# Concession Models for Build-Operate-Transfer Projects

By

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# Presentation Outline

- BOT concept
- BOT project
- The scenario for using BOT
- Factors affecting the use of BOT
  - Positive factors
  - Negative factors
  - Examples
- BOT model development framework
- BOT development process
- Risk assessment strategy
- BOT development process in China
- Conclusion
- Recommendation

# BOT Concept

- Build-operate-transfer (BOT) requires the private sector to finance, design, build, operate and manage the facility and then transfer the asset free of charge to the government after a specified concession period.
  - First coined in 1984 by the Turkish PM Turgut Ozal within the framework of the privatization of Turkish's public sector projects.
  - Captured the world's attention especially of developing countries, e.g. Malaysia (NS Highway), Thailand (LTR), China (Laibin), HK (Tunnel), Australia (Tunnel), UK & France (Eurotunnel).

# BOT Projects

| *Location* | *Project* | *Contract* | *Cost (US$ millions)* |
|---|---|---|---|
| France/United Kingdom | Channel Tunnel | BOT, 55 years | 19,000 |
| Taiwan (China) | Taipei Mass Rapid Transit system | BOT | 17000 |
| Japan | Kansai International Airport | BOT | 15,000 |
| Argentina | Buenos Aires water and Sewer Services | ROT, 30 years | 4,000 |
| Thailand | Telecom Asia communication Network | BTO, 25 years | 4,000 |
| China | Shao Jiao B, power plant | BOT | 550 |
| Malaysia | North-South Toll Expressway | BOT, 30 years | 3,400 |
| Mexico | Petacalco Coal –fired Power Plant | BOT | 3,000 |
| Thailand | Bangkok Elevated Road and Train System | BOT, 30 years | 2,981 |

BOO= Build-Own-Operate: BOT=Build-Operate-Transfer: BTO=Build-Transfer-Operate:ROT= Rehabilitate-Operate-Transfer

# The Scenario for using BOT

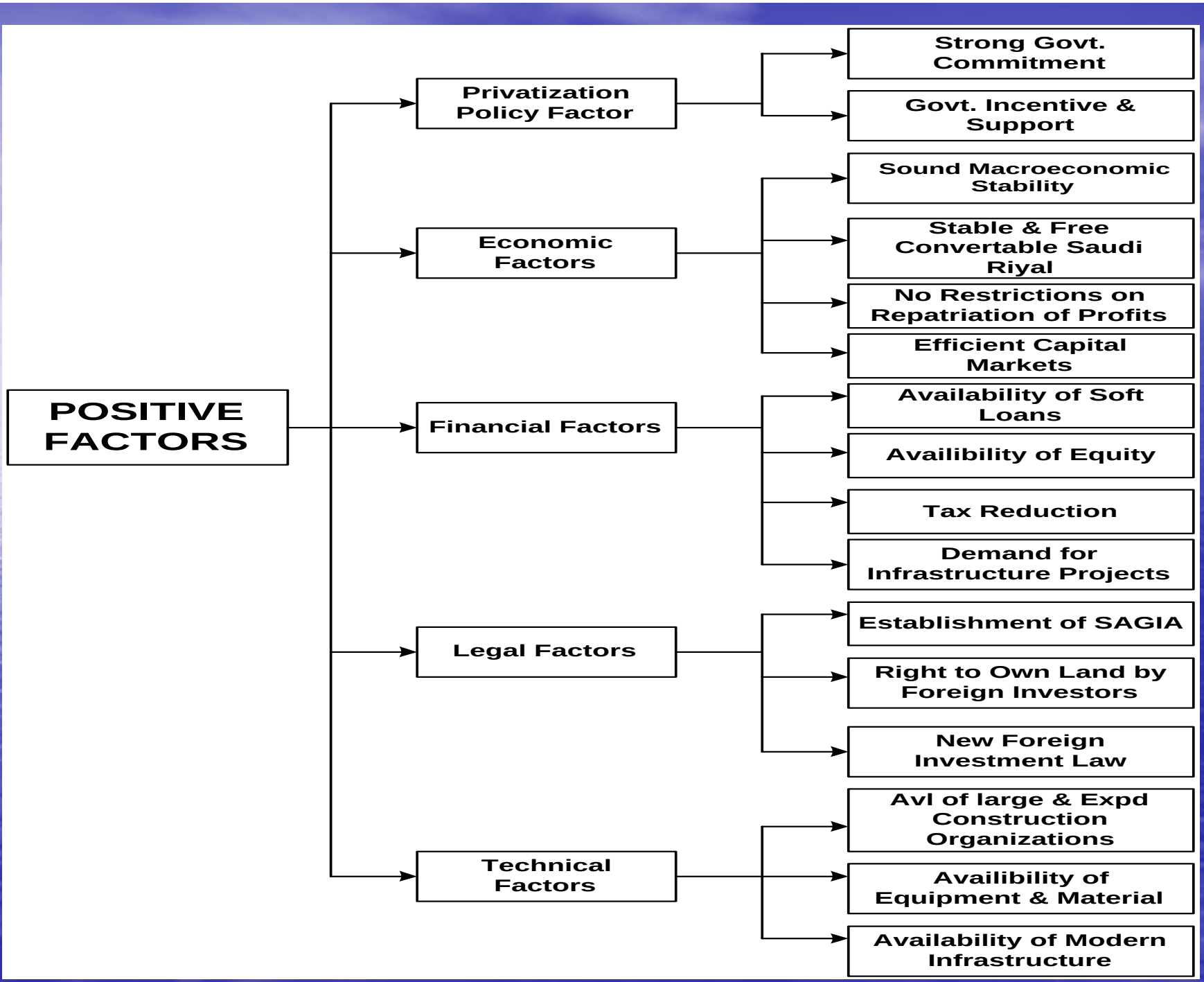
- There are serious problems associated with expanding the infrastructure in such areas as electricity, water, education, housing and health care facilities.
- Government Finances : Limited Revenues.
- The funding for large scale investment projects are becoming increasingly scarce.

# Identification and Assessment of Factors affecting Use of BOT

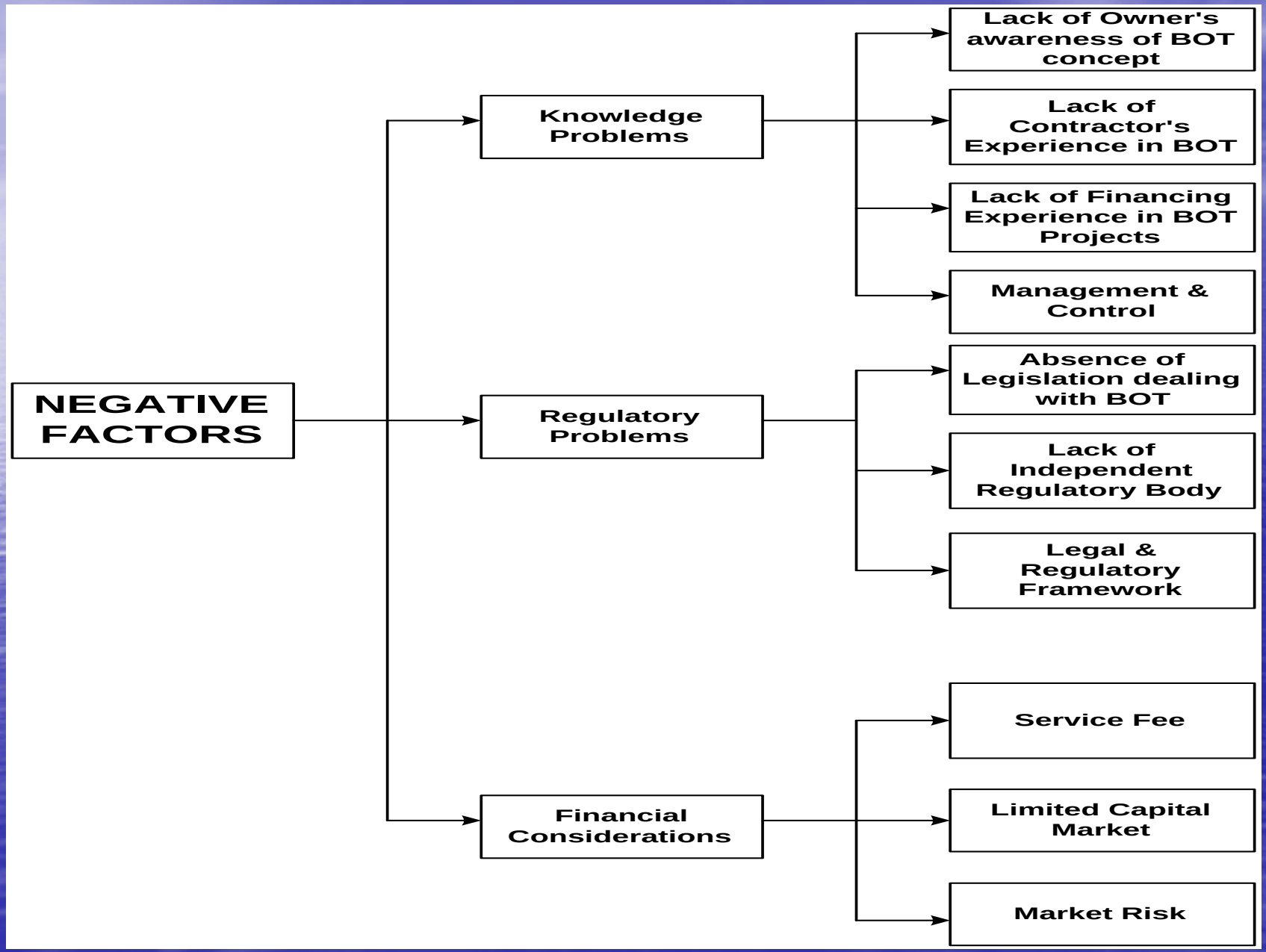
- United Nations Industrial Development Organization(*UNIDO)* in the recently published guidelines for the successful implementation of BOT described,

  *" a critical challenge is to identify the factors that effect the application of BOT "*

- Identification ,assessment and evaluation of factors conducted in Saudi Arabia showed two sets of factors, influence the use of BOT in Saudi Arabia:
  - A positive set of factors,
  - A negative set of factors


POSITIVE FACTORS
Privatization Policy Factor
Strong Govt. Commitment
Govt. Incentive & Support
Economic Factors
Sound Macroeconomic Stability
Stable & Free Convertable Saudi Riyal
No Restrictions on Repatriation of Profits
Efficient Capital Markets
Financial Factors
Availability of Soft Loans
Availibility of Equity
Tax Reduction
Demand for Infrastructure Projects
Legal Factors
Establishment of SAGIA
Right to Own Land by Foreign Investors
New Foreign Investment Law
Technical Factors
Avl of large & Expd Construction Organizations
Availibility of Equipment & Material
Availability of Modern Infrastructure

# Negative Factors Hindering The Use of BOT

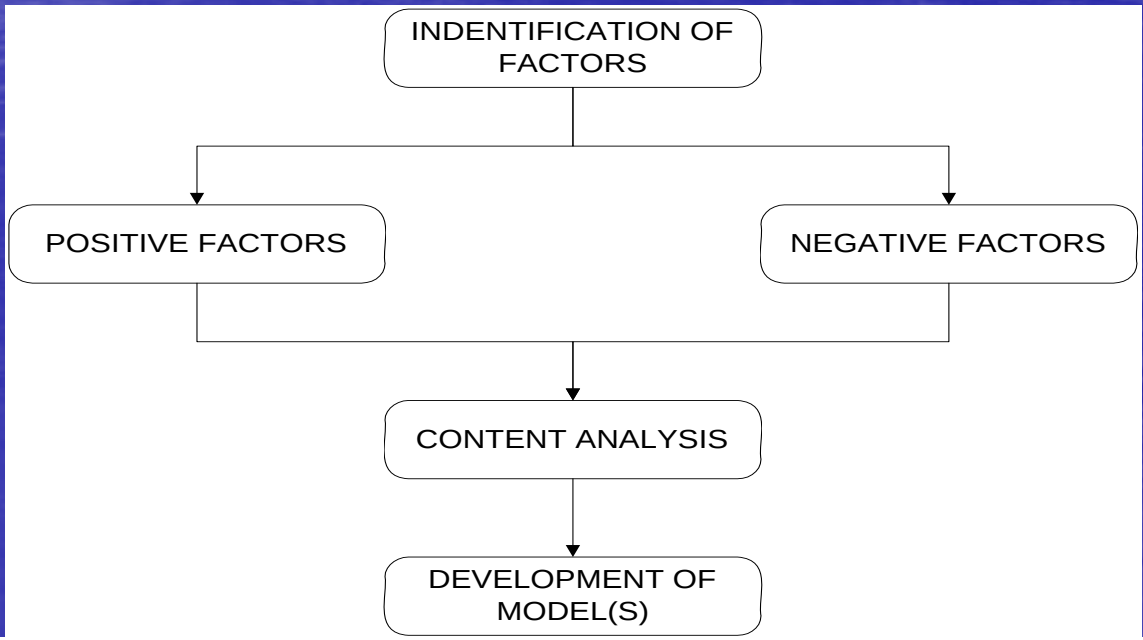


# Development of Model(s)

- BOT projects are characterized as complex web of contractual agreements.
- Models are defined as representation of complex situations
- Model describing the procedural framework and tools that various role players in BOT delivery system can use for effective implementation of BOT projects.
- The model intends to help the government and policy makers in adopting the BOT strategy.

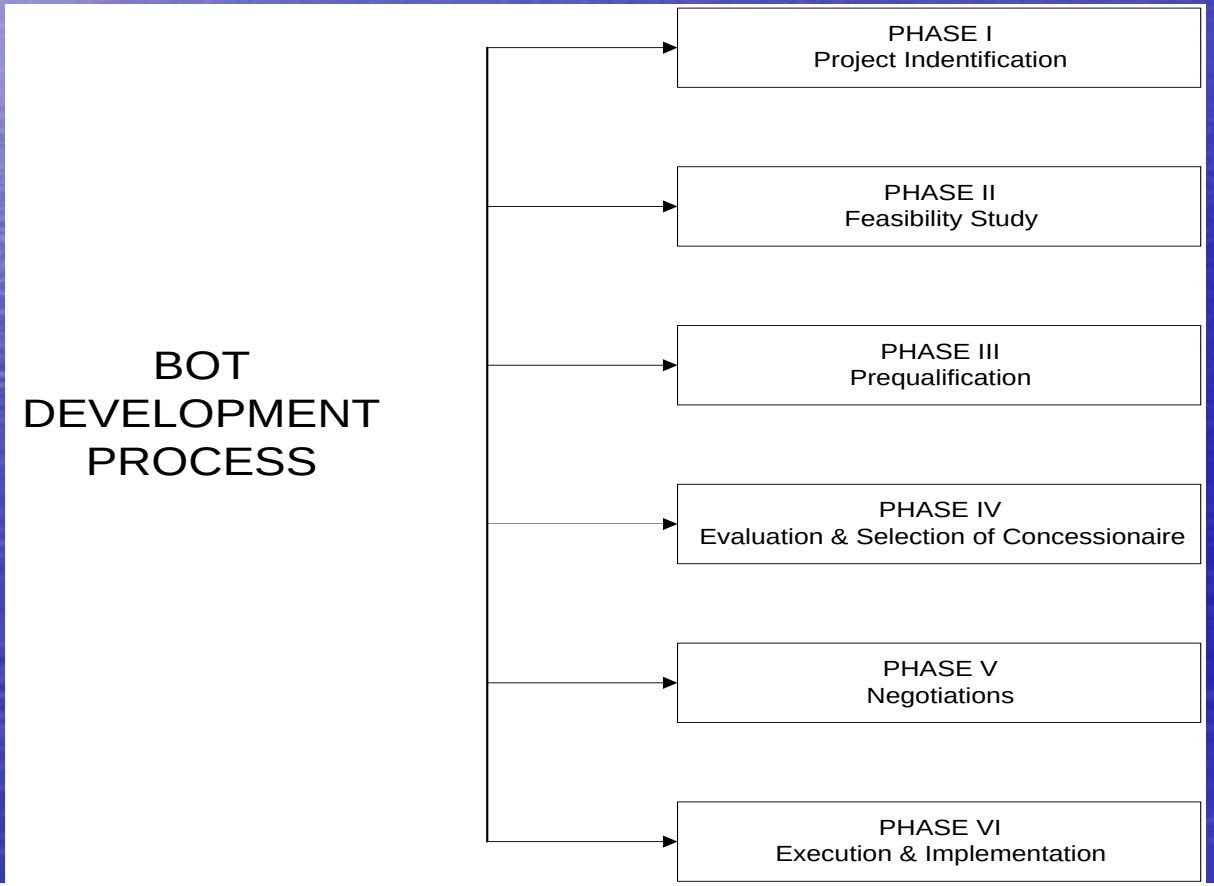
# Model Development Framework

- The development of the model was performed in 2 stages .
  - The first stage :Identifying the factors both positive and negative that have an impact on adopting the BOT delivery method.
  - The second stage :The consideration of these factors previously identified (i.e. positive and negative) The model development framework utilize for this research is shown in the Figure



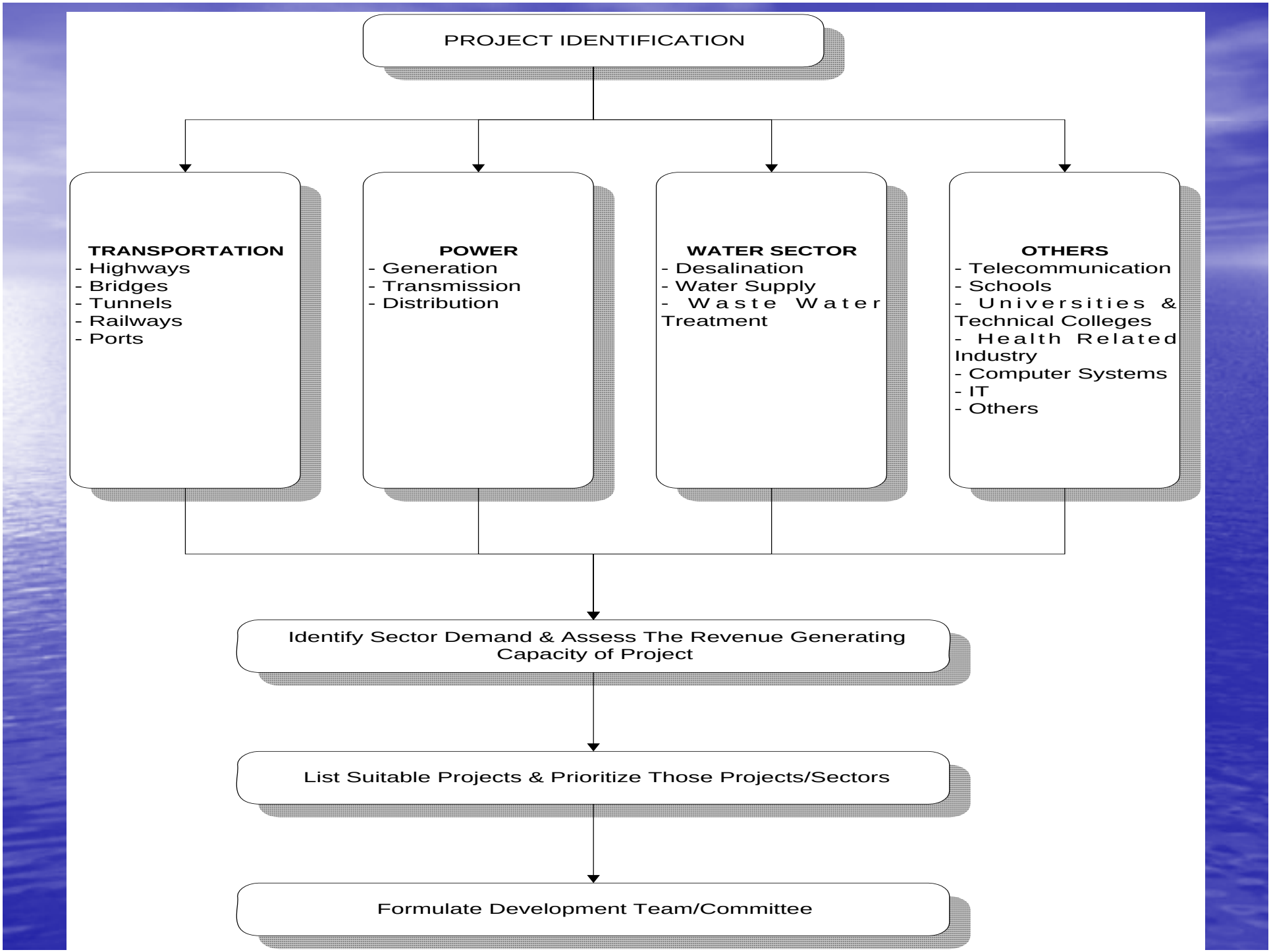
# BOT Development Process

- The model suggests a methodology to be adopted throughout the stages of BOT projects. The model is organized in 6 distant phases. The Figure shows the BOT development process.



# Project Identification Process

- The objective of this Phase is to determine the suitable projects and markets to be initiated under BOT delivery System.
- The identification of the right project is key to success of BOT project. Hence the identification phase should be integrated part of BOT process.
- Moreover Mainland, China is still at the initial stage of the BOT projects. As such identification of sectors is critical and should be incorporated at the start of BOT process.
- To understand how project identification phase works framework has been developed.


PROJECT IDENTIFICATION
TRANSPORTATION
- Highways
- Bridges
- Tunnels
- Railways
- Ports
POWER
- Generation
- Transmission
- Distribution
WATER SECTOR
- Desalination
- Water Supply
- Waste Water Treatment
OTHERS
- Telecommunication
- Schools
- Universities & Technical Colleges
- Health Related Industry
- Computer Systems
- IT
- Others
Identify Sector Demand & Assess The Revenue Generating Capacity of Project
List Suitable Projects & Prioritize Those Projects/Sectors
Formulate Development Team/Committee

# Evaluation and Selection of Concessionaire

- The criteria for evaluating bids are :
  - Shortest concession period
  - Lowest tariff/ toll level
  - Lowest NPV
  - Debt & Equity ratio capital structure of project
  - Source of loans

# Negotiation phase

- The main objective of the negotiation is to reach a common ground/ agreement between government and private entity on complex issue such as toll rate, concession period and rate of return.
- The government agencies or relevant ministries should establish sufficient capacity in terms of human resources required to deal with the negotiation and clarification process

# Execution & Implementation

- The Execution phase starts with signing of concession agreement between the concessionaire and government. The execution phase consists of construction phase, O & M phase and ultimately transfer.
- The following procurement strategy is suggested.
  - Fixed price lump sum Turnkey contract should be adopted for the construction of the facility.
  - Establishment of independent body to oversee the quality if design and construction.

# Risk assessment strategy

- Geopolitical
- Commercial
- Technical
- Construction
- Operation

# Risks

## Geopolitical

- Government Instability
- Economic downturn
- Expropriation
- War/Terrorism
- Natural Disaster
- Change in laws
- Banking Restrictions

# Risks

## Commercial

- Competition
- Client Credit
- Revenue Protection
- Cost
- Escalation / Inflation
- F / X Fluctuations
- Debt Repayment
- Guarantee
- Power Availability
- Termination

# Risk assessment strategy

## Technical

- Battery Limits Unclear
- Health and Safety
- Environmental
- Technology Risk
- Process Risk

# Risk assessment strategy

## Construction

- Cost Overruns
- Delays
- Performance Shortfall
- Capacity Shortfall
- Natural Disaster
- Political Unrest

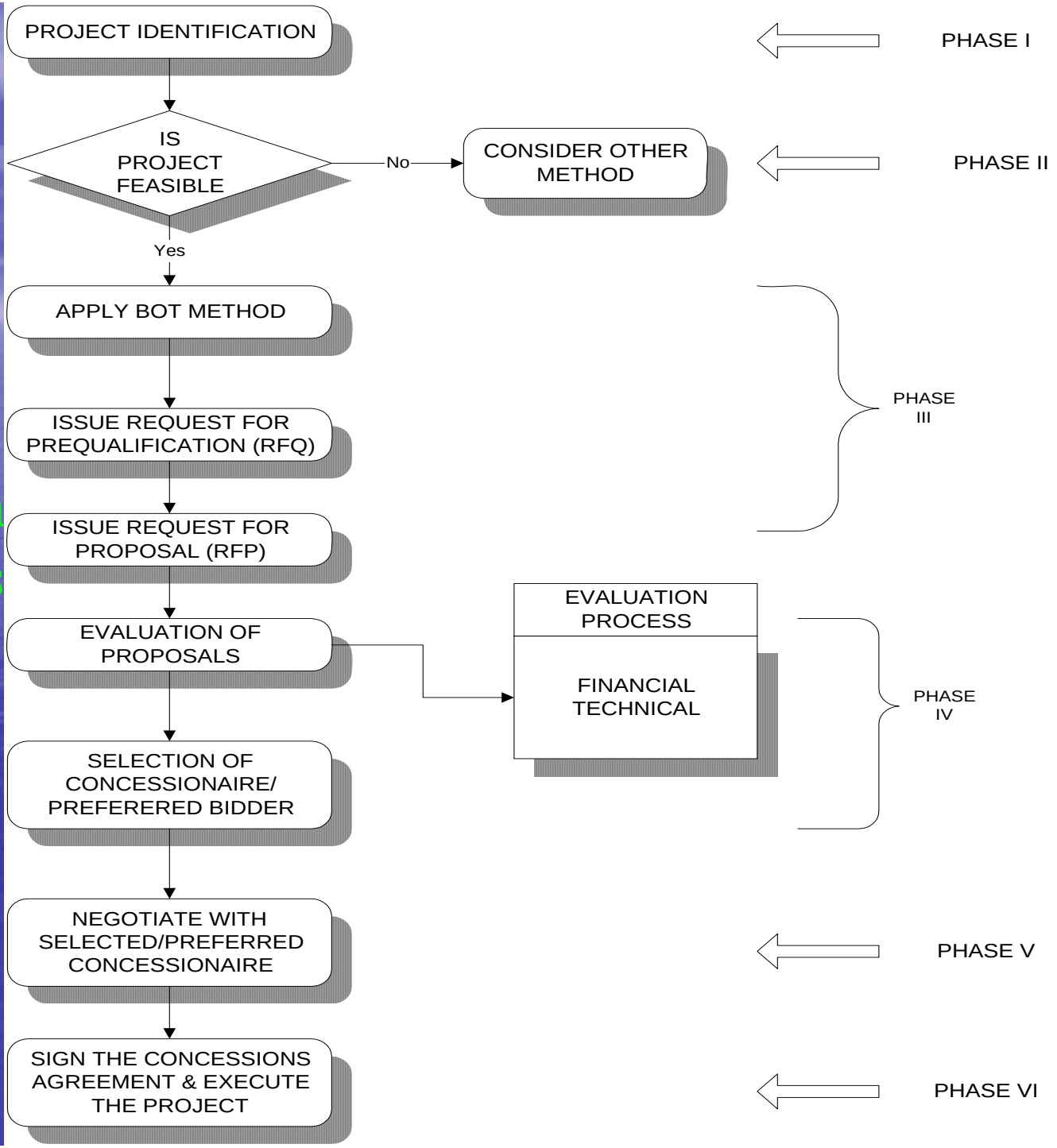
# Risk assessment strategy

## Operations

- Cost Overruns
- Power Interruption
- Performance Shortfall
- Capacity Shortfall
- Natural Disaster
- Political Unrest

# A video program

# Development and Implementation of BOT projects in mainland China



# Concession period

# Conclusion

- It is becoming clear that the investment requirements are huge and immense and Government alone cannot bear the burden
- In the current environment, BOT is found to be most attractive and desirable option for the development and expansion of power generation, water desalination, roads, ports, airports and railways.
- The assessment and evaluation of the factors, conducted in mainland, China proved positive for application of BOT .The major positive factors for application of BOT in mainland, China are
  - Strong government commitment
  - Availability of soft loans to the private sector.
  - Demand for projects such electricity generation, water desalination, etc.
  - Foreign investment law.

# Conclusion

- The major obstacles in mainland, China for the application of BOT are identified as
  - Lack of adequate awareness among owners and contractors regarding BOT concept
  - Lack of independent regulatory body
  - Low Service Fees (insufficient cost recovery)
- The study indicated that across all the types of infrastructure projects, power generation and water desalination appear at present to leading the push for application of BOT delivery method.
- There are considerable opportunities for the private sector to be involved in BOT type infrastructure projects across railways, roads, and airports.

# Recommendations

- Establishment of BOT center can be the key to design and structuring of BOT projects. A BOT center should be established with the following objectives:
  - To disseminate information and knowledge regarding the public-private partnership practices
  - To serve as main conduct between the private sector investors and government with aim of coordinating the implementation of BOT projects.
  - To pool specialized resources and specialists to provide better understanding of fundamentals of BOT arrangements.
  - To promote BOT investment opportunities to the project promoters locally & internationally.
  - To gain better understanding on drafting concession agreements/ and other contractual aspect related to BOT.

# Recommendations

- Need to create independent regulatory bodies in each of the infrastructures sectors, namely Power sector, water sector, and transport sectors.
- There is a need for legislation dealing with the implementation of BOT projects. Existence of such legislation would provide guidelines for potential private sector participation. The legislation should include, evaluation criteria, procurement rules of tenders/proposal, the role of government support, sectors where BOT project are allowed, etc.

# Thank You