A Brief Introduction to Arbitration

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Introduction

The intention of this article is to provide a brief introduction to arbitration, address some key points on arbitration procedure and practice and the likely involvement of the quantity surveyor in the arbitration process.

What is Arbitration?

Arbitration is essentially a process in which parties in a dispute can refer the matter to an independent and neutral third party to decide the outcome based upon the evidence provided by witnesses of fact, documents and experts. This independent and neutral third party, or arbitrator, will generally have extensive experience in the field to which the dispute relates, in addition to having a sound basic knowledge of contract law, the law of tort, arbitration law and practice. In many cases the arbitrator will be a qualified architect, engineer, surveyor, lawyer or builder.

Arbitration or Litigation?

Arbitration is considered by many to be more preferable to litigation because of privacy, flexibility, speed and cost of the process.

1. Arbitration is private as:-
   a) the proceedings are not reported and there are no public records; and
   b) the arbitrator's award is not published.
2. Arbitration is more flexible in that:-
   a) a suitable arbitrator may be chosen on the basis of expertise, reputation and experience relevant to that of the issues in dispute;
   b) the proceedings, subject to agreement, can be conducted in the way which the parties decide themselves; and
   c) the arbitrator controls not only the arbitration hearing, but also the preparatory work before the hearing.
3. The speed of arbitration may be assisted as:-
   a) arbitration is considered to have fewer procedures and formalities to follow than litigation;
   b) the arbitrator may be chosen according to availability as well as technical expertise and knowledge; and
   c) the arbitration hearing can generally be set at an earlier time than with litigation, as hearings in litigation generally take longer to reach the courts.
4. The cost benefits of arbitration are:-
   a) the arbitrator has a duty to keep the cost reasonable as the arbitrator is able to control:-
      - the extent of preparatory work to be undertaken; and
      - the length of the hearing, subject to the agreement of the parties.
   b) in most cases, legal representation can be optimised and in some simple cases is not required at all.

However, having considered the cost benefits of arbitration, it is worth remembering that an arbitrator is not appointed by the government or local authority, as in the case of a judge when dealing with litigation, and, therefore, the arbitrator requires payment. Clearly, this is one area in which arbitration cannot be considered as being more economical than litigation.

Similar to judges in litigation cases, arbitrators make legally binding decisions which are final and enforceable in a court of law. This differs from other alternative forms of dispute resolution such as mediation.

For instance, in the case of mediation, the mediator endeavours to get the parties to negotiate and reach a settlement between themselves. Mediators do not have the power to make enforceable decisions, however, the parties can make a settlement agreement between themselves which, if properly drafted, would be enforceable by the courts.

The Quantity Surveyor's Involvement

The majority of quantity surveyors involved in arbitrations will probably find themselves in the role of a witness of fact or possibly an '*expert witness*'. A relatively small number of quantity surveyors may actually train and qualify to act as an arbitrator, although in essence, an arbitrator can be anyone who is considered suitable to arbitrate a dispute.

The Role of a Witness

The role of a witness is basically to give evidence relevant to the issues in dispute. The witness's evidence is usually in the form of a written statement, which is recorded by the solicitor representing the party for whom the witness has been called. The witness is

usually then required to attend the arbitration hearing to be questioned by the party calling the witness and be cross-examined by the opposing party.

Witness statements are usually taken some time after the occurrence of the events for which the witness is giving evidence. Hence, there may be some disparity between what a witness recalls about an issue and includes within the statement and what the opposing party considers relevant to the course of events.

In addition, it is not unknown for a witness to embellish evidence in support of the party calling the witness. Thus, examination of the witness seeks to eradicate any doubts about the character of the witness and about the authenticity of the witness's statement.

The Role of an Expert Witness

Expert witnesses are often engaged by each of the parties in disputes to give opinions and assist the tribunal, on certain issues relating to matters upon which the expert witness is considered to have the necessary expertise. Whilst an expert witness need not be formally qualified, he or she must be experienced and knowledgeable in the particular field in which evidence is being given.

Depending upon the type and complexity of the issues in dispute, a number of expert witnesses may be engaged by each of the parties to prepare separate reports on the different matters in dispute. Such matters in a typical construction dispute may be related to and include such topics as programming, progress, the true causes of delay, quantum, defects, financing, variation works, prolongation costs, liquidated and ascertained damages and general damages.

Discovery

Discovery is the process in which each party discloses to the other documents which are relevant to the issues in dispute and "*which are or have been in* (a party's) *possession, custody or power*". Such documents are generally those which the party intends to produce and rely on at the hearing. This allows each party to inspect what the other party has in their possession in respect of evidence. The objective of discovery is to enable the full facts to be reviewed by both parties. It should be noted that this evidence does not only relate to the general correspondence between the parties but also extends to internal documents including confidential records, letters, tape recordings/videos, computer programmes and material stored on computer (including e-mails). Under Hong Kong law, each party must disclose to the other all documents that are in that party's possession and which are relevant to the issues in dispute, even though some documents may be unhelpful and/or unfavorable to a party's case.

Whilst the process of discovery is usually carried out by the solicitor, the expert witness ought to be made aware of all documents in discovery which may affect the expert's opinions.

Inspection

Each party has an entitlement to inspect and obtain a copy of the other party's documents disclosed in discovery. However, there are a number of documents which are exempt from this entitlement, which are:-

- documents which the parties no longer have in their possession; and
- privileged documents (e.g. legal advice).

The volume of documentation generated on the majority of construction projects of reasonable size and duration is significant. Hence, despite the best efforts of all parties concerned to keep the paperwork relating to the disputes to a minimum, the volume of material made available for inspection (e.g. by the experts) is usually very significant and consequently time consuming to review.

The Arbitration Process from an Expert Witness's Viewpoint

Reports prepared by the expert witnesses are normally exchanged prior to the arbitration hearing in order that the opposing sides may have sufficient time to review the reports and where necessary raise queries, undertake further investigation, and even agree on facts and figures. Sometimes the appointment and views of an expert witness lead to the disputes being settled in advance of and, therefore, without the requirement for a hearing.

Prior to the arbitration hearing it is normal for the expert witnesses from both parties to meet to attempt to reach agreements and reduce the scope of the issues in dispute. This meeting can take place before or after the exchange of reports. Generally, this meeting is held '*without prejudice*' with the intention to agree as much '*common ground*' as possible. A typical meeting of quantum experts may involve the agreement of such issues as:-

- quantities;
- arithmetical calculations;
- alternative figures should different scenarios arise; and/or
- the correct application of rates.

Wherever possible figures should be agreed as figures and liability left for the arbitrator to decide upon.

Such a meeting of experts often saves time in that certain items, such as those items listed above, and to a lesser extent matters of principle, can be agreed prior to the hearing, thus saving time in the hearing itself, since such issues need not be re-

addressed at the hearing with both parties and the arbitrator present.

In some cases, the arbitrator may even direct that a joint report be issued by the experts. This report should aim to reduce the number of issues in dispute and clearly set out which issues the experts are unable to agree.

The Arbitration Hearing

The participants in a typical construction arbitration hearing comprise the arbitrator and, representing each side, the parties' legal representatives, the respective parties and when required, the witnesses and/or expert witnesses. Barristers or counsel are normally engaged by the parties to present their party's case and question the witnesses.

A typical hearing will follow the following agenda, led first by the claimant presenting their case, followed by the opposing party presenting their case:-

1. **Opening statements –** these will include an outline of the facts, the party's case and legal submissions;
2. **Factual witnesses will be questioned by both parties:-**
   - **Examination-in-chief** by the party leading the evidence is first. Questions are restricted to matters set out in the witness statement. Leading questions which give the answer (e.g. *Mr. Architect, you did not certify any extensions of time because the Employer told you not to*?) are not allowed unless to rebut evidence by a witness called by the other party.
   - **Cross-examination** by the party opposing the first party follows next. The objective here is to show inconsistencies, bias, poor recollection or even lies in the witness's evidence. Leading questions may be asked.
   - **Re-examination** by the party leading the evidence is next in the sequence. The questioning is restricted to matters arising out of cross-examination (e.g. *Mr. Architect, you said that you did not certify any extensions of time because the delaying events did not qualify under the contract…could you please clarify what you meant by this*?). Leading questions are allowed.
3. **Expert witnesses –** The same sequence in which evidence is led (i.e. examination-in-chief, cross examination and re-examination) also applies to expert evidence.
4. **Closing statements –** These will include a summary and closing by counsel of each party's case having heard the evidence and each party's case.

Conclusions

Arbitration is not an easy way to settlement. The process normally takes considerable time, uses considerable resources, and usually involves large expense.

These pressures often force decisions to be made which result in the early settlement of some of the disputed issues.

In some cases, the parties may reach a settlement before any evidence has been given. This results in fewer issues actually being addressed in the hearing than those initially anticipated or addressed in the expert reports.

Unfortunately, in the majority of cases, arbitration can be like a roller coaster ride. Why a roller coaster? Well, the parties have no control over the journey or its outcome, once aboard it is difficult to get off and it can be an expensive ride if not managed properly!

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The Importance of **Keeping (and Verifying) Records**

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Contract Administrators are continually requiring contractors to produce more and more information in support of their claims for reimbursement of loss and expense or costs incurred due to prolongation or disruption of the works. In my experience these requirements can sometimes exceed the reasonable. For example you don't need the ID Card number, bank account details etc of every member of staff for whom costs are being claimed as was requested on one project I have recently worked on.

Ascertaining loss and expense or costs is not an accountancy or audit exercise, it is an exercise in which it is expected that the Contract Administrator will use his professional judgment and experience to ascertain the sums due from the information provided to him.

However, notwithstanding this point it is clear that the better the records kept by the contractor the better able the Contract

Administrator will be to make a reasonable ascertainment of the contractor's true entitlement, and indeed most forms of contract set out requirements for the contractor to keep proper records and for such records to be checked by the Contract Administrator.

Such requirements may be general such as Government General Conditions of Clause 64(3) with regard to claims for additional payment:

The Contractor shall keep such contemporary records as may reasonably be necessary to support any claim and shall give to the Engineer details of the records being kept in respect thereof. Without necessarily admitting the Employer's liability, the Engineer may require the Contractor to keep and agree with the Engineer's Representative any additional contemporary records as are reasonable and may in the opinion of the Engineer be material to the claim. The Contractor shall permit the Engineer and the Engineer's Representative to inspect all records kept pursuant to this Clause and shall supply copies thereof as and when the Engineer or Engineer's Representative shall so require.

or specific such as Government General Conditions of Clause 62(4) with regard to dayworks:

In respect of all work executed on a daywork basis the Contractor shall during the continuance of such work deliver each working day to the Engineer's Representative a list, in duplicate, of the names and occupations of and time worked by all workmen employed on such work on the previous working day and a statement, also in duplicate, showing the descriptions and quantity of all materials and Constructional Plant used thereon or therefor. One copy of such lists and statements shall be agreed as correct or be rejected with stated reasons, be signed by the Engineer's Representative and returned to the Contractor within 2 days exclusive of General Holidays.

These provisions and ones like them are of course entirely sensible, but what is the evidential value of such records? Well the recent case of **JDM Accord v The Secretary of State for the Environment, Food and Rural Affairs** may cast some light on this matter.

The claimant, JDM contracted with the Ministry of Agriculture, Fisheries and Food, in the United Kingdom to construct burial sites and infrastructure works for use as a result of the Foot and Mouth outbreak in 2001 on a cost plus basis.

JDM claimed for reimbursement in respect of its works. Their claims, totalled in excess of £5 million, and arose out of works carried out on over 160 different sites in the south west of England and in Wales.

Under the contract JDM were to be paid a reasonable rate for such labour, plant and materials as it provided, and the provisions of the contract anticipated that the Ministry would have a nominated representative based permanently on each site who would record the times and activities carried out by each employee and each item of plant engaged by JDM. A timesheet would be signed each day by that representative and a nominated employee of JDM.

The verification procedure was intended to prevent disputes as to the number of chargeable hours actually performed. Although jointly signed timesheets would not amount to conclusive evidence of JDM's entitlement to payment for the particular number of chargeable hours recorded on any timesheet, the Ministry would only be able to challenge the content of the timesheets for payment purposes to the extent that it could later produce evidence to show that an inaccuracy or error had occurred.

However, the outbreak of the disease was of such severity that the Ministry were overwhelmed by the scale of the spread of the disease. The size of the operations can be judged by the fact that JDM were one of over 1200 contractors engaged upon similar works throughout England and Wales.

As a result many sites had no Ministry representative, and on most sites no timesheets were verified or authenticated by a Ministry representative.

The Ministry refused to settle JDM's claims and alleged that the timesheets produced by JDM were unreliable.

The matter went to the Technology and Construction Court where his Honour Judge Thornton QC refused to accept the Ministry's position.

The judge considered that by failing to verify and sign the timesheets, the Ministry was in breach of contract, and he took the view that it would be wrong to allow the Ministry to take advantage of its breach of contract such that it could make a more extensive challenge to the timesheets than it could have done following their verification. Having failed to challenge the timesheets at the time of their submittal the Ministry now carried the evidential burden of showing that the contents of the timesheets were inaccurate.

In practical terms, since there were no other records made, this meant that the Ministry was restricted in its attack on the timesheets to showing that they contained arithmetical or other patent errors, that they were subject to some general error, such as not allowing for deductible meal breaks, or were fraudulently produced such that no weight could be placed upon them.

In conclusion, the judge considered that the timesheets should stand, without further proof, as accurate and reliable evidence of the number of chargeable hours worked by JDM and their content would only be capable of being discounted if the Ministry

produced significant credible evidence as to how or why a particular group of timesheets were to be considered inaccurate.

Whilst this case was decided on its specific facts it has a general significance because it emphasises the importance of properly implementing whatever verification process has been agreed between the parties. Whilst an employer who signs daywork sheets will generally be bound by them, this case also indicates that an employer who fails to sign such records, where the contract provides that he must do so, takes on a high evidential burden of proving the records are incorrect if he subsequently wishes to dispute them.

Resumption of Common Area in a Strata Title Development – **Establishment of Titles and Communication with Claimants**

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The Government can implement resumption on private lands when required for public purpose. Lands resumed are not bounded by agriculture lots in the New Territories or dilapidated buildings in an urban renewal project. It might happen to the common areas of a strata-title development, such as a mass residential estate. Types of common areas resumed include slopes, landscaped gardens, access roads and pavements, and normally do not involve structure of buildings. Notwithstanding the Government's attempts to exclude such common areas from resumption schemes, sometimes they cannot be avoidable in a road widening scheme of a populated area. In handling with this resumption case, attentions are paid since its procedure and assessments of compensation are unlike to conventional resumption of agricultural lands.

Establishment of claimant's title

Under current legislation, two kinds of bodies can submit claims to the Government for compensation. The first one is the legal owner of the resumed land who has his name registered in the Land Registry. The second one is any party which has interests on the resumed land other than registered owners, and such resumption could impair his rights.

For a single owned property, there is a mere difficulty to establish who the registered owner is. The one's name appearing in the Land Registry, or his agent/ representative when he is dead or bankrupted, is considered as the registered owner. For a strata title property, the establishment becomes more complicated.

The ownership structure of a strata title property comprises a number of owners registered under undivided shares. Physical allotment of the lot for each owner is impossible and their rights, liabilities are regulated by a Deed of Mutual Covenant (DMC) signed by the developer, the first purchaser and/or the management company. A DMC states the exclusive use area of a residential flat owner and it does apply to car parking spaces and shops. But how about common areas? Basically, there are two types of provisions in a DMC governing the ownership of common areas.

One is no explicit provision stating the title and share for common areas. In this case, all owners are presumed to be the registered owners of the common areas, and they could be free to use and no one could refrain others from using the common areas. They are eligible to receive compensation. If an Incorporated Owners (IO) has been formed, the case would be simpler because it has legal powers to represent all owners to manage the matters within the development, provided that resolutions may be passed in an IO meeting when substantial issues are dealt with. If an IO does not exist or only a owners' committee (OC) is formed, it may not be as simple as expected.

No party, neither the management company, is able to stand for the legal position of all owners unless an IO is formed. Legally speaking, each owner could submit his claim to the Government if he intends to do so. If a development comprises several hundreds or over thousands of owners, the Government is required to treat and consider each claim individually. Management Company may act as an agent itself or authorise a surveyor assisting the claims, but an authorisation from each owner must be obtained. In reality, the chance to obtain all authorisations is nearly non-existent. One reason is that the composition of owners in a development is dynamic. Everyday a number of transactions and assignments are conducted. It is difficult to obtain authorisation and report the progress to the owners who have legal titles at resumption date. Another factor is that some units are vacant and owners seldom return. They may not be notified even after the claim period has lapsed.

The other type of provisions is explicit information stating in a DMC that a portion of undivided shares is assigned to the common areas. For example, a development with 9 residential

units has 10 undivided shares in total, 9 shares with 1 share for each residential unit and 1 share for common areas. The common areas' share is often owned by the developer and registered in the Land Registry. From the statutory point of view, the registered owner of the common areas is the developer, not the strata title owners.

In a conventional DMC, despite the ownership of the common areas, strata title owners' rights to enjoy and to access the common areas cannot be deprived. The developer does not have rights to expel strata title owners and to fence up the common areas for its exclusive use, though it is the registered owner. Therefore in the daily operation, that the developer owns the common areas does not cause any abnormality and irregularity on the allocation of use and enjoyment among owners within the development.

Nevertheless, the implementation of resumption forces the developer and strata title owners to recognise their respective legal interests on the common areas. Under the Land Registry, the developer is the legal owner of the common areas therefore it claims the compensation under the position of "registered owner on the resumed land". Its legal titleship is removed by the resumption. On the other hand, the strata title owners, unfortunately, are not registered owners and they are not able to claim in the same position as the developer. But their interests of enjoyment of the common areas are undoubtedly taken away. Thus, they might still claim under "other parties which have interests on the resumed land" to compensate their loss under the resumption.

Inevitably, the situation grows more sophisticated and time consuming when strata title ownership is involved in the resumption, particularly apparent when the resumed portion is not substantial and the compensation amount is small. Perhaps a more causal point to simplify the case could be taken. Strata title ownership in a development is an undivided one, which cannot be physically partitioned from the lot. Although their respective rights and areas of occupation are identified in the DMC, all owners own the lot collectively, and should not be assimilated to the sub-sectioning of a land. If this point of view is acceptable, the structure of strata title owners is a single entity and similar to an IO, and the entire amount of compensation amount can be forwarded to the representative of the strata title owners and developers and let him distribute among owners, rather than determined at the Government level.

Communication with claimants

While a resumption scheme is going to be commissioned, the Government will issue offer letters or invitations to offer to the appropriate parties such as IO, OC, management company and/or strata title owners. After receiving the invitation, rather than to put it aside, these parties may employ a surveyor to act for them submitting the compensation claims. In handling with these parties, there are a number of aspects different from those of a single owned development.

Instead of a single entity, a surveyor is facing a number of owners with bundles of opinions and critiques. Many ideas may come from their friends, relatives, other professional capacities such as lawyers or surveyors, or be created by themselves. Some of them are beneficial to the claims but many of them are not. A helpful management company can assist the surveyor to gather and filter such information. Attending IO or OC meetings is a must to report the progress and to answer enquiries about the compensation claims.

Resumption involving one's home is deemed to be a disturbance to the livelihood and environment of community. IO or OC would request District Councilors and/or officers from the Home Affairs Department to attend their meetings. Their existence may assist the surveyor to handle enquiries from owners but in some circumstances they may put unnecessary or political pressure on him.

Members of IO or OC are elected annually. Their attitude and composition might vary across the compensation progress, which could possibly last for several years. The members who are happy with the surveyor in the first year may not be necessarily the same in the third year. Discussion with the management company could help understand the new IO's or OC's background and also enhance the smoothness in the compensation claim.

Conclusion of compensation amount is not the end of story. As the compensation consists of owners' individual payments, how the payment is arranged is another issue to deal with. With the existence of IO, the compensation can be treated as an income of the development and put in the common account. For those which do not have individual payments to owners either from the Government or management company unavoidably involve hundreds of cheques, provided that such owners can be traceable. If not, the undeliverable payments can create another problem.

Resumption of common areas of a development is not so frequent compared with those of agriculture lots in the New Territories. However, each involves a number of different parties and may affect hundreds or over thousands of owners. It is understood that the Government, during the stage of sketching plans, endeavour to minimise the area of resumption. The impact from resumption to each owner, even involving small amount of compensation, must not be overlooked.

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Beijing Office Market – Feast or Famine?

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Current Market Trend

Beijing Economic Indicators

YEAR	1998	1999	2000	2001	2002	2003
GDP (YoY growth rate)	10.8	9.5	11.0	11.0	10.2	10.5
Real Estate Investment (YoY growth rate)	14.3	11.7	23.9	50.1	26.23	21.5
Actual Foreign Direct Investment (FDI) (YoY growth rate)	29.6	8.1	2.5	33.2	19.8	27.2

Source: Beijing Municipal Statistical Bureau, Vigers Research

Generally, the Beijing office market has remained fairly stable. From an investment perspective, investment sentiment has been buoyant with the support of steady economic growth. The investment market used to be dominated by domestic players and ethnic Chinese investors from Southeast Asia, however, domestic players still occupy the largest share of market development and are responsible for the majority of development projects. Considering that the economic integration between Hong Kong and Mainland China is becoming closer and closer, Hong Kong developers also play an important role in the Beijing office market.

The Beijing office market showed signs of recovery in the third quarter of 2003. During the SARS outbreak most companies adopted a wait-and-see strategy in respect of their relocation and expansion plans, and in response to the sluggish demand during the outbreak, the office market showed a downward adjustment. Following the abatement of SARS, foreign investors regained their investment confidence. Buoyant transactions were seen in the Zhong Guan Cun area; most office properties there are offered in the sales market rather than the leasing market.

Towards the first quarter of 2004, the average vacancy rate stood at 14% - a slight drop compared with the previous two years. This was attributable to the buoyant leasing market where multi-national companies within telecom, insurance, law and banking sectors were the most active. Yield ranged between 11% to 13%, which was relatively high, compared to that in other countries. Average monthly rents for Grade-A offices in the first quarter of 2004 were slashed 0.8% quarter-on-quarter to US$24.00 per sq. m. This indicates that the rentals decline has modestly narrowed as a result of improving demand for office space.

Snapshot of the CBD

The 5 major office centres in Beijing and their respective positioning can be outlined as follows:

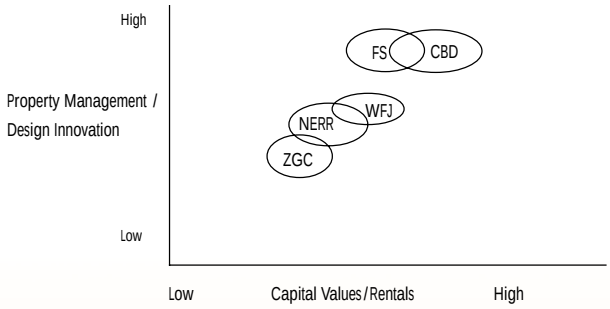
CBD : Central Business District

FS : Financial Street

WFJ : Wang Fu Jing

NERR : North East Ring Roads

ZGC : Zhong Guan Zun Area



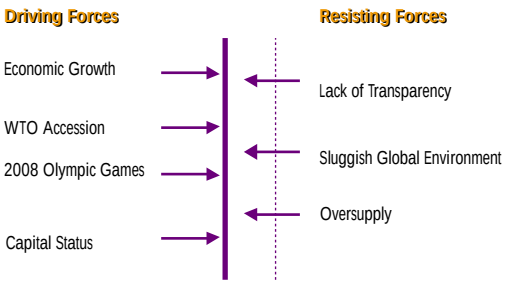
The CBD is traditionally composed of high-end developments of various ages and sizes. There is also good supply of fully furnished and serviced accommodation in the area. The wide belt of office properties stretches from the CBD and its fringe area, which is located at the east of the Forbidden City, contains more than 100 embassies, and has the best infrastructure and direct motorway link to the Beijing International Airport. The CBD is a mature office market in Beijing with a relatively long development history. Office properties remain concentrated in the CBD and its fringe area, which accounts for 30% of the total office supply in Beijing. The largest and most expensive office properties and most of the best hotels are located in the area. At the end of 2003, companies operating in the CBD reached a number of 2,363, of which 1,638 were either domestic companies or state-owned enterprises, the remaining 725 were foreign companies.

It is envisaged that there will be a continuing trend towards occupation by large organisations in the CBD rather than the

conventional client base of small start up companies. In mid 2000, the Beijing Municipal government endorsed the revised plan and organised an international design competition for the CBD. The current proposed CBD will allow new developments of 6.9 million sq. m., with approximately 50% of offices, 25% of residential space and 25% for other purposes. It is expected that more than 3.45 million sq. m. prime office space situated in the CBD and its fringe area will be added to the market in 2008. Supply of office space in the CBD is continuing to increase and this is expected to continue to enhance competition.

Stimulants & Obstacles

1. **Forcefield Analysis**



2. **Driving Forces**

i) Economic Growth

Beijing is one of two international business cities in China due to its capital status, enjoying the rapid development of its economy and infrastructure. Economic growth engenders demand for commercial office space due to corporate expansion and new businesses set up. The national economy is expected to remain strong in 2004 with real GDP growing by at least 8%. For the past seven years, China has been the second largest recipient of Foreign Direct Investment (FDI) in the world after the United States. Investment from abroad helps create jobs and drive economic growth. On 31 December 2003 the Beijing Municipal government approved 19,759 foreign enterprises.

ii) 2008 Olympic Games

In 2001, China won the bid for hosting the 2008 Olympic Games in Beijing, which further boosts the development plans for the next ten years. An initiative prescribed under the development plans is the designation and construction of the Central Business District (CBD). The development of a new CBD will enable Beijing to become the national hub of business administration.

iii) WTO Accession

Beijing's office market has witnessed significant recovery and dynamics since China's entry into the World Trade Organisation in 2001. The accession into the WTO has presented immense opportunities for both domestic and international investors. Foreign funds have already started to flow into Beijing's office market. The WTO has not only brought much more foreign capital into China, but it has also induced a more competitive business environment. In order to outsmart foreign competitors and enhance their competitive advantage, domestic companies and state-owned enterprises have become more aware of the importance of revitalising their operations.

Being committed to the WTO entry agreement, the government has to open the market to foreign competition by removing the barriers on more business spectrums in China, including the finance and insurance industry. The composition of the economy also impacts on office demand. The gradual shift in the Beijing economy towards IT, consulting or financial-based businesses, rather than manufacturing, has clearly had an impact on the nature of demand for commercial office space. It is believed that the potential growth of the banking, finance and insurance industries will act as traction for the office market. The finance and insurance industry now accounts for 14.2% of the city's GDP.

iv) Capital Status

Due to its status as the capital of China and one of the powerhouses of China's economy, Beijing's property market is always under relatively strict government control to monitor its pace and structure. It is also treated as other mainland cities' benchmark. Some of the policies and regulations enacted by the government are able to ensure a healthy market and effectively combat overheated speculation. Recently, the government issued official notices in relation to the curtailment of land supply and restrictions on property financing activities in an attempt to regulate the operation of the current property market. Under the notices, land supply for high-end offices will also be under control. It is believed that this could help to promote and achieve equilibrium between office supply and demand.

3. **Resisting Forces**

i) Lack of Transparency

Beijing office development is, to some extent, politically oriented instead of market oriented. The office market has been traditionally characterized by the intervention of government policies, which directly affects the performance and operation of the market. The barrier in office investments in Beijing largely depends on whether

the Beijing government can provide a transparent and fair land market and planning control system. If so, opportunities are available to international investors, who can benefit from the steady growth of the office market by financing and purchasing office developments.

ii) Sluggish Global Environment

The Beijing office market carries a heavy share of the global economic slowdown. The continuing sluggish global economy has resulted in low levels of business confidence for the US, Japanese and German companies. Therefore, a global economic difficulty in the past couple of years has hampered demand of office occupation, which resulted in halting expansion plans, cost cutting, redundancies, and price discounts in the long term. Although the global economy has recently seen signs of recovery, the pace of recovery continues to exert an important influence over corporate decisions of mult-inational companies over commercial property decisions, influencing the decision to buy, lease, rent or utilise office facilities.

iii) Oversupply

Apart from the influences from the global economic climate, oversupply also constitutes barriers of growth to the office market. A large quantity of new spaces entering the market exerts pressure on both capital values and rentals. As government departments do not have a good record in planning control systems, a state of chaos in office supply has emerged in the market on several past occasions. The mismatch of demand and supply still exists in particular regions like the Zhong Guan Cun area, where a large amount of supply is expected to come onto the pipeline in 2004. Capital values and rentals are expected to come under pressure.

In response to the oversupply in particular regions, the central government has taken steps to provide more comprehensive measures to regulate the operations of the property market. Regulations have been enacted to curtail land supply and restrict bank loans.

Outlook

Though fixed asset investments are likely to decelerate as a result of the government's concern about the overheated economy and mounting non-performing loans, the Beijing office market is likely to remain stable throughout 2004 and will be left to deal with the macroeconomic adjustment. It is also believed that after a transient adjustment the market will grow steadily and there will be sufficient demand to offset this decline in activity. The absorption rate is likely to increase in the near term while increasing demand is likely to push up the rentals.

全球衛星定位系統（GPS）- 為龍舟賽事精確測定賽道範圍及距離的重要工具

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全球衛星定位系統（Global Positioning System - GPS）是由美國政府國防部開發的定位技術，現已是一套免費的民用系統（發展初期只限作軍事用途）。

整個系統，是以分佈在兩萬公里（20200 km）高空的超過２４顆衛星（Satellites），利用高頻的無線電波向地球表面２４小時不間斷的廣播他們的軌道資料，而地面上的接收機（Ground Receivers）便接收這些從太空中不同方位直接傳送過來的資料，計算所在地的座標（Coordinates），所用到的原理就是三角幾何測量原理，也就是說必須至少接收到三顆不同方位的衛星資料，才能計算出我們所要的資料—三維座標值（3-Dimensions Coordinates : Horizontal - X & Y Coordinates ; Vertical - Z Coordinate），利用這個座標資料，我們就能輕易的配合地圖（Map）來標定我們自身所在的位置。

只要用上一台接收機（One Receiver），精確度已經能夠達到數十米範圍。在最近的戰事中，美國便在每支巡航導彈（Missiles）都裝配了一台微型 GPS 接收機，再配合慣性導航系統（Inertial Navigation System - INS），目標細如小平房也能準確地擊中。

在測量的領域中，因要求更高，往往會同時用上二台接收機（Two Receivers），將數十米的誤差作進一步修正（Correction ，將精確度提高到 1 米至 1 厘米（1 m to 1 cm accuracy）範圍。香港測量師學會便是應用了其中一種修正技術，名為實時動態技術（Real-Time Kinematic (RTK) Technology），為本年度的赤柱龍舟賽事精確測定賽道範圍及距離，令賽事變得更加公平，並得到報章及電台作廣泛報導，詳情請參閱這網址 http://hk.news.yahoo.com/040622/12/11e7b.html 。特別鳴謝梁守肫土地測量顧問有限公司借出儀器及協助是次賽道測量。