The current status of Taiwan High Speed Rail Privatization

TC Kao

Railroad Transportation & Engineering Center (RailTEC)

ILLINOIS
RAILROAD ENGINEERING PROGRAM

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Contents

- Background:
- Initial Objectives:
- Evolutions:
- Implementation:
  -Technical Challenges
  -Financial Challenges
- Current status:
- What can we learn from the Taiwan Experience ?

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Why does Taiwan need High Speed Rail?

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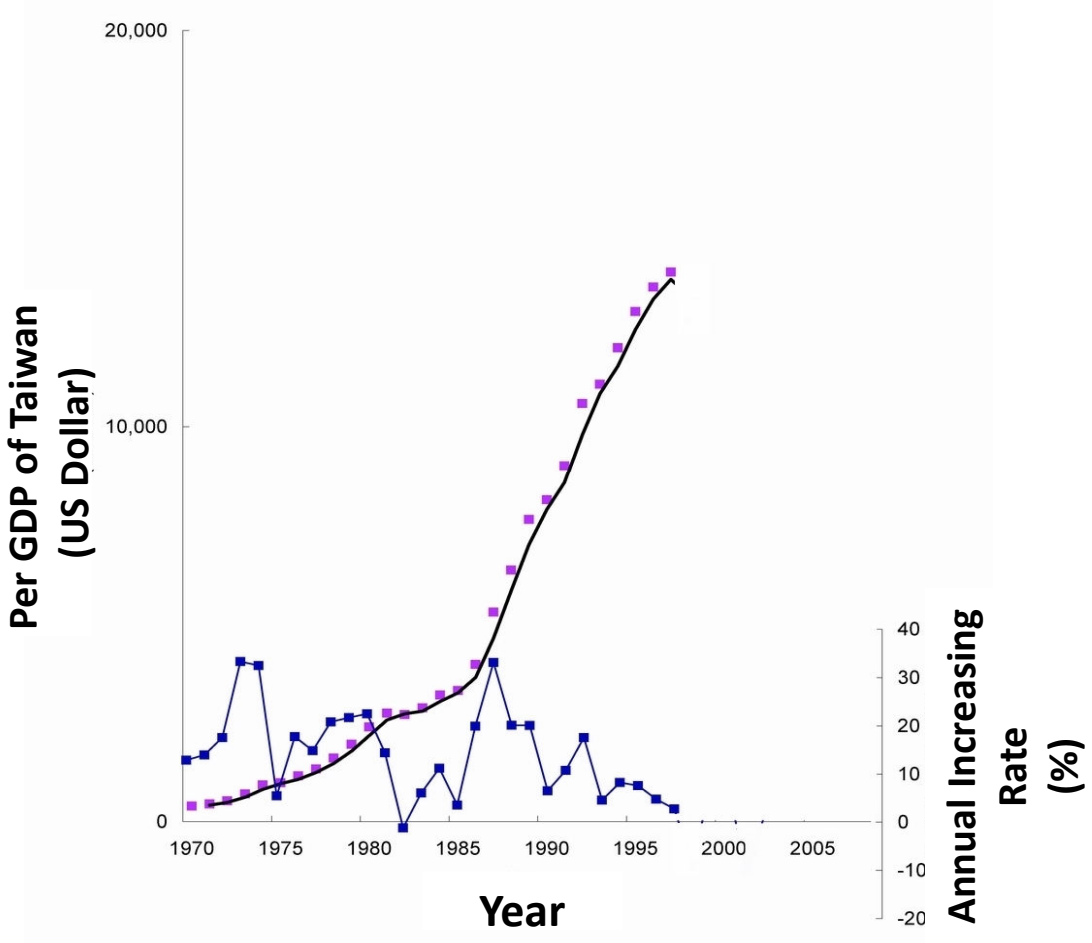
GDP of Taiwan (1970-1997)



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Congestion of the Freeway

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Alternatives

1. Third N-S freeway.
2. Improvement on the current railroad trunk line.
3. Tilt train technology
4. High Speed Rail

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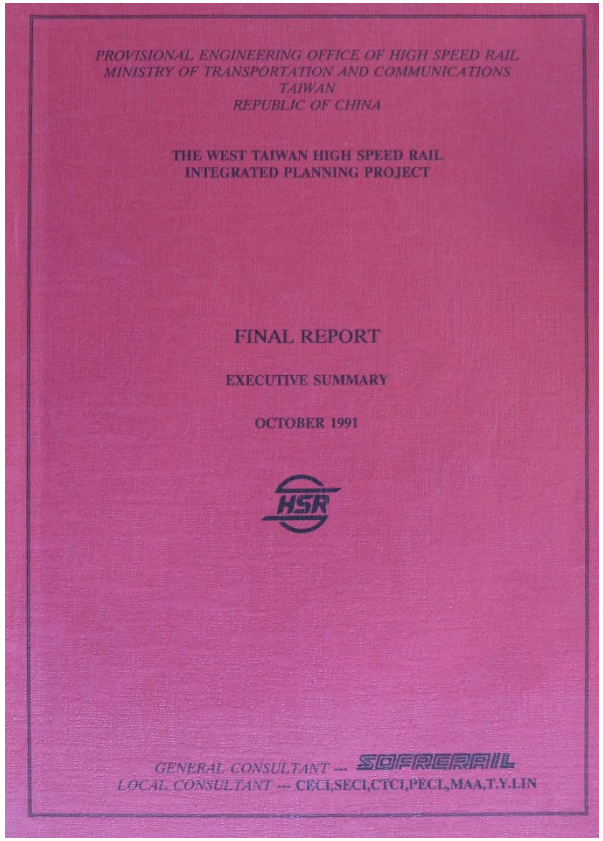
Initial objectives

- Relieve N-S freeway traffic congestion
- Relieve population shift to major cities
- Free domestic airports to promote cross-strait air services



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Evolution

- Compromised alignment
- Privatization: Build- Operate- Transfer (BOT)

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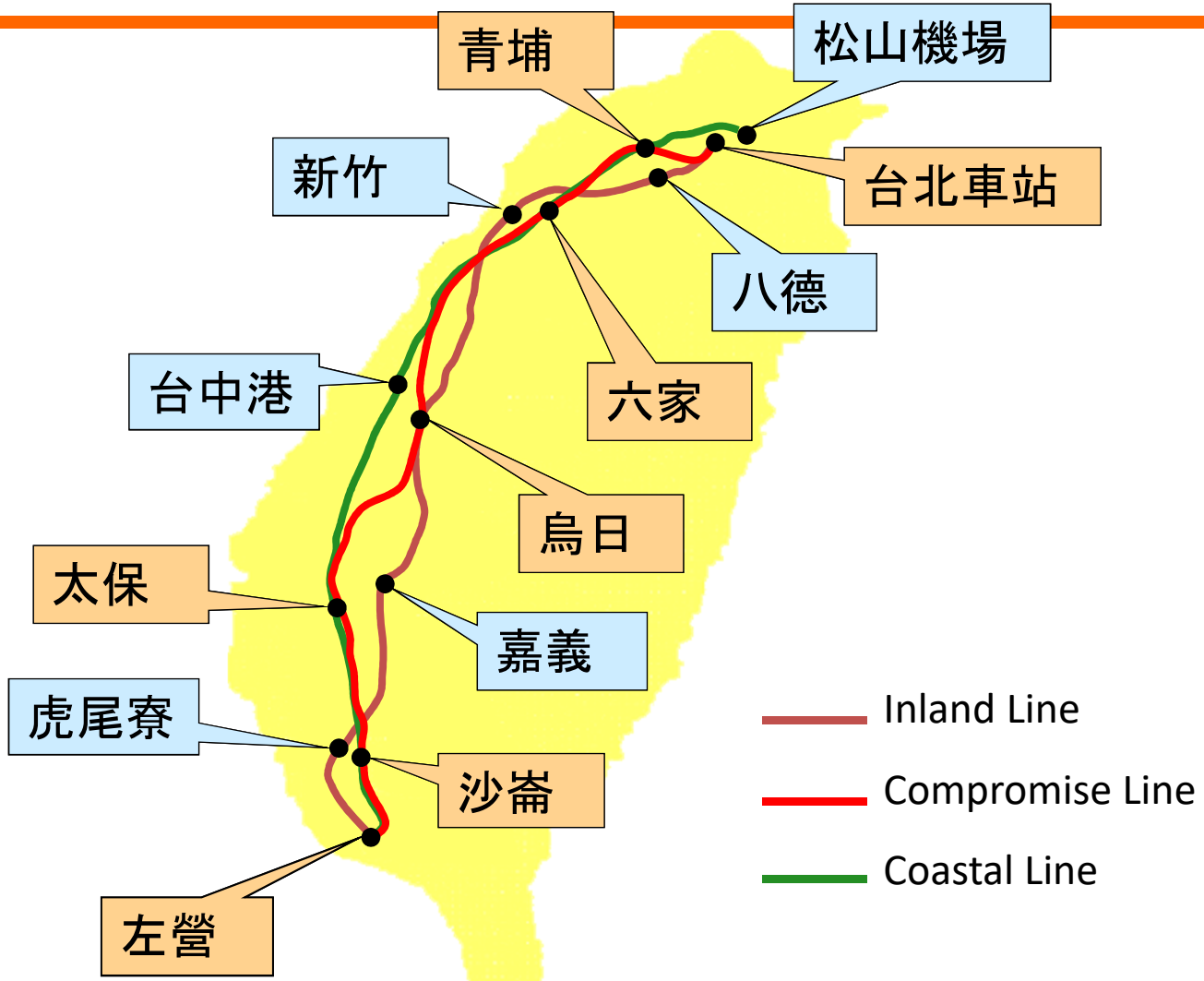
Major Revision I
Compromised Alignments



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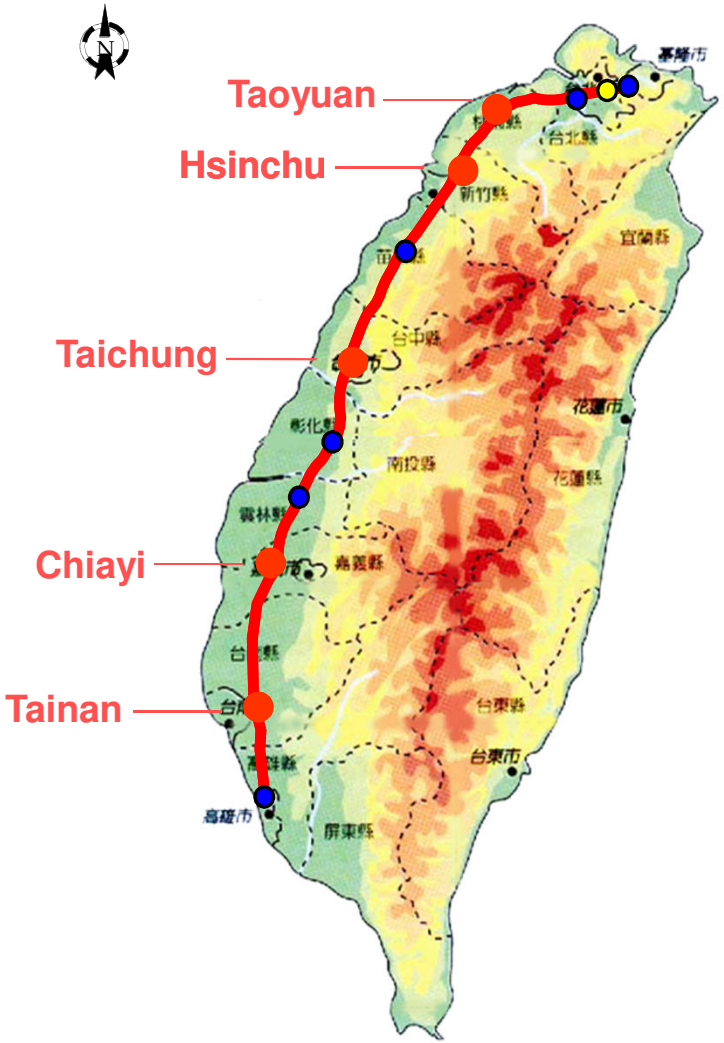
High Speed Rail New Towns



Taoyuan :490 ha
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Total : 1,505 ha

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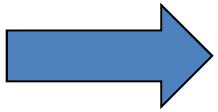
Major Revision 2
Why Private Participation ?

- Lessons learned in the Taipei Mass Rapid Transit projects- efficiency of public works (Public Construction Syndrome)
- Competitions of public funds
- Entrepreneurship of private sectors Private funding
- Efficiency of private management



To Share the risks & gains

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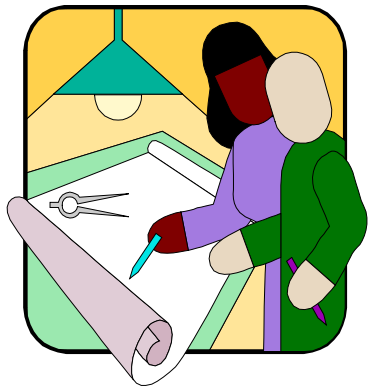
THSR BOT Scheme

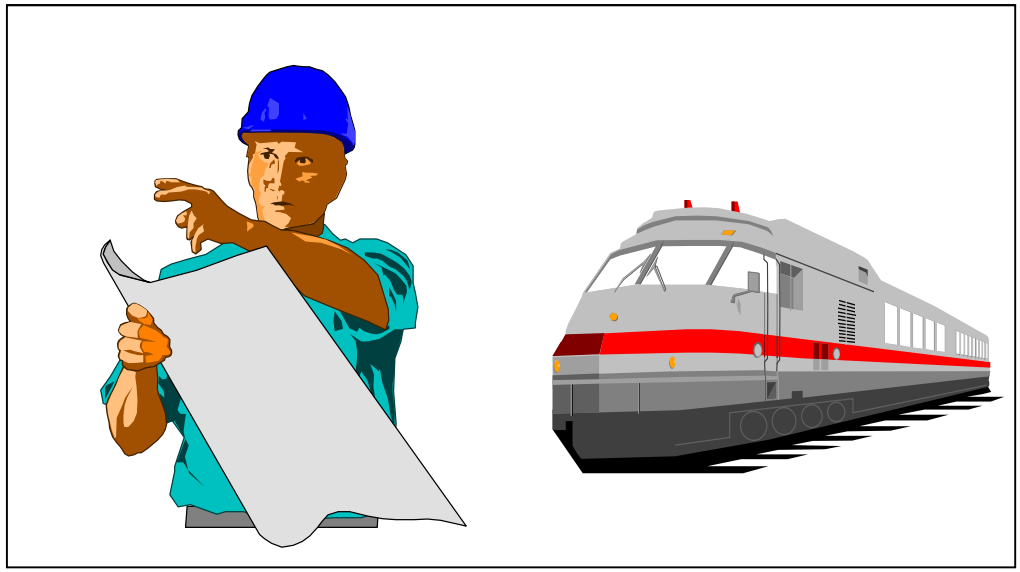
Planning by Government 10 Years

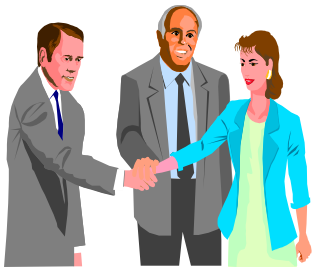
Concession Period 35 years

Transfer assets to government

Planning | **Build** | **Operate** | **Transfer**







THSR is the largest Build-Operate-Transfer infrastructure project in the World

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Construction & Operation Agreement (C&OA)-1

Project Requirements:

- Right of Way (ROW), Alignment
- System Design Criteria and O&M Requirements (Core system, Infrastructure, Operation & Maintenance)
- Independent Verification & Validation

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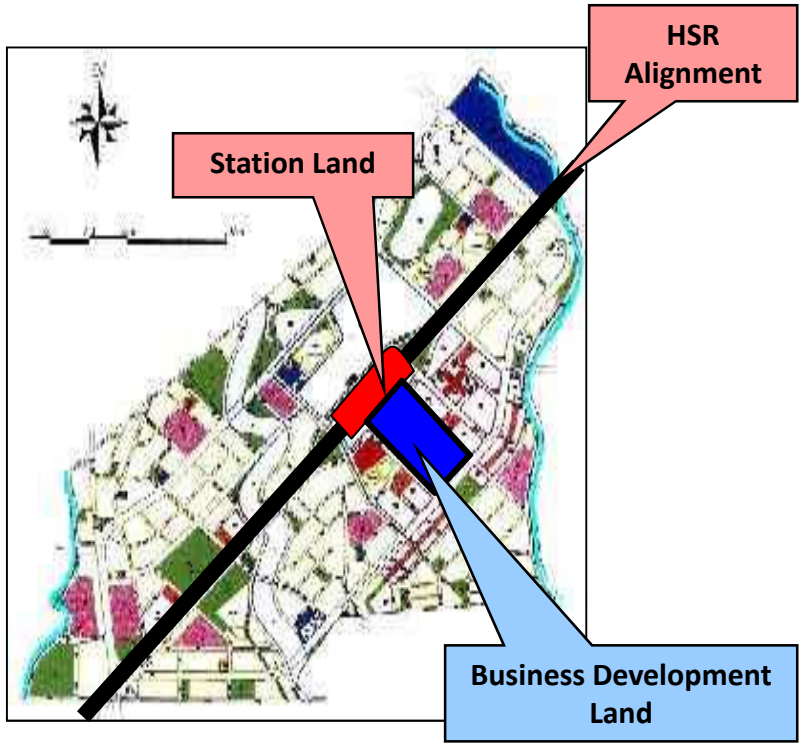
Construction & Operation Agreement (C&OA)-2

Concession Rights :

- 35 year construction & operation right
- 50 year station land commercial right
- Cash subsidy for non-recoverable investment (estimated to be around 3-5 b)



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Construction & Operation Agreement (C&OA)-3

Government Obligation:

- Land acquisition
- No second HSR in the western corridor in next 30 years
- Provide subsidy for the “non-recoverable “ (non-self -liquidating”) investment of the concessionaire.

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Overly heated tender process

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Fierce Competition

- **China High Speed Rail Consortium**
  - KMT backed enterprises

(中國評論新聞網)

- **Taiwan High Speed Rail Consortium**
  - 5 young entrepreneurs
  - 5 successful private companies

(中央社)

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An offer government can not resist

- China High Speed Rail Consortium
  - Government financing - NT$ 149.5 billions
- Taiwan High Speed Rail Consortium
  - Government Financing - NY$ (-) 105.7 billions

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Taipei 101

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The World's First Privatized HSR Rolled Off

- Main Characters-

  A government with limited privatization experience

  +

  An eager concessionaire

  ⇒World's largest BOT Project

  ⇒ A Rocky Road

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Timeline of Planning Stage

- 1987- Feasibility study by Government
- 1990- Government established preparation office
- 1992- Government approved HSR alignment
- 1993- HSR plan to privatize the Project
- 1994- Government passed enactment for privatization
- 1996- Express of Interest issued
- 1997- THSR Consortium selected as the preferred bidder
- 2000- Finalize C&OA, Construction Started

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Implementation

- Technical Challenges
- Financial Challenges

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The World’s first private HSR

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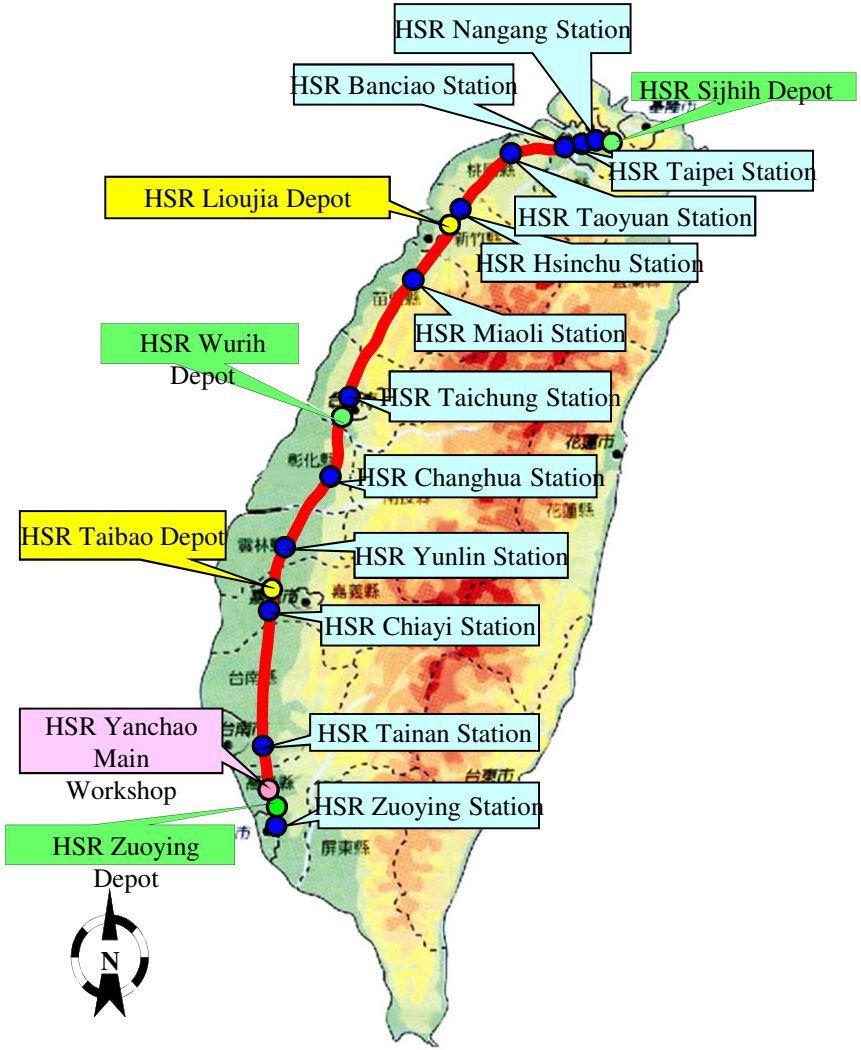
High Speed Rail Route Plan



- **The total length of the High Speed Rail is 345 km (214 mi.) from Taipei to Kaohsiung and passes through 14 cities and 77 towns.**
- **8 Stations to be constructed under the initial phase of the Project:**
- **4 Stations planned for later phases of the project**
- **Main Workshop: Yanchao (near Kaohsiung)**
- **3 Stabling Yard : Sijhih, Wurih, Zuoying**
- **4 Infrastructure Maintenance Bases:**

  Sijhih, Lioujia, Wurih, Taibao, Zuoying
- **Maintenance Center: Zuoying**

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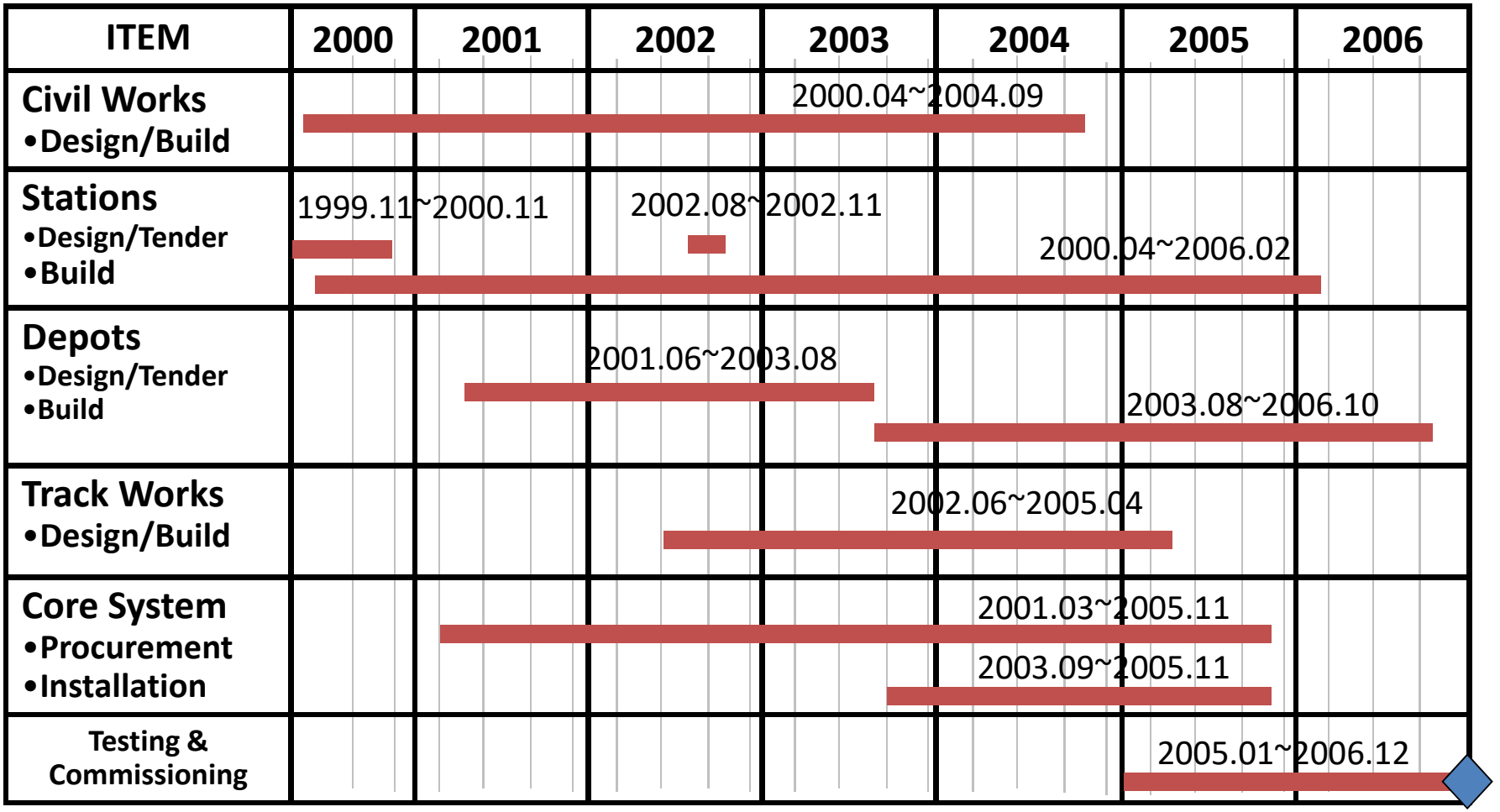
Master Program



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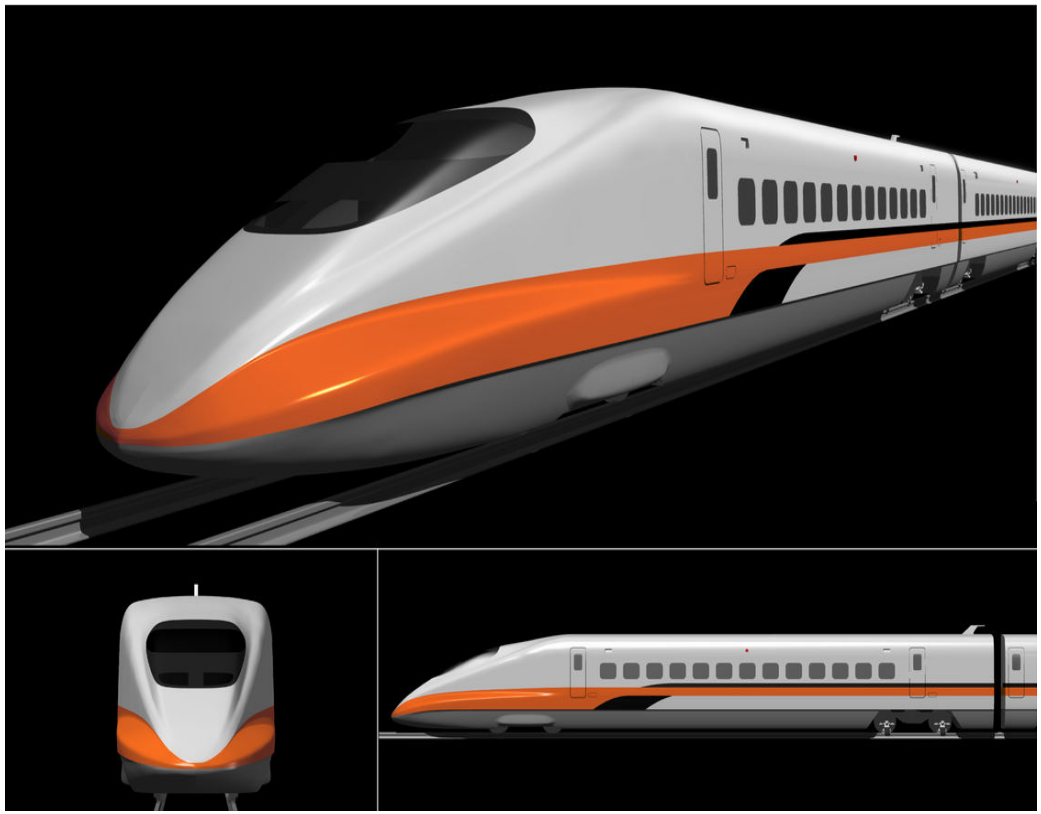
T 700 Trainset

- 12 coaches
- 1 business ， 11 standard class
- 989 passenger seats



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Top Operation Speed 300 km/hr

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Technical Challenges

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Project Management - Capability

1. THSRC is new and no track records & with limited resources.
2. Insufficient domestic resources to carry out work in Taiwan.

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Construction Strategy

- International sourcing – competition, quality
- Large contracts – economic scale & minimizing interfaces
- Risk allocation – whoever can best take the risk
- Quality & schedule first
- Cost control - lump sum & competition
- Fair payment system
- Onerous contract conditions: high liquidated damages (LD), liability, strict extension of time (EOT) clauses, ICE (Institute of Civil Engineers) contracts, employer has significant power.
- Design-build (EPC): time. interface & schedule control

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Financial Challenges

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Root cause- Aggressive bidding

- Aggressive bidding by the concessionaire during the tender stage.
- Why the concessionaire was so aggressive?
- Concessionaire tried to hang on to the project by manipulate the government or bending the rules. But created controversies and resentment.

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Major Controversies

1. Tripartite loan agreement signed by the Government, the bank and the Concessionaire.
2. Awarding the core contract to Shinkansen.
3. Close identification with Democratic Progressive Party (DDP).
4. Investment from government controlled companies.
5. **Issuing of Equity Convertible Bonds (ECB).**

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A love –hate partnership

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Restructure # 1-
Restructure of the Management Team

Crisis #1 : Principle payment of the construction loan & lowering interest rate.

- Change of the ruling party
- Easy the payback of the principles
- Oust of the original management team
- But the concessionaire still control majority of the board

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Financial status

- Ridership – 140,000 /day
- 3.3 millions income from fare box – 1 million pay to interest, one million to interest, the rest hold by the bank.
- New subject of dispute – can THSRC pay back all the loans.
- THSRC excuse – 921 earthquake, ridership forecast.
- THSRC asked for extension of concession period to 70 years.

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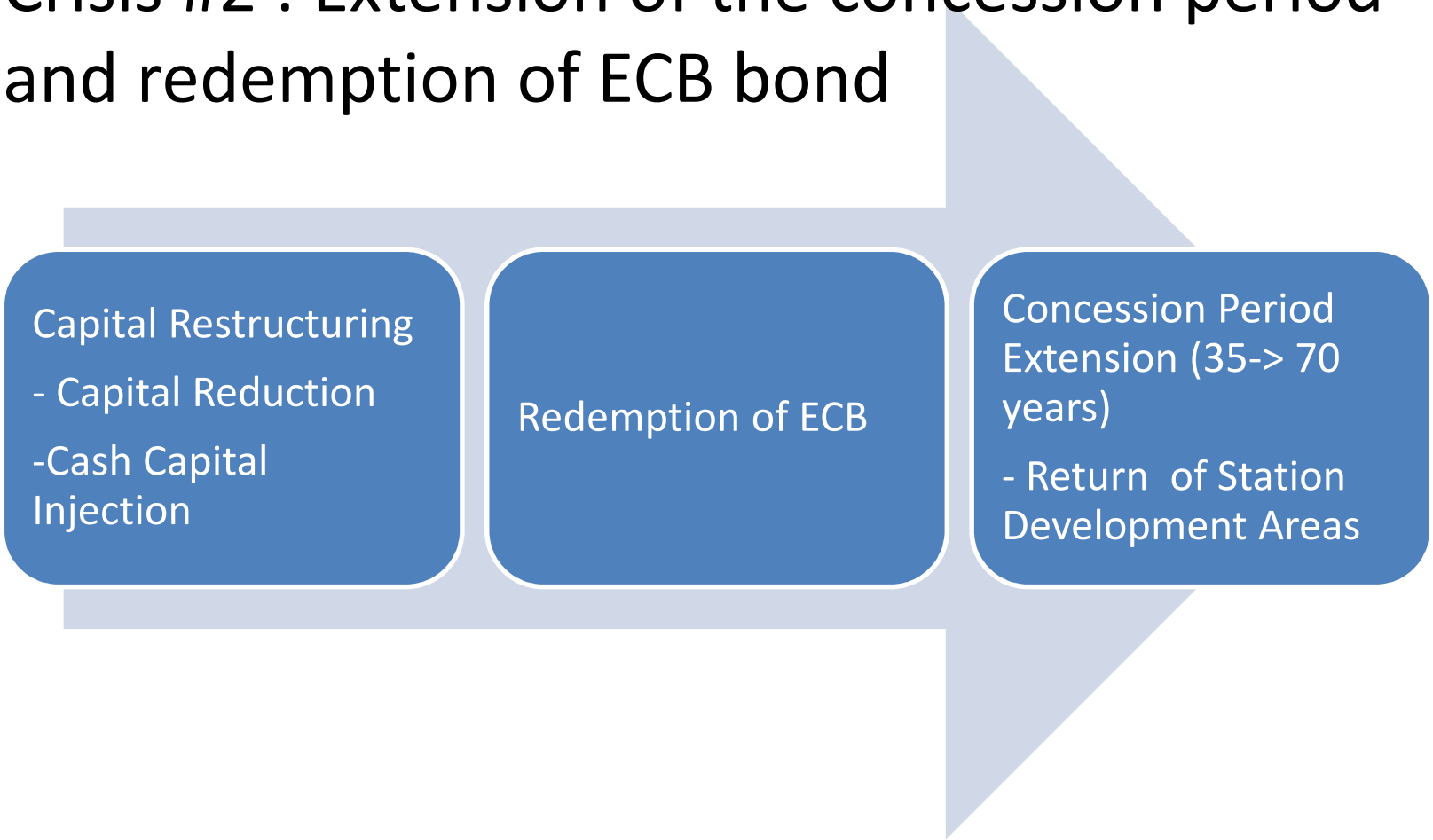
Restructure #2
Governmental control

Crisis #2 : Extension of the concession period and redemption of ECB bond



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Review of the objectives

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Objectives

- Relieve N-S traffic congestion
- Relieve population shift to major cities
- Free domestic airports to promote cross-strait air services
- High Speed Rail new towns
- Introduction of private financing, management & operation

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Relieve N-S traffic congestion

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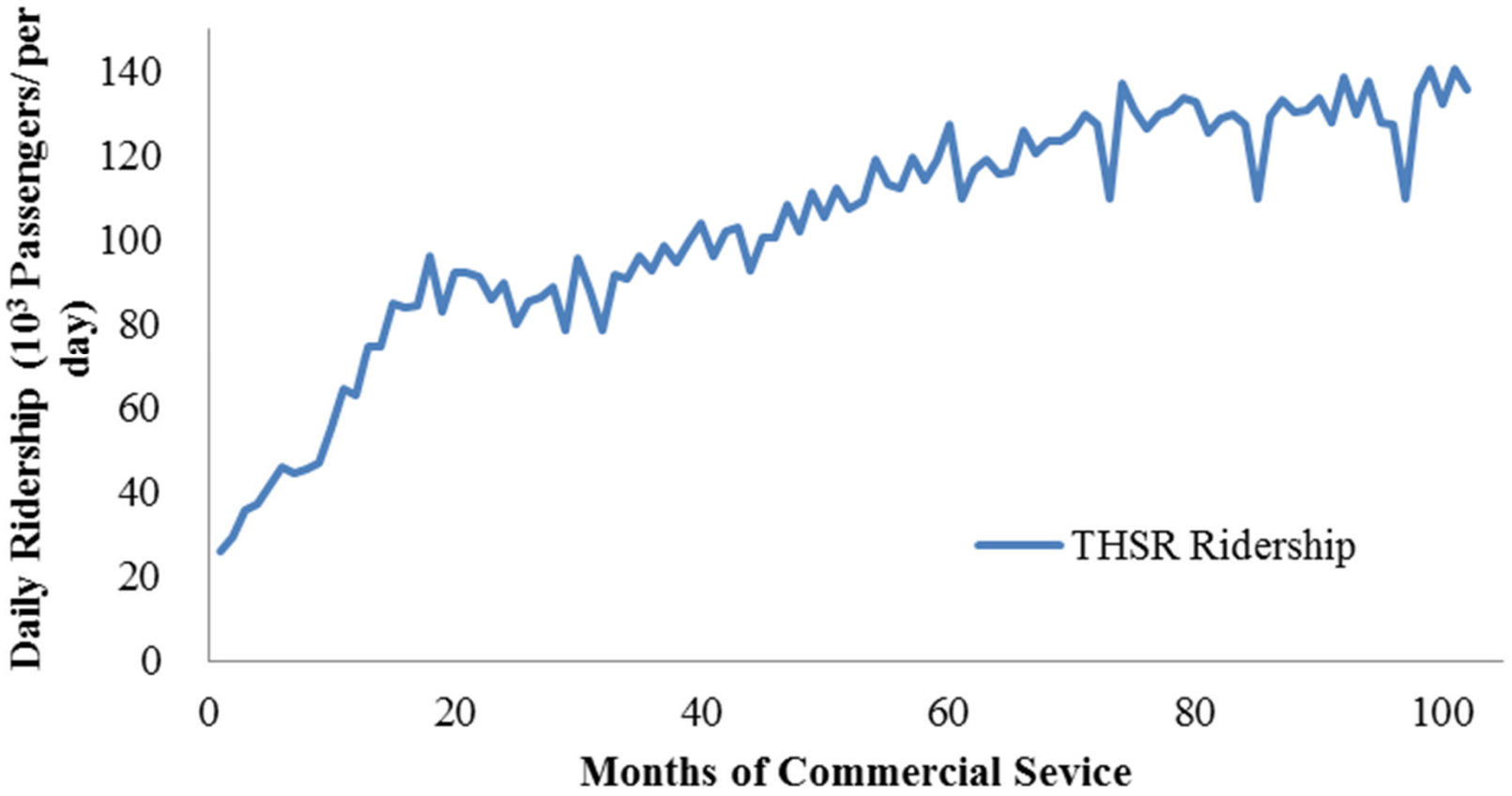
Ridership



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Relieve population concentration

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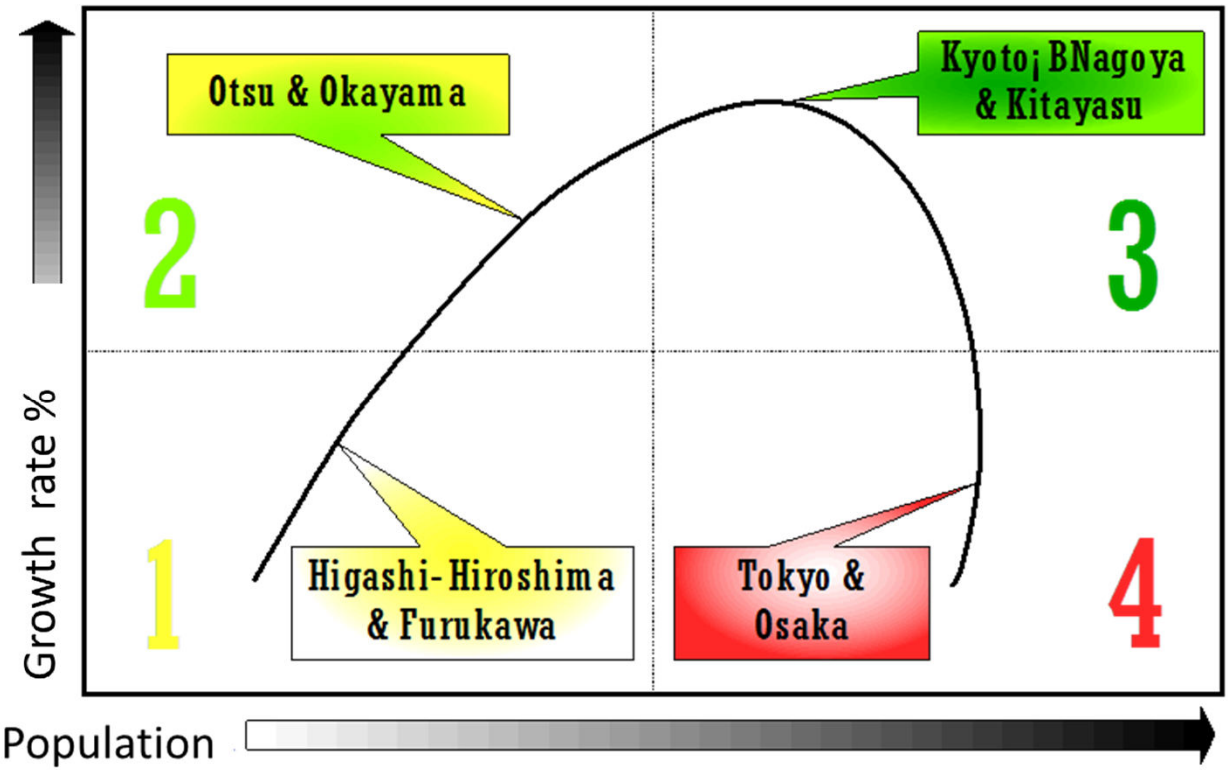
Population redistribution of other systems

- One hour commuting suburban line = 60 km
- One hour commuting high speed line= 200 km



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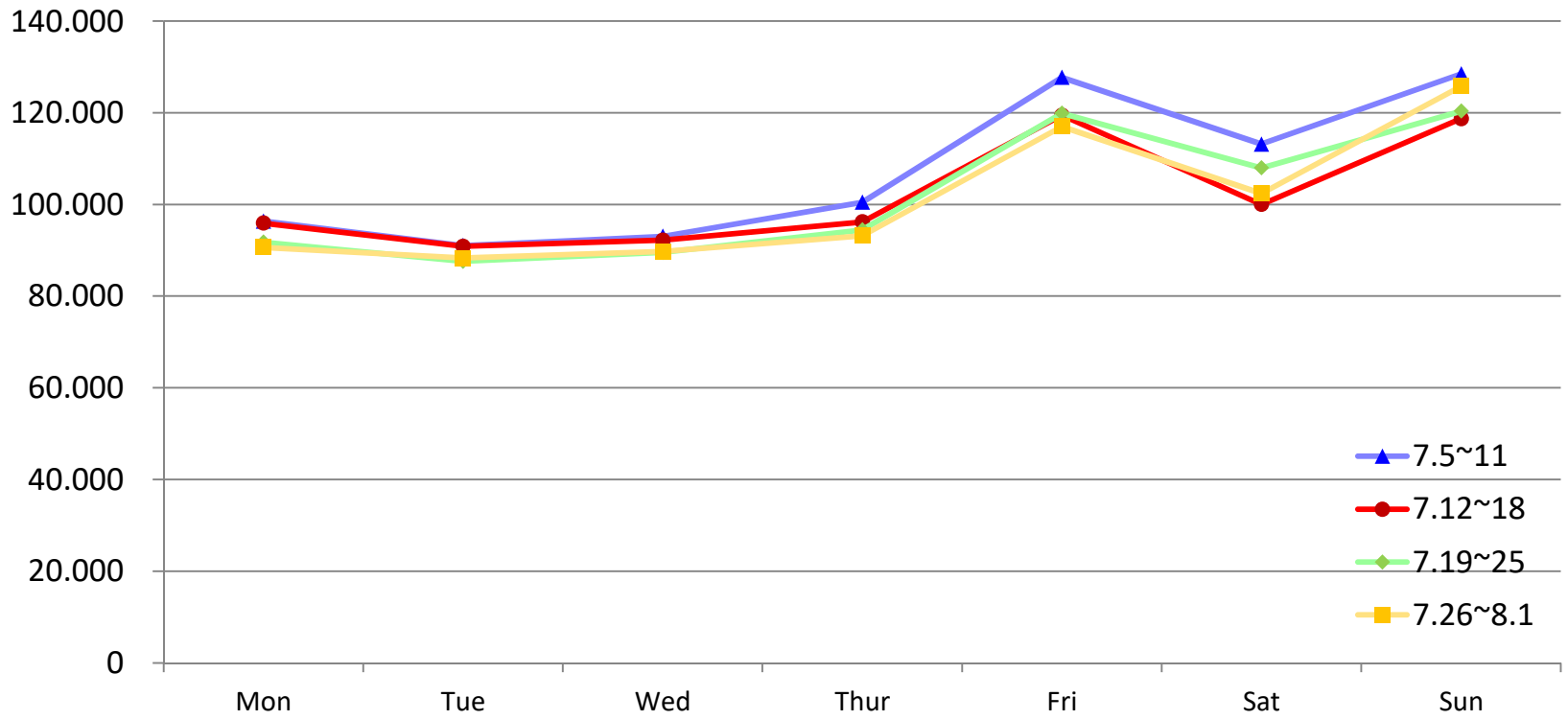
Weekly pattern



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Home coming

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Family companionship

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Free domestic airports to promote cross-strait air services

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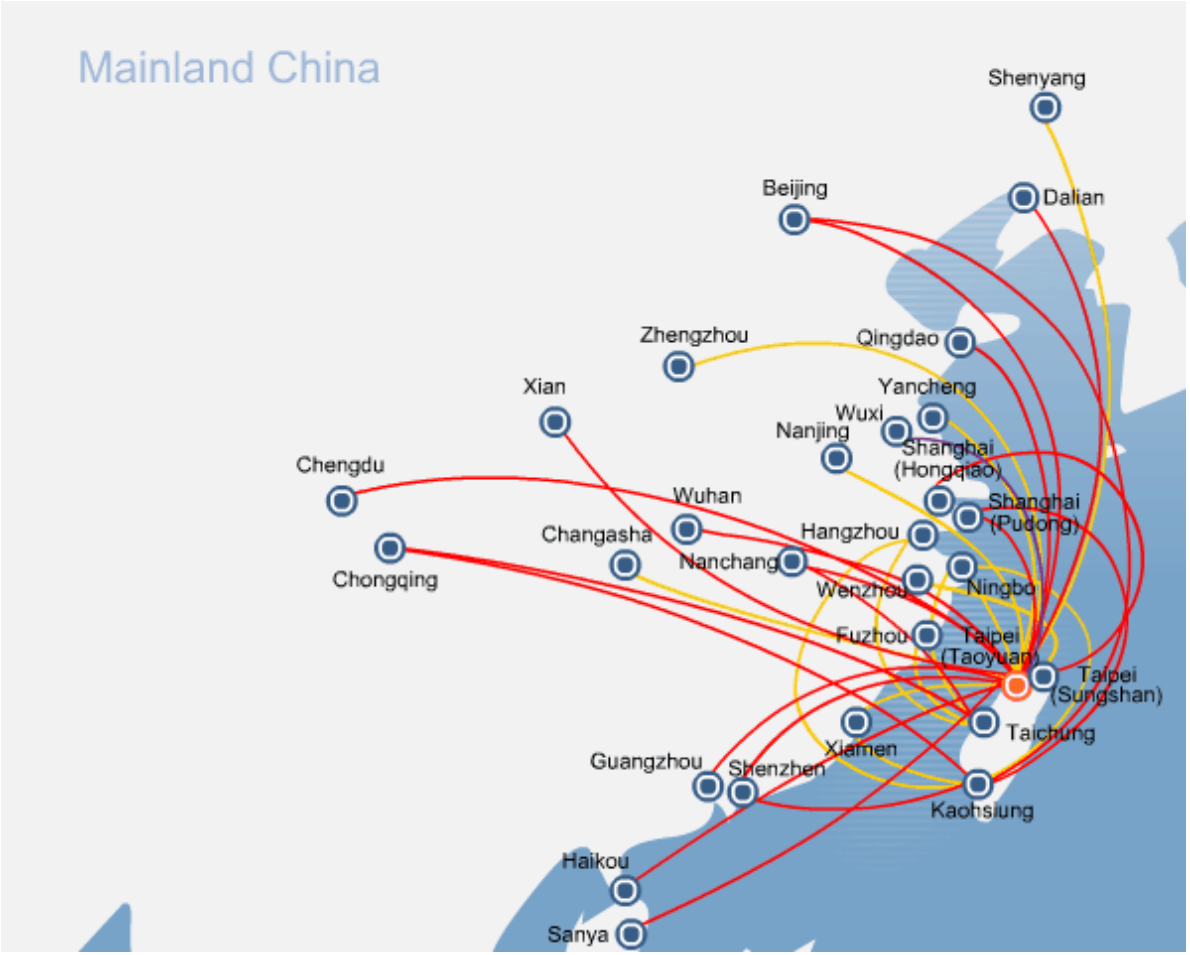
Free domestic airports to promote cross-strait air services



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New Towns

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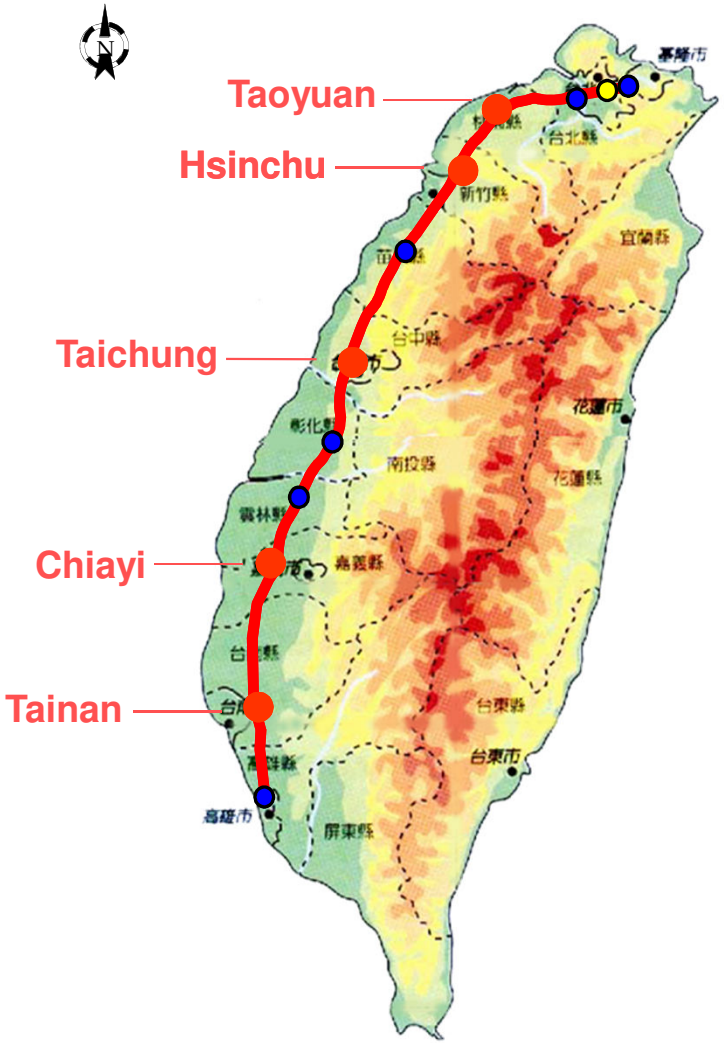
High Speed Rail New Town



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Total : 1,505 ha

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Hsinchu Station

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Is the BOT successful

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PPP Invites Private Participation

- Construction
- Operation
- Financing

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Project Success (Construction & Operation)

- **Project Management Success**
  a. Time
  b. Cost
  c. Quality
- **Product success**
  a. Meeting the project owner's strategic objectives
  b. Satisfying the user's needs

Refer to "Jan 29, 2010 Hay's Seminar"

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Is private financing successful? (1)

- Concessionaire was overly optimistic and the government was naïve to accept unrealistic bidding.
- Concessionaire was very cunning to out-smart the government. Government surrendered to most of the concessionaire's demand during the construction stage until recent.
- Concessionaire was very responsible to build a reliable and efficient system despite the financial difficulty it faced.

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Is private financing successful? (2)

- Concessionaire was lucky to profit from low interest but unlucky to face the booming of the Chinese economy. This show how venerable the financial plan is
- Forecast of ridership for 35 years is impossible. Totally burden the concessionaire with this huge risk is unrealistic. A more sophisticate risk-sharing scheme are required for future projects.
- Project financing for such complicated PPP system is very unique. Government buy-out system is a necessity. It should be included in the future BOT tender conditions.

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Is private financing successful? (3)

- Government should not utilize its power to impose unrealistic conditions during tender.
- Did the concessionaire paid for its culpability?

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Conclusion

1. BOT is a long term partnership.
2. It is like a marriage. All good principles to a successful marriage apply.
3. THSR BOT is not a total success or failure, but an experience Taiwan obtained for Taiwan and the world.
4. Luckily, through the joint effort of government and concessionaire, Taiwan Has a very advanced HSR.

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Thanks!

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