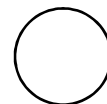


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Implementation of Systematic Risk Management in Public Works Projects

We have promulgated via ETWB TCW No. 6/2005 a systematic approach to manage project risks of items under the Public Works Programme. The approach entails the carrying out of risk analysis at regular intervals during project implementation by using a Systematic Risk Management (SRM) framework with a view to enhancing project performance in terms of time, cost and quality.

2. Upon review, the cost estimate of project works programme (PWP) projects that are required to carry out the SRM is increased from \$200 million to \$1,000 million. This revision shall take immediate effect. The authority for approving exemption remains to be an officer at D2 rank or above of the works department. For PWP items with a cost estimate below \$1,000 million, project offices are encouraged to apply the SRM where the nature, complexity and/or risk level of the works warrant such applications. The justifications for applying the SRM in such cases should be properly documented.

3. The Risk Management User Manual appended to the above technical circular has also been updated, as attached.

4. By copy, we would be grateful if CEDD, ArchSD and EMSD could arrange to update the relevant parts of the respective PAHs under their ambit.

5. If there are any enquiries, please contact Ms Joyce LI, AS(WP4)3 on 3509 8382.

(Y K HO)
for Secretary for Development

Distribution (w/encl.)

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SE/QM&S, CEDD	(for updating PAH for Civil Engineering Works)
PM347, ArchSD	(for updating PAH for Building Works)
CA2, EMSD	(for updating PAH for E&M Engineering Works)

Internal:

CAS(W)7, AS(WP4)3, AS(WP4)8 and TS



Ref : ETWB(W) 506/90/01
Group : 5

21 June 2005

Environment, Transport and Works Bureau
Technical Circular (Works) No. 6/2005

Implementation of Systematic Risk Management
in Public Works Projects

Scope

This Circular sets out the requirements and policy on the application of Systematic Risk Management (SRM) in public works projects as promulgated in the Risk Management User Manual.

Effective Date

2. This Circular shall take immediate effect and apply to relevant public works programme projects which are yet to achieve Cat A status on the effective date. For relevant consultant managed project with agreement signed before the effective date, Works Department may seek supplemental agreement with the consultant on its implementation.

Effect on Existing Circular

3. This Circular has no conflicts with existing Circulars. In conjunction with the risk assessment process as detailed in this Circular, the Works Department should continue to estimate the Expected Values of risk associated with the projects as stipulated in ~~the Works Branch Technical Circular No. 22/93~~ on “Estimating Using Risk Analysis (ERA)” in assessing the contingency to the capital cost of a project for project estimate purposes. However it is expected that whenever the contingency are reviewed, the ERA calculation should only include those items of risk that cannot be avoided or mitigated after going through the SRM process.

Section 5.1 and
Appendix 4.15
in Chapter 4 of
the Project
Administration
Handbook mfor
Civil
Engineering
Works

Background

4. All project managers practise a certain extent of risk management, but such efforts are often unstructured and generally lack focus. The Construction Industry Review Committee has in its report recommended the public sector clients to take a lead in promoting wider adoption of SRM to improve project performance. A SRM framework could help project managers to:

- (a) identify, assess and rank risks, making inherent risks explicit;
- (b) make informed decisions on provisions for adversity and develop contingency plans for unavoidable risks;
- (c) control and monitor the uncertain aspects of construction projects; and
- (d) limit potential damage should a risk materialise.

5. Environment, Transport and Works Bureau (ETWB) has reviewed the international risk management practice and developed proposals to manage risks on projects in the Public Works Programme (PWP) in a systematic manner. The systematic approach entails risk analyses to be taken at regular intervals during project implementation. This allows continuous monitoring of the risk exposure of the project, allocation of responsibility to the party best able to manage the identified risk and assessment of the effectiveness of risk control measures. While SRM cannot remove all the uncertainties inherent in a construction project, it improves the chance of completing a project on time, within budget and to the required quality.

Policy

6. SRM should be carried out for public works programme projects with cost estimates exceeding ~~\$200M~~ ^{\$1000M} throughout the project period except for those projects with detailed design already well in the advanced stage, or which are of routine nature; primarily straightforward; and/or unlikely to attract interfacing problems or objections. Approval for exemption could be given by an officer of not lower than D2 level within the Works Department who should satisfy himself that the potential risks associated with that project have generally been managed or are minimal and can be effectively managed by existing departmental or project procedures.

7. Works Department should start preparing the Risk Management Plan at the early stage of a project once it is identified. It is however required that the Risk Manager of the project should submit the Risk Register as discussed in the ~~ETWB~~ Risk Management User Manual to the Headquarters of the Works Department on an annual basis from the project's inclusion in Cat C of PWP until the completion of the project. This submission is best carried out roughly at the time of the annual RAE bid/review exercise. Though it is the responsibility of the individual project team to carry out the risk management process to obtain greater certainty in achieving project objectives, the Head of Department should have the responsibility to ensure that the process is carried out within the department. Headquarters of Works Department should thus institute suitable management measures within their respective department to monitor and keep records of all submitted Risk Registers, carry out random check on them and reject those which are substantially not up to the required standard.

8. It should be noted that SRM is not meant to be a criterion in determining priority in the annual RAE. However, Works Departments are expected to proactively use the SRM process to prepare more accurate cash flow forecast on the contingency sum of the projects.

A Risk Based Management Process

9. The management of project risk in the Public Works Programme is achieved by systematically applying a management process that utilises recognised management tools and techniques in various project environments, throughout the entire project delivery period. Basically **the risk management process comprises a systematic risk planning, identification, analysis, evaluation and treatment process** which is conducted with appropriate **recording, monitoring and reviewing** of the risks so identified, together with effective **communication and consultation with various stakeholders** and project participants.

10. Specific guidance on the application of the risk management process to projects within the PWP is provided in the *Risk Management User Manual* which has been uploaded on ~~ETWB's~~ ^{DEVB's} internet homepage. The Manual is primarily targeted at those who are responsible for the actual implementation of the risk management process on particular projects. However all departmental

officers involved in the PWP, including personnel who are only involved in risk management activity but not necessarily responsible for its implementation, are encouraged to familiarise themselves with the principles outlined in the Manual.

11. It should be highlighted that to enable an effective and efficient risk management process, this Circular recommends the implementation of a largely qualitative form of risk management (as outlined in the User Manual). This approach is appropriate for all projects irrespective of scale and complexity, and is a necessary precursor to more detailed analysis using some of the quantitative risk management techniques (such as those outlined in ~~Works Branch Technical Circular No. 22/93~~ or determination of insurance coverage).

Section 5.1 and
Appendix 4.15
in Chapter 4 of
the Project
Administration
Handbook mfor
Civil
Engineering
Works

12. However when a Works Department is involved in a project that is very much different from those they normally undertake (such as construction of airport), they may consider it beneficial to adopt a full quantitative means of assessment. This entails a greater investment in resources but may be justified given the inherent increase in risk exposure that comes from undertaking projects with a high risk profile.

Risk Manager

13. It is recommended that risk management activity is co-ordinated by a designated officer who has been appointed specifically for this purpose. This person is referred to as the Risk Manager and on smaller or less complex projects he/she may also hold other project positions. It is expected that an officer of senior professional rank shall be appointed for this purpose for in-house projects. For consultant-managed projects, it is expected that specific professional staff equipped with expertise in this field shall be employed.

14. The Risk Manager should ensure that risk is considered by stakeholders and project participants who have an operational management role on the project or who provide a specific service. These stakeholders may include works departments, enabling/maintenance departments, appointed consultants, contractors and suppliers. The Risk Manager should ensure that risk is addressed in a manner that is consistent with the principles of this Circular and that it is properly recorded.

Controlling the Process

15. Particular management tools are used to record and control the progress of risk management activity. Works Department should, when carrying out the risk management process, utilise the three recommended media described in Section 10 of the Risk Management User Manual, being:

- Project Risk Management Plan
- Project Risk Register
- Risk Treatment Plans

Responsibilities to the Risk Management Process

16. The ability to manage project risk exposure and to implement a successful risk management regime requires that particular project stakeholders and participants to assume particular risk management responsibilities. These responsibilities are outlined below:

Strategic Management

The Head of Works Department or his delegate shall:

- ensure that the risk management process is implemented;
- ensure that there are sufficient resources to undertake risk management activities;
- ensure that strategic risks are identified/assessed/treated and communicated to other levels of management; and
- make decisions on project risk issues that are passed up from tactical levels of management.

Tactical Management

The Project Manager of projects shall:

- be responsible for the Project Risk Management Plan and ensure that it is implemented in accordance with the principles outlined in the Risk Management User Manual;
- assign operational level responsibilities and co-ordinate all risk related project activity;

- ensure that project and operational risks are identified/assessed/treated and communicated to other levels of management; and
- make risk based decisions that are passed up from operational levels of management and refer strategic level decisions to strategic management.

Operational Management

The Risk Manager shall:

- prepare the Project Risk Management Plan;
- ensure that all those involved understand the risk management process;
- managing risk identification, assessment and treatment activities;
- apply for strategic or tactical decisions on conflicting risk issues;
- verify the implementation of decisions and their effectiveness;
- communicating information about risk issues;
- monitor the risk management process and implement corrective action when required;
- report the progress of risk management activity; and
- record and update risk information on the Risk Register.

Draft Sample Clauses for Contract Document

17. Draft sample clauses have been prepared for incorporation into works contract documents and consultancy briefs where applicable. These are presented in **Annex 1**

Comments and Suggestions

18. The proposed SRM process will need to be reviewed from time to time taking account of experience gained from the Works Departments. Any comments/suggestions for improvement should be directed to ~~the Technical Secretary of ETWB.~~
AS(WP4)3 of DEVB

(C S Wai)
Deputy Secretary for the Environment,
Transport and Works (Works) 2

Draft Sample Clause for Consultancy Brief

The Consultant shall perform Systematic Risk Management in accordance with ETWB TCW No. 6/2005 and ~~ETWB~~ Risk Management User Manual to identify risks and uncertainties associated with the Project and recommend treatment measures aiming to reduce these risks and uncertainties to acceptable level and to ensure timely completion of the Project and within budget and to the required quality. This may include arranging risk management workshops, meeting with relevant stakeholders, preparing the risk treatment plans, risk management plans and risk registers, etc. The Consultant shall employ a dedicated professional staff equipped with relevant experience in this field to perform the duty of the Risk Manager.

Draft Sample Clauses for Works Contract Tender Document

Notes to Tenderers

Tenderers should note that Systematic Risk Management in accordance with ETWB TCW No. 6/2005 and ~~ETWB~~ Risk Management User Manual has been carried out for the Works in the Contract and the risks that the Contractor is required to bear and be responsible for include without limitation those shown in the risk treatment plans attached in Appendix []. Tenderers should note that the list is not exhaustive and is given for the tenderers' reference only. The list does not in anyway release the Contractor from any of his obligations under the Contract. The list shall not form part of the Contract.

Draft Special Condition of Contract

- (i) "Systematic Risk Management activities" means the systematic risk management activities as stipulated in Particular Specification Clause [X].
- (ii) The Contractor shall carry out Systematic Risk Management activities in accordance with Particular Specification Clause [X]

Particular Specification Clause [X] "Systematic Risk Management"

During the course of Contract, the Contractor shall, when required by the Architect/Engineer, participate in the Systematic Risk Management activities and prepare risk reports in accordance with ETWB TCW No. 6/2005 and ~~ETWB~~ Risk Management User Manual. These activities may include attending risk management workshops, meeting with relevant stakeholders,

preparing the Contractor's own risk treatment plans, risk management plans and risk registers, etc. Unless otherwise specifically provided for in the Contract, the Contractor shall not be entitled to any additional payment for performing such management activities. Nevertheless, for the avoidance of doubt, it is clarified that any instructions, orders, directions or decisions of the Architect/Engineer given or made in accordance with the Contract or any variation to the Works ordered in accordance with the Contract due to a particular identified risk treatment activity shall be dealt with under the relevant provisions in the Contract.