United Nations

# Report of the Board of Auditors

## for the year ended 31 December 2011

## Volume V
## Capital master plan

## General Assembly
**Official Records**
**Sixty-seventh Session**
**Supplement No. 5**

**General Assembly**
Official Records
Sixty-seventh Session
Supplement No. 5

# Report of the Board of Auditors

## for the year ended 31 December 2011

## Volume V
## Capital master plan

United Nations • New York, 2012

*Note*

Symbols of United Nations documents are composed of letters combined with figures. Mention of such a symbol indicates a reference to a United Nations document.

ISSN 0257-0815

[19 July 2012]

# Contents

# Letter of transmittal

[30 June 2012]

I have the honour to transmit to you the report of the Board of Auditors on the capital master plan for the year ended 31 December 2011.

(*Signed*) **Liu** Jiayi
Auditor-General of China
Chair, United Nations Board of Auditors

The President of the General Assembly
of the United Nations
New York

# Report of the Board of Auditors on the capital master plan for the year ended 31 December 2011


## *Summary*

The United Nations refurbishment of its Headquarters in New York, the capital master plan, is a complex, high-value and high-profile project to modernize, secure and preserve the architecture of the iconic 1950s campus. In its resolution 57/292, the General Assembly requested the Board of Auditors to produce an annual report on the project. The present report contains the findings and recommendations of the Board's annual review of progress of the capital master plan.

*Overall conclusion of the Board*

As at March 2012, the Administration's anticipated final cost of the capital master plan was $2,421 million.[1] That is $430 million (22 per cent) more than the revised and consolidated budget of $1,990 million.[2] As noted in this report, there are significant remaining cost pressures; and the Board cannot provide assurance over the anticipated final cost as currently reported. The lack of transparent, timely and robust cost forecasting presents a barrier to effective decision-making by those charged with governance, which may lead to further project costs and delays.

The Board considers that the Administration's forecast of the anticipated final cost is incomplete and based on an approach that is insufficiently analytical; as a result, it is unclear whether there is an adequate contingency allowance to meet the project risks from now to completion. Further, being close to the limit of its approved budget (commitment authority), the Administration has adopted a revised procurement approach that allows essential construction to continue, but only through procuring in an incremental fashion. This approach potentially represents poor value for money, though the Administration informed the Board that as at June 2012, the approach had not yet led to increased costs. If the project runs out of commitment authority, construction will stop and significant additional costs will be incurred.

When the Board last reported, the project, as at February 2011, was forecast to be $79 million over budget. In October 2011, the Administration reported that the forecast overrun had increased to $281 million. The main drivers of this increase were: $147 million of "associated costs", which the Administration had not included in its initial project budget request, or subsequently accounted for as part of departmental budgets; and $43 million of swing space lease costs.

Between October 2011 and March 2012, the Administration reported increased costs of $149 million, taking the total overrun to $430 million. The fundamental drivers of the cost increases reported in this period related to the realization of cost pressures and risks that the Office of the Capital Master Plan had identified long before this time but not included in its forecasts. In this regard, the Board notes that


[1] Includes costs for the enhanced security upgrade, the "associated costs", the secondary data centre and for additional swing space costs not originally budgeted for.

[2] Includes the original budget ($1,876.7 million), donations from Member States (up to $10.7 million), the host country donation for the Enhanced Security Upgrade ($99.6 million) and support account funding ($3.3 million).

the Administration did not adequately implement important recommendations, made in the Board's previous report, regarding the need for more analytical and complete cost forecasting and including allowances for the risks contained within the risk register. Had they been implemented, the Board considers that the financial difficulties of the capital master plan reported between October 2011 and March 2012 would have been apparent much sooner, facilitating more timely and effective decision-making by those charged with governance. For the General Assembly to be able to make a timely and well-informed decision on the future funding of the project, the Administration must provide a complete, well-justified and robust anticipated final cost with the utmost urgency.

Despite increases in projected costs, the capital master plan has an experienced project delivery team in place and construction costs have been reviewed and negotiated firmly before payment is made.

The Board recognizes the continued progress on the capital master plan. Moving staff from temporary office space, known as "swing space", back to the Secretariat Building remains on schedule to start in mid-2012. If all goes well with the recant of staff to the Secretariat during the second half of 2012, this will represent the completion of a significant project milestone and will also help to reduce the level of risks to time and cost. Projected completion dates for the key campus buildings (see annex I) are the same as those stated in the Board's previous report (A/66/5 (Vol. V)), with final project completion due in the summer of 2014, approximately a year later than planned largely as a result of the necessary enhanced security upgrade. The Board notes, however, that the current schedule is under considerable pressure and that increased "acceleration" costs are likely to be incurred to keep the project on schedule and that if the funding issues discussed above are not resolved in a timely manner, further delays and increased costs may ensue.

*Main findings and recommendations*

**Taking into account the scope of the associated costs and the secondary data centre, the project's anticipated final cost is $430 million more than the revised budget, and the remaining contingency appears insufficient to manage the existing pressures on the budget.** The reasons for the cost overrun include the adoption of a more expensive accelerated construction strategy, the inclusion of the associated costs within the capital master plan's budget and high levels of change. The Board's report highlights that while much of the change is due to unforeseen conditions, some of these costs should have been predicted and reported sooner. When the Administration increased its estimate of project costs in 2008, it also reduced its estimate of the required contingency and price escalation provisions for the project by $243 million. The new level of provisions took account of the more favourable economic climate and the risks avoided by implementing the accelerated strategy, but did not reflect the significant new risks inherent in the accelerated strategy. As stated in the Board's previous reports, the remaining contingency appears insufficient and the Board considers that the project cannot be completed to the current scope within the current consolidated budget of $1,990 million.

**The Board is unable to give assurance that the Administration's anticipated final cost for the project is based on a comprehensive methodology, and considers that the final cost is likely to be higher than currently reported.** In its previous report, the Board recommended that the Administration strengthen cost forecasting by taking into account the likely cost of identified project risks and an estimate for the cost of change orders until project completion. While the Administration has begun to improve its cost forecasting, and has stated its intention to contain the costs as much as possible, further significant cost pressures remain and there are no reasoned or explicit allowances in the Administration's cost forecast for:

- The majority of remaining project risks
- Change orders until project completion: the anticipated final cost allows for a small number of change orders that are likely to be needed but does not allow for change orders that will be needed but have not yet been identified
- All acceleration activities to meet the project schedule (the anticipated final cost allows for some acceleration activities but does not allow for the costs of other, likely acceleration activities)
- All current and potential future claims
- Up-to-date estimates for the remaining guaranteed maximum price contracts
- The costs of altering offsite office locations, to the extent that they will be met by the capital master plan budget.

**There are weaknesses with the governance arrangements over the capital master plan and the Administration did not provide the General Assembly with an early warning of potential cost increases.** The Board notes that the capital master plan has suffered from a lack of effective senior management governance to provide both support and constructive challenge to the project team, including effective review of cost forecasts before being reported to the General Assembly.

**If an acceptable solution to address the cost overrun is not agreed and implemented quickly, the project will run out of commitment authority, causing further delays and cost increases.** The overrun could be addressed through a combination of scope and quality reductions, cost efficiency measures, reallocating associated project costs elsewhere in the business, and releasing additional funding to the project. Whatever the solution, it must be agreed before it impacts on the project schedule to avoid further cost increases. As the Administration attempts to reduce the project deficit, it will be more important than ever for it to report more frequently and with a more robust assessment of the anticipated final cost to enable the General Assembly to maintain oversight of decisions regarding changes to scope and quality. For the General Assembly to be confident in the forecast final cost, the Administration will need to consider how it can provide assurance on the robustness and completeness of the anticipated final cost.

**The Board highlights other risks and issues in relation to the handover of the capital master plan to its eventual occupiers, the Post-award Review Committee (PARC) and the efficient use of office space.** While handover processes have been strengthened since the Board's last report, the present report highlights remaining issues. The Administration has taken some action to strengthen PARC in scrutinizing contract amendments but there remains a significant backlog in PARC's work. This report also highlights that, if well managed, a move towards flexible use of office space could realize significant cost efficiencies and, over time, recoup more than the project overrun.

The Board makes detailed recommendations in the main body of this report. In summary the main recommendations are that the Administration:

- **Take stock and rebuild the anticipated final cost of the project, including most importantly estimates for: (a) identified project risks; (b) change orders until project completion, including those that will be needed but have not yet been identified; (c) acceleration activities in order to meet the project schedule; (d) claims that have been submitted and an allowance for future claims; (e) up-to-date estimates for remaining guaranteed maximum price (GMP) contracts (by revalidating prices and setting a realistic level of contingency based on the lessons from previous guaranteed maximum price contracts); and (f) the costs for altering off-site office locations to the extent that they will be met by the capital master plan budget**

- **Once it has prepared a complete and robust anticipated final cost, it should set out the timeline for all remaining project commitments and seek funding approval from the General Assembly at the earliest opportunity, being clear about the effect that delayed, or partial, release of funding will have on the costs and timing**

- **Urgently establish more effective and regular governance over the capital master plan**

- **Request the Department of Management to: (a) pilot the implementation of flexible working strategies which move away from a one-person to one-desk ratio; and (b) assess the potential operational and financial impact of adopting flexible workplace strategies to reduce the future space needs of the United Nations in the context of any proposals for renovating existing, or acquiring new, office space.**

*Previous recommendations*

Of the 15 recommendations made in the Board's previous report, two (13 per cent) were fully implemented, eight (53 per cent) were under implementation, four (27 per cent) were not implemented and one (7 per cent) was overtaken by events. The Board is concerned by the low rate of implementation, and as stated in the overall conclusion, considers that in important aspects this has contributed to the difficulties experienced by the project.

## A. Mandate, scope and methodology

1. The General Assembly, in its resolution 57/292, requested the Board of Auditors to submit an annual report to it on the project.

2. The Board examined the progress of the capital master plan since the preparation of its previous report (A/66/5 (Vol. V)) to assess progress in implementing the Board's previous recommendations. The Board also examined the likelihood of the capital master plan being delivered to budget, time and within scope and the management of risk within the capital master plan. The present report makes new recommendations for improved management and to address risks going forward.

3. The Board has continued to work closely with the Office of Internal Oversight Services to understand the results of recent internal audits, coordinate its respective audit work and minimize the audit and oversight demands placed upon the Office of the Capital Master Plan.

4. The present report addresses matters which, in the view of the Board, should be brought to the attention of the General Assembly. The Board's findings and conclusions were discussed with the Administration, whose views have been appropriately reflected in the report.

## B. Background and key developments

5. The capital master plan is a complex and challenging project which aims to refurbish and architecturally preserve a 1950s campus while bringing it into line with modern standards. The key stages in the development of the strategy and budget for the delivery of the capital master plan are summarized in annex I; and annex II provides a summary of the changes in the budget and anticipated final cost estimates over time.

6. In September 2007 the Secretary-General, in his fifth annual progress report (A/62/364), noted delays in implementing strategy IV and increased project costs, referring to the complexities of United Nations decision-making and the resignation of the project's Executive Director. The Secretary-General then proposed an accelerated strategy (accelerated strategy IV), involving a shorter period of renovation, fewer phases of construction and less disruption to United Nations operations. At that time the revised estimated final cost was $2,067 million, some $190 million above the budget of $1,877 million approved by the General Assembly in December 2006 (resolution 61/251). Accelerated strategy IV remains the current implementation strategy.

7. The financial position of the capital master plan is reported as part of statement IX (capital assets and construction in progress) of the financial statements of the United Nations for the biennium ended 31 December 2011 (A/67/5 (Vol. I)). Cumulative expenditure on the capital master plan as at 31 December 2011 was $1,630 million. Expenditure in 2011 was $295 million (compared to $406 million in 2010).

8. At the end of January 2012, 87 per cent of the consolidated budget had been committed.[3] This is not a direct measure of project progress, but indicates that construction is well advanced. Areas of progress include:

- Replacement of the majority of the glazed surfaces (curtain wall) of the Secretariat Building
- Completion of demolition and asbestos removal within the Secretariat Building, and progress on the fit out of the building's interior ready for staff to move back as scheduled (further details on project timescales are provided at annex IV)
- Demolition and structural reinforcement is well under way within the Conference Building, in particular on the strengthening work underneath the building and above Franklin Delano Roosevelt Drive as part of the enhanced security upgrade
- The completion or substantial completion of technically complex infrastructure and other work in the basements.

9. The project has a good safety record. More than 4 million person-hours have been expended, involving 10 accidents that resulted in construction workers spending time away from work. The incidence rate at the end of February 2012 was 0.50, comparing favourably with the national average of 1.5.[4] It is vital to maintain this performance as major accidents not only incur human costs, but can also lead to very significant delays and financial costs as well as reputational damage for the United Nations.

10. Despite the good physical progress in some areas, the project experienced significant financial difficulties during the year, including a substantial increase in the anticipated final cost following the realization of risks. The General Assembly had to take urgent action to increase the project's authorized commitment level by $135 million in March 2012 to enable procurement to continue. This progress report from the Board concentrates mainly on these key developments and associated risks to successful delivery, as well as the information and assurances that the General Assembly will need in order to support its decision-making during 2012 at this critical juncture in the project.

## C. Findings and recommendations

### 1. Follow-up of previous recommendations of the Board of Auditors

11. The Board is particularly concerned that its important recommendations on improving the project's approach to cost forecasting and reporting, involving the inclusion of allowances for the risks contained within the risk register and trends in change orders have not been implemented. Had they been implemented, the financial difficulties that arose in 2011 and early 2012 would have been apparent much sooner to those charged with governance, and would have allowed more time

[3] As at end-January 2012, $1,735.5 million had been committed out of the consolidated budget of $1,990 million.

[4] United States Bureau of Labor Statistics 2010.

for well-evidenced decision-making. The Board comments in more detail on this matter in the present report.

12. Of the 15 recommendations made in the Board's previous report for the year ended 31 December 2010 (A/65/5 (Vol. V)), two (13 per cent) were fully implemented, eight (53 per cent) were under implementation, four (27 per cent) were not implemented and one (7 per cent) was overtaken by events.

13. The Board reiterates the recommendations from its previous report that have not been fully implemented or were overtaken by events. Annex III summarizes the position on implementation. Further commentary on the previous recommendations is contained in the relevant sections of the report.

### 2. Budget management

*Increase in the anticipated final cost*

14. In the Board's previous report, the Administration estimated, as at February 2011, that the final cost of the capital master plan would be $79 million (4 per cent) over budget. In the Administration's ninth annual progress report in October 2011 (A/66/527) the forecast overrun had increased to $281 million. The main drivers of this increase were: $147 million of "associated costs", which the Administration had not included in its initial project budget request, or subsequently accounted for as part of departmental budgets; and $43 million of swing space lease costs.

15. Between October 2011 and the completion of the Board's final audit in March 2012 the Administration reported a further increase in project costs of $149 million. This took the total forecast overrun to $430 million, 22 per cent more than the revised consolidated project budget of $1,990 million (table 1). The fundamental drivers of the cost increases reported in this period related to the realization of cost pressures and risks that the Office of the Capital Master Plan had identified long before this time but excluded from its forecasts. This lack of transparent and timely cost forecasting and reporting prevented those charged with governance from taking action to address cost overruns before project funding became critical.

Table 1
**Latest budget and anticipated final cost**
(Thousands of United States dollars)

| | | *Approved budget/ available funding* | *Cost forecast* | *Variance* |
|---|---|---|---|---|
| Budget | Approved budget (General Assembly resolution 61/251) | 1 876 700 | | |
| | Donations from Member States[a] | 10 689 | | |
| | Host country donation for Enhanced Security Upgrade | 99 557 | | |
| | Support account funding for the secondary data centre | 3 286 | | |
| **Total budget as at March 2012** | | **1 990 232** | | |

| | | Approved budget/ available funding | Cost forecast | Variance |
|---|---|---|---|---|
| Costs | Renovation and swing space costs | | (2 115 548) | |
| | Enhanced Security Upgrade | | (99 557) | |
| | Provision for office space rent from October 2012 | | (38 000) | |
| | Associated costs | | (146 806) | |
| | Secondary data centre[b] | | (20 700) | |
| **Total anticipated project cost** | | | **(2 420 611)** | |
| **Anticipated overexpenditure** | | | | **(430 379)** |

*Source*: Board analysis of Office of the Capital Master Plan data as at end-March 2012.

[a] Seven Member States agreed to make donations of up to $10,688,802, of which $1,248,558 represented donations in kind. As at end-March 2012, the Office of the Capital Master Plan had received $6,988,773, with $2,451,442 outstanding.

[b] The General Assembly requested the Office of the Capital Master Plan to absorb the majority of the costs of the secondary data centre located in New Jersey (resolutions 63/269 and 64/228).

16. Table 2 explains in further detail the reasons for the increase in the overrun since the Board's previous report.

Table 2
**Reasons for the increase in the project overrun**

| | | *Millions of United States dollars* |
|---|---|---|
| **Board of Auditors report on the capital master plan for the year ended December 2010 noted a forecast cost overrun of:** | | 79 |
| *Changes to cost forecast between Board's previous report and Secretary-General's ninth annual progress report* | $146.8 million in associated costs and $20.7 million for the secondary data centre. These costs were not included in the original scope or budget of the project | 168 |
| | Additional swing space costs and lease liabilities. The anticipated final cost had previously included swing space rent until the end of September 2012. This increased amount covers the remaining rent from October 2012 as well as fees for terminating leases on two swing spaces[a] | 43 |
| | Additional donations of up to $4.5 million from Member States, and funding of $3.3 million from the support account towards the cost of the secondary data centre | (8) |
| **Secretary-General's ninth annual progress report, as at May 2011, noted a forecast cost overrun of:** | | 281 |
| *Changes to cost forecast between Secretary-General's ninth annual progress report and Board's most recent audit* | The Administration reduced its estimate of swing space costs and lease liabilities from $42.6 million to $37.9 million because some staff in swing space will be relocated to the UNFCU building, thus avoiding a $4.7 million early termination fee on the building | (5) |
| | Resequenced work, more extensive than expected demolition and abatement of unsuitable materials including asbestos, and additional work to coordinate design drawings in basement package three. At the time of audit, the costs for this work had been agreed but not yet purchased[b] | 30 |
| | Change orders in basement package two | 9 |

| | *Millions of United States dollars* |
|---|---|
| Change orders relating to increased professional fees and management costs, as a result of the large volume of change in the project | 2 |
| Allowance. Estimated increase in the estimated cost for the General Assembly Building relating to restrictive concrete slab, beam and column strengths, inadequate beam penetrations and ductwork replacement | 31 |
| Allowance. Estimated increase in the cost of the Conference Building due to the weak condition of the concrete floor/ceiling slabs[c] and the need for increased asbestos removal and treatment | 24 |
| Allowance. Estimated cost of future change orders that are expected to arise in relation to the Secretariat Building and basement packages two and three | 10 |
| Allowance. Estimate for increased professional fees and management costs | 9 |
| Allowance. Estimate for increased landscaping costs | 7 |
| Allowance. Estimated additional costs for rooftop antennas and lightning protection | 1 |
| Allowance. Various other minor costs | 1 |
| At the time of the audit the Office of the Capital Master Plan was unable to provide the reasons and evidence for the remaining $30 million estimated increase in costs | 30 |
| **Administration's anticipated final cost as at March 2012** | **430** |

*Source*: Board interviews with Office of the Capital Master Plan staff members and analysis of Office of the Capital Master Plan data as at end-March 2012.

[a] Termination fees are being incurred because swing space leases cover a longer period than the duration of the project. This was to ensure that delays to construction would not leave United Nations departments needing to negotiate high-cost rental accommodation at short notice.

[b] Renovation and construction work in the basements of the Headquarters is broken up into three main packages of work; basement packages one, two and three.

[c] This issue is explained further in paragraph 20.

17. During its audit, the Board examined the project records and interviewed those involved in the project to validate both the legitimacy and reasonableness of the reported cost increases listed in table 2. The Board noted that the Office of the Capital Master Plan had spent considerable time negotiating with contractors to attempt to drive down costs. The Board, however, notes that:

- The Office of the Capital Master Plan was unable to provide evidence to support the $9 million increase in change order costs relating to work in the basements and $2 million increased professional fees and management costs at an individual change order level in the time available for the audit

- The Administration has included $113 million of allowances for likely costs within the anticipated final cost. The Board is very concerned that: the Administration could not provide reasons and evidence to support $30 million of the reported cost increases; reasons have been provided for other allowances but while the figures appear broadly reasonable, they are not supported by auditable evidence; and some of the estimates for GMP contracts that have not yet been procured are out of date and are likely to be too low.

18. In March 2012 the Fifth Committee of the General Assembly asked the Administration to explain why its forecast overrun had increased from $281 million, as reported in the Secretary-General's progress report in October 2011 (see A/66/527/Add.1), to $430 million by March 2012. In response to the request, the Administration presented the General Assembly with a high-level explanation of the reasons for the variances. The Administration also set out the difference between their latest cost forecasts and the original budgets for the main campus buildings, but did not demonstrate how the cost forecasts had changed since October 2011 or provide supporting evidence or justifications for the reported increases. Even if the Administration commits to not exceeding a given cost, it is still vital to have a good understanding of the potential impact of emerging cost pressures on the final cost to support effective decision-making.

19. As a result of the issues outlined above, the Board cannot provide assurance as to the comprehensiveness or accuracy of the current allowances.

*Deficiencies in the calculation and reporting of the anticipated final cost*

20. The Board's primary concerns are that the anticipated final cost is not complete and robust, and that the increases in forecast and actual costs could have been reported sooner to facilitate effective decision-making by those responsible for governance.

21. As the Board has previously stated, it is important to have a realistic and up-to-date forecast of the anticipated final cost (see A/66/5 (Vol. V)). This enables those responsible for governance and funding to assess whether the project can be completed within the existing budget. Without this information, it is difficult to make effective decisions about reductions in scope or increased funding set against other organizational priorities.

22. The Board previously recommended that the Administration's anticipated cost forecast should include a robustly calculated and auditable estimate for all future costs, including estimates for change orders and risks, including the potential need for acceleration payments and claims. If the cost forecasting had been improved, and combined with more frequent and complete reporting, the General Assembly would have had earlier warning of the cost increases. The Board highlights three examples, where potential cost increases could have been reported to the General Assembly much sooner:

- **Cost increases in the General Assembly Building.** In October 2009, the consultant programme manager of the Office of the Capital Master Plan had estimated the cost of construction for the General Assembly Building to be $112 million. The Administration, however, had been reporting a forecast cost for the work of $73 million until December 2011. The Administration updated its estimate to $104 million in January 2012

- **Cost increases in the Conference Building**. One of the reasons for the cost increase reported in January 2012 was the discovery of a weakness with the composition of the concrete floor/ceiling slabs.[5] The tests that revealed the problem with the condition of the concrete were carried out in August 2010.

[5] The condition of the slabs is such that steel hangers, which are being installed to attach pipe work and wiring to the slabs, need to be welded to the existing steel core of the building. This is a more expensive approach than simply fixing the hangers into the concrete.

After that point, the design solution for this issue was developed alongside and linked to the emerging solutions for the Enhanced Security Upgrade. Despite the inevitable complexity of this situation, the Board's view is that a warning about the likely cost impacts should have been provided sooner; and the Board in its previous report had made the general point about the Administration identifying and reporting on the potential cost implications of known risks

- **Issues highlighted by the Office of the Capital Master Plan in its project risk register.** Some of the issues that contributed to the increases reported in December 2011 were listed in the Office of the Capital Master Plan risk report and register as early as October 2010 but were not specifically allowed for in the anticipated final cost (table 3).

Table 3
**Risks in the Administration's risk register that have since materialized and contributed to cost increases**

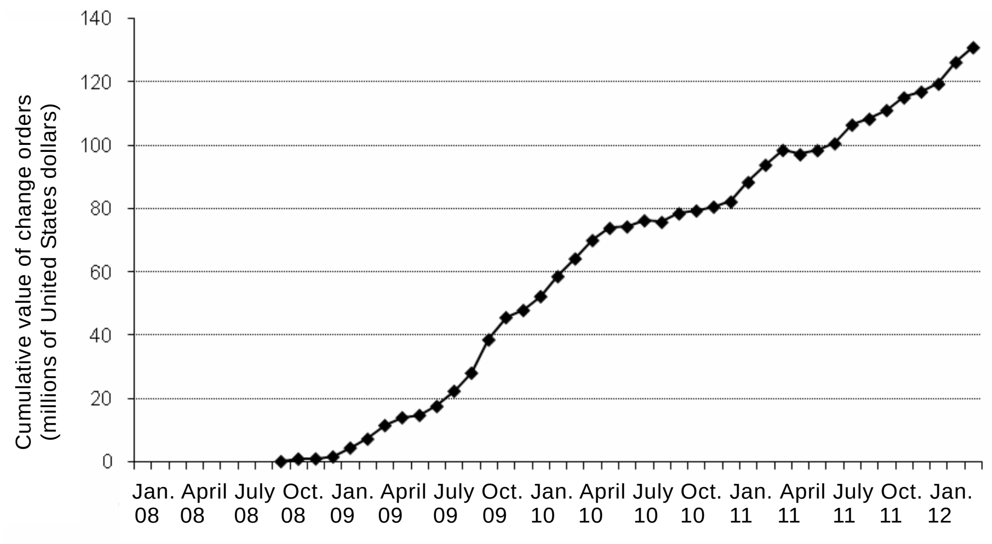
| *Risk description* | *Date appeared in risk register* |
|---|---|
| Asbestos quantities greater than expected — "The amount of asbestos is greater than predicted but equally, there may be an opportunity as over the years there has been removal of asbestos during maintenance interventions". | October 2010 |
| Interface issues between contracts — "Each contract is being undertaken by separate teams, which may lead to conflicts owing to: overlaps complexity, coordination, physical space overlap, conflict with mechanical and electrical plant, unclear responsibiltity for design". | October 2010 |
| Poor coordination between disciplines — "The coordination team will be a key element of success of the infrastructure team to minimize issues such as clashing of service routing, phased implementation. This is a key risk in all refurbishments of highly serviced projects". | October 2010 |
| Information of existing services — "If any as-built information is incorrect, it will have an impact on the current design and cause issues on site. The existing facilities management operatives and maintenance personnel carry considerable information which would be beneficial to the project. There is a potential issue in that the staff leave and knowledge is lost". | October 2010 |

23. In its previous reports, the Board has expressed its concern about the basis and sufficiency of the contingency. As at 27 January 2012, some $64.5 million of project contingency remained. The Board notes that the programme manager's risk report for October 2011 stated that the level of remaining contingency against the value of work remaining is low; and that the Administration's anticipated final cost still does not include the likely full costs of trends in change orders or of all project risks. The Board, therefore, still cannot provide assurance that the anticipated forecast is robust, or whether there is sufficient contingency to manage risks to project completion.

*Cost of change orders*

24. The project continues to experience considerable change. As of 1 February 2012 there had been 1,727 change order requests[6] submitted, with a value of $131 million[7] (figure I). If the rate of change orders experienced on the project between 1 February 2011 and 31 January 2012 continues until June 2014, the total cost of change orders would be approximately $235 million (figure II). Even if change orders continue at half the current rate, the total cost of change orders in May 2014 would be $183 million. The rate will decline as completion approaches, but the Board remains of the view that the anticipated final cost should include a more comprehensive allowance for future change orders.

Figure I
**Cumulative value of change orders to date**



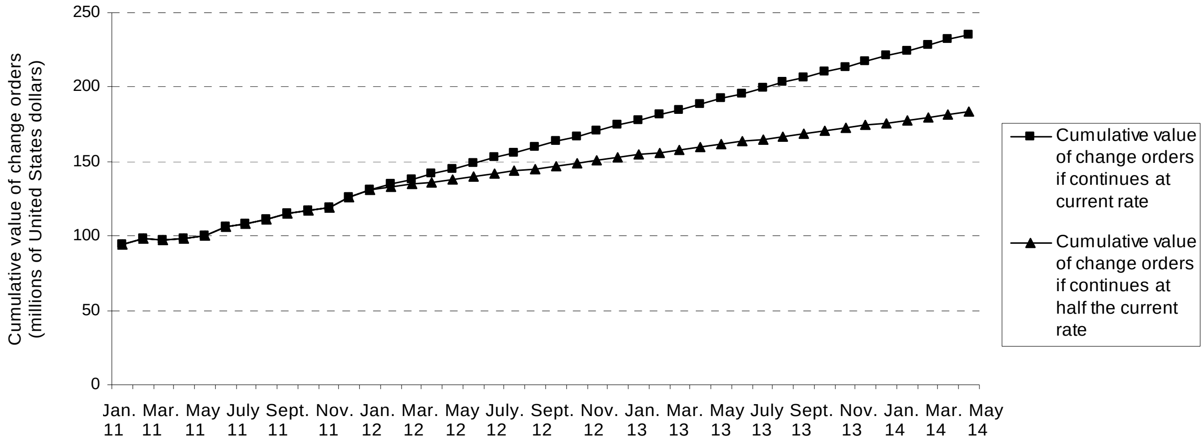

*Source*: Board analysis of data provided by the Office of the Capital Master Plan's consultant programme manager.

---

[6] A change order is a mechanism for changing the details of a construction contract within the capital master plan. Change orders can arise for a number of reasons (see annex V), including the discovery that the existing condition of a building is worse than anticipated. Change orders result in costs being higher than expected.

[7] Total project cost as a result of United Nations-funded change orders, excluding non-United Nations-funded change orders, task orders and scope reallocations.

Figure II
**Projected cost of change orders**




*Source*: Board analysis of data provided by Office of the Capital Master Plan's programme manager.
*Note*: Projection is based on the rate of instructing change orders between 1 February 2011 and 31 January 2012.

*Cost of risks associated with the schedule*

25. There have been no changes to the Administration's anticipated completion dates for the key campus buildings (annex IV) since the Board's previous report. However, slippages to various intermediate activities in the construction schedule have resulted in much of the slack or "float" within the schedule being lost. There is now minimal float and some 2,000 activities in the schedule are rated as "near critical".[8] While not all of these near-critical activities have genuine potential to delay the project, the high number is a strong indicator of a project schedule under intense pressure. Further slippages will either potentially impact on the project completion date or incur additional cost as construction work is accelerated.

26. The Board noted some $3.4 million of acceleration allowances in the basement package two contract, of which $3.36 million is allocated or committed; but also that there are no other explicit acceleration allowances in other contracts. The project schedule is now so tight that unbudgeted acceleration money, over and above the current limited allowance, is likely to be needed to meet key deadlines adding to the project's anticipated final cost.

27. The Board also noted that the Office of the Capital Master Plan is making decisions to spend acceleration money without having an explicit time-cost trade-off criterion in place. Such a criterion would inform the decision-making process and assess how much it is worth spending to recover, or prevent, a month's delay versus actually incurring the delay. Decisions are being taken, probably correctly at the moment, to recover delays through the judicious use of acceleration activity on selected work packages; but it is unclear to the Board how decisions will be made on whether acceleration remains the best value-for-money option without an explicit

[8] The construction manager defines "near-critical" activities as those with float of 10 days or less.

cost-time trade-off in place. Nor is it clear whether the Administration has thought through when and how such decisions will need to be made.

28. **The Administration agreed with the Board's recommendation that it develop a cost-time trade-off criterion, to guide decisions on whether it is worth making acceleration payments or better value for money to accept a delay.**

*Likely cost of claims from subcontractors*

29. As at 1 March 2012, there had been five claims from contractors for additional costs. The anticipated final cost of the capital master plan includes an allowance for only one of these claims. A sixth claim is expected shortly. There is no allowance for the emergence of future claims, which are increasingly likely in a project experiencing time and cost pressures.

*Costs of alterations to offsite office locations*

30. After the migration of staff back to the campus, the United Nations will have to rationalize and refurbish some remaining off-campus offices. There is no firm agreement as to how these costs will be funded, but the Administration informed the Board that the Facilities Management Service and the Office of the Capital Master Plan might share these costs equally. The Facilities Management Service estimates that these costs could total up to $15 million.

*Robustness of the anticipated final cost*

31. Drawing all the above points together, the Board concludes that the anticipated final cost forecast is not robust enough. While the Administration has begun to include allowances for some identified risks, the final project cost may be higher than currently reported, because the allowances which are included in the cost forecast are not supported by robust evidence and the forecast still does not include reasoned and explicit allowances for:

- All identified project risks
- Change orders until project completion: the anticipated final cost allows for a small number of change orders that are likely to be needed but does not allow for change orders that will be needed but have not yet been identified
- All acceleration activities to meet the project schedule (the anticipated final cost allows for some acceleration activities but does not allow for the costs of other, likely acceleration activities)
- All current and potential future claims
- Up-to-date estimates for the remaining GMP contracts
- The costs of altering off-site office locations, to the extent that they will be met from the capital master plan budget.

32. **The Administration agreed with the Board's recommendation that it urgently take stock and rebuild the anticipated final cost of the project. The rebuilt anticipated final cost should include estimates for the likely cost of:**

(a) **Identified project risks;**

(b) **Change orders until project completion;**

(c) **Acceleration activities in order to meet the project schedule;**

(d) **Claims that have been submitted and an allowance for future claims;**

(e) **Up-to-date estimates for remaining GMP**[9] **contracts (by revalidating prices and setting a realistic level of contingency based on the lessons from previous GMP contracts);**

(f) **The costs for altering off-site office locations to the extent that they will be met by the capital master plan budget.**

33. In agreeing with the recommendation, the Administration stated that it will urgently seek a methodology to rebuild the anticipated final cost of the capital master plan. The Board understands that the agreement of this recommendation entails that each part of the recommendation will be addressed and that the Board will be presented with robust evidence, including for allowances and estimates, to support the new anticipated final cost at its next audit in October 2012.

34. **The Administration agreed with the Board's recommendation that the anticipated final cost be recalculated and reported on a quarterly basis from now until the project's completion.**

35. **The Board further recommends that Senior Management in the Administration put in place appropriate controls such that they can clearly demonstrate to the General Assembly that assurance can be placed on the reported cost forecasts.**

36. The Administration agreed with the Board's recommendation, stating that "the Under-Secretary-General for Management will coordinate with the Executive Director of the Capital Master Plan a thorough review of the anticipated final cost of the project and will share this estimate — and the methodology used to arrive at it — with the General Assembly in an open and transparent manner. Once this estimate has been arrived at, every effort will be made to remain within its limits. Should any deviation arise due to unforeseen circumstances, it will be immediately communicated to the Member States".

*Risks of additional costs if the project runs out of commitment authority*

37. With the prospect of its commitment authority being depleted by March 2012, the Office of the Capital Master Plan has been procuring work in smaller packages than planned since November 2011. This means that instead of procuring entire packages of work, it has made piecemeal commitments only in relation to the most pressing work.

[9] The capital master plan is using for the most part "guaranteed maximum price contracts" that stipulate the maximum price the United Nations will pay to the construction manager for certain elements of the construction work. Changes to the contracts are priced and evaluated on an individual basis. The contracts are large enough that any one change order is unlikely to be disruptive. The multi-contract arrangement does, however, create risks as follows: (a) if the scope within a contract changes, the costs of the changes can represent reduced value for money, especially if the changes create disruption and reduced efficiency for suppliers; and (b) in ensuring effective coordination between the various designs and construction contracts. The United Nations continues to bear these risks but the Board notes that the Administration is taking reasonable steps to minimize those risks.

38. The piecemeal procurement approach could result in poor value for money, and injects significant risks into the project. By not procuring entire packages of work, the Office of the Capital Master Plan may lose out on economies of scale. If contractors are required to stop or even demobilize, the risk of claims can increase. In the knowledge of such risks, contractors may add risk premiums into their negotiations on price, and will have little incentive to conduct the work as efficiently as possible. The Administration informed the Board that, as at June 2012, the approach had not led to increased costs because to date contractors have stayed true to their cost estimates for the work if purchased as a complete package. The Board considers that an organization with the resources of the United Nations would not have needed to resort to a procurement approach that risks such poor value for money; and needs to consider how it can improve the timeliness and completeness of its reporting to assist more timely and effective decision-making.

39. In March 2012, the Office of the Capital Master Plan requested an increase in commitment authority of $152 million with the recommended source of funding being the project's working capital reserve and the capital master plan account's interest. In April 2012, the General Assembly approved an increase in the project's commitment authority by $135 million, to be funded from the regular budget.

40. While that decision removes the imminent danger of the project running out of commitment authority and therefore stopping all procurement, the Board considers that there are still high risks to project continuity and costs from this incremental procurement approach. The Office of the Capital Master Plan was unable to provide the Board with a clear schedule and rationale for the value and timing of planned procurements to support an independent assessment of the precise need for increased commitment authority. This analysis will be vital to support any future decisions on the release of additional commitment authority.

41. **The Administration agreed with the Board's recommendation that once it has prepared a complete and robust anticipated final cost, it should set out the timeline for all remaining project commitments, being clear about the effect that delayed, or partial, release of funding will have on the costs and timing.**

### 3. Project timescales

42. Projected completion dates for the key campus buildings (annex IV) are the same as those stated in the Board's previous report, with final project completion due in the summer of 2014, approximately a year later than planned.

43. The General Assembly and Conference Buildings remain a year late owing mainly to security-related scope changes which were funded through a financial contribution from the Host Country. In his sixth annual progress report, the Secretary-General stated that the Secretariat Building was scheduled to be completed early in 2012 but migration of staff back into the building will now commence in July 2012 and be completed by the end of November 2012.

44. While key building completion dates have not changed since the Board's previous report, the project schedule is now so tight, in particular on the Conference Building and basements, that further delays will be difficult to absorb. The Conference Building schedule is extremely tight with some 30 per cent of the activities on or near the critical path. The Board considers that it is likely that the Administration will need to incur acceleration costs to complete the building by

21 December 2012. Achieving this milestone is important as it enables the conference facilities to transfer back from the temporary North Lawn Building during the quiet time over Christmas 2012. If that date is not achieved, the Office of the Capital Master Plan itself assesses that a six-month delay will ensue as the transfer of conference functions would need to wait until the end of the resumed session of the General Assembly. Additional time-related pressures and risks include:

- Complications in the process for coordinating the mechanical, electrical and plumbing systems, and with the condition of the concrete slabs are also causing delays

- The installation and commissioning of the building's permanent broadcast facility is planned for the very end of the schedule. Before installation, a specific site within the Conference Building must be constructed to house the facility. However, slippages in this construction have already delayed the start of the installation of the permanent broadcast facility by one month

- The restoration work presents a difficult challenge in such an important and historic campus. The Office of the Capital Master Plan has had difficulties in finding restoration experts with sufficient capacity to carry out work on this scale. There are also concerns within the project team that the suppliers will have difficulty in delivering their work in the time available.

45. In terms of the basement schedule, construction of basement package three was due to commence in October 2011. Delays in finalizing the GMP contract and the subsequent unavailability of funding to purchase the work under one contract has meant that, with the exception of some "early action works", the core work originally intended under basement package three was started only at the time of the audit by the Board, in March 2012.[10] Certain aspects of package three are essential for the completion of the Conference Building. For example, steam and water pipelines must be completed before 1 June 2012, to supply other subcontractors with water services to complete their work, and to allow testing and commissioning of the building's steam systems and air handlers. The Board's view is that the project will have to spend money accelerating certain contract activities, which will increase the total project cost.

46. The Administration informed the Board, subsequent to the audit, that it has incurred acceleration costs only in relation to door frames and that the dates required by the Secretariat and Conference Buildings remain on schedule as at June 2012. The Board will review the situation at its next audit, but still considers it likely that acceleration costs will be incurred in order to keep to the project schedule.

### 4. Project scope and quality

*Proposals to reduce costs may impact on project scope and quality*

47. The Office of the Capital Master Plan is conducting a final value engineering exercise in an attempt to reduce the project deficit. While the Administration should make every effort to contain the cost overruns, given that the project is well

[10] Now the guaranteed maximum price contract will not be finalized and instead, the work is being carried out as scope-reallocation change orders to basement package two.

advanced and much of the work has been procured, the Board considers that the Office of the Capital Master Plan will be unable to fully recover the project deficit.

48. The Administration is considering reducing the remaining scope by, among other things, not renovating the South Annex Building or the Dag Hammarskjöld Library and reducing specification levels within the General Assembly Building. Design work on the South Annex Building and Dag Hammarskjöld Library remains suspended while the Administration addresses security issues concerning the resilience of these buildings to blast threats. The Administration informed the Board that proposals regarding the options for these buildings would be made in the tenth annual progress report, late in 2012.

49. With regard to the General Assembly Building, which is the last main building on the campus to be renovated, the Board was informed that the Administration intends to present the General Assembly with options for reducing the costs by downgrading the specification and the extent of the restoration activities.

50. **The Administration agreed with the Board's reiterated recommendation that it:**

(a) **Resolve the security issues and lack of a viable design solution for the Library and South Annex Buildings as a matter of urgency;**

(b) **If the two buildings are proposed to remain in scope, make clear what the approach to resolving the security challenges should be;**

(c) **Seek approval for their proposed course of action from the General Assembly.**

51. **The Administration agreed with the Board's recommendation that, if the Library and South Annex cannot remain in scope, it present the General Assembly with costed options for accommodating the facilities which are currently housed in these buildings. The Administration committed to implement this recommendation at the sixty-seventh session of the General Assembly.**

52. **The Administration agreed with the Board's recommendation that it seek approval from the General Assembly for any proposals to reduce the scope of planned work to the General Assembly Building. The Administration committed to implement this recommendation at the sixty-seventh session of the General Assembly.**

### 5. Governance

53. The Office of the Capital Master Plan provides a monthly written high-level "dashboard" report to the Administration, but the main governance control is through the annual reporting cycle to the General Assembly. The Board notes that the Office of the Capital Master Plan has established internal coordination mechanisms. For example, the Assistant Secretary-General for the Capital Master Plan meets on a monthly basis with the Office of Legal Affairs, Department of Safety and Security, Office of Central Support Services and Office of Information and Communications Technology to discuss progress and concerns. Similar meetings take place to coordinate delivery of activities in the associated costs budget. The Management Committee (chaired by the Deputy Secretary-General) receives regular briefings from the Assistant Secretary-General for the Capital

Master Plan. The Board considers, however, that these activities are not a substitute for effective project governance.

54. The Board notes that the project has no steering committee. It is unusual for a project of this nature, complexity and importance, that a high-level internal steering committee has not been established to provide both support and an independent challenge to the project team. The Board recognizes that an Advisory Board was established but that, while making a valuable contribution to the project, this does not constitute an effective governance mechanism. Regardless of the mechanism, the Board considers that, under the leadership of the Under-Secretary-General for Management, there is a need to establish more effective and robust governance over the capital master plan to both support and challenge the Office of the Capital Master Plan during the remaining critical phases of this project.

55. **The Board recommends that the Administration urgently establish more effective and regular governance over the capital master plan. The Under-Secretary-General for Management needs to determine how he can assure himself that cost and progress forecasts are accurate, especially where areas of technical construction judgement are involved. The Board is aware that typically, in a project of this nature, senior management would be supported by expert advice which is independent of the project team.**

*Reporting the full costs of the accelerated strategy and the project contingency*

56. One of the key reasons why the capital master plan is facing financial pressures is because there has been a lack of timely and complete cost reporting by the Administration (as highlighted in successive previous Board reports). The deficiencies in reporting are an important reason behind the recent need for an urgent decision by the General Assembly on commitment authority without sufficient time and full information on which to base its decision. In this section, the Board highlights two key points:

- The full likely costs and risks of the accelerated strategy had not been made clear when those charged with governance were asked to approve it
- Greater discipline around the reporting and management of the project contingency would have made a cost overrun of the order of $358 million apparent as early as October 2008.

57. When the General Assembly approved the capital master plan budget in December 2006,[11] it included a provision of $200 million as a project contingency, and $296 million as a provision for construction price inflation.[12] Together, this represents a combined provision of $496 million, equivalent to 36 per cent of the approved budget, and within the normal parameters of best practice for construction projects.

58. Table 4 below shows the approved budget for project costs and provisions and highlights key changes to the Administration's cost forecasts. The figures for the

[11] General Assembly resolution 61/251 and the Secretary-General's fourth annual progress report on the implementation of the capital master plan (A/61/549), table 2.

[12] Secretary-General's fifth annual progress report on the implementation of the capital master plan (A/62/364, table 1).

provisions incorporate the combined actual use and anticipated need at the given point in time.

Table 4
**Changes in the forecasts for required provisions and project costs**

| *Date* | *Report* | *Board observations* | *Provisions* | *Project costs*[a] | *Total anticipated final cost* | *Approved CMP budget* |
|---|---|---|---|---|---|---|
| | | | *(Millions of United States dollars)* | | | |
| December 2006 | General Assembly resolution 61/251 | This shows the split between project provisions and project costs in the approved budget provided for the CMP project<br>Provision of $496 million made up of $200 million as a project contingency, and $296 million as a provision for construction price inflation. | 496 | 1 381 | 1 877 | 1 877 |
| October 2008 | Sixth annual progress report | Estimate of project costs has increased by $358 million due to delay in commencing the project and the adoption of the accelerated strategy<br>Estimate of the required provisions was reduced by $261 million owing to a change in the Administration's approach to calculating contingency and a reassessment of the level of provision required for price inflation given the economic climate. | 235 | 1 739 | 1 974 | 1 877 |
| **Variance** | | | **(261)** | **358** | **97** | **0** |

[a] Renovation and swing space costs, including professional and management fees.

59. The Board observes that:

- When accelerated strategy IV was proposed in late 2007, an increase in project costs of $208 million was reported.[13] The Administration subsequently increased its estimates by $150 million in October 2008[14] meaning that the forecast of required project costs was $358 million higher than the approved budget for project costs
- At the same time that the Administration increased its estimate of project costs in 2008, it reduced its estimate of required contingency and price escalation provisions to $235 million. The reduction was due largely to harsh economic conditions resulting in inflation levels being lower than originally forecast
- The difference of $261 million between the funding for provisions in the approved budget and the amount the Administration now stated was required was used to address some of the budget deficit under the accelerated strategy and therefore a cost overrun of $97 million was reported
- Adopting the accelerated strategy avoided some of the risks of the previous renovation approach, by moving from the renovation of a partially occupied

[13] This calculation considers the total contingency as a percentage of the budget, excluding the contingency.

[14] The Secretary-General's sixth annual progress report (A/63/477) showed that project costs had increased by a total of $150 million despite value engineering savings of $100 million.

building to the renovation of an empty building. The accelerated strategy presented significant new risks, however, due to a compressed construction schedule which relied on each major building subproject, and the critical mechanical and electrical services in the basement, completing on time. The required level of provisions reported in 2008 took account of the more favourable economic climate and the risks avoided by implementing the accelerated strategy, but did not reflect the significant new risks inherent in the accelerated strategy

- A contingency is a specific budgetary provision which is allocated so that a project can quickly address the cost impact of project risks, should they arise, without needing to delay the project and negotiate increased funding. The Board fully supports the concept of well-managed contingencies for major projects. However, it is crucial that the Administration not use contingency funding as a device to absorb general increases in project costs and clearly reports how and when such provisions have been used.

60. Although the final actual cost of the project would not have changed, if the $496 million funding provided as a project provision had been ring-fenced, rather than partially used to cover the budget deficit, then:

- The General Assembly would have been given a more accurate picture of the likely cost of the project in October 2008, and plans could have been put in place to address the deficit at that point; and

- There would have been sufficient contingency remaining to cover the cost impact of the risks which the Administration reported in December 2011.

61. The Board considers that there needs to be a balance between providing flexibility for project teams to use contingency, where needed, while also ring-fencing contingencies and provisions to tackle specific risks that require appropriate approval before utilization rather than being absorbed by more general project overruns.

62. **The Administration agreed with the Board's recommendation that, drawing on the lessons from the capital master plan, it consider how in future it can manage contingency funding on capital projects in a more transparent and effective manner.**

### 6. Commissioning and handover

63. The commissioning phase of construction projects involves testing and then handing over completed systems, infrastructure and buildings to the eventual occupier. The handover process is a particular challenge in the capital master plan because the campus's antiquated systems are being replaced by much more modern, computer-driven systems that control infrastructure such as heating, ventilation and air conditioning.

64. In its previous report, the Board highlighted the need for Facilities Management Service staff to acquire new skills to run and manage the building systems. The Board recommended that the Under-Secretary-General for Management review jointly the state of readiness for commissioning and handover within the Facilities Management Service and the Office of the Capital Master Plan

on a quarterly basis. Such a report was first produced in October 2011 and has since been updated in March 2012. The Board notes the following positive developments:

- A formalized handover process document has been agreed by all parties and is being implemented as part of ongoing handovers[15]
- Each handover is now accompanied by key documentation, including manuals and operating procedures, and the procedures for managing and storing documentation are more formalized
- Facilities Management Service staff members are now more actively involved in the capital master plan, through regular attendance at meetings and regular walk-throughs of campus buildings; and there are now five primary capital master plan focal points in the Facilities Management Service, as opposed to one in November 2010
- A handover officer has been recruited to improve liaison between the Facilities Management Service and the Office of the Capital Master Plan in relation to handover; and another staff member has been given specific responsibilities for receiving and cataloguing the numerous construction documents related to handover.

65. While the Board acknowledges the positive steps outlined above and notes that recent handovers have progressed better than those for the North Lawn Building, they have not gone entirely as planned. For example, handover of basement package two was due to be completed in March 2012, but to date, important elements of that package, such as the building management system, have not been handed over and have been maintained by the construction manager in the interim. Similarly, a portion of the super swing space within basement package three was due to be handed over in June 2011 but has not been. The Board also highlights the following additional risks:

- The Facilities Management Service had considered engaging a consultant to bolster its expertise and capacity for planning and implementing successful handovers. Later, owing to delays in procurement, issues of affordability, and further discussions with the Office of the Capital Master Plan, the Facilities Management Service decided not to engage a consultant
- Numerous piecemeal handovers will occur in the basement packages and in the Conference Building, stemming from the complicated sequencing of activities in the basements and the need to maintain services and infrastructure provided to other parts of the campus. Such handover processes risk blurring responsibilities between the Office of the Capital Master Plan and the Facilities Management Service
- Aspects of basement package two were handed over to the Facilities Management Service but without staff receiving training on the systems they have inherited. For example, Facilities Management Service training on the temporary chiller plant planned for September 2011 took place only after handover in February 2012.

[15] Process for Contract Manager turnover of capital master plan projects, 15 February 2011.

66. The Board will continue to monitor how the Administration is managing commissioning and handover risks and learning lessons in this area as the project progresses.

67. The Board previously recommended that the Administration consider retaining at least one senior official from the Office of the Capital Master Plan for at least a year after completion of the project to support handover to the Facilities Management Service, facilitate a transfer of knowledge to the new team and assist in resolving any difficulties after the handover. The Board notes that the matter has been under consideration by the Under-Secretary-General for Management since June 2011; but at the time of the present report, no decision had been taken.

## 7. Procurement

*Delays in contract approval times*

68. The programme manager's October 2011 risk review report states that delays in signing GMP contracts will have a direct impact on the project completion date and classifies this issue as a medium-rated risk to cost and schedule. The Board, in its previous report, highlighted this risk, noting that the GMP contract approval process was, on average, taking longer than the 42 days allowed for within the project schedule. As at 1 April 2011, the average number of days to complete this process was 104. The Board recommended that the Administration expedite the process but has not seen any evidence of specific actions to do so and as at 23 February 2012, the average elapsed time for contracts approved since the Board's previous audit had increased to 180 days. The project team is continuing to use "task orders" to commence early works and ensure that essential work can begin without awaiting the approval of the contract. The Board is concerned that the time taken to approve guaranteed maximum price contracts will put additional pressure on the schedule, and the Board remains of the view that the Administration should address this as a priority issue.

*Scrutiny of change orders by the Post-award Review Committee*

69. In October 2009 the Administration set up the Post-award Review Committee (PARC) to improve the scrutiny of change orders and contract amendments. In its previous report, the Board noted the considerable backlog in the Committee's work and that the Committee at that point was providing neither enhanced control nor timely value.

70. While the Committee has since acquired a dedicated secretariat and is reviewing its operations within its terms of reference, at the time of the audit, there remained a considerable backlog in workload. As at March 2012, the Committee had considered just 16 of the 234 relevant contract amendments.[16]

71. The importance of PARC is heightened by the capital master plan's current, incremental approach to procurement. With many items now being procured through change orders and as smaller packages, the workload of PARC is likely to increase. An effective PARC is essential to ensure that the incremental procurement approach is being carried out appropriately and that change orders and contract amendments

[16] Each contract amendment considered by the Committee has included reviews of several change orders.

have adequate ex post facto review. The Administration informed the Board, subsequent to its audit, that the reorganized Committee has developed a risk-based approach to the review process. Using this approach, the Committee conducted review of 26 high-risk amendments to three contracts during three meetings held from March to May 2012. Three sets of minutes containing executive recommendation summaries were approved by the Assistant Secretary-General/ Office of Central Support Services on 31 May 2012, in addition to the two sets approved since 2010. On the same day, a note to the Administration was issued transmitting the Committee's recommendations and proposing actions to strengthen internal control. The Office of Central Support Services and the Office of the Capital Master Plan are currently working together in implementing these recommendations. The Board notes the positive action being taken in response to its previous recommendation and will review progress in its next audit.

*Change order processing times*

72. The Board previously recommended that the processing time and backlogs in the change order approvals process should be reduced. Delay in approving change orders can delay payments to contractors, increasing the risk of contractors claiming for disruption and delay.

73. The Office of the Capital Master Plan is attempting to reduce processing times by focusing on change orders that have been outstanding for more than 30 days. Meetings are held between the Office of the Capital Master Plan, the consultant programme manager and the construction manager, at least every two weeks, to consider these change orders and take immediate decisions to expedite processing. These actions have resulted in a recent decrease in the average time taken by the Administration to approve change orders, from the point that it receives a change order from the construction manager.

74. Despite this decrease, the average time to process a change order, from initial submission from the trade contractor, through the construction manager and on to final approval by the Administration, has risen from the 114 days noted in our previous report to 120 days as at the time of the March 2012 audit. This indicates that the construction manager is now taking longer to complete its responsibilities within the approval process. While noting the improvements by the Administration, the Board considers more can be done to speed up the entire change order process. Annex V sets out the Administration's analysis of the reasons for change orders.

75. The Board also notes that there has been an increase in the number of open change orders during 2011 where the process has not yet finished, from 119 in January 2011 to 193 in January 2012.

76. **The Administration agreed with the Board's reiterated recommendation that the Office of the Capital Master Plan significantly reduce the processing time and backlogs in the change order approvals process.**

### 8. Use of office space

*Flexible office solutions*

77. In its previous report, the Board noted that significant savings can be achieved through flexible use of desk space or "hot desking", whereby staff can access their computers and work at any free desk, rather than allocating one desk to one staff

member and thereby requiring greater space. It would not be unrealistic to expect annual savings of 10 to 20 per cent by adopting flexible workplace strategies such as “hot desking”. Savings would be realized through allowing more people to be housed in the Secretariat, thus reducing the amount of space rented for staff remaining off campus.

78. The Board notes that on the latest plans, the renovated campus will officially accommodate 323 fewer people[17] than before the project began. Meanwhile, between the approval of the capital master plan and the signing of leases for swing space, the total population of the United Nations staff in New York has grown significantly (by 1,018). The total staff accommodated on campus and off campus in New York after project completion will be 16.3 per cent higher than before.[18] This brings into question whether the capital master plan should be funding the entire cost of swing space during the renovation period, since regardless of the renovation, the growth in staff numbers implies that the Administration would have needed to rent additional space to house those staff members.

79. As previously highlighted by the Board, the Administration, by adopting a policy of allocating one desk to one person within the Administration is missing the opportunity to use space efficiently and realize significant and ongoing savings through reduced rental, furniture and energy costs. The Administration decided not to implement the Board’s recommendation that it pursue such opportunities at the time of the Board’s previous report, particularly in relation to the Secretariat Building.

80. Flexible use of desk space or “hot desking” so that staff can access their computers and work at any free desk has allowed many public sector organizations to reduce desk numbers by 30 per cent by, for example allocating 10 staff members to 7 desks. These potential savings would have helped redress in the medium term potential cost increases being incurred now and before project completion.

81. The Board notes that the Administration will have the technology and infrastructure to facilitate mobile working and flexible use of desks. The Board also notes that the new Change Implementation Team is piloting extended flexible working arrangements, such as telecommuting in four United Nations departments. Their change plan includes a recommendation that all heads of departments and offices relocating to the renovated Secretariat Building fully utilize the new office layouts to promote changes in working culture.[19]

82. The Administration is now at a critical phase of planning its future accommodation needs between 2014 and 2034.[20] The Board considers that the Administration needs to fully explore the potential for increased space efficiency

[17] The United Nations campus officially accommodated 4,116 staff members before the capital master plan although the actual number of staff based on campus was higher owing to the presence of consultants and contractor staff, which was not officially recorded. After the capital master plan, the campus will house 3,793 staff members.

[18] Data provided to the Board shows that 7,736 United Nations staff members will be accommodated in New York at on-site (3,793) and off-site (3,943) locations after the capital master plan.

[19] The Change Plan, Proposals by the Change Management Team to the Secretary-General, December 2011.

[20] Feasibility study on the United Nations Headquarters accommodation needs 2014-2034 (A/66/349).

through flexible use of office space, taking into account the possibility of staff resistance to such a change and the change management which will need to be put in place to make it a success.

83. **The Administration agreed with the Board's recommendation that the Department of Management (a) pilot the implementation of flexible working strategies which move away from a one-person to one-desk ratio; and (b) assess the potential operational and financial impact of adopting flexible workplace strategies to reduce the future space needs of the United Nations in the context of any proposals for renovating existing, or acquiring new, office space.**

## D. Acknowledgement

84. The Board wishes to express its appreciation for the cooperation and assistance extended to its staff by the Under-Secretary-General for Management and the Assistant Secretary-General for the Capital Master Plan, and members of their staff.

(*Signed*) **Liu** Jiayi
Auditor-General of China
Chair, United Nations Board of Auditors

(*Signed*) Amyas **Morse**
Comptroller and Auditor-General,
United Kingdom of Great Britain and Northern Ireland
(Lead Auditor)

(*Signed*) Terence **Nombembe**
Auditor-General of the Republic of South Africa

30 June 2012

# Annex I

## Key stages in the development of the strategy and budget for the capital master plan

- The need for a total refurbishment of the Headquarters campus was identified during the late 1990s
- In June 2000, the Secretary-General articulated (A/55/117) the need for refurbishment and presented a range of potential approaches. The preferred option was a six-year refurbishment costing some $964 million and involving construction activity of up to 30 per cent of the campus at any one time
- The capital master plan was established pursuant to General Assembly resolution 55/238 and initially funded through an appropriation from the United Nations regular budget. The General Assembly subsequently established a special account for the capital master plan (resolution 57/292) with appropriations made to the special account from assessments on Member States
- In February 2003, the Secretary-General established the Office of the Capital Master Plan to deliver the project
- In November 2005, in his third annual progress report on the implementation of the capital master plan (A/60/550), and following the development of design and cost estimates, the Secretary-General proposed a revised budget of $1,588 million
- In his fourth annual progress report, of October 2006 (A/61/549), the Secretary-General proposed a phased approach to construction (strategy IV) and explained that the budget had increased to $1,877 million because: (a) changes in market conditions had increased construction costs and professional fees; and (b) there was a need for additional scope, including extra blast security and information technology backup systems and security. In its resolution 61/251, the General Assembly approved the revised project budget and the proposed phased approach to construction
- In September 2007, the Secretary-General, in his fifth annual progress report (A/62/364), noted delays in implementing strategy IV, referring to the complexities of United Nations decision-making and the resignation of the project's Executive Director. The estimated final cost of the project was now $2,096 million, some $220 million over budget, mainly because of slippage in the schedule and the associated impact of price inflation on construction and rental costs
- The Secretary-General then proposed accelerated strategy IV, involving a shorter period of renovation, fewer phases of construction and less disruption to United Nations operations. The revised estimated final cost was $2,067 million, some $190 million above the budget. In its resolution 62/87, the General Assembly took note of the proposal of the Secretary-General on accelerated strategy IV and requested him to ensure by all means that the project costs were brought back within the approved budget. Accelerated strategy IV remains the current approved strategy.

# Annex II

## Budget and anticipated final cost estimates reported in the progress reports of the Secretary-General

(Thousands of United States dollars)

| | *Strategy IV* | *Accelerated strategy* | *Accelerated strategy* | *Accelerated strategy* | *Accelerated strategy* | *Accelerated strategy* |
|---|---|---|---|---|---|---|
| | *Budget approved by General Assembly in 2006*[a] | *Status as at September 2007* | *Status as at September 2008* | *Status as at September 2009* | *Current status as at September 2010* | *Current status as at May 2011* |
| Construction | 935 300 | 964 625 | 1 032 900 | 1 057 402 | 1 016 920 | 1 058 714 |
| Enhanced security upgrade construction | – | – | – | – | – | 82 185 |
| Professional fees, management costs | 231 000 | 234 508 | 280 340 | 302 365 | 316 549 | 326 994 |
| Enhanced security upgrade fees | – | – | – | – | – | 10 713 |
| Swing space fit-out and rental | 214 500 | 389 858 | 425 695 | 426 881 | 421 113 | 487 129 |
| **Contingency** | **199 900** | **199 859** | | | | |
| **Forward price escalation** | **296 000** | **277 960** | **235 236** | **181 423** | **202 209** | **89 084**[b] |
| Additional contingency for enhanced security upgrade | – | – | – | – | – | 6 659 |
| Associated and secondary data centre costs | – | – | – | – | – | 210 056 |
| Voluntary contributions | | | | | | (110 500) |
| **Total project cost** | **1 876 700** | **2 066 810** | **1 974 171** | **1 968 071** | **1 956 791** | **2 161 034**[c] |
| **Project budget** | **1 876 700** | **1 876 700** | **1 876 700** | **1 876 700** | **1 876 700** | **1 876 700** |
| **Variance against budget** | **0** | **190 110** | **97 471** | **91 371** | **80 091** | **284 334** |

[a] As reported in the Secretary-General's fifth annual progress report on the implementation of the capital master plan (A/62/364).

[b] This figure relates to contingency/escalation provision remaining. Earlier contingency figures include contingency used and contingency remaining. In the final column, contingency use of $41,794,000 is included in the construction figure, and contingency use of $66,016,000 is included in the swing space fit-out and rental figure.

[c] This figure includes a deduction of $100 million in relation to funding provided by the host city for the enhanced security upgrade and $10.5 million for funding provided by Member States as voluntary contributions. It does not include a deduction for the $3,286,000 funding provided from the support account for the secondary data centre.

# Annex III

## Analysis of the status of implementation of the recommendations of the Board for the year ended 31 December 2010

| | *Summary of recommendation (A/66/5 (Vol. V))* | *Paragraph* | *Financial period first made* | *Fully implemented* | *Under implementation* | *Not implemented* | *Overtaken by events* |
|---|---|---|---|---|---|---|---|
| 1 | The Board recommends that the Office of the Capital Master Plan significantly reduce the processing time and backlogs in the change order approvals process so that contractors get paid within the timescales stated in their contracts or, where contracts are silent on this matter, within 30 days after completing a change order. The latter arrangement is consistent with the time allowed to make payment under a guaranteed maximum price contract. | 33 | 2010 | | X | | |
| 2 | The Board recommends that the Administration, working with the Office of the Capital Master Plan:<br>(a) Immediately review the change orders trends and identify the reasons and source of requests for changes;<br>(b) Establish clear rules, strong governance and robust management to minimize occupier-driven changes. | 38 | 2010 | | X | | |
| 3 | While recognizing the progress made since November 2010, the Board recommends that the Under-Secretary-General for Management should, as a high priority management action, review jointly the state of readiness for commissioning and handover within the Facilities Management Service and the Office of the Capital Master Plan on a quarterly basis. | 46 | 2010 | X | | | |
| 4 | The Board also recommends that the Administration consider ways to retain expertise from the Office of the Capital Master Plan to support the handover to the Facilities Management Service. | 47 | 2010 | | X | | |
| 5 | The Board recommends that the Administration:<br>(a) Resolve the security issues and lack of a viable design solution for the Library and South Annex Buildings as a matter of urgency;<br>(b) Confirm whether the two buildings are to remain in scope, and if so, what the approach to resolving the security challenges should be;<br>(c) Seek approval for their proposed course of action for the two buildings from the General Assembly. | 59 | 2010 | | | X | |
| 6 | The Board also recommends that the Administration prioritize the approvals process and timing for the remaining guaranteed maximum price contracts and amendments so as to achieve the 42-day elapsed time assumed in the schedule. | 60 | 2010 | | | X | |

| | *Summary of recommendation (A/66/5 (Vol. V))* | *Paragraph* | *Financial period first made* | *Fully implemented* | *Under implementation* | *Not implemented* | *Overtaken by events* |
|---|---|---|---|---|---|---|---|
| 7 | The Board recommends that the Office of the Capital Master Plan strengthen the approach to cost forecasting by including a robustly calculated and auditable estimate for the costs of all change orders until project completion, allowing for the most likely costs of the items in the risk register and for other known issues such as prolonged property rentals arising from the schedule slippage. | 70 | 2010 | | X | | |
| 8 | The Board recommends that the Office of the Capital Master Plan:<br>(a) Review its approach to allowing for the effects of future construction price inflation in line with published indices;<br>(b) Clarify and simplify its reporting in this area when little or no inflation is expected. | 73 | 2010 | | | X | |
| 9 | The Board recommends, for the sake of project certainty, that the Administration and those responsible for governance clarify the question of budgetary responsibility for the associated costs by making a clear decision about the way in which they will be funded. | 80 | 2010 | X | | | |
| 10 | The Board also recommends that the Administration, when assessing the associated costs forecasts, take into account the full impact of the most recent scheduled completion dates. | 81 | 2010 | | X | | |
| 11 | The Board recommends that the Administration:<br>(a) Establish a small senior management group, supported by an independent space planning expert authority, to review all of the potential benefits arising from the project;<br>(b) Ensure that the group works towards the benefits in a systematic and coherent way. | 90 | 2010 | | | | X |
| 12 | The Board also recommends that the Administration consider ways in which to use space more efficiently through, for example, "hot desking" and reduced physical filing space as a policy, and ensuring a rapid conclusion aligned with the scheduled moves of staff and office furniture within the United Nations campus and other properties. | 91 | 2010 | | X | | |
| 13 | The Board recommends that the Administration establish a risk mitigation strategy to fill unexpected vacancies in critical positions within the Office of the Capital Master Plan management team at short notice.* | 95 | 2010 | | X | | |
| 14 | The Board also recommends that the Administration consider whether a similar arrangement should apply to other teams involved in major business transformation programmes elsewhere in the United Nations. | 96 | 2010 | | | X | |

| | Summary of recommendation (A/66/5 (Vol. V)) | Paragraph | Financial period first made | Fully implemented | Under implementation | Not implemented | Overtaken by events |
|---|---|---|---|---|---|---|---|
| 15 | The Board recommends that the Administration urgently review the effectiveness of the Post-award Review Committee, with a view to streamlining its operation, and balance appropriately the need for assurance and control with the need to protect the project schedule and work of Procurement Division. | 103 | 2010 | | X | | |
| | **Total** | | | **2** | **8** | **4** | **1** |
| | **Percentage share of total** | | | **13** | **53** | **27** | **7** |

*Note on recommendation 13*:* The Office of the Capital Master Plan and the Office of Human Resources Management have been in discussion about the succession planning issues highlighted in the Board's previous report. In June 2011, the Office of the Capital Master Plan sent a note to the Under-Secretary-General for Management, acknowledging threats and uncertainties with regard to the reaccommodation of capital master plan staff as the project winds down. The note proposes a human resources management strategy for the capital master plan to secure orderly transition and incremental reassignment of staff; and also the formation of a joint working group as well as the following actions:

- Development of a 2011-2014 medium-term human resources plan which presents the road map for gradual implementation of the staff reassignments, transfers and retraining prior to the project completion;
- Development and application of human resources policies specific to the capital master plan based on the need for flexible human resources management arrangements with regard to staff reassignments/transfers;
- Decisions on core staff who should stay with the capital master plan project until a full handover of facilities management responsibilities to the Facilities Management Service and create incentives for them to stay.

The Board understands that the Office of Human Resources Management has suggested that it will appoint two focal points to work with the capital master plan regarding succession issues. At the time of the March 2012 audit, these focal points had not been established and therefore in the Board's view limited progress has been achieved in implementing a strategy for replacing key personnel at short notice. The risk and urgency of this matter was highlighted by the resignation of the Umoja Project Director on 1 June, a post that remained unfilled until early-2012.

# Annex IV

## Capital master plan completion dates

| *Aspect of the capital master plan* | *Completion date in accelerated strategy IV* | *Current projected construction completion* | *Current projected migration completion* | *Further details* |
|---|---|---|---|---|
| Secretariat Building | Early-2012 | 3 September 2012 | 31 January 2013 | The anticipated completion date for construction is 3 September 2012 but a section of 11 floors will be completed in July 2012. Moves of staff into the building will take place between 1 July 2012 and 31 January 2013. |
| Conference Building | Mid-2011 | 21 December 2012 | 31 January 2013 | Moves of staff and functions into the Conference Building are anticipated to take place between 26 December 2012 and 31 January 2013. |
| General Assembly Building | Mid-2013 | 15 August 2014 | 15 September 2014 | The moves of staff and functions back into the building are not yet planned but the capital master plan team estimates that the moves will be completed by 15 September 2014. |
| Disassembly of North Lawn Building | Mid-2013 | Not known (but not before 15 September 2014) | N/A (On current plans the building will be disassembled and have no future use) | The North Lawn Building currently provides the core functions previously provided by the Conference Building. Upon completion of the Conference Building and the restarting of its original functions, the North Lawn Building will be renovated so that it can provide the functions of the General Assembly Building. This will allow the General Assembly Building to be renovated. The retrofit construction is anticipated to be completed by 15 March 2013 and the moves of staff and functions into the North Lawn Building is due to be completed by 12 April 2013.<br><br>The United Nations is currently considering several options for the future use of the North Lawn Building. However, if the North Lawn Building is demolished, this would have to take place after the completion of moves back into the General Assembly Building. In this case the demolition of the North Lawn Building would effectively delay the end of the capital master plan beyond 15 September 2014. |

| *Aspect of the capital master plan* | *Completion date in accelerated strategy IV* | *Current projected construction completion* | *Current projected migration completion* | *Further details* |
|---|---|---|---|---|
| Off-site moves | N/A | N/A | 23 February 2013 | The United Nations rents office space outside the main campus and is taking the opportunity of the capital master plan to rationalize its off-site office locations, such as UNDC1 and UNDC2. The Office of the Capital Master Plan is coordinating a range of moves of staff involving on-site and off-site locations. The off-site moves are anticipated to begin on 3 November 2012 and will be completed on 23 February 2013. |

# Annex V

## Categories of change orders

The Office of the Capital Master Plan uses five categories to record the reasons for change orders. Between 1 January 2010 and 10 October 2011, 64 per cent of the total value of change orders were due to United Nations-driven scope change (as opposed to scope changes driven by architects, engineers or the construction contractor), reaffirming the finding of the Office of Internal Oversight Services that the vast majority of expenditure on change orders is due to United Nations-requested change. Below the high-level categories, however, there is insufficient detail to pinpoint the drivers of change. It is not possible, for example, to distinguish changes requested by United Nations users from those requested by the Office of the Capital Master Plan itself.

**Reasons for changes between 1 January 2010 and 10 October 2011**

| *Category* | *Explanation* | *Value of change orders in this category as a percentage of the total value of change orders* |
|---|---|---|
| Capital master plan scope change | Change orders requested by occupier United Nations departments, as well as changes that occur as a direct result of the actions of the Office of the Capital Master Plan (for example, changes required because contracts were signed before the full scope of work was known) | 64% ($59.7 million) |
| Field condition/unforeseen condition | Changes required when something unexpected is discovered in the fabric or condition of the area being renovated | 23% ($21.6 million) |
| Architect/engineer-generated change | Changes required because of errors made by the architects or engineers | 11% ($10.7 million) |
| Skanska-generated change | Changes required because of errors made by the project’s construction manager | 1% ($1.3 million) |
| Other | Other reasons for change orders that occur and are not funded by the capital master plan | 0.1% ($0.1 million) |
| Combination of above caterories | Changes which are driven from a combination of the categories set out above | 0.5% ($0.5 million) |

*Source*: Board analysis of Office of the Capital Master Plan data.
*Note*: Data exclude scope reallocations and negative value change orders.

# Annex VI

## The previous commentary of the Board about the sufficiency of the anticipated final cost and the project contingency

The Board has consistently raised concerns about the level of contingency: both the basis for its calculation and its inability to provide adequate assurance on its sufficiency.

In its report for the year ended 31 December 2007 (A/63/5 (Vol. V)), the Board noted that it was unable to provide assurance regarding the anticipated final cost of the capital master plan. The reports stated that the design documents were not advanced enough for a well-informed opinion to be made by the Board on the project schedule and cost estimates. As a result, the Board at that stage was unable to provide assurance regarding possible cost overruns or any delay vis-à-vis the initial schedule of the project.

The Administration reduced its estimate of required contingency and price escalation in 2008. In its report for the year ended December 2008 (A/64/5 (Vol. V)), the Board noted that it was "difficult for the Board to assess the reasons for the decrease in contingencies" (para. 54) and that the "reduction does not appear conservative enough" (para. 70). The Board's report for the year ending 31 December 2009 (A/65/5 (Vol. V)) noted that the project contingency appeared insufficient and the Board's subsequent report (A/66/5 (Vol. V)) noted that the approach taken to estimating future costs, such as the most likely cost of identified risks or future change orders, was insufficiently analytical, giving rise to uncertainty as to whether the remaining contingency allowance is sufficient.

12-43056 (E) 140812