

Anna Kelderman
Director
Shape Urban
20/663 Newcastle Street
Leederville 6007

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RE: COCOS (KEELING) ISLANDS – ADVICE ON COST BENEFIT ANALYSIS

Dear Anna

Thank you for the opportunity to provide advice on the potential for a Cost Benefit Analysis on potential interventions to address sea level rise on the Cocos (Keeling) Islands (CKI).

As part of the CHRMAP report for CKI, a benefit distribution analysis was undertaken to ascertain the economic value of community assets and infrastructure at risk of coastal erosion and inundation. This analysis examined the magnitude of value that would be affected, as well as how this value was distributed across land and asset owners.

A subsequent step within a CHRMAP analysis is to also undertake cost-benefit analysis (CBA), which assists in the decision of when is the best time to implement various measures, as well as which interventions against sea level rise (protect, accommodate, retreat, etc) provide the greatest benefit relative to costs. This analysis involves forecasting future cash flows associated with each measure (both the cost of implementing a measure, and the flow of future benefits) and discounting based on an assumed time period. An extract of the RFQ regarding the CBA is attached below.

As CKI is a small island community under immediate threat of coastal erosion and inundation, the CHRMAP has developed the view that the best time to implement the required interventions to combat the threat for the majority of assets is the present. Noting this, MCA analysis was conducted, with those assets receiving a positive score proceeding for CBA analysis. The MCA determined that only two assets exist with positive scores where a CBA may inform timing of interventions. These assets are:

- The cemetery on Home Island, which potentially could have levees and reclamation proposed either now or towards 2035-40. However, there is little value conducting a CBA before a Cultural Heritage Assessment is complete.
- Sydney Highway, which requires relocation somewhere between now and 2030. Given the immediacy of the need for interventions, there is also little need for a CBA.

Two critical pieces of infrastructure that support CKI's community and economy are the fuel jetty which handles all fuel entering CKI, and Rumah Baru jetty which acts as CKI's port facility and is vital to all freight and logistics entering the islands (excluding fuel). Maintaining both these facilities against sea level rise is critical to maintaining the existence of the CKI community, as well as the runway and other infrastructure. This work will be required well in advance of 2068, and is likely to require short term intervention as well as longer term maintenance. A CBA is therefore not required to analyse investment timing for these assets.

Noting the above, it is therefore suggested that conducting a CBA would add minimal value to the overall analysis.

Yours Sincerely



Jason McFarlane
Managing Director

Attachment – RFQ Extract – Task 9 Cost Benefit Analysis

For this project, it is recognised that a typical Benefit Distribution Analysis (BDA) is unlikely to influence recommendations, as members of the community and asset owners are likely to benefit from adaptation options, almost equally.

Similarly, cost benefit analysis for this project is likely to need to be applied to grouping of assets comparative to the adaptation options. This is because nearly all assets and community values are likely to be significantly affected in a do-nothing scenario.

Notwithstanding this broader consideration, adaptation options receiving a positive score in the MCA will proceed to the CBA. The CBA will use the estimated dollar value of lost assets at each timeframe using a combination of write-off losses and annual average damage estimates.

This will be used to support the comparative evaluation of options and implementation trigger points. Providing a transparent analysis of adaptation option costs and potential benefits allows all stakeholders to understand what can be realistically implemented, tempered with the reality of available funding. The following steps will be followed:

- Review the existing population and consider potential population growth over the 100 year timeframe should current trends continue
- Estimate losses of land, infrastructure and assets, including lost income from lease land, based on available hazard mapping
- Assign damage values to all land, infrastructure and assets lost to erosion/inundation
- Cost adaptation options
- Estimate each management options performance in mitigating damages. Any damages avoided will be estimated as a financial benefits
- Convert whole lifecycle costs and benefits to a present day value (this applies an adjustment because things happening sooner should be considered more important)
- Calculate the benefit/costs for each management option to determine the extent to which the financial benefits (i.e. damages avoided) outweigh costs.