Introduction

The United Kingdom took approximately 200 years starting in the late 18th century to develop from an agrarian to an industrial economy with infrastructure development leading the way. The United States took approximately a hundred years beginning in the mid 19th century to similarly change with the way led by infrastructure development. Japan in the 20th century after the end of World War II then took approximately 50 years to develop into an industrial economy similarly being led by infrastructure development. At the beginning of the 21st century China is attempting to accomplish the same result in approximately 25 years, once again being led by infrastructure development. Yet, China is attempting to do so for more than the combined population of these other three countries. The Chinese labor force – approximately 750 million strong -- is more than twice combined labor force of the UK, US and Japan. China’s economical development is being tied to infrastructure development. The speed which China can provide such infrastructure will determine the magnitude of their success in achieving this goal.

The Air Transport Industry (ATI) is one infrastructure development area that today is essential for evolution of countries from an economically under-developed country to an economically developed country. According to the Air Transport Action Group (essentially an international promotional organization composed of airport owner/operators, airlines, and aircraft manufacturers), "aviation provides the only worldwide transportation network, which makes it essential for global business and tourism. It plays a vital role in facilitating economic growth, particularly in developing countries." [1] While it is arguable whether it is the only worldwide transportation network, the global impact on GDP (Gross Domestic Product is large, as shown in the following figure, accounting for US$ 330 billion of global GDP.
The ATAG also argues that the Air Transport compares most favorably to the average contribution by individual worker employed, as shown by the following figure:

![Graph showing contribution to World GDP (2004)](image)

Source: OEF, 2004
Given the importance of air transport and the relative ease and time required for infrastructure development (compared to other transport modes), airport construction is one sector of infrastructure development that is targeted as a major focus by the Chinese government. Some statistics give a framework to the magnitude of this focus. The World Tourism Organization estimated recently that China would be the fourth-largest international source of leisure travelers by 2020, predicting about 100 million international Chinese tourists that year; and the country to become the world’s top inbound tourist destination that same year. In fact, China already has the second largest number of airline passengers after the United States. The Civil Aviation Administration of China (CAAC) estimated passenger and cargo traffic to grow at an average of 14 per cent annually until 2010, with growth slowing to 11 percent annually from 2011 to 2020. The CAAC in 2005 reported the fleet strength of commercial aircraft would grow to 1,580 by 2010, up from the then current 863, before reaching about 4,000 in 2020. There are only 142 certified airports to serve a population of just over 1.3 billion. In comparison, the United States, with 270 million people, has 14,807 airports; and Australia, with just over 20 million, has 444. Of the 142 airports in 2006, only 25 are equipped to handle large aircraft such as the Boeing 747 thus accounting for 93.5% of total traffic – the other 85 handle fewer than 500,000 passengers a year. [2]

Regionally the CAAC plans are different. For example the CAAC plans to make Chengdu, Kunming, Xi’an, Wuhan and Shenyang regional hub. In further of this goal, Yunnan Province in the Southwest of China plans to invest more than 20 billion yuan (US $2.5 billion) in airport projects in the next five years (2006-2010), accounting for nearly one-seventh of the country’s total. This province thus will have 15 airports by 2010, an increase of 50% during the five year period. China announced as part of the National People’s Congress (NPC) in March 2007 a revised strategy for the western regions as part of the plans to address regional income disparity. The CAAC plans for China now include investing 52 billion Yuan (US$6.67 billion) for airport construction in the western regions from 2006 to 2010. Meanwhile, north China’s Inner Mongolia Autonomous Region, which is also included in the country’s West Development Strategy, will have 12 airports in 2010 and 18 in 2020. [3] This strategy is to meet the challenge reported at the same time by the Chinese Academy of Social Sciences, a government think-tank, that FDI (Foreign Direct Investment) in Western China as a share of the country’s total slipped from about 4.5 percent seven years ago to three percent in the past couple years. [4]

By all accounts airport construction looks good in China for the foreseeable future. The Chinese government, however, must find funding sources for all of the CAAC airport development plans. The CAAC says that as government funds airport construction, airport construction fees are a main source of income for the national coffers, and it is used for airport construction and expansion. The airport construction fee that the government has collected in the past 15 years was mainly used for solving the air transport situation in eastern China and for safety projects in the western China area. [5] The current levy level (50 Yuan per flight) cannot support the announced airport development plans so this creates a significant interest from private investment sources. All the projects, national or local, will offer investment opportunities for investors at home and abroad. One third of airport development is typically spent on procurement of airport equipment and systems. Thus, equipment and systems suppliers are one potential source of investment, but they typically do not invest. Another probable source is private airport operators. Most regional governments in China have created new airport corporations to manage and operate their airports and Centre for Asia Pacific Aviation (CAPA) believes this could be an important step in the evolution of airport management in China and possibly herald the privatization
of bundles or batches of airports. In fact, German airport operator Fraport owns a 25 percent stake in east China’s Ningbo airport. The bundling could be modeled on Beijing-based Capital Airport Holdings Co., the country’s largest airport company, which controls 16 airports and has a stake in another four valued at $8.3 billion. [6] Capital Airport Holdings is nonetheless a government owned company, thus the current situation is fraught with risks, and so the need to consider and discuss Risk Allocation.

**Risk Allocation Is Wholly Dependent On The Adequacy Of Risk Identification**

Risk typically is defined as an element or factor arising during project execution which inhibits or negates the achievement of stated project cost, schedule or quality goals. Risk is both a potential condition and a specific element or event which may result in that condition. Project Risk Management is composed of a systematic process by which risk elements or conditions may be identified, evaluated and avoided, mitigated or eliminated, in order to preserve the achievement of project cost, schedule, and quality goals. Project Risk Management is the common term for a systematic program by which a party to a construction project identifies, evaluates, and acts to avoid, mitigate or eliminate risk elements or factors which threaten the successful achievement of project cost, schedule, scope, quality, and goals.

Every party to a construction project holds a particular and unique position relative to the risks for which it assumes responsibility during the execution of that project. Construction in the global market recognizes two primary approaches to Risk Management:

- Traditional Insurance Risk Management, which is concerned with the management of the party’s insurance program (i.e. builders risk insurance, hazard insurance and liability insurance).
- Execution Risk Management, which is concerned with the management of specific events or conditions which may inhibit or prevent the achievement of project cost, schedule and/or quality goals (i.e. design defects and construction delays).

With regard to either type of risk, a fundamental principle that must guide risk allocation from the perspectives of the owner and the contractor is one of predictability. This concept may appear odd at first, but risk in engineering and construction requires a sense of predictability so that the parties know how to react and manage the risks that they face. Predictability is the foundation upon which many industries successfully contract for construction. Contractors generally expect the plans and specifications to be inclusive, when they are required to give a firm, fixed price. Owners, on the other hand, want to receive a constructed project that meets all of the defined scope for that same fixed price. But all of us know that engineered/constructed projects seldom meet what either expected at the beginning of the project. A perfect set of plans and specifications does not exist, and the one certainty is that all the planned conditions also will not be as expected. What both parties require, however, is a predictable pattern in “who” has the consequences “commercially” when risks arise, as they always do.

Since a contract is the primary means of providing such predictability, the contract must allocate the risks between the parties. This Risk Allocation is what many of the standard form contracts that are used globally provide – the predictability that all parties gain from a generally common understanding. It is not intended to eliminate disputes. Even if you do not agree with the allocation, practically all stakeholders generally believe that clear risk
allocation by the parties to a contract will enable the management of the risks. When the Risk Allocation cannot be understood, such as, an allocation of risk that is unusual, inconsistent, etc., then the stakeholders will not understand the Risk Allocation and therefore cannot manage it. For instance, the use of typical Standard Conditions of Contract, such as, the FIDIC “Rainbow Series” of contracts, the World Bank harmonized Multilateral Development Bank version of FIDIC, or industry-specific forms of contract, are based on legal principles of “mutual mistrust.” [7] Whether the contact is based in Civil Law or the Common Law, the almost universal basis of contracts in the global market is one of “mutual mistrust.” What is meant by “mutual mistrust,” for example, is that the owner believes that the contractor inherently will try and execute and deliver something less than that for which is obligated; that is, the contractor will provide less scope, quality and/or take longer. The contractor believes that owners will demand more than the contractor has agreed to execute and deliver for a fixed price; that is, the owner wants more scope or quality and/or delivery in less time. The owner and the contractor are expected to protect or defend the benefit of their “bargain.” It is assumed that for either party there is not anyone with more interest and in a better position to do so than oneself. Thus, when one party believes it has been injured or damaged, the injured party has an obligation to the offending party to give reasonable notices of its failure or the presumed failure to “live up to the bargain.” The users of such contracts become familiar with the processes and skill sets which enable parties to function under terms that are familiar. It forces parties, whether an owner or contractor, to behave in an expected manner. Where there are variances from that bargain reached, parties also must have defined process to resolve their different understandings.

For today’s owners risk allocation begins with an identification of risks that potentially may affect a project. All projects start as an idea; that is, a concept that will fill a specific need, within a specific time, and at a specific location. Thus, the primary party involvements are those of the owner-operators, financing sources, regulators and users. Since there are essentially no limits or boundaries on concepts – if it can be imagined, someone can turn the concept into a project. There are enormous risks, however, involved in moving an infrastructure development from concept through feasibility to financing. It is no longer enough to have a “good idea” upon which to seek funding or financing. In today’s global economic structure the “good idea” must be backed by analysis and examination of the multitude of risks involved in executing and assuring a useful life. As infrastructure developments become increasingly complex and as competition for a share of the finite pool of global capital resources (public and private) to undertake infrastructure development increases, potential financing-funding source stakeholders must make well based decisions on which investments have the best chance of a significant return (economic or social). These decisions are tied to identifying potential risks and managing those risks.

Not every concept should be or is transitioned into a project. Therefore, early in a project’s life, the owner must test the project’s assumed physical, technological and expense parameters versus the potential project’s need, feasibility and return on investment. An infrastructure development concept at least must pass three tests to be practical [8]:

- Can the development be physically engineered and constructed?
- Does the technology exist to engineer and construct the development project to meet the purpose intended?
- Does the expected benefit of the development project justify the cost of engineering, constructing and operating the project?
If a concept fails any of the three tests, realistically it should not be built. Ancient to recent history is full of examples of projects which never should have been undertaken because the concepts failed to pass one or more of these three tests. Yet, there still are examples of infrastructure projects being built in almost any location in the world which fail one or even all of the tests. Similarly, the tests must be applied to individual stakeholders as well, since the execution of those projects that fail one or more tests also have serious economic or social side affects, some intended and some unintended.

Nonetheless, an owner bears the sole responsibility for completing all of the risk management functions for the entire construction project until the bid and award phase. At this point the contractor has to develop its own risk management plans when it responds with a tender that includes the risks allocated by the owner. Every project risk management action taken during the project execution is based upon and flows directly from the decisions made by the owner and the winning contractor during this project formation stage. This means the owner is at the top of the project risk structure. If the owner does not practice sound Risk Management, then it is almost a given that risks will be unidentified, misevaluated, unallocated, misallocated, and mismanaged during the execution of the construction project. The risks that the owner identifies and allocates to other parties will determine whether or not a project is successful. In the end, every risk element which is not actively managed and controlled has the potential to preclude the achievement of the owner’s goals for the project. [9] Until the point at which an owner takes deliberate action to involve other parties in the execution of the project, all of the risk inherent in that project is the sole responsibility of the owner. Once the owner has decided to pay another party to assume specific elements of risk, it has a series of important decisions to make, such as which risks to allocate and which to keep; which project delivery method will provide the most suitable management for the inherent risk; which contractual provisions and payment methodologies are most compatible to the project delivery method and best suited for controlling the risk elements inherent in the project.

A contractor conversely has no Risk Management role in a construction project until the point at which the owner issues a request for bids or tenders. Then the contractor must engage in its own Risk Management with respect to the project. [10] The first step that a prudent contractor should take will be exactly that taken by the owner, that is, identify the risks and prepare a profile of the risks which have been allocated to it by the owner. From the contractor’s perspective the risk will include the discrete items delineated within the project scope of work (i.e. deliverables). The contractor, however, works under two significant disadvantages, but these disadvantages are an everyday part of the contracting business:

- It has a very limited time within which to prepare bid or tender, thus restricting the depth to which it can conduct any analysis of the risks allocated to it within the project; and
- Its initial cost to prepare the bid or tender is, in itself, a significant risk to the contractor, as the contractor must invest money which it may never recover in an attempt to win a competitively bid project award.

Once having identified all of the risk elements allocated to it, however, a contractor must conduct its own evaluation of the risks in much the same manner and using much the same tools as the owner used during the project formation stage. Although a contractor may pass through a particular performance risk to a subcontractor, if the risk element manifests, and a project suffers an impact, the owner will not seek recovery from that subcontractor. The owner will look no further than the contractor for recovery. From a
practical standpoint, the contractor remains responsible to manage and control all of the risks which have been allocated to it by the owner.

The contractor does have choices it may make concerning risk:

- If the total risk load is too high or there are a few significant risks which the contractor is unable to undertake, it can choose not to bid the project.
- If a risk is likely to emerge during the execution of the project, the contractor can add money in the form of direct cost or contingency intended to cover the impact of the risk to the project. For example: it is not unusual for a contractor facing liquidated damages to assume a limited number of days of delay and add the cost of the expected liquidated damages for those delay days to their total bid or tender, if the owner does not specify such that a contractor’s bid include such an assumption. The contractor can impose back-to-back (for example, the terms of the subcontract mirror those of the main contractor) the liability on subcontractors and vendors which, while it will not protect the contractor from the owner, it will enable the contractor to recover at least a portion of the impact cost generated by the risk element, but this process may lead to an accountability that is not in line with the risk.
- A contractor can propose alternatives to the owner which may reduce or remove a risk from the contractor in return for a lower price or shorter time to completion of the project. This alternative, however, is available in a limited manner in the global market, unless the owner is a private organization and it is willing to accept the contractor’s suggestions.

Risks which an owner has allocated to the contractor are a fact of life in the construction industry. In the end the contractor must price, schedule, control and manage risk if it is to be successful. Like the owner, the critical first step is for the contractor to identify the risk which has been allocated, evaluate that risk as accurately as possible, and then establish its alternatives for managing and controlling that risk. One step that contractors often overlook is to evaluate and identify risks that the owner has not identified, and determine if the owner has or has not allocated the risk or could reasonably assume such allocation!

From a actual practice perspective, the crucial first step that must occur with respect to Risk Allocation is the process of Risk Identification no matter which stakeholder is involved.

**Risk Allocation Must Occur Before Contract Formation Which Must Reflect the Decisions Made**

Once the Risks are identified the actual process of Risk Allocation begins, and drafting of the contract reflects the decisions. The typical project consists of the following activities for an owner:

- **Concept** – the owner identifies the need for the project and establishes the initial outer limit parameters of the project in terms of function, location, and preliminary funding and timing targets.
- **Feasibility** – the owner establishes the fundamental design and construction attributes of the concept of the infrastructure project and prepares an order of magnitude cost estimate and schedule for completion of the project based on those fundamental design and construction attributes.
• Financing – the owner secures financing or dedicates funding for the project based upon the order of magnitude cost and schedule estimate, the comparative need for the project (evaluation and ranking of all capital projects identified to attain a priority ranking), the total capital funds available, the feasibility of completing the project as planned and the cost to benefit ratio expected as a result of placing the completed structure of facility into its intended service.

• Strategy Formation – the owner finalizes the primary cost, schedule and quality goals for the project, selects the project delivery system, identifies the contractual and payment methods, drafts the contract document set, sets the basic design or performance specifications for the structure or facility, and establishes it’s own project management and control processes, procedures and organization.

• Bid Award – the owner develops and issues a Request for Proposal (RFP), Invitation for Bid (IFP), or similar notice to which contractors will respond. During this phase the contractor will examine the RFP, develop a project execution plan, estimate the cost to complete the full scope of work delineated, prepare the project schedule for completion of the scope of work, and undertake all of the other activities required within the RFP.

Decisions by an owner to retain, allocate or insure a risk depend upon the evaluation of the consequences of an individual risk. The General Rule with respect to Risk Allocation is that a risk should be assigned to the party in the best position to manage or control that risk. Therefore:

• An owner should retain those risk elements which it is in the best position to manage or control. For example: owner may retain the right to initiate and approve changes to the design of construction project.

• An owner should allocate those risk elements which another party to the project is in the best position to manage or control. For example: An owner may allocate the responsibility to meet all applicable codes and regulatory requirements to the contractor.

• An owner should consider insuring against the impact of the risk element should it manifest during execution of the project, if a risk element is beyond any party’s ability to manage or control. For example: an owner may secure insurance against the possibility of a typhoon destroying the structure or facility prior to the completion of construction.

Understanding the nature of the risk, the likelihood of a risk occurring and the possible impact to cost, schedule, scope and quality, if the risk element occurs, are all factors that the owner should consider during the project. Decision’s as to how to manage and control those risk elements which have been identified and evaluated are the some of most important that an owner will make over the course of any construction project. As a result only the owner gets to choose which party to a construction project is allocated which risk element inherent within that project and allocation of risk elements is one of the most important management decisions that an owner will make during the entire project. In the most recent past the theory was that an owner should divest itself of as much risk as possible either through insurance or allocation of risk to other parties to the project. The theory was that the more risk allocated to others the less risk faced by the owner. Unfortunately, the concept of total risk divestiture under any project delivery system was based on the mistaken assumption that once a risk element was allocated to others it (1) ceased to be a concern to the owner and (2) had no impact on the owner's cost, schedule, quality or quality goals. However, those assumptions proved false. The trend on construction projects is to allocate risk elements on the basis of identifying the party or
stakeholder within the project structure which is best equipped and best positioned to manage that particular risk element.

One method is to insure for most or some risk, such as, builders risk insurance, hazard insurance and liability insurance, and thus cover the risk that is allocated to a party. There is, however, a large problem. Available insurance globally for projects has a limit. Insurance is available for most projects which have a value of US$ 800 million to US$ 1 billion, but only then if the owners and contractors for the construction have really strong balance sheets. The approximate total value of insurance available globally for construction is US$450 billion annually, but the US market, for example, by itself is US$ 1.1 trillion. So that makes owners’ and contractors’ balance sheets quite important from an owner’s perspective. Current theories on Risk Allocation, however, tend to push risk down to the lowest level through successive levels of contracting. Thus we have a crisis today that guarantees more claims because:

- It pushes risk to the lowest level in the contracting chain where the firms have the least financial depth.
- The lowest levels have to accept the risk because they do not have the clout to fend off the allocation.
- The ability of the firms who are left with the risk can do very little to alter the risk should it emerge on the project.

The result is that accountability is not in line with the risk. Correct Risk Allocation has to recognize an ability to control or at least to minimize the consequences of the risk. Thus, one key concept practically is to evaluate whether a contractor can remain in business and thus pay, if the owner succeeds with a dispute? This issue is very real.

This Risk is heightened by the convergence of demand globally for airport infrastructure owners and contractors alike, just one of the many competing infrastructure development demands, and also leads to significant global competition between infrastructure development. The following statistics, based on the latest figures reported by Engineering News-Record (ENR), suggest some interesting facts:

<table>
<thead>
<tr>
<th>Contractors</th>
<th>Global Market</th>
<th>U.S. Market</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>U.S. Based Contractors</td>
<td>108</td>
<td>48</td>
</tr>
<tr>
<td>International Contractors</td>
<td>117</td>
<td>52</td>
</tr>
<tr>
<td>Total Contractors</td>
<td>225</td>
<td>100</td>
</tr>
</tbody>
</table>

These statistics say a lot. Internationally based contractors do substantially more work globally than the U.S., and they have more annual revenue on average; that is, they have 2.5 as much annual revenue (US$ 3.5 Billion and 1.4 Billion). These statistics, however, do not tell the whole story. International contractors may have several mega-projects, but their assets and liabilities may not be adequate to cover the risks that have been allocated to them. So the crisis is not only with how low the risks can be pushed downwards by
back-to-back contracting approaches. Contractors do not have sufficient capitalization to take on such risk! So proper Risk Allocation must begin with due diligence.

Experienced-Based Observations Regarding Risk Identification and Risk Allocation That Must Be Considered Relative to China and Airport Projects

Risk is a very diverse topic and it has many faces and various meanings, and is specific to the perspective of specific stakeholders. For instance, execution risks have been studied as a cause of increases in a project’s cost in China over the period from 1970 to 1999. The results were reported in 2002 at the First International Conference on Project Management of China, and they are summarized in the following Table [11]:

**Contributions of Various Risks to Cost Overrun of Hydropower Projects**

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>1970s</th>
<th>1980s</th>
<th>1990s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation</td>
<td>29.06</td>
<td>39.23</td>
<td>27.11</td>
</tr>
<tr>
<td>Changes in legislation</td>
<td>26.07</td>
<td>15.00</td>
<td>8.31</td>
</tr>
<tr>
<td>Adjustment in land use charges</td>
<td>18.32</td>
<td>3.37</td>
<td>6.30</td>
</tr>
<tr>
<td>Increase in interest payment</td>
<td>7.26</td>
<td>15.05</td>
<td>25.55</td>
</tr>
<tr>
<td>Price contingencies</td>
<td>6.75</td>
<td>8.26</td>
<td>11.56</td>
</tr>
<tr>
<td>Other changes</td>
<td>5.42</td>
<td>10.85</td>
<td>5.50</td>
</tr>
<tr>
<td>Changes in design</td>
<td>4.7</td>
<td>4.04</td>
<td>4.72</td>
</tr>
<tr>
<td>General contingencies</td>
<td>2.23</td>
<td>3.26</td>
<td>1.98</td>
</tr>
<tr>
<td>Changes in exchange rates</td>
<td>0</td>
<td>.037</td>
<td>11.28</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Five categories had almost no change over the three decades. Of the remaining four categories, two increased by three times in the last three decades, and two decreased by a factor of three. The two categories that decreased – changes in legislation and adjustments to land use changes – reflect the increasing level of predictability relative to political/legal matters. However, the two categories that increased – price contingencies and changes in exchange rates – reflect the tremendous increases in construction demand that has occurred over the period. One, however, must be cautious of using other types of infrastructure to predict airport execution risks. The underlying data must be evaluated. For instance, geological risk happens more often in the case of hydroelectric power plants than airport construction. It is dangerous to assume that each project type will have the same risks and that their magnitude will be the same. So each project must be evaluated individually to identify the risks which are to be allocated.

Airport infrastructure development risks, therefore, can be organized into two broad categories: Context Specific Risks and Project Specific Risks. I have thus organized the following observations on risks in these two categories for Chinese airport infrastructure development and projects:
Context Specific Risks

Political Risks

There are many context risks that must be considered relative to China and airport infrastructure specifically. Although China has made tremendous progress, one reason that China is so risky is because of the unbalanced way that its economy has grown. From 1949 until the beginning of economic liberalization mid 1980’s, essentially all laws were abolished, as well as, institutional and organizational elements including courts, law schools, and attorneys. [12] Since then China has enacted laws and further revisions to laws to re-establish a modern legal structure. The situation in the last two decades has been one of mind-numbing changes, and this situation will continue to be as rapid for the next fifteen years. It is a situation that evokes great excitement, but also a context that is at the same time very risky. Political risks arise from the fact that the legal framework is changing rapidly. Two generations of the Chinese people have not had significant experience with the rule of law in respect to private or individual transactions. The whole legal fabric of society must be changed simultaneously with the huge amount of infrastructure development in China that continues unabated. These rapid revisions to laws can have significant consequences. For instance, the construction business laws have been revised and refined three times in the last decade and by countless other related laws and regulations during the same period. The risk is that carefully negotiated provisions contracts may change with revisions to laws about which one must be constantly on guard.

The substitution of private investment for government investment, directly or indirectly, in the context of airport infrastructure development within China has many interesting overtones. Stimulating domestic demand in addition to export oriented demand drives most infrastructure development decisions in China. Domestic demand is viewed by the national government as a key mechanism to re-employ workers displaced from money-losing State Owned Enterprises (SOEs). Infrastructure drives economic reforms, but these reforms have fueled efficient production in new private enterprises to meet global rather than domestic demand that SOEs have traditionally met. Airport infrastructure development is now viewed as infrastructure development which will accelerate domestic demand, thus avoiding this volatile political issue. China’s banking systems is regulated and controlled by the national government, which sets interest rates and attempts to allocated credit to certain Chinese firms. These firms that the banking system keeps afloat, however, are the SOEs. The Chinese government worries that the banking sector and SOE reforms require controlled reform so as to not lead to widespread layoffs. As a result, the central government pressures state banks to provide low interest loans without which a huge share of the SOEs would likely go bankrupt, thus denying a significant amount of capital that could be used for airport infrastructure development investment. Therefore, the current financial state of the banking system prevents China government from opening the sector to foreign competition. Private investment, however, is deemed as necessary, but the investors need and demand a banking system that is judged open, accountable, and transparent in order to meet the demand. This political risk will remain for the foreseeable future and complicates predictability over an extended period which is necessary for private investment in airport infrastructure development.

Corruption poses another problem for China’s banking system because loans are often made on the basis of political connections. In many cases, bank branches extend loans to firms controlled by local officials, even during periods when the central government has attempted to limit credit. Such a system promotes widespread inefficiency in the economy
because savings are generally not allocated on the basis of obtaining the highest possible returns. In addition, inability to control the credit policies of local and provincial banks has made it very difficult for the national government to use monetary policy to fight inflation without causing major disruptions to the economy.

The World Bank’s approach to Air Transport Infrastructure (ATI) development in China is thus cautious with respect to airport infrastructure development. [13] As with infrastructure development in general, the World Bank requirements for ATI development is framed in the context of pragmatism and recognition of fiscal constraints for use of public sector resources for airport infrastructure development, that is, making best use of scarce public money. The World Bank articulates five broad policies that shape its analyses. The policies define the roles of the public and private sectors in ATI development are:

1. Technical regulation has a core need, and a clear, strong and active role in the provision and oversight of safety and security standards.
2. Government should identify and work toward eliminating any remaining economic regulatory restrictions in aviation. The trend is toward deregulation. Many developing countries, like China, remain cautious about liberalization despite growing evidence to the contrary. Security of services should remain China’s main concern. A policy dialogue, however, has to encourage governments to consider costs as well as the benefits of the interventions aimed at guaranteeing services relative to more market and commercially driven approaches.
3. Government has a role in ensuring that competition law and policy are working adequately and that the ATI market structure is consistent with achieving the government’s overall development objectives. When a governments is considering addressing performance problems with ATI, it is important that they are encouraged to examine the trade-offs between maximizing the competition between airport infrastructure that are currently government owned versus any fiscal and regional development benefits from continuation of the status quo. Rectifying market structure problems at a later stage is difficult, particularly if private ownership has been introduced.
4. Provision of adequate Air Navigation Services (ANS) that keep pace with technological and global standards must meet growing demands so that they should be accomplished on a cost-recovery basis. Full private sector ownership of ANS is not a realistic policy option or business model today, given safety and security concerns – normally called externalities. However, efforts to provide the services on a more commercial basis and independent from the government’s budget process can result in improving overall efficiency in the provision of ANS, if regulatory and governance issues are properly addressed, the UK and Canadian experience aside. Establishing ANS as an autonomous, but accountable, state-owned enterprise is likely to offer net benefits.
5. Airport infrastructure development and related services could be provided by the private sector under best-practice design of partially privatized schemes, including privatization (similar the United Kingdom’s full divestiture). The private sector manager has strong incentives to maximize contracting-out of airport services or otherwise allow private provision of services. Government intervention in the provision of airport services could be required in situations in which the economies of scale cannot justify the needed financial returns for private capital mobilization, but the economic returns of having an integrated airport system provide a strong rationale for efficient use of public money. This should be subject to rational cost-benefit analysis and government financial impact assessment.
When applied to China, these World Bank context specific policy requirements have not been politically acceptable generally on a national scale despite recent positive steps. For instance, the Chinese government has not established whether their aviation industry should be based on the three big national carriers, China Eastern Airlines, China Southern Airlines and Air China, each a SOE, or encourage local initiative and development regardless of where it leads and who ultimately benefits. Thus, airport infrastructure development still falls prey to unsolved political dilemma of the SOEs. CAAC’s phase-out of central control of landing charges last year is one of the bars to more competition, promoting rivalry for airline services. Nonetheless, private companies must be aware that a uniform, national policy is not yet in place. Private airlines that have been established give themselves an edge by operating on regional routes that their bigger rivals do not cover, but the allocation of routes and hubs is also political issue that is currently under consideration and is bound up with the political issues of regional economic prosperity. As noted earlier, the recent decisions with respect to the Western regions of China is an attempt to solve the underlying discontent engendered by the economic disparity available to populations in different regions. The competitive situation of the big three carrier SOEs is also partly blamed on poor management, but these risks are a social risk that transcends to operating risks that are discussed below.

One risk that will always exist is the risk of expropriation. Airport infrastructure developments are seen as strategic assets by the military, thus there is a risk that they will take over privatized airports to assist in the resolution of regional disturbances.

Environmental Risks

In China, even with the changes in last decade, the national government makes decisions regarding major infrastructure development by enacting national laws with which everyone is expected to comply. Mega projects, like the Three Gorges Project, must have full commitment from the public which is certainly accomplishable by the China enacting such national laws. If these infrastructure projects lead to environmental impacts, the population generally complies because they have followed the dictates of the national government for 70 years. Also, it is considered a virtue to make commitments and sacrifices for the good of the people as a whole. Smaller and regional airport infrastructure development may not be so easily accepted, however, because there is no national need and the wide variation in the Chinese population has the same diversity as the rest of the world with respect to sustainable infrastructure development.

Thus, one of the key issues in the future for airport infrastructure development is the issue of sustainability. China has committed to concepts regarding sustainability and environmental issues, but they also have to address the issue of economic development. China does not have a national policy such as the Organization for Economic Development and Cooperation (OECD) promulgated guidelines for creating a National Sustainable Development Strategy (NSDS) that is intended for under-developed and developing countries. The OECD recognizes that many competing issues must be weighed in a holistic manner. For example, the OECD suggests that issues must include consideration of: Extreme Poverty, Under Nourishment, Disease, Marginalization, Population Growth, Consumption, Diversity, Global Energy Use, Climate Change, Nitrogen Loading, Natural Resource Deterioration, Pollution, Growing Water Scarcity, Urban Problems, etc., just to name a few. The risk for airport infrastructure development is: when will the issue of sustainability overtake economic development or other holistic concerns. At the moment, economic development takes precedence – in essence they are
willing to sacrifice sustainability to some extent for the returns that come from economic gain.

These issues have different levels of significance that are becoming more and more magnified regionally, for instance, between the eastern regions and western regions of China. Conflicts of opinion are occurring with increasing frequency between all types of stakeholders: individual persons; non-governmental organizations; local, regional or the national government; and private companies. Environmental risks, both local and global, will be an increasing policy challenge for the Chinese national, regional and local governments. No clear, definitive, holistic direction has been given other than embracing the concepts sustainability. The risk for airport infrastructure development is clear; there is no predictability at the current time.

Social Risks

Much of the challenge the Chinese face in coordinating infrastructure reflects balances that need to be struck among different functions, such as, planning and financing, infrastructure, and overall fiscal sustainability. As these functions are spread across separate agencies, thus the challenge becomes all the more difficult. With respect to coordination of airport infrastructure development, the future will most likely have to be accomplished through decentralized regional and local government structures. If well managed, and accompanied by effective accountability mechanisms, infrastructure decentralization may bring significant benefits, for example, tailoring service provisions to the needs of local constituencies. But it also brings a number of new coordination challenges. Some of these challenges occur because of organizationally horizontal government structures, that is, like those that manage services whose benefits span jurisdictions and lead to excessive fragmentation and competition that may be destructive. To the extent that there are regional issues, they may have to be resolved by the national government, but that involves different agendas between agencies that may have different infrastructure development goals.

The magnitude of the risk is illustrated by the following table [16]:

| Coordinating local government infrastructure, macroeconomic stability, and urban land use |
|---------------------------------|-----------------|
| Area (000 km²)                  | 9,597           |
| Population (million)            | 1,270           |
| State/Province                  | 33              |
| Local Governments -             |                 |
| Municipality/Districts          | 2,457           |
| Communes/Sub-districts          | 45,462          |
| Average Population Size (000)   |                 |
| Municipality/Districts          | 517             |
| Communes/Sub-districts          | 27.9            |

China has operated for 70 years under a system that sets national priorities, but then executes that policy through local governments. Thus, the World Bank [17] in 2005
reported that in China, the performance of local government officials is measured by a range of criteria that include GDP growth, tax revenue, employment, levels of urbanization, and social stability. This provides strong incentives to local governments to invest in urban infrastructure development that attracts business and spurs investment. Urban infrastructure development has boomed in recent years, and now accounts for approximately 15 percent of GDP or around one-third of total fixed asset investment. While much of this investment supports economic growth, expenditure on this scale raises several risks when considering airport infrastructure development. The first of these is the risk of over investment. Important from a risk perspective is the manner in which this expenditure is funded, which in turn reflects the nature of the intergovernmental financial system.

Local governments in China have little taxing powers, limited transfers from higher levels, and no access to borrowing, except from international financial institutions. At the same time, they are responsible for most public services, which account for approximately 70 percent of government spending. The two mechanisms that are most favored are bank loans secured by land and revenue from land transactions. In the last decade the share of annual fiscal funds has been decreasing while that of bank loans has been increased to a national average of 50 percent. Local governments need access to resources outside their budgets to finance infrastructure development. The Budget Law, however, prohibits borrowing or issuing bonds by local governments. As a result local governments commonly establish urban construction and investment companies that borrow from banks or issue bonds on behalf of the local government. Local government activity financed by bank loans, land sales and other forms of extra-budgetary revenues remains largely outside of the central government’s purview. Mechanisms to discipline these borrowers to ensure sound repayment capacity and local government fiscal sustainability are absent. The result is large and “hidden” local government liabilities, which are an enormous risk for future airport infrastructure development.

Revenues raised from land transactions now account for between 50 percent and 70 percent of urban infrastructure development in some cities and are a second major concern. The costs to local governments of land purchased from farmers are based on its agricultural value. Cities, however, are able to make windfall profits by leasing it out for real estate development. This acts as an incentive for excessive conversion of land that is peripheral to urban land into urban land. The practice is a significant source of complaints from affected farmers, and threatens the sustainability of both urban growth and food security. More effective coordination among the needs for land for infrastructure development, macroeconomic stability, and efficient land use might entail a number of steps: a revised performance evaluation system for local governments; broadening of the local revenue base; better regulated local access to borrowing; changes to the land-lease system; and appropriate compensation for farmers. All these contribute to airport infrastructure development risks because suitable contiguous land is not available in urban areas. One step to deal with this risk was taken at the recent National People’s Congress held in March 2007. [18] China enacted a controversial private property law, the justification for which was that the law was just catching up with China’s market economy which is about 65% private sector-driven. Some lawmakers argued the law ignores the Chinese constitution in that it makes private property sacred rather than the socialist concept of communal property. Since the 1949 constitution only public ownership has been permitted and that will not change with respect to land. The law only allows individuals or corporations to transfer a right to land-use which can last for up to 70 years. The law, however, restricts rural dwellers transfer of land-use rights significantly compared to urban dwellers to keep rural land from being converted inappropriately.
These risks illustrate an additional significant airport development risk. Local government-established corporations have to be established to own new or upgraded airport infrastructure development. As such, these corporations are a SOE, and are fraught with the same problems as the local jurisdictions. These local corporations do not have necessarily predictable levels of independence and governance that the World Bank policies were described earlier require, because many local jurisdictions that are targeted for airport infrastructure development just do not have experience and management talents as yet. As the World Bank forecast in a report late 2006, improving air transport infrastructure might bring immediate benefits. World Bank further found that a 50 percent drop in transport costs could lead to a 5 percentage-point rise in foreign investment for “deep interior” cities such as Urumqi in Xinjiang or across the country. The Bank, however, ranked south-west and north-west China respectively as having the worst investment climates because of ineffective local governments. The two biggest barriers to developing the Western China are the shortage of investment and capable professionals, particularly teachers, who help improve the capacity of local infrastructure development corporations. [19]

Depending upon the region the basis of demand projections must be carefully analyzed, especially when future levels of demand are based on promotion of the demand. Low cost labor is frequently the basis of the promotion, but 400 million productive laborers are expected to move to the urban areas in the next decade. Without cheap labor the economic advantage of the China’s western provinces and Inner Mongolia could erode, and thus the promotion assumptions the national government predicts could be suspect. Ultimately, there is a risk that there will not be enough demand for the regional or local airport infrastructure development.

Some additional Social Risks that must be considered are
- Language and culture barriers
- Ignorant local officials
- Lack of adequate statistics data and difficult access if it is available
- Lack of an independent judicial system.

Economic (Marco) Risks

Macro economic risks in China generally fall into two broad categories. The first has potentially a large impact on airport infrastructure development. The risks all stem form the lack of capacity in government and private institutions and personnel. The Massachusetts Institute of Technology (MIT) recently produced a Global Opacity Index. [20] The index provides a way to quantify the risk of doing business or investing in various nations. China was deemed to be fifth “least opaque” country after Indonesia, Lebanon, Venezuela, and the Philippines. The index projects that to do business in China you would have to earn the equivalent of 6.49 percent more on ROI (Return On Investment) than in the United States. The lack of confidence is likewise reflected in data on Non-Governmental Organizations (NGO) in East Asia compiled by the World Bank and summarized in the following table [21]:
Non-Governmental Organization Perceptions: Survey Results

<table>
<thead>
<tr>
<th>Accountability as an Obstacle</th>
<th>Not a Terribly Serious Obstacle/ Not at all Obstacle</th>
<th>Very Serous/Serious Obstacle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of accountability of NGOs</td>
<td>43 %</td>
<td>57%</td>
</tr>
<tr>
<td>Lack of accountability of private sector</td>
<td>24%</td>
<td>77%</td>
</tr>
<tr>
<td>Lack of accountability of governments</td>
<td>14%</td>
<td>86%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Corruption</th>
<th>Agree/Greater Degree/ Serious Obstacle</th>
<th>Disagree/Less of a Degree/ Not a Serious Obstacle</th>
</tr>
</thead>
<tbody>
<tr>
<td>The extent to which corruption is an obstacle</td>
<td>95%</td>
<td>5%</td>
</tr>
<tr>
<td>The extent to which the potential for corruption should be taken into account</td>
<td>91%</td>
<td>4%</td>
</tr>
<tr>
<td>When it comes to infrastructure development, government does not do enough to prevent corruption.</td>
<td>77%</td>
<td>23%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Information</th>
<th>Strongly Agree/Agree</th>
<th>Strongly Disagree/ Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The communities most affected by infrastructure development generally have enough information to make educated decisions related to trade-offs.</td>
<td>68%</td>
<td>32%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Public Participation</th>
<th>Not a Terribly Serious Obstacle/Not an Obstacle at All</th>
<th>Very Serious/Serious Obstacle</th>
</tr>
</thead>
<tbody>
<tr>
<td>The extent to which inadequate public participation in decision making is an obstacle</td>
<td>14%</td>
<td>86%</td>
</tr>
</tbody>
</table>

The same data was used to indicate the involvement of various stakeholders and in presented in the following Table. All categories of stakeholders except one wanted more involvement, but all categories wanted at least the same or more involvement.
The national government in China has reacted to such press and data and made institutional changes. The promoter of infrastructure development must bear the risks associated with it, so all infrastructure development is now performed by the by “special-purpose corporations” that were described above. As a new institution, these corporations are required to provide sufficient amount of their own money as equity of the project. Providing funds to an infrastructure development project is an important objective in itself, but the financing process also serves another important end. Monitoring by financial markets and institutions complements regulation and competition in service delivery. As such, it provides another mechanism for investors to impose discipline, and the banking industry itself has been making changes, but still has risks associated with lending to SOEs as further described above.

The second macro economic risk category that must be considered for airport infrastructure development is the trade barriers maintained by the national government in China and also is covered above. These barriers are justified in general by the Chinese government in large part to protect domestic firms from foreign competition. Such policies have two main negative effects. First, they give domestic firms less incentive to improve productivity and efficiency. Second, restricting competition raises the prices of air transport services for Chinese consumers. The risks affect, for instance, the assumptions that are used for airline traffic projections.

### Project Specific Risks

#### Delivery/Operation Risks

Critical to the operations of specific airport infrastructure projects are the passenger volume. The risks inherent in projections are whether the Chinese national government continues to subsidize projects that do not meet projection goals at all or as soon as projected. At the current time projections those airports with a turnover of less than one million passengers throughput are subsidized by the CAAC, especially in the small-scale airports in the western regions. The subsidy covers the 90%-plus loss rate in such airports [22].

China is actively seeking new financing methods and has accepted BOT as an important methodology to meet the special needs of the country and is assumed to be attractive to foreign investors and lenders. The advent of concession agreements, backed by the new BOT regulations, will be a positive move forwards to achieving project-financed infrastructure projects throughout China. The extent that BOTs will be acceptable in airport
development projects is one of the great potential lures and one of the great risks. As indicated, there may be consolidation of SOEs that are corporate entities which could cushion the potential risk. Additional risks for BOTs are discussed below in regards to joint ventures under Contracting / Procurement Risks.

In general, in order to be successful all airport infrastructure development projects must identify and allocate the typical criteria for any infrastructure project. Typically these risks include:

- A credit risk rather than equity risk is involved
- A satisfactory feasibility study and financial plan have been prepared
- The cost and availability of raw materials, equipment and energy to be used by the project during execution and projections of use over the life of the project are reasonable
- A market exists for the product, commodity or service to be produced

In addition, allocation identification and allocation should include risks associated with typical issues with all construction, such as:

- Potential capital construction cost overruns
- Delay in completion, with consequential increase in the interest expense on construction financing and delay in the reasonably contemplated revenue flow or competitive position in the market place
- Financial failure of the contractor or subcontractors
- Government interference and inactions
- Uninsured casualty losses
- Poor management by one party to construction contracts.

Technology Risks

Historically, the demand for air travel has outperformed economic growth. The general view is that this greater performance is likely to continue. The private sector assumes that China will bring their policies and regulation, and airlines and airport infrastructure development projects into line with world standards and the underlying changes will continue for the foreseeable future. The commercial aircraft market has resulted in a wide range of technologies being available internationally to aircraft operators from small commuter aircraft to large aircraft. There is similar specialization of freight aircraft capabilities. One result is that technically efficient aircraft exist that can serve all projected markets. Thus, risks associated with smaller market service are now more related to the existence of adequate infrastructure, commercial viability, and economic conditions. As a result, the technology to meet airport infrastructure development projects and their use are not a significant risk. For example, one area in which the CAAC has made recent progress is with respect to airport infrastructure development equipment. The U.S. Federal Aviation Administration and the Transportation Department has been providing Chinese civilian aviation authorities with significant support in their efforts to redesign China’s air traffic controls system and with its certification. Thus, for example, China is addressing pressure from airlines for government-provided ANS that will result in better and safer services to airlines. ANS will include direct routings and efficient flight profiles through the greater use of satellite and aircraft-based information for the first regional jet developed and manufactured by Chinese companies. [23]
Financial Risk

In some sectors, such as power or telecommunications, the scope of private financing is great. In others, such as road networks, and in some low-income regions, the opportunities are more limited, although even there increasing room for financial markets exists. However, in China regional and local government corporations provide or broker the airport infrastructure project financing as described above. Thus these SOE corporations ultimately bear almost all project risks. The need for private financing ultimately will encourage better risk sharing, accountability, monitoring and management. But in the case of airport infrastructure projects the changes will be made sporadically with all the attendant risks that such a lack of predictability means.

The primary risk is that private commercial banks have traditionally been a growing source of funds for airport infrastructure projects. [24] New banks entering the field of project financing and being anxious to carve out new relationships have been particularly aggressive in seeking loans. This is especially true in the case of China's governmental banks that have been willing to accept greater risks than private commercial banks as a matter of policy. For China's banks this has meant pricing, lowering of collateral requirements, extension of maturities, and to the assumption greater credit risks. The result is not good for long-range, orderly availability of funds from private sources. Substantial losses by the private sector usually result in a stiffening of terms and non-availability of funds for future, which will make future projects much more difficult to finance. Some balance is needed. Lenders must be adequately compensated for use of their funds on a fairly risk free basis if they are to continue in business. The risks that have to be addressed are issues, such as, overly optimistic appraisals of the value of pledged security, and the financial solvency of the local government/special purpose corporations. For private investors to be successful in China's airport infrastructure development projects, these and similar risks must be properly identified and allocated, but followed with a rigorous pursuit of monitoring throughout the life of the projects. These imbalances will not be completely “fixed” over the next decade. As the International Finance Corporation, the private side of World Bank lending, said in November 2006: local investment in China is being stunted by the inadequate banking sectors and uneven growth of its securities markets. [26] As long this situation characterizes the financing for airport infrastructure projects, cross-border investments will remain weak and capital flows will go to bolster reserves instead of funding airport development projects.

Procurement-Contractual Risk

The government is promoting a greater participation in China’s construction and engineering services market by foreign companies, but this uniformity does not cover all infrastructure development project construction. China has special laws regulating foreign contractors involved certain infrastructure development, such as, road construction [26], and the electric power construction [27]. The Telecom Regulations, for instance, further provide that the construction of public telecommunication networks, special telecommunication networks, and radio and television transmission networks have to comply with government planning policies and be approved prior to the commencement of construction. Under the Telecom Regulations, however, any party involved in constructing roads, bridges, tunnels, railroads, and other large infrastructure development projects is required to consult with the local telecommunication authorities before commencing construction to avoid any disruption of existing telecom cables, lines, or facilities. [28]
There is not currently no such law for airport infrastructure development projects, and until this issue is resolved foreign engineering and construction companies are not viable candidates to contract for services.

At the end of 2006, foreign investors were allowed to set up Wholly Foreign Owned Enterprises (WFOE) that do business and provide engineering and construction services. As a result, foreign construction or design-construction companies can establish wholly foreign-owned enterprises, equity joint venture, or contractual joint venture enterprises. Although WFOE construction companies can be established, they are limited initially to the following types of infrastructure development projects:

- A project funded by foreign investment, with foreign donations or with foreign investment and foreign donations
- Projects funded by international financial institutions that are, pursuant to the loan terms, granted through international invitations of bids
- Sino-foreign joint construction projects in which the foreign investment accounts for 50 percent or more of the total
- Sino-foreign joint construction projects approved by the government in which the foreign investment accounts for less than 50 percent of the total and due to technical difficulties cannot be implemented solely by Chinese or FIE construction enterprises
- Chinese-invested construction projects approved by the government that due to technical difficulties cannot be implemented solely by a Chinese or Foreign Invested Enterprise (FIE) construction company, but may require joint construction by Chinese, FIE and foreign construction enterprises

Airport infrastructure projects do not currently fit any if these exceptions. If there is to be foreign participation in these projects, they will have to be joint ventures with Chinese companies. Engineering and construction joint ventures in China generally may have following risks:

- Partners may differ in their understanding or interpretation of the objectives of a joint venture, and this may not be apparent before the joint venture has entered into commitments to others.
- Needs and risks change during projects. Simple collaboration between the partners' responsible managers may be sufficient to decide to start a joint venture project. More complex relationships definition partners are typically necessary to complete the projects.
- It is easier to start a cooperative venture than to sustain it. The risk of divergence of interests between partners is greater if a joint venture is formed to just share risks plus any of the others listed risk. For instance, at the start of a project the need for centralized control may not be apparent.
- Partners often fail to make budget provisions for the greater risks in a joint venture. Their liabilities may be greater than in normal business, but inexperienced partners may greatly under-estimate or greatly over-estimate risks.
- Joint venture work is only a part of the interests of each partner. They may have unequal interests in a joint venture or relative to project. Some or all of the partners’ interests may change, for instance, when they see opportunities in other markets. This particularly true with respect to BOT projects.
- Partners can have wide diversity with respect to joint venture projects and joint venture risks, such as, manufacturing partners compared to engineering and/or
contraction partner resulting in differences in the real authority and attitudes of their representatives or personnel.

- The need for control of a joint venture project or contract may become accepted only when policies, such as, not proposing as was intended.
- Joint activities and risks may need management styles and systems different to those used by partners in their regular business. As in any committee, the partners’ representatives on a steering group may run the risks of discontinuity in their knowledge and attitudes on the joint venture business, and tend to “group think” or be over-cooperative in relation to their parent enterprises or company interests and commitments to the joint venture.
- A joint venture needs to attract managers comparable in ability to their opposite numbers in the partner enterprises or companies. Conflicts between joint venture and partner managers arise frequently because of different roles, objectives and accountability.
- Few individuals work in more than one joint venture in their career and thus do not provide “institutional knowledge” of joint venture risks when they are new managers a joint venture.

In addition typical major contracting and procurement risks facing foreign investment in China include:

- Force Majeure risk
- Foreign exchange risk
- Inflation risk
- Interest rate risk with respect to advances or borrowing
- Availability of permits and licenses

These risks require careful and complete identification and allocation in all contracts.

References


