

Availability and access to enabling communications infrastructure in Australia's external territories

Joint Standing Committee on the National Capital and External Territories

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external territories

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Summary

The Indian Ocean traditionally has not been the focus of Australian National security policy. The majority of Australia's natural resources are in the west and increasingly Australian trade is being focused in the Indian Ocean and almost all the oil and petroleum is delivered through the Indian ocean.

Communications and associated economic development are essentially a commercial activity, but in some cases, they form the foundations for essential national security infrastructure.

The Indian Ocean is a relatively undeveloped region of the globe. The communications infrastructure is minimal and principally relies upon satellite communications links. These links are expensive and finite with growing competition for the available bandwidth.

The ongoing use of satellite as the primary means of communications is limited. Satellite is weather dependent; and bandwidth is constrained making any further increases in demand liable to create further competition. Whereas capacity of fixed network connectivity is increasing with advances in technology giving the potential to develop assets and capabilities that Australia will need to deploy over the next 20 years.

Unlike satellite, cable infrastructure will allow the provision of the full range of digital government services, including telehealth, remote learning, and better access to information. Being relatively small and contained communities it presents an opportunity to trial and develop a true digital community and associated support infrastructures and architectures.

Access to reliable high speed and very high-speed internet provides the basis to not only lift the amenity of the population, but also makes a powerful business case for new enterprises and digital workers to base themselves in these places.

Australia's Indian Ocean territories are strategically important and will only grow more strategically important and China continues to develop a military and pseudo military presence in the Indian ocean.

On a national security view, the lack of very high capacity and high-speed links will increasingly diminish the optimal capability and utility of capabilities required to meet this challenge into the future.

Recommendations

1. Build a dedicated undersea cable from Australia to both Cocos and Christmas Island as a highly cyber resistant link to support current and future national security capabilities,
2. Allow private industry to provide a branch cable to Cocos, if required as an alternative communications link,
3. Consider the development of a very low tax zone to support ICT and ECO Tourism industries in these territories (including a minimum residency requirement)
4. Government to charge the DTA with developing a capability demonstrator suite of technologies to turn the islands into a true digitally connected community,
5. Consider developing berthing and maritime support infrastructure on both islands that can take small to medium Cruise boats that will bring a steady stream of tourists to the island and promote support for local commerce and tourism.

Terms of Reference

The Committee will inquire into and report on enabling communications infrastructure in Australia's external territories, including:

1. the availability of, and access to communications technologies and infrastructure in each of the external territories;
2. future opportunities in enabling communications technologies and infrastructure in each of the external territories including telecommunications services, submarine cables, satellite capabilities;
3. opportunities and barriers arising from current and potential future communications infrastructure in each of the external territories;
4. examining the economic benefits of improving the availability of, and access to communications infrastructure in each of the external territories; and
5. recommendations for any future communications technologies and infrastructure for each of the external territories.

Strategic Importance

Whilst this inquiry is principally focussed on the availability and opportunities for communications infrastructure and services, it is important to provide, an overview of the current and emerging strategic situation.

Communications and economic development are essentially a private or commercial activity, but in some special cases, they can form the foundations for essential national security infrastructure.

Australia's own Cocos (Keeling) Islands have long been identified as a key strategic force multiplier for both Australian and allied use. (Kuper,2020)

The Indian Ocean traditionally has not been the focus of Australian National security policy. This is principally because the population is primarily based in the east and has a Pacific Ocean focus. However, the majority of Australia's natural resources are in the west. Increasingly Australian trade is being focused in the Indian Ocean and almost all the oil and petroleum is delivered through the Indian ocean.

While the traditional powers of the Indian Ocean continue to work together across the maritime domain to maintain a balance of power, the role of islands in shaping a new security architecture is often overlooked. (Baruah, 2020)

The focus of my submission is primarily on Cocos and Christmas Islands and their importance to the emerging threats to national security. Following is a very short overview of the threat environment. (note: This is meant as a quick overview only)

The Indian Ocean will remain one of the world's most strategic locations, with more than 75 percent of the world's maritime trade and 50 percent of daily global oil transfers passing through the region (Ghosh,2020)

In a previous inquiry this was noted by DFAT. Additionally, Defence has slowly been increasing focus on this region. However, a case can be made that this is more in relation to the requirements of Operation Sovereign Borders rather than any deliberate countering of the growing threats in the region.

The Indian Ocean is a region of growing geostrategic significance. It is a crucial conduit for global trade, accounting for half the world's container traffic, one-third of bulk cargo transport and around two thirds of the world's maritime oil shipment. It includes some of the world's fastest growing economies, driven by large, youthful and upwardly mobile populations, and huge reserves of natural resources. It is also home to some of the world's largest energy exporters and consumers. (DFAT,2017)

While the major focus of the national security posture has been to the north and east of Australia, the Countries of the Indian Ocean region have been growing increasingly worried about the

changing strategic outlook and the growing possibility of disruption to trade and essential resources.

The Indian Ocean and its critical global SLOC are responsible for more than 80 per cent of the world's seaborne trade in critical energy supplies, namely, oil and natural gas, which serve as the lifeblood of any advanced economy. (Kuper,2020)

Islands in the Indian Ocean are located near key transit routes providing access and influence over important chokepoints and waterways, and thus, their key geographies have the potential to impact geopolitical competition. (Baruah, 2020)

The major new player in this environment is the growth of China and their increasing desire to move their military posture away from their coastal waters.

China's rapidly expanding presence in the Indian Ocean in recent years underlines the emergence of Beijing as a new player in the region. (Baruah, 2020)

In many ways, this should have been easily predictable. Given the relative lack of natural resources in the Chinese mainland, continued economic prosperity is increasingly tied to the import of large quantities of from around the globe.

The sea routes through the Indian Ocean, that China has to use for various purposes as above, contain key geographical choke points like the Straits of Hormuz, Malacca Straits, Lombok Straits and Sunda Straits. (Venkateswaran, 2020)

Current Australian planning and posture is fairly sufficient to be able to monitor navel fleet operations in the Indian Ocean while those activities remain at an overwatch or "Flag Flying" level.

The greatest threats will come from any changes to the Chinese fishing operations from the Pacific Ocean to the Indian Ocean. The capacity of this fleet to cause major disruptions can be clearly seen by its current impacts on nations in the eastern pacific.

The fishing fleet, while large is not by itself the major problem. It is the PLAN "Coast Guard: fleet that follows and protects the fleet. This force is not a purely defensive force and can be better characterised as an offensive armed sovereign force. This when coupled with the various criminal syndicates and groups that operate in the region, presents a current and growing threat.

Traditional powers may also be better placed to maximize the utility of their own island territories in the Indian Ocean. Territories such as Cocos Keeling (Australia), Andaman and Nicobar Islands (India), Diego Garcia (United States/United Kingdom in dispute with Mauritius) and La Réunion (France) offer strategic advantages and key geographic access across all chokepoints in the Indian Ocean. (Baruah, 2020)

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The current Australian posture and outlook is aimed principally at the suppression of people smuggling. This leaves this region open to low level operations where an adversary could give aid and cover to a variety of different enterprises to cover for preparatory higher-level operations.

Australia is not immune to these geopolitical and strategic factors and, as an island nation heavily dependent on sea transport – with 98 per cent of the nation's exports, a substantial amount of its strategic imports, namely, liquid fuel, and a substantial proportion of the nation's domestic freight depending on the ocean – it is a necessity to understand and adapt and introduce a focus on maritime power projection and sea control. (Kuper,2020)

Going forward Australia cannot do this alone, and can not rely upon the presence of the US Indian Ocean fleet to provide the heavy lifting.

The islands have also become increasingly important to Australia's allies, mainly the US as it has sought to "pivot" towards Asia in response to increasing Chinese assertiveness. (Kuper,2020)

Neither is it practical that Australia can build or afford to operate an effective offensive capability. However, Australia is well placed to develop and maintain a world class Information, Surveillance and Reconnaissance capability in the area and provide intelligence and situational awareness to various partners to ensure security of Australian interests.

A key advantage of these islands is surveillance and what are known as Maritime Domain Awareness (MDA) missions. While the Malacca straits provides the busiest trading route connecting economies across Western Pacific and the Indian Ocean, the other straits through the Indonesian archipelago offers alternate routes for surface and sub-surface vessels. (Baruah, 2020a)

Responding to this environment will require a substantial rethink of not only our defence and Home Affairs assets, but a greater investment in surveillance and information infrastructure.

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1. The availability of, and access to communications technologies and infrastructure in each of the external territories;

The Indian Ocean is a large and relatively undeveloped region of the globe. The communications infrastructure in minimal and principally relies upon satellite communications links. These links are expensive and finite with growing competition for the available bandwidth.

As can be seen from Fig 1, there is almost no fixed communication infrastructure and apart from a branch into Christmas island, no other fixed infrastructure.

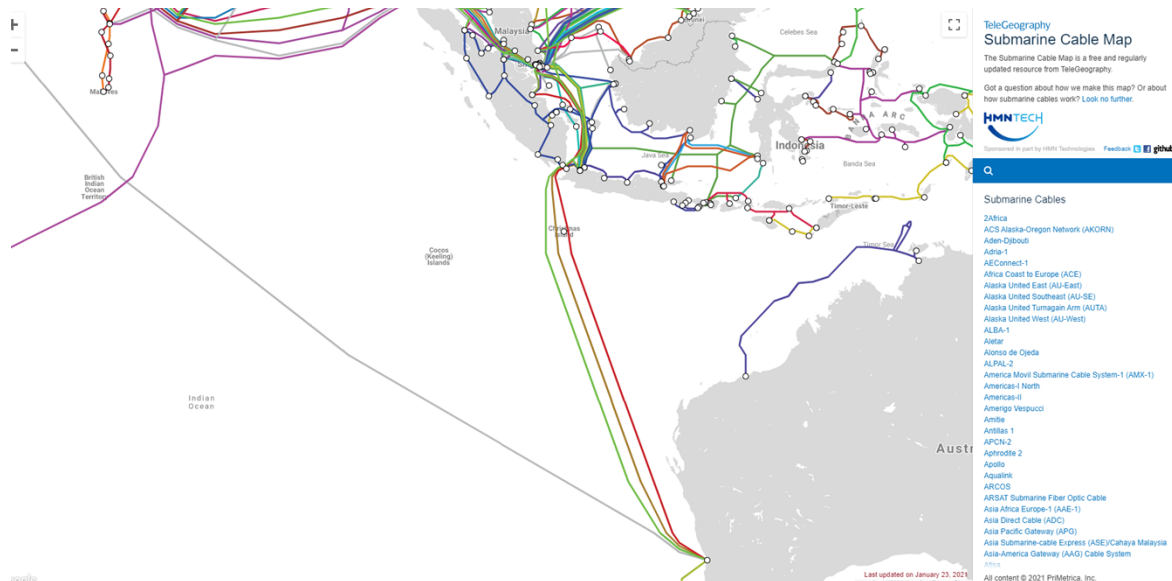


Figure 1, Undersea Cables Eastern Indian Ocean

Currently, Defence is upgrading facilities on Cocos Island, but all the defence communications are satellite based. The major limitation of this system is the restricted bandwidth. This means that there is little is any spare capacity that could be used to support non-defence activity.

2. Future opportunities in enabling communications technologies and infrastructure in each of the external territories including telecommunications services, submarine cables, satellite capabilities;

Moving forward, Australia will need to urgently invest in better surveillance infrastructure and coverage. In addition to airborne assets, there is a need to put in place fixed assets such as radars to provide a persistent situational awareness.

This type of capability will quickly outstrip the available satellite capacity. Already the Australian Defence Force (ADF) has invested heavily in Satellite Communications and has largely based its operations around the availability of large amounts of persistent satellite bandwidth. Currently, the ADF is oversubscribed in terms of available satellite bandwidth.

The next iteration of satellite infrastructure is also either oversubscribed or nearing capacity in terms of legacy requirement and new capability that is currently in the Defence Capital Plan.

This leads to an opportunity to fundamentally change the provision of communications and information support to Australia's offshore territories by funding and laying new undersea cables to these islands.

With the current and rapidly emerging cyber threat environment, the best solution would be to run a sovereign network connecting these territories to the Australian Mainland and also looking to provide an alternative branch from an existing provider. Whilst more expensive, this arrangement gives a better network resilience architecture and can provide a more cyber resistant network.

The ongoing use of satellite as the primary means of communications is limited and unreliable. Satellite is heavily weather dependent; this area is in the tropics and subject to the monsoons. Additionally, the bandwidth available is currently at capacity and any further increases in need from the planned assets that will need to operate in this region will exasperate the situation. Also fixed network connectivity will increase the potential to utilise the future assets that Australia will need to deploy over the next 20 years.

Unlike satellite, cable infrastructure will allow the provision of the full range of digital government services, including telehealth, remote learning, and better access to information. Also given the low population densities of these territories, it will be affordable in the overall program to use these two, principally, communities to trial and develop a true digital community.

3. Opportunities and barriers arising from current and potential future communications infrastructure in each of the external territories;

Access to reliable high speed and very high-speed internet provides the basis to not only lift the amenity of the population, but also makes a powerful business case for new enterprises and digital workers to base themselves in these places.

It is well known that access to well-priced, reliable and high-speed internet in can build growth of population and business. This will bring people and capital and drive an amount of development. This in turn provides opportunity for the current residents.

Cocos Island has a good future with further major Defence infrastructure likely to be built or based there, and a need to upgrade or develop logistic and engineering support locally. With more people, there is the opportunity to develop more civil commerce to service the population and also develop the eco-tourism potential of the islands.

Christmas Island, will for the foreseeable future be a Home Affairs base. But serious consideration needs to be given to the future viability of the Detention Centre on the Island. Currently, it is not obvious that this facility has provided any positive benefit to the majority of residents on the island. It appears that the majority of the staff for the facility are transported to and from the island and the centre is relatively self-contained.

Moving forward this is an unsustainable position. My vision for this island is the development of low tax ICT hubs. Unlike other sorts of business, ICT has a relatively light footprint on the environment and the proximity to Asia and Australia, coupled with top grade connectivity could be made to work.

Given the proximity to Indonesia, a major Defence presence on the Island would be problematic in the short to medium term. However, as a surveillance chain site it is essential. Much of the geopolitical resistance to increased ISR capability on Christmas Island could be alleviated through an information sharing arrangement with Jakarta.

Moving forward, what is needed is the promotion of growth industries that are island based. This would mean also improving the physical infrastructure of the island and planning to modestly grow the permanent population.

Once again, the biggest short-term opportunities come from improving access to high quality education through tele education (as opposed to what is called remote learning which is assisted private study). Access to telemedicine and the ability to develop remote sensing and examination interfaces to allow a much greater interaction with the medical professionals.

4. Examining the economic benefits of improving the availability of, and access to communications infrastructure in each of the external territories; and

Australia's Indian Ocean territories are strategically important and will only grow more strategically important and China continues to develop a military and pseudo military presence in the Indian ocean.

Australia has vast energy and mineral reserves in this area and the Indian ocean is a relatively underdeveloped region. Political stability is tenuous in the western part of the ocean and criminal activity is a persistent problem.

Illegal fishing is already a problem in the southern parts of the ocean, and as the massive Chinese fleet increasingly depletes the available reserves in the Pacific Ocean, they will move on mass into the Indian ocean. Unlike the Pacific Ocean, that has a larger number of rim nations to try and control it, there are relatively few nations able to counter any unethical or illegal behaviours.

The current lack of reliable infrastructure puts a firm brake on any meaningful development over and above modest enhancement of existing enterprise.

It is unclear as to the impact of growing defence use of Cocos island will have on the resident population's access to infrastructure, but with the exponentially growing need for satellite bandwidth to support existing and planned defence capabilities, it is reasonable to assume that opportunities to grow civil use will be limited.

On a national security view, the lack of very high capacity and high-speed links will increasingly diminish the optimal capability and utility of these capabilities into the future.

5. Recommendations for any future communications technologies and infrastructure for each of the external territories.

It would be my recommendation to the committee that the government:

1. Build a dedicated undersea cable from Australia to both Cocos and Christmas Island as a highly cyber resistant link to support current and future national security capabilities,
2. Allow private industry to provide a branch cable to Cocos, if required as an alternative communications link,
3. Consider the development of a very low tax zone to support ICT and ECO Tourism industries in these territories (including a minimum residency requirement)
4. Government to charge the DTA with developing a capability demonstrator suite of technologies to turn the islands into a true digitally connected community,
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