Belt and Road Initiative Infrastructure Projects:
Implementation Principles and Practices

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Summary

A. The Belt and Road Initiative (“BnR”) is a comprehensive vision for the development of China and other countries during the 21st Century initiated by China in 2013. The Asian Development Bank has estimated that Asia needs an average US$730 billion a year in infrastructure investment until 2020, including only some of the identified BnR related projects. According to the Peterson Institute for International Economics, “…investment in the Belt and Road is expected to reach $4 trillion”.

B. Asia’s overall national infrastructure investment need is estimated to be US$8 trillion over 2010-20. BnR is attractive to governments and the private sector because of the significant potential economic and political benefits if BnR projects are successfully implemented.

C. Requirements for capital, risk absorption and management capabilities necessary to successfully implement BnR-inspired projects far exceed what governments can provide. Public/private partnerships (“PPP”), via various models, are essential to contribute ideas, capital, risk absorption and
project management capabilities. The private sector, working closely with the public sector helps plan and control BnR projects resulting in projects which have the most appropriate designs, the most cost-efficient construction and the most efficient operation.

D. The implementation of PPP projects, which typically involve multiple parties of different nationalities, is highly complex and requires special expertise and experience and is more of an art than a science. The “packaging” for such projects, getting them ready for construction start, is quite difficult and requires dealing with many challenges and problems which must be solved during long project development periods.

E. In my experience with the packaging of PPP projects, in both developed and developing economies, there are effective solutions which require the relentless application of sound project implementation general principles and specific practices. Although each project is unique, and correct timing is a critical factor, such principles and practices can be applied to result in the successful implementation of PPP infrastructure projects.

F. Hong Kong is functioning effectively as a kind of “Super-connector” putting together various parties which are interested participating in BnR-inspired projects so that they have opportunities to meet and consider collaborating. In addition, Hong Kong’s well-developed project services sectors - including its expertise in infrastructure development sectors - are unique in Asia in terms of their international business orientation, depth of service, expertise and professionalism. Moreover, an essential characteristic of Hong Kong is the reliability of the enforcement of contracts. The independence of the Hong Kong Judiciary and the adherence to the Rule of Law are of high importance for international businesses, investors and creditors involved with infrastructure projects.
I. The “Belt & Road Initiative”

The Hong Kong Trade Development Council ("HKTDC"), describes the 21st Century Silk Road Economic Belt and the Maritime Silk Road, known as “The Belt and Road Initiative” ("BnR"), as a development strategy and framework primarily for Asia and Europe. It was initiated by China in September 2013 to promote greater connectivity and cooperation among countries primarily in Eurasia. The objectives are to facilitate China taking a bigger role in global affairs and fostering closer relationships with its neighbors in a period of rapidly increasing globalization. The successful implementation of BnR projects will also enable China to more fully utilize its massive production capacities in steel, cement, other building materials and construction services as well as in manufacturing.

The two distinct components of BnR are:

1. **Silk Road Economic Belt**: The “Belt” includes countries situated on the original “Silk Road” through Central Asia, West Asia, the Middle East, and Europe. BnR is designed to foster investing and collaboration that will stimulate the integration of the region into a more cohesive economic area through building infrastructure, increasing cultural exchanges, and broadening trade.

2. **Maritime Silk Road**: The Maritime Silk Road, also known as the "21st Century Maritime Silk Road" (21世纪海上丝绸之路) is complementary and is aimed at investing and fostering collaboration in Southeast Asia, Oceania, and North Africa, through several contiguous bodies of water – the South China Sea, the South Pacific Ocean, and the wider Indian Ocean area.

HKTDC explains that the principal purpose of the BnR Initiative is to expand and interconnect existing international transport routes as well as core cities and key ports to further strengthen collaboration. Six international economic cooperation corridors will be designed, built and operated. These have been identified as the New Eurasia Land Bridge, China-Mongolia-Russia, China-Central
Asia-West Asia, China-Indochina Peninsula, China-Pakistan, and Bangladesh-China-India-Myanmar.

The Belt and Road Initiative: Six Economic Corridors Spanning Asia, Europe and Africa

(Source: HKTDC)

One of the five goals of BnR is infrastructure facilities connectivity. The strategy for achieving this goal is setting appropriate priorities for areas of construction on existing and new facilities. The objective is to remove barriers in the missing sections and bottleneck areas of core international transportation passages, in particular, the construction of port infrastructure facilities, and opening up land-water intermodal transport passages. The HKTDC states, “The connectivity of infrastructure facilities, including railways, highways, air routes, telecommunications, oil and natural gas pipelines and ports, will also be promoted. This will form part of a move to establish an infrastructure network connecting various Asian sub-regions with other parts of Asia, Europe and Africa.”

The BnR vision for the further development of China and other countries during the 21st Century is attractive to many governments and parties in the private sector because of the major potential economic and political benefits. BnR’s vast scale and China’s huge financial resources have attracted considerable attention.
“Investment, economic and trade ties established with countries along the Belt and Road can stimulate domestic demand in neighboring countries,” said Dr. Tse Kwok Leung, Head of Policy & Economic Research, Bank of China (Hong Kong). “Production capacity and trade will increase after the implementation of the scheme, which will greatly benefit the slowing Chinese economy.” In addition, the implementation of BnR-related projects will benefit other national economies due to the substantial economic multiplier effects.

Employment and capital requirements are huge. According to the Peterson Institute for International Economics, “...investment in the Belt and Road is expected to reach $4 trillion”

The Asian Development Bank has estimated that Asia needs an average US$730 billion a year in infrastructure investment until 2020, including only some of the identified BnR related projects. Asia’s overall national infrastructure investment need is estimated to be US$8 trillion over 2010-20. Of the total investment, 68% will be for new capacity and 32% for maintaining or replacing outdated facilities.

**Total national infrastructure needs in Asia 2010-20 (est.) (US$ billion)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Need (US$ billion)</th>
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<tbody>
<tr>
<td>China</td>
<td>4,368</td>
</tr>
<tr>
<td>India</td>
<td>2,172</td>
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<tr>
<td>Indonesia</td>
<td>450</td>
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<td>Malaysia</td>
<td>188</td>
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<td>Pakistan</td>
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<td>Thailand</td>
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<td>Bangladesh</td>
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<td>Philippines</td>
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<td>Vietnam</td>
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<td>Kazakhstan</td>
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CLSA/CITIC Securities has stated, “Asia’s dominant mode of freight transport in the foreseeable future is via the ocean and ports. This is due to the relative ease of building ports and the established shipping links compared to building roads, which require government approvals and rights of way. Land transport will become increasingly important for regional integration in Asia as it is a better people carrier and can be more cost effective for large volumes of freight. Despite high initial startup costs, railways can transport passengers and high freight volumes inexpensively. Roads also provide easy access to economic centres, eg, schools, hospitals and other social services. Transport is expected to require the second-highest level of investment after energy.”
It is believed that BnR could have as much of an impact domestically as overseas because it provides a domestic infrastructure plan which could accelerate and rationalize national infrastructure development for trade and urbanisation.

The PRC National Development and Reform Commission (NDRC) approved a large list of infrastructure projects to support the economy. It is expected that there will be an acceleration of infrastructure spending during the next several years.

The domestic BnR divides China into five regions with infrastructure plans to increase connectivity internally and with other countries:

**North-western region** - Xinjiang will be made into a key transport, trade, logistics hub connecting central, south and west Asian countries.

**North-eastern region** - Inner Mongolia will focus on improving railway links to Heilongjiang and Russia. A Eurasian high-speed rail transport corridor will be built linking Beijing and Moscow.

**South-western region** - Guangxi will capitalise on its ties to Asean countries. Development of the Beibu Gulf Economic Zone and the Pearl River-Xijiang Economic Zone should speed up. Yunnan is to construct an international transport corridor connecting China with the greater Mekong sub-region.

**Coastal region and Hong Kong, Macao and Taiwan** - There will be better integration among the economic hubs of the Yangtze River Delta, Pearl River Delta, west coast of the Taiwan Straits and Bohai Rim. Fujian province will be a core area in the Maritime Silk Road.

**Inland regions** - Chongqing will be a core area for the development of the western region. Railway transport will be developed for the China-Europe corridor and China-Europe freight trains.”

(Source: CLSA/CITIC Securities)

China’s large population with 1.3 billion people needs to create more than 20 million jobs every year and will continue to require major new developments. It has huge requirements for new clean electricity, transportation facilities, energy
and petrochemical projects as well as for improvements in existing facilities. However, different factions in the central, provincial and municipal governments each have their own vision of how best to design and build and improve infrastructure facilities and there has been limited coordination.

The BnR development vision provides a much-needed basis for coordination of respective plans for infrastructure facilities amongst provinces and large municipalities.

II. Inadequate Government Resources

The total resources of capital, risk absorption capacity, management skills and capacities required to successfully plan and implement BnR-inspired projects far exceed what governments can provide.

China’s and Asia’s vast infrastructure needs dwarf the US$300 billion capital that China’s new infrastructure banks are trying to raise. According to CLSA/CITIC Securities, “There is a massive gap in infrastructure funding in Asia, even with China’s help. In the past 20 years, private-sector investment averaged only US$13bn per year and was mostly in lower-risk countries.”

China has initiated the establishment of three financial institutions to support BnR implementation. They provide alternatives and can also collaborate with the World Bank and the Asian Development Bank.

**Silk Road Infrastructure Fund:** This fund was established in February 2014 to finance BnR infrastructure projects. The fund is capitalised mainly by China’s forex reserves and is intended to be managed like China’s sovereign wealth fund. It has committed resources of US$ equivalent 50 billion.

**New Development Bank:** The NDB is a BRICS multilateral development bank established during July 2014, by Brazil, Russia, India, China and South Africa. The bank was seeded with US$50 billion initial capital, with the intention to increase capital to US$100 billion.

**Asian Infrastructure Investment Bank:** Founded in October 2014, the AIIB is a global development bank with 21 Asian member countries: China, India, Thailand, Malaysia, Singapore, the Philippines, Pakistan, Bangladesh,
Brunei, Cambodia, Kazakhstan, Kuwait, Laos, Myanmar, Mongolia, Nepal, Oman, Qatar, Sri Lanka, Uzbekistan and Vietnam. It has registered capital of US$ 100 billion.

Chinese government sovereign wealth and pension funds, e.g. CIC, NSSF and SAFE will also provide capital for certain BnR projects. In addition, other government-sponsored sources of capital, such as the ADB, the World Bank and other development banks as well as export credit agencies will also support BnR projects. These government-backed funds must be careful not to allow their funds to be utilized for poorly conceived and managed projects. The potential for abuse of these institutions is very high.

Chinese and other national commercial banks will be utilized to the fullest extent possible as well as global capital markets to leverage national institutional investors.

III. Private Sector Participation is Essential

BnR is a hugely ambitious vision for a multitude of new infrastructure projects. For every project, there are risks that must be thoroughly assessed and mitigated. Governments and private sector investors and banks must be wary of such risks and compare them against the potential financial and social returns.

“While the terrain for the Silk Road Economic Belt is harsh and requires a high level of skill for infrastructure to be constructed, from a construction standpoint, China is most capable of creating the Belt and Road,” said Peter Chutchouse, Chairman of the Hong Kong Chamber’s Real Estate and Infrastructure Committee. “It is the political and security risks that people should be concerned about.”

The abilities of governments to thoroughly assess and accept project risks and effectively control them is not adequate to successfully implement BnR projects.

The private sector is essential to work closely with the public sector to help plan and control projects which have the most appropriate designs, the most cost-efficient construction and project management and most efficient operation. The private sector can contribute innovative ideas, proven management, some capital, and most of the project risk acceptance and absorption capacity.
PPP’s, such as B-O-T’s (Build-Operate-Transfer) can result in several potential benefits for the public sector and users of infrastructure projects:

1. Most appropriate and, sometimes, innovative designs
2. Lower capital costs which result in lower usage fees
3. Allocation of design and construction risks to the private sector
4. Shorter construction completion periods
5. Lower costs to maintain and operate facilities over their long usable lives.
6. Certain commercial and political risk insurance coverages.

Various contractual models for the planning, realisation and operation of public infrastructure are utilized in developed and developing countries. International experience has shown that these basic models can be applied to all infrastructure sectors, with sector-specific characteristics being made as appropriate in each case.

Governments are increasingly attracted to planning and funding transportation, electric power, telecommunications and environmental projects via public/private partnerships (“PPPs”). In the developed world, various forms of PPPs have been used for many years, some successful, some not. A successful PPP is the USD 600 million Hong Kong Eastern Harbour Crossing, a combined road and rail tunnel completed in 1989. In developing countries, relatively few have been successfully implemented. A highly successful PPP is the USD 1.1 billion Bangkok Second Stage Expressway, which was completed in 1990.

In Hong Kong, the government established the Mass Transit Railway Corporation (“MTRC”: 地下鐵路公司) in 1975 as a government-owned statutory corporation to build and operate a mass transit railway system to meet Hong Kong's huge public transport needs. It applied PPP principles and practices by recruiting experienced executives from the private sector to build and run it as a private sector enterprise. MTRC became a major property developer and landlord to help subsidize the fares and it listed the Hong Kong Stock Exchange. MTRC invests in railways in different parts in the world, and has obtained contracts to operate rapid transit systems in cities in London, Stockholm, Beijing, Shenzhen, Hangzhou, Melbourne, and Sydney.
The tables in the Appendix summarise the PPP models used in fully functional privatisations and in partial privatisations as presented by Barbara Weber and Hans Wilhelm Alfen in *Infrastructure as an Asset Class. Investment Strategies, Project Finance and PPP* (Wiley Finance, 2010):

The Design BOT Concession Model ("DBOT) is the most common PPP model. It includes substantial development, design/planning and operating components undertaken by the private sector participants as well as private finance and investment.

DBOT involves the grant of transfer of a concession for planning, construction, financing and operation to the private partner. The private partner’s source of income is user fees, such as tolls in the case of road traffic infrastructure projects. In addition, subsidies may be provided by the public-sector partner. DBOT’s typically allocate the design, construction and operation (e.g. traffic flows), risks to the private partner. The private partner is granted the right to levy user fees for the duration of the concession or a period. The public-sector partner often prescribes limits or determines the toll levels because road infrastructure generally constitutes a natural monopoly due to the lack of alternatives in the form of parallel routes and the difficulty in establishing such routes. Government regulation is necessary to protect the public interest.

### IV. Challenges and Problems of PPPs

Many challenges and difficulties must be overcome to develop and “package” PPP projects successfully. Successful packaging means getting all the political, technical, commercial and financial elements of a project together in an acceptable way so that adequate funds have been committed and advanced to the project company; and construction can start. Packaging includes the evaluation, promotion, development, financing and initial implementation of projects - their launching prior to construction.
“There is nothing more difficult to plan, more doubtful of success, nor more dangerous to manage than the creation of a new system. For the initiator has the enmity of all who would profit by the preservation of the old system and merely lukewarm defenders in those who would gain by the new one.”
(The Prince, Niccolo Machiavelli, 1523)

What are the necessary elements of, “the creation of a new system”, for the successful implementation of BnR projects?

A European Commission study concluded that there were three key macro-level requirements to successfully implement PPP schemes:

1. the availability of experienced project developers and equity investors;

2. the ability of governments to provide the necessary level of cooperation and support; and

3. the workability of corporate and financial structures.

Multi-party multi-national joint venture infrastructure projects are large and complex, and their procurement is difficult especially in developing economies. What are the typical specific problems likely to be encountered when implementing them?

1. **Weak legal and regulatory frameworks.** The legal and regulatory framework that exists within a country is a critical factor in determining the success of PPP infrastructure projects. Weak frameworks deter private sector capital and expertise from participation in infrastructure projects. Private market participants need to be comfortable that they will be treated fairly in any competitive process, that their investments are secure, and that their intellectual property is respected.

2. **Reluctance of some governments to accept the allocation of certain project risks.** Highly complex multi-party PPP projects sometimes
require complicated risk allocation and sharing arrangements among several parties, including governments, which each have to be satisfied that their risks are sufficiently limited. At the same time, all project risks have to be covered to the satisfaction of the project’s creditors and investors. Governments can view the involvement of the private sector in projects as a way to transfer all risks to another party. Nevertheless, governments must always retain some risks and certain risks will ultimately end up with the government in the event of a project failure. Governments should negotiate to transfer as much risk as possible to the private sector and insure that the risks are allocated to the parties that are best able to absorb and manage them. Governments need to minimize the costs to them of transferring risks and maximise value for the public sector.

3. **Sometimes inadequate financial returns for the risks.** According to a report by a well-known leading European investment manager of funds which invest in infrastructure, potential investors in some PPP infrastructure projects do not fully realize that high valuations and projected returns are sometimes based on “optimistic” assumptions about growth and regulatory support. In other projects, projected low returns “do not adequately compensate investors for inherent business, regulatory or macro risks”. A large European pension fund stated, “There is no such thing as too much risk...there’s only not getting fairly compensated for the risk that you’re taking, or not appreciating the portfolio impact of the next investment. How much incremental return does it add for the incremental change in risk?” Recently, the Norwegian government rejected a proposal to allow the country’s $850-billion sovereign wealth fund, the world’s largest, to buy stakes in unlisted infrastructure projects such as roads and wind farms. "In our view, a number of important factors indicate that investments in unlisted infrastructure should not be permitted," the finance minister said in a statement accompanying the government's annual white paper on the fund. "Such investments are exposed to high regulatory or political risk. Conflicts with the authorities of other countries regarding the regulation of transport, energy supply and other important public goods will generally be difficult to handle and will entail reputational risk."
4. **Limited trust initially between the public- and private sector partners.** Gaps in backgrounds and cultures can sometimes lead to misunderstandings, which are in turn magnified when the PPP project doesn't fit into any standard set of government procedures. Government officials may therefore sometimes prefer planning and executing a necessary project on their own using traditional public-sector methods with which they are familiar and not get the benefits of private sector participation.

5. **Limited experience in the private sector.** The development of PPP projects is sometimes managed by private-sector managers who have little or no experience with them. Few PPP project executives are keen to repeat the experience of the long development periods which are highly stressful and sometimes fraught with volatile political dynamics. The learning curve is steep for most project developers and managers.

6. **Limited experience in the public sector.** Most government officials involved in PPP projects have limited experience and must contend with the competing interests of different ministries and departments. Some government bureaucracies can be slow and episodic in their attention to projects. PPP project developers can sometimes feel that negotiations are akin to an agonizingly slow “death by a thousand cuts.” Those who initially believe they are lucky to sign contracts might soon learn that in some cases negotiations really begin after the documents are signed. The understanding of commercial practices and standards by government negotiators is sometimes limited. This perplexes most developers who yearn for clear, more transparent process, with a fair and reasonable balance of interests consistent with standard commercial conventions. Many public sector officials lack the required technical, legal and financial skills which must be supported by rigorous procurement processes that enable sound decisions to be made.

7. **High dependency on multi-party multi-national contractor joint ventures/consortia.** When a full design/build joint venture (where all risks, costs and progress payments are shared proportionately and the joint venture is effectively a profit center) is needed to design and build the project under a lump sum, fixed-price, tum-key contract, serious
conflicts among the joint venturers can sometimes arise. This results from the unique capabilities and commercial interests of each of the contractors, the different styles and cultures of each contractor and the inherent competitive natures of the contractor joint venturers. Further difficulty occurs any time weaker members are unable to complete their work on the agreed terms and none of the other contractors can take over responsibility.

8. **Failure to manage conflicts of interest.** Conflicts of interest are inherent in PPP projects. Where significant project development and investment equity is required, project suppliers of goods and services and contractors who provide funds naturally consider that their underwriting of promotion and development costs entitles them to special terms in providing their goods and services to the project company. Indeed, they quite reasonably expect two sources of commercial return - derived from their hard work and/or equity investment. The classic owner / supplier conflict must be mitigated in the structuring arrangements and requires constant management.

9. **"Typhoon" phenomenon.** Crises often occur in the packaging process, sparking decisions that might sometimes be made without consulting all the affected parties and without regard to the different conflicting interests of the different project participants.

10. **Long economic lives of projects.** By nature, infrastructure projects have very long useful lives. Because of this, the terms of the agreements between the private and public sectors must be negotiated to endure and require the project sponsors/owners to need very long-term funding. It can be challenging to negotiate long-term project equity as well as long-term limited and non-recourse debt commitments to the satisfaction of all of the owners/investors, creditors and government representatives.

11. **Sometime volatile nature of project creditors.** Creditors can sometimes vacillate from keen interest to apathy during the long project development periods. Their commitments, subject to certain conditions, must be considered to be highly reliable if project sponsors are to carry on during the long project development periods.
12. **Scarcity of appropriate sources of project development period equity.** Attracting the right co-developers and investors who combine the relevant knowledge, skill and political complexion along with the ability and willingness to commit cash equity for the long periods of project development and implementation is the most challenging. Although investment funds for economic and well-packaged projects are available, development capital high risk and is scarce.

The challenges and problems of planning and implementing BnR projects using PPP methods should not be underestimated. Special expertise and experience in project development, design and engineering, procurement and finance is required.

V. **Solutions**

Despite the numerous challenges and problems in the packaging of infrastructure projects using PPP methods, the approach is necessary because of the significant benefits to the public and private sectors. In my experience, there are effective solutions which require the **relentless application of sound project implementation principles and practices.** Each project is unique, and correct timing is a critical factor. Yet, certain general principles and specific practices must be applied to result in the successful implementation of PPP infrastructure projects, which is more of an art than a science.

The general principles include:

1. There is a **clear need for the project** in the determination of the respective government and private sector participants

2. **Available government funds and financial guarantees are inadequate** for the project;

3. There is a **strong political will** to utilize the private sector to help fund, design, build and operate the project;
4. **Highly credible contractors with strong financial capabilities** are willing to enter into turnkey design/construct contract and sub-contracts with firm price and completion terms;

5. It is believed that the **private sector possesses all of the technical expertise to design, build and operate the project.**

During the planning, promotion, development and private sector sponsor selection phases, certain practices should be utilized, e.g.:

1. **Establish a project company at the outset:** Private sector project developers and sponsors should establish the project company early. Capable executives who are responsible to all the shareholders/joint venturers, current and prospective, should be appointed to manage the company for the long term interests of the project company. The board should also appoint a financial adviser and legal counsel to represent only the interests of the company.

2. **Create alignments and mitigate conflicts of interest:** At the earliest stages, the parties should seek to identify business issues that could cause conflicts during the long lives of projects and seek to create strong alignments of interests amongst the parties including government controlled entities. Project partnerships should have exit provisions for incompatible or nonperforming partners and entry provisions for new participants.

3. **Thorough planning and preparation:** Infrastructure projects instigated by governments should be well prepared for the participation of private market participants. Sufficient time is needed to prepare a project for implementation via PPP methods. Feasibility studies are required to establish the economic and technical viability of a project. Government officials should consider complementing their in-house skills with external advice, if required, to provide specialist knowledge and insight. The cost of such advice, when compared to the overall cost of the projects is small and can result in major reductions in the use of public funds and, even more important, exposures to project risks.
4. **Competitive selection process:** Exclusive negotiations between the government and the private sector group should begin only after competitive qualification and selection processes. The selection of one group for exclusive negotiation should be relatively soon after the initial proposals are submitted.

5. **Demonstrated competencies:** The technical, financial and management competencies of each member of the private sector group must be thoroughly assessed. Some people believe that only investors should be involved at the outset and the contractors brought in later on. In my experience, contractors and equipment suppliers stand to benefit earliest from the successful packaging of a project since they will be providing goods and services relatively soon. Contractors can receive revenues and profits in the near term if they are performing properly and managing their risks well. They are therefore likely to be the most highly motivated parties to solve problems quickly and effectively.

6. **Supportive attitude and contributions of governments:** A close working relationship between the government and the private partners which are providing technical know-how, project management and financing is necessary. The government must demonstrate a supportive attitude for a much-needed project. The private sector parties must understand the political drivers that sometimes underpin decision making by governments. In some cases, the use of public resources to catalyse private capital flows into BnR infrastructure projects is needed via direct government risk and revenue sharing or credit enhancement. This is fully justifiable in cases where the socio-economic benefits of the project are substantial. Support mechanisms of this type are sometimes offered by international development organisations and have been successful in encouraging private sector participation. Provision of risk mitigation or credit enhancement by governments as part of a infrastructure project financing may be required to make the project financeable, or may enable the project company to obtain a lower cost of capital and better investment terms resulting in more affordable infrastructure services for the public. For example, with the US$ 1.1 billion Bangkok Second Stage Expressway, the Royal Thai Government accepted our view that some of the revenues from the First Stage Expressway company should be
allocated to the Second Stage Expressway company in order for the Second Stage company to be financially viable for private capital. However, I have sometimes observed governments accepting unnecessary levels of project risks during the construction and operating periods.

7. **Suitability of design/build method:** The joint-venture or consortium method that the contractors desire to use should be appropriate for the risk profile of the project and for the relative financial strengths of the members of the contractor group. Contractors should be provided with bonuses or suffer penalties for cost and time performance.

8. **Tailor-made financing structure, terms and conditions:** The project financing structure should be carefully tailored to the specific characteristics of the project and its participants. Debt and equity financing that is adequate to accommodate reasonable levels of cost overruns and delays should be planned early. Debt financing should be entirely in local currency whenever possible. Alternatively, the public sector should effectively absorb the risks of exchange rate depreciation, convertibility and the ability to remit. By “public sector” in this context, I mean the host government and a bilateral or multilateral agency. The private sector is simply not in a position to accept these risks. Project creditors should not be involved too early. There is a right time to obtain firm commitments from project creditors, usually toward the end of the project development period, to allow for up to date details of the project to be disclosed and to permit sufficient flexibility in negotiating appropriate terms and conditions.

9. **Full use of insurance:** The fullest possible economic use of insurance should be made by the project company and its contractors and service providers. This is a source of risk management and control that often does not get the attention it deserves until well after the bankers have issued their commitments, subject to documentation which often includes “insurance acceptable to the lenders.” Terms and conditions of insurance coverages should be negotiated relatively early.

10. **Cooperation with international development institutions:** The fullest possible cooperation with international development organisations such as
the AIIB, the ADB, and the World Bank to access funding as well as make use of their excellent procurement processes and guidelines for projects. Staff at these institutions have extensive in-depth knowledge and experience which can be useful for the planning and implementation of infrastructure projects.

In my view, the BnR vision is sound and can be a catalyst which is likely to stimulate a large number of feasible infrastructure projects that will increase connectivity and stimulate economic growth and employment as well as closer political ties. These projects can best be implemented by multi-party multinational joint ventures using the most appropriate PPP model to achieve the intended economic and political benefits.

However, as Machiavelli put it, the creation of new systems can be downright dangerous. Yet, he would likely agree with me that the new application of PPP methods on the scale of those being tried in the most populous regions of the world, "those who would gain ..." could gain greatly.

VI. Role of Hong Kong: "BnR Super-connector"

As described by the HKTDC, given the globally dispersed investment projects and trade networks envisioned as part of BnR, Hong Kong is well placed to help companies seize these new opportunities and manage related investment projects and business activities. This is largely on account of its status as an international hub with an independent legal system, as well as its low and simple and efficient tax structure, liberal trade and investment regimes, strong international networks, and free flow of information, capital and talent.

Hong Kong’s well-developed project services sectors - including its expertise in the financial, professional and infrastructure development sectors - are unique in Asia in terms of their international business orientation, depth of service, expertise and professionalism, e.g.:

1. World-class architectural, surveying and engineering services companies with a full range of services. These include consultancy, design, planning and the management of infrastructure and related development projects.
Many have proven records in large scale projects across Asia and in other regions.

2. The concentration of international financial institutions in Hong Kong offers a wide range of services when it comes to fund raising and financing, fund and asset management, loan syndication and foreign exchange trading. Hong Kong project financiers are skilled at advising, arranging and underwriting financing in a number of different currencies and disciplines, including Renminbi bonds and Islamic bonds. A large number of construction and infrastructure companies also raise capital on the Hong Kong Stock Exchange.

3. Hong Kong is a center for international insurance companies and professional insurance brokers which provide various types of coverages and specialized advice in connection with the design, construction and operation of infrastructure facilities.

4. Hong Kong’s dynamic cluster of local and international CPA firms, lawyers and management consultants offers a wide range of services for a variety of business sectors, including trade, industry, construction and maritime. These professionals can draw on their international expertise to conduct due diligence and valuation, provide advice on tax, legal and risk matters, and provide help in dispute resolution, notably in the area of arbitration.

The provision of limited and non-recourse finance for infrastructure projects is a highly specialised, complex business, requiring a high degree of expertise. Project finance transactions may involve multiple tranches of equity and debt, which could include fixed income, leasing and other financial instruments. Risk sharing or credit enhancement, and the involvement of government linked or multilateral financing institutions, often form part of the financing structure.

According to Alexandra Tracy, President of Hoi Ping Ventures, a private consulting firm specialising in infrastructure finance, “Hong Kong is the leading financial centre in Asia for project finance and its professional advisory firms and investment banks have long experience and highly developed skills in structuring and arranging such transactions. Hong Kong institutions are well positioned to play a leading role in the application of project finance techniques to funding of...
BnR infrastructure projects.”

An essential characteristic of Hong Kong as the “Super-connector” for BnR infrastructure projects is the high degree of reliability on the enforcement of contracts. Maintaining the rule of law and the independence of the judiciary is of high importance for international businesses, investors and creditors. It is indicative of the high regard for Hong Kong Law that it governs a large portion of credit and investment agreements including those that have no other connection with Hong Kong.

Hong Kong is functioning effectively as a kind of “Super-connector” putting together various parties which are interested participating in BnR-inspired projects so that they have opportunities to meet and consider collaborating.

PC Yu, Chairman of the Hong Kong Chamber’s China Committee, has stated that he is optimistic that BnR will bring more and more opportunities for Hong Kong. “Hong Kong can play an important role in financing, project risk/quality management, global logistics, infrastructure and real estate services, as well as several other related fields,” he said. “Hong Kong should grasp the opportunity to boost our own economy as well as contribute to the nation’s development.”
Appendix

PPP = [functional privatisation, comprehensively integrated services]

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(D)B(F)OT</td>
<td>(Design) Build (Finance) Operate Transfer Concession</td>
</tr>
<tr>
<td>(D)B(F)OOT</td>
<td>(Design) Build (Finance) Operate Own Transfer</td>
</tr>
</tbody>
</table>
| DBFO(T) | Design Build Finance Operate (Transfer)  
 Availability Payments Model  
 PPP-Ownership Model |
| (D)B(F)OOT | (Design) Build (Finance) Operate Own Transfer  
 PPP-Purchaser Model |
| DBLOT | Design Build Lease Operate Transfer  
 PPP-Lease Model |
| DB(F)ROT | Design Build (Finance) Rent Operate Transfer Contracting  
 PPP-Rent Model |

(Partial) Material Privatisation

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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</thead>
</table>
| (D)B(F)OO | (Design) Build (Finance) Operate Own  
 Funding of Special Purpose Company |
| BDB(F)OO | Buy Design Build (Finance) Operate Own  
 Shareholder of Special Purpose Company  
 (Purchase of Shares) with the obligation to invest |
| DB(F)ROO | Design Build (Finance) Rent Operate Own  
 Renting incl Facility Management |

‘D’ – Design  
‘L’ – Lease  
‘F’ – Finance  
‘B’ – Build  
‘R’ – Rent

(Source: Infrastructure as an Asset Class. Investment Strategies, Project Finance and PPP (Wiley Finance, 2010))
JOSEPH W. FERRIGNO III  
Managing Partner, AMCG Partners (“AMCG”)

Ferrigno has played leading roles in the development and financing of PPP infrastructure projects in the US, Europe, Australia, Hong Kong, the Philippines and Thailand as well as in direct investment funds and acquisitions. He has held positions with the Chase Manhattan Bank, Bankers Trust Company, Lehman Brothers Kuhn Loeb, the Bechtel Group and Prudential Financial in New York, London and Hong Kong.

He formed the New Hong Kong Tunnel Consortium, which members included Kumagai Gumi Company of Japan, China International Trust and Investment Corporation and Paul Y Construction Co. The Consortium was awarded the franchise, financed, built and operated the US$600 million Hong Kong Eastern Harbour Crossing, the first BOT project in Asia. He organized a consortium to develop, build and operate the US$ 1.1 billion Bangkok Second Stage Expressway and managed a mezzanine fund which invested in the Delhi-Noida Toll Bridge. He has also been a director of the Manila North Tollroad Company and was involved in the financing of the Sydney Harbour Tunnel.

Ferrigno has also advised clients on several other major infrastructure projects, including the Channel Tunnel, the Sydney Harbour Tunnel, the US$1.2 billion Hub River Power Project, the US$3 billion Florida High Speed Rail Project, the US$750 million Container Terminal NO.8 in Hong Kong, a domestic satellite system in Thailand, a regional airport in Europe, the subway system in Taipei, the US$1 billion Hong Kong Western Harbour Crossing, and Century City, a new urban center outside of Bangkok; the US$800 million 15km elevated Bangkok Transit System (in association with Salomon Brothers and Bangkok Bank) sponsored by the Tanayong Group, the US$400 million 6,000 tonne/ day solid waste landfill in the Hong Kong New Territories for Far East Landfill Technologies (a joint venture of New World Development, Guangdong Investments, and Lyonnaise des Eau Dumez), and the US$3 billion Second Bangkok International Airport for the Airport Authority of Thailand.

He founded the first mezzanine capital fund in Asia, the US$246 million Asian Infrastructure Mezzanine Capital Fund, sponsored by Prudential Financial and the Asian Development Bank. He previously initiated the US$780 million Asian Infrastructure Fund, the first of its kind, sponsored by Peregrine Capital, the ADB, the IFC, Frank Russell & Co. and the Soros Group.
Ferrigno is a graduate of the Wharton School and is the Founding President and member of the Board of Governors of the Wharton Club of Hong Kong. He is a member of the American Club in Hong Kong, the Hong Kong Club, the Royal Hong Kong Yacht Club, the Shek O Country Club and the New York Yacht Club.

AMCG Partners

AMCG is an advisory firm based in Hong Kong with associates in Taiwan, Thailand, the Philippines, Japan and Australia. Principals were involved in the management of the US$ 1 billion Asia Infrastructure Fund, which provided equity to infrastructure projects and businesses which was sponsored by the Asian Development Bank, the IFC and others; the US$ 246 million Asia Infrastructure Mezzanine Capital Fund, which was sponsored by Prudential Insurance Company of the US and the Asian Development Bank; and the Asia Strategic Capital Fund, L.P., which provided longer-term mezzanine growth capital to medium-sized businesses and invested in their strategic development – major capital expenditure programs, mergers and acquisitions, restructurings, recapitalizations, privatizations and buyouts.

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