

# Bangkok Transit System

## A Case Study

### Private Public Partnerships

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# A. System – Construction and Financing

- First Rail Transit System in Central Bangkok
- 23.5 km long
- One large depot
- 23 Elevated Stations
- 2 routes (both with heavy motor vehicle congestion)
- 35 3 – car trains

# Sky Train



# BTS SkyTrain Route Map



**สัญลักษณ์ / LEGEND**

- คุณอยู่ที่ / YOU ARE HERE
- สายสุขุมวิท / SUKHUMVIT LINE
- สายสีลม / SILOM LINE
- สถานีบีทีเอส / BTS STATION
- ◀▶ สถานีเชื่อมบีทีเอส / BTS INTERCHANGE STATION
- ⓘ ศูนย์บริการนักท่องเที่ยวบีทีเอส / BTS TOURIST INFORMATION CENTERS
- ≡ มีทางเชื่อมกับอาคารข้างเคียง / SKYBRIDGE CONNECTION
- ⚓ ท่าเรือสายธารณะ / RIVER PIER
- ⚡ เส้นทางรถไฟฟ้ามหานคร / MRTA ROUTE
- ◌ สถานีเชื่อมสายรถไฟฟ้ามหานคร / INTERCHANGE WITH MRTA
- การรถไฟแห่งประเทศไทย / STATE RAILWAY OF THAILAND

เปิดให้บริการ / Service Hours : 06.00 - 24.00 hrs.

# A. System – Construction and Financing

## PROJECT TIMETABLE

- Proposals to Invest Sought in 1991
- Concession signed between BMA and Tanayong in 1992
- Bangkok Transit System Corp (BTSC) formed in 1992
- Turnkey Construction Contract signed in 1995 with Siemens and Ital-thai and signs a spares supply/maintenance agreement with Siemens
- Debt Financing Closed in 1996
- Operations commence in 2000

# A. System – Construction and Financing

## PROJECT FINANCING SOURCES

- Equity raised in cash and by secured shareholder loans
- Debt from KfW, IFC and Thai Banks

# A. System – Construction and Financing

## PROJECT COST

- Capital Cost \$1.1 billion
- Total Financed Cost :  
approximately \$2 billion
- Equity approximately \$640 million



# B. Construction Phase Mis-steps

## GROUND-BREAKINGS AND FALSE STARTS

- 1992 – Project Company invited proposals from ridership consultants, inevitably selecting the consultant with the rosier forecast
- 1994 – foundation stone laid by Crown Prince
- 1994 – tendering of electrical and mechanical works, leading to selection, based on fixed price, of Siemens
- 1994 Large public protests seeking to change depot site from Lumpini Park
- Jan 1995 – Change of depot site from Lumpini Park
- Responding to political pressure, Feb - October 1995 – Civil construction commences on, in all, seven work sites
- June 1995 – Two significant route changes required by Thai Cabinet
- July 1995 – Turnkey contracts signed.
- August 1996 – Long-term debt signed up (based on DSCR reflecting Tanayong's ridership forecast)

# B. Construction Phase Mis-steps

- Tanayong persuaded lenders and investors to accept its selected ridership consultant (using downside case for lenders) > no impartial due diligence as to numbers
- Tanayong bowed to political pressure to commence civil works before turnkey contracts negotiated > vulnerability
- Tanayong permitted the route to change and the cost of the system to be varied, causing delay and added cost for which it was not compensated > erosion of potential profit
- Tanayong failed to find hedge for exposure to baht, borrowing long-term floating baht, and long term floating dollar > exposure to currency and interest rate fluctuation

# C. Risk Analysis

## THAILAND - RISK ACCEPTANCE

- – Transferability and Repatriation
  - Bank of Thailand gave certain assurances on transferability of Baht revenues
  - Employment - Work Permits granted for foreigners
  - Exemption from Import Duty and corporate income tax for eight years

# C. Risk Analysis

## RISK ACCEPTANCE BY THE BMA

- **Opportunity Cost**
  - Exclusive License: BMA grants exclusive rights to build/ operate transit system BMA grants exclusive right of first refusal to carry out expansions of the system along pre-designated routes
- **Cost and Compensation:**
  - Land: BMA provides large 63 rai site for depot free of charge, also footprint for system and its expansion
  - No fees payable by BTSC for this right for the first 10 years;
  - BTSC retains all farebox revenues, advertising revenues, and revenues derived from other ROW uses;
  - BMA must pay for cost of utility diversion where costs are above 500 million baht
- **Political Capital**
  - Concessionaire entitled to increase fares formula based on domestic cpi, exchange rate fluctuation and variation in US interest rates,
  - BTSC has right to impose flat, or distance related fare;
  - Technology: BMA (Concession) does not specify technology of system
  - Competition: BMA to attempt to encourage bus system to operate as feeder

# C. Risk Analysis

## RISK ACCEPTANCE BY THE CONTRACTORS

- Time
- Quality
- Performance
- Warranty

(But did not accept the risk of currency exchange between baht and Deutschmark)

# C. Risk Analysis

## RISK ACCEPTED BY THE CONCESSIONAIRE, BANKERS, AND INVESTORS

- Guinea Pig:
  - Urban Transit System has never before been 100% privately financed.
  - No deal precedent, and therefore high risk
  - All previous studies have indicated private transit systems are unaffordable
- Compensation –
  - BMA and Thai government provide no fare subsidy
  - Whilst Escalation of fares formula based on domestic cpi, exchange rate fluctuation and variation in US interest rates, fundamental driver of revenues is market demand; price variation is only practicable within a narrow range
  - BTSC must pay BMA substantial license fee after year 10

# C. Risk Analysis

- RISK TAKEN BY THE CONCESSIONAIRE, BANKERS, AND INVESTORS
- Financing - No source of long term fixed interest baht financing; only reliable debt sources are therefore foreign, with related exposure to exchange rate fluctuation
- Regulatory - No independent fare regulator, and Concession governed by Thai Law
- Competition - No guarantee that BMA will not permit buses to compete with system (re-pricing/re-routing); moral hazard
- Non-Diversification - Land Development Play (e.g. station sites) Heavily Discouraged
- Residual - After 30 years, BTSC must hand back the asset

# D. System Opening and Subsequent

- Forecast ridership for opening 650,000 ppd
- Actual ridership at opening 180, 000ppd
- Current ridership (2007) 380,000 ppd
- Public resistance to elevated system
  - Delays in development > increased cost
  - Redesign of system (Porsche) > increased cost
- Foreign Exchange fluctuations against D-Mark > increased costs
- Asian crisis hit in 1997, after senior debt closed> significant decline in traffic in Bangkok and to massive devaluation of Baht
- Failure by BMA to cause bus system to convert to station feeders

# D. System Opening and Subsequent

- Ridership only 25% of forecast and 40 Baht to US Dollar (contracted at 25 to US Dollar) >
- Debt Service Coverage Ratio for senior debt massively inadequate – covers only the Operations and Maintenance costs
  - Equity extinguished
  - Debt under restructuring
- = FINANCIAL DISASTER

# D. System Opening and Subsequent

## YEAR 2007

- Ridership has picked up, but so has city traffic
- MRTA (Metropolitan Rail Transit Authority) has built an underground system on other routes; and systems do not properly interconnect
- BMA under pressure to expand
- But BMA has given BTSC exclusive license to extend the system along the pre-designated routes
- BTSC is insolvent
- BMA unable/unwilling to finance BTSC into next phase

RESULT: IMPASSE

# D. System Opening and Subsequent

## LONGER-TERM IMPLICATIONS

- No private sector entity has since attempted to finance another rail transit system based on exclusive fare box revenues
- Critical Thai Development Capacity (Tanayong and Ital Thai) has been adversely (probably irrevocably) affected
- Expansion of system – the much-needed expansion of the BTS system will be delayed and – even if accomplished – will suffer from interface issues

# E. Lessons Learned

## RISK SHARING

- Fundamental Principal
  - Risk borne by the party most able to manage that risk.
  - In the case of BTSC, sponsors and banks bore risks far beyond their ultimate control

# E. Lessons Learned

## RISK SHARING

Risk sharing could have been different:

BMA as an investor (moral hazard)

BMA could have given threshold ridership guarantee – in effect, the payment of annuity

Bank of Thailand - long-term baht (bond/swap)

No exclusive licence to expand

Funding from competitive commercial bank sources (assurance of due diligence)

Private sector sponsors to take balance of risk.

# E. Lessons Learned