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24 March 2006

Dr Kathleen Dermody
Secretary
Senate Foreign Affairs, Defence and Trade References Committee
Suite SG.57
Parliament House
CANBERRA ACT 2600

Dear Dr Dermody

RE: Inquiry into the Scope and Opportunities for Naval Shipbuilding in Australia

Please find herewith a submission by Thiess Pty Ltd (Thiess) with reference to the above matter. Thiess is one of Australia's largest integrated engineering and services providers. The company has ongoing activity and interest in the Defence sector.

Thiess looks forward to the deliberations and outcomes from the inquiry. We would be pleased to provide supporting commentary at one of the public hearings if so requested.

Yours sincerely

Matthew Green
Executive Manager Strategic Development

Inquiry into Naval Shipbuilding in Australia

Thiess Submission

March 2006

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Executive Summary

Naval shipbuilding is now adopting techniques which deliver reduction in upfront investment in infrastructure and is deploying greater commercial skills in producing modules that are consolidated in whole ships in a simple manner.

The naval shipbuilding industry is a very skilled sector, however one which faces capacity limitations for the very large ships that Navy would like to acquire. The industry's capacity is in building as well as maintaining, which require similar skills. Only building capabilities can guarantee that substantial changes can be implemented through the life of the ship when new circumstances require it.

These new ships can be completely built overseas but it is an illusion to believe that partial build can be done in Australia and still deliver substantial benefit to the Australian industry.

Australia has all the skills necessary to build these ships in country. Designers and shipwrights might be harder to find as they are spread across a large number of companies. However, clever contracting complemented by some import of skills can resolve this problem. In terms of trades, large numbers of these people are employed in the mineral resource and other heavy construction industries. Shipbuilding will only represent a small proportion of the employed work force of those skills. The States are working hard to train more of these trades people.

Infrastructure support is now more and more offered by the States in the form of Common User Facilities that are sufficiently generic to be reused by other industries after the end of programs.

Australia can build ships in a competitive manner, as attested by its export of fast ferries. Similarly, naval ships are high tech products that necessitate a highly skilled and multidisciplinary workforce. Similar complexity ships like passenger liners are mainly built by first world yards. Australia has an existing shipbuilding industry and a buoyant resource industry which can provide the base for these new naval programs on a competitive basis.

Repairing ships built overseas can cost 2 to 3 times as much as maintaining in country. The offshore scenario does not provide repairs or parts at short notice and does not provide or retain the adequate expertise to diagnose problems in very complex ships. Repairs of battle damaged ships or major change of use of ships cannot be accommodated if industry is not building the ships in country.

In broader terms, the Defence industry is very dependent on shipbuilding for its operational capability and would be considerably affected if new ships were to be imported. It would reduce the shipbuilding industry considerably at a time of increasing, committed Defence budgets.

Large benefits accrue to industry involved in shipbuilding in terms of new technology used, and enhanced processes and procedures. Greater competitiveness is also derived from such an involvement.

At the government level, increased GDP and output should contribute to funding the ship building through increased taxation revenue. Higher employment is also derived, both directly and indirectly, through the ship building programs. These benefits have been proven and quantified on previous programs.

In conclusion, building these new ships in Australia is not only possible, it is also good for industry, Navy and the country as a whole. It should be supported by the inquiry.

1. Opening Statements

a. Naval shipbuilding in the 21st century

Naval shipbuilding used to be an integrated business where all activities of design, plate cutting, construction, outfitting, test and trials were all undertaken under one roof in a large shipyard where large investments in infrastructure had to be made. This concept, still used in a number of countries like the US, had a major weakness. It had to be fed continuously by contracts from Defence. Otherwise skills would disappear and large investment would remain idle. A very unionised workforce made it difficult to absorb peaks and troughs linked to irregular orders. Mil Specs manufacturing was very specific to Naval work and very few skills could flow from other private sector endeavours.

In the last 15 years, new concepts have emerged across the world and been used successfully in Naval shipbuilding in Australia.

These concepts include:

- 2D/3D computer aided design: This is the enabler of this revolution. It allows designing the ship globally in 3D and designing smaller modules that can be outsourced and still be exactly matched in terms of their construction as well as their outfit.

- Modularisation: Designs are now developed to be built in small modules that can be outfitted in majority before final consolidation. Outfitting of these includes piping, wiring, painting, insulation and joinery to fully finished accommodation quarters. Installation of a number of equipment items can also be done at module level: Pumps, generators, compressors. These modules can be fabricated and outfitted outside the main shipyard at one or several subcontractors' facilities.

- Shipyards decentralisation: Final consolidation of the ship is done in a non specialist facility that can be used to undertake other activities when the shipbuilding program is over. Because only modules are assembled together in this facility, little investment is necessary. In earlier times, it was important to be able to cut, drill and form steel in large quantities, form pipes, paint in specialised paint booths. That work is now more and more subcontracted to specialist contractors, who have their own optimised production means. In Australia, ownership of these simplified facilities is being provided by the State governments keen to attract shipbuilding in their electorates.

- Use of commercial standards: More and more commercial standards are used on naval ships, especially in non combatant ships like the Landing Helicopter Docks (LHD) that Australia wants to acquire. This evolution is linked to a better analysis of the required specifications necessary for military purposes, more advanced technologies common to the commercial world, the evolution of the weapons and countermeasures and more exacting standards on the commercial designs leading to a level of convergence between Naval and Commercial construction. It implies lower costs of production and the ability of commercial manufacturers to produce these modules competitively in the normal course of their business.

Such new concepts have already been used on the ANZAC ship project in the 1990s, which saw the ships being consolidated at the main yard in Williamstown, Vic with modules produced in Newcastle, Perth, Adelaide and New Zealand. Sensors, effectors and communications were also packaged in modules at the OEM plant, slid into position in the ship and simply connected and tested onboard. However the complete subsystems were put together and set to work at the OEM with the designers close by and able to correct any problem in quasi real time.

These concepts are now quite widespread. Most designs are produced with this concept in mind whether for the Air Warfare Destroyer (AWD) or the LHDs. They allow a very large decentralization of the production using existing specialist facilities of the various trades, allowing sharing of the workload across a number of sites and States, reducing the time to produce a ship and eventually leaving industry to pursue other commercial programs when the shipbuilding program is over.

b. Structure of industry

The shipbuilding industry in Australia comprises 4 main players:

Tenix: Currently finishing the ANZAC ship construction. They are building some Offshore Patrol Vessels (OPV) for New Zealand and are focusing on the maintenance and upgrade of the ANZAC ships in an alliance with the Commonwealth based in Perth.

ADI: Have built the Huon class mine hunters in Newcastle and have a major ship repair facility in Garden Island, Sydney with capability in most of the older ships and FFGs that they are upgrading in a major contract worth $1 Billion.

ASC: Based in Adelaide and Perth, they have built the Collins class submarine and are involved in a 25 year maintenance contract for the submarines. They are involved in all the upgrades aboard those vessels. They have won the construction of the AWD, a $6 Billion program that is only just starting.

Austal: Based in Perth, they design and produce fast ferries and have been very successful on the export market. They have a very innovative team of designers, and won the patrol boat project for the Navy and are one of the designers for the Littoral Combatant Ship for the US Navy. They are specialised in aluminium work. Do not undertake repair work and are limited by their company size although it is the only publicly listed shipyard in Australia.

No shipyard except Austal has a major shipbuilding program in progress at this time. Skills are mainly focused on maintenance and upgrade. However, all 4 major players have the right naval expertise, the program management capability, the financial capability to lead a major program like the LHDs or AWD, and not only deliver them with a foreign design but also support them through life.

The main weakness is linked to their limited capacity to produce the modules as the new ships are much bigger than the previously constructed vessels. The production of the 2 LHDs represents a massive amount of steel to be assembled in a few years, considerably more than the 10 ANZACs that have been produced over 15 years.

However, the modular designs that are being proposed are all suitable to be widely subcontracted to one or several module manufacturers, allowing absorption of the capacity problem of those yards.

c. Build versus maintain

A long debate has running in Australia on the compatibility between building and maintaining ships and whether the skills necessary for one are the same as for the other.

Our perspective is that the skill set of a builder and a support organization is essentially the same, especially if support not only means keeping the ship running in its "as built" configuration, but also means modifying its capability to take new operational requirements into account. Navy expects the latter to be able to be performed in country. To perform that task efficiently and in a timely manner to meet new challenges at short notice, it is important to have a fully trained team of designers, project managers, shipwrights and planners who have an intimate knowledge of the ship as well as full access to the Intellectual Property of the design. The only way to achieve that is to build the ship in country.

The option to build overseas means that Navy may benefit from upgrades from the parent navy, but in the majority of cases, their priorities will be different from our Navy and to keep a common configuration will mean accepting and paying for a number of modifications that are not high priority for us and missing out on some of the most important ones Australia really need.

If the parent navy is much bigger, as is likely to be the case, the ships will be more specialised and some of their capabilities will not be sufficiently generic for a medium size power like Australia, who tend to use ships in a very wide range of circumstances never envisaged when the ships were designed. The present LHDs were used against illegal immigration and disaster relief in Aceh, neither of which they had been really designed for.

FFG frigates were designed by the US as a cheap, short life second tier ship to support an aircraft carrier battle group in a blue water environment. Australia uses its FFGs as its most capable tier one ship able to undertake any protection in littoral conditions and expects it to last 30 years.

Inevitably, Australia had to equip the ship for a serious ASW mission. Australia had to upgrade its missiles to keep up with the threat and is fitting them with long range SM2 designed for missions undertaken by destroyers in the US Navy. Without a capable ship maintenance and design team, these modifications would have to be done in the US, who would have charged significant fees to supply it.

2. Capacity of the Australian Industry to construct large Naval vessels

a. Principle

One of the first considerations is whether it is feasible to do only part of the construction in Australia. Tenix, the winner of the Project Protector contract, which aimed at supplying an amphibious ship to New Zealand, found that it was more cost effective to get the complete construction undertaken overseas rather than having some parts done in Australia, having other parts imported and assembling the final product in country.

Other bidders came to a similar conclusion. The reason for that is that products are installed in the ship at the lowest possible cost when the ship is in module form, not when it has been completely built overseas and later outfitted in country. Even combat systems, which were hardly essential in the New Zealand program, are best partially installed in modules rather than in the completed ship.

For the LHD program therefore, it is essential to understand that the ship will either be made completely in Australia and Navy, Industry and the Government will benefit from the work as described below or the work will be done overseas and minimal benefit will flow to Australia, on the build as well as on long term dependence of the through life support.

b. Skills

Because Australia has produced all its own new ships for the past 20 years, and because it has maintained them as well as the older imported ships, Australia has a good level of expertise in most skills necessary to produce ships.

A number of designers are available, mainly specialised in detailed design. Australia has imported its designs from overseas. They can be found in SKM, who has taken over the designer team of Tenix at the end of the ANZAC design phase. A medium size team is available at ADI, who have been modifying ships consistently for several decades.

A particularly innovative team of designers exists at Austal, who have been designing fast ferries and are at the leading edge of the technology worldwide, having been very successful in overseas markets, in commercial as well as Naval (Austal is one of the two designers of the new US LCS class of ships). Designers and draftsmen need particular skills in 3D drafting. The Mine Hunter has been fully designed in 3D as well as large parts of the FFG upgrade. All the other yards have a small team of designers.

Shipwrights are also well shared between the different parts of industry. All 4 yards have them.

Program managers capable of dealing with big naval programs are also available in 3 of the 4 yards. All have managed $1 billion plus programs in the recent past. Austal has only managed smaller programs and is less well equipped in those, but better equipped on the design side.

Trades people are group which is the most difficult to keep. Contrary to the other categories that are used in support as well as construction, trades people tend to be used in very large quantities during construction and reduced to a trickle in the support period. Hence on the Mine Hunter, from a work force which peaked at 550 people in the yard, the number went down to less than 50 at the end of the program. Most of the designers, program managers and shipwrights were transferred to other programs or support activities. Most trades people left, being less mobile and solidly anchored in Newcastle.

However, the trades people necessary in shipbuilding have generic skills that are widely used in Australia. The Oil and Gas as well as the Resource industry use a large number of specialist welders, boilermakers, industrial electricians, joiners and other trades. Contrary to other Western countries that do less of those trades, Australia has a booming industry using those skills. Queensland and Western Australia have extensive training programs for those skills that are in great demand, reflecting their status as the major mineral resource states.

c. Human Resource Availability

The number of designers and shipwrights are probably globally insufficient on a per company basis. However, if the successful tenderers subcontract work to others, it is likely to be adequate. Companies like SKM have employed ship designers for years on other infrastructure projects. When a naval program comes up, those companies as well as ship builders will have to reverse the trend.

This could be done by using the trained designers in ships as leaders and using generic engineering resources that are available in large quantities in the engineering companies like GHD, Worley Parsons or SKM to complement them. Supplementation by organised immigration visas could also be necessary, but easy to organize.

Program managers and planners can be found in large quantities in the mineral resource industry and other industries.

On the trade side, a study conducted by JBFM Babcock in 2005 shows that in terms of trades people, the requirement to build half a ship in WA would employ 250 people for 4 years compared to an employed population with the same skills of about 8,000 in 2004[1]. The number of people committed on existing projects also decreases rapidly after 2005, leaving room for new programs including shipbuilding if necessary.

Although these figures are to be taken cautiously because new resource programs are continuously being tendered and awarded, and therefore such an extrapolation of reducing employment in the sector does not reflect the reality, it remains that the AWD would only take about 3% of the workforce available in WA. This represents less than an hour a week more work on the existing population. It is hardly a good reason to believe that wages would skyrocket or even less a reason to produce the ships overseas.

[1] Support for the AWD Sea 4000 by JBFM Babcock Pty Ltd 9/6/2005

The argument of lack of availability of trades people at the present time is to be considered. The resource industry is currently very busy building new capacity linked to the high price/ high demand for mineral resources. However, in 2005, Thiess in WA managed to recruit 50 trades people in 2 weeks including highly specialised welders and boilermakers to produce 3 undersea skids which had to be delivered within 5 months of order (It needs to be pointed out though that this was an extraordinary feat of recruitment, given market conditions and labour availability, and not easily replicated).

Naval programs have lead times of at least 18 months to recruit, train and grow a particular skill that can be used for several years on the same program. That provides a stability of jobs unknown in the commercial world. In addition, most jobs in the naval domain are to be provided in large cities rather than in remote sites where most resource projects tend to be constructed. A naval program therefore would be quite attractive to a work force and their families who otherwise may be living/working in remote locations.

The States are investing large amounts of money to train new entrants in trade skills. They are also considering putting a case to the Federal Government to allow immigrants to enter the country if the shortage becomes critical. Again, with long lead times provided in Defence projects those two options allow fine tuning of the number of trades people available. The study done by the WA government also concludes that there would be an adequate resource base to support at least the AWD module construction in WA[2].

Finally, the 2 naval programs represent only a small fraction of the trades people required. Therefore, at the end of the programs, they can be employed in the mineral resource sector or other industries, keeping the skills fully utilised until the next shipbuilding program or until another peak linked to a major refit is reached. In case of conflict, that workforce can be mobilised at very short notice to build new ships or repair damaged ones, a possibility unlikely to be available if the ships are imported.

In fact, with the present method of operating of the Australian Navy, in case of conflict, it is possible that the home country of the supplier of an imported ship will be fighting alongside Australia and would have its workforce fully committed to repair its own damage rather than helping Australia with its damaged ships.

In conclusion, the market for skills in all the professions and trades linked to shipbuilding are in considerable supply in Australia. They are not concentrated necessarily within the ship building industry, but could be made available, probably in an easier way than in Western Europe because Australia employs many of them in its booming resource industry. Allowing private industry to manage this will ensure it happens in a smooth fashion, especially if helped by the States in terms of training and immigration.

[2] Support for the AWD Sea 4000 by JBFM Babcock Pty Ltd 9/6/2005

d. Infrastructure

In past naval shipbuilding programs, most infrastructures were built as part of the project. For instance, ASC built up the site in Osborne, SA from a green field. ADI did the same in Newcastle for the Mine Hunter. In most cases, the investment represented around 3% of the total value of the project. The ultimate use of the site after the end of the program was never fully optimized. The Newcastle site was returned to the landlord who is leasing it to a super yacht builder from New Zealand. The site in Williamstown used to build the ANZAC ships is probably underutilised at the present time.

The more recent concept involves investment made by the States, rented to the shipyards at prices which could vary depending on the willingness of the respective Government to help the industry set up in their State. The main attraction is that they are leased for the duration of the project and therefore do not need to be fully amortized on the project. Because they remain the property of the State, if they are sufficiently generic, they can be reused by other industries such as the resource industry. This model is successfully used in WA which has built a Common User Facility (CUF) to attract shipbuilding and other activities. A construction hall is now used most of the time by the resource industry and could be used by a shipbuilder if necessary. Instead of investing in one organization, which may not get the next job, CUFs allow an area to benefit from various programs in various industries.

As we have seen for staffing, facilities follow a similar pattern. They are made available in an area and can be used by different companies in different industries. Again the resource industry is the perfect complement to shipbuilding as it uses the same sort of facilities. And as we have seen for the staffing, Australia has a very strong resource industry that can reuse investment in shipbuilding. Again, that only becomes possible because modules can be manufactured in simpler generic facilities across the country whereas old shipbuilding concepts did not allow such a scheme.

WA has spent close to $100m to construct a CUF that has been very successful and is about to spend a similar amount to increase its capacity and build a floating dock.

SA is tendering to build a CUF to be used by ASC for the AWD project. $120m will be spent on a new ship lift and transfer system as well as in dredging and new wharves.

Queensland is also considering where they might create a CUF and how much they might invest, particularly in support of building modules to be consolidated in the Cairncross Dock in Brisbane.

In addition to existing facilities in existing yards and at fabrication shops across Australia, it is now clear that very limited further investment will be necessary to build the new AWD and Amphibious ships (LHD). That should improve the competitiveness of the build by the 3% or 4% that previously was invested in infrastructure during earlier programs and that is not necessary for foreign yards if the ships are built overseas.

3. Comparative economic productivity of the Australian shipbuilding industry

It is interesting to note that major shipbuilding activity has moved from developed countries to countries with cheaper labour. Korea and China, but particularly Eastern European countries such as Poland and Romania, have benefited from that evolution. However, it is interesting to note that ships with high value adding are still constructed in first world regions such as Western Europe. Large complex passenger vessels are all being built in countries like Norway or France. Only lower value cargo ships with low levels of technology are being constructed in less developed countries.

This indicates that cost of labour is only a small parameter in the overall cost of a complex vessel such as a naval ship. Capacity to program manage huge projects, expertise in a large number of disparate disciplines and capacity to integrate and resolve problems across a wide variety of technologies are not typically second or third world competencies.

To give an example, in the Mine Hunter program a propulsion system created noise in higher sea environments which affected the performance of the sonar, the main sensor for the ship. Solution to that problem came by improving the design of a hydraulic motor as well as using sophisticated signal processing algorithms to cancel noise from that propulsion system. This required exceptional problem solving capability across different technologies.

The Australian labour force is sophisticated and previous shipbuilding programs have demonstrated that Australia could resolve such issues as well if not better than other first world countries.

If we compare raw productivity figures in terms of welding for offshore purposes, Australia competes very successfully against US standards achieved on the Gulf of Mexico coast, where most of the efficiency standards in that industry are set.

Therefore in global terms, the Australian shipbuilding industry is capable of competing successfully against world standards.

4. Comparative economic costs of maintaining, repairing and refitting naval vessels when constructed in Australia

a. Defence perspective

Five main advantages for Defence to be able to maintain and refit in Australia:

1). Independence from an overseas supplier who might be busy repairing its home Navy rather than Australia's.

2). Cost of repairing ships built overseas always means long time delays to obtain spares, or parts to be repaired overseas. The average can be as high as two years between the defective part being shipped and the moment it is available back in country fully repaired. Conversely, repair of parts or subsystems produced in country can have a short turn around time if properly contracted. More relevant though would be the engineering capability to diagnose the fault, allocate to a subsystem and get engineering resources involved in the build phase to fix issues.

In very complex systems within ships today, so many variables interact between each other that this diagnostic is often hard to do. Relying on overseas competence to do this sometimes means quarantining a problem and hoping the operational effectiveness of the ship is not affected. This sort of issue was common on the imported Oberon sub systems which never worked properly. The consequence was that operators did not use that functionality, reducing the mission effectiveness of the submarine.

Lack of leverage on the overseas suppliers caused the issue which is easier to resolve with a local supplier, always hoping for the next contract. Overall, the ANZAC experience shows that overseas maintenance costs of the ANZAC's would have been 2 to 3 times higher than what it is today, representing a saving of $520 million over the life of the ships.[3]

3). Cost of sending ships overseas to repair is quite prohibitive. Ships can only be on operations for a limited number of days per year. During maintenance periods, crews are on duty and that limits the operational time available outside repair.

In terms of morale and culture, at a time when the Navy has difficulty in recruiting and retaining personnel, sending ships overseas for repair means less time for the crews at home and therefore less retention in the forces. The best solution is to repair ships, from short maintenance periods to full cycle refit, in the ships' home port.

4). Availability of engineering and repair competency has a large influence on the refit capability of a country. Understanding and keeping the configuration of a ship is the first aspect of being capable of upgrading it. A local industry that has built the ship will be capable of discussing the potential aspects of modifying it to meet the operators evolving requirements. It will also be able to muster the teams necessary to do the work in terms of engineering as well as implementation.

[3] Impact of Major Defence Projects: A case study on the ANZAC ship project Feb 2000 by Tasman Asia Pacific Page xi

Having been able to build a new ship allows developing the necessary competencies in program management in case of a refit or a major repair caused by a conflict. A case in point is the FFG upgrade which was made possible not only by the repair capability of ADI but also by its capacity to manage large programs like the construction program of the Mine Hunters.

5). Large technology transfer could be organised to allow the maintenance and repair to be done in country. Previously this transfer was done by Defence who was doing most of the maintenance work themselves. Now Defence no longer employs such people and these tasks have been subcontracted to Industry. Defence has overall managed to limit its costs by relying on other commercial activities of its second and third tier contractors to get support in the longer term. Very few of those contractors have periodic contracts to support their skill set. These companies charge a fee for each service and keep their skills on a wide range of other tasks.

If these ships had been imported, specific support contracts would have been needed for equipment not normally available in Australia, costing large amounts to Defence. The Mark 92 Fire Control System on the FFG is a good example. Because it was a high maintenance product, the Navy had to send technicians for training in the US on a regular basis and at very high costs. There were never enough trained personnel on board a ship for this equipment, which meant a much larger workload for the trained people than other member of the crew and a lower retention rate.

Using local equipment/sub systems therefore considerably reduces the cost and availability of support.

b. Industry perspective

From an industry perspective, the benefits are obvious. Equipment produced or available in Australia will be fitted to the new ship because the logistic supply chain behind these products already exists. Navy only adds to an already existing load of work, making it more efficient. Because Defence is demanding in terms of quality and tends to buy the high end of a product line, it pushes suppliers to improve efficiency, quality, processes, procedures and service to their customer. Overall, it creates a more competitive industry.

To be able to address technical problems, suppliers in Australia will maintain a more competent and up to date engineering workforce. These people are likely to design improvements to products, which would benefit Navy but also the commercial market. These new products are likely to be candidates for export as their design is locally produced.

6. Broader economic development and associated benefits

a. Industry perspective

i. Size

The Australian Defence industry is presently extremely reliant on Naval programs. 4 of the top 10 companies involved in servicing the Defence sector are heavily dependent on naval business (ADI, Tenix, ASC, Saab Systems), 2 of the top 10 are involved in the supply of non military services to the ADF (Spotless and Transfield Services), while the other 4 are either involved in electronics (BAE Systems and Raytheon) or in Aerospace (Australian Aerospace and Boeing)[4].

The biggest supplier to the ADF does not even feature in the Top 40 Defence Contractors (Lockheed Martin who sell the F35 fighter (up to $10 Billion), the Aegis Combat System ($1billion) and the Mark 92 Upgrade on the FFG ($300M)). These figures show that the Australian Defence industry is very dependent on naval programs.

Aerospace programs tend to dominate the future procurement of the ADF, however, Aerospace is characterised by the small amount of Australian content that is incorporated in the delivered platforms and systems (typically less than 30%) and the large dependence on US platforms that typically have no requirement for Australian inputs because they are supplied FMS by the US government.

Conversely, most naval platforms have a high level of Australian content, with typically 60% to 70% achieved on the ANZAC and Mine Hunter programs. Moreover, these programs tend to use a lot of local subcontractors for their second and third tier suppliers whereas Aerospace programs use mainly overseas second and third tier suppliers.

In short, producing the AWD and LHD ships overseas would significantly further reduce the size of the Defence industry in Australia at a time when Defence budgets are growing rapidly.

ii. Expertise

Experience indicates that commercial industry involvement in ship construction is more likely to use new technology, whether acquired or developed in-house, and spend a higher percentage of their turnover on R&D, thus creating new products[5]. Experience on the ANZAC and Mine Hunter projects shows that participation of Australian industry in these programs improved business practices, made the companies between 1% and 10% more productive[6] and more dynamic. They tend to develop better processes and products and adopt a culture of continuous improvement[7].

[4] Australian Defence Magazine, December 2005
[5] Impact of Major Defence Projects: A case study on the ANZAC ship project Feb 2000 by Tasman Asia Pacific Page viii
[6] Impact of Major Defence Projects: A case study of the Minehunter Coastal project Tasman Economics January 2002Page xi
[7] Impact of Major Defence Projects: A case study on the ANZAC ship project Feb 2000 by Tasman Asia Pacific Page ix

Overall, participation in a naval program increases the level of export activity. 60% of businesses involved in the ANZAC ship program are exporters. 47% of businesses involved in the Mine Hunter program are exporters[8]. ANZAC businesses are 5 times more likely to export than other Australian businesses.[9] Mine Hunter businesses are 12 times more likely to export than other Australian businesses[10].

b. Government perspective

According to the ANZAC experience, by constructing the frigates in Australia rather than overseas, Australian GDP was increased by $3 Billion over the life of the program. Consumption was increased by $2.2 Billion and 7,850 full time equivalent jobs were created over the program[11]. National output also increased by $195 Million per $100 Million spent on either the ANZAC or the Mine Hunter programs[12].

In addition, the impact on the trade balance for Australia would amount to about 70% of the program value as this percentage of local value added is routinely achieved on Naval programs.

The additional revenues generated by such activity to the government are substantial and although we could not evaluate these accurately for this submission, they could reduce the cost of a naval program to the Commonwealth by between 20% to 50%. This figure can be obtained by evaluating additional government income by multiplying the additional GDP/national output created by the program and considering that 31.5% of that GDP/national output is collected in tax by the Government.[13]

This is a very rough estimate of additional income for the Government, but could justify the systematic building of future ships in Australia alone, even if there would be a premium to build in Australia. Coupled with the other benefits outlined earlier, this make a very compelling case to consider systematic build in this country.

[8] Impact of Major Defence Projects: A case study of the Minehunter Coastal project Tasman Economics January 2002Page x
[9] Impact of Major Defence Projects: A case study on the ANZAC ship project Feb 2000 by Tasman Asia Pacific Page x
[10] Impact of Major Defence Projects: A case study of the Minehunter Coastal project Tasman Economics January 2002Page x
[11] Impact of Major Defence Projects: A case study on the ANZAC ship project Feb 2000 by Tasman Asia Pacific page vi
[12] Impact of Major Defence Projects: A case study on the Minehunter coastal ship project Jan 2002 by Tasman Economics Page vii
[13] OECD web site Total Tax receipt as a proportion to GDP http://ocde.p4.siteinternet.com/publications/doifiles/012005061T017.xls

Conclusion

Thiess believes that Australia has created a competitive naval industry in the last 20 years, although the local shipbuilding industry is too small as it currently stands to optimally manage both the Amphibious Ships and AWD programs. However, complemented by capabilities inherent in the mineral resource and other heavy construction industries that use similar skills and techniques, coupled with innovative sourcing of labour, Australia overall has the capacity and capability to build these ships in a competitive manner in country.

The Navy will derive long term benefits in terms of the maintainability and availability of its ships. This will convert into a higher potential for action for the government for each dollar expended in Defence.

Australia will develop a more competitive industry, better utilisation of new technologies, greater capability for global competitiveness and be better able to export sophisticated products.

Additional benefits will include lower unemployment, higher GDP, better balance of trade and ultimately greater tax income than if the ships were produced overseas.

In conclusion, building these new ships in Australia is not only possible, it is also good for industry, Navy and the country as a whole. It should be supported by the inquiry.

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