**

The five area commands were responsible primarily for force generation, and with few exceptions, commanded all the army units within their regional boundaries. The 1<sup>st</sup> Canadian Division Headquarters was responsible for meeting continental defence needs, as well as for contingencies abroad. It was also tasked to form the basis of a joint or national command headquarters as required. Finally, the 1<sup>st</sup> Canadian Division Headquarters would provide a command and control element to train the army's brigade groups, so that they could maintain their general-purpose combat capabilities.<sup>47</sup>

The proposed future army would resemble little of its Cold War predecessor. Lieutenant-General J.C. Gervais, Commander of Force Mobile Command, noted in December 1991 that "The Army is undergoing what can be described as its most significant transformation since integration and unification."<sup>48</sup> It was true at the time, but again illustrated just how difficult it has always been to predict what may occur tomorrow.

### Rationalization and Restructure

The conceptual vision of Canada's first post-Cold War army did not survive a first contact with reality. In February 1992, the federal government tabled a new budget that included further cuts to DND and the CF. The commitment to leave the STF in Europe was cancelled, and the 1100 positions planned for that force were eliminated. The regular force was further reduced, and the growth of the army reserve delayed. Although it was still projected to expand the army reserve to 30,000 members, only 400 of the planned 1300 new primary reserve recruits for fiscal year 1992/1993 were authorized.<sup>49</sup>

The army's aging equipment situation was further strained as well. The anticipated Multi-Role Combat Vehicle (MRCV) project was cancelled, although another project to replace the Army's *Lynx* reconnaissance combat vehicle was added. However, neither the *Leopard* Main Battle Tank nor the M113 Armoured Personnel Carrier was expected to be replaced soon. Lieutenant-General Gervais was now making a somewhat more somber statement. In the second part of his article on the land force in transition, he stated bluntly, "...demands

for a peace dividend have created new realities in defence funding. They are reflected in restricted Regular Force manning levels, infrastructure rationalization, and tighter budgets for all resource managers. These factors are necessitating changes in the Army structure."<sup>50</sup>

The budget announcement forced the army to scrap most of its conceptual development plan. Instead of creating a new, larger, and more effective Total Force, it created a Land Force Restructure Steering Group, consisting of two committees and 14 project teams. Every aspect of the army was put under the microscope, with those initiatives and organizations not absolutely vital to the survival of the institution either frozen or cancelled completely. A greatly revised Canadian Forces Development Plan (CFDP 92) was promulgated in July 1992. The army portion of this review, known as the Land Force Development Plan (LFDP), was injected into Canadian Forces Defence Plan (CFDP) 92. Instead of outlining a conceptual vision for the Army's future force, the new plan was focused almost completely upon budgetary damage control.

There is no doubt that army combat development suffered over the next few years, as ongoing constraints and restraints made the conceptual and doctrinal design of future land forces an increasingly academic exercise. In 1993, a series of conceptual studies was conducted within the land staff, as well as at Canadian and Force Command and Staff College (CLFCSC), but these initiatives were largely confined to paper and debate studies. Still, during this period, two schools of thought appear to have emerged, one supporting a 'traditional' concept development focused towards

Army Conceptual and Doctrinal Development Considerations Yesterday and Tomorrow	
<p>Corps 86 8 years to develop (1976-1984)</p> <ul style="list-style-type: none"> <li>• Well defined strategic context (Cold War)</li> <li>• Static theatre of operations</li> <li>• Single spectrum operation</li> <li>• Well defined adversary</li> <li>• Technologically predictable enemy</li> <li>• Structured enemy forces</li> <li>• Corps construct</li> <li>• Rigid and concentrated forces</li> <li>• Long term evolution cycle</li> <li>• Limited third party considerations</li> <li>• Controlled infosphere</li> </ul>	<p>Land Operations 2015 2 years to develop (2004-2006)</p> <ul style="list-style-type: none"> <li>• Poorly defined strategic context (Global War on Terror)</li> <li>• Multiple theatre of operations</li> <li>• Full spectrum engagement</li> <li>• Elusive and changing adversary</li> <li>• Technologically innovative enemy</li> <li>• Networked enemy forces</li> <li>• Battlegroup construct</li> <li>• Adaptive and dispersed forces</li> <li>• Very short term evolution cycle</li> <li>• Crowded JIMP environment</li> <li>• Uncontrollable infosphere</li> </ul>



high-intensity conflict against a sophisticated adversary, and a newer second school examining and incorporating influences from existing, ongoing contingency operations of the day, such as peacekeeping and peace support operations, and joint and coalition operations. Part of this latter trend can be observed in the 1994 DND-DFAIT joint initiative, which advocated the creation of a United Nations (UN) rapid reaction capability.<sup>51</sup>

The creation of the DND Management Command and Control Re-Engineering Team (MCCRT) in 1994 created further hardships as it sought to re-engineer the command structures of the CF through the elimination of one entire level of headquarters while, at the same time, preserving operational capability. The result was devastating for an already thoroughly purged army, and it left the land force with only a residual combat development capability. This 'initiative', combined with yet further reductions in overall defence expenditures during this period, later eliminated all the remaining resources previously committed to future land force development.<sup>52</sup>

By 1995, strategic thought in the army was largely replaced by business planning. There appeared little sense within senior leadership that the Canadian Army was the master of its own destiny, but rather that it was entirely at the mercy of the Minister of Finance. Facing continuous funding cuts while at the same time responding to a seemingly endlessly growing list of contingencies across the world, the army could invest very little in thinking ahead about the Army of Tomorrow, and devoted its increasingly limited intellectual resources to constant land force restructuring and rationalization. Although there was considerable criticism from external sources directed at the Canadian Army for displaying an apparent lack of strategic thought and foresight during this period, these contrarians simply could not appreciate the environment in which the decision-makers were forced to live.

The MCCRT was beginning to take a toll on the army's ability to function in its present organization by early 1996. The political and financial conditions of the time created a defence environment that simply could no longer sustain the bureaucracy demanded by the existing Land Force Development Process (LFDP). Committees and boards were slashed, and organizations were reduced, reorganized, and amalgamated even further, all in an effort to ensure the survival of the vision and aim – a robust and sustained commitment to a cohesive strategy for long-term army evolution. There was little other choice. The army was suffering from intellectual starvation, deployment burnout, force reduction, and equipment rust-out, and, at times, it appeared that the existence of the very institution itself was at stake.

## Army Transformation

The abolition of formal long-term strategic forecasting in army combat development during the mid-1990s, and the absence of dedicated conceptual development, had restricted the overall debate concerning the future direction of the Canadian army. Fortunately, senior leadership recognized this actuality, and steps were taken to ameliorate the situation somewhat in 1997, most notably through the creation of the Directorate of Land Strategic Concepts (DLSC) in Kingston, Ontario. Located away from Ottawa and closely affiliated with the Land Force Doctrine and Training System (LFDTS), a small nucleus of experienced soldiers was tasked with assessing the future security environment, emerging technologies, and future land warfare concepts.

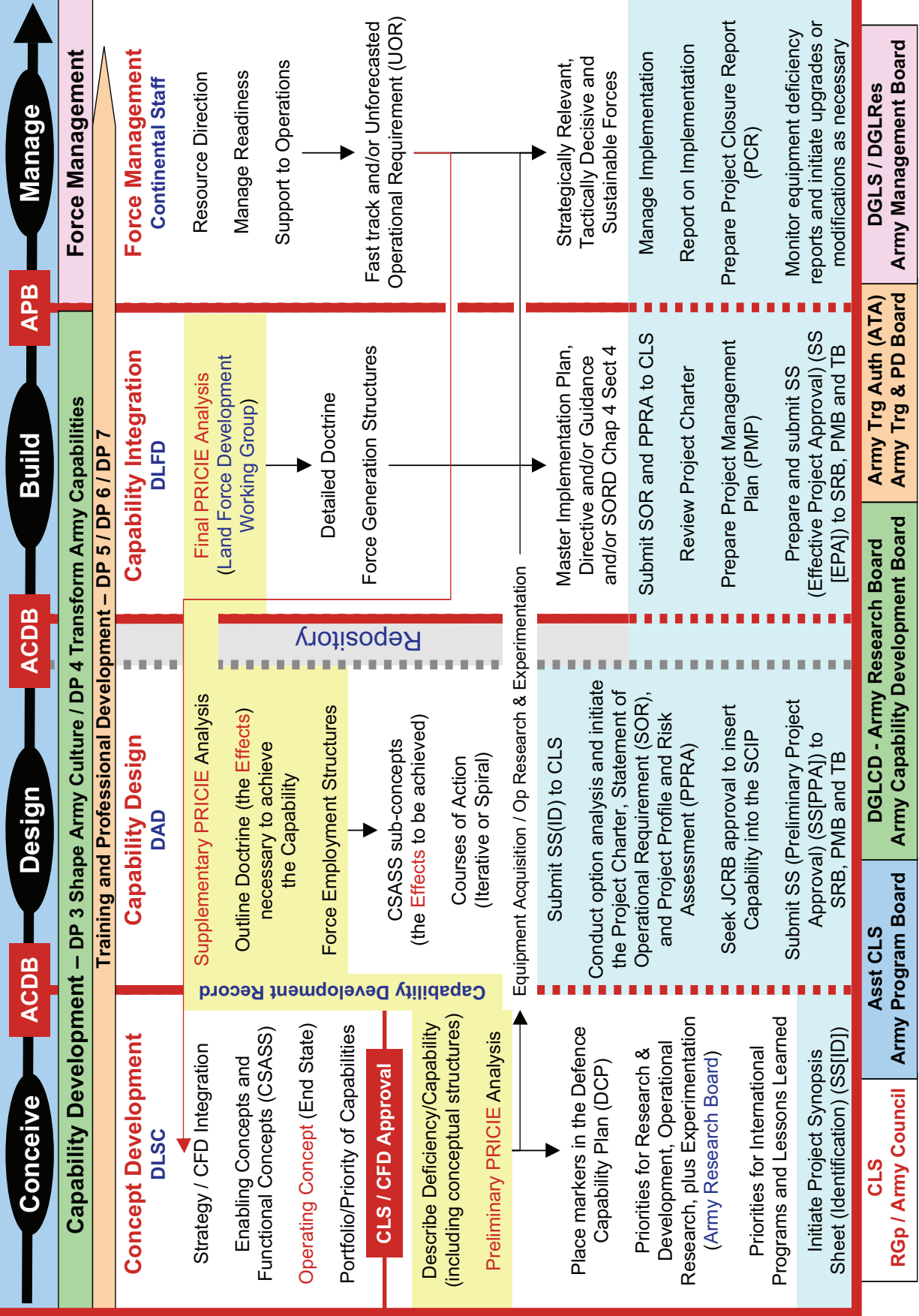
As DLSC began its own work, maneuver warfare theory, an increasingly popular concept amongst U.S. land warfare thinkers at the time, dominated Canadian doctrinal thinking, and eventually formed the basis of the current army's doctrinal design. Although it was a generally sound approach,

some criticized the decision to pursue a concept that the Canadian army had little chance of ever executing in the foreseeable future. One senior army officer even wrote in the *Army Doctrine Training Bulletin* that the whole approach was ill conceived, and based upon a gross misinterpretation of the "attrition versus maneuver" dichotomy that led to its subsequent misapplication in the formulation of later operational and tactical doctrine. Employing considerable evidence in his well thought out case, this officer lamented that the confusion "has produced doctrine as dangerously narrow as *offensive a l'outrance*."<sup>53</sup> Maneuver warfare doctrine was not, some argued, a vision for the Army of Tomorrow, and some wondered if it was even appropriate for the Army of Today.

Although a seemingly harsh assessment, the criticism carried some weight and was reflective of wider concerns about how the Canadian Army intended to pursue capability development in the future as transformation took hold of the CF in its entirety. The purpose of Canadian Army land strategic thought, its capstone concepts, and doctrinal designs, was not only to instruct its commanders on how to fight and win Canada's land wars, but also to educate them about how they should *think about* how to fight and win Canada's land wars. It was very difficult, however, to think and act in a uniquely Canadian context when leaders and soldiers alike had to rely almost entirely upon foreign interpretations of the art of land warfare, or on often-incomplete Canadian primary sources and the temporary corporate knowledge of those actively engaged in the process. Such a state of affairs existing within the Canadian school of thought has had, at times, a negative effect on its overall success, has led to a loss of ideas and the duplication of efforts,

**“The MCCRT was beginning to take a toll on the army’s ability to function in its present organization by early 1996.”**

# Land Force Capability Development Continuum



Chief of Force Development / Joint Capability Requirements Board / Senior Review Board / Program Management Board / Treasury Board

and has even led others much less knowledgeable and lacking in foresight to question the legitimacy of the entire process and the organizations charged with its execution.

Still, these intellectual and institutional challenges actually encouraged rather than discouraged the creation of a renewed, effective, and robust capability development process within the land force. Initiated and driven by the army's strategic concepts and doctrinal design organizations, the process was re-established at the turn of the 21<sup>st</sup> Century, just as the decision to undertake extensive transformation activities across the army was being made.

In 1999, the Chief of Land Staff realized that if the army was to indeed transform beyond its Cold War and early post-Cold War constructs, short-term savings were needed to ensure a tangible investment towards achieving longer-term goals for the army. This allowed the Army of Today to function, while preparing the institutional ground for a transformation towards the Army of Tomorrow. As an expedient to achieve this end state, and knowing that the Army of Tomorrow might still be as much as a decade or more away, an Interim Army (IA) was created to provide an intermediate milestone for conceptual and doctrinal design. The first iteration of the Interim Army, *Advancing with Purpose: the Army Strategy*, appeared in 2002.

Accordingly, the army began to transform towards a command-centric and knowledge-based organization. The army was to be a medium-weight,<sup>54</sup> information age force that was capable of applying the five operational functions of Command, Sense, Act, Shield, and Sustain across the entire spectrum of conflict. However, the army was still missing the conceptual and doctrinal foundation that defined the manner in which the Army of Tomorrow was to operate in this future environment, and that constituted the intellectual first step towards army transformation.

The following year, the force employment concept for the Interim Army appeared, and in lockstep, the Directorate of Land Strategic Concepts launched 'The Futures Project', with the aim of completing the conceptual design of the Army of Tomorrow that would evolve out of the Interim Army. This work began with the production of *Future Force: Concepts for Future Army Capabilities*, a speculative thought piece presenting a conceptual framework designed to assist the army leadership and those staff working on the Army of Tomorrow constructs. A companion to *Future Force* was published in 2005. Entitled *Crisis in Zefra*, this fictional narrative was an illustrative tool intended for the further exploration of many of the concepts first examined in *Future Force*. It presented one plausible future scenario for the Army of Tomorrow, as well as a number of questions designed to encourage further debate across all ranks of the army.

With the initial conceptual work completed effort, began on a road map from the Interim Army to the Army of Tomorrow, employing realistic constraints and restraints within a cyclical design process to produce an evolved hierarchy of concepts. This effort was completed during a series of contemporary lessons-learned studies and definition workshops, seminar war games, and army experiments conducted during 2006, and it included participation from across the CF, as well as other government departments. The final product, *Land Operations 2015: Adaptive Dispersed Operations – The Force Employment Concept for the Army of Tomorrow*, was released in early 2007 and it laid out the new paradigm for employment of land forces that emerged from these studies, experiments, and analyses.

Today, the capability development process is well institutionalized within the army. Integrated with CFD methodologies, Director General Land Capability Development (DGLCD) oversees capability development through its commitment to the Land Force Capability Development Continuum. The continuum consists of four pillars – Conceive, Design, Build and Manage – of which the capability development process is encapsulated in the first three pillars. Each pillar has a lead agency appointed to discipline, analyze and record the documentation necessary to guide the capability through to realization. Moreover, the work performed within each pillar sets the foundation and conditions for subsequent, iterative, or spiral activity. It is a process that not only works, but it also encourages innovation, unity of effort, and the ability to realize tangible results within a reasonable amount of time.

Canada's army is often described as a strategically relevant, tactically decisive, knowledge-based, medium-weight force. Its doctrine is based "on the maneuver approach to operations in which shattering the enemy's overall cohesion and will to fight is paramount, and is achieved by targeting his center of gravity."<sup>55</sup> By 2015, the experience of Afghanistan and other theatres will have transformed the Land Force beyond this characterization, as will the ever-increasing integration of all land force operations with other Canadian 'whole of government' approaches to international security, diplomacy, and development. If the capability process is maintained, then there is little doubt that the army will move forward from today's experiences and will not lose them to the obfuscation of bureaucracy and the passage of time.

## Conclusion

Conceptual and doctrinal design is one part revolutionary and two parts evolutionary. It is the art of taking best current practices and institutionalizing them, extrapolating their potential, and then rationalizing them with a reality check. The best concepts and doctrines are ambitious, but more importantly, they are achievable.

During the Cold War, land force combat development was focused upon the conceptual and doctrinal design of a viable deterrent to the Soviet threat. Definite political constraints, a well known and analyzed threat, and a static theatre of operations further shaped this objective, as did the clear limitation of the Canadian Army being a *supporting vice supported actor* in CENTAG.

Today, the army enjoys none of this certainty in its capability development, and it must devote increasing efforts to assessing diverse threats, theatres, and actors with less time available to produce tangible results.

For example, the conceivers and designers of Corps 86 had eight years to produce their final product, whereas the Army of Tomorrow team had, at the most, only three years. As well, the overall process itself has become increasingly complex, and it faces an increasing number of challenges from immediate, unforecasted operational requirements (UOR) that can have a significant impact on long-term capability development. Added to this are ongoing financial and resource constraints, a penchant for command-centric decision-making versus mission command or collaborative command decision-making practices, a generally lethargic procurement process, and the increased scrutiny from both internal and external critics on just about every aspect of army activity, especially given that our ground forces are currently engaged in combat on a regular basis.

At the same time, there has been tremendous opportunity. The consistency in defence policy, combined with the army transformation of the late 1990s, served

to provide a catalyst for conceptual and doctrinal freedom that the land force had not truly enjoyed for nearly five decades. More importantly, it resulted in the land force already being engaged proactively in future force conceptual and doctrinal design at the time of the 11 September 2001 attacks, allowing it to respond more quickly and effectively than otherwise might have been possible. And, given that our ground forces are currently engaged in combat on a regular basis, lessons learned, operational research, and professional military judgment are lending greater value to the overall capability development process. As in the past, conflict

will shape today's army, as well as those forces destined for operations tomorrow and beyond.

**“Today, the capability development process is well institutionalized within the army.”**

Designing for the future is to conjure possibilities, anticipate threat, mitigate risk, reinforce capability, encourage innovation, and force evolution. It is, in fact, anything but ‘blue sky’ daydreaming, and it is

critical for an army's survival and success in the battlespace. Still, despite best efforts of all involved, capability development is not an exact science. The conceptual and doctrinal designers remain morally and professionally obligated to create a ‘silver bullet’ solution, but know that reality will rapidly constrain and restrain its development. The products of army capability development in most cases contain only a seed of the concept, but that is what is expected to occur. After all, the tree looks nothing like the seed from which it came, but everything it is came from that seed.



Canadian LAV III (light armoured vehicles) at sunrise at Camp Julien, Kabul, Afghanistan.

DND photo IS2004-2029a by Sergeant Frank Hudec, Canadian Forces Combat Camera



## Abbreviations

AC – Army Council	DLSE – Director Land Synthetic Environments
ACDB – Army Capability Development Board	DMS – Defence Management System (in order performed):
AEC – Army Experimentation Centre	SS(ID) – Synopsis Sheet (Identification) / PPRA – Project Profile and Risk Assessment / SS(PPA) – Synopsis Sheet (Preliminary Project Approval) / PMP – Project Management Plan / SS(EPA) – Synopsis Sheet (Effective Project Approval) /
AFDC – Air Force Development Committee	SOR – Statement of Operational Requirement /
AFROCCC – AF R&D, OR, CD&E Coordinating Committee	PCR – Project Closure Report
ALLC – Army Lessons Learned Centre	DSG – Defence Strategic Guidance
APB – Army Program Board	FE / FG – Force Employment / Force Generation
ARB – Army Research Board	FSE – Future Security Environment
ATA – Army Training Authority	JCPT – Joint Capability Planning Team
ATPDB – Army Training and Professional Development Board	JCRB – Joint Capability Requirements Board
ATP – Army Terminology Panel	LFCR – Land Force Capability Release
CBP – Capability Based Planning	LFDTS – Land Force Doctrine and Training System
CDB – CF Capability Development Board	LFDWG – Land Force Development Working Group
CD&E – Concept Development and Experimentation	LFSWG – Land Force Structures Working Group
CDORT – Capability Development OR Team	LL – Lessons Learned
CDR – Capability Development Record	LPCP – Land Personnel Concepts and Policies
CFD – Chief of Force Development	MIP – Master Implementation Plan
CFEC – Canadian Forces Experimentation Centre	MRP – Managed Readiness Plan
CLS – Chief of the Land Staff	OR – Operational Research/ORE – OR and Experimentation
COA – Course of Action	PMB – Program Management Board
CSASS – Command, Sense, Act, Shield and Sustain	PRICIE – analytical framework
DAD – Director Army Doctrine	R&D – Research and Development
DCP – Defence Capability Plan	RGp – CLS Reconnaissance Group (selected senior staff)
DGLCD – Director General Land Capability Development	SOC – Strategic Operating Concept
DGLRes – Director General Land Reserves	SORD – Strategic Operations and Resource Direction
DGLS – Director General Land Staff	SRB – Senior Review Board
DLFD – Director Land Force Development	TB – Treasury Board
DLR – Director Land Requirements	UOR – Unforecasted Operational Requirement
DLSC – Director Land Strategic Concepts	

### NOTES

1. The author would like to thank Doctor Craig Stone of Canadian Forces College Toronto, and Doctor Peter Gizewski, Lieutenant-Colonel Brad Boswell, and Lieutenant-Colonel Mike Rostek at the Directorate of Land Concepts and Doctrine, for their comments on earlier drafts of this article.
2. Major D.A. Gronbeck-Jones, "The Combat Development Process in the Canadian Army," in *Canadian Defence Quarterly*, Vol. 12: 2 (Autumn 1982), p. 25.
3. Portions of this article may appear similar to contents the author wrote and published in *Land Operations 2015: Adaptive Dispersed Operations – A Force Employment Concept (FEC) for the Army of Tomorrow*, as well as other conceptual documents appearing from the Director General Land Capability Development.
4. Peter Gizewski and Lieutenant-Colonel Mike Rostek, "Towards a JIMP-Capable Land Force," in Major A.B. Godefroy (ed.) *Canada's Army of Tomorrow: Concepts for Land Operations 2015* (Kingston: Army Publishing Office, 2007).
5. Recent scholarship has revealed that innovative military enterprise was not just an exception within Canada's military. For examples, see opening chapters in J. Vardalas, *The Computer Revolution in Canada: Building National Technological Competence* (Cambridge: MIT Press, 2001); and Andrew B. Godefroy, "Defence and Discovery: Science, National Security, and the Canadian Rocket and Space Program, 1945-1974", (PhD Dissertation, Royal Military College of Canada, Kingston, 2004).
6. For a survey of early Cold War Canadian Army combat development, see Sean M. Maloney, *An Identifiable Cult: The Evolution of Combat Development in the Canadian Army: 1946-1965* (Kingston: DND, Directorate of Land Strategic Studies Report 9905, August 1999).
7. The author is currently completing a comprehensive study of the Canadian Army's conceptual and doctrinal evolution since 1945 for the Director General Land Capability Development and the Director of Land Concepts and Doctrine. The project is expected to be completed in 2007.
8. Lieutenant-Colonel W.G.C. Heneker, *Bush Warfare*. (London: Hugh Rees Limited, 1907), Preface.
9. Ralph Centennius. *The Dominion in 1883* (Peterborough, Ontario: Toket & Company, 1883) at <<http://gaslight.mtroval.ca/centenn.htm>>.

10. W.H.C. Lawrence, *The Storm of '92: A Grandfather's Tale Told in 1932* (Toronto: Sheppard Publishing Company, 1889).
11. For example, see Andrew Godefroy, "For Queen, King and Empire: Canadians Recruited into the British Army, 1858-1944", *Journal of the Society for Army Historical Research*. (forthcoming). Existing analyses of the origins of the Canadian Army often do not consider the tremendous drain of resources resulting from active British recruiting in Canada during this period, resulting in misleading conclusions that Canada both did not have any military talent of its own and was also incapable of creating any within its own system.
12. Lieutenant Colonel W.C.G. Heneker, *Bush Warfare* (London: Hugh Rees Press, 1907).
13. Charles Callwell, *Small Wars: Their Principles and Practice* (London: NP, 1896).
14. Heneker's commander, interestingly, wrote the third book. See Colonel A.F. Montanaro. *Hints for a Bush Campaign* (London: Sands Publishers, 1901).
15. *Notes on Imperial Policing* (London: His Majesty's Stationery Office [HMSO], 1934).
16. The author is currently editing this book, along with a biography of Heneker, for publication in 2007.
17. See Donald H. Avery, *Science in War: Canadian Scientists and Allied Military Technology During the Second World War* (Toronto: University of Toronto Press, 1998).
18. Sean M. Maloney, *An Identifiable Cult: The Evolution of Combat Development in the Canadian Army: 1946-1965*, pp. 1-5.
19. For details of MSF see David Charters, "Five Lost Years: The Mobile Striking Force, 1946-1951," in *Canadian Defence Quarterly*, (Spring 1978), pp. 44-48; and Sean M. Maloney, "The Mobile Striking Force and Canadian Continental Defence, 1948-1955," in *Canadian Military History*, Vol. 2:2 (Autumn 1993), pp. 75-88.
20. H.H. Bryan, "The Infantry of 1965", in *Canadian Army Journal*, Vol. 2:11 (November 1949), pp.16-19.
21. National Archives of Canada [NAC], Record Group [RG] 24 , Vol. 19161, File 2100-1 Part 1, "Presentation to Army Council: Combat Development DCGS Opening Remarks."
22. *Ibid.* Cited from Sean M. Maloney, *An Identifiable Cult*.
23. For details of the American army experience resulting from the flexible response strategy see John B. Wilson, *Maneuver and Firepower: The Evolution of Divisions and Separate Brigades* (Washington DC: Center of Military History, United States Army, 1998), Chapters 11-13.
24. LAC. RG24 Acc 1983-84/232 Box 137, File S-2510-11-13, ABCA Army Standardization AHQ Combat Development Committee Studies, 1965-1972.
25. For details of the trials and tribulations affecting army senior staff, see Douglas Bland, "Institutionalizing Ambiguity: The Management Review Group and the Reshaping of the Defence Policy Process in Canada," in *Canadian Public Administration*, Vol. 30:4, (Winter 1987), pp. 527-549.
26. Fort Frontenac Army Library. Army Capability Development Historical Collection. Mobile Command Headquarters Annual Historical Reports 1975-76.
27. Major D.A. Gronbeck-Jones, "The Combat Development Process in the Canadian Army", pp. 25-26.
28. DND. 3189-2 (VCDS) NDHQ Study Directive S 3/78, Land Combat Development Studies, dated 9 June 1978, p. 2.
29. This approach was criticized by some members of the land staff in the late 1980s for being "too focused on the dream of sustained operations against a sophisticated enemy" and too ignorant of the constraints and restraints imposed by what some had felt become an overly politicized and bureaucratic DND. For example see Major C.B. Bradley, "Breaking the Mirrors and Removing the Smoke: A Primer for Canadian Army Combat Development," (Kingston: MA Thesis War Studies Program, 1988, unpublished).
30. DND. B-GL-398-000/AG-003 (CFP398). *Canadian Army Doctrine Bulletin*. No.3 (September 1981), No. 4 (January 1982), and No. 6 (March 1983).
31. Major D.A. Gronbeck-Jones, "The Combat Development Process in the Canadian Army," p. 25.
32. DND. B-GL-398-000/AG-003 (CFP398). *Canadian Army Doctrine Bulletin*. No.1 (September 1980).
33. DND. NDHQ Study Directive S 3/78, Land Force Combat Development Studies, 1978-1981.
34. Anon. "The Combat Development Process", *Canadian Army Doctrine Bulletin*, No. 3 (September 1981), p. 15.
35. Fort Frontenac Army Library. Army Capability Development Historical Collection. Mobile Command Headquarters Annual Historical Reports 1984, Appendix 4 to Annex B. Combat Development Coordination Section noted the beginning of production of 26 draft and interim CFPs, including CFP 300 'The Army' and CFP 301 'Land Formations in Battle'.
36. Available unclassified primary sources, as well as the Bradley thesis, provide contradictory views on whether Corps 86 was a purely academic order of battle for staff college training, or an optimized configuration for force generation and mobilization for a war with Soviet Ground Forces Germany. The author leans toward the latter description, although further investigation of other sources is still required.
37. Originally proposed during the original Combat Systems Studies of the late 1970s, the Total Force concept entered the Canadian army lexicon at the beginning of the 1990s.
38. President George H. Bush, "New World Order", speech to House of Representatives, dated 6 March 1991, at <<http://www.al-bab.com/arab/docs/pal/pal10.htm>>.
39. The peace dividend is a political slogan purporting to describe the economic benefit of a decrease in defence spending. It is used primarily in discussions relating to the guns versus butter theory. The term was frequently used at the end of the Cold War in the early 1990s, when many Western nations cut military spending significantly. Canada's primary land force contribution to West German defence, 4CMBG, was redeployed to Canada from Europe in 1992-1993.
40. See DND. CLDO/DLCD Army Combat Development System Study 1996-2005, dated June 1991.
41. Minutes of the 29<sup>th</sup> Army Doctrine and Training Board, March 1991. A fictional narrative entitled *Counterstroke* was published by the Canadian Army during the same year. It discussed a hypothetical engagement between a Canadian mechanized brigade and a Fantasian force on the defensive.
42. Major-General G.M. Reay, "Building An Army That Can Fight," in *Forum: Journal of the Conference of Defence Associations Institute*, Vol. 6:1 (April 1991), p. 10.
43. Lieutenant-General Gervais, "Land Force in Transition: Challenges and Opportunities", in *Canadian Defence Quarterly*, Vol. 21: 3 (December 1991), p. 8.
44. Lieutenant-General J.C. Gervais, "Land Force in Transition: Challenges and Opportunities," p. 8.
45. Interestingly, the term 'General Purpose Combat Capability' originally appeared in DCDS instructions to the Corps 86 Combat Systems Studies teams in February 1979. See DND. 3189-2(DCDS) NDHQ Instruction DCDS 2/79, Land Force Combat Development Study, 16 February 1979, p. 3.
46. *Ibid.*, p. 9.
47. Major-General J.K. Dangerfield, "The 1<sup>st</sup> Canadian Division: Enigma, Contradiction, or Requirement?" in *Canadian Defence Quarterly*, Vol. 19: 5 (April 1990), pp. 7-14.
48. *Ibid.*, p.7.
49. Lieutenant-General J.C. Gervais, "Land Force in Transition: Challenges and Opportunities – Part II", in *Canadian Defence Quarterly*, Vol. 22: 2 (October 1992), pp. 6-11.
50. *Ibid.*, p. 7.
51. Maxime Faille, "Towards a UN Rapid Reaction Capability: A Canadian Initiative", in *Canadian Defence Quarterly*, Vol. 25:2 (December 1995), pp. 13-16.
52. Canadian Army. Land Force Development Process Guide. (Ottawa, March 1996), p. 3.
53. Lieutenant-Colonel Ian Hope, "Misunderstanding Mars and Minerva: The Canadian Army's Failure to Define an Operational Doctrine", in *The Army Doctrine and Training Bulletin: Canada's Professional Journal on Army Issues*. Vol. 4: 4 (Winter 2001-2002), p. 16.
54. Again, the Army Strategy describes *medium-weight* as the exploitation of emerging technologies to achieve the high levels of lethality and protection formerly provided by weight in order to enhance strategic responsiveness and operational and tactical agility. A medium-weight force balances the strong combat power characteristics of a more heavy-weight force, with the strong rapid deployability characteristics of a more light-weight force.
55. Canadian Army. *Battle Group in Operations*, (draft dated April 2005), p. 1.