Taiwan High Speed Rail Corporation

(Section 5 – Review of the CCTJV’s cost claims)

Contract D290 – Main Workshop at Yan Chao, Kaohsiung

Report 2

The Contractors Claims for EOT and Costs

Val Republica
THSRC, CMD
<table>
<thead>
<tr>
<th>CONTENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SECTION 5  REVIEW OF THE CCTJV’S COST CLAIMS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Paragraph Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
</tr>
<tr>
<td>Particulars of the construction works</td>
</tr>
<tr>
<td>Provisions of the Contract in dealing with the claims for additional costs</td>
</tr>
<tr>
<td>JV’s Grounds for Additional Costs</td>
</tr>
<tr>
<td>JV’s primary position</td>
</tr>
<tr>
<td>JV’s secondary position</td>
</tr>
<tr>
<td>Prolongation Cost in General</td>
</tr>
<tr>
<td>Disruption in General</td>
</tr>
<tr>
<td>JV’s Additional preliminaries cost (NT$393,636,847)</td>
</tr>
<tr>
<td>JV’s Additional Cost of Labour (NT$461,847,264)</td>
</tr>
<tr>
<td>JV’s Additional plant and equipment costs (NT$77,240,216)</td>
</tr>
<tr>
<td>JV’s Additional costs in processing design (NT$27,759,404)</td>
</tr>
<tr>
<td>JV’s Additional subcontractors’ costs (NT$80,863,805)</td>
</tr>
<tr>
<td>JV’s Special price escalation (NT$431,866,774)</td>
</tr>
<tr>
<td>JV’s Black-hole variations (NT$417,180,289)</td>
</tr>
<tr>
<td>JV’s Black-hole variations (NT$417,180,289)</td>
</tr>
<tr>
<td>Additional finance costs (NT$166,264,974)</td>
</tr>
<tr>
<td>Conclusion</td>
</tr>
</tbody>
</table>
Section 5  Review of the CCTJV’s cost claims

Introduction

1. This section deals with the cost aspect in the latest ‘Consolidated Claim Submission dated 28 February 2006 for Request for Extension of Time and Recovery of Additional Costs for Events to 31 December 2005’ enclosed under the JV’s letter of 7 March 2006 reference D290-L-THSRC-002-03324

2. The JV alleged under the General Conditions of Contract (GCC) Clauses 44.4, 52.3 and provisions of the ROC Civil Code (Refer item 1.3 and 1.4 of the Introduction of the JV’s latest Consolidated Claim Submission) that it is entitled to extension of time and recovery of additional costs incurred.

3. The JV stated that if the matter proceeds to conciliation, its primary position is that he is entitled to be paid a reasonable sum for the Works which, given the level of delay and disruption suffered, should be calculated on the basis of its actual cost plus an allowance for profit.

4. Notwithstanding the above and in response to THSRC’s request for a claim under the contract, JV also sets out its secondary position in the consolidated claim submission by establishing all the relevant facts and analysed them in accordance with the contract. It is particularly noted of the JV’s statement that “it is submitted on an informal basis and is not to be considered as a submission to the ER under the contract”.

5. The JV also pointed out that he is continuing to investigate the additional costs arising from the events cited in the consolidation claim submission and he anticipated further supporting evidence and calculations will be provided, as an addendum in the near future.
6. In this section, firstly, the nature of the construction works and the contract provisions under D290 relevant to the recovery of additional costs are examined.

7. It is then followed by analysis of the method approach adopted by JV in the calculations of the additional costs with reference to the industry practice. Recommendation for the appropriate cost assessment method approach is also included.
Particulars of the construction works

8. The Works under D290 comprise construction to the Drawings and Specifications including all things necessary or which may reasonably be inferred or implied from the Contract, of:
   a) Main Workshop
   b) Administration & Training Centre
   c) Hazardous Material Storage
   d) Toilet Equipment Repair Shop
   e) Central Warehouse
   f) Chiller Room
   g) Water Tower & Pump Room
   h) Paint Shop
   i) Paint Warehouse
   j) Auxiliary Vehicle Maintenance Shop
   k) Fuel Station
   l) Power Substation
   m) Signalling & Communication Equipment Room
   n) Waste Water Treatment Plant
   o) Guard House
   p) External Works and other associated works
   q) Builder's works associated with all systems and works of the Interfacing Parties, etc.

9. The JV shall also be responsible for:
   a) Co-ordination with the Interfacing Parties in the development - The works carried out by the Interfacing Parties include but not limited to Core System (E102), Track Work (T240), Civil Works on adjacent sites, Main Workshop Depot Equipment, Mainline Viaduct, BSS 7 Facility (C295), Widening of Kao 36 County Road and Utilities Relocation of Kao 35-1 County Road.
b) Production of drawings and details fully coordinated to ensure the Works are constructible without clash between the various elements of works including those of the Interfacing Parties.

c) Production of drawings for builder’s works

10. According to the Letter of Acceptance included in the D290 Contract Documents, the Commencement Date shall be 5 May 2003.

11. The Site is divided into a number of specific areas, parts of which will be occupied by others on the Commencement Date.

12. The JV shall complete the Works in accordance with Schedule of Milestones and Schedule of Key and Section Completion Dates described in the Contract Documents.

13. The Section Completion Dates are:
   No. 1 - Complete piling work for Administration & Training Centre by 1 September 2003
   No.1A - Complete the Administration & Training Centre including obtaining Occupation Permit by 17 March 2005
   No. 2 - Complete any outstanding work and prepare the Site for operations

14. The Contract Price is NT$4,350,000,000, built up of:
   - NT$523,492,521 Preliminaries 12.03%
   - NT$797,315,905 General site works 18.33%
   - NT$3,029,191,574 Buildings 69.64%
Provisions of the Contract in dealing with the claims for additional costs

15. The JV alleged under the General Conditions of Contract (GCC) Clauses 44.4, 52.3 and provisions of the ROC Civil Code (Refer item 1.3 and 1.4 of the Introduction of the JV’s latest Consolidated Claim Submission for “Request for Extensions of time & Recovery of Additional Costs”) that he is entitled to extension of time and recovery of additional costs incurred.

16. The question of JV’s entitlement to Extension of Time and the method of assessment are dealt with under the other sections of this report.

17. Before analysing the calculations of the additional cost, the following are some of the clauses in GCC relevant to the extension of Time and additional cost worth examined:

   GCC Clause 1.1 – Definitions
   “Cost” means all expenditure wholly and necessarily incurred but does not include any allowance for profit.

   GCC Clause 35.1 & 35.4 - Co-ordinated Interface Report and Co-ordinated Interface Programme
   It is the obligation of the Contractor to prepare and update the Co-ordinated Interface Report and the Co-ordinated Interface Programme. Upon failure on the part of the Contractor, the Employer’s Representative may instruct changes, including adding or changing specific dates. The Contractor shall not be entitled to any additional payment or any extension of time.
GCC Clause 42.2 – Phased Occupation and Access

(a) The Contractor shall accept the Site or parts as prescribed in the Contract in advance of the Baseline Programme if so determined by the Employer’s Representative. The Contractor shall not be entitled to any increase in the Contract Price in such circumstances, but the time for substantial completion shall not be changed from that shown in the Baseline Programme.

(b) The Employer gives no warranty or undertaking that the Site or any part shall be cleared of all buildings, structures or foundations, or that the Site or any part shall be in a clean and tidy condition and free of all pollution, contaminated, dangerous or other materials when occupation is given to the Contractor.

(c) Occupation of the Site within the meaning of the Contract shall not mean sole or exclusive occupation for the Contractor, unless the Contract specifically states elsewhere to the contrary.

GCC Clause 42.3 & 42.8 – Failure to Give Occupation

If the Contractor suffers delay arising from failure on the part of the Employer to give occupation of any part of the Site in accordance with the terms of the Contract, the Contractor shall be entitled to extension of time and additional cost incurred, provided always that he can demonstrate that:

(a) He has fulfilled all his co-ordination, liaison, interface, access and other responsibilities set out or implied in the Contract, and

(b) The interference, delay or disruption was not referred to or implied in the Contract, and was beyond that which reasonably ought to have been foreseen by an experienced contractor at time of award of the Contract.

GCC Clause 44.1 – Extension of Time

The Contractor shall give written notice to the Employer’s Representative as soon as he can reasonably foresee any event occurring which is liable to cause any delay to substantial completion of the whole of the Works or any Section, but not later than 21 days after commencement of such an event, and shall state the likelihood and probable extent of the delay.
GCC Clause 44.2 – Maintenance of a Claim for Time

It provides a procedure for notice and submission if the Contractor wishes to maintain his right to pursue a claim for an extension of time in respect of the effects of an event previously notified where an event has a continuing effect. The Contractor shall use and continue to use his best endeavours to avoid or reduce the effects of such event on substantial completion of the whole of the Works or Section and submit at monthly intervals as part of the Monthly Progress Report, further interim particulars until the actual delay caused is ascertainable.

GCC Clause 44.3 – Grounds for Extension of Time

(a) Relevant events leading to extension of time are:

(i) Variation ordered
(ii) Late occupation of the Site or any part
(iii) Delay and disturbance to the progress of the Works caused by the Employer
(iv) Suspension of the Works or part by the Employer
(v) Excepted Risk
(vi) Fossils, coins, articles of value or antiquity
(vii) Earthquake
(viii) Diversion of super high-voltage transmission line or LNG gas main
(ix) Contaminated or dangerous material
(x) Nomination of another sub-contractor
(xi) Work against Provisional Sum or Prime Cost Sum.

(b) The Contractor shall not be entitled to an extension of time, if the delay in the progress of the Works is adversely affected by weather conditions.
GCC Clause 44.4 – Steps for Employer’s Representative
If the Employer’s Representative is satisfied that the Contractor is using and will continue to use its best endeavours to avoid or reduce the delay, and where an event has a continuing effect, or the actual delay to substantial completion of a Section or the whole of the Works cannot, for the present, be ascertained, following receipt of particulars from the Contractor sufficient for him to determine an interim extension of time, the Employer’s Representative may determine, grant and notify in writing to the Contractor such interim extension.

GCC Clause 44.6 – Direct Delay
The Contractor shall not be entitled to any extension of time by reason of any delay unless such delay actually affects or will actually affect substantial completion of the whole of the Works or any Section

GCC Clause 44.9 – Condition Precedent
It shall be condition precedent to the Contractor being granted any extension of time under Clause 44, that he complies strictly with the terms of Clause 44.1 and Clause 44.2, and any failure to so comply shall mean that the Contractor is deemed to have waived any entitlement to the extension of time.

GCC Clause 49.1 Work Outstanding
It allows the outstanding work to the substantial completion of the Works or in part to be completed during the Defects Liability Period

GCC Clause 52.2 – Determination of Valuation of Ordered Variations
It sets out the procedure of determination of the financial valuation of the variations ordered. The valuation of variations shall include the cost of any delay and disruption so caused.
GCC Clause 52.3 – Additional Costs

To the extent the Cost is not determined under another Clause of the Contract, the Employer’s Representative shall as soon as reasonably practicable determine such sum in respect of the Cost incurred as a result of the following:

(a) The resolution of any discrepancy or ambiguity
(b) (Not Used)
(c) (Not Used)
(d) Loss or damage to the Works arising from any Excepted Risk
(e) Suspension of the Works or part by the Employer
(f) Late occupation of the Site or any part
(g) Delay or disruption from any Interfacing Party
(h) Delay and disturbance to the progress of the Works caused by the Employer
(i) Searches, tests, demonstrations or trials for which the Contractor is not liable
(j) Delay or disruption resulting from a variation ordered
(k) Suspension or reduction of the rate of work in respect of failure to payment
(l) Nomination of another sub-contractor
(m) Insolvency, receivership or liquidation of a Nominated Sub-contractor
(n) Work against a Provisional Sum or Prime Cost Sum

GCC Clause 53.1 – Additional Payments

If the Contractor intends to claim any additional payment, Cost or increase in the Contract Price pursuant to any Clause or otherwise in connection with the Contract, he shall give notice of his intention to the Employer’s Representative within 21 days after the event giving rise to the claim became, or ought reasonably to have become apparent to the Contractor.
GCC Clause 53.2 – Additional Records
Without necessarily admitting the Employer's liability, the Employer's Representative may upon receipt of a notice under Clause 53.1, instruct the Contractor to keep such contemporary records or further contemporary records as the case may be, as are reasonable and may be material to the claim of which notice has been given, and the Contractor shall keep such records.

GCC Clause 53.3 – Detailed Particulars
After the giving of a notice to the Employer's Representative under Clause 53.1, the Contractor shall within 28 days of the notice date or such other time as may be agreed with the Employer's Representative, send to the Employer's Representative a first interim account, giving full and detailed particulars of the amount claimed to that date, the grounds upon which the claim is based, and the records that will be kept to support the claim. Thereafter, each month as part of the Monthly Progress Report, the Contractor shall send to the Employer's Representative further up to date accounts giving the accumulated total of the claim and any further grounds upon which it is based.

GCC Clause 53.5 – Compliance
It shall be a condition precedent to the Contractor receiving any additional payment to that making up the Contract Price including any Cost, that he strictly complies with the terms of Clause 52, and Clause 53.1 and 53.2, and any failure to comply shall mean the Contractor is deemed to have waived any entitlement to the additional payment.

SCC Clause 2.0 - Key Dates
2.6.1 Key Dates may be extended in accordance with GCC Clause 44
2.6.6 Where the word “Section” appears in GCC Clause 46, the words “or any Key Date” shall be added.
JV’s Grounds for Additional Costs

18. The JV stated that it has incurred additional costs caused by various delays and disturbances to the regular progress and completion of the various elements of the works for reasons and events which include:

a) The site was not ready to hand over to JV at commencement of the Project
b) Project design was woefully inadequate at commencement of the Project
c) Occupation of land handed simultaneously to Interfacing Party T240 from C295
d) Interfacing Party E102 not ready to commence any work after JV made the areas available
e) Delivery of train sets was achieved on 27 May 2004
f) Delays to ATC Building – Key Date 5A and Section Completion Date 1A
g) Continue subsidence of the structures built on the site
h) The completion of the project at Key Date 6 and Section Completion 2
i) The delayed completion of the whole HSR scheme
j) Operational characteristics of THSRC
JV’s primary position

19. The JV alleged that “The restricted site access, massive quantity of design changes and total failure to properly administer the contract are clear breaches of the express and implied terms of the contract including the obligations of good faith in ROC law. Hence the extension of time valuation and liquidated damages provisions no longer apply. CCLJV are therefore obliged to complete the works in a reasonable time and no exposure to Liquidated Damages and to be paid a reasonable sum for the works, which given the circumstances, should be calculated on the basis of cost plus an allowance for overheads and profit”.

20. From the documents that we reviewed, there found no mention of how the cost plus is to be calculated nor any indicative figure of “the reasonable sum for the works” by the JV.

21. If the JV did submit the claim on cost plus basis without substantiating cause and effect to individual events or groups of events, it will usually be called as a composite, global or a total cost claim.

22. It is usual in the standard forms of the contracts that the Contractor is required to maintain accurate and sufficient records in particular for the loss and/or expense claims. If the Contractor has maintained accurate and complete records, the Contractor should be able to establish the causal link between the event and the resultant additional cost incurred, without the reliance on making a global claim submission.

23. The SCL Protocol is of the opinion that in rare occasions where it is impossible or impractical to distinguish causal links between the individual events and the loss and/or expenses consequence thereof to enable a fair and proper cost assessment, sometimes it is acceptable to separate the cost assessment of the individual items of the claim that can be quantified in a conventional manner and the rest on a global approach.
24. John Doyle Construction Limited v Laing Management (Scotland) Limited suggested that if the Contractor is able to demonstrate that all of the events on which he relies are in law the responsibility of the Employer, then it is not necessary for him to demonstrate causal links between individual events and particular head of loss. However, if it appears that significant cause of the delay and disruption has been a matter for which the Employer is not responsible, a claim presented in a global claim manner must necessarily fail. Examples are adverse inclement weather conditions (excusable delay), poor site management, rectification works caused by the Contractor, concurrent delay.

25. It is particularly noted that the global claim approach is not favoured by the courts unless there is no other appropriate assessment method and the substantiated supporting evidences are reliable. Furthermore, when assessing the additional cost, account should be taken to ensure the determined loss is of a reasonable degree of accuracy, the contract price is realistic and not lowly priced, the actual cost to the Contractor is reasonable and the Contractor is not responsible for the added expense, contributory liability for the concurrent delay.
JV’s secondary position

26. Without prejudice to its primary position and in response to THSRC’s request for a claim under the contract, the JV demonstrates in the Consolidated Claim Submission dated 28 February 2006 that he has sufficient entitlements to extensions of time to extinguish any alleged liability to Liquidated Damages and also demonstrates that he has an entitlement to claim additional costs in the region of **NT$2,143,075,103** which exclude costs associated with the variation account for those items which have currently been acknowledged by THSRC as variations.

27. The additional costs of **NT$2,143,075,103** claimed exclude costs associated with the variation account for those items which have currently been acknowledged by THSRC as variations.

28. JV submitted the claim in a total sum of **NT$2,143,075,103** comprising the following amounts:

<table>
<thead>
<tr>
<th>Original Contract Price</th>
<th>Preliminaries – NT$823,492,521 (12.0%)</th>
<th>Other Works – NT$3,826,507,479 (88.0%)</th>
<th>NT$4,350,000,00</th>
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<tbody>
<tr>
<td>Original Period</td>
<td>Contract</td>
<td>3 May 2003 – 1 October 2005</td>
<td>29 Months</td>
</tr>
<tr>
<td>Additional Heading</td>
<td>Cost</td>
<td>JV’s Basis</td>
<td>Claimed (NT$)</td>
</tr>
<tr>
<td>Additional preliminaries cost</td>
<td>Based on anticipated completion date for Section Completion 2 of 29 August 2006 (333 days or 10.92 months late)</td>
<td>393,636,847</td>
<td></td>
</tr>
<tr>
<td>Additional labour cost</td>
<td>Arise from the disruption caused as a direct result impact of the events</td>
<td>461,847,264</td>
<td></td>
</tr>
<tr>
<td>Additional plant &amp; equipment cost</td>
<td>Arise from the disruption caused as a direct result impact of the events</td>
<td>77,240,216</td>
<td></td>
</tr>
<tr>
<td>Additional process design cost</td>
<td>Arise from the disruption caused as a direct result impact of the events</td>
<td>27,759,404</td>
<td></td>
</tr>
<tr>
<td>Additional sub-contract cost</td>
<td>Arise from the disruption caused as a direct result impact of the events</td>
<td>80,863,805</td>
<td></td>
</tr>
<tr>
<td>Special price escalation Entitlement arises out of Article 227-2 of the Civil Code of the ROC</td>
<td>431,866,774</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black-Hole variations Variations previously masked by unfair policies adopted by THSRC</td>
<td>417,180,289</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional head office cost Arise from an additional 10.92 months involvement</td>
<td>86,415,531</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sub-total</td>
<td></td>
<td>1,976,810,130</td>
<td></td>
</tr>
<tr>
<td>Financial charges Accruing as a cost of financing the above sum to 31 December 2005</td>
<td>166,264,974</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Claimed For events to 31 December 2005</td>
<td>2,143,075,103</td>
<td></td>
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29. In general, the JV’s claimed additional costs of NT$2,143,075,103, being about 49% of the Contract Price of NT$4,350,000,000 covers issues of delay, disruption, variations and material cost escalation together with the associated finance cost:

- NT$319,034,485 (14.89%) Delay (Prolongation cost for 10.92 months)
- NT$808,728,582 (37.74%) Disruption
- NT$417,180,289 (19.47%) Variations (Black hole variation)
- NT$431,866,774 (20.15%) Material Cost Escalation (Civil Code of the ROC)
- NT$166,264,974 (7.76%) Finance Cost

30. The Contract provides separate clauses for entitlement to extension of time and additional cost respectively. An entitlement to an extension of time does not automatically carries with it an entitlement to compensation for additional cost.

31. The extension of time would operate to relieve the liability of the JV for the liquidated damages for any period prior to the extended contract completion date.

32. In general, the Contract provides for adjustments to the Contract Price in two situations. The first situation is for the valuation of variations as per GCC Clause 52.2. The second situation is for the additional cost for delay and disruption as per GCC Clause 52.3.

33. Irrespective of the method used to assess the extension of time is prospective or retrospective, GCC Clause 1.1 defines the “Cost” to mean all expenditure wholly and necessarily incurred but does not include any allowance for profit, i.e. based on the actual cost incurred.

34. Delay resulting from excusable delay, such as earthquake, diversion of super high-voltage transmission line or LNG gas main (GCC Clause 44.3) are the examples that THSRC bears the time risk and the JV bears the cost risk.
35. GCC Clauses 52.1 and 52.2 require the valuation of ordered variations to cover the financial evaluation of the varied works at contract rates, time delay and additional cost of delay and disruption. Attention should be drawn to whether the previous valuation of variations by THSRC has already covered the additional cost for delay and disruption arising out of such variations.

36. For an additional cost claim to succeed, the Contractor must prove three matters: first the existence of the event for which the Employer is responsible; secondly, the existence of additional cost suffered by the Contractor; and thirdly, a causal link existed between the event and the additional cost.

37. GCC Clause 53 requires the JV to keep contemporary records as are reasonable and material to the additional cost including full and detailed particulars of the amount claimed and the grounds upon which the claim is based. If the JV has maintained accurate and complete records, he should be able to establish the causal link between the event and the resultant additional cost incurred, without reliance on making a global claim submission. For the unit rates and prices, the JV should submit the payrolls, payment vouchers, procurement orders, expense account, etc. to substantiate.

38. Being formed of contractors consortium of international construction project experience, the JV should have maintained fairly accurate and completion records to substantiate the additional cost resulted from each and individual event caused by THSRC, which entitles to the Contractor to monetary compensation, if there is any.

39. The above is the general illustration of the established industry practice for the appropriate method approach for assessment of additional cost suffered by the Contractor caused by the delay and disruption on the part of the Employer, which also applies to D290 according to its provisions of the contract.

40. In addition to the above general commentary, the following paragraphs set out the comments on the particular issues relating to the heads of claim in the JV’s Consolidated Claim Submission.
Prolongation Cost in General

41. The additional preliminaries and head office overhead costs are in general prolongation costs caused by the delay event to progress. The additional cost shall be based on the actual cost incurred to the JV.

42. As explained before, it is essential for the JV to demonstrate cause and effect.

43. D290 is not a contract for construction of a single building. Its scope of works comprises a number of distinct buildings and work sections fairly independent of each other. These buildings and works sections are required under the Contract to be completed to at different stages of time according the programmes and to suit the site progress.

44. In a contract of this nature, it is likely that there would be different teams of site management and amounts of resources involved in individual or groups of buildings and work sections at different stages of time to suit the progress on site and phased handover requirements. Such site management and resources for a particular building or work section might have been released upon its completion or rescheduled during the course of the construction according to the circumstances, except for remaining a defects management team during the Defects Correction Period for the handed-over portion.

45. Also, there would be different amounts of extensions of time granted to different Section Completion and Key Dates according to the delay responsibilities provided in the Contract. Further, the occurrence of the event to different buildings and work sections leading to the extension of time might happen at the various construction stages of that building or work section and accordingly, the additional cost should apply to the period when such effect of the event was felt, rather than at the end of the construction period.
46. In this respect, it is required to identify and quantify the additional costs to individual buildings and/or work areas based on the maintained site records to accurately reflect the actual costs incurred to the JV at the time of the occurrence of the event, not at the end of the construction period. In the event of there being insufficient appropriate site records for each and individual buildings and work sections, an appropriate apportionment of costs may be considered.

47. Notwithstanding the provision of the contract requiring the assessment of the actual additional cost incurred to the Contractor due to delay, the contract parties in the construction industry sometimes may, subject to mutual agreement, adopt simpler method approaches for the early settlement of the additional cost as an alternative for convenience, such as formula approach, pro-rata BQ prices, price norm provided always that the resultant cost is within the reasonable range of costs in the market.

48. As for extension of time, the determination of the additional cost relating to the time concurrency is always the contentious issue in the construction industry. Whilst the Employer would be liable for the additional cost to the Contractor for being kept on site longer than expected, the Contractor would have been late in completing the work anyway due to its own delay.

49. In principle, the Contractor should only recover the additional cost if he is able to separate the additional cost caused by the delay on the part of the Employer from that caused by himself.

50. For the convenience sake, sometimes the contract parties may agree to have no compensation for additional cost in return of no imposition of liquidated damages in respect of the concurrent delay.
Disruption in General

51. Delay and disruption are two separate issues. Disruption to construction work may lead to late completion of the work, but not necessarily so.

52. Delay is lateness. Disruption is disturbance to regular progress of the Contractor’s works, resulting in loss of efficiency, lowering of productivity and uneconomic use of resources. In the construction context, disrupted work is work that is carried out less efficiently than it would have been had it not been for the cause of the disruption.

53. There is no definition of the term “disruption” in the Contract D290. However, GCC Clause 52.2 (a) (iii) provides for the inclusion of the cost of any delay and disruption in the valuation of variations, for which he would not be compensated by payment in respect of a valuation based on the prices and rates contained in the Contractor’s Pricing Schedule. GCC Clauses 52.3 (g), (h) and (j) also provide for compensation of the delay or disruption caused by the Interfacing Party, disturbance to the progress of the Works and the variations ordered.

54. As with the other types of additional costs, the Contractor must prove a cause and effect relationship between the disruption claim and the Employer’s conduct.

55. The objective of the compensation for disruption is to put the Contractor back in the same financial position it would have been as if the disruption had not occurred. The assessment of additional cost resulted from the disruption is usually by comparing the estimated reasonable cost to the Contractor for carrying out the portion of works in the normal manner not impacted by the disruptive event and the actual cost for carrying out the impacted portion of works.
56. Disruption is not just the difference between what actually happened and what the Contractor planned to happen. The cost of the works on planned method and planned resources at the time of tender may not be the same as the estimated reasonable cost for carrying out the works in the normal manner because of the following potential issues:

- Whether the planned method and sequence are reasonable
- Whether the planned resources are reasonable
- Whether the planned duration and programme of the affected work are reasonable
- Whether the tender price is realistic and not lowly priced
- The risks as to effects of site conditions and market fluctuation

57. In view of the above potential issues, the construction industry has developed a number of methods to quantify the loss of productivity. The SCL Protocol suggests the most appropriate way to establish disruption is to apply the measured mile technique. The measured mile approach is to compare the Contractor’s productivity achieved for an un-impacted portion of works with that achieved for the impacted portion.

58. Again, the calculations of the actual cost for carrying out the impacted portion of works need to take account of:

- Whether there is poor site management
- Where there are added expense caused by the Contractor, e.g. rectification work, concurrent delay
- Whether the resources utilized are reasonable
- The efficiency of the labour
- Whether the actual cost is reasonable
59. If the un-impacted parts could not be found, a less favoured approach is to use
the published industry standard method of quantifying the average productivity level in
the normal manner as reference, such as Construction Cost Data by Taiwan
Construction Research Institute, Spon’s Price Book, “Estimating for Building and Civil
Engineering Works” by Spence Geddes, publication by construction organizations like
Chartered Institute of Building. The users need to form their judgement for the
applicability and make adjustment to suit the circumstances.

60. As the certainty of the actual cost very much depends on the maintenance by the
Contractor of adequate documentary evidences, full and comprehensive records of
method approach, resources, time and cost must be available on time for the verification
and disruption analysis by the Employer. GCC Clause 53 stipulates the requirements of
early notices and submission in this respect.
JV’s Additional preliminaries cost (NT$393,636,847)

61. This covers recurring costs including, amongst others, maintenance of the JV’s establishment and accommodation, site facilities, key personnel, support staff, office equipment and accommodation, vehicles, welfare, security and plant resources, and on and off site and head office facilities.

62. The JV claimed under GCC Clause 52.3 additional cost of NT$393,636,847 for a delay period of 10.92 months beyond the Contract Date for Completion of 1 October 2005 to a forecast substantial completion date of 29 August 2006.

63. The claimed additional cost covering both the prolongation cost and the disruption cost, was calculated as follows:

(a) Key personnel during the extended period costed at a weekly rate based on actual salary and package reimbursements of each grade of staff.

(b) Non-key personnel during the extended period costed at a weekly rate based on actual salary and package reimbursements of each grade of staff.

(c) Increased support staff to overcome the delays and the changes to the scope of the works.

(d) The balance of the recurring items (approximately 5%) of the actual sum costed at the average monthly rate in the bill of quantities multiplied by the 10.92 months period of overrun.
Summary of JV's claimed additional preliminaries costs categorized into different methods of calculations of the additional cost:

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Claimed (NT$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>At weekly rates on actual salaries during the delayed period of 10.92 months (2 October 05 to 29 August 06 – 332 days)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Extended key staffing</td>
<td>42,182,429</td>
</tr>
<tr>
<td></td>
<td>- JV support personnel (planned extended)</td>
<td>31,548,643</td>
</tr>
<tr>
<td></td>
<td>- JV support personnel (additional staff extended)</td>
<td>50,674,357</td>
</tr>
<tr>
<td>B</td>
<td>By pro rata BQ amount for 10.92 months</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Maintenance of Employers accommodation</td>
<td>625,807</td>
</tr>
<tr>
<td></td>
<td>- Maintenance of Employers vehicles</td>
<td>1,161,600</td>
</tr>
<tr>
<td></td>
<td>- Provision of drivers for Employers vehicles</td>
<td>1,324,800</td>
</tr>
<tr>
<td></td>
<td>- Maintenance of Contractor's establishment / accommodation</td>
<td>5,760,000</td>
</tr>
<tr>
<td></td>
<td>- Pumping and dewatering</td>
<td>2,400,000</td>
</tr>
<tr>
<td></td>
<td>- Provision of, maintenance, and clear away access roads</td>
<td>3,043,200</td>
</tr>
<tr>
<td></td>
<td>- Protection and maintenance of public and private roads</td>
<td>4,800,000</td>
</tr>
<tr>
<td></td>
<td>- Protection and maintenance to all existing and future utilities</td>
<td>8,273,664</td>
</tr>
<tr>
<td></td>
<td>- Environmental maintenance</td>
<td>7,975,385</td>
</tr>
<tr>
<td></td>
<td>- Provision of all site security requirements</td>
<td>4,191,264</td>
</tr>
<tr>
<td></td>
<td>- Provision of health and welfare facilities</td>
<td>898,128</td>
</tr>
<tr>
<td></td>
<td>- Provision of transport for Contractor's staff and labour force</td>
<td>3,298,579</td>
</tr>
<tr>
<td></td>
<td>- Maintenance of temporary site perimeter fencing</td>
<td>870,912</td>
</tr>
<tr>
<td>C</td>
<td>Item in General Site Works Section - during the delayed period of 10.92 months</td>
<td>4,800,000</td>
</tr>
<tr>
<td>D</td>
<td>Based on amount included in Contract Price build up</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Provide protection and periodic removal of debris from Jiao-Su drainage system</td>
<td>65,354</td>
</tr>
<tr>
<td></td>
<td>- Temporary water usage for the works and general facilities</td>
<td>1,568,492</td>
</tr>
<tr>
<td></td>
<td>- Temporary power usage for the works and facilities</td>
<td>3,006,277</td>
</tr>
<tr>
<td></td>
<td>- Maintain temporary water and power facilities</td>
<td>1,045,662</td>
</tr>
<tr>
<td></td>
<td>Total (332 days)</td>
<td>179,514,553</td>
</tr>
<tr>
<td></td>
<td>Average cost per day</td>
<td>540,706</td>
</tr>
<tr>
<td>E</td>
<td>At weekly rates on actual salaries during the original contract period (5 May 03 to 1 October 05 – 881 days)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- JV support personnel (additional staff)</td>
<td>241,881,698</td>
</tr>
<tr>
<td>F</td>
<td>Deduct for design change (see separate head of claim for Additional Process Design Costs)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- JV support personnel (design change)</td>
<td>(27,759,404)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>393,636,847</td>
</tr>
</tbody>
</table>

H:/EOT Assessment/Val Republica/D290 Review of Claims
64. Categories A to D relate to the prolongation compensation. Its validity and assessment are closely linked to the extension of time granted for events in terms of compensation of additional cost. There are events leading to extension of time provided in the Contract not entitling the JV to additional cost, which should be taken into account in assessment.

65. The use of average monthly rates based on the tender allowances for some of the additional cost items by the JV in his calculations appears to be over-simplified and does not reflect the actual cost to the Contractor.

66. In principle, the lump sum allowances in the Contractor's Pricing Schedule are only the figures submitted by the JV at the time of tendering based on his own estimation and/or pricing strategy, which may not be relevant to the actual cost incurred. However, in the construction industry, it is not uncommon for the contract parties to assess the prolongation cost making reference to such lump sum allowances for the early settlement of the claim as an alternative for convenience provided that the resultant cost is within the reasonable range of costs in the market. The JV allowed a total sum of NT$523,492,521 for the preliminaries cost, being 12.0% of the Contract Price of NT$4,350,000,000. The percentage is considered within the reasonable range of costs in the market. For the purpose of convenience for speedy settlement, we consider that it is not unreasonable to apply the average monthly rates based on the tender allowances in the calculations of the additional preliminaries cost if the contract parties wish to.

67. However, in view of D290 comprising a number of distinct buildings and work sections fairly independent of each other, we believe that there would likely be different teams of site management and supervisors involved in individual buildings or groups, and work sections at different times to suit the progress on site and phased handover requirements. The organization chart would be a good reference in this respect.

68. Also, there would likely be different amount of extensions of time granted to individual buildings, sections and Key Dates according to the circumstances. In this respect, it is more appropriate to quantify the additional costs to individual buildings and work areas based on the maintained site records to accurately reflect the actual costs incurred.
69. In the event of there being insufficient appropriate site records, an appropriate apportionment of the additional cost should be considered. For the purpose of convenience for speedy settlement, cost apportionment by factorization in terms of weighted value of each portion of works concerned and its construction duration may be considered as one of the appropriate methods if the contract parties wish to. For example:

Section A:

<table>
<thead>
<tr>
<th>Section</th>
<th>Weighted Units</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Value of Section A x Relevant Duration</td>
<td>20%</td>
</tr>
<tr>
<td>B</td>
<td>Value of Section B x Relevant Duration</td>
<td>50%</td>
</tr>
<tr>
<td>C</td>
<td>Value of Section C x Relevant Duration</td>
<td>30%</td>
</tr>
</tbody>
</table>

Sum for Section A + B + C 100%

70. For Category E, it appears that the JV’s claim is for the alleged increased support staff to overcome the delays and the changes to the scope of the works over and above the JV’s planned resource at the time of tender. This is a claim for additional cost for disruption on global basis by comparing the alleged actual cost with the tender planned resources. Due to the phased hand-over requirements of D290, it is considered that the JVs claimed actual cost in global approach would have included those cost items relevant to the rectification works to the defects to the already handed-over portion found during the Defects Correction Period, which cost should not be borne by THSRC.
71. As explained earlier, the submission of additional cost in the form of global claim is rarely accepted in the construction industry. It is the obligation of the JV to demonstrate causal links between the individual events and the increased support staff with sufficient documentary evidences to enable a proper cost assessment. Besides, it is not clear whether some of the additional costs have already been accounted for in the valuation of variations previously determined by THSRC in accordance with GCC Clause 52.2. In the absence of appropriate records and for the purpose of convenience for speedy settlement, the contract parties, if so wish, may consider to use the published industry standard method of quantifying the average productivity level in the normal manner for the identified affected portion of work as explained earlier.

72. For Category F, the deductible amount is again in a form of disruption cost, which appears to be transferred from another head of claim for Additional Process Design Costs.
**JV’s Additional Cost of Labour (NT$461,847,264)**

73. The JV claimed under GCC Clause 52.3 that additional cost of labour arises from the disruption caused as a direct result impact of the events on the part of THSRC.

74. In general, the JV calculated the additional labour cost by comparing its planned labour from the baseline P3 resource analysis with the actual total labour abstracted from Monthly Progress reports up to December 2005 with addition of forecast projection to August 2006.

75. The table below shows how the JV built up the additional costs:

<table>
<thead>
<tr>
<th>Description</th>
<th>Mandays</th>
<th>NT$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gross additional cost of labour</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Actual total labour abstracted from Monthly Progress report with forecast to August 2006</td>
<td>372,164</td>
<td>974,325,352</td>
</tr>
<tr>
<td>- At actual average daily manday rate of NT$2,618 accounted for Thai workers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Planned labour from baseline P3 resource analysis</td>
<td>107,335</td>
<td>351,414,790</td>
</tr>
<tr>
<td>- At average daywork rate of NT$3,264 abstracted from Contract Volume 5 Daywork after 11% O/H &amp; Tax</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total additional labour cost</strong></td>
<td>622,910,562</td>
<td></td>
</tr>
<tr>
<td><strong>Deduct labour cost accounted elsewhere</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Arising out of hacking and rectification work ATC building</td>
<td>1,1270</td>
<td>(3,063,060)</td>
</tr>
<tr>
<td>- 15 men (av) x 3 months (3x26) x NT$2,618</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Arising out of variations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- NT$ 330,671,000 for V.O.</td>
<td>Approx. 25,261</td>
<td>(149,570,278)</td>
</tr>
<tr>
<td>- NT$ 417,180,289 for Back-holes Items</td>
<td>Approx. 31,870</td>
<td></td>
</tr>
<tr>
<td>- Total amount of NT$ 747,851,389 @ 20% labour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Arising out of rework associated with NCRs</td>
<td>3,220</td>
<td>(8,429,960)</td>
</tr>
<tr>
<td>- 4 men (av) x 805 days x NT$2,618</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nett additional labour cost</strong></td>
<td></td>
<td>461,847,264</td>
</tr>
</tbody>
</table>
76. It is observed from the above table that some doubtful figures may require clarification if the JV’s approach is to be considered further:

(a) The JV claimed to have spent 264,829 mandays for the whole of the project, being 246% more than its planned labour of 107,335.

(b) The JV claimed to have involved approximately 25,261 mandays for Vos, being 23% of its planned labour of 107,335 for the whole of the project.

(c) The JV claimed to have involved approximately 31,870 mandays for Black-hole Items, being 29% of its planned labour of 107,335 for the whole of the project.

(d) The JV claimed that the labour content in the carrying out of the VOs or Black-hole Items, being 20% in terms of value. Whereas by expressing the JV’s calculated cost of NT$351,414,790 for the planned labour from baseline P3 resource analysis as a percentage of the Contract Price of NT$4,350,000,000, it comes out of a figure of 8% which appears low.

Similar to the approach for the alleged increased support staff under the head of Additional Preliminaries Cost, the JV claimed additional cost for engaging increased labour to overcome the delays and the changes to the scope of the works over and above the JV’s planned resource at the time of tender. This is again a claim for additional cost for disruption on global basis by comparing the alleged actual cost with the tender planned resources. The submission of additional cost in the form of global claim is rarely accepted in the construction industry and it is the obligation of the JV to demonstrate causal links between the individual events and the increased labour with sufficient documentary evidences to enable a proper cost assessment. Besides, it is not clear whether some of the additional costs have already been accounted for in the valuation of variations previously determined by THSRC in accordance with GCC Clause 52.2. In the absence of appropriate records and for the purpose of convenience for speedy settlement, the contract parties, if so wish, may consider to use the published industry standard method of quantifying the average productivity level in the normal manner for the identified portion of work as explained earlier.
The JV has discounted the labour costs arising out of rectification and rework associated NCRs where the JV admitted responsibility. Further it is not clear whether during the carrying out of the rectification and reworks, there would be inefficiency of labour working around or adjacent so caused.

The JV has also discounted the labour costs arising out of carrying out of the variation works of value of NT$330,671,100 at an assumed labour content of 20%.

Further, the JV has discounted the labour costs arising out of carrying out of the alleged Black-holes Items of value of NT$417,180,289 at a labour content of 20%. This is further explained under another head Black-hole variations.
JV’s Additional plant and equipment costs (NT$77,240,216)

77. As with Additional Labour Costs, it is a claim for disruption cost.

78. The JV claimed under GCC Clause 52.3 that additional cost of plant arises from the disruption caused as a direct result impact of the events on the part of THSRC.

79. The JV pointed out that the main items of plants and equipment affected cover:
   - Concrete pumps
   - General trucks
   - Mobile cranes
   - Scissor lifts
   - Excavators

80. In general, the JV calculated the additional plant cost by comparing its planned plant from the baseline P3 resource analysis with the actual total equipment allocation records up to December 2005 with addition of forecast projection to August 2006.
81. The table below shows how the JV built up the additional cost:

<table>
<thead>
<tr>
<th>Gross additional cost of plant</th>
<th>NT$</th>
</tr>
</thead>
<tbody>
<tr>
<td>a Actual total plant abstracted from Equipment allocation records with forecast to August 2006</td>
<td>140,756,500</td>
</tr>
<tr>
<td>b Planned plant from baseline P3 resource analysis</td>
<td>25,752,500</td>
</tr>
<tr>
<td>Total additional plant cost</td>
<td>115,004,000</td>
</tr>
<tr>
<td>Deduct plant cost accounted elsewhere</td>
<td>(37,392,569)</td>
</tr>
<tr>
<td>c Arising out of variations</td>
<td>(371,2150)</td>
</tr>
<tr>
<td>- NT$ 330,671,000 for V.O.</td>
<td>(37,392,569)</td>
</tr>
<tr>
<td>- NT$ 417,180,289 for Black-hole Items</td>
<td>(371,2150)</td>
</tr>
<tr>
<td>- Total amount of NT$ 747,851,389 @ 5% plant</td>
<td></td>
</tr>
<tr>
<td>e Arising out of rework associated with NCRs</td>
<td></td>
</tr>
<tr>
<td>- NT$7,424,300 @5% plant</td>
<td>(371,2150)</td>
</tr>
<tr>
<td>Nett additional plant cost</td>
<td>77,240,216</td>
</tr>
</tbody>
</table>

82. It is observed from the above table that some doubtful figures may require clarification if the JV’s approach is to be considered further:

(a) The JV claimed to have spent a total plant cost of NT$140,756,500 for the whole of the project, being 446% more than its planned plant cost of NT$25,752,500.

(b) The JV claimed to have spent a total plant cost of NT$37,392,569 for VOs and Black-holed Items, being 145% of its planned planned cost of NT$25,752,500 for the whole of the project.

(c) The JV claimed that the plant content in the carrying out of the VOs and Black-holed Items is 5% in terms of value. Whereas by expressing the JV’s calculated cost of NT$25,752,500 for the planned plant from baseline P3 resource analysis as a percentage of the Contract Price of NT$4,350,000,000, it comes out of a figure of 0.6% which appears low.
83. Similar to the approach for the alleged increased support staff under the head of Additional Preliminaries Cost, the JV claimed additional cost for deploying more plants and equipment to overcome the delays and the changes to the scope of the works over and above the JV’s planned resource at the time of tender. This is again a claim for additional cost for disruption on global basis by comparing the alleged actual cost with the tender planned resources. The submission of additional cost in the form of global claim is rarely accepted in the construction industry and it is the obligation of the JV to demonstrate causal links between the individual events and the increased plants and equipment with sufficient documentary evidences to enable a proper cost assessment. Besides, it is not clear whether some of the additional costs have already been accounted for in the valuation of variations previously determined by THSRC in accordance with GCC Clause 52.2. In the absence of appropriate records and for the purpose of convenience for speedy settlement, the contract parties, if so wish, may consider to use the published industry standard method of quantifying the average productivity level in the normal manner for the identified portion of work as explained earlier.

84. The JV has discounted the plant costs arising out of rework associated NCRs at an assumed plant content of 5% where the JV admitted responsibility. There is no mention of the discount of the plant costs arising out of the rectification works as in the section of additional labour costs. It is not clear whether it is due to there being no impact on the plant cost. Further it is not clear whether during the carrying out of the rectification works, there would be idling of plant happened so caused.

85. The JV has also discounted the labour costs arising out of carrying out of the variation works and the alleged Black-hole Items of value of NT$747,851,389 at a plant content of 5%. For the issue of Black-hole variations, it is further explained under another head Black-hole variation.
JV’s Additional costs in processing design (NT$27,759,404)

86. The JV claimed under GCC Clause 52.3 that additional cost of in processing design drawings arises from the disruption caused as a direct result impact of the events on the part of the Employer.

87. He alleged that it has been necessary for him to continuously raise RFIs because of inadequate or incomplete information provided in the contract drawings.

88. The JV claimed that there is a total of 1,090 Nos. of revised or new drawings issued for RFIs. Each sheet caused a total of 30 minutes management time for engineering preparation / review and coordination review. The total time in minutes spent is 32,700 minutes or 545 hours. At an hourly rate of NT$2,981, the JV claimed a total cost of NT$1,624,548.

89. The JV claimed that there is a total of 3,628 Nos. revised or new drawings issued for 169 FDC and 3,459 PCDI. Time spent in reviewing and actioning these items by the appropriate the JV personnel was extensive. Each sheet caused a total of 145 minutes management time for engineering preparation / review, commercial review, coordination review, quantity surveyor evaluation and instruction for shop drawings. The total time in minutes spent is 526,060 minutes or 8,767.67 hours. At an hourly rate of NT$2,981, JV claimed a total cost of NT$26,134,855.

90. The total additional cost claimed under this head is NT$27,759,404. It is, however, noted that the JV has deducted an equivalent sum of NT$27,759,404 under the head of Additional Preliminaries Cost for the JV support personnel for design change. If it is to be treated as an off-set, then this additional cost in processing design is in fact a part of the global claim for additional support personnel over and above the planned resources at the time of tender. Our comments on disruption under the head of Additional Preliminaries Cost shall equally apply.
91. Further, the JV has an obligation with respect to the preparation and submission of certain drawings for the purpose of approval and construction. Particular Specification - 2.0 – General Scope of the Works provides that it is the obligation of the JV to produce drawings and details which are fully coordinated to ensure the Works are constructible without clashes between structures, pipes, cables, ducts, any services or other features, above and below ground, whether part of the permanent or temporary works, existing features or works constructed by Site Formation Works Contractor, Core Systems Contractor, Depot Equipment Contractors/Suppliers and all other Interfacing Parties, and other contractors, sub-contractors or suppliers, all in accordance with the Contractor’s obligations for Interface Management and Coordination and to accommodate work to be carried out by directly appointed contractors and suppliers. If this claim is relevant to the obligation of the JV stipulated in the Contract D290, then it should be accounted for.
**JV’s Additional subcontractors’ costs (NT$80,863,805)**

92. JV claimed under GCC Clause 52.3 that additional subcontractors’ preliminaries cost arises from the disruption caused as a direct result impact of the events on the part of the Employer. The subcontractors’ costs are not included in the Preliminaries section of the Contract BQ. It is a prolongation compensation claim.

93. From the original Contract Price of NT$4,350,000,000, the JV firstly deducted from it the JV’s preliminaries (NT$523,492,521), the JV’s overhead & profit (NT$229,590,449) and the JV’s tax (NT$191,325,374) to arrive at a sum of NT$3,405,591,656 for the cost of the subcontractors’ works.

94. The JV then took 4% of the cost of the subcontractors’ works as the subcontractors’ preliminaries, being calculated at NT$136,223,666. By spreading it to the subcontractor period of 28 months, the average subcontractors’ preliminaries cost per month is NT$4,865,131.

95. Based on the claimed delay period of 10.92 months, the JV claimed additional subcontractors’ preliminaries cost is NT$53,104,401.

96. There is no explanation or clarification from the JV whether there is duplication in whole or in part with the JV’s claimed own preliminaries costs as described earlier. We also found no separate claim documents from the subcontractors included in the JV consolidated claim submission dated 28 February 2006.
97. Further, the assumption of 4% to be the subcontractors’ preliminaries costs is arbitrary without substantiations. Usually there is no need for a subcontractor to remain on site throughout the whole of the contract period as the main contractor due to the nature of particular job or assignment that the sub-contractor undertakes may only involve at a certain duration of the Contract Period. Also, there will usually be time related and work related preliminaries costs which need to be dealt with separately. Under these circumstances, adequate documentary evidences with costing records to individual events need to be submitted by the JV to enable a proper analysis and assessment. The method approaches for assessment of additional cost can be referred to in the earlier paragraphs.

98. In addition, the JV claimed a total of NT$27,759,404 for additional cost incurred to the subcontractors as a result of numerous design queries and revised post contract drawings issued by THSRC necessitating the production of new or amended shop drawings and requiring additional time to complete the subcontract works. The reasoning put forward, the number of drawings and the method of calculation of the additional cost are similar to the “Additional cost in process design” incurred to the JV under the head of Additional Preliminaries Cost. It is not clear whether the two claims are duplicated or are two separate issues being one to the JV and the other to the subcontractors. Our views under the head of “Additional cost in process design” incurred to the JV equally apply to this.
JV’s Special price escalation (NT$431,866,774)

99. The Contract D290 does not provide for adjustment to the Contract Price for price escalation during the course of construction.

100. The JV claimed that he is entitled to claim for the special price escalation in accordance with “the Guidelines for Making Price Adjustments in Contracted Projects of Central Authorities Due to Price Fluctuation of Domestic Construction Materials enclosed in the letter dated 3 May 2004 under reference Yuan-Shou-Gong-Chi-Tzu No. 09300172930 issued by the Executive Yuan, ROC to Research, Development and Evaluation Commission of Executive Yuan”.

101. The applicability of the “Guidelines” as mentioned in the JV’s translated copy is:
   a) Apply to the “construction procurement of any authorities for projects with actual completion date after October 1, 2003 ……. because of rigorous price changes of domestic construction materials recently”
   b) “Authorities with sufficient fund in their original budget, regardless of whether there is a price adjustment provision in the original contract, agree to adjust the construction fund for price rise/drop over 2.5% as reflected in the overall price index”
   c) “However, contract alteration shall be made to add the provision in relation to price index adjustment first”
   d) “Be retrospectively applicable to the part of construction funds for works done after October 1, 2003”
   e) “Applicable period is up to December 31, 2004”
   f) “In case the balance of the budgeted fund is unable to cover the adjusted prices, and hence the next year’s budget must be used for the payment, contractors have to wait until the legal procedures of budgeting are completed”
   g) “These Guidelines are not applicable to legal person or corporate bodies accepting government subsidies for construction procurement”
102. According to the “Guidelines”, it applies only to the “Authority”, it is doubtful whether THSRC falls into the category of the “Authorities” for which the “Guidelines” applies.

103. The JV alleged his entitlement arising out of Article 227-2 of the Civil Code of the ROC.

104. An appropriate expert should make specific comments on the entitlement of the JV relating to ROC law and the applicability of the “Guidelines” to THSRC in respect of D290.

105. Notwithstanding the question as to the applicability of the “Guidelines”, the increased cost in procuring materials resulted from extensive delay to the progress caused on the part of the Employer is considered a valid head of claim for additional cost.

106. In the international construction industry, it is not uncommon for the major contractors to conduct risk management measures to maintain their exposure to cost escalation and other commercial risk, such as by securing procurement of major materials at the early stage of the contracts, by subletting work packages, by adopting currency swap, etc.

107. The assessment of the increased material cost shall be again based on the actual cost incurred relevant to the identified materials affected and subject to the establishment of cause and affect.

108. In the absence of appropriate records and for the purpose of convenience for speedy settlement, the contract parties, if so wish, may consider to apply the differences in price indices to certain major materials identified between the actual procurement and the planned procurement times in the calculations of the additional cost incurred.
JV’s Black-hole variations (NT$417,180,289)

109. The JV alleged that the policies of THSRC has resulted in a significant under recovery of additional costs incurred whilst undertaking variations to the contract.

110. The JV claimed that he has now identified these Black-hole variations which have been previously notified by wrongly rejected by THSRC and/or which have not been previously notified until recently. He submitted that he is entitled to payment of the Black-hole variations under GCC Clause 52.2.

111. The JV pointed out that the RE has already summarily rejected the notices recently sent, being consistent with the manner in which THSRC have managed the contract and is unfair and inappropriate.

112. We opine that GCC Clause 52 provides for adjustments to the Contract Price for the variations authorized upon which the contract parties shall comply with. Being formed of contractors consortium of international construction project experience, the JV should have extensive experience in handling the contracts of like nature or magnitude and good understanding of the rights and obligations of the contract parties according to the international project management practice and systems. It seems unusual for a contractor of international expertise supported with teams of construction professionals being not able to deal with the management conflicts and personal confrontation in a timely and contractual manner.

113. If the claimed Black-hole variations are valid as variations under the Contract D290, then valuation and payment should be made in accordance with the provisions of the contract.
JV’s Additional head office costs (NT$86,415,531)

114. The JV claimed under GCC Clause 52.3 for additional head office cost arising out of the additional 10.92 months. In general, it is a prolongation compensation claim.

115. The JV sets a 6% head office overheads to the net costs, being the same as in the breakdown of the Contract BQ.

116. The JV stated that a 6% has also been used for the valuation of variations.

117. The JV’s calculated the contract head office overheads at NT$229,590,449, being 6% of the Contract Price less preliminaries costs. It represents an average monthly rate of NT$7,916,912.

118. It is not clear the “head office” in this head of claim refers to the head office of the JV consortium or the head offices of three individual joint venture companies.

119. In principle, the JV should demonstrate the actual resources in the head office involved relevant to D290 to determine the additional cost in this respect.

120. The Royal Institution of Chartered Surveyors’ Practice Pamphlet deals with the head office cost and the following are extracts from the guidance notes:

- It is unlikely, except in the case of extensive delays or disruption to a major project, that a contractor’s head office running costs will be materially affected by delay to one contract. He is unlikely, for example, to incur any additional expense on rent, clerical staff, etc. as a direct result of delay or disruption to a particular contract.

- Loss in the recovery of head office overhead is an admissible item, but one that it is very difficult to prove. If loss, in respect of head office overhead costs is claimed, the actual amount must be proved, before it may be included in the amount of direct loss and/or expense to be reimbursed.
121. In the event of there being difficulty to distinguish the actual resources in the head office relevant to a specific project, sometimes the use of formulae for assessing additional cost may be adopted. There are over ten different formulae in the market and the most commonly used formulae are Emden and Eichleay. However, the use of a particular formula may produce an anomalous result because of a particular input into it. It is always advisable to use another formula to cross-check the result of the first formula.

122. For convenience purpose, sometimes the contract parties may agree to use the tender allowance for head office overheads as the basis for assessing the additional cost for settlement purpose provided that the resultant cost is within the reasonable range of costs.

123. The JV’s claimed 6% head office overhead is considered not too unreasonable in the circumstances and within the reasonable range of head office overhead percentage of 4 – 6% in the market.

124. According to the JV, there is a total of variations amounting to additional cost of NT$330,671,000. By payment of the said cost of variations, the JV should have already recovered part of head office overheads included in the said cost of variations. In this connection, 6% head office overheads is equivalent to NT$19,840,260.

125. Also, there is a total of Black-hole variations amounting to additional cost of NT$417,180,289. Whilst there is a dispute as to the validity of these items, if in the event of THSRC agreeing to accept some of the items being valid for payment, the JV should have then recovered part of head office overheads included in the said cost of Black-hole variations. In this connection, 6% head office overheads is equivalent to NT$250,030,817.
Additional finance costs (NT$166,264,974)

126. The JV pointed out that the finance charges continue to grow at approximately NT$275,000 per day.

127. The JV claimed under GCC Clause 52.3 that he has entitlement to reimbursement of additional costs incurred in financing payments made in respect of additional costs listed in the consolidated claim submission which cover Black-hole variations, delay and disruption.

128. The JV alleged that the additional finance costs have been incurred throughout the term of carrying out the works. Therefore, the JV applies one half of the total additional cost as the average cost financed at a finance rate of 5.5% compounded monthly for calculation purpose, being 2% above average prime lending rates over the period May 2003 to December 2005.

129. The amount of additional finance cost is pending the determination of the primary loss and expense explained before.

130. For the purpose of negotiation, THSRC may wish to consider the implication on this finance cost claim as a result of its intended deferment of deduction of liquidated damages for delay in completion of the project against the JV.
Conclusion

131. The JV in his Consolidated Claim Submission dated 28 February 2006 claimed that he is entitled to payment for additional cost of NT$2,143,075,103 based on the projected completion date of 29 August 2006 for events up to 31 December 2005. The additional cost claim is closely linked to the appropriate extension of time to be granted and the JV’s liability for liquidated damages for delay.

132. In the submission, the JV stated that if the matter proceeds to conciliation, its primary position is that he is entitled to be paid a reasonable sum on the basis of its actual cost plus an allowance for profit. Notwithstanding the above, the JV also sets out its secondary position on informal basis in the consolidated claim submission by establishing all the relevant facts and analysed them in accordance with the contract.

133. The claimed additional cost of NT$2,143,075,103 comprises:

- NT$319,034,485 (14.89%) Delay
- NT$808,728,582 (37.74%) Disruption
- NT$417,180,289 (19.47%) Black-hole variations
- NT$431,866,774 (20.15%) Material Cost Escalation
- NT$166,264,974 (7.76%) Finance Cost

134. The contract provides that additional cost, if payable, shall be based on the actual cost incurred for events caused by THSRC. Timely notices and sufficient documentary records to prove the cost relevant to individual events are required for the purpose of analysis and cost assessment.

135. On the part of the cost relevant to the delay and disruption, the current claim submission by the JV is considered over-simplified in its existing form, with most of the cost either in the form of global approach or based on the tender allowances in the Contractor’s Pricing Schedule without establishment of cause and effect to individual events. The adoption of global claim is usually not accepted in the construction industry and the courts apart for exceptional cases. For the sustainability of the claims, the JV needs to prove cause and effect in the normal manner.

H:/EOT Assessment/Val Republica/D290 Review of Claims
136. On the part of Black-hole variations, it shall be subject to the opinions of the Employer's Representative as to the validity. If valid, valuation of the variations shall be made in accordance with GCC Clause 52.2.

137. On the part of material price escalation, the JV claimed his entitlement under Article 252 of the ROC Civil Code with the cost calculated in accordance with the “the Guidelines for Making Price Adjustments” issued by the Research, Development and Evaluation Commission of Executive Yuan, ROC. This claim is not provided in the Contract D290 and legal expert opinion may need to be sought.

138. On the whole, the JV's method approaches in the calculations of the additional costs are considered over-simplified and in a composite basis. There being lack of identification of causative links between each cause of delay and disruption and the cost consequence thereof. The JV should submit the additional cost by establishing the cause and effect to individual events or specific groups with appropriate documentary evidences.

139. However, some of the cost items are complex and difficult to quantify, which may involve tremendous efforts and time to investigate while it is not certain whether a result is achievable at the end. For purpose of speedy settlement, it is not unusual for the contract parties to agree through negotiation to use alternative approach for convenience in assessment of the additional costs, such as formula approach, pro-rata BQ prices, price norm, productivity norm and other means provided always that the resultant cost is within the reasonable range of costs in the market.