The role of Engineering in the provision of Public Infrastructure with Private Funding

Francisco Cal Pardo
President of TECNIBERIA/ASINCE
SUMMARY

1. Since 1990’s: New background for public investment in developed countries.

2. The experience of Spanish private companies in the management of public infrastructure.


4. The role of engineering and consulting firms in the development of a concession procedure for construction and exploitation of infrastructure.

5. Consulting Engineers’ duties.

6. Conclusion.
Features of the new background:
- Economic globalization.
- Economic liberalization.
- Budget discipline.
- Sustainable development.

Main effects:
- Significant increase in the flow of goods and people transportation.
- The transportation of goods as a link in the logistics chain.
- Progressive lack of water resources.
- New environmental risks.
The need of private funding contribution

Need of important investment in infrastructure due to the expected big increase of demand, both in volume and in quality.

Restrictions due to budgetary discipline

Need of private funding contribution

Spanish Response 2000 - 2007 Infrastructure Plan (I.P.)

Need of new private funding regulation
SINCE 1990's: NEW BACKGROUND FOR PUBLIC INVESTMENT IN DEVELOPED COUNTRIES


<table>
<thead>
<tr>
<th>Investment in Infrastructure</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MM. €</td>
</tr>
<tr>
<td>Roads</td>
<td>25.850</td>
</tr>
<tr>
<td>Railways</td>
<td>28.250</td>
</tr>
<tr>
<td>Airports</td>
<td>6.600</td>
</tr>
<tr>
<td>Ports</td>
<td>3.000</td>
</tr>
<tr>
<td>Communications</td>
<td>6.000</td>
</tr>
<tr>
<td>Hydraulic Works</td>
<td>22.850</td>
</tr>
<tr>
<td>Industry</td>
<td>6.000</td>
</tr>
<tr>
<td>Others</td>
<td>15.600</td>
</tr>
<tr>
<td>TOTAL</td>
<td>114.150</td>
</tr>
</tbody>
</table>

**Expected investment breakdown**

<table>
<thead>
<tr>
<th>Expected investment breakdown</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration and Public Companies</td>
<td>48%</td>
</tr>
<tr>
<td>Cohesion and Structural Funds</td>
<td>32%</td>
</tr>
<tr>
<td>Private Sector</td>
<td>20%</td>
</tr>
</tbody>
</table>

(in other terms: 22.830 MM. € ≅ 27.339 MM. $)
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THE EXPERIENCE OF SPANISH PRIVATE COMPANIES IN THE MANAGEMENT OF PUBLIC INFRASTRUCTURE

- Concessional Spanish contractors manage a total investment amount of 94,000 million € in infrastructure projects.
- Equity participation in different projects represents between a 7% and a 40% of total investment, with a big concentration around 25%.
THE EXPERIENCE OF SPANISH PRIVATE COMPANIES IN THE MANAGEMENT OF PUBLIC INFRASTRUCTURE

Cumulative Investment by Year

[Graph showing cumulative investment by year from 1967 to 2003, with investment increasing over time.]
Concessional Spanish contractors are present in the following countries:

Andorra, Argentina, Australia, Brasil, Canada, Chile, Colombia, Ecuador, Spain, Ireland, Israel, Jamaica, Mexico, Portugal, Puerto Rico, United Kingdom, Dominican Republic and South Africa.
# Top Transportation Developers 2003

<table>
<thead>
<tr>
<th>Company</th>
<th>No. of Concession/P3 Projects</th>
<th>Under Contract*</th>
<th>Active Proposals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dragados /ACS (Spain)</td>
<td>41</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Ferrovial /Cintra (Spain)</td>
<td>26</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Macquarie Bank/MIG (Australia)</td>
<td>26</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Aherics (Spain)</td>
<td>19</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>John Laing (UK)</td>
<td>18</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Vinci/Cofiroute (France)</td>
<td>17</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>OHL (Spain)</td>
<td>14</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>FCC (Spain)</td>
<td>14</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Acciona (Spain)</td>
<td>13</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Sacyr (Spain)</td>
<td>13</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>EGIS Projects (France)</td>
<td>9</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Siemens (Germany)</td>
<td>9</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>AMEC (UK)</td>
<td>9</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Bouygues (France)</td>
<td>8</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Hochtief (Germany)</td>
<td>8</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Skanska (Sweden)</td>
<td>8</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Balfour Beatty (UK)</td>
<td>8</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Alstom (France)</td>
<td>7</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Bechtel (US)</td>
<td>6</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>ABB (Switzerland)</td>
<td>6</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>New World Infrastructure (China)</td>
<td>6</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Alfred McAlpine (UK)</td>
<td>6</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Impregilo (Italy)</td>
<td>5</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Brown &amp; Root (US)</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

* noed, bridge, tunnel, road, port, airport concessions, public private partnerships over €50m put under const./oper. since 1985. Source: PWF database.
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NEW LEGAL FRAMEWORK IN SPAIN

Features of the new law

• Unifies legislation that is currently disseminated by sectors.
• Legal security is reinforced for the concessional system.
• Introduces more flexibility in financing infrastructures.
• Improves the risk allocation.
• Gives more importance to the operational phase.
• Welcomes private initiative in the building of infrastructure.

Seeking a basic effect:
Attraction of private capital
NEW LEGAL FRAMEWORK IN SPAIN

Opportunities offered by the new Law to Engineering and Consulting Companies

Direct benefits

Important investment volume
- Quantitative increase of the market

Investment planning
- Stability guarantee
- Medium term planning opportunity
- Assumption of growth risks
- Improvement of our management and production structures
- Stimulation of R+D+i investment
- Optimization of International competition

New backgrounds
- Possible new roles
- To take a chief role in new initiatives
NEW LEGAL FRAMEWORK IN SPAIN

Opportunities offered by the new Law to Engineering and Consulting Companies

Risks

• Tension between private client’s interests and Administration’s requirements.

• Attraction of new competitors.

• Possible compatibility and incompatibility conflicts.

• Demand of more civil professional responsibility guarantees.

• In the Law there is no mention made to the role of the consultant.
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1. Technic - Economical Feasibility Study.
2. Tendering procedure of the concession.
4. Building and operation project.
5. Building
1. Technic-Economical Feasibility Study

Consulting Engineer’s roles

- Asses Public Administration.
- Promote the private initiative.
  - Manage the constitution of the property developer team.
  - Asses the property developer team.
- Asses the property developer team, other than the consultant.
- Asses Public Administration in the moment of approval.
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5. Building
2. Tendering procedure of the concession.

Consulting Engineer's roles

- Asses the Public Administration.
  - Preparation of tender documents.
  - Analysis of the bids of tender participants.

- Asses the Tenderer.
  - Preparation of the bids.
  - Bid follow-up.
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Consulting Engineer’s roles

- Draw up the project for the concessionary.
- Asses the financial institution.
- Asses the Public Administration.
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4. Building and operation project.

Consulting Engineer’s roles

• Draw up the building and operation project for the concessionary.
• Asses the financial institution.
• Asses the insurance entity.
• Asses the Public Administration.
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Consulting Engineer's roles

- Manage the building, assembly and start up procedures - concessionary.
- Asses the financial institution.
- Asses the contractors.
- Asses the Public Administration.
  - Reception process.
  - Evaluation of executed public works.
THE ROLE OF ENGINEERING AND CONSULTING FIRMS IN THE DEVELOPMENT OF A CONCESSION PROCEDURE FOR CONSTRUCTION AND EXPLOITATION OF INFRASTRUCTURE

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Consulting Engineer’s roles

- Operation program
- Maintenance and repairing projects.
- Technological suitability projects.
- Supervise the maintenance and operation of the public works concessions.
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CONSULTING ENGINEERS’ DUTIES

• Convince Public Administrations about:
  • Need of consulting engineers’ participation.
  • Need of supervision and control to follow the contracts.
  • Real capacity/empowerment for the existing offer.

• Promote their capacities to all the agents participating in the investment process.

• Training people to diversify the services offered - Take advantage of synergies.

• Ethic behaviour: moral integrity. Equity amongst the different agents.
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If sustainability, technology, innovation and global costs are the key factors that lead to the success of any building, financing and operation project, its management should rely on those who best know how all these factors are intertwined and how they behave:

The Consulting Engineers