1. Shared-Risk Pool

Also known as Contingency Fund Management, Shared-Risk Contingency Management

What is it?

Shared-risk pool is a process that consists of identifying potential project risks that may cause cost and schedule growth, estimate the cost of such risks, create a contingency fund, and use management strategies to minimize the risk impacts on cost and schedule *(1)*. Under this provision, the STA sets aside a contingency fund and the contractor is allowed to spend the fund according to its unit rates; however, the provision also establishes that the STA will share the savings of the unused contingency funds with the contractor at the end of the project *(2, 3)*. This serves as an incentive to the contractor to minimize expenditures from the contingency fund.

Why use it?

According to the Federal Highway Administration (FHWA) report, *Alternative Payment and Progress Reporting Methods* (1), the main advantage of a shared-risk contingency provision is that it motivates the contractor to reduce the expenditure of the contingency fund and to control schedule growth. As a result, this provision gives the contractor an incentive to use innovative construction methods.

Other advantages of contingency fund management are that:

* It gives the owner assurance about the certainty of the project cost and schedule estimates *(1)*, and
* Assures that funds are available to resolve issues in a timely manner *(4)*.

What does it do?

Under normal payment provisions, the owner sets aside an amount of contingency to cover probable occurrence of events for which it is responsible that can cause a cost increase in the project budget. Likewise, the contractor includes a certain amount of money within its proposal as a contingency to cover the risks that it bears under the contract terms. The main function of the shared-risk contingency provision is to reduce these contingency amounts, and provide assurance to both the contractor and the STA that there are enough funds to cover project costs not included in the project budget. As a result, the provision works as a tool for assuring cost certainty to the STA, as well as helping contractors to prepare proposals based on their ability to do the work efficiently rather than on their willingness to assume risks without charging for it *(3)*.

How to use it?

The most important step when developing a shared-risk contingency provision is to determine an adequate contingency amount. *A Risk-Based Approach to Contingency Estimation in Highway Project Development (5)* provides guidance for the appropriate calculation of contingency costs according to the complexity level of a project. This approach consists of three steps: project complexity assessment, risk analysis type selection, and contingency calculation. The project complexity assessment step divides projects in three categories:

* Major or Most Complex Projects,
* Moderately Complex Projects, and
* Minor or Non-Complex Projects.

The NCHRP report 574, *Guidance for Cost Estimation and Management for Highway Projects During Planning, Programming, and Preconstruction (6)* provides definitions of project complexity for different project elements according to these three categories of complexity. Some of the elements to consider are roadway, traffic control, structures, right-of-way, utilities, environmental, and the stakeholders. The risks analysis type selection and the contingency calculation is made according to the level of project complexity identified. The authors *(5)* identify three types of risk assessment methods.

* Type I - Risk identification and percentage contingency - Applies only to minor projects, and includes only a list of probable risks and the use of a percentage of project costs to estimate the contingency amount.
* Type II - Qualitative Risk Analysis and Identified Contingency Items - Applies to moderately complex risks and involves the use of more rigorous risk identification tools and specific contingency items to complement the percentage-based estimate from the previous case. The authors suggest the use of a probability-impact matrix analysis, and the calculation of risk costs for the highest ranked risk which should be added to the percentage-based contingency.
* Type III - Quantitative Risk Analysis and Contingency Management - Applies to major projects, and involves a full quantitative risk analysis process as well as the implementation of a risk register to continuously monitor and update the risks and the associated contingency.

Once the contingency amount is defined, the next step is to determine the distribution of the remaining contingency upon project completion. A common arrangement is to give 50 percent to each party but the STA is free to determine different quantities. Two important considerations when defining this amount are: first, that the amount given to the contractor should be enough to incentivize the contractor, and second, that the amount does not need to be static (i.e. the incentive amount can be tied to other project events such as completion dates) *(3)*.

The California Department of Transportation *Alternative Procurement Guide (3)* discusses the following contract considerations to be considered when using shared-risk contingency provisions:

* Treatment of overruns – The contract should clearly establish what will happen if risk costs exhaust the contingency fund. In this case, the STA should decide whether to cap the contingency fund or allow for an increase. For the former, the result is that it provides the STA with increased protection against costs increases. The latter will result in an increased exposure to such cost increase but the original price will be lower as the contractor will not have the need to account for any costs that may overrun the contingency in its proposal.
* Eligible costs – The contract must define which costs are eligible for reimbursement out of the pool and which are not. If the contingency is capped, then the STA can allow a broader access to the contingency funds. Conversely, if the STA allows for contingency fund increases, then it should strictly limit the uses of the contingency fund.
* Process for accessing funds – The contract should set up the requirements for accessing the contingency funds. In contracts with lump-sum price, change orders are usually required. In contracts with guaranteed maximum price, the contractor is allowed to invoice directly from the risk contingency pool.

When to use it?

Shared-risk contingency provisions are most applicable with major projects as these face major risks. Furthermore, design-build delivery projects get more benefits from this type of provision as these projects:

* Have a greater level of uncertainty associated with estimating construction costs and schedule before completion of design (1);
* The design-build contractor has more influence over the impact of risks given that its scope of work includes design and construction (3); and
* There are limited number of firms that have the financial capacity to undertake design-build projects which results in fewer proposals and helps to affirm the accuracy of the STA estimate (1).

Additionally, projects involving environmental mitigation, utility or other third party issues, and underground issues are good candidates for shared-risk contingency provision *(3)*.

Limitations?

Some major disadvantages of shared-risk contingency are that:

* It can be difficult to establish an appropriate contingency amount *(4)*, and
* The existence of a contingency fund may be seen as a “cushion”, which causes a relaxed approach towards cost increase management *(4)*.

Who uses it?

California, Colorado, New Jersey, Washington State

Example

In May 2010, the Washington State Department of Transportation (WSDOT) issued a request for proposals for the SR 99 Bored Tunnel Alternative Design-Build Project. The contract included three types of incentives: a shared contingency allowance, a deformation mitigation and repair fund, and a completion incentive. The shared consistency allowance provision was established as follows:

“WSDOT has established a Shared Contingency Allowance in the amount of $40,000,000. Design-Builder will be entitled to receive 75 percent of any amount remaining in the Shared Contingency Allowance following Physical Completion of the Work and WSDOT’s determination of all amounts owing to Design-Builder under Change Orders payable from the Shared Contingency Allowance. WSDOT will retain the remaining 25 percent. Design-Builder’s share of the unused funds in the Shared Contingency Allowance shall be added to the Total Compensation by a Change Order and shall be due and payable at the same time as the Final Payment.” *(7)*

Another example is the $330 Million Atlantic City-Brigantine Connector design-build project, a four-lane connector highway and tunnel project in New Jersey which included the following shared-risk contingency provision:

“The contingency is intended to be available to cover any and all unanticipated costs incurred by Contractor in completing the Work directly attributable to the following (and only the following) events (“Contingency Events”) and for no other purpose: [list of eligible items]

If upon achievement of Final Acceptance and resolution of all Claims of Contractor and all claims, Liens and stop notices of Subcontractors and laborers, funds remain available in the Contingency, the Contract Price shall be increased by an amount equal to xx% of such remaining Contingency amount, and the Contingency shall thereupon be reduced to zero; provided, however, that if Contractor fails to achieve Substantial Completion on or before the Guaranteed Completion Date, Contractor’s share of such remaining Contingency amount shall be reduced as follows: if Substantial Completion is late by one week or less, Contractor’s share shall be reduced by 5% to equal xx%, and for each week (or portion of week) of delay thereafter, Contractor’s share shall be reduced by an additional 5%”*(3)*

References

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