

NZ Continental Shelf Project Risk Management Model

Abstract - The Continental Shelf as a Successful Project.

The Continental Shelf Project set up within LINZ has been a successful project in more ways than one. The Project has been budgeted at \$44 million over a seven-year timeframe. The area of extended continental shelf beyond the Exclusive Economic Zone (EEZ) will be up to 1.5 million square kilometres, or approximately six times the land area of New Zealand. The Crown already receives over \$100 million per annum from royalties and energy levies relating to seabed resources within the EEZ.

The presentation will describe the setting up of the Project by LINZ after it was transferred to LINZ from the then Ministry of Commerce.

The challenge that was part of the Project included robust risk management, fixed budget constraints and a fixed deadline of 2006. All the essentials were present for the project to fail.

Part of the process was to engage New Zealand's Crown Research Institutes (CRI's) of NIWA and GNS to work in a Co-operative atmosphere for the benefit of NZ and not just for their individual benefits. One of the greatest challenges was the need for cross government department Co-operation. There will be significant long-term benefits to NZ arising from research undertaken by CRI's and the ongoing management of seabed resources by the Crown.

Risk Management

The ten-year timeframe for New Zealand to make its submission, interpretative nature of Article 76, costs of vessel hire and weather- dependent nature of surveying mean that there are significant risks surrounding the project. To manage these risks LINZ has developed and put in place a risk management strategy to monitor, manage and where possible mitigate the risks.

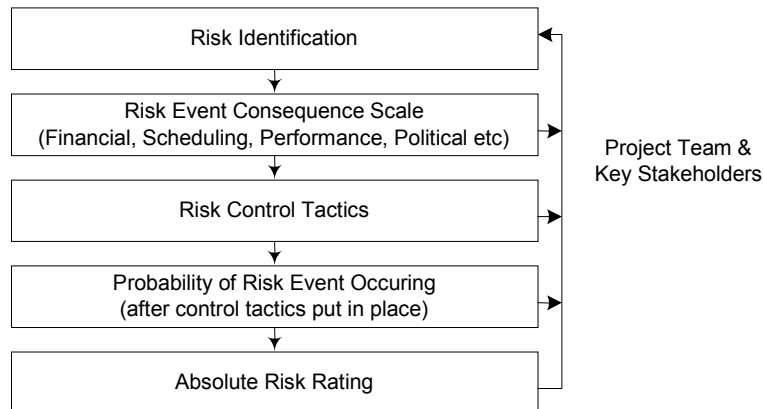
A risk management model will not anticipate and mitigate all risks. However, implementing a robust risk management model should ensure the level of risk exposure is minimised. It will not, however, reduce the probability to zero of an expected or unexpected event occurring.

One of the important outcomes from the development of a risk management model is a greater understanding by all those involved of the potential risks inherent in the project. To enable this, it is important that the views of the project's key stakeholders are sought throughout the risk identification and assessment process. This will enable the stakeholders to gain an understanding of the risks and also give them an appreciation of the likely scale of the risk events should they occur. Additionally, the process should give the project team an understanding of the risk tolerance levels of the key stakeholders involved in the project or activity.

At the commencement of the NZCSP there was a realisation that significant risks were inherent in the nature of the Project and that they would need to be managed for a successful outcome. It was considered that the risk management strategy should provide a mechanism that would anticipate the major downside events likely to be encountered. It should also provide the Project with a degree of resilience should an expected or unexpected risk event occur (i.e. it needed to be both an anticipatory and resilient focused risk management strategy).

In line with the above thinking it was also considered that the NZCSP's budget should be closely aligned with the risk profile over the timeframe of the Project. In this way the funding available could offset the financial impact of a high-risk event occurring e.g. bad surveying weather causing the costs of the survey to exceed budget.

The risk management model for the NZCSP adopted followed a fairly straightforward five-step process as set out in the diagram below:



Risk Identification

Standard risk identification techniques were used by the Project.

- SWOT analysis (strengths, weaknesses, opportunities and threats)
- Interviewing
- Stakeholder Input
- Assumption Analysis
- Brainstorming

The information was then analysed to see if it was possible to group similar risks together. For the NZCSP this information was gathered in house and then distributed to the various stakeholders for their input prior to being finalised.

Risk Event Consequence Scale (Financial, Scheduling, Performance, Political, etc)

The next step in the process considered the potential consequences of the risk events occurring. The consequences of the risks were not only financial and the NZCSP included the impact on areas such as scheduling, performance, and especially in the government sector, political consequences.

Political consequences are relatively unknown in the private sector but are very important within Government. With the number of government or quasi-government agencies involved, as well as private sector organisations bidding and carrying-out Project related work, there is a real possibility of undesirable political consequences occurring such as a Ministerial enquiry which would impact on a successful outcome for the Project.

Risk Control Tactics

The third part of the process is to identify and put in place risk control tactics. These risk control tactics are aimed at managing and where possible mitigating the risks that had been identified. However, not all risks can be identified and mitigated to a suitable level.

Therefore the project needed to have a degree of resilience and robustness should an unexpected risk event occur.

Where possible key risk triggers should be identified. These may indicate a risk event is about to occur and assist with the management of risk events.

Some of the means of ensuring a resilient rather than anticipatory approach to risks are structural. For the NZCSP this included the establishment of a Technical Experts Working Group made up of representatives of the technical and scientific agencies involved in the Project. Its purpose was to provide expert advice, guidance and support to Land Information New Zealand on the scientific and technical aspects of the NZCSP. The group ensures a critical mass of expertise is available to assist with decision-making throughout the Project lifecycle.

An Advisory Committee made up of officials from key stakeholder government departments was also established. Its role is to provide advice and guidance to the Chief Executive of Land Information New Zealand and the project team on the management of the NZCSP and to ensure there is an understanding within government on the progress of the Project.

One of the major resilience strategies of the Project had been to include a contingency fund in the Project's budget. The Contingency money was originally aligned with the underlying budget but, as a result of the risk model, it was reallocated to reflect the risk profile of the Project. In this way a risk event which has a significant financial consequence and a medium or higher probability of occurring (e.g. demand for survey vessels increases, resulting in cost of surveying to exceed budget) has a commensurate amount of contingency funding available.

This contingency also provides recognition that even with efficient planning and a robust risk management system in place, risk events still occur and need to be provided for. From an accountability aspect the contingency monies are clearly linked with an event so that they can not be easily subverted for other purposes. Finally, when the possibility of the risk event occurring passes the money can be reprioritised for other purposes.

To maintain quality standards, each facet of the NZCSP has a quality assurance component. This includes the development and use of specialist standards and specifications throughout the Project. All contracts include the standards or specification applicable to the area and type of work being undertaken e.g. for a recent survey, a set of low fold seismic and bathymetric specifications were developed and included in the contract.

Additionally, all surveys will have at least two Project client representatives who are responsible for monitoring the Contractor's daily operations, with the objective of maximising the output from the survey for the NZCSP, and minimising the impacts of data not meeting the required specification.

Probability of Risk Event Occurring

The objective of this step is to identify those risk events that, even with the controls put in place, may still have significant consequences and/or a high probability of occurring.

While the risk framework so far has identified the risks, given indications of the consequences, and produced some risk control tactics, there is still a need to determine the likelihood of an individual risk occurring. In this way, resources can be targeted more

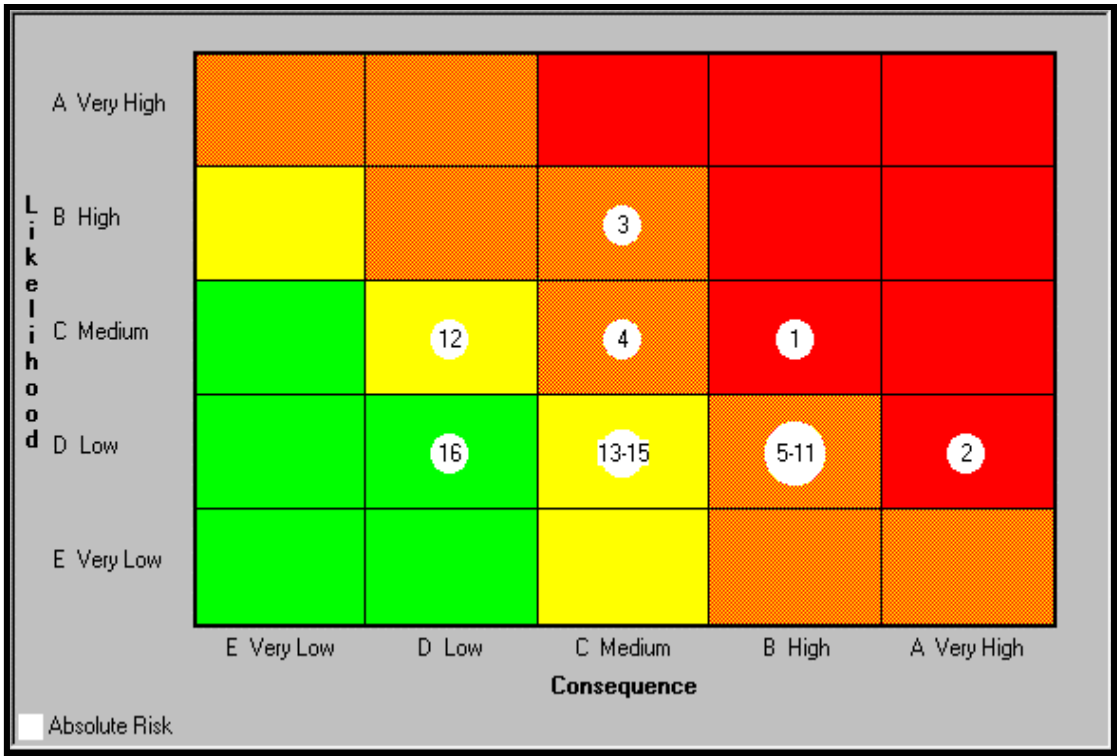
efficiently at the risks with a greater likelihood of occurring.

For the NZCSP a five rank probability scale was adopted, in which the three top scales had the risk event having a reasonable or better probability of occurring and, therefore, needed to be managed throughout the Project timeline.

The assessment is made after risk management controls tactics have been put in-place. Again, it is important to include the key stakeholders in this process in order to get a range of views on the probability of the risk events occurring, even with the controls put in place.

Absolute Risk Rating

The combination of the above steps enables an absolute risk rating to be matched against each risk in order to highlight those which either need further remedial action or need to be routinely monitored. As can be seen by the following diagram, the absolute risk rating provides a mechanism for clearly differentiating the important risks from the rest.



Risk Monitoring

Risk Monitoring is an ongoing process. The risks and risk model are monitored on a regular basis to ensure that the risks are being appropriately managed and that the model has a high degree of currency.

The project team and key stakeholders regularly review the model to ensure it reflects the current risks and acceptable risk tolerance level, which may have altered due to changes in the project’s wider environment.

Within the NZCSP, the risks are monitored and reported monthly with an annual review of the model by key stakeholders to ensure its currency and validity, and during major contractual decisions the risk decisions will be set down in the final recommendations prior to

the contract being signed. For example, one of the major uncertainties of surveying at sea is bad weather. The choice is to have the contractor bear all the risk, or for the tendering organisation to gamble on good weather and thus carry the risk. Obviously, if the contractor is to carry all the risk this will be reflected in a correspondingly higher contract price, as the contractor seeks to cover the uncertainties of calculating the amount of bad weather possible.

The NZCSP chosen approach was to use the tendering process to provide an estimate of the likely maximum days of bad weather expected. In this way it possible to provide a capped contract price with a certain allowance for bad weather. The result being that both parties carry some of the risk for bad weather, NZCSP up to the limit stipulated in the contract, and the contractor if bad weather exceeds the allowance in the contract.