

Information Paper

LegCo Panel on Economic Services

Subcommittee to follow up on the recommendations of the three inquiry reports on the opening of the new airport

Introduction

At the joint meeting of Panel on Economic Services, Panel on Home Affairs, Panel on Planning, Lands and Works and Panel on Public Services held on 14 April 1999, Members asked for information concerning the following subjects-

- (a) additional details concerning the Year 2000 compliance of systems of the Airport Authority;
- (b) additional information on the problems of the Access Control System at the airport;
- (c) the draft "Guidelines for Major Infrastructure Projects" being prepared by the Works Bureau (WB); and
- (d) measures implemented by the Civil Aviation Department (CAD) for minimising aircraft noise.

In addition, the Clerk to the Subcommittee to follow up the recommendations of the three inquiry reports on the opening of the new airport has advised the Administration that as Members would also like to discuss the appointment of Airport Authority board members at the meeting on 11 May 1999, information papers provided by the Administration should include appropriate information in this respect.

The Requested Information

2. The requested information concerning the subjects under paras. 1(a) and 1(b) will be provided by the Airport Authority in separate papers. The requested information concerning the subjects under paras. 1(c) and 1(d) is provided in the two papers prepared by WB and CAD at Appendices I and II respectively.

3. On appointments and reappointments to governing bodies of executive authorities, the Administration will assess carefully the suitability of prospective appointees, taking into account factors such as their personal abilities, expertise, experience, integrity and commitment to public service. The Administration will also monitor the performance and commitment of existing members during their tenure, including their attendance records, to facilitate consideration of their suitability for reappointment.

4. The same approach will be taken in considering appointments and reappointments to the Board of the Airport Authority, the Members of which are appointed by the Chief Executive. The current membership of the Board is due to expire on 31 May 1999. The Administration will announce future membership of the Board soon.

Economic Services Bureau

5 May 1999

Information Paper

**Subcommittee to follow up on the recommendations
of the three inquiry reports on the opening of the new airport**

**Guidelines for the Development of
Major Infrastructure Projects**

PURPOSE

The purpose of this paper is to provide information to Members on a set of guidelines for managing the delivery of major infrastructure projects to be issued internally to the concerned policy bureaux and works departments.

BACKGROUND

2. In order to summarize the experience learnt from the implementation of the Airport Core Programme and the recommendations in the three inquiry reports related to the opening of the New Airport at Chek Lap Kok for future guidance, the Airport Development Steering Committee had decided that a set of Guidelines should be prepared for the management of future major infrastructure projects. The drafting work had been started by the New Airport Project Coordination Office and was taken up by the Works Bureau upon its disbandment. Upon several rounds of circulation within Government, the drafting of the Guidelines have now been substantially completed.

GUIDELINES

3. The details of the Guidelines are attached at the Annex. It should be understood that major projects may differ widely in nature and many different institutional arrangements for their delivery are possible.

Therefore these Guidelines are only broad principles to be taken with common sense and flexibility to suit the circumstances of individual projects, and can be further developed and fine-tuned into a project-specific framework by the policy bureau responsible for the project.

4. The duties and responsibilities of the proposed Steering Committee and Project Management Office have been spelt out clearly in the Guidelines.

ADVICE SOUGHT

5. The gist of the Guidelines was presented to the LegCo Joint Panel Meeting on 14 April 1999. In that meeting, Government was requested to forward the Guidelines to the LegCo members for review prior to its formal issuance. Members are now invited to note the contents of the Guidelines.

Works Bureau

3 May 1999

**Guidelines for the Development of
Major Infrastructure Works**

Contents

I.	Selecting the Most Appropriate Institutional Entity of Delivery	1
II.	Clear Demarcation of Responsibility and Authority.....	1
III.	Good Governance as a General Requirement	2
IV.	A Unified Project Management Approach.....	2
V.	Check and Balance	3
VI.	Transparency and Coordination.....	5
VII.	Programme Management.....	6
VIII.	Managing the Transition from Construction to Operation.....	7
IX.	An International Perspective	7
X.	Use of an Auditor	7
XI.	Risk Assessment and Contingency Plan	7
XII.	Community Support	8

GUIDELINES FOR THE DEVELOPMENT OF MAJOR INFRASTRUCTURE PROJECTS

I. Selecting the Most Appropriate Institutional Entity of Delivery

At a very early stage, careful thought should be given to how a project is to be delivered. A comparison should be made of the basic choices, such as designating a Government department as the delivery agent, commissioning a statutory organization as the executive agency or involving a private enterprise through a franchise or some other form of agreement. As a general rule, we should give a project to a Government department, a statutory organization or a private enterprise for delivery only when their ability to do so has been fully proven. The degree of control available to Government (in the case of a non-government delivery agent), the track record of the organization and the experience of the key personnel involved are important considerations which would need to be taken into account.

II. Clear Demarcation of Responsibility and Authority

2. After the selection of the institutional entity of delivery, a basic 'charter' should be drawn up in consultation with the concerned parties, setting out the control and monitoring framework, with detailed description of their respective roles and responsibilities. Three points are particularly important:-

- (a) **Authority and responsibility must be aligned** - Parties involved must not be left in any doubt as to their own responsibilities, whatever the overall monitoring mechanism is. In the case of a project undertaken by a non-Government organization, the demarcation of responsibilities must be clearly spelt out and formally agreed between Government and the organization and widely promulgated. Government must avoid getting more involved than its position requires, which might create the wrong impression that the success or otherwise of the project is a Government responsibility.
- (b) **'Re-energization' is required** - Parties involved in the delivery of a project should be reminded of their respective roles and responsibilities from time to time so that there will

be no misunderstanding of what they should be. There can be updating exercises, conferences or seminars at crucial points for re-familiarization as necessary.

- (c) In the 'charter', there should be clear and precise procedures and standards for measuring, tracking and reporting progress of the project by the delivery agent and all concerned parties. A commonly accepted glossary of terms and reporting formats for this purpose should be included.

III. Good Governance as a General Requirement

3. This is of particular importance when the implementation of a huge and complex project is undertaken by a statutory organization, which is autonomous by law. The proper governance of the statutory organization is of pivotal importance. For example, its chairman and members are knowledgeable about the main functional areas of the project (e.g. engineering, finance, management, information technology, legal, etc) or can have ready access to external expert advice. The Board of the statutory organization and its senior management should work together as a fully integrated entity with their responsibilities and relationship clearly delineated. The Board should be given authority commensurate with its responsibilities, including power to hire and fire staff. In order not to undermine the authority of the Board, Government should deal with the Board as far as practicable rather than solely with its staff.

IV. A Unified Project Management Approach

4. For a large scale project involving a multitude of key activities which must be centrally coordinated, consideration should be given to setting up a central point of monitoring and control with sufficient authority over project scope, schedule and budgets.

- (a) Where Government has the ultimate responsibility and authority, certain powers should be vested in a Project Management Office within Government. In addition to authority, the Office would need to be provided with the necessary resources so that it is able to control critical milestones, use budget and schedule contingencies, order risk assessments or authorize acceleration of works. On top of this Office and directing its operation should be a high-level

Steering Committee overseeing progress and budget of the project.

- (b) Where the work has to be carried out by a statutory organization, a Steering Committee and a Project Management Office should be set up by mutual agreement. The respective responsibilities of the Steering Committee, Project Management Office and the organization must be clearly delineated and promulgated, preferably in a Project Agreement. The Project Agreement should also cover other terms and conditions and serve as a binding document between the organization and the Government. It will need to be approved by both the management Board of the organization and the Government's policy secretary in charge of the project. As a general point, both the Steering Committee and the Project Management Office should have readily available professional input at a senior level, from either the head or senior members of the concerned Government department.

5. The project management framework in paragraph 4(b) above should also apply to situations where a number of projects which require close co-ordination are to be delivered in a mixed manner, i.e. some by Government and some by one or several autonomous statutory organizations. For entrustment works, the statutory organization will operate as the works agent for Government, and the same project management structure as set out in paragraph 4(a) should be considered although there is a case for a closer level of monitoring by the Project Management Office because of the more immediate accountability of Government for the timely completion of the works.

V. Check and Balance

6. At the macro level, a Project Management Office independent of the delivery agent working direct to a Steering Committee should operate as check and balance by way of exercising overall project management and control - see paragraphs 4 and 5 above. Depending on the nature and complexity of individual projects, the Office could be headed by a professional, if considered necessary.

7. **At the micro level, out-sourced project management** - Consideration should be given to contracting out project management or

construction management services for new types of projects and for projects undertaken by an organization without a significant history in constructing and operating similar projects using its own resources. Leaving everything to the project team within the organization will run the risk of the project team being too much in control, to the detriment of the overall objectives of the project. The situation is particularly unsatisfactory when internal monitoring is absent or weak, or when the project team dominates the operation team.

8. **Ongoing reviews during the design and construction stages** - Technical viability considerations must be addressed in the design of the project at the earliest possible stage, before designs are fully committed. Design and construction should not be carried out in parallel as far as possible. Where this is necessary, a special mechanism would need to be set up to deal with design changes and their impact on project delivery so as to mitigate problems. In addition, an ongoing programme of value engineering by the project team and a one-off peer review of the project by an independent expert should be considered.

9. **Early involvement of the operation team or the users** - Assuming there is an ultimate operation team or user(s) of the facilities (not necessarily the owner) who can be identified early, the operation team or the users should be involved at the earliest possible stage. Operability should be an important consideration at the design stage and customer orientation should be recognized throughout the life cycle of the project. This is particularly true of integrated operational systems. Early and comprehensive work on systems performance and technical specifications, operational characteristics and systems integration planning should require and respect input from the operation team. The procuring body must spell out its specifications in clear and comprehensive terms which do not allow for any alternative interpretation. The bidder of a systems contract must be able to demonstrate that he fully understands the proposed systems before a contract is awarded to him. This would prevent substantial changes to the specifications at a later stage. Where changes are inevitable, they should be thoroughly discussed between the project team and the operation team and properly authorized at the appropriate level. A full documentary record of any such changes should be kept.

10. **Formal handing over of systems to the operation team** - At a predetermined point in the master programme, the systems must be handed over formally to the operation team, who would then assess the

operational status in accordance with their priorities during the commissioning stage and determine whether the systems are in fact ready for operational use on the target opening day.

11. **Confirming readiness all around** - There should be a predetermined checklist, prepared by an independent expert where appropriate, to be signed off by each and everyone of the operators of the key systems, attesting to the compliance and readiness of the systems for the opening day and the satisfactory completion of the required training, testing and trial activities. Any discrepancy must be attended to by the project team and/or the operation team as appropriate at the earliest possible opportunity. Unless the checklist is completely signed off, the project must not be considered ready for operational use. If an opening date for the project has been fixed well in advance, the opening date will need to be critically reviewed if items in the checklist are still outstanding. Where appropriate, this procedure of self-verification can be enhanced by an independent expert audit (see paragraph 19 below) or be tied in with statutory licensing procedures.

VI. Transparency and Co-ordination

12. **Use an ‘open book’ approach to project management** - Throughout the project management cycle, there shall be no withholding of information by the delivery agent. This is achieved through an ‘open book’ concept which includes full access for all concerned parties to reports and information notes, open attendance at review meetings etc. The Project Management Office will take the lead and set the example. It is recognized that there may be restrictions where proprietary or commercially sensitive information is involved. However, if the principle is recognized there should be a free flow of information between the project team and the Project Management Office, and between the delivery agent and their business partners, franchisees and Government departments to facilitate effective monitoring of progress of all key items.

13. **Co-ordination meetings and progress review meetings** - The successful airport relocation exercise and operations of Government departments at the airport highlight the importance of an early start on co-ordination and a close working relationship between the parties concerned. If outside agents or business partners are involved in the provision of services, their activities should be properly co-ordinated by the delivery agent. However the delivery agent should avoid creating too many committees with overlapping functions and responsibilities, but

should rather devise an open, comprehensive and flexible coordination mechanism. Moreover, progress reports should be studied carefully and digested, and any problems identified from such reports should be brought up for discussion in the appropriate forum. All discussions and decisions made together with subsequent action should be properly documented.

VII. Programme Management

14. **Use of well-defined critical milestones as ‘project decision points’** - There should be established targets and critical milestones incorporated into baseline implementation plans and contracts. Milestones should be integrated with scope control documents and programmes, and must be rigorously controlled. If a critical milestone is missed or forecast to be missed by a certain threshold value, the Project Management Office should be in a position to order an impact study or a risk assessment to determine possible ‘workarounds’, such as resequencing or acceleration, based on the invariable assumption that unless ‘workarounds’ are available and authorized, the opening date will be delayed by at least a corresponding duration as the milestone is missed. The burden of proof to overcome this assumption will rest with the project team.

15. **A master programme for overview and tracking of progress** - A project should proceed on the basis of a master programme that links activities together and allows progress and impact of delays to be measured. Without it, formal programme risk assessment cannot be conducted. The delivery agent must provide the Project Management Office with a comprehensive master programme setting out the resource requirements, updated and statused on a regular basis for control and monitoring purpose. Where applicable, the master programme should incorporate key dates for awarding contracts in time to meet the project completion date and key transitional activities such as progression from construction to operation.

16. **Critical item reporting** - The flow of information from the delivery agent to the Project Management Office and from the Project Management Office to the Steering Committee must be complete and honest. There should exist a mechanism whereby critical items are identified and reported on with follow up actions taken as a matter of course. It will be a prime function of the Project Management Office to ensure that such a system is in place and is strongly enforced.

VIII. Managing the Transition from Construction to Operation

17. Transitional activities such as testing, commissioning, training and trials should be coordinated by the executive agent for the project on a comprehensive basis (i.e. all key operators included) as part of the master programme. There should be ample time allowed for each phase of the activities. Any compression of the timetable should be critically reviewed by the Project Management Office and the operation team. The entire process should be carried out under the overall charge of an officer with suitable experience in project management or with close professional support.

IX. An International Perspective

18. Use of international experts should be considered if local resources are not available. A degree of ‘networking’ with overseas authorities, overseas visits and, where appropriate, some international ‘benchmarking’ should be considered.

X. Use of an Auditor

19. In addition to the regular monitoring system, the Project Management Office and the delivery agent should also consider separate auditing of the project, either on an ad hoc or regular basis as an additional safeguard on top of the regular monitoring mechanism. The auditor can be drawn from within the organization or from outside to carry out the independent function. It will be necessary for the auditor to be guaranteed access to full information on the project so that he can be authorized, for example, to certify certain key activities such as trials or tests. Care should be taken to avoid confusion of roles or duplication of efforts.

XI. Risk Assessment and Contingency Plan

20. At the final stage of the project and in good time, the operation team should consider an overall risk assessment. Comprehensive contingency plans, prepared in consultation with all concerned parties and fully tried out, should exist to deal with unexpected situations with particular attention to the possible ‘snowballing’ effects of relatively minor problems. It should be the responsibility of the Project Management Office to oversee the work of all concerned parties in these areas.

XII. Community Support

21. Effort should be made to seek and maintain the support of the community for the project. This process can become a source of useful feedback on the future operation of the project. Publicity activities however must not be allowed to interfere with project work, particularly when time is at a premium. Where public expectations run high, care should be taken to forewarn that for huge and complex projects some minor difficulties at the commissioning stage might be unavoidable.

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of the three inquiry reports on the opening of the new airport**

Aircraft Noise

Introduction

At the Joint Meeting of the Legislative Council Panel on Economic Services, Panel on Home Affairs, Panel on Planning, Lands and Works and Panel on Public Service held on 14 April 1999, Members requested for information about the measures being implemented by the Civil Aviation Department (CAD) for minimising aircraft noise. This paper appraises members of the current situation on the subject of aircraft noise and provides information on the noise mitigating measures.

Measured Noise Levels

2. Since the opening of the new airport in July 1998, CAD and the Environmental Protection Department have conducted noise monitoring measurements in several districts under the flight paths. The measured noise levels are summarised as follows-

District Noise Level [dB(A)]	Shatin	Kwai Chung	Tsuen Wan	Tsing Yi	Ma Wan	Sha Lo Wan	North Point
$L_{max} < 65$	66.0%	43.5%	18.3%	17.1%	3.0%	14%	48%
$65 \leq L_{max} \leq 70$	26.8%	47.8%	55.1%	57.6%	46.0%	35%	38%
$70 \leq L_{max} \leq 75$	7.2%	8.7%	25.7%	25.3%	48.0%	36%	14%
$L_{max} > 75$	0%	0%	0.9%	0%	3.0%	15%	0%

Note: L_{max} is the maximum instantaneous noise level of a noise event.

3. Based on the measured noise data, the Noise Exposure Forecast (NEF) figures for the affected districts are as follows:

	<u>Preliminary NEF</u>	<u>Ultimate NEF at Design Capacity</u>
Shatin	14.3	below 15
Kwai Chung	15.6	below20
Tsuen Wan	17.5	below20
Tsing Yi	19.2	below20
Ma Wan	20.7	below25
Sha Lo Wan	27.5	above 25
North Point	14.8	below15

4. The above results show that with the exception of Sha Lo Wan, all other residential areas are outside the NEF 25 contour (NEF 25 is the planning standard set for the new airport which is more stringent than NEF30 for Kai Tak Airport). This is in conformity with the results of the Environmental Impact Assessment conducted by the Airport Authority before airport opening. Residents at Sha Lo Wan have been offered ex-gratia payment.

5. Some of the noise measurements mentioned in paragraph 2 above were conducted together with residents and members of the Legislative Council or Provisional District Boards. Moreover, since airport opening, briefings on aircraft noise and flight paths have been given to 9 Provisional District Boards namely, Kwai Tsing, Shatin, Tsuen Wan, Central & Western, Kowloon City, Southern, Yau Tsim Mong, Wanchai and Eastern.

Aircraft Noise Mitigation Measures

6. Despite the findings that there is no violation of the noise standards set for the new airport, CAD is mindful of the public concern. As the new airport is operated on a 24-hour basis, CAD has taken the following measures to reduce the aircraft noise impact at night time since September/October last year:-

- a) aircraft arriving after midnight will be arranged to land from the southwest, subject to acceptable wind direction and strength as well as the pre-requisite that flight safety will not be compromised. This aims to reduce the number of aircraft overflying districts like Shatin, Kwai Chung, Tsuen Wan and Tsing Yi; and

- b) aircraft departing on Runway 07R during 0001-0700 hours will be arranged to use the southbound route via the West Lamma Channel, subject to operational and safety considerations, thus avoiding the need to overfly the populated districts in Kowloon and Hong Kong Island such as Hung Hom, Causeway Bay, North Point and Chai Wan.

7. In regard to paragraph 6(b), after considering the views of the concerned residents, CAD has conducted a detailed assessment and advanced the timing from midnight to 2300 hours for all departures on Runway 07R via the West Lamma Channel effective from 7 January 1999.

Monitoring of Implemented Measures

8. CAD has closely monitored the implementation of the noise mitigation measures set out in paragraphs 6 and 7. The monitoring results are summarized as follows:-

- a) Measure: to require aircraft arriving after midnight to land from the southwest when wind conditions and traffic situation permit.

	1998			1999		
	Oct	Nov	Dec	Jan	Feb	Mar
Total number of arrivals during the period 0001 to 0700 hrs	335	365	366	351	302	329
Total number of aircraft landed from the southwest	318	362	357	346	301	306
Percentage of Compliance	94.9%	99.2%	97.5%	98.6%	99.7%	93.0%

- b) Measure: to require aircraft departing on Runway 07R during 0001-0700 hrs* to use the southbound route via the West Lamma Channel.

	1998			1999		
	Oct (20-31 only)	Nov	Dec	Jan	Feb	Mar
Total number of aircraft departing on Runway 07R during the period 0001-0700 hrs*	134	334	334	512	515	454
Total number of departing aircraft using the southbound route during the same period	134	329	331	508	510	448
Percentage of Compliance	100%	98.5%	99.1%	99.2%	99.0%	98.7%

* The period was revised from 0001-0700 hrs to 2300-0700 hrs with effect from 7 January 1999.

9. A very high percentage of compliance has been achieved during the period. The noise mitigating measures could not be applied only on a small number of occasions due to various operational reasons including prevailing wind conditions, maintenance of navigation aids prior to flight calibration, or air traffic conflict.

10. Since the opening of the new airport the number of complaints has dropped from a daily average of 20 in the first month to less than 2 in recent months. However, CAD will continue to implement the noise mitigation measures vigorously. In addition, liaison with airlines is being effected to implement ICAO noise abatement take-off procedures to further reduce aircraft noise on the departure flight paths to the northeast of the airport.

11. The measures described in para. 6 above had been explained to the two specialist advisers on aircraft noise engaged by the Legislative Council Select Committee to inquire into the circumstances leading to the problems surrounding the commencement of the operation of the new airport. As noted in para. 6.46 of the report of the Select Committee, the two specialist advisers confirmed that

the measures adopted by CAD had been effective and were in accordance with international best practice.

Second Runway

12. When the second runway becomes operational, the two runways will normally be operated in a segregated mode, i.e. the southern runway dedicated for departures and the northern runway for arrivals. However, there are circumstances where the airport will be operated with a single runway, for example, in the event of runway blockage or during maintenance work after mid-night. When more operational experience has been gained and the air traffic demand increases, an integrated mode of operation, i.e. both runways used for departures and arrivals, will be considered. Under the segregated mode of operation, the new arrival flight path of Runway 25R, which is parallel to Runway 25L but at a distance of about 1.5 km to the north, will overfly residential areas in Kau To Shan, West Tsuen Wan, Sham Tseng and Tsing Lung Tau (see Annex).

13. The Environmental Impact Assessment conducted in 1991/92 and its update completed in 1998 included assessment on aircraft noise impact arising from the operation of both runways at design capacity. According to the assessment, only a very small number of residents in North Lantau would be within the coverage of the NEF25 contour at design capacity. The noise arising from overflying aircraft in areas under the flight path of the second runway would be similar to what is experienced now in Shatin, Kwai Chung, Tsing Yi and Ma Wan as described in paragraphs 2 and 3 above.

14. The second runway is expected to be available for partial use (i.e. during certain hours of the day) in late May 1999 and full operational use in August 1999. CAD started to brief Provisional District Boards of affected areas such as Shatin, Tsuen Wan, Kwai Tsing and Tuen Mun from March. Altogether 12 Provisional District Boards have been briefed.

15. An aircraft noise and flight track monitoring system has been in place to help evaluate the track keeping performance and noise impact of aircraft operating to and from the new airport. A total of six noise monitoring terminals have been installed at Sha Lo Wan, Tung Chung, Sham Tseng, Tai Lam, Tsing Yi and Tai Wai. In order to enhance the monitoring of aircraft noise including that arising from the second runway operation, action has been taken to procure and install additional noise monitoring terminals at populated districts under the flight paths. This is being implemented in two phases. Phase 1 comprises the installation of terminals at Mid Level in Central, North Point and Shaukeiwan and the work was completed in March. Phase 2 installation is ongoing at West

Tsuen Wan, Tsing Lung Tau and Tai Lam Chung and the work will be completed in May.

16. After the opening of the second runway, on-site noise measurements will be conducted in areas under the new flight path. In addition, the noise mitigating measures as mentioned in paragraphs 6 and 7 above will continue to be implemented vigorously.

Civil Aviation Department

3 May 1999

Dual runway operations for the new airport

新機場雙跑道分隔模式之航道

