



香港特別行政區政府
The Government of the Hong Kong Special Administrative Region

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APPENDIX 23

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檔案編號 Audit/2C – Part VI
來函編號 CB/4/PAC/R63

[Translated Version]

15 January 2015

Clerk to the Public Accounts Committee
Legislative Council
Legislative Council Complex
1 Legislative Council Road
Central, Hong Kong
(Attn: Mr Anthony CHU)

Dear Mr CHU,

Public Accounts Committee
Consideration of Chapter 4 of the Director of Audit's Report No. 63
Administration of the Air Traffic Control and Related Services

Thank you for your letter with attachment (Ref. CB4/PAC/R63) dated 8 January 2015.

With regard to the enquiries raised in your attachment, please find our responses detailed at the *Attachment and Annexes* for your kind consideration.

Please note that the names and email addresses of the aviation authority of India and Dubai were third party information and not subject to disclosure. The related information in Annex 2 was hence removed.

Yours sincerely,

(Simon Li)
for Director-General of Civil Aviation

Encl.

c.c. Secretary for Transport and Housing (Attn: Ms Monica Chen)
Director of Government Logistics (Attn: Mr M C Yip)

1. Tender document of Air Traffic Management System (ATMS)

There was no change in the requirements for “System” in the new ATMS tender document from the existing ATMS. Based on the operational experience of the existing ATMS, the Civil Aviation Department (CAD) had incorporated more detailed concrete system requirements into the new ATMS tender document and the Contractor is required to provide both system hardware and software for the new ATMS, same as in the case of the existing ATMS.

The tender document for the new ATMS is formulated based on CAD’s operational needs, latest Air Traffic Control (ATC) technologies, incorporating views of the industry and in strict compliance with relevant provisions in the Government Stores and Procurement Regulations (SPR) as well as World Trade Organisation Government Procurement Agreement (WTO GPA). Presently, there are over 20 ATC controller working positions at the existing ATC centre. Upon review of the operational experience of the existing ATMS and anticipating future growth in air traffic, CAD considered that around 40-50 ATC working positions would be required for the new ATC centre. Thus, the requirement that a reference system in a tenderer’s proposal should be equipped with a minimum of 40 ATC controller working positions was incorporated into the tender document.

Moreover, the new ATMS is required to have greatly enhanced processing capability and functions as compared to the existing ATMS. The new ATMS can handle 8,000 flight plans daily, roughly 5 times of that of the system in use at the existing ATC centre. The new ATMS can also simultaneously monitor 1,500 air or ground targets, roughly 1.5 times of the existing system, capable to cope with future air traffic growth.

The comment on drastic difference in air traffic volume between Delhi Airport in India and Hong Kong International Airport in the question concerned is inaccurate. Traffic volumes at the two airports are indeed comparable, with Delhi Airport handling around 900 daily departure/arrival flights, compared to 1,100 at Hong Kong International Airport.

Compensation clauses were included during the tender preparation and in full compliance with the views of the Government Logistics Department (GLD) and the Department of Justice (DoJ). Determination of compensation is in accordance with GLD’s usual practice for large-scale/complex systems, and the details of consideration on genuine pre-estimation of loss provided by DoJ, and is based on the associated daily cost of maintaining the operation of the existing system for each of day of delayed delivery of the new system (up to a maximum of 100 days). As for the tender document in the existing ATMS, the compensation for delay is capped at around 10% of the total contract cost.

2. Does the new ATMS possess the “proven performance record”?

Procurement of the new ATMS was conducted in strict compliance with the relevant rules and regulations of the SPR and WTO GPA.

The tender document was issued after endorsement from GLD and DoJ. GLD has explained in details in its reply to the Public Accounts Committee on Clause 8.4, Conditions of Tender and stated that Clause 8.4 should be interpreted with consideration given to the full text and spirit under Section 8.

When CAD conducted the tender exercise for the new ATMS in 2011, an unsuccessful tenderer alleged that the proposed system provided by the Contractor had failed to meet the requirement of possession of “proven performance record” as specified in the tender document, hence in breach of the relevant provision of the WTO GPA. In accordance with the relevant provisions of the WTO GPA, the Government had immediately referred the complaint to the Review Body on Bid Challenges¹, a dedicated and independent body established under the WTO GPA, for review. After careful review of the case, the Review Body found that the system proposed by the Contractor did possess the necessary “proven performance record”. The Review Body had not seen any unfairness or bias which the Government had operated on any tenderer including the complainant. The complaint was therefore dismissed. The rulings of the Review Body are provided in **Annex 1**.

The Contractor’s proposed system is in use at Dubai Airport as well as three Indian airports. Systems from the same Contractor are widely used at airports in the US, Germany and Canada. Although carrying different model numbers, the main functions and the latest technologies of such systems are identical to those of the new ATMS. Presently, the average daily departure/arrival flights are around 1,000 at Dubai Airport, 900 at Delhi Airport in India, and 1,100 at Hong Kong International Airport

Regarding the reported incidents of the ATMS at Indian airports, the CAD has enquired with the respective authorities in Dubai and India. Dubai authority has expressed satisfaction with the performance of the system provided by the Contractor and the Indian authority responded that the systems in use at its three ATC centres satisfactory. The Indian authority also clarified that the past incidents were unrelated to system performance. Replies from Dubai and Indian authorities are attached in **Annex 2** for reference.

¹ The Review Body provides a dedicated, independent and impartial avenue to review challenges by suppliers who are involved in the relevant procurement against any alleged breach of the WTO GPA during the procurement process. It is served by a Secretariat within the Trade and Industry Department, and comprises 12 members selected from a wide spectrum of society, including legal, engineering, accountancy fields, and are appointed by the Secretary for Commerce and Economic Development.

3. Contract variations for New ATMS

CAD believes that enhancement of the new ATMS prior to its commissioning is more cost effective and would help reduce safety risk associated with system changes if implemented after system commissioning.

(i) Contract Variation 1

For the two contract variations to enhance the new ATMS, CAD had strictly followed the relevant rule and procedures under SPR and both contract variations had been reviewed and approved by GLD. CAD did not conceal the costs of the contract variation. CAD had followed the relevant procedures in submitting its requests to the GLD with detailed relevant information and pricing.

The new ATMS has enhanced capacity and functions compared to the existing ATMS. Tender document of the new ATMS was finalised as early as April 2009. Immediately after award of contract in February 2012, system Detailed Design Review was commenced. Due to the large scale, complexity and stringent contractual requirements, there had been a substantial lapse of time following drafting of the tender document and request for contract variation to GLD in January 2012. During that time period, the International Civil Aviation Organization (ICAO) had provided new requirements with greater details and specific guidelines on regional contingency plans for operation by air space users and airport users to handle different emergency situations (such as when an ATMS is malfunctioning or operating in degraded mode), which would involve additional data exchange and synchronisation. Meanwhile, from its operational experience of the existing ATMS in use, CAD also noted the need to enhance other functions of the new ATMS, including Missed Approach procedures, ATS Inter-facility Data Communication and operational efficiency enhancements. In view of operational efficiency, training efficiency, air traffic safety and the latest ICAO requirements, the CAD recognised the need for system enhancements to better equip the ATMS to handle various emergency situations, including the ability for air traffic control staff to continue to provide air traffic control services, further strengthening flight safety.

As stated in our 27 December 2014 reply to the Public Accounts Committee, when formulating the tender document in 2009, the new ATMS was to include three main systems, namely, Main System, Fallback System and Ultimate Fallback System (UFS). The tender document requires that the UFS is an independent system with software and system configuration completely detached from the main and fallback system. The purpose of such a design was to reduce the risk of complete system breakdown in the occurrence of concurrent Main and Fallback system malfunction to safe guard flight safety. Requirements of the UFS in the ATMS are in line with similar systems and best

practices in use at major overseas ATC centres in the US, Germany, Norway, etc.

The provision of around 32 simulator training and input operator positions in the original contract of the new ATMS was to ensure efficient operation of the air traffic management services at the Hong Kong Flight Information Region while professional training is provided to air traffic control staff. According to plan, the Simulator System of the ATMS was to be utilised for training air traffic controllers on Approach control, En-route control and Terminal control as well as evaluation of air traffic control procedures. With continuing review of operational experience of the existing ATMS by CAD's air traffic control staff, CAD had reviewed in details the training needs for operating the new system and the recognised the need to incorporate Terminal Control into training to render training more comprehensive so as to better equip air traffic control staff to cope with the sustained air traffic growth in the long term. CAD agrees that it would have been desirable to incorporate such requirements when drafting the tender document.

The quantity of 343 installed air traffic control position as alleged in the question concerned is inaccurate. The new ATMS can accommodate concurrent operation of 120 air traffic control positions with 2 to 3 computer terminals at each position, respectively connected to the Main system, Fallback system and UFS to support air traffic control. Since the mode of operation of the Simulator System differs from real operation, the concerned proposal is impracticable.

Costs of the first contract variation have included enhancement items for latest developments from ICAO, Missed Approach procedures, AIDC and additional training positions.

(ii) Contract Variation 2

Hardware implementation of the new ATMS was gradually completed in mid-2012. During that time, CAD had been actively following on software items with the Contractor. Those items are non-essential items and do not affect overall system operation.

With non-objection from CAD, the Contractor had delivered its equipment in July 2012. Such an arrangement could help speed up the implementation of the project.

The ICAO has promulgated the requirements for the Asia Pacific Regional Performance-based Navigation (PBN) in September 2011, and endorsed the Global Air Navigation Plan (GANP) with the Aviation System Block Upgrades (ASBU) framework during the 12th ICAO's Air Navigation Conference

(ANConf/12) for enhancement of safety, airspace capacity and efficiency. In accordance with the recommendation endorsed during the ANConf/12, the ICAO has requested to finalize the alignment of regional air navigation plans with the GANP by May 2014, and focus on implementation of ASBU according to operational needs. Hong Kong, being a regional aviation hub, is required to timely implement the relevant requirements in accordance with the ICAO's recommendations and the actual operational needs in order to enhance safety, airspace capacity and efficiency.

CAD has completed enhancement of the related ATC systems and infrastructure to ensure such facilities would completely integrate with the new ATMS.

(4) Safety of New ATMS

Aviation Safety is always the first priority of the CAD. Given the stringent acceptance tests and the complexity of the new ATMS, it was unavoidable that some deficiencies/observations items were identified. The purpose of the test was to ensure that the system could operate safely, stably and reliably. It is not uncommon to have deficiencies/observations items identified during acceptance tests in the new ATMS in other airports.

During the Factory Acceptance Test conducted from June to August 2012, 308 deficiencies/observations items were identified, and over 84% of them have already been rectified. The CAD and contractor would proactively follow up the remaining items with a view to expediting their early rectification.

Nature of the deficiencies / observations identified during June 2012 to June 2013	Quantity
System Function ^{Note (1)}	121
Human-machine Interface ^{Note (2)}	101
Engineering Items ^{Note(3)}	86
Total	308

Note (1) System function refers to the data processing related functions.

Note (2) Human Machine Interface (HMI) refers to the user / operator's interface.

Note (3) Engineering items refer to the technical observation.

The new ATMS is in the final system acceptance testing stage. The CAD's priority and focus have to be the resolution of outstanding observations of the ATMS towards the goal of commissioning of the new air traffic control centre

in the 1st half of 2016 when all system testing, training and safety requirements have been satisfactorily completed. In the meantime, the CAD has not lost sight of contractual courses of actions, but with due consideration given to the detailed circumstances, potential argument and the overall ATC Replacement programme and sensitivity of the information, the matter would be pursued in due course.

In general, the hardware and software warranty of systems would be 2 and 5 years respectively. In the ATMS contract, there are provisions which the contractor is obliged to comply in areas of hardware maintenance, software maintenance, system enhancement and expansion. The contractor of the new ATMS is also the contractor of the existing ATMS and the service provider of the software maintenance of the existing ATMS. The performance of the existing ATMS has been very stable and reliable, whilst the contractor's performance in terms of provision of maintenance service had been satisfactory to the CAD since system commissioning in 1998. To ensure the safety, reliability and stability of the system, the CAD would conduct detailed and stringent functional tests, as well as comprehensive safety assessment on the new ATMS in accordance with the international aviation safety management standards and established procedures.

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Review Body on Bid Challenges

Hearings

Summary of Case No. 02/2011

The Rejection of a Tender Proposal for the Design, Supply and Installation of a Replacement Air Traffic Management System and the Provision of Related Services to the Hong Kong International Airport

Company A (the complainant) lodged a bid challenge to the Review Body against the Government of the Hong Kong Special Administration Region (HKSARG) (the respondent) for breaching the Agreement on Government Procurement (GPA) of the World Trade Organization (WTO) in a tender exercise for the design, supply and installation of a replacement Air Traffic Management System (ATMS) and the provision of related services to the Hong Kong International Airport.

The complainant alleged that the ATMS proposed by the successful tenderer did not have a proven performance record prior to the date of tender submission. As one of the Conditions of Tender provided that "[a] proposed system with no proven performance record will not be considered further", the complainant considered that the respondent had breached Article XIII.4(c) of the WTO GPA, which reads "[a]wards shall be made in accordance with the criteria and essential requirements specified in the tender documentation".

A Panel comprising the Chairman and two members of the Review Body was set up to consider the bid challenge. As the contract between the respondent and the successful tenderer had commenced, the complainant applied for no further steps to be taken by the HKSARG as a Rapid Interim Measure (RIM) with a view to preserving its business opportunity. Having considered the written representations of the respondent and the response of the complainant, the Panel decided not to recommend the respondent to implement RIM on grounds of public interest and given the correspondence thus far suggested that the issue at stake was at most a question of semantics.

Following the Panel's decision against the recommendation for an RIM, the complainant informed the Review Body that it no longer requested a hearing, but that a Paper Review would suffice. The respondent adopted a neutral position on the matter of whether a hearing should be held. The Panel then decided to consider the bid challenge based on the written submissions of both the

complainant and the respondent without conducting a hearing. The decision of the Panel is summarised as follows -

1. The Panel accepted that the wording "a system with proven performance record" must be read in context with relevant provisions of the tender document, and hence the word "System" should mean "the tenderer with the umbrella System", otherwise the respondent could neither install a new sub-system nor adopt new technology, because a new sub-system by its very nature could not possess a proven performance record. The insistence on interpreting the relevant clause to mean a past system in its entirety with a proven performance record therefore could not be correct.
2. Moreover, the Panel found that the relevant sub-system of the ATMS proposed by the successful tenderer did possess the necessary "proven performance record". It had not seen any unfairness or bias which the respondent had operated on any tenderer including the complainant.
3. The Panel could see no basis to support the complainant's case and therefore dismissed the complaint.

2012 ©

Last Updated Date : 20 February 2013

From:
Sent:
To: Richard CK Wu
Cc: LK Yeung
Subject: RE: Use of Raytheon Autotrac 3 Automation System by Dubai Air Navigation Services (DANS)

Dear Richard,

Thank you for your e-mail.

DANS would welcome the opportunity to send a small delegation to see your deployment of the AutoTrac-III system, your contingency / fall-back systems and the integration of AMAN. We understand that such an opportunity could arise once the Site Acceptance Test of AT-3 is complete next year.

We use the AutoTrac-III system for the radar operation in the Dubai CTA. The radar operation supports traffic operating to Dubai International, Dubai World Central, Sharjah International and Minhad air force base as well as low-level overflights.

The AT-3 system is currently operating in a 'dumbed down' mode. For instance, at this time we are still using printed paper strips for flight data information rather than the electronic HMI that AT-3 will eventually support.

DANS has invested significantly in the AT-3 platform and our intention is to retain it for future operations. In fact, we have just started a new initiative to have 18 modifications made to the AT-3 platform in the near-term. We also have plans for mid to longer-term changes and capabilities that we would like to have implemented on the platform. There is therefore no plan to move away from AT-3 anytime soon! That is not to say that we don't have specific challenges on the AT-3 system.

I am pleased to say that the AT-3 system has been reliable in its performance to-date, although the full capability of the platform has yet to be enabled. We are in the process of integrating OLDI with AT-3 and, due to other major changes underway, we probably won't activate the full capabilities of AT-3 until early in 2015.

Regards,

From:
To: "ckyu@cad.gov.hk" <ckyu@cad.gov.hk>
Date: 05/08/2013 13:36
Subject: Re: Fw: AutoTrac III System in Delhi

Good Morning Mr C K Yuen,

I was consulting my colleagues on this issue on how best to answer your queries.

First of all there is no person called Willy Wonka working in AAI. It looks like a malicious attempt by some interested parties to throw doubts regarding AT 3 .

Now, regarding the two mentioned newspaper links:

- one was related to main power failure - where AAI electrical maintenance personnel inadvertently switched the main power off and backup UPS had issues. AT3 worked fine under these conditions.
- 2nd one was related to AIDC - Raytheon had provided work-around solutions to Mumbai, Chennai, and Delhi. AAI Mumbai & Chennai followed the work around instructions, however, due to some sort of miss-communication AAI Delhi did not and hence the issue. This issue was resolved immediately.

You may also understand from the news reports that not all the above facts could be brought out immediately . Please rest assured that AAI has thoroughly tested AT 3 in operation at Mumbai , Delhi (older versions) and at Chennai (Newer version) . The system is functioning satisfactorily. As I had communicated in my earlier mail, the only reason why AAI is upgrading the system in Delhi is due to relocation of the ATS operating complex from its present position.

Please feel free to contact me for any clarifications.

With best regards

From: "ckyu@cad.gov.hk" <ckyu@cad.gov.hk>
To: @aal.aero>
Cc:
Sent: Monday, 5 August 2013 7:20 AM
Subject: RE: Fw: AutoTrac III System in Delhi

Morning

Sorry for bothering you and your colleagues to check for the identity of Mr Willy Wonda who claims to be employed by AAI and sent the two links to Hong Kong Government advising ATC problems caused by Raytheon Autotracs3 System at New Delhi.

To ease our concern, your early advice would be much appreciated.

My sincere thanks to you and your colleagues in advance.

Subject: Fw: AutoTrac III System in Delhi

Dear Mr ,

Thanks for your response to Peter's enquiry on 13 June 2013. Peter is now on leave and I am looking after his office during his absence.

Further to the rumour stated in Peter's email on 13 June 2013, Mr Willy Wonka of AAI sent the following two links to the Hong Kong Government advising ATC problems at Delhi.

Article on 29th May 2012 :

http://articles.timesofindia.indiatimes.com/2012-05-29/delhi/31887401_1_atc-software-igi-airport-alert-atc-officials (a)

Article on 8th Feb 2013 :

<http://indiatoday.intoday.in/story/power-outage-igi-airport-leads-to-mass-scare-india-today/1/249546.html> (b)

May I know whether Mr Willy Wonka is currently employed by AAI or he was employed by AAI in the past ? What is/was his position in AAI ?

Is the information stated in the two articles true or just a rumour ?

Grateful for your earliest advice.

Best Regards,
CK Yuen
Civil Aviation Department
Hong Kong

----- Forwarded by CK Yuen/CAD/HKSARG on 30/07/2013 20:29 -----

From: Peter HW Yeung/CAD/HKSARG
To: @aai.aero>
Cc:
Date: 13/06/2013 14:53
Subject: RE: AutoTrac III System in Delhi

Dear Mr ,

Many thanks for your prompt response that really clarified the situation.
I look forward to meeting you in another ICAO meeting soon.

Best regards,
Peter

From: |@aal.aero>
To: <phwyeung@cad.gov.hk>
Cc:
Date: 13/06/2013 14:23
Subject: RE: AutoTrac III System in Delhi

Dear Mr Peter,

Greetings.

First of all I should express my gratitude for the wonderful hospitality from all of you which made my stay a memorable one.

The layout and design of the new ACC is very impressive. I have spoken to my colleagues on the same

To rest your concerns, the Delhi ATC building is being shifted to a new location . Also as per the new Airspace Organization Plan , Delhi ACC is being reorganized from the present 4 sectors to 9 sectors and terminal APP sectors from 3 to 6 sectors. The present system has design and space limitations to accommodate these requirements.

To accommodate the new requirements , we are planning to procure a new ATS automation system for the new ATC center. The present system will continue to function till the new system becomes functional and will continue to be the Backup system.

The present Raytheon Autotrac III is working fine , after overcoming the initial glitches during the implementation phase.

Hope this answers your query.

Regards

Integrated Planning Group-ANS
Airports Authority Of India

From: phwyeung@cad.gov.hk [<mailto:phwyeung@cad.gov.hk>]
Sent: Thursday, June 13, 2013 11:13 AM
To: @aai.aero
Subject: AutoTrac III System in Delhi

Dear Mr

I am very glad to meet you in Hong Kong during the ICAO APSAPG-4 meeting and I hope you enjoyed your stay in Hong Kong.

Recently I have heard a rumour that AAI plans to replace the AutoTrac III system in Delhi because the system is unreliable and there was a system crash in February 2013. I recalled we spoke on the subject of new Raytheon systems operating in Delhi, Mumbai, and Chennai and these systems are running fine since their commissioning. To ease my concern, I should be most grateful if you would advise me the otherwise.

Best regards,
Peter