NZ ARMY
NGATI TUMATAUENGA

SUSTAINER

AUGUST 2010

Professional journal of New Zealand Army Logistics: equipping and sustaining the NZ Army to be world class, operationally focused and equipped to win.

ARMY SUSTAINER

Professional Journal of New Zealand Army logistics,
Equipping and sustaining the NZ Army to be World class, operationally focused and equipped to win.

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Mission: Army Sustainer is the professional journal of NZ Army Logistics, published quarterly by Headquarters Logistics Command (Land), Trentham. Its mission is to publish information on Army and Defence logistics plans, programs, policies, operations, procedures and doctrine that contributes to the professional development of military and civilian logistic personnel.

Disclaimer: Articles express views of the authors, not the New Zealand Defence Force or any of its agencies, and do not change or supersede information presented in other official NZDF publications. The masculine pronoun may refer to both genders.

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ON THE COVER

Recently introduced into service Crane Palletised, Vehicle Mounted

The Crane Palletised, Vehicle Mounted provides a crane system capable of lifting and handling NZLAV power packs and turrets as well as being capable of loading and unloading NATO pallets.

The crane is a knuckle boom type manufactured by Effer Cranes, Italy and mounted on a NZ designed and certified pallet. The crane is self powered and vehicle mounted, (primarily the Unimog U1700). Some varients are fitted with hydraulic winches to facilitate the accurate vertical lifting of LAV turrets and power packs.

This medium is approved for the official dissemination of material designed to keep individuals within the Army Logistic Community knowledgeable of current and emerging developments within their areas of expertise for the purpose of enhancing their professional development.

C.A.S Lott MNZM
Col

COMMAND EFFECT

INTRODUCTION TO ARMY SUSTAINER

Welcome to the second edition of **ARMY SUSTAINER**.

ARMY SUSTAINER is the Logistics Commander (Land) portal for Army Logistics into the wider RNZALR.

ARMY SUSTAINER has several goals:

- Provide a centralised portal for current information on Logistics Command (land),
- Provide a forum to ask questions of Logistics Command (Land),
- Provide a forum to express new ideas or concepts,
- Provide a forum for papers written as part of professional development,
- Promote the understanding of the work undertaken by Logistics Command (Land).

ARMY SUSTAINER is structured into the following areas;

COMMAND EFFECT
Command Effect is HQ Logistics Command (Land) forum to pass on any messages, news and developments.

RNZALR FWD
RNZALR FWD is a summary as at the time of publication of where RNZALR personnel are deployed to.

ARMY LOG BRANCH UPDATES
This is the forum for the branch heads of Army Log to pass on messages, news and developments within their respective areas. The branch pages are linked to the respective branch web pages.

STAB UPDATES
Each trade Senior Trade Advisory Board (STAB) has dedicated space to inform not only the respective trade community but also the wider Logistic community and Army on current issues, events and initiatives. These pages will be linked to the respective trade web page.

SPOTLIGHT
SPOTLIGHT is a feature which focuses on an activity, unit or individual.

REGIMENTAL MATTERS
REGIMENTAL MATTERS is a round up of any RNZALR Regimental events, such as Banner parades or Sports events.

FROM THE PIPELINE
FROM THE PIPELINE provides a forum for individuals to write articles expressing personal views on any logistic related topic. FROM THE PIPELINE will also feature articles of interest from other Logistic and Military journals and periodicals. Given the length of some articles, an abstract of the article will be published, and a link provided to the full article. The views expressed in FROM THE PIPELINE are the views of the individual author and are not necessarily representative of official policy.

FORESIGHT
FORESIGHT is a feature of ARMY SUSTAINER intended to present researched, referenced articles, such as Defence papers and articles typical of a scholarly journal. Given the length of some articles, an abstract for the article will be published, and a link provided to the full article.

FEEDBACK & MESSAGE BOARD
FEEDBACK is a feature of ARMY SUSTAINER intended to allow individuals to provide feedback and discussion, and to list any messages on Logistic matters.

COMMAND EFFECT

LOGISTICS COMMANDER (LAND) MESSAGE

COL C.A.S LOTT MNZM

Logistics Commander (Land)

Regimental Colonel RNZALR

Since I last wrote in this journal in May significant change has occurred. On 1 July the Defence Logistics Command (DLC) stood up preceded by our COMLOG, Air Cdre Peter Guy 'roadshowing' the DLC and its ambitions. I can say that on standing up the DLC we met the expectation that service to you at the front did not stumble even though on that day Lockheed Martin Global Incorporated (better known to you guys and gals as LM) also took up the reigns in providing depot level support here in Trentham and support to operations in Waiouru. Again despite feverish activity in the lead up to the transition (remember we were supposed to have six odd months to transition but really only had four) we collectively breathed a huge sigh of relief when SA 1977 went live. In retrospect 1 July was a huge day in the Land Logistics environment and I am pleased to report that we have moved on again from that. As we edged towards 1 July, my team were preparing for a 'train smash' but in true land logistics form we managed to re-set the points on railway and the two trains passed each other!

COMLOG's Logistics Leadership Board (LLB) has met twice to direct and control the transformational changes needed to bring about "simpler, smarter and better logistics) and resulting from, that I met with my RNZAF oppo – Gp Capt Adrian (Sid) Collins to draw up a Heads Of Agreement between the logistics arms of the two Services to see where we might share our resources and your thinking and see if we could work together to achieve some of the benefits desired by the DLC. This has resulted in mutual visits by the Ohakea and Linton based loggies and Air placing two Optronics Techies in 2 Wksp Coy to assist with a backlog of tasks as 2 LFG prepare to mount their commitment to Ex HAMEL. It is this kind of approach that we need to embrace if we are to make changes to ensure that we as land logisticians are shaped for and relevant to the future. It is great to work with the Col (E)'s in the DLC as 'mates' where we all want to get on and make the DLC stand out as having delivered on its expectations for our 'senior sirs' and make things simpler... smarter...better.

On the ALTP front, the EEMMA programme is progressing, with notable successes being the LIA/ CES enablers being rolled out, the MFU pilot progressing (albeit with some challenges in the planning and forecasting department) and the LM/Army joint development of the IEDD Performance Based Logistics (PBL) project charter and the MFU (Enhanced (E)) programme charter. Add to this the recent delivery of the Knuckleboom Cranes (shown on the cover), the imminent delivery of the HET's and the deployment of the DSF and fuel distribution systems and we are starting to get up to where we should be in terms of our ability to support ops.

One of the lessons I have learned however, is that in not resourcing the TESSCA part of the ALTP, I have let an opportunity slide by. The TESSCA programme was all about addressing the Training Education, Sustainment, Succession and Cultural side of our business and as I have now been advised by a couple of your STAB's (and the formation of the STAB's was probably the best thing we have done) we have some serious knowledge, skill and experience issues to address (and we will). More on how we will do that next issue. Suffice to say that we are working with the STAB's and subject matter experts to identify how we can improve the PUT/supervisor ratios so that our personnel under training get the maximum benefit from their training. I have to say it is all very

well addressing the systems side of our business (and that is what the EEMMA programme is all about, but if you don't get the people side sorted at the same time you end up with an unbalanced logistics model – and that is what we have right now. To meet CA's intent with regard to '*fixing logistics hollowness*' you can expect to see parts of the TESSCA programme 'arcing up' in 2011.

Like all of you I was deeply saddened by Lt Tim O'Donnell's death. I guess his passing really reminds us that we are involved in a deadly business where there is no front line and where we as logisticians are just as vulnerable as our combat and combat support fellows and fellowesses. I am reminded of a quote from the precious Director of the Royal Logistics Corp when he visited last year – he said to me based on the RLC's experience in Afghanistan, "*Charlie - protect your logistics or you* ***will*** *lose it*". It is something we must now start to look seriously at from a Regimental perspective and though some scoff at the term Combat Logistics Patrol (CLP), in reality a CLP is a J-3 event to achieve a J-4 effect. I was very heartened to hear from RSM 2 Log that in his opinion all RNZALR section commanders should be competent on all small arms and most support weapons and calling in offensive support – and that 2 Log and 3 Log are actually doing it. Who would have thought that even five years ago!

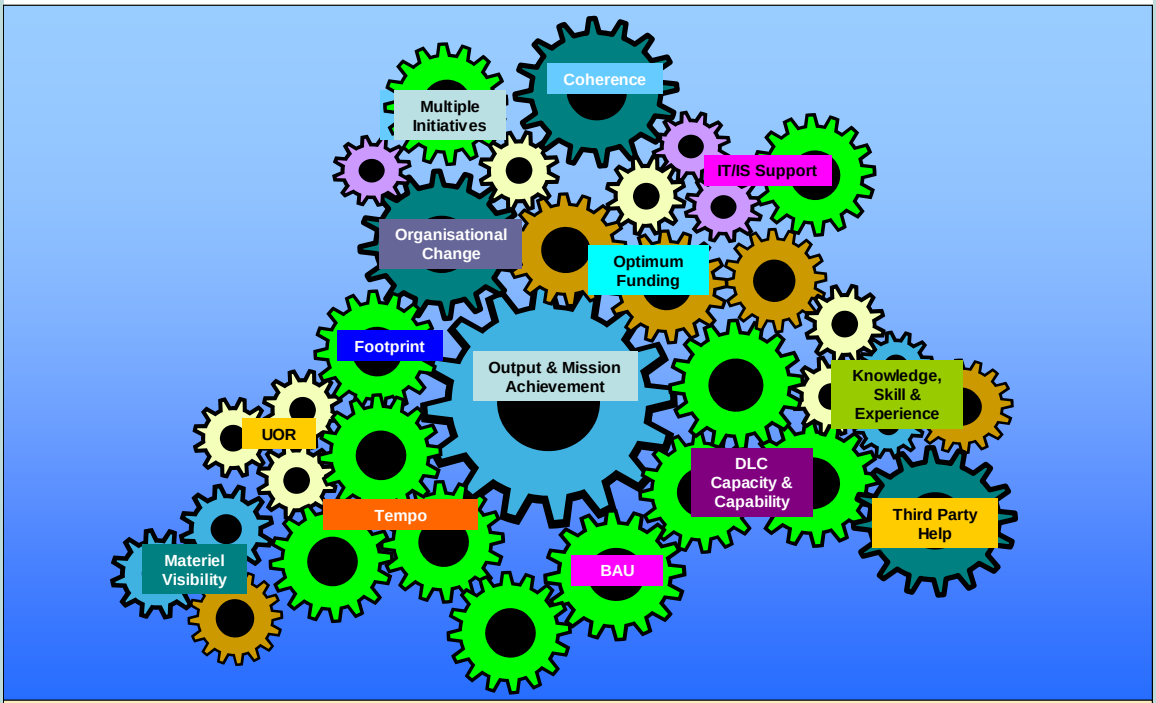
Again in this issue you will find updates from our line logistics organisations, some personal perspectives and some topical articles. On your behalf thanks to WO2 Rob McKie for his editorial efforts – putting together "Sustainer" is done in addition to his day job. I would also like to recognise those who contribute to this journal – again contributions are done in addition to BAU, and that you take time to do so is indicative to your commitment your profession.

Finally a quote for you:- During the Battle Of Waterloo, the Duke of Wellington refused permission to shoot at Napoleon saying "*it is not the business of generals to shoot one another*". Hmmm.

All the best – keep up the *Sustained* effort.

Col Charlie

THE NZDF LOGISTICS ENVIRONMENT GEARBOX



A Gearset of Strategically Aligned, Interconnected, Cost & Value Streams To Better Meet Outputs?

"Ever thought about how much change is going on in Defence Logistics? This diagram depicts the impacts on us as logisticians. At the centre is our support to operations yet making that central gear turn are all the other things that impact on us. Like any gearbox - and if you are unsure how one works ask one of your MS mates, if one of those gears gets damaged, doesn't get lubricated or for whatever reasons stops turning, the whole shebang grinds to a halt. I liken our work as the oil (people, money etc) that keeps those gearwheels turning all-the-while supporting our teams on operations doing a dangerous job in dangerous parts of the world. Food for thought.

COMMAND EFFECT

ADAPTATION

Major James Marr

Yesterday, I had the privilege of being able to join the family, friends, colleagues and other members of the wider military whanau in saying farewell to a young man that had, in the short time that I had known him, become a friend. Lt Tim O'Donnell was killed last week when his mobile patrol was ambushed in Bamiyan Province, Afghanistan. Tim came to work for me in Bn HQ, 3 Log Bn whilst I was the acting CO in 2008, but this is not the reason that I have chosen to open this short article in this manner, rather, it is to make a very real, painful and costly linkage between what we do on a daily basis and the events that unfolded in Afghanistan last week that led to Tim's death.

It's quite simple folks, we are facing a very determined, ruthless and real enemy who fire real bullets, detonate real IEDs and conducts real ambushes in an attempt to kill as many of our number, including those serving with our coalition partners, as possible. Until last week we had been lucky. It would be foolish, however, to think that last week it was the enemy who got lucky; the enemy do not rely on luck – they watch and learn, adapt after failure, look for weakness or routine and then exploit with devastating effect. It has been 10 years since we last lost a serviceman on operations and, sadly, the realities of war have once again struck home.

In his recent guidance on COIN operations in Afghanistan the newly appointed COMISAF, General David Petraeus, has provided us with clear direction based on sound, tried and tested, population-centric COIN doctrine:

"*Secure and serve the population...live among the people...help Afghans build accountable governance... identify corrupt officials...be a good guest...promote local reintegration*" etc.etc.

All good stuff and, based on his success in Iraq, I have no doubt that Gen Petraeus will have a lasting impact in Afghanistan. But don't sit back and think that this alone will resolve the issues, it won't; there remains an enemy that must be defeated and this fact is also recognised by COMISAF and he is quite clear about what needs to be done:

"*Pursue the enemy relentlessly. Together with our Afghan partners, get our teeth into the insurgents and don't let go. When the extremists fight, make them pay. Seek out and eliminate those who threaten the population...Fight hard and fight with discipline. Hunt the enemy aggressively, but use only the firepower needed to win a fight. We can't win without fighting, but we also cannot kill or capture our way to victory*".

So what? My point is we must not lose sight of the fact that as tradesmen and women we must be able to not only participate in the fight but also be capable of winning and surviving it. More importantly, however, is the need for us all to be able to learn and adapt. It will be a mistake to simply take on as our own TTPs that we have borrowed from our American or British counterparts; they are a useful starting point for us but that is all they should be. We must learn and adapt from the experiences we gain from within our own AO as well as listening to and sharing experiences with others. We should not accept TTPs unquestioningly during our routine training, during PDT or whilst on operations – just because they worked on the last mission doesn't necessarily mean they will on the next. If something doesn't seem quite right make a recommendation. We must, must, must ensure that only the very best of our number are entrusted with the training of our soldiers, whether at unit level or as part of NZCTC; we must ensure that those returning from operations share their experiences and we need to start thinking about how best to provide realistic training that better prepares our soldiers for war. Over the last few months 3 Log Bn has been learning, we are trying to introduce a more contemporary feel to all of our training. It is pleasing to see that during my 2 ½ years in the Bn, training at all levels is moving more and more towards preparing our soldiers for operations in the COE. Over the next few weeks the Coys will be

undertaking their own training in preparation for Ex SOUTHERN MUSKET (a land enabler exercise to prepare 3 LFG's CATG(L) and HRC for evaluation on Joint FTX SOUTHERN KATIPO in 2011): 3 Tpt Coy (along with their colleagues from 10 Tpt Coy) will be participating in Ex WINTER LANCASTER, 3 CSC are currently deployed on Ex TUCKER and Ex VIRGO and 3 Wksp Coy will be deploying on Ex CRAFTSMAN's PRIDE 2; all three exercises culminate with a live field firing package at Tekapo. During Ex SOUTHERN MUSKET it is our intent to try and provide those soldiers deploying as part of the CSST with some idea of what it is like conducting operations out of a secure base or FOB. We will push the learning process further forward by introducing some teaching on Combat Logistic Patrols in support of an all arms deployment, by conducting foot patrols with civilian police through urban areas, by conducting projects in support of the local population. A lot of this training will require a change in mindset for many of our soldiers, young and old, who have been used to deploying into the middle of a field to sit and wait beneath their camouflage nets for the 2nd Musorian Expeditionary Army to come steaming over the horizon in their T72s armed with AK47s and bottles of Smirnoff (need to remain cognisant of why we have the Musorians though!!!); whilst we must retain the ability to plan and conduct ourselves within a 'traditional' war-fighting framework we must also be flexible enough to deal with the evolving environment that we currently find ourselves operating within. Ex SOUTHERN MUSKET is the starting point for this 'adaption'.

So, back to Tim. Tim didn't die because he or any of his soldiers did anything wrong, their luck simply ran out; the enemy, it could be argued, learnt and adapted faster than we did. Now, right away, let us all very quickly take on board what has happened, mourn for the loss of our friend and colleague, but not let his loss be fruitless – lets learn and adapt in order to survive and defeat our enemy.

Major James Marr is currently the Officer Commanding 3 Workshops Company in Burnham. After 16 years service in the British Army he transferred to the New Zealand Army where on arrival he was posted to 3 Logistics Battalion RNZALR as the Second-in-Command. After just 3 months, Major Marr found himself taking the reins as acting Commanding Officer for 5 months prior to moving to his current position. His previous experience includes working on the staff at HQ ACE Rapid Reaction Corps, HQ 1st (United Kingdom) Armoured Division and as Officer Commanding of a DROPS equipped Close Support Squadron responsible for the provision of CSS to a mechanised brigade. He has served in the UK, Germany, Cyprus, Falkland Islands, Kuwait and Iraq.

Equipment Care Publications

NZ Army (NZDF Intranet)

NZ P92— ***Guide to equipment Care in the New Zealand Army***
http://reference/army-publications/NZ%20P92/P92.pdf

Soldiers Five—*A quick look at equipment husbandry & developments*
http://reference/army-publications/Pages/Magazine/soldiers-five.aspx

External Publications (Internet or Camp Libraries)

PS, The Preventive Maintenance Monthly— *a monthly United States Army Magazine published since June 1951 to illustrate proper preventive maintenance methods with comic book style art*

KIT Magazine—The British Army quarterly guide to equipment care in bit size chunks
http://www2.armynet.mod.uk/armysafety/kit_mag.htm

Members of the RNZALR are currently deployed to the following countries

1. EGYPT
2. TIMOR LESTE
3. SOLOMONS
4. AFGHANISTAN
5. DUBAI
6. CANADA
7. UNITED STATES
8. SOUTH KOREA
9. CHINA
10. UNITED KINDOM
11. TONGA
12. AUSTRALIA

NEW ZEALAND ARMY MOVEMENT OPERATORS TO CONDUCT TRADE MODEL REVIEW

The Movement Operator Trade is conducting a review of its current Trade Model. The trade is looking to the future of Movements support to the NZDF for the future. In this busy, complicated and operationally focussed time for the NZDF. Movement Operators (Mov Ops) are a scarce, highly skilled and regularly sourced resource as NZ projects forces overseas and domestically on operations or exercises. The time to review the Trade Model couldn't be more appropriate as such a review hasn't been conducted for over ten years. The review comes at time of continued operational deployment and the introduction into service of a number of new platforms, for example HMNZS Canterbury and the NH90 Helicopter. These new platforms and other new NZDF equipment purchases are going to require Mov Ops to be as highly skilled as ever.

Conducting this review on behalf of the Movements Senior Trade Advisory Board (STAB) is a small and experienced working Group under the guidance of the Officer Commanding 5th Movements Company, Major Emma Thomas. Representing the Headquarters Joint Forces New Zealand is Warrant Officer Class One (WO1) Robert Jobe, from Headquarters 3 rd Land Force Group Warrant Officer Class Two (WO2) Jeff Fox and from the Trade Training School WO2 Alan Brill. The review will look at the current model and, using it as a base document conduct a Job analysis on the current requirements of Mov Ops at all banding and rank levels to establish the outputs demanded of them by the NZDF. After the initial analysis process a new Model will be devised and put forward to the Corps Review Board for ratification and through the Army Trade Review Board before becoming doctrine for the future training and progression of Mov ops in the future. The future of the Reserve Force component of the Movements Trade will also be reviewed during this process.

There is a lot to consider going forward for the trade, the introduction of new NZDF platforms and technology require new and different skills from what our soldiers have learned in the past. Mov Ops are required to master a great deal of technical knowledge in the fields of Aerial delivery, Terminal Operations and Movement Control and just like all other members of the NZ Army the need to maintain those critical "Soldier Skills" to continue to operate on the modern Battlefield. The delivery of these skill sets through the appropriate courses at the correct level is the corner stone of this review.

The first draft of a new Trade Model is expected as early as the next Corps Review Board meeting in October 2010, So there is a lot of hard work to do. The continued review and testing of the way we train and are organised as an Army will enable us to continue to deliver the Combat Forces and Combat Service Support required by the Government of the day and the people of New Zealand.

MOVEMENT OPERATOR TRADE LINKS

5 Movements Company
http://org/l-2lfg/pages/2LOGBN/5movementscoy-home.aspx

Movements Wing Trade Training School
http://org/l-tts/S%20%20Publishing%20Webpart%20Pages/Movements%20Wing/MoveHm.aspx

Warrant Officer Class Two Alan Brill (Brilly) is currently the wing Warrant Officer for the TTS Movements Wing. He has 23 years experience with the Movements trade of the RNZALR and has numerous operational deployments behind him to such places as Antarctica, Somalia, East Timor and Afghanistan. He posts back to HMNZS Canterbury at the end of 2010 as the Ships Amphibious Load Team WO.

SENIOR TRADE ADVISORY BOARD

SUPPLY

Major Mike Cavanagh

The 2nd STAB for 2010 was held over the period 24 – 25 Aug at the Messines Defence Centre, Trentham. Whilst minutes of the meeting will be published and distributed through the STAB members, the key areas discussed were:

On the Job Training. This subject was a key focus of the STAB. Anecdotal evidence suggested that On the Job Training (OJT) was not being conducted at regular intervals for Sup Tech pers. Briefs on the 21 Sup Coy and 3 CSC OJT process were provided by Major Kirstine Collins and 2Lt Cam Wright respectively. Both of these briefs provided a good insight into the benefits that are realised out of conducting OJT, and provided good 'food for thought' on how OJT can be integrated into unit training. The STAB confirmed that OJT was essential for the development of Sup Tech pers and agreed that the whole process required reinvigoration. Further work will be conducted by the STAB in this area with a view to providing recommendations to the CRB early 2011.

Non Core Functions. A brief discussion was held on determining if there were any functions being conducted within units that could be categorised as 'non core', and if there was potential to co-locate these elsewhere i.e. as per the DSS Hub concept at 3 LFG. Further work will be conducted by Cap Staff and the Formations in this area.

Supply Workshop. A review of the 2009 Sup Wksp and outputs of future wksps was conducted by the STAB. As a result the areas to be covered in the next wksp were determined. The STAB will be identifying an appropriate time in the last quarter of this year to conduct the next wksp; information on attendance and dates will be disseminated via the Comd Chain in the near future.

STAB Briefs

A number of presenters from within NZDF provided updates to the STAB. Particular thanks to LT Col Morgan Proctor for the LCP Quick Wins brief, Maj Rob Loftus for the NZDF Fuels update, and WO1 Mark Hammond for the Harmonisation of the Valuated Supply Chain brief.

Overseas Training Programme. Participation in CANZEX for a Sup Tech SNCO/WO or Sup Offr is on the immediate horizon. Canada is currently identifying a suitable period where they are able to host the NZ per in a Mot Inf Bn environment for a period of up to six weeks. As soon as the Canada provides the necessary information, Cap Staff will call for nominations.

As a closing note, please ensure every opportunity is afforded to our Sup Tech pers for continued development. Whether the opportunities are gained through formal courses, professional development activities, OJT or OJE – make the time and invest in our future.

SUP TECH LINKS

CAP BR CSS PAGE
http://org/l-ags/pages/Capability/CSS-HSS.aspx

TTS SUP TECH WING
http://awi-teams/ATG/LOTC/TTS/SupQM/Default.htm

Major Cavanagh is currently the GSO2 Supply, capability Branch, Army General Staff

SENIOR TRADE ADVISORY BOARD

ADMINISTRATION

Major A.S. Couchman

Since the last publication of the Army Sustainer Magazine, the School of Admin has been conducting business as usual.

The Senior Admin Cse was conducted over the period 26 April – 18 Jun 10. 15 students attended this course with CPL Page from the Burnham Admin Centre attaining Top Student.

The Junior Admin Cse was conducted over the period 5 Jul – 3 Sep 10.

Currently the Advanced Admin Cse (16 Aug – 17 Sep 10) is being conducted with three senior SGTs attending.

An Intermediate Admin Cse is planned for 4 Oct – 19 Nov 10. However, at this stage, due to the Defence Transformation Program, it is uncertain as to whether this Cse will be run. Approval is being sought to cancel this course in light of the change in focus to the Service Centre in Upper Hutt and the uncertainty with the required training levels as a result of this move.

The Intermediate Command Course will be conducted over the period 22 Nov – 27 Nov 10. This Cse will have a capacity of 32 students.

Currently there remains a level of uncertainty for the future of the Administration Trade within the NZ Army – Do not panic. A project sponsored by Capability Branch is being staffed which will investigate NZDF capability requirements for Operational Personnel Support, this may result in a change in focus for administratively trained personnel but until this has been approved at the highest levels it is 'business as usual' for daily activities. Training may pre-empt some of these changes especially with respect to the service centre which may lead to some courses being cancelled for the remainder of 2010 to enable a reorientation of training to occur.

On a lighter note, The School of Army Administration School Sergeant Major– WO1 Nixey was recently awarded a Chief of Army's Commendation in recognition of his role as a leading figure in the Administrative trade, and in particular for his outstanding dedication and professionalism to his trade.

The next article for The Sustainer Magazine should be quite an interesting article. Hopefully by then, decisions will have been made and implemented as to the future of the Administration Trade.

Ma Nga Hua Tu-Tangata

School of Army Administration

Mission Statement

To provide superior administrative training to all ranks and selected civilians of the NZ Army through residential courses and distance education (DE) IOF personnel to carry out their primary and secondary administrative duties.

Intranet Website

http://streweb2/ATG/LOTC/SCHADMIN/

Major Couchman is currently posted as the Chief Instructor of the School of Army Administration in Waiouru

Army Catering in 2010

Warrant Officer Class Two Phil Russell

Army Catering have been busy in 2010 competing in different competitions throughout the year. It all started with RNZALR Corp Skills Week which saw caterers compete for the Roy Smith Memorial Trophy, which was won by the 21 Supply Company, Catering Platoon. It was then onto the regional competitions run by the branches of the New Zealand Chefs Association; Army catering staff competed in the Wellington and Waikato Culinary Fares before attending the National Culinary Fare in Auckland over the period 22 -25 August. These three competitions have seen Army catering staff enter 46 classes, receiving 24 certificates of participation, 26 Bronze medals, 20 Silver Medals and 3 Gold Medals and includes 10 overall class winners. A great result and shows that we are on a par with New Zealand's finest chefs and stewards.

The Competitions has also seen a number of chefs and stewards obtain Unit Standard 21855, Judge Culinary Arts and Restaurant Service competitions this year adding to the already large list of judges we saw WO2 Carmen Eriksson, SSGT Arvine Gamlin and Manu Fergusson complete unit standard 21855. WO2 Phillip Russell completed unit standard 21856 Supervise the Judging of Culinary Arts and Restaurant Service competitions, one of the first to fully complete this unit standard since its inception in 2006.

November 2009 saw LCPL Steve Hogan of ARSC becoming a permanent member of the New Zealand Culinary Team, this has seen LCPL Hogan compete in Singapore and win a gold medal. In June they also competed for the Tran Tasman cup which is a competition between the Australian Culinary Team and the New Zealand Culinary Teams, both junior and senior. Both New Zealand teams came out on top of what was an exciting and close fought battle.

April saw a cook off to send a candidate to Paris in Nov to compete in an international competition for establishments that cook for large numbers which gives the Army a chance to compare itself with other countries to see if we are world class. CPL Nadia Pou of ARSC was selected to attend this competition in Nov and has been preparing in her Unit ever since.

Youth Skills also sees the national finals being held in mid September in Christchurch and again we see a strong team of caterers making it through the regional events to compare ourselves against New Zealand's best. Competitors named are LCPL Fogden (TRSB), LCPL Lister (2 Log Bn) and PTE Lingman (3 Log Bn).

WO2 Wayne Gordon was elected as the Vice President of the Central Branch of the New Chefs Association early in 2010 and WO2 Phillip Russell was elected as Director of Administration to the National Executive Committee of the New Zealand Chefs Association at the AGM held in August. The Chefs Association is a national association representing professional chefs, cooks and trainees in New Zealand.

The association is made up of 8 branches around NZ. The network allows chefs to help fellow chefs both nationally and internationally. The branches hold regular meetings and are active within their regions and nationally. Members consist of people with a passion for food and represent a wide range of professions associated with this industry.

Pte Jennie Cushen of 3 Log Bn, who was a Steward in this years Nestle Toque d'Or team.

Logistics Command (Land) LC(L) catering has over the year been completing in a number of tasks behind the scenes this year and these are now been seen by the Catering Platoons around the country. Some of the more notable tasks have included;

The rewrite of DFO(A) Vol 4 Chapter 31 which has been approved and should be released very soon;

The use of TRICAT will be replaced with an internet based system run by the prime vendor BIDvest. The database of recipes is currently been built and this should be running in most camps by the end of September;

The Food Hygiene Act is currently with Parliament and is incorporated with 4 other acts to be called The Food Bill. When this is passed through Parliament it will require Army to have a food control plan. Work has commenced on this plan using an off the shelf model. Kitchen inspections conducted by LC(L) and Environmental Health Officers have taken place in August to see how much work is required to get buildings and procedures up to an auditable standard before the Food Control Plan can be submitted to the NZFSA;

Early in 2010, WO2 Russell, SSGT Fergusson and SGT Wallace completed a trial programme for Unit Standard 13343, Demonstrate Knowledge of Basic Nutrition in Commercial Catering, with recommendations that JSCS look at including it within the training programs;

The first Catering STAB was run in April and was a success; the next STAB is being planned for November;

Lance Corporals Fogden and Yateman, Chefs in this years Nestle Toque d'Or team.

Catering Clothing was reviewed and amendments submitted in 2009, the LC(L) took over this project in January and has seen the revamp of the chef and steward clothing being made and the amended Vols being released soon. A big thank you needs to go out to JSCS for starting and doing all the work that was only finished off by LC(L).

Catering Links

Joint Services Catering School
http://awi-teams/ATG/LOTC/JSCS/Shared%20Images/JSCS.jpg

Warrant Officer Class Two Phillip Russell is currently the Warrant Officer Catering for Logistic Command (Land). He has 24 years experience within the catering trade of the RNZALR and has one operational deployment to Bosnia. WO2 Russell obtained a Bachelor of Administrative leadership in 2007, received a Chief of Army Commendation for services to catering in 2009 and has gained qualifications in; supervise the judging of culinary arts and restaurant service competitions. WO2 Russell has recently been elected onto the National Executive of the New Zealand Chefs Association as the Administration Director

2nd Logistic Battalion Campaign Plan

Captain Sheree Holmes

In 2009 2nd Logistic Battalion (2 Log Bn) developed a plan to enable Operation Supercharge III success. Op Supercharge III is the 2 LFG campaign plan that provides a sustainable Combined Arms Task Group (CATG), supporting a Light Task Group (Lt TG), contributing to a one shot Battle Group (BG), and continuing to meet ongoing operational commitments.

Using the military appreciation process (MAP) and causal modelling 2 Log Bn developed the campaign plan pictured. Our new role is to provide Comd 2 LFG and the NZDF with effective and agile CSS options to support the preparations for and the conduct of operations.

2 Log Bn's endstate is to **Provide Agile CSS**. The operational capability needed to respond to a range of warfighting situations will be a combination of Combat, Combat Support and CSS capabilities. To optimise this response 2 Log Bn must integrate effectively into a CATG. To get there however, the campaign plan needed a number of other objectives or 'ways', these are outlined below.

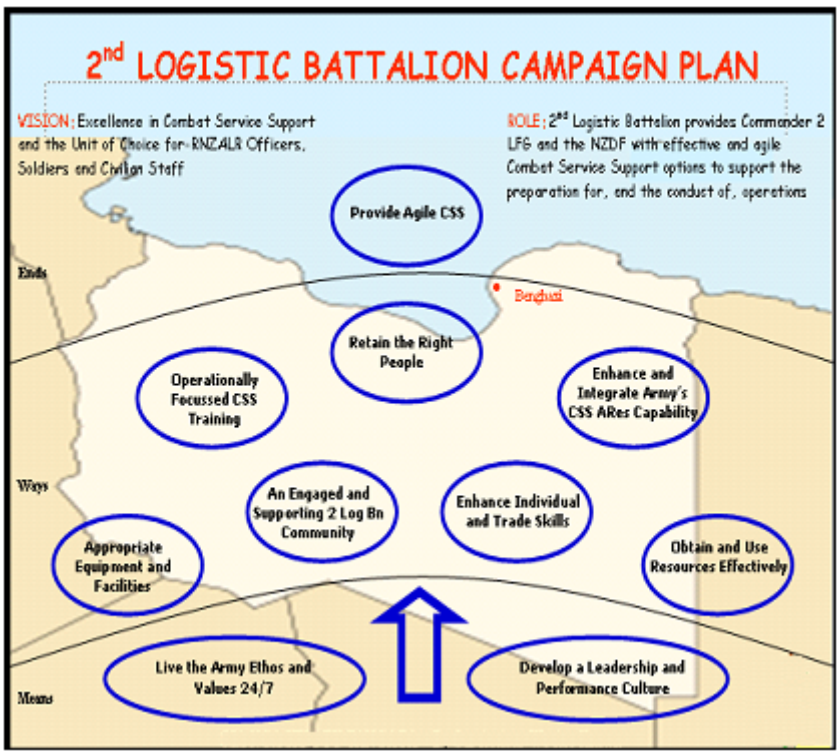
Retain the Right People. This objective acknowledges that personnel are the key resource within our unit. Retaining the right people is essential to achieving our vision and operational outputs. The "Right People" represents those who are meeting the demands and expectations placed on them and are adding value to the NZDF.

Operationally Focussed CSS Training. The provision of relevant and operationally focussed CSS training will ensure 2 Log Bn achieves DLOC and is poised to efficiently undertake OLOC training when directed. Activities, procedures and actions within 2 Log Bn will be orientated towards the achievement of NZDF operational outputs.

Enhance and integrate Army's CSS Army Reserve capability. The Army Reserve is a key contributor to operational capability. 2 Log Bn will reengage with CSS Army Reserve elements and seek to enhance overall CSS operational capability through being an effective Centre of Excellence.

Appropriate equipment and facilities; Equipment and facilities are key resources that will enhance 2 Log Bn's operational effectiveness. All personnel will take ownership of equipment in their care to ensure its availability for use at all times. Personnel will also ensure they care for and enhance the facilities within 2 Log Bn.

An engaged and supporting 2 Log Bn Community. Effective interaction between 2 Log Bn and the families and dependants of our personnel will foster a positive relationship that enhances inclusion and understanding. Having an engaged and supporting 2 Log Bn Community will improve the operational effectiveness of 2 Log Bn



Enhance Individual Trade Skills. Professional and timely individual and trade training has a major effect on morale, confidence and operational effectiveness. Individual and trade skills form the basis of 2 Log Bn's ability to meet our outputs both within the National Support Base and in the Theatre of Operations. All members of 2 Log Bn will strive for excellence in individual and trade skills.

Obtain and use resources effectively. Identifying the appropriate resources to meet 2 Log Bn outputs will ensure 2 Log Bn is able to meet both current and future requirements.

All of these 'ways' are underpinned by two key objectives that provide a strong base from which to launch the campaign. These two key objectives or 'means' are explained below.

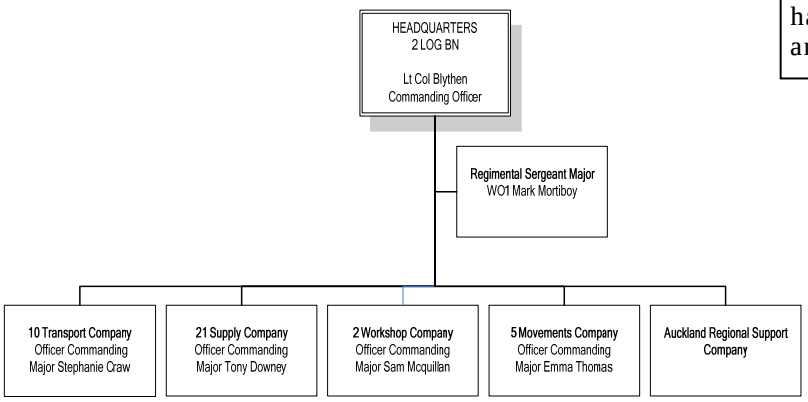
Live the Army ethos and values 24/7. The Army Ethos and Values guide the attitude, behaviour and focus of all personnel within 2 Log Bn. They also strengthen the contribution individuals make to their team, the Unit and the 2 Log Bn Community. Personnel within 2 Log Bn will use the NZ Army Values to guide their actions and decision making at all times.

Develop a Leadership and Performance Culture. Professional leadership at all levels within 2 Log Bn is essential to ensure the attainment of our vision. All members of 2 Log Bn will continue to pursue excellence in leadership and create a learning and high performance culture within our unit.

Each of these objectives are linked directly to one or more of the Op Supercharge III objectives and measurements of success. The 2 Log Bn campaign plan provides the direction and guidance for unit personnel to focus their efforts, plan training and most importantly measure success.

Ma Nga Hua Tu-Tangata

Links
2 Log Bn Intranet
http://org/l-2lfg/pages/2logbn/2logbn-home.aspx



Captain Sheree Holmes is currently the Adjutant of 2 Logistic Battalion in Linton. She has spent the majority of her career posted between 2 Logistic Battalion, Trade Training School and the Logistic Operations School. She has completed the Officer Petroleum Course in the UK and holds a Bachelor of Defence Studies.

Supporting High Readiness and Light Operations in 3rd Land Force Group

Lieutenant Colonel Jim Bliss

3rd Logistics Battalion is tasked to provide administrative and combat service support to the warfighting elements of 3rd Land Force Group. In doing so, the Battalion, along with unit Logisticians in 2/1 RNZIR, QAMR, our reserve battalions, and our lodger units are faced with some support requirements that force us outside of the normal doctrinal approaches to logistics support to meet our high readiness and light operations warfighting capability.

High Readiness comes in two flavours for 3rd Land Force Group Logisticians. Firstly, there is the physical support to our stated Formation high readiness outputs. Our Logisticians must be, and are, prepared to provide support 24/7 to get the Formation High Readiness Capability (HRC) out the door and into the operational area as fast as directed; which in many cases is as fast as possible.

If you turn on the news and see an article about unrest or turmoil in the South Pacific, then there's a good chance our Loggies are already providing administrative and movement support, ammunition and supplies, transport, potentially a quick last minute fix of mission critical material for the HRC

Secondly, the changing nature of current operations requires agile solutions which may see the need for our logistics personnel deploy as part of a high readiness response owing to their specialist skills and the allocated mission. The recent spate of disasters in our immediate region is testament to that. This is hard to predict, and is by no means the domain solely of 3 Log Bn personnel, therefore all Logisticians must be readily deployable, have personal and work equipment squared away, and then be able to operate in austere deployed environments with little kit other than that which they deployed with to complete their tasks.

Live support tasks to the Combined Arms Task Group (Light) on Exercise SALADIN provided good opportunities to refine logistics operations in the collective environment.

On the ground of a rapidly conducted deployment, logistics support will vary dependent on what is available in theatre, what can be sourced from other nations or coming on our next replenishment flight. The task of the Logistician on the ground is to get the warfighters the support they need. His or her priority will be on providing the items that ensure mission success; combat supplies such as ammunition and water, consumables such as batteries to power up NVE and communications equipment, medical supplies, repair to mission critical material, or transport to allow the commander freedom of movement in the AO. Many of the niceties we currently expect in developed theatres can be worried about later (no-one ever died through a lack of access to the internet or NAAFI).

As we can not predict every scenario or situation where we may be required to provide support, our Logisticians must be prepared to adapt to the environment, be agile in their support plans and innovative in their thinking. Good planning and preparation prior to deploying, a number 8 wire approach, and sometimes a credit card and a big smile may be all that a Logistician has available in theatre initially to support the mission. So be it. As our previous deployments have shown, a light agile force can be easier to support than a deployment burdened with a large and complex logistics tail.

So, how do we get better at logistics support? Here in 3 LFG, our collective combined arms training periods provide a good opportunity to practice new methods whilst consolidating the known and proven. Planning is everything. Planes, ships and trucks do not go faster just because we stamp our feet, raise our voices or make a chopping motion with our hands. By getting involved in the war-fighter's planning with innovative solutions, we enhance our support and training and our ability to deliver the goods on time.

Supporting light operations on the contemporary battlefield requires a similarly adaptable and agile mindset where a rigid adherence to doctrine can be detrimental. The rapid tempo of modern operations has seen an increasing diverse array of threats emerge for logistics units. Bypassed conventional forces, unconventional and irregular elements utilising IEDs initiated by a variety of methods, mixed ambushes, indirect and direct action against CSS installations have changed the battlefield "behind the front line" significantly. For us supporting light operations, tasking the 2/1 RNZIR FSG or a LAV Tp as a convoy escort would be ideal for every logistics task, but the resultant reduction in combat capability for the warfighting commander does not often make this a viable solution. Logisticians must be capable of fighting as well as supporting operations.

Logistics and other supporting elements must approach the provision of support as a combat mission, continually adapt their tactics to the situation, be proactive in their planning and aggressive in the conduct of their patrols or cede the initiative to the enemy. Our days of driving around the modern battlefield conducting "administrative moves and tasks" are over. Current operations, including those in Iraq and Southern Afghanistan, provide ample examples of the constant changing nature of the threat and the resultant evolution of logistics TTPs to counter.

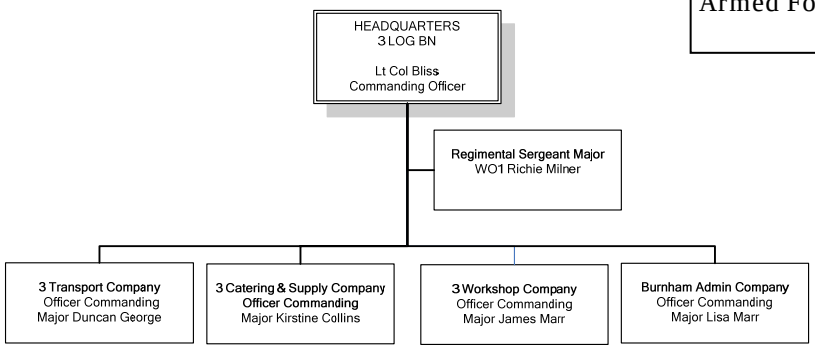
3 Cat & Sup Coy conducting live-firing CVA drills and clearance patrols on a recent exercise

Supporting light operations requires a multiple of options to be examined; from traditional methods such as distribution points and direct replenishment, the use of aerial delivery and underslung loads to other options including combat logistics patrols, replenishment by IPV, OPV or other vessel truck or aircraft (including civilian or lease), caches and winning local resources (i.e. directly from markets, local infrastructure and/or employment of contractors). For light operations, we must continually refine our methods, rigorously critique our TOE and stockholdings, and ask ourselves "is this contributing to our warfighting capability?" If we don't, we become stagnated by cumbersome stockholdings, unwieldy organisations and outdated logistics dogma.

Ma Nga Hua Tu-Tangata

Links
3 Log Bn Intranet
http://awi-teams/burnham/3%20Log%20Bn/

Lieutenant Colonel Jim Bliss is currently the Commanding Officer, 3rd Logistics Battalion in Burnham. He has spent the majority of his career posted to the two Logistics Battalions and training institutions at LTDG. His operational experience is drawn from deployments to Afghanistan, East Timor and Antarctica, as well as training, exchange and education opportunities with foreign Armed Forces.



TRSB QUARTERMASTER PLATOON CHANGES

Warrant Office Class Two Terry McGeough

*"The consolidated logistics organisation will open up logistics potentially to world-class level. We'll be aiming to build an environment of **creativity** and **boldness** that will bring a refreshing and invigorating edge to NZDF logistics. We're going to take ourselves from good to great."*
(AIR CDRE Guy, COMD DLC)

Recently, Trentham Regional Support Battalion (TRSB) Quartermaster Platoon (QM PL) was tasked with enhancing the Commanding Officer's vision of 'being a Service provider of choice'.

Over the past 30 years the QM Pl was situated at the far end of camp where the main customer was. As you are no doubt aware, a number of new customers have appeared within this time from HQ JFNZ to YDU and we had changed from an Army focus to that of all three Services. For us to utilise our resources more effectively and for us to meet customer demands more efficiently, it was time for a move.

Following along the lines of AIR CDRE Guy, QM PL started their path of transformation to take us from good to great. It was identified that the best place for relocating the QM Pl was to building 708 (the then Transport Platoon). The logic behind this decision was to consolidate services at the front end of camp and be close to all customers. Previously you would have to plan your visit accordingly to utilise Camp stores, freight, clothing, transport and Unit Private Fund (UPF) services from one end of camp to the other.

For the move to occur, it meant challenging traditional views of the people involved in these areas and how they do business. Change management is a critical part of any process requiring major change and particularly with TRSB affected sections.

Meticulous consultation and planning was required of all as one section could not move until the other had already moved out. In this case the UPF moved into the Transport Platoon building. This was then followed by the relocation of the Transport Pl into the UPF hangar thus allowing for the relocation of the QM PL to the old Transport Pl area. The clothing and Tailoring Section had previously moved into this area six months earlier.

At the same time, military and civilian Defence staff from Trade Training School Service Point were also re-mustered into the new location. This was phased in gradually to allow the civilian contractor to take over responsibilities.

Our move was completed ANZAC day this year after we attended morning parade, with hard work and ongoing improvements we managed to commence business as normal the next day and have continued to seek improvements since.

I do not hide the fact that this upset some within the organisation however this is the sacrifice that needed to be made to ensure we were providing relevant and effective services. The main point here was to ensure that all concerned were involved in the planning phase and were regularly updated before, during and after the move.

The end result is that TRSB QM Pl now provides consolidated support (One stop shop) for Tri Service Clothing, Tailoring, Stores, loans, UPF Hirage and to also provide an uplift/dropoff point for Military loan vehicles.

Warrant Officer Class Two Terry McGeough is currently the Regimental Quartermaster Sergeant for TRSB. He has 22 plus years experience within Logistics as a Supply Technician. During this time he has been posted within various Supply and Maintenance Support posts including completing his apprenticeship and gaining Trade Certificate within Automotive Parts and Accessories Merchandising. He has also served overseas on various exercises and operational Deployments including such places as Great Britain, Australia, Solomon's, Sinai and East Timor.

TRSB CONTACTS & LINKS

Trentham Regional Support Battalion (TRSB),
Messines Avenue,
Trentham 5018,
Upper Hutt,
NEW ZEALAND

T: +64 4 527 5427 | F: +64 4 527 5229 | DTelN: 347-7427
Email: armytretrsbqmplatoon@nzdf.mil.nz (Internet)
@ARMY.TRE.TRSB.QM PLATOON (NZDF Intranet)

Webistes

Trentham Regional Support Battalion
http://awi-teams/trsc/
RNZALR Supply Technician
http://org/l-tts/S%20%20Publishing%20Webpart%20Pages/Supply%20Q%20Wing/SuppHome.aspx

The Bedford RL was the New Zealand military's main medium truck from 1958 to 1989.
For more info see the back page.

Manila as a logistics center

This article is taken from the July—August 2006 edition of Army Logistician Magazine

For a brief period after Japan attacked the United States in World War II, Manila served as the center for American logistics in the Philippines

As part of their attack on the United States in December 1941, the Japanese attacked U.S. Forces in the Philippines only hours after their attack on Pearl Harbor, Hawaii. When the attack on the Philippines occurred on 8 December, General Douglas MacArthur's Philippine Army was in the early stages of mobilization. MacArthur was trying to create an army from U.S. troops, native Regular U.S. Army Philippine scouts, recent Philippine Army draftees, and Philippine Constabulary policemen. [The Philippine Constabulary was a Philippine national police force that was organized by the United States in 1901. It became the backbone of the Philippine Regular Army under General MacArthur.] Although the United States was busy shipping equipment and supplies for the Army to the Philippines, planners estimated that it would take another 4 to 5 months to meet minimum requirements. Eighty thousand Soldiers on Luzon, the largest and most populous Philippine island, needed supplies. Without adequate supplies from the United States, MacArthur's U.S. Army Forces in the Far East (USAFFE) had to draw its supplies from those available on Luzon.

After the attack on the Philippines, the port area in Manila had no serious bomb damage and was fully functional. Manila had large docks that the United States had been using to unload its military supplies. Manila became the center of American logistics. Luzon's government, business, finance, maritime shipping, and wire and radio communications were centered in Manila. Luzon had the finest transportation network in the Far East and Pacific outside of Japan. When war began, Manila started exercising its primacy as the largest commercial storage center in the islands.

Local Purchases

Before Japan attacked, the War Department already had lifted all financial restrictions on the Army's local purchase authority. Almost all of the advance depots' supplies flowed from the Manila Quartermaster Depot, except for perishable food, rice, sugar, and coffee, which Army officers in the field purchased locally as needed. Starting on 8 December, 35 trainloads of supplies were shipped to the depots at Tarlac in northern Luzon; Los Banos, south of Manila; and Guagua, northeast of Bataan. Simultaneously, the Quartermaster Depot began procuring large stocks of polished rice.

The military soon was making so many purchases that civilian businesses nearly stopped serving the Filipino populace. In the most blatant cases, the requisitioning of property trended toward outright theft. American officers' actions were so arbitrary and technically illegal that, had it been peacetime, they would have spent the rest of their lives justifying their actions. Commander Harry H. Keith was acting as the Navy's fleet maintenance officer while he recuperated from the bombing of his destroyer, the USS Peary. "You just walked into a store," he wrote to his wife, "took what you wanted, and walked out. if you had time, you signed a receipt and if not, you tried to remember to send one the next day. My name is signed to thousands of dollars [worth] of paper all over Manila."

The USAFFE Finance Office put its peacetime regulations in a bottom drawer and never looked at them again. They approved claims if they were arithmetically correct and had some kind of proof that the supplies had been delivered, dispersing cash for the supplies received. Vendors delivering supplies appeared with hand-written receipts that were signed by just about anybody. USAFFE also hired temporary labor as needed and paid them in cash at the end of each shift. Finance officers developed shortcuts to help fund the Philippine Army. These solutions and casual bookkeeping practices would have made a prewar auditor scream.

Blackout Restrictions

Quartermaster officers boarded ships in Manila Bay, examined their manifests, and brought the vessels carrying

militarily useful supplies and equipment to the docks. The ships could discharge cargo only during daylight hours. Nightly blackouts prevented unloading, so the ships would leave the docks and anchor in the bay each evening. These blackouts were actually more harmful than helpful. The Japanese seldom flew at night, and blackouts slowed land convoys carrying needed materiel to the troops. An exception to this restriction would have permitted cargo to be discharged at night, which would have sped cargo deliveries.

The Marechal Joffre

The Vichy French ship, Marechal Joffre, posed its own problem. Its skipper had reported that, although fully fueled and manned, the ship could not sail. Dissension between crewmen supporting the Vichy government sympathetic to Nazi Germany and crewmen supporting the Free French forces led by General Charles de Gaulle had immobilized the ship. The Americans decided to send an armed boarding party to seize the ship and sail it to Australia. The Americans were uncertain as to how the French might react. Would they need cutlasses and pikes to board the ship? Would the French resist? A Navy lieutenant, armed with a sword, a pistol, and a carbine, led his men aboard. The French were calm and offered no fight. The ship's captain strode up, smiled, and welcomed the Americans with an accented "Allo."

The Americans had each man choose either Vichy or de Gaulle. Vichy men stepped to the port side and went ashore into internment. The 63 de Gaulle supporters assembled starboard. A Navy lieutenant gathered 100 American naval air ground crewmen and aviators and raised anchor late on 18 December. They sailed the ship through Japanese waters to Australia, where the Marechal Joffre was renamed the USS Rochambeau.

Use of the City

Manila's dock area was chaotic as the city prepared for war. The Army had taken over all of Manila's piers for military use. The piers were jammed with pre-war goods that commercial brokers had not hauled away and with stocks of food that Armour and Company, Swift and Company, and Libby, McNeill, and Libby had agreed to turn over to the military. In addition, the piers were swamped with priority discharges. Vehicles and manpower to clear the piers were irregular and insufficient to do the job.

The city hummed with military activity. Inter-island freighters filled the mouth of the Pasig River. Truck convoys with American Soldiers in khakis and Filipino recruits in blue dungarees rushed through Manila. Many buildings and institutions were used to house military activities. MacArthur's headquarters was there, and the Navy had offices at the Marsman Building on the waterfront. U.S. Army engineers moved into the University of the Philippines. Finance offices occupied the Villamor Hall College of Liberal Arts, a two-story, reinforced concrete building that was the Taft Avenue campus of the University of the Philippines. The Quartermaster Corps took over Santo Tomas University and San Beda College. USAFFE's press relations section moved into the monastery and school of the Order of the Virgin Mary. The Office of the Superintendent, Army Transport Service, moved into the Custom House opposite Pier 5.

Supply Shortages

The military coordinated with local oil companies to control the distribution of approximately 10 million gallons of commercial gasoline that were in storage. The oil companies agreed to open their distribution centers at six sites. Those sites then serviced 30 issue points along the major highways. Each center could handle from 75,000 to 100,000 gallons a day. The oil companies ran rail tank cars out of Manila to replenish these centers.

Although most supplies for the Regular U.S. Army establishment had arrived before the war, supplies for the Philippine Army had not. Expected first in late October and then in late November, the convoy carrying quartermaster supplies was diverted to Australia after 8 December. The supplies and equipment requisitioned for the Philippine Army never did arrive. The Filipinos would go into battle with whatever they had been issued from local U.S. Army stocks or could be purchased from the local economy.

To remedy that shortfall, USAFFE purchased or contracted for what it needed. The Quartermaster Corps bought all the new cars and trucks it could find, directly from salesrooms and warehouses. Purchasing agents also bought all the second-hand vehicles they could find. USAFFE acquired title to several complete commercial motor transport companies. The cooperation of the vehicle dealers was all that could be desired. Automotive companies in Manila used their maintenance shops to service military vehicles. The Army turned the grounds of Santo Tomas University into a motor pool.

USAFFE took control of the various truck and bus companies on the first day of war. USAFFE froze sale of all vehicles, parts, and accessories without military clearance. The Army placed Soldiers and its own civilians in all shops to ensure that nothing was sold without Army permission. Bus companies stopped servicing the civilian community and placed all their fuel, repair parts, and vehicles at the disposal of the military. Without the support of the civilian transportation system and its employees, MacArthur's army would have been nearly immobile.

Communications

The Signal Corps purchased all available photographic, communications, and radio gear. It took over the Manila Long Distance Telephone Company and made its president a lieutenant colonel. The Army leased the Mackay Radio high-speed, machine-operated radio channel between Manila and San Francisco and staffed it with Signal Corps personnel.

Medical Preparations

Medical personnel swept through medical stores and surgical supply houses and bought or signed for enormous quantities of medicine, surgical instruments, and bedding. They used equipment from one of the two general hospital sets received from the United States to establish new hospitals at Santa Escolastica College, Rizal Stadium, the Women's Normal School, La Salle College, Holy Cross, and the Philippine Women's University. Doctors prepared to treat as many as 10,000 casualties.

Rizal Stadium became a medical supply depot. The chrome, steel, and glass jai alai building became a hospital. Its Keg Room served as an x-ray room and operating pavilion. Workers stuffed the once plush, red-carpeted, air-conditioned ballroom with cots for doctors and staff. The cavernous courts became wards with hundreds of metal-framed beds. The building was poorly suited to provide medical care, so extensive work was required to turn it into a hospital. Only one patient was ever treated there--a Soldier who fell off a truck outside the hospital and dislocated a hip.

For 2 weeks, Manila pulsed with logistics activity, but it was all for naught. The Japanese landed at Lingayen Gulf on 22 December and swept aside the Philippine Army troops. MacArthur decided to withdraw into Bataan, leaving Manila unprotected. After the decision was made to move, the Army's effort was focused on getting as much as possible out of the city and over to Bataan before the Japanese arrived. Even though Manila served as a logistics base for less than a month, it had served the U.S. Army well.

Lieutenant Colonel John W. Whitman USA (Ret), is the author of Bataan: our last ditch, The Bataan campaign, 1942. He has a bachelor's degree from San Jose State College and a Master of Military Art and Science degree from the Army Command and Staff College, holds a secondary army specialty of historian, and is an advance research project associate of the army military institute.

Regimental Histories

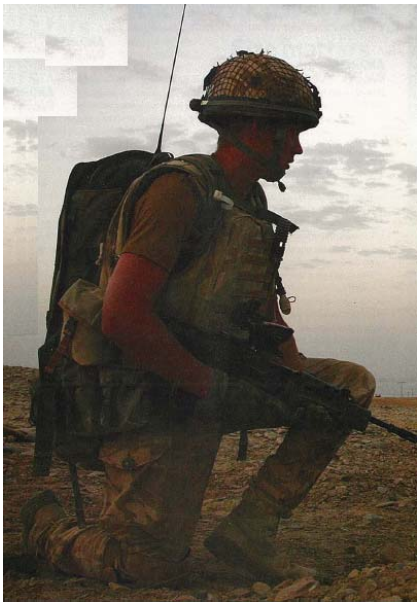
To work and grow towards tomorrow it pays to know where you have come from

Royal new Zealand Corps of Transport
Salute to Service— A History of the RNZCT and its Predecessors /Julia Millen
Royal New Zealand Army Ordnance Corps
A History of the Royal New Zealand Army Ordnance Corps / Joe Bolton
Royal New Zealand Electrical and Mechanical Engineers
Craftsmen in uniform : the Corps of Royal New Zealand Electrical and Mechanical Engineers / Peter Cape
Vietnam and Bluebell: the RNZEME in Vietnam. / Peter Ralph Downs.

Is the Battle Being Won?

This article is taken from the April 2009 edition of Supply Management Magazine .

The Failings of Ministry of Defence (UK) procurement are rarely out of the headlines but, argues **Thomas Harding**, it looks as if it is finally overcoming some of its problems



UK defence procurement is nearly always a tale of delays and cost overruns. In any news piece just substitute the words "aircraft carriers", "Eurofighter" or "Nimrod MR4" and tweak the millions in price increase and years' delay for an in-service date.

But it could be time to update the story. Six years of fighting on two fronts has meant the introduction of a faster way of buying according to so-called Urgent Operational Requirements (UOR).

Buyers and suppliers agree this has radicalised purchasing at the MoD. It has compelled parties to work closer together to get equipment to the frontline. Some, however, believe this innovation has been at the expense of improving the procurement of longer-term projects. And both sides think more can still be done to improve buyer-supplier relations. Others take the view that the need to maintain a UK defence industry leaves the MoD paying for jobs instead of focusing on achieving value for money for the most appropriate piece of kit.

SPEEDIER SUPPLY Defence researcher Dr Richard North believes the MoD has been obsessed with a "gold-plating" search for perfection. He argues its rejection of 'good enough' could in some instances mean that projects "completely miss the war".

Lieutenant General Andrew Figgures, the most senior military officer responsible for defence procurement, tells SM that in the past the MoD has not been quick enough to adapt. He says purchasers now realise they must "tailor the requirement to money we have available to the means of supply".

The Deputy Chief of the Defence Staff for Equipment Capability says the military had "taken risk with performance" in getting desperately needed equipment UORs on to operations, but it was better to get a 50-60 per cent solution in six months than wait two years.

So how does this faster process work? UORs are funded by extra Treasury money to provide equipment quickly to meet frontline demands. A UOR is set in motion after a commander on the ground identifies a 'capability gap'. A request travels up the chain of command to the MoD Project Team and General Figgures takes advice from them when deciding if it can be considered 'urgent'. If given the go-ahead, it could be on the frontline within weeks or, in some cases, days.

The MoD has approved more than £3.6 billion of UORs since the 2003 invasion of Iraq. UORs have been used to provide troops with rations, boots, improved body armour, sophisticated anti-missile defence systems for aircraft.

An example of a successful UOR is the Mastiff vehicle protection programme to stop the high casualty rate from roadside bombs. The first of 280 vehicles were in Iraq and Afghanistan within 23 weeks of the order.

General Figgures adds: "If you need a lot of equipment quickly, everything does not have to be perfect. Build as you can afford so if you do change your submarines or air defence destroyer you need industry to provide the base for incremental improvement."

SERIOUS ISSUES But for some experts the use of UORs means the MoD occasionally sends unsuitable equipment. David Leslie, sales director for Global Combat Systems at BAE Systems, a major MoD supplier, served on several operational tours in the army. He says there are serious issues about the MoD buying off-the-shelf kit from non-established defence companies.

Dr North believes the strategy for fighting the war in Afghanistan is dictated by what is available - the equipment "tail" has been wagging the army "dog".

For example, the MoD has been criticised for not getting mine-resistant vehicles into Iraq while servicemen were being blown up in Snatch Land Rovers. (There have been 37 soldiers killed in the vehicles since 2003.) But North argues the problem isn't with the equipment, "but the thinking behind it - or lack of it".

He says: "The tactics, equipment and doctrines used in Northern Ireland were unsuited to the realities of the insurgency in Iraq."

Leslie and North also raise questions about the impact of UORs on long-term procurement. "UORs are about defeating the process, not making the system better," says Leslie. He believes the old procurement process has broken down because everything has now become UORs. "The wars have solved the immediate problem but they have given us another to deal with."

North adds: "Procurement appears to be overhauled by default by the UOR system. But will this have any effect on the longer term projects such as Carrier, Trident replacement, FRES (ships, submarines and new armoured vehicles)?"

SUPPLIER RELATIONS Buyers and suppliers agree on one thing - a focus on faster procurement has led the two to work more closely together.

QinetiQ, the former MoD research and development organisation, said urgent requirements were going straight out to industry and "in certain circumstances can be done in days or weeks".

For example, a communication system for helicopters went into operation within eight weeks. Normally this would have taken more than a year but it was completed rapidly because "UORs mean both parties are working together".

General Figgures agrees: "We work with the supplier, with Defence Equipment and Support, and with the government so we have clarity on what we want." Knowing what you want, and communicating it to industry, makes it much easier for suppliers to meet that need.

Ed Savage, a procurement expert at PA Consulting, and a former RAF officer who has advised the MoD on some major programmes, believes this closer working relationship has improved the success rate of equipment delivered to the frontline: "Whatever is procured this way has to work first time - and it invariably does because the MoD has developed a robust approach to capability development."

The MoD is now more focused on deciding precisely what equipment it wants. For the past four years it has been running defence acquisition workshops with suppliers. At these meetings everybody is able to say what they feel without fear of repercussions for their career or loss of contract.

"This has spawned a real sense of community and improvements to the acquisition process," says Savage. "There are now many engagements where the top team from the MoD is sharing information with its suppliers in a way it has never felt comfortable to do before. This results in a greater shared understanding and more effective matching of supply and demand."

The practice meant that suppliers were brought into the process and felt part of "Team Defence", he adds.

Another improvement is that civilian engineers now operate alongside armed forces in battle zones to get equipment working correctly. This has led to some useful joint working between armed forces personnel who can state what they need and why, and engineers who understand their requirements and can feed the information back home.

Matt Fincham is a former officer in the Royal Logistics Corps with operational tours in Iraq and Afghanistan and now a communications adviser for the Defence Industries Council. He believes the MoD and industry have become "incredibly integrated".

An example of this, he says, is Thales engineers based in Helmand with responsibility for getting Hermes 450 UAVs (Unmanned Aerial Vehicles) off the ground. "They hand it over to Royal Artillery personnel for missions and when it is over they hand it back for maintenance."

Another issue is improved long-term planning.

Savage argues the much-lauded Defence Industrial Strategy (DIS), which resulted from the early defence acquisition workshops, made a significant contribution to relationships with industry and spawned alliances between key suppliers and the MoD to protect key capabilities for the UK.

Introduced in 2006, the DIS sets out a 10-year buying plan for the UK military.

For the first time, it gave a policy framework for how government and industry should meet frontline needs as well as a strategic view of each sector of the defence industry. It recognised that with fewer units being built and greater time between programmes you cannot expect there to be a submarine industry the next time you come to build a new boat. It also acknowledged the need to keep a large chunk of industry in Britain so equipment could be maintained and upgraded.

A review of the MoD's procurement capability by the OGC, published earlier this month, found the MoD has come along way since the DIS. But North is worried defence procurement has become as much about providing local employment as getting the right hardware for soldiers. "Hence you get the Future Lynx, ordered mainly to keep a helicopter manufacturing capability in the UK," he says.

A sum of £1.9 billion was approved for 60 helicopters - more than £30 million each, continues North. But the Blackhawk - the mainstay of the US battlefield fleet - cost £3-4 million, has greater capacity, proven performance and was available off-the-shelf; whereas the Lynx will not be delivered before 2014.

However, with its base in Yeovil, Somerset, the order guaranteed 3,000 jobs for Britain's last helicopter manufacturer.

Lewis Page, author of Lions, Donkeys and Dinosaurs, the bestselling critique of MoD spending, said the biggest problem was the existence of a "significant but badly limited onshore UK arms industry".

He adds: "If this industry can make any given piece of kit, it will be permitted to almost regardless of price. This means British forces usually have to pay most of the development costs, and buy early on from small production runs. As a result, prices are very high for capability delivered.

"The UK pays three to 10 times more than it needs to for anything," argues Page, a former Royal Navy underwater bomb disposal officer, who believes the real reason for the Britain's "military-industrial protectionism" is jobs.

"In a typical UK/European project, one could buy a better American product off the shelf, give every sacked/not-hired UK worker a million pounds, and still save hundreds of millions for the Treasury."

The way Labour MP Bruce George - chairman of the Commons' Defence Committee from 1997 to 2005 - sees it, poor defence procurement is not a modern ailment.

Addressing fellow MPs last year, he said: "Every single war in which our Armed Forces have engaged was either just about won, or even lost, not just because of poor leadership but because of poor procurement.

"Poor equipment has existed as long as warfare. The best minds and organisations, with the best will in the world, have not yet led us to produce the weapons and the equipment required for our Armed Forces within the original budget that actually works.

"Despite all our efforts, defence procurement is an attempt to do the undoable. Other countries have failed equally miserably, and some far worse."

The OGC review says while significant progress has been made in terms of skills and commercial practice, long-term behavioural change was needed to "deliver consistent procurement excellence". It concluded the commercial function was "underpowered at a senior level to deliver change"; and while work defining some key processes has begun there is as yet "no comprehensive procurement systems strategy."

Although improvements have been made - with better communication between buyers and suppliers and spockets of excellence - problems look likely to persist for some time.

Thomas Harding is defence correspondent at The Daily Telegraph

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Major defence projects around the world have become very complex. Therefore they are subject to delays and cost overruns with few countries getting the right balance of price, timeframe and relevant or reliable equipment.

Russia Produced some world-beating arms such as the AK47, rocket-propelled grenade, the Su-27 and MiG 29 fighters. But elsewhere the work is patchy with a lack of money to maintain current equipment or develop for the future. The Georgia invasion last year showed how far behind Russia was in high-tech warfare.

France The situation in France is similar to Britain: some good, some bad, some indifferent. The Leclerc main battle tank has proved to be complicated, expensive, under-armed and with a weak engine. The same could be said for the Rafale fighter, which will struggle to find many foreign buyers. But the French are doing well at shipbuilding.

China Outside the small arms industry it is difficult to see how well China is placed because of immense secrecy. It does occasionally surprise the world by wheeling out supposedly advanced projects but these tend to be mock-ups such as the JXX fighter that was meant to be on a par with USAF's highly advanced F22 Raptor. The latter is in service the former is not. There are talks of an aircraft carrier fleet but this is some years off, 2020 or later. What is clear is that Chinese defence spending has increased markedly while the fat of the military has been trimmed.

India Has a growing defence economy, which is on a par with China, but there is still a considerable amount of waste. It has yet to develop an exportable fighter and its main battle tank project is a disaster. It has to import much of its equipment from Russia, America and, to a lesser extent, Britain.

America With the luxury of a £350 billion defence budget - six times bigger that the next nation's spend - the Americans can afford to throw enormous amounts of money at a project until it works well or they can just walk away. It is very wasteful but does tend to produce weapons that have no equal. Some would say Britain does more with less cash. America also has the advantage of mass-production, which reduces the unit price.

This article is taken from the July 2010 edition of Defence Focus Magazine .

8 Jul 10

Keeping the forward operating bases supplied in Afghanistan is no easy task, but one that is crucial to the success of the mission. Sharon Kean reports on how combat logistic patrols (CLPs) do their work.

A convoy of military vehicles stuck in the middle of the Afghan desert is a sitting duck - an easy target for the Taliban. So, the lorries and armoured support vehicles that take supplies to soldiers on the front line don't stop, unless it's absolutely necessary:

"Troops eat on the go, they pee on the go," said Captain Julie Booton, a reservist attached to 12 Logistic Support Regiment during its current stint in Helmand.

She monitors the convoys and tracks their progress from an operations tent in Camp Bastion:

"Even the girls are issued with bottles and 'she-wees' [cardboard funnels]," said Captain Booton.

"Some of the female drivers were concerned at first, but we try to put them in cabs together. It's harsh but they get on with it and get used to it."

Private Jessica Cheek is a communications specialist who travels in a Mastiff armoured vehicle as part of the force protection team that guards convoys on their long haul journeys:

"There's quite a few of us in there," she said, pointing to the Mastiff's forward cab and compact rear compartment.

A supply convoy makes its way cautiously through the Afghan desert
[Picture: Sergeant Anthony Boocock RLC, Crown Copyright/MOD 2008]

"Driver, vehicle commander, force protection commander up on the top, an interpreter, someone monitoring updates from other patrols, and myself."

Convoy loads are not limited to ammunition, fuel, food and water, although these must take priority. Just as often the trucks will carry earth-moving vehicles used to build and develop smaller bases across Helmand.

Combat logistic patrols, generally of 50 or more vehicles, leave the main British and US base at Camp Bastion every week or so. They may be gone for a week, and must be self-reliant.

"We can't just use the easiest routes, because that would make us an obvious target."
Lieutenant Dave WebsterMajor Joe Chestnutt is a regular convoy commander:

"They can be very long trips - more than 40 hours," he said. "We travel slowly because there are threats all along the routes. We carry out checks, which add time, as do any incidents along the way."

The vehicles tend to begin their trips under cover of darkness, minimising any immediate Taliban threat. However, travelling by night poses its own risk. It is much harder to spot signs on the ground that might indicate an improvised explosive device (IED):

"Adrenalin and some good banter with the boys keeps you awake," said Major Chestnutt.

He led one of the biggest convoys ever to leave Camp Bastion, a 217-vehicle patrol with over a 60-hour outbound journey. That combined UK-US operation saw 609 soldiers travel 90km north of Bastion to Musa Qal'ah.
The convoy took earth-moving machinery and power-generating plants to the American Marines who were moving into the area, and brought back British equipment. The round-trip took more than a week:

"We can't just use the easiest routes, because that would make us an obvious target," said troop commander Lieutenant Dave Webster.

This means drivers and their vehicles must battle with the harshest aspects of the Afghan landscape - dried-up river beds and steep ascents and descents over rock-strewn tracks.

Desert sand brings its own problems, said Lieutenant Webster. Drivers have to deal with sand being blown up by the wind, making visibility very poor:

"The soft desert sand makes manoeuvring very difficult," said Lieutenant Webster. "It makes it hard to see the vehicle in front, and also makes it hard to spot booby traps, even in daylight."

Excitement and even enthusiasm are almost palpable as the soldiers get ready for their night-time departure. The padre blesses every vehicle and hands out sweets. Sometimes (but not tonight) there's a piper at the gates. It all adds to the buzz of anticipation and the vital sense of cameraderie.

A soldier, brandishing two glow sticks, marshalls the enormous armoured trucks out of the camp's main gates. One by one, they leave to a chorus of horns and cheers from those left behind.

A convoy prepares to leave Bastion under cover of darkness
[Picture: Corporal Lynny Cash RAF, Crown Copyright/MOD 2010]

Those remaining in camp hone driving skills, maintain vehicles and generally prepare for the next time they must dodge the bullets and IEDs:

"The insurgents' home-made bombs have had a massive effect on the way the regiment works," said Captain Booton.

"Understanding the threat and learning how to counter it is a huge part of our training. The threat dominates everything we do, from the metal-detecting drills to the way we drive."

"It's not uncommon for a convoy to be hit by three or four IEDs during a patrol, and to come under small arms attack between ten and 15 times. Generally, it is the vehicles that are damaged rather than the crews inside," said Captain Guy Mason, one of the officers who helps plan the combat logistic patrols.

"Although last time two casualties had to be evacuated by helicopter and flown back to Camp Bastion."

Clearly, the insurgents' objective is to stop such convoys leaving camp at all, isolating the forward operating bases and making it impossible for civilian and military teams to bring development aid to local civilians.
That the juggernauts continue rumbling through the gates and into the Afghan desert is evidence that, so far at least, the insurgency has failed.

LAND LOGISTICS

MAINTENANCE ENGINEERING VISION 2020

Colonel C.A.S. LOTT

Backdrop

The Army finds itself operating in a changed and changing environment. As the deployment of conventional weapon systems in large numbers have declined and the prospect of full, inter-state conflict dwindles, the converse is true of the exponential growth in light weapon systems in the hands of committed, highly organised, lightly armed, street smart partisans. It seems that each time modern, heavily armed, regular, state owned forces take on such partisans or insurgents, they are defeated and often embarrassingly.

In the future, it is likely that the Army will face a growing number of deployments aimed at preventing or defeating a proliferation of non-state, trans-national criminal activity ranging from smuggling and other criminal activity, to exploitation of national resources through to low level interventions such as the East Timor and Solomon Island deployments. These threats are multiple and could occur simultaneously.

This is not to say that the Army should not be prepared for and capable of engaging in higher-level conflicts. It is likely however that any higher level Army deployment will be as part of an international coalition, because in the modern and developing contexts, coalitions of the willing deployed to defeat a threat are seen as credible whereas unilateral deployments are not. In this context, the Army will require capability and support to it that is that is reliable, available, maintainable and versatile (multi-functional) and capable of operating alongside our partners without being a burden on their support systems. To be a coalition partner of choice, the Army must be self deployable, self contained and self supporting.

Maintaining interoperability, particularly with our coalition partners and allies is clearly now more important than ever. Interoperability is important as it actively facilitates vital activities such as information exchange, standard operating procedures, and in some cases, (e.g. Army and ADF mutual use of the ANZAC frigate) common equipment. Greater interoperability also enables us to operate more effectively alongside forces whose military capabilities, doctrine, and cultural background whose differ from our own.

The pace at which technology is developing means that the Army cannot rely on bespoke systems;- the Army cannot afford the costs of ongoing support of a plethora of bespoke systems and it most certainly cannot afford the risk of personnel who develop them leaving the service and taking the corporate knowledge of them with them. Instead the Army must reorientate its capability and systems thinking more towards commercial-off-the-shelf (COTS) and military-off-the-shelf (MOTS) so that capability and systems are supportable through life if necessary by a third party.

As the cost of maintaining military capability escalates, populations of equipment may decrease and demands on equipment and its associated logistics (including engineering) systems will increase. Providers (governments) of capability will increase their demand for cost-effectiveness in the provision of support and will seek to optimise inventories of repair parts, rotables and engineering consumables.

The developing multi-agency nature of the Army's tasks also carry with them additional demands; demands that if not reasonably met, could cause pan-government friction where 'blame' and mistrust becomes a distasteful feature of doing pan-government business.

As technology advances, capability will be fielded with self test and diagnostic functionality (previously known as BITE) and a proliferation of potentially unaffordable (for the Army) specialist tooling and test equipment (STTE) may result.

As this focus changes, the Army will need to engage its capability and system suppliers and shape them towards establishing strategic alliances, collaborative working arrangements (CWA) and logistic and engineering support agreements that enable asupplier's capabilities to be accessed by Army logisticians, engineers and support personnel. Inevitably this will result in a transition from purely military logistics, engineering and support to a mix of contractor provided support and military provided logistics.

As we go forward into the future, attention within the Army must be paid to initiatives that develop joint ways of carrying out military operations and preparing military forces. Developing common approaches to tasks, and reducing the boundaries and unprofessional rivalries between military Services will open up opportunities for innovative combinations of capabilities and contributions of different Services. Quite simply, more can be achieved when previously separated resources and structures are brought together.

Over the last three decades, New Zealand's allies and strategic partners have established jointness as the standard for professional working relationships. Certain trends associated with this move towards jointness include moving through jointness towards integration; increasing the jointness of force structure; and increasing the amount of capabilities that are 'born joint'. Jointness amongst military services has its international counterpart in military forces from many countries being able to effectively work together. The same benefits of jointness apply in the broader inter-agency arena of Government planning and responding to complex emergencies. Finally, jointness is extending its relevance to the integrating different contributors to preventing, curbing and resolving conflicts.

Maintenance Engineering In 2020

General. Maintenance engineering in the Army will be very different than it is currently. The function will see a significant reduction in 'hands on' technical engineering, replaced by high speed, high reliability diagnostics, predictive MRO and repair by replacement. We are already seeing a steady reduction in the costs of producing electronic and electro-optical components. As technology develops, this reduction will make it more effective (in terms of time cost and quality) to repair defective items by replacement often by deployed, non-engineering people. The advent of 'disposable' components will force a change in engineering inventory holding patterns, so that supply can be guaranteed by velocity rather than by mass holding as at the present. MRO will be controlled by a smaller number of engineers sitting remotely from the equipment they are charged with maintaining and in this regard configuration management will be absolutely vital to the MRO functions.

Integrated Logistic Support. Integrated Logistic Support (ILS) has been adopted by the Army as a key tenet of materiel management. Some components of the ILS methodology are and will continue to be inappropriate for the Army however functions such as reliability centred maintenance (RCM), failure, mode, effect and criticality analysis (FMECA) and levels of repair analysis will assume greater importance in managing materiel through life. Such analyses will be required to determine how, when, where and why MRO will be required. Without these analyses commanders' at all levels will face significant operational dilemmas.

E-Enablement. The power of the internet should not be underestimated. Though security issues exist at present, technology is moving to correct those so that in the future much of the engineering supporting information will be accessed from the internet. E-enablement will remove the traditional stovepipes between supply, distribution and engineering to the extent that all will contribute, though at times unequally to the Army's value chain. E-enablement will allow significantly more integration than is possible now and it will certainly allow engineers across the three services to collaborate, share the burden of providing engineering support and share the rewards. Instances such a HMNZS Canterbury's engineering support to Dili Command during the early operations in East Timor, clearly demonstrate the utility of adopting an integrated, multi-functional approach to maintenance engineering and engineering services. E-enablement also allows commanders' real or near real-time visibility over the combat asset's performance, condition and remaining lifespan. E-enablement allows an immediacy in decision making based on the best information available at the time. E-enablement means one system.

Asset Tracking And Visibility. Track and Trace technology will develop to the extent that 'visibility' of engineering components will improve towards real time or near real time. The technology is available now and is used by airlines, courier and freight companies and most major engineering component suppliers. The Army's EAN 128 LOGTRAK system will have been deployed and will be extended to encompass visibility of all mission essential and mission critical assets and components no matter where they are in the pipeline. This will include the ability to track major components, main sub-items and rotables and more importantly any materiel that is serialised or batched. Longer term, the use of radio frequency identification (RFID) will be applied to most items of materiel

that the Army operates with or consumes. Technicians will be using scanners and PDM/PDA to record engineering information remotely which, will automatically update the engineering database when re-cradled or when passing an electronic pickup.

Self Diagnosis. As technology advances, significant steps are being made to reduce the reliance on people to effect diagnosis and repair to military hardware. In many cases the electronicisation of military equipment has advanced to the extent that built in test and diagnostic equipment (BITDE) is the norm rather than the exception, certainly as far as the first level of repair, which is usually conducted by operators. The cost benefit applied to printed circuit boards (PCB) means that 'card' replacement over PCB repair is often more effective, in terms of operational availability (A_o) to replace a card than it is to forward it through the supply chain for repair. In many instances, Intellectual property issues means that component repair can only be conducted by the Original Equipment Manufacturer, imposing significant delays in turn around. The increasing impact of the International Treaty on Arms Reduction (ITAR) will exacerbate this situation. Likewise for the more basic mechanical, hydraulic, pneumatic equipment and components it is often cheaper and more effective to 'repair by replacement'.

Predictive, Reliability Centred MRO. In line with the above, there will exist an absolute requirement to operate under a reliability centred maintenance (RCM) philosophy where component or equipment failure can be predicted and corrective action can occur before failure. Such a methodology requires access to historical data and trend analysis and in many cases original equipment manufacturers (OEM) are able to predict when equipment of components thereof will fail and the likely effect (mission critical or non-mission critical failure). With a general reduction in the number of dedicated platforms and but a commensurate rise in their multi-functionality, predictive maintenance will be vital if appropriate levels of A_o are to be maintained without overly stressing repair organisations or inventory levels. RCM will be a vital tool in forecasting resources (people and finance) required to effect maintenance engineering.

Virtuality. As has been witnessed by the medical fraternity, virtual surgery is becoming more mature. It is highly likely that this will migrate to engineering as military forces start to feel the effects of a shrinking population base from which to draw highly specialised engineering staff. The conduct of MRO by remote, its conduct using interactive software and indeed its non-conduct (by replacement) will become a reality within the next ten years. The Army may well find itself in the situation where deployed engineering staff are far less qualified than they are now, but that the centres of excellence as far as engineering goes will remain NZ bound and will provide detailed engineering solutions vie live or virtual video, audio or data links. A scenario could evolve whereby a lesser-qualified marine engineer afloat for example, would be 'talked' through a MRO task by a very highly qualified engineer sitting in front of a video console directing the task in detail. In the longer term it is quite possible that that engineer will conduct the repair by remote using robotics and in the very long term, robotics could conduct the maintenance or repair *in toto* automatically.

A future scenario could be a situation where a platform, in performing routine self-diagnostics determines that a component is reaching its predictive failure point. The platform, automatically logs the required technical breakdown spare parts requisition on the supply chain and informs 'maintenance' (be that human or robotics) that the part/s has been ordered. The purchase order is cut, again automatically, the part is shipped and tracked using LOGTRAK, the supply chain advises 'maintenance' when the part/s has been received, the maintainer conducts the work, scans any serialisation/batch requirements, electronically signs off the work as having been completed, the suppliers invoice is paid and all technical records are automatically updated. The only human involvement from an Army perspective is the maintainer physically fitting the part/s and even that may not occur.

Compliance. As the world, through the process known as globalisation moves to mitigate risks to people and the environment, compliance with international and national standards will grow. This will bring with it increased costs of compliance which, in the future will be difficult to quantify until an 'event' identifies 'lessons'. The Army is being exposed to compliance issues associated with the Hazardous Substances and Noxious Organisms (HSNO) legislation which, when it was passed was not thought to have a significant impact on the way the Army does its business. Increasingly, the Crown is not immune from the effects of compliance with environmentally based, people safety based or natural resource based legislation and this is likely to expand internationally as various pressure groups, non-governmental organisations and international bodies exert their influence on a world that is rapidly beginning to understand the finite nature of its resources. Engineering will not be exempt from being directly affected because it will be to engineering personnel that architects of compliance legislation will look to provide solutions.

Engineering Personnel. Many organisations have conducted environmental scans to determine the environment that they will find themselves operating in the future. With almost no exceptions, organisations note that the pool of people available for employment is shrinking as developed nations' population growth slows and their population's age. The Army will also find itself in the position of openly competing with industry and commerce for a shrinking pool of military aged people. The Army will need to replace people with technology but there is only so far that an organisation can go with this. The Army's engineers of the future will be multi-talented (probably dealing across engineering disciplines) and will for the most part be highly qualified in order to certify compliance. The Army engineer of the future will operate in a totally integrated environment where trans-disciplining will mean a blurring of the currently very clear lines of demarcation between marine, aircraft and land based equipment engineering.

Conclusion

Maintenance engineering in 2010 and beyond will be completely different than it is now. Systems, processes and procedures will be largely automated and access to real or near-real time data will be fundamental to warfighting. As military hardware becomes more technologically complex, it will also become more multi-functional and expensive. This will be offset by a requirement for fewer platforms.

Post 9/11, the developed world has seen a far more whole of government approach to matters defence. This will continue as the world realises that the changed and changing threats are not necessarily Defence Force's first response. This means a requirement for guaranteed A_o as first respondent's call on Army assets to complete their roles and meet their prescribed outputs.

Within the engineering community, e-enablement, virtuality and electronicisation will supercede human involvement in logistics and engineering activity. Human involvement will be restricted to QA, QC analysis and forecasting though even these two functions could be automated. Also within the wider engineering community, contractors and OEM will assume more responsibility for providing maintenance engineering support as the Army struggles to fund rapidly increasing and improving technology.

Between now and the future, the Army engineering environment needs to position itself to become 'network centric' – that is the way our allies are moving and that is the only way we can maintain our coalition partner of choice reputation. This means that our IT and IS must be integrated, seamless and connected. Our IT and IS must be plug 'n' play and our engineering systems, processes and procedures must become common and understood.

Next Issue – Supply to 2020

seamos realistas – exijamo lo imposible

Che Guavara

Translated - be realistic – examine the impossible

Logistics in the PLA

Dr Martin Andrew

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The Chinese People's Liberation Army's (PLA's) emphasis on *xinxihua zhan* (informationalized warfare) has now been superseded by the concepts of *Pei Shu* and *Zhi chi*. *Pei Shu* translates to "attaching troops to a subordinate unit," meaning creating independent battle groups within the division or augmenting a division seamlessly with heavier forces. *Zhi chi* means "to support," which describes the creation of a battlefield logistics organization able to supply and support forces deep inside an enemy's rear area. This support is envisioned to be based at the corps level and include brigades, which are further split into combined arms battle groups that are generally based around a battalion headquarters (and normally a manoeuvre element).

Logistics, being the "poor cousin" of combat arms, suffered from inadequate funding from the birth of the PLA until very recently. The reorganization of units into mechanized brigades and the emphasis on out-of-area operations meant that logistics had to be updated. In 2005, the General Logistics Department (GLD) embarked on the modernization of its combat logistics capability to enable sustained operations on China's periphery and beyond its borders.

This article looks at how, in 4 short years, the PLA has created a modern logistics organization capable of supporting extended large-scale operations outside its main operating areas.

Peace Mission 2007

The Peace Mission 2007 exercise between Russia and China in Russia's Chelyabinsk Oblast was held in July 2007, and besides being the first major test of the *Pei shu* concept, it was used to show that the PLA could now create and deploy a composite *zhandui* (battle group) of light armour and helicopters. This battle group was created from existing forces and was able to conduct light infantry operations, including counterterrorism, reconnaissance, and screening operations across a wide area.

For this exercise, the PLA deployed—

- A wheeled mechanized infantry battalion comprising 40 type 92 wheeled infantry fighting vehicles and 15 type 92A wheeled armoured personnel carriers.
- Two companies of 18 PL02 100-millimeter assault guns, each mounting an enclosed turret with a 100-millimeter cannon and a coaxial 7.62-millimeter machinegun.
- One battalion of 16 Z–9W attack helicopters.
- One battalion of 16 Mi–17 Hip multi mission helicopters.
- A company of 12 ZBD–03 airborne combat vehicles, each with a mounted 30 by 165- millimetre automatic cannon and a coaxial 5.8-millimeter machinegun.

The 55 wheeled vehicles and 18 PL02 assault guns use the WZ551 six-wheeled armoured chassis.[1] The entire ground force was moved by train, and the helicopters were flown from Xinjiang. The type 92s can transport a mechanized infantry battalion of three companies with the support provided by two companies' worth of the assault guns, which is an unusually large amount of *huoli* (firepower) for a mechanized infantry battalion. The type 92As provided transportation for the battalion headquarters and company support weapons. Deployed infantry support weapons included the QBZ87 35-millimeter automatic grenade launcher, PF98 120-millimeter antitank rocket launcher, and type 74 backpack flamethrowers. The Mi–17s could lift two infantry companies with their support elements, providing the brigade commander with six company-level manoeuvre elements. The Z–9W attack helicopters provided aerial reconnaissance, fire support, and liaison. The brigade provided its organic resupply and medical evacuation capability through the type 92A armoured personnel carriers and Mi–17 helicopters and used its own logistics support for ammunition and spare parts.

Current Battlefield Logistics

On 11 August 2009, the PLA launched an exercise called Stride-2009. One of the exercise's major objectives was to improve the PLA's ability to project long-range power. Stride-2009 was China's largest ever peacetime tactical military exercise and its largest deployment of armour since the 1979 Sino-Vietnamese War. The exercise involved over 50,000 personnel[2]. The general staff headquarters planned and wrote the manifests over a 3-month period to prepare the rail network and arrange for China's civilian airlines and military transport fleets to provide passenger and specialist cargo flights.

A mechanized division from Shenyang Military Command (northeast) was transported to Lanzhou Military Command (northwest), and troops from Jinan Military Command (east) and Guangzhou Military Command (south) were exchanged. The move was important because it enabled the PLA to identify and then rectify difficulties of moving their two elite combined arms mechanized corps between Xinjiang and Shenyang. The purpose was to identify problems and enable rapid reinforcement in the event of a crisis.

Each deployment lasted 2 months. Upon arrival, they were put through a series of live-fire exercises. The forces in Jinan were required to support an invasion of Taiwan and the forces in Guangzhou in the event of an armed intervention into North Korea. The personnel were moved, whenever possible, by air, and the heavy equipment was moved by rail. However, the lightly armoured troops deployed to Jinan Military Command went by China Railway's high-speed trains, which travel up to 350 kilometres per hour.

In the new combined arms mechanized corps, the logistics brigade is held at the corps level and logistics support is supplied directly to the brigades and battle groups using a "pull system." Besides military operations, the new logistics brigade tasks involve providing logistics support for military operations other than war, which include flood control and resulting rescues, earthquake and disaster relief, nuclear and chemical terrorism, and counterinsurgency operations.

For the exercise, the logistics brigade issued 34 kinds of equipment and 4 categories of special instruments to dedicated companies, platoons, squads, and individuals. It evaluated command and control issues as well as the amount of equipment required in the event of a particular mission.

Before the exercise, the logistics brigade stressed the need to outsource equipment and facilities for military operations other than war, sign support agreements with civilian equipment and facility supply and maintenance providers, and build (according to the brigade) "a reliable outsourcing support network for equipment and facilities."[3] The logistics brigade for the Xinjiang combined arms mechanized corps initiated a similar system that included the provision of logistics support on over 1,900 miles of road network and at elevations of 14,000 feet and higher.[4]

Battlefield Resupply

Most of the vehicles used for resupply are *Dong Feng* 4 x 2 and 4 x 4 medium trucks, which are based on various models of Mercedes-Benz trucks. Resupply near the forward edge of the battlefield has been made easier with the recent introduction of the type 06 tracked armoured supply vehicle.[5] The vehicle is larger but similar in appearance to the type 85 armoured command vehicle. It has a modified hull from the type 83 152-millimeter self-propelled gun-howitzer, six armoured hatches on the roof, and a crane mounted on the left side behind the commander's cupola. The vehicle's main role is to supply ammunition for the division's self-propelled guns.

Weighing in at 19 tons fully loaded, the type 06 has a maximum road speed of 65 kilometres per hou and maximum road range of 500 kilometres. It can climb a 32-degree slope and can be on a 25-degree slope without rolling over sideways. The vehicle uses 3 crewmembers, and the vehicle commander has a 12.7 by 108-millimeter machinegun

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1. Compiled from: "Heping shinming-2007 duoguo lianhe kandian jiexi," *Binggong keji*, Zhongdi 2007, pp.18–21; Kuachu guomin-zhanxiong feng-"heping shinming _ 2007 yanxi zaixian shang," *Tanke zhuangjia cheliang*, 2007 Niandi, 9 Qi, Zhongdi 259, pp. 17–19; "Jiefangjun kuaifan zhuangbei liangxiang," *Guoji zhanwang jianduan keji baodao*, 2007 Niandi, 16 Qi, Zhongdi 570, p. 21; "Wanli furang-heping shinming-2007 fankong junyan," *Hangkong shijie*, 2007 Niandi, 9 Qi, Zhongdi 99, pp. 16–23.

2. "PLA Kicks off Largest Long-Range Tactical Military Exercise," *China Military Online*, 11 August 2009, http://eng.chinamil.com.cn/news-channels/china-militarynews/2009-08/11/content_4020975.htm, accessed on 18 August 2009; "Largest Ever Mobilization of Troops Sees 50,000 Move Across Nation," *China Military Online*, 12 August 2009, http://eng.chinamil.com.cn/news-channels/china-military-news/2009-08/12/content_4021351.htm, accessed on 18 August 2009.

3. "Brigade Carries Out Equipment Support Exercise Under Complicated Conditions," *Chinese Military Online*, 27 August 2009, http://eng.chinamil.com.cn/newschannels/china-militarynews/2009-08/27/content_4029337.htm, accessed on 28 August 2009.

4. Xu Bicheng and Zhang Yingxiang, "Support Brigade Explores Joint Support Methods in Joint Operations," *PLA Daily On-Line*, 18 December 2008, http://english.chinamil. com.cn/site2/news-channels/2008-12/18/content_1590465.htm, accessed on 19 December 2008.

attached to his cupola on a circular frame. Four twin 76-millimeter smoke dischargers complete the vehicle's armament.

Forward-area logistics will be improved further with the acquisition of the 4 x 4 Hummer license and production facilities by Sichuan Tengzhong Heavy Industrial Machinery Company, Ltd., from General Motors. The PLA had been sorely lacking in the area of logistics vehicles.[6] The use of personnel as porters to move munitions and supplies forward is now a thing of the past.

Base Feeding

Until recently, providing personnel with food during military operations had been largely the responsibility of the provincial militia. This was a huge problem for units operating on China's periphery, and the 1979 Sino-Vietnamese War exposed all the problems that occur when relying on the militia for logistics support. The logistics chain broke down and struggled to supply even modest amounts of food to the front line. And the PLA logistics chain had not been improved since the Korean War.

Until 2005, units in mountainous and remote areas suffered from a lack of fresh food and, throughout the PLA, there was a general lack of suitable and standardized meals and menus.[7] In November 2005, to improve nutrition, the GLD directed that "a cup of soymilk and an egg be provided for each serviceman at breakfast." Companies were also directed to "prepare fruit for servicemen two to three times a week if conditions permit." [8]

The standard and quantity of food for Chinese soldiers had decreased markedly since the Korean War and were long overdue for improvement.[9] In established messes, catering for more than 500 personnel, electronic ovens, freezers, and machines to make noodles and bean curd were introduced.[10] Rear-echelon units received the equipment first, and the arms messes, staffed by the units at the company level, benefited from these improvements as funding permitted.

In July 2009, the rations were further improved. The PLA's basic daily ration for enlisted personnel and commissioned officers started to include more fresh fruit and an increased proportion of animal protein in the form of dairy, poultry, and seafood. Some pork and beef meals were replaced by poultry and low-fat, high protein seafood.[11]

Field Feeding

In the field, new mobile kitchen vehicles have been introduced. One vehicle enables 4 cooks to prepare 4 different hot meals and a soup for 300 people in less than an hour.[12] The long-held tradition of squads eating from the same rice bowl was only discontinued in 2003 because of the fear of spreading diseases like severe acute respiratory syndrome (a fact that raises questions about the PLA's prior commitment to controlling disease and contamination). In PLA infantry units, which operated in groups of four or five, eating from the same rice bowl was seen as a way of emphasizing group cohesion.

More importantly, new field water purification and environmental heath equipment has been introduced. The PLA's Red Army Division, which was used in opposing-force training, was the first unit to use new field water

5. Zhongguo 06 kuan zhuangjia buj che," *Bingqi Zhishi*, 2007 Niandi, 3 Qi, Zhongdi 233, pp. 28–36.

6. Aaron Smith, "GM Unloads Hummer to Chinese Buyer," *CNN.Money.com*, http://money.cnn.com/2009/06/02/news/companies/gm_hummer/index.htm, accessed on 25 November 2009.

7. Guan Daxue and Fan Juwei, "PLA Cooks Up New Menus to Beef Up Soldiers," *PLA Daily On-line*, 6 November 2005, http://www.chinamil.com.cn, accessed on 6 November 2005.

8. Guan Daxue and Fan Juwei, "Making Dishes More Nutritious for Officers and Men," *PLA Daily On-line*, 3 November 2005, http://www.chinamil.com.cn, accessed on 4 November 2005.

9. In December 1952 the daily ration was 900 grams of cereal, 670 grams of meat, vegetables and oils with 180 grams of condiments (soy sauce, salt, spices). C.R. Shrader, *Communist Logistics in the Korean War*, Greenwood Press, Westport, CT, 1995, pp. 94–95.

10. Guan Daxue and Fan Juwei, "PLA Cooks Up New Menus to Beef Up Soldiers."

11. "Food Quota Standard of PLA Troops to be Adjusted," *PLA Daily*, 4 June 2009, http://english.chinamil.com.cn/site2/news-channels/2009-06/04/content_1787079.htm, accessed on 7 June 2009; "PLA to March on Better Fed Stomachs," *PLA Daily*, 5 June 2009, http://english.chinamil.com.cn/site2/news-channels/2009-06/05/content_1787761. htm, accessed on 7 June 2009.

12. Ding Shunguo and Zhao Gonghu, "Military unit develops modern cooking equipment for field operation," *PLA Daily On-Line*, 4 January 2005, http://www.chinamil.com.cn, accessed on 5 January 2005.

purifying equipment, field showers that use solar energy for heating, and other equipment to improve field environmental health.[13] These systems enable sustained operations without having to depend on the local population for rations or water.

A GLD-run deployment sustainability exercise and the joint Sino-Russian Peace Mission exercise in August 2005 revealed the improvements required for the PLA to perform logistics missions on extended operations away from established infrastructures. Areas highlighted included the need for improved combat uniforms and personal protective equipment, high mobility transportation, modular equipment, and better systemization of the logistics supply chain.[14] Supplying personnel with adequate food supplies in the field also received special mention; it had been a constant issue in the PLA since its inception.

To enable sustained operations in the field without the need for resupply, the PLA introduced in 2005 the 05 series of prepackaged field rations, which were in short supply for the exercise.[15] The rations use ring-pull cans containing such delicacies as seafood, bird, fruit, green vegetables, and meat with rice. Soup bases to accompany the main courses are available in individual soft foil pouches. MCF–240 military compressed food ("iron ration") blocks are also available in a halal version. These are heated in a flameless heater pouch similar to meals ready-to-eat. The pouch can heat meals to 60 degrees Celsius.[16] For the squad, there are 10-man boxed rations as well as the individual rations mentioned earlier.

PLA forces on extended operations can now eat well without having to forage off the population. Specific cold-weather ration packs are now available and come in self-heating, tinned, soft packaging.[17] A battery-operated thermostat similar in size to a portable calculator can be plugged in to special heating pouches, enabling food, such as rice, to be heated up to 60 degrees Celsius. Motorized and mechanized units previously had eaten cold rations or used heat from their running engines to cook their meals. Soldiers involved in cold-weather operations require meals with more carbohydrates, fats, and protein to increase red blood cell formation.

Battlefield Engineering

The PLA has an array of vehicles to enable and enhance battlefield mobility. For gap and river crossings, the PLA employs two types of pontoon bridges: the type 84 bridge-laying tank and the truck-mounted scissors-type folding bridge that incorporates built-in pylons.[18] For initial crossings, the PLA has motorized small rigid inflatable boats and an amphibious four wheel drive vehicle that is almost identical to the U.S. Army's World War II amphibious jeep.[19] Replacing the type 62 light tank with the type 03P amphibious tank will enable reconnaissance units to cross river barriers and paddy fields more easily but at the expense of armoured protection (although explosive reactive armour kits are reportedly available).[20]

The GJT211A armoured bulldozer is used for rapidly breaching minefields and battlefield engineering tasks.[21] Equivalent to the M9 armoured combat earthmover, it is equipped with a large bulldozer blade in the front and a tray over the rear of the hull that houses the type 84A rocket-launched mine-clearing explosive hose system.

To ensure adequate all-weather, high-altitude support, the PLA regularly operates in late autumn in Xinjiang in extreme weather conditions. In October 2005, an engineer regiment of the Xinjiang Military Area Command conducted a high-altitude, cold-weather exercise at 4,000 meters in the Kunlun Mountains.[22] The exercise comprised over 1,000 men with over 100 pieces of engineering equipment. The engineers developed new methods for providing support, including a rolling device that almost halves the time it takes to build a bridge, new types of

13. "New type of equipment enters service in training," *PLA Daily On-line*, 25 August 2005, http://www.chinamil.com.cn, accessed on 5 January 2005.

14. Bao Weidong and Liu Mingxue, "All-Army Quartermaster Equipment Inspection Yields Rich Fruits," *PLA Daily On-Line*, 25 September 2005, http://www.chinamil.com.cn, accessed on 26 September 2005.

15. "Zhandouli zhiyuan wojun junyong shipin zonghentan (xia)," *Bingqi Zhishi*, 2006 Niandi, 6 Qi, Zhongdi 224 Qi, pp. 53–55

16. Ibid.

17. "Zhantou lizhi yuan (liu) zi jiere shipin," *Bingqi Zhishi*, 2007 Niandi, 2 Qi, Zhongdi 232, pp. 66–67.

18. "Dujianghe jingong zuozhan (xia')," *Qing Bingqi*, 2005 Niandi, 8 Qi, Zhongdi 200, pp. 46–49.

19. "Dujianghe jingong zuozhan (shang)," *Qing Bingqi*, 2005 Niandi, 8 Qi, Zhongdi 199, pp. 5–9.

20. "Guochan 03P xingshuiliu tanke," *Qing Bingqi*, 2008 Niandi, 4 Qi, Zhongdi 246, pp. 20–21.

21. "Zhongjia gongcheng baozhung zhangbei," *Tanke Zhuangjia Cheliang*, 2004 Niandi, 12 Qi, Zhongdi 226, pp. 5–10

22. Sui Jianqiang and Xu Yunjian, "Engineer regiment of Xinjiang MAC toughens troops in freezing plateau areas," *PLA Daily On-line*, 26 October 2005, http://www.chinamilcom.cn, accessed on 26 October 2005.

camouflage suited to the terrain, and a new front-end loader.[23]

To repair vehicles in the field, the PLA has developed two vehicles to provide repair facilities for armoured vehicles in the forward battle area. The ZJX93 armoured rapid battlefield repair vehicle is based on the ZSD89 armoured command vehicle hull and is designed to provide rapid repair of armoured vehicles and quickly bring a stricken vehicle back into operation without an armoured recovery vehicle. The vehicle's crew of five has a comprehensive array of tools. It contains an automatic oil filtration system, a battery charger, test sets for the target, radio and stabilization systems, and tools to enable rapid entry into the disabled vehicle. Fully amphibious and weighing in at just over 15 tons fully loaded, the ZJX93 has a maximum road speed of 55 kilometres per hour and can travel 6 kilometres per hour in water. The vehicle includes a turret mounted type 59 12.7-millimeter heavy machinegun in a semi-enclosed turret, eight 76-millimeter smoke grenade dischargers, and three type 77/85 sub machineguns for close-in protection. It is a very busy vehicle with a smaller profile than the WZ8581 armoured maintenance vehicle.

The WZ8581 is based on the extended ZSD89 hull of the WZ252 tracked ambulance and has six road wheels instead of five.[24] The vehicle is basically a garage on tracks; the crew can access a comprehensive array of tools, including an arc welder, an air compressor, and a rapid battery charger. Designed to enable field maintenance of armoured vehicles during operations in the field, the WZ8581 visually differs from the WZ252 ambulance by having a 1-ton capacity hydraulic crane on the left side of the vehicle and a turret-mounted QJC88 12.7 by 108-millimeter heavy machinegun. The WZ8581 is also equipped with four twin 76-millimeter smoke grenade dischargers. The vehicle is amphibious, weighs 17.5 tons fully loaded, and has a maximum road speed of 60 kilometres per hour and a maximum speed of 5 kilometres per hour in water.

Battlefield Medical Services

PLA battlefield medical services have also been modernized. Currently, there are three stages of medical service before an injured person is evacuated to a major army medical facility. The medics collect the patients and provide immediate first aid, and then they transport the patients to the battalion aid post where they are stabilized. The patients are then moved to the field or divisional hospital for early treatment of their wounds.

With the reorganization of the PLA into a brigade and corps structure, the corps will now own the early stage treatment facility. The PLA is investing in its battlefield health services with the addition of armoured tracked ambulances that use both the type 85 and 89 chassis. The ambulance with the type 85 chassis is armed with a 12.7-millimeter machinegun, and the type 89, which is fully amphibious, is used to transport wounded personnel to and from landing craft or over water crossings.[25]

The extent of the PLA's need for modernization was demonstrated in August and September 2005, when soldiers deployed to the frontier border areas of the Guangxi Zhuang Autonomous Region were given individual medical kits procured by the Party Committee of the Wenshan Military Sub-Command Political Department.[26] Quality medical kits should have been standardized and available long before 2005, but the kits that the PLA had been procuring were no improvement over similar kits supplied to PLA soldiers in the 1960s.

Computerized Procurement

To cut costs while improving the provisioning of supplies in the field and in base areas, the PLA now uses computerized outsourcing and procurement to buy equipment, including tools, stationery, and engineering equipment, directly from the civilian sector. A division stationed in the eastern part of Liaoning Province in August 2005 tested the initial system with a mock emergency procurement drill (staged by the GLD) with local suppliers in northeast China.[27] The success of the exercise demonstrated that the system was viable and pointed the way for future "integrated army-civilian emergency procurement systems."[28] The system has since undergone expansion and improvement and is now in service throughout the PLA. The need to protect intellectual property when

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23. Ibid.

24. "Tanke zhuangjia chelingde 'hushi' he 'baomu' Wuguo yanshide WZ8581 ludaishe tanke jishubaoyangche," *Tanke Zhuangjia Cheliang*, 2008 Niandi, 10 Qi, Zhongdi 272, pp. 37–41.

25. "Zhanchang yidong zhuangjia husuo ___ wuzhang yanshide xinxing judaishi jiuhuche," *Tanke Zhuangjia Cheliang*, 2004 Niandi, 11 Qi, Zhongdi 225 Qi, pp. 5–9

26. Liu Gengwu and Hu Guangsheng, "Wenshan Military Sub-Command issues medicine kits to frontier officers and men," *PLA Daily On-line*, 16 September 2005, http://www.chinamil.com.cn, accessed on 17 September 2005.

27. Zhang Xinzhong and Tang Xiangdong, "Integrated Army-Civilian Procurement System Built in Northeast China," *PLA Daily On-Line*, 26 September 2005, http://www.chinamil.com.cn, accessed on 26 September 2005.

28. Ibid.

outsourcing equipment production has become an issue in the PLA, as it has in other militaries. The new camouflage uniform is solely for the military, but the uniform can be found for purchase through Chinese defence magazines or in markets.[29] Chinese defence clothing suppliers will provide any style of military camouflage a buyer seeks.

Mobilization

The PLA, like the former Soviet army, keeps the majority of its most modern equipment in storage for use in a potential war; earlier versions and only small amounts of the more recent equipment are used in training. Although this ensures that new equipment is available during times of mobilization, it also leads to problems. Personnel are unfamiliar with the modernized equipment, and breakdowns occur from poor maintenance. Furthermore, the mass mobilization of modernized military equipment alerts an opponent to the army's intentions. The PLA was aware of these problems, and in the last 3 months of 2005, the State National Defence Mobilization Committee issued a series of proposals to improve rapid manpower mobilization systems.

Although the PLA has deployed its two major armoured corps forward and practiced rapid deployment with the Stride-2009 exercise, the units only deployed sufficient equipment to practice the live-fire portion of the exercise. Various photographs of recent exercises show the old type 59 tank (rebuilt copies of the Russian T–54A) acting as a manoeuvre element for the red forces (the "good guys"). By 2007, the major modernization plan announced by the GLD in 2005 had started to bring logistics in the PLA up to the expected level of a modern military force. By the end of 2009, the PLA was able to conduct sustained independent operations outside China's borders—an activity it had never been able to undertake before. The PLA has finally acknowledged that logistics, Zhi chi, is the key force multiplier and should never again be the "poor cousin."

Dr. Martin Andrew retired from the Australian Defence Force in 2005 after 28 years of service. He has a doctor of philosophy degree from Bond University and has been a research affiliate at Harvard University. The second edition of his book, How the PLA Fights: Weapons and Tactics of the PLA*, was published in September 2009.*

29. "China to Launch Special Rectification on Administration of Military Uniform," *China Military Online*, 6 November 2009, http://eng.chinamil.com.cn/news-channels/china-military-news/2009-11/06/content4075405.htm, accessed on 8 November 2009.

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RL BEDFORD
1959—1989

The Bedford RL was the New Zealand military's main medium truck from 1958 to 1989. Built by Bedford Vehicles from the mid 1950s until the late 1960s, the RL served the New Zealand Military in New Zealand and South East Asia. The RL was replaced by the Mercedes Benz UNIMOG Family of Vehicles from the late 1970's.

Description. The basic RL (L for long) has a wheelbase of 3.962 m. The chassis consists of two deep channel-section side members, tapered towards the front, riveted to five cross members. The two-door all-steel forward control cab has an observation hatch in the roof. The rear cargo body is also of steel and has drop sides with built in fold down troop seats and a drop tail gate, removable bows and a tarpaulin cover. The engine is mounted between and below the driver's and passenger's seats and is removed through the front of the vehicle after detaching the grille and engine cross bearer. Power is taken from the engine to the gearbox and then via a propeller shaft to the transfer box which is under the chassis in the centre of the vehicle. Power is then taken from the transfer box to the front and rear axles by propeller shafts. The differential and hypoid gear assembly of both the front and rear axles are interchangeable. RLs could also be fitted with a 5000 kg capacity winch.

RL "GS" (fixed sides)

RL "GS" fitted as a UBRE (drop sides)

RL Wrecker

RL "GS" (Drop sides)