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Contemporary amphibious logistics operations

Captain Jay Bannister, RAN
Commander, Australian Amphibious Task Group¹



Australia's developing amphibious task group will have significant logistic capacity. Logistics, however, can be an enormous challenge for an amphibious force and the logistics plan must be flexible and responsive to the landing force scheme of manoeuvre. Sea-basing, embarkation, disembarkation, sustainment at sea, biosecurity, health and other logistic challenges are discussed.

Key words: amphibious logistics; sea-basing; embarkation; disembarkation; sustainment; biosecurity; health support.

In this paper, I shall discuss logistic concepts in the amphibious environment and the many logistic challenges associated with supporting an amphibious force. First, though, I shall provide some context on how the Australian Defence Force (ADF) intends to employ its amphibious force.

Australia's Amphibious Force

The amphibious warfare spectrum is wide ranging from hard kinetic type operations such as assaults and raids, to military support operations including humanitarian assistance and disaster relief (HADR), non-combatant evacuation operations (NEO), and defence aid to the civil community (DACC).

We are about to undertake a step change transition in the amphibious force, particularly as it relates to shipping, and the huge amount of equipment and troops embarked therein. Over the last 18 months, the ADF has made great inroads in the transition from a force based on a landing platform amphibious (LPA) with an *ad hoc* landing force, towards a standing joint force that can be increased/decreased in size (*i.e.* is scalable) and in the very near future will be based around the amphibious assault ship (LHD). That work has principally been achieved through a number of lines including:

- improved command and control structures and training within those structures of the Amphibious Task Group (ATG) and the 2nd Battalion, Royal Australian Regiment (2RAR);
- development of joint mission essential task lists – those fundamental tasks relevant to amphibious operations;
- development and testing of collective training regimes;
- the integration of 2RAR Landing Force elements with HMAS *Choules*, the landing ship dock (LSD);
- the integration of Army's 5th Aviation Regiment air assets with *Choules*; and

- continual development of tactics, techniques and procedures around operating the amphibious task force.

The development of the logistic plan is but one of those plans that continues to be developed. It includes a standard amphibious support order that includes aspects such as finance, mortuary affairs and health support. I believe we continue to make good progress towards a fully operational amphibious force by 2017.

The core of the amphibious force consists of a number of amphibious ships and the embarked force. The embarked force comprises a joint command and control element; an intelligence, surveillance and reconnaissance team; the ground combat element; a logistic combat element; a rotary wing detachment; and navy elements. Depending on the mission and the environment, the amphibious force may be supported by special forces, naval escorts and support ships, additional organic and land-based aircraft, and other joint enablers.

While the force is scalable and flexible, there are two baseline amphibious capabilities for planning purposes:

- the Amphibious Ready Element (ARE), based around 1 x LHD; and
- the Amphibious Ready Group (ARG), based around both LHDs and supported by the LSD *Choules*.

Amphibious Ready Group

The larger ARG is capable of the full suite of amphibious tasks in a hostile environment. The size and complexity of this force dictates that it will be held at a longer readiness notice and is a much more complex logistic problem for the Amphibious Task Force, the supporting maritime force and the joint logistics chain.

The landing force is likely to include: infantry; armour; artillery; engineers; armed reconnaissance, lift and mobility helicopters; intelligence, surveillance and reconnaissance elements; logistic and health support. This large ATF will also require escort and support ships, as well as land-based aircraft in support. This force will be capable of responding to strategic shaping, crisis and contingency responses. It will have the capacity to open

¹E-mail: jay.bannister@defence.gov.au

multiple points of entry as a precursor to a wider joint campaign or conducting independent amphibious operations, such as raids, assaults and demonstrations in support of a wider campaign. Clearly, given the capacity for maritime manoeuvre, the ARG is the most credible land force able to exert influence across the archipelagic environment in our region.

Amphibious Ready Element

The smaller ARE amphibious force, while possessing less combat power, is still capable of the full range of amphibious tasks. The ARE, however, will be at a much reduced notice (*i.e.* must be ready sooner) to provide a ready force to conduct strategic shaping, crisis and contingency response in an uncertain threat environment.

The ARE is based around a single LHD. Still with an integrated joint command and control structure, it will comprise a scalable landing force with the commander of those forces commanding one or more combined arms combat teams with associated air, ground, intelligence, reconnaissance, surveillance, and logistic enablers. Depending on the mission, escorts and support ships, land-based aircraft and other joint enablers may be in support. It might also include an enhanced health capability.

In 2013, components of the ARE were taken through a newly developed joint mounting, collective training and certification period in *Choules*. Whereas previously forces had prepared predominantly in isolation with no certification before coming together for joint training, this cycle will raise the joint amphibious force to a level where they are certified to meet government-directed requirements, or to progress through to mission specific training. The ARE, embarked in HMAS *Canberra*, will go through this training and certification in 2015.

As part of the joint certification conducted in 2013 for the newly formed ARE, a block training structure was trialled for the continued development and certification of the amphibious force. This training was designed to test different aspects of the ARE and was modelled on the 'crawl, walk, run' philosophy. It was significant as this training had not been conducted to this scale by the ADF previously. The trial presented both challenges and opportunities for development of the joint force.

Block One, which was further separated into three phases, was the entry level activity and focused on the basic development of the capability of the ARE. Block One Phase One was a specifically designed command post exercise to test the planning function of the headquarters in a simulated environment away from the ship. Block One Phase Two was a non-tactical, amphibious training activity targeting over ramp and beach driving training for drivers from units assigned to the ARE landing force. While both activities were deemed successful, it highlighted a number of aspects for improvement and provided a much needed starting point for the remaining block training. Block One Phase Three was a pre-landing force concentration period, bringing together the landing force reconnaissance and snipers

and the maritime elements, including clearance divers and deployable geospatial teams. This was a skills sharing and task delineation activity, followed by a tactical phase where intelligence, surveillance and reconnaissance battlespace management concepts were designed and proven.

Block Two was the first time that the entire ARE joint force came together for a tactical exercise. Commencing with combat enhancement training and force integration training, the exercise was also utilised to generate and confirm standing operating procedures for the ARE. Block Two also saw concepts put to the test that had only been planned previously, including the deployment of the pre-landing force, the execution of a non-combatant evacuation operation from the sea, security and stability operations, and raids.

Block Three, the culminating activity for the year, was a joint exercise led by the Deployable Joint Force Headquarters and focused on the planning and conduct of amphibious contingency missions, such as raids, tactical recovery of aircraft and personnel, and joint force entry operations. The exercise was conducted within the Exercise Talisman Sabre 13 scenario.

Amphibious Force's Logistic Capacity

I now want to touch on the enormity of the logistic challenge for the amphibious force. The future force will contain significantly more amphibious shipping than did the former force based on the Kanimbla-class landing platforms amphibious and the landing ship heavy, HMAS *Tobruk*. It is notable that the future shipping will have 3.5 times the linear metres (a unit of measurement for vehicle space) of the old shipping. The difference between the new embarked force and the former one is similar in magnitude.

Let me try to put this amphibious capability into context so that you might gain an insight into the enormity of managing the logistics, but also to appreciate what this amphibious force can provide towards military support options such as humanitarian assistance and disaster relief. In a single move, *Choules* alone can transport a total load of up to 26 M1A1 main battle tanks, about 70 light vehicles and over 200 tonnes of ammunition, an amount equivalent to 75 C-17 Globemaster or more than 180 C-130 Hercules transport aircraft loads. Similarly, an LHD equates to 156 x C17s and 375 x C130s; and the total ARG to 387 x C17s or 930 x C130s.

Perhaps you think I am being a bit disingenuous as clearly air will get there quicker. So let us say the destination was 12 days steam for our amphibious task force, a distance that the C17 might cover in a single leg. The LSD (*Choules*) would arrive in 12 days with equipment that is combat ready to be employed as soon as it is unloaded. If we could use four C17s to move this cargo and assuming they could generate the necessary rate of effort, it would still take them 52 days to deliver the stores. One would also have to assume that the planes had permission to overfly countries en route and host nation support in the receiving nation, which would also need an airfield suitable for strategic airlift.

As just mentioned, unique to amphibious operations is that equipment is delivered in the combat configured state, ready to go out the gate, or off the line-of-march. This is not the case with our normal logistic chain. If those elements were to be air or sea lifted, they would arrive in a warehoused state and you would then have to add a good period of time for reception, staging and integration into a force that you would have had to establish on the ground in advance.

Sea-basing

In terms of the entry operation, modern thinking has moved away from a static lodgement and subsequent build-up of combat power and equipment at a beachhead prior to breaking out. Modern thinking in amphibious warfare is more centred around distributed manoeuvre, aiming for high mobility and rapid tempo manoeuvre focused directly on the objective, or multiple objectives. Beaches become littoral penetration points, secured and operated only as long as necessary to enable manoeuvre.

This approach will typically aim to maintain a sea-based logistic approach, drawing on the resources within all shipping and aiming to minimise the footprint ashore. This approach requires a networked fires and robust command and control capability for strong coordination. Clearly, in a permissive environment and when undertaking military support operations, many of these challenges should be easier to manage, but they still require a high level of coordination.

We have very little experience in such concepts and indeed the landing force will struggle with the limitations imposed by the reduced sustainment in the ATF and an irregular logistics chain. It will take some time, and perhaps operational experience to truly explore the capabilities and limitations of this concept, and understand the true benefits of sea-basing.

Embarkation

So how do we get all the equipment to the area of operations (AO)? There are essentially two variations to loading ships: tactical stowage, or administrative stowage.

Administrative stowage aims to load and maximise space with no, or minimal consideration to the order of how it would be unloaded. This is essentially a sealift task, something that commercially-contracted shipping could probably do cheaper than utilising amphibious ships.

Tactical stowage is driven by the off-load requirements, that is, the land force commander's scheme of manoeuvre ashore in the AO, be it in a hostile environment or a military support operation such as providing humanitarian assistance or disaster relief. During the tactical unload, or ship-to-shore movement of troops, equipment and supplies by organic air or surface craft, it is vital that cargo is delivered ashore at the prescribed time, at the correct location and in the sequence required to support the land force commander's scheme of manoeuvre. So in order to ensure that the load

configuration supports this we need to ensure the ships are loaded in the correct sequence at our point of departure.

This works well in a deliberate and planned deployment though how often would we do this? Not very often I would put it to you, particularly during a crisis. Typically, amphibious operations planning continues after the amphibious task force has sailed and therefore the landing plan continues to evolve. It might subsequently be further adjusted should a rehearsal be conducted. For this reason, we aim to only load amphibious shipping to 80 per cent capacity to enable a tactical re-stow *en route*. Our adherence to this doctrine, though, has not been good traditionally – as history shows, we sail to the gunwales with equipment and subsequently have limited ability to move equipment around at sea.

It often seems that the landing force can never bring enough equipment, which is understandable given the typical combat power they would seek to generate in a conventional land environment. Hopefully, with the much larger capacity in the future the ARG, we can be more disciplined in this regard, but I fear that stakeholders will seek to challenge this most times.

As an example, a tactical re-stow occurred as recently as category 5 tropical cyclone Ita when the landing force was already embarked in *Choules* during an exercise off North Queensland in April. The ARE was put on notice and was poised to support civilian emergency services if the need arose. Our load configuration was not ideal but the team was able to undertake a tactical re-stow at sea to ensure we had access to the right equipment to go ashore and provide immediate aid to the community. As it turned out, the cyclone damage was not as severe as anticipated and the Queensland emergency services had the capacity to deal with it.

Disembarkation

Moving troops and equipment ashore in a tactical environment is a hugely complex and resource intensive task. Whilst there are numerous methods to conduct the ship-to-objective manoeuvre, the quickest method will always be over the wharf. However, in environments where that is not possible, such as when port infrastructure is damaged or the hydrographic environment is uncertain or not conducive for berthing alongside, or the security situation simply does not allow, organic air and surface lift can be utilised. The LHDs with their four embarked landing craft can move significant amounts of equipment. Supplemented by embarked air lift, the logistic offload is very flexible. *Choules*, with her embarked landing craft and helicopter deck, has additional capability with its 'mexeflote', a series of self-propelled pontoons capable of shifting very large amounts of stores, albeit in fairly benign conditions.

Sustainment at Sea

Within a wider campaign, the amphibious operation may be supported by a joint logistic plan utilising an integrated air, sea and land lift plan that reaches back into the national support base. In such cases, the

operational logistic plan must be heavily influenced by the requirements to support the ARE.

Sealift of stores equipment will typically be undertaken by non-amphibious shipping be it naval auxiliaries or commercially-contracted vessels. Potentially the LSD may be employed in a follow on sealift task depending on the logistic flow requirements.

Across the amphibious spectrum of operations in the maritime domain, there is the scope to poise, or indeed simply to be deployed for extended periods. During a protracted operation or at a distance from the national support base, direct support from naval sustainment shipping will be integral to the operation.

The ability of ships to remain at sea for extensive periods is well practised. Indeed, as recently as last April, the Royal Australian Navy task group involved in the search for Malaysian Airlines Flight MH370 remained at sea for 5-6 weeks with the support of auxiliary sustainment shipping.

In 2006, as commanding officer of the landing platform amphibious, HMAS *Kanimbla*, and in company with the frigate *Newcastle* and the replenishment oiler *Success*, I remained at sea for 6 weeks in international waters prepared to conduct operations in Fiji should it have been required. This capacity to maintain presence, however, does require supply ships to conduct port logistics visits to collect food, fuel and consigned cargo for the task group, and not unusually take the task group's rubbish back to a port, one of the more unpleasant tasks for them.

Biosecurity

These days, biosecurity is a major challenge for any operation overseas. It is a major overhead that consumes significant resources to meet Australian Quarantine and Inspection standards. As you can appreciate, anytime we put equipment ashore, be it helicopters into a landing zone or vehicles over the beach and into the hinterland in an overseas location, they are exposed to foreign hazards. The re-embarkation of that equipment and the personal stores of the landing force, and the potential for contamination of the amphibious shipping, will require careful consideration during the logistics planning phase to ensure there is a robust plan to deal with those issues.

Specialist Capabilities and Equipment

Most of these logistic principles I have touched on will apply across the spectrum of amphibious operations. If prior planning allows, the load plan will include specialist equipment to support the operation. Examples of this might include water purification plants or field hospitals for a humanitarian aid or disaster relief mission, or special forces capabilities for an uncertain or hostile non-combatant evacuation. Irrespective, the logistic principles are broadly similar in terms of supporting the execution of the amphibious operation once in theatre. We must keep in mind, though, that once the amphibious group has sailed, it is too late to remember we left a vital bit of equipment behind that is essential for the initial amphibious lodgement.

Health Support

One of the unique capabilities of the LHD will be its health capability, inherent with its own unique logistic challenges. With two operating theatres, a 6-bed resuscitation unit, both high and low dependency wards, radiography, pathology and pharmacy, this is the most capable medical care asset since World War II. However, it is only as good as the people that we man it with, this alone being a challenge for the ADF.

It is important to note though that the principal role of this capability is preservation of our own forces. Further, it is not intended for long-term patients. The moving of casualties from the point of wounding to the LHD for stabilisation and potential emergency surgery, before their subsequent tactical aeromedical evacuation to a tertiary level care facility or strategic aeromedical evacuation to Australia, is another tough logistic challenge for the force. While doctrine development in this space progresses well, there is some way to go to develop the capability.

The use of this capability during a humanitarian aid or disaster relief operation could be quite broad. Force preservation would take primacy, however the health practitioners might support those agencies on the ground, be they military or civilian. As to whether the LHD facility would be used for the local population, this would need to be a unique determination for each operation.

Conclusion

So in summary, it is vital that the amphibious logistics plan is flexible, mobile and responsive, to meet the landing force scheme of manoeuvre during any amphibious operation. If part of a wider campaign or enduring operation, the joint logistic support plan must enable the amphibious task force to function effectively.

Amphibious operations are renowned for being one of the most complex military processes, if only perhaps because of the logistics challenges. The logistics support plan, though, is fundamental to the very independent nature of amphibious task group operations.

If we are to enjoy success in an amphibious operation, bringing the logistics plan together, both at the tactical and operational level, is a significant challenge. A robust logistic plan will be essential to an effective operation.

The Author: Captain Jay Bannister is Commander of the Australian Amphibious Task Group and Fleet Battle Staff. In an amphibious operation or exercise, he commands the Amphibious Task Force. He attained dual specialisations as a Mine Warfare and Clearance Diver, and as a Principal Warfare Officer – Surface Warfare. His sea service included commands of the coastal minehunter, HMAS *Gascoyne*, and the landing platform amphibious, HMAS *Kanimbla*. He recently commanded the training establishment, HMAS *Watson*, and was the training authority for maritime warfare. In 2013, he deployed to the Middle East as the chief-of-staff in the Australian National Headquarters. [Photo of Captain Bannister: Colonel J. M. Hutcheson, MC]