

**Inquiry into the Changing Economic Environment in the Indian Ocean Territories**

**SUBMISSION**

**Submitted by:**

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**Overview**

This Submission addresses the issue of telecommunications in Christmas Island and the potential opportunity to enhance that significantly by better connection to the Mainland.

**Telecommunications Environment**

The provision of quality telecommunications services is vital for the development of Christmas Island. Currently the provision of education, medical and business and tourist services are constrained because of the very limited satellite bandwidth in place because of its cost. For instance the school has some 200 PCs which have been unable to connect to the internet because even a modest use would swamp the available capacity out of the island and effectively prevent any one else accessing the internet at the time.

The unavailability of adequate bandwidth has inhibited the use of remote medical services thus requiring expensive trips to Perth for fairly routine procedures.

With the trend to e-government and e-business, Christmas Island will be increasingly disenfranchised through sub-standard connectivity to the internet.

Without improved links to the Mainland, development of better telecommunications on the island is a waste of money as effective use of any enhanced infrastructure is effectively nullified.

**A Rare Opportunity**

While the provision of several new international submarine cables is occurring on the east coast of Australia, no new cables have emerged out of Western Australia for

nearly a decade. Development of industry and leveraging the proximity to the Asian growth engine demands that there is adequate telecommunications capacity across the Indian Ocean. Exploitation of National Broadband Network (NBN) in whatever form it takes requires matching international capacity to avoid a bottleneck given that some 70% of Australia's internet downloads come from overseas.

To service the needs for capacity from the west coast, there are plans for at least one submarine cable to South East Asia to link into the global network hubbed around Singapore. Previous marine surveys have identified that the optimum route via Jakarta passes about 65 kilometres east of Christmas Island.

Recent technological developments in the submarine cable field have produced a Branching Unit where a small amount of capacity can be picked off without affecting the mainstream traffic. Currently PNG is exploiting this where it is servicing its northern coast through an 80 km spur using such a branching unit. In doing so, it is getting relatively abundant capacity for a small fraction of the cost of a dedicated cable, something which would be outside its financial reach.

This same opportunity is potentially available to Christmas Island. Provision of one of the branching units coupled with a short spur into Flying Fish Cove could yield the island with up to 10 Gbps (or 4000 times the current 2.5Mbps of capacity servicing the island.). Arguably it could last the island for the 25 year design life of the cable.

By leveraging off a larger passing system, the cost to Christmas Island will be about 10% of what a new cable would cost them. However this opportunity only exists if Christmas Island can associate itself with one of the rare occasions when a cable is laid in its proximity.

### **Activity to Date**

An initial study was undertaken in mid 2008 to examine the technical and commercial aspects of a cable. Demand forecasts were made which recognise the educational, medical, business, tourist, residential voice, internet and video applications. Estimates of capital and operational costs were also made. Comparison of the submarine cable solution with that of the satellite alternative showed that the crossover point where the cable becomes economic occurs with only a modest roll-out of the development opportunities essential for the island to have comparable services to those available even in the remoter areas of the Mainland.

In parallel with the study, discussions have been held with the intending providers of the cable who have indicated a willingness to provide a spur to Christmas Island on an incremental basis. They concur that there seems no great technical challenge to its provision.

### **Potential Additional Benefit to Christmas Island**

In addition to the significant benefits which are mentioned above, a new potential benefit has emerged.

Australia is competing with Southern Africa to be the principal provider of the European project called the Square Kilometre Array (SKA). This project ([www.skatelescope.org](http://www.skatelescope.org)) involves placing a network of antennas across the widest possible geography to collect data from the galaxy and to then process that data to create the effect of a vast telescope. Already it is planned to exploit NZ to extend the eastern range.

Winning this would be a great coup for Australia. It would leapfrog our research status as well as providing some attractive financial returns. It has been suggested in some reports that should Australia win, then for less than \$500M investment on our part, Europe would invest up to \$3B. Selection of the winning party will be determined on technical and commercial grounds. Amongst the essential criteria is the availability of vast international cable capacity pointed to Europe coupled with the best possible aperture for the “telescope”.

It is well known that Southern Africa has committed to, and is implementing at least two new submarine cables to Europe and so have the front running at present in this facet. However Australia has the advantage of a wider aperture in the preferred east-west direction but would like to make it even wider to enhance their technical superiority. The idea has emerged that Christmas Island would afford an ideal western edge of the telescope if it had adequate cable capacity to connect its SKA antenna(s) to the network.

Not only would this provide a further role for Christmas Island, the volume of required capacity to the island should sharply reduce the cost of the capacity for the normal island requirements and the previously outlined developments.

### **Current Roadblocks**

Planning for the Perth to Jakarta and Singapore cable has been in train for more than a year and the technical design is basically completed. However progress to implementation is hampered by commercial factors, made worse by the current economic climate. While seen as essential for the development of Western Australia, securing usage contracts to provide the necessary collateral for the investment funds has proved difficult. Consideration has been given to the WA Govt underwriting capacity until utilized by developments or the SKA. This might now be augmented by the Australian Govt as part of the interconnection of the National Broadband Network with the global internet. As the cable is an essential element of the Australian solution for implementing the SKA (with or without Christmas Island) the Australian Govt through its funding of research facilities might support this as part of

its investment to win the bigger prize. It should be noted that Southern Africa is actually building, rather than just promising to build, thus arguably demonstrating at this current time a stronger commitment to the project.

Once there is a commitment for the cable to proceed, there are no significant roadblocks apart a commitment of a modest level of funds (or maybe close to none if CI becomes part of SKA) to the provision of the spur to Christmas Island.

### **Suggested Consideration by the Committee**

As Christmas Island requires improved telecommunications for its development, and as the opportunity exists to leverage a planned submarine cable passing nearby, it is suggested that the Committee should consider the following actions

1. Strongly encourage the provision of a new submarine cable from Perth to South East Asia to service Australia's many needs
2. Encourage the WA Govt (alone or in conjunction with the Aust Govt) to underwrite usage of the cable to a sufficient extent as to enable raising of investment funds.
3. Encourage the Australian Govt to underwrite usage of the cable as a key element of the National Broadband Network to enable raising of investment funds
4. Encourage strongly the Aust Govt to demonstrate its serious intent to win the SKA project by committing to the provision of the cable with further underwriting of capacity in the cable
5. Encourage the Australian bid team for the SKA project to include Christmas Island to enhance the technical attractiveness of its proposal
6. Set aside some funds to prosecute the actions necessary to gain a spur of the cable into Christmas Island

### **Contact Details**

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