



## LOGISTICS AND SUPPORT

You may have heard the expression ‘an army marches on its stomach.’ This illustrates how important it is to make sure military forces are supplied – with food, water, fuel, spare parts and weapons/ammunition. History is strewn with examples of fighting forces that moved beyond the ability of their lines to supply them. It usually does not end well.

Popular culture, and the media, focus on the forces that are on the sharp end of fighting, but we often forget the many people who operate behind the scenes to make it happen. There’s an expression in the military about teeth and tails – the teeth are the fighting elements, the tail is the supply and logistics element. The tail is as important as the teeth, although less well recognized. Militaries discuss ‘tooth/teeth-to-tail ratios,’ i.e., the ratio of those who are fighting (teeth) to those who provide support services, such as logistics, signals and ordnance, as well as food, water, spares, fuel, clothing, medical services (tail). Often, the tail is larger than the teeth. The teeth and tails will differ for the services, so they are different for a navy than an army, but the tails still exist. This concept is debated and contrary definitions abound, but it illustrates that there is more to a fighting force than those on the sharp end.<sup>1</sup>

What does the word ‘logistics’ mean? *Collins English Dictionary* defines logistics as “the science of the movement, supplying and maintenance of military forces in the field.” The *Random House Dictionary* defines logistics as “the branch of military science dealing with the procurement, maintenance and movement of equipment, supplies and personnel.” Keeping track of what a military needs, and getting what is needed to where it is needed, when it is needed – even for a relatively small military like Canada has – is a huge job. There are many Canadian Armed Forces (CAF) resources that have to be moved, managed and maintained, and all this involves a financial aspect that also needs to be monitored.

There are both micro and macro levels to look at in terms of logistics and support. Before we look at the big picture of keeping the Canadian military supplied, let’s look at the smaller picture – logistics and support on board a Canadian warship. The Logistics Department in a ship is led by the Logistics Officer who has four section heads who report to him/her on Galley (kitchen) operations, Stores/Supply, Wardroom operations and Finance. The size of the Logistic Department sections varies depending on the class of ship, but usually each section consists of five to seven personnel. As a whole, the department is responsible for a multitude of matters, including the procurement, storing and accounting for all tools and test equipment, provisions, spare parts and clothing. The senior cook oversees the procurement, storage and preparation of all food served on board.<sup>2</sup> This involves ordering and accounting for all the rations, cafeteria service and the operation of galley equipment. The cooks and stewards work in shifts to maintain 24/7 operations and depending on the ship’s routine they prepare up to four full meals a day

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<sup>1</sup> Major General Mrinal Suman, “Teeth to Tail Ratio: An Archaic Concept,” *Indian Defence Review*, no date, available at <http://www.lancerpublishers.com/Maj%20Gen%20Mrinal%20Suman.pdf>.

<sup>2</sup> How do food and other supplies get loaded on to a ship? Heavy machinery cannot always deliver material to the kitchens and storerooms, so how does it get there? Well, in a long tradition, storing a ship often involves a line of crew members who pass boxes and bags along to the next person until everything is in its proper place. It may seem old-fashioned but it works, and is a great team-building exercise!

which are served such that everyone in the watch rotation gets fed. The Logistics Officer is also the ship's finance officer, and therefore responsible for the payment of bills and invoices, for example. Cooks, stewards and Logistics Department personnel also provide operations support on board as members of Casualty Clearing Teams, in the damage control section bases, and as the Chemical, Biological and Radiological Monitoring and Decontamination Teams.

As you can see from this, the Logistics Department in a ship is an important element of a smooth operation. The department provides for everyone – food, parts, finance, materials. But it provides support in other ways as well. For example, in a foreign port the fuel, water and garbage collection needs to be arranged and paid for. If the warship is to host a reception, or any official function, as part of its role in naval diplomacy this is organized and implemented by the department. If a spare part needs to be shipped from home, the Logistics Department can arrange purchase, transport and any paperwork to get it through customs. If a crew member needs to join or leave the ship while deployed, the department can arrange for commercial airline tickets. And, finally, the department is responsible for many morale boosting activities as well – for example, organizing Christmas dinner for the crew of a deployed ship.

Let's move on to the macro-level of logistics and support in the CAF. Keeping track of resources requires vast amounts of information from each service. Imagine just one element – ensuring uniforms for personnel – and you can see that even this one small thing has multiple elements. The military has warehouses to store everything from boots to spare parts for the equipment of the army, navy and air force. If we look only at the navy, there will be information about which ships will be deployed, what maintenance is to be done to the various ships of the fleet, what parts are needed and when, what personnel are available for what ship and when, and so on. While a ship is deployed, someone has to keep track of the supplies they will need (food, water, fuel, weapons, etc.). As well, there will be maintenance reports, and this means that the ship may need parts when it returns to port, and those parts may have to be ordered, and repairs scheduled. On top of this is the question of budgets; parts and supplies have costs and the costs must be kept track of.

So how is all this information to be managed? Vast flows of information are very conducive to computer-based management programs (and in the future, Artificial Intelligence). If data is collected and entered, a computer program can keep track of everything. In 2010, with this in mind, the Department of National Defence (DND) introduced the Defence Resource Management Information System (DRMIS). It combined a financial management system (Financial Management Accounting System (FMAS)) with a system that managed equipment (Materiel Acquisition & Support Information System (MASIS)).

MASIS was created in the late 1990s as a response to a reduction in personnel at DND and increased capability of computers. As happened in industrial processes, the plan was to adopt a computer-based system that managed materiel and enabled fewer people to do the job. MASIS became the main tool used by engineers, maintenance crews and procurement personnel until 2010 when it was integrated with FMAS to create DRMIS.<sup>3</sup> At its inception, DRMIS was mainly a technical and financial system, but in the years since it was formed consolidation of processes has occurred with the inclusion of supply chain information in DRMIS, as well as other business processes including those related to real property management.<sup>4</sup>

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<sup>3</sup> See Department of National Defence media release, "In the News," *Frontline Defence*, 2012, available at <https://defence.frontline.online/news/1235/drmis-resource-management-dnd>.

<sup>4</sup> Public Service and Procurement Canada, "Defence Resource Management Information System: Integrated support services and SIGMA integrated support services – Request for proposal 2," last modified 2019, available at

DRMIS provides information and support for virtually every element of the defence resource and financial process. It replaced numerous computer and paper-based systems. It created a more effective and efficient process which links various elements of the CAF chain from maintenance to accounts. DRMIS allows everyone involved in the life of an asset – a ship, for example – to work within the same system in near real time. If there is a problem with a component which means a replacement part for a class of ships, this information can be entered into the system. The person responsible for buying that part can see the requirement to place an order, and technicians can turn that into a work order. Parts arrive, the maintenance is done and this is entered into the system, where it can be seen all up the line, including auditors and those responsible for the budget.<sup>5</sup> Canada was a leader in developing a system in which even deployed ships could participate.<sup>6</sup>

When a ship is deployed, information fed into DRMIS can let onshore naval repair facilities know about the status of the ship, and any issues that may need to be addressed when it returns to home port. This allows forward ordering of equipment (and some supplies) and planning of necessary repairs – including negotiating contracts with private sector organizations responsible for certain maintenance – before the ship returns. If parts can be ordered in advance, and repairs can be more efficiently scheduled, it is possible to save money and time.

While creating a computer-based system to keep track of all information related to support, maintenance and costs has been helpful, there are a couple of things to note. First, it's one thing to keep track of what needs to be done, it's another to do it. The system can keep track of requirements and order the materiel, but there is still a need for some personnel and capability to do the work. And, in the navy's case, there is still a need for supply/support ships to keep the warships in business while deployed. Second, as with any computer-based information system, the outputs are only as good as the inputs. If information is not kept up to date, or is inaccurate, the system loses its efficacy. Third, like any computer-based system, keeping the system secure is a constant concern. Fourth, while a system like DRMIS has made life much easier on many fronts, it can sometimes be problematic for a simple request to be fulfilled. The system is apparently not very user-friendly, and because of concerns about abuses of the system, there are many layers of forms to fill out. This can be dispiriting for everyone. And we all know the power of NO from a supply person.

There is one final, but important, note. In the years following the end of the Cold War, governments in the Western world wanted to achieve a 'peace dividend' by cutting spending on their militaries. Part of the plan to do this was to relieve the military of some of the support activities it had previously done. The idea was that the private sector could do such things more efficiently and cheaply. This means that a lot of military support programs were outsourced to private companies – from meal preparation to equipment maintenance to training to security. Whether this was a good idea, and whether it has saved money, is still up for debate. But the bottom line is that some of the support 'tail' is now done by private sector organizations for the military. This trend will probably continue in the future. As the military adopts more high-tech equipment, for example unmanned and/or autonomous vessels, private sector support will

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<https://www.tpsgc-pwgsc.gc.ca/se-fm/2016/avril-april22-2016-eng.html>.

<sup>5</sup> See Department of National Defence media release, "In the News," *Frontline Defence*, 2012, available at <https://defence.frontline.online/news/1235/drmis-resource-management-dnd>.

<sup>6</sup> This capability received international attention, and now Canada is part of a 17-country coalition called the Defence Interest Group (DEIG) that shares information regarding implementations of Systems, Applications and Products (SAP) in support of defence operations.

increase, with in-service maintenance contracts given to the company that produced the capability, as well as training and sometimes even operation of the equipment. This private sector involvement may complicate the logistics of the military – hopefully we won't find out there's a problem in the midst of a war.

Like the other military services, navies are hostage to logistics and supply lines. Navies often operate far from local supplies. Naval ships need to have food and water for their crews, but also fuel and spare parts for the ships. Fuel is a huge requirement – without fuel a ship cannot move. And, as noted in an earlier Briefing Note, gas stations are hard to find on the open oceans. The Royal Canadian Navy (RCN) has agreements with allies and friends for refueling, and the arrival of one (interim) support ship has helped alleviate some problems with fuel supplies. When the Joint Support Ships join the fleet, they will help augment the RCN in its operations.

The bottom line is that the popular conception of fighting forces gives only half the story. The fighting forces entertain and thrill us in the movies, but what we don't see in the movies is the long tail behind them that keeps them going. Logistics, supply and support are key elements of the CAF.