MEXICAN EXPERIENCE IN PUBLIC-PRIVATE PARTNERSHIPS

MEXICO- TUXPAN HIGHWAY

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They serve to improve and generate infrastructure where heavy investments in maintenance, modernization and construction are required.

Given that public resources are scarce, it is necessary to design and apply financing schemes that allow the federal government to fulfill its mission of providing the population with more and better transportation services.

They are key to accelerate the development of infrastructure. They propose different types of PPPs and evaluate their convenience.

They identify sources of financing and recovery mechanisms.

They must be profitable, feasible, bankable and have mechanisms to mitigate the risk.

Attractions for private investment and banks.

Its objective is to provide infrastructure or provide a service under conditions in which the private initiative assumes administrative responsibility and a significant part of the risk.
PUBLIC-PRIVATE PARTNERSHIPS:

• Increase the effectiveness of government in the provision of infrastructure

• They are long-term, have stable income streams and offer potentially attractive returns

• They are controlled through performance indicators, standards and quality of service

• Generate added value

• They transfer the risks and reduce the cost of the project for the government

• They attend high demand projects

• They must generate sufficient payment capacity to meet all the commitments made
### FUNDING SOURCES AVAILABLE FOR PPP

<table>
<thead>
<tr>
<th>SOURCE OF FINANCING</th>
<th>CHARACTERISTICS</th>
<th>RESOURCE GENERATED</th>
</tr>
</thead>
<tbody>
<tr>
<td>FINFRA</td>
<td>Infrastructure fund created with resources and surpluses from the sector and specific contributions to boost public-private partnerships. These resources are not subject to annual authorizations. The application of resources is authorized by a Technical Committee</td>
<td>Initial contribution of resources for concessions or construction as public works of new quota sections that will be contributed to a concession.</td>
</tr>
<tr>
<td>Tolls</td>
<td>Rates paid directly by users according to the type of vehicle</td>
<td>Income from fees</td>
</tr>
<tr>
<td>Existing toll roads</td>
<td>Toll roads currently owned by the federal government</td>
<td>Annual revenue generated by quotas or present value of the future revenue stream</td>
</tr>
<tr>
<td>Budget of Expenditures of the Federation (PEF)</td>
<td>Fiscal resources assigned to current expenditure of the SCT</td>
<td>Payments for the service of road capacity in the PPS schemes</td>
</tr>
<tr>
<td>Availability</td>
<td>Mechanism of payment in the PPS projects depending on the availability of the road</td>
<td>Payment of the SCT to the concessionaire for the road capacity service, through current expenditure</td>
</tr>
<tr>
<td>Use</td>
<td>Mechanism of payment in the PPS projects in function of the number of vehicles-kilometer that use the highway</td>
<td>Payment of the SCT to the concessionaire by shade rate by means of current expense</td>
</tr>
<tr>
<td>Private equity</td>
<td>Private resources that have the objective of producing a minimum annual return</td>
<td>Expected rate of return considering the risk of the project</td>
</tr>
<tr>
<td>Loans</td>
<td>Loans granted by funds and financial institutions</td>
<td>Interest rate based on the risk of the project and the supply and demand of resources</td>
</tr>
</tbody>
</table>
¿What is the value of the project?

- **ADDITIONAL VALUE**
- **INITIAL CONTRIBUTION IN KIND OR FUNDS**
- **LOAN + INTEREST RATE**
- **EQUITY + RATE OF RETURN**

**RETURN OF INVESTMENT**

**INCOME**
- Flow of budgetary resources subject to performance levels
- Payment for provision and use
  - Motorway tolls

**SURPLUS.** Additional resources are generated

**DEFICIT.** Financial support is required for return of investment

**BALANCE**
PURE.- when the resources for the payment of the provision of services to the public sector or to the end user and the costs of investment, operation, maintenance and conservation of the infrastructure, are budgetary in their entirety.

COMBINED.- when the resources for the payment of the provision of services to the public sector or to the end user and the costs of investment, operation, maintenance and conservation of the infrastructure, come from the public sector, National Infrastructure Fund, Non-budgetary Resources or a diverse source.

AUTOFINANCIABLES.- when the resources for its development and execution come entirely from contributions other than cash, resources from individuals, or income generated by said project.
## MODELS FOR THE FINANCING OF MOTORWAYS AND FREE ROADS

<table>
<thead>
<tr>
<th>FINANCIAL SCHEME</th>
<th>PAYBACK MECHANISM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concessioned highways</td>
<td>➡️ Payment of fees</td>
</tr>
<tr>
<td>Projects for Provision of Services (PPS)</td>
<td>➡️ Payment for performance</td>
</tr>
<tr>
<td></td>
<td>➡️ Availability + use - deductions</td>
</tr>
<tr>
<td>Use of existing assets</td>
<td>➡️ Combination of existing and new highways that are recovered with fee income streams</td>
</tr>
<tr>
<td>Road maintenance</td>
<td>➡️ Payment for modernization and performance</td>
</tr>
<tr>
<td>Financed Public works</td>
<td>➡️ Payment from different sources of financing</td>
</tr>
</tbody>
</table>
Concession awarded through public bidding that grants the concessionaire the exclusive right to sign the contract for the provision of services (PPS Contract).

The term of service contract is fixed, from 15 to 30 years.

The contract establishes an association between the Secretariat and a private company (Concessionaire) to design, finance, build, maintain and operate a highway.

The provision of the service is carried out by the private company in exchange for periodic quarterly payments.

The periodic payment is based on a mechanism that considers the availability of the road and its level of use.
Each bidder calculates a periodic payment based on:
- Cost of construction, conservation and operation.
- Return on the capital contributed (including financial costs).
- Recruitment period.

The Net Present Value of the periodic payment flow is the decision variable for granting the concession, after validation of compliance with technical, legal and financial requirements.

Once the construction is completed, the modernized highway continues to operate as a toll-free road.

When the model is applied to toll highways, the periodic payment is made through a combination of rates and budgetary resources.
In its first stage, the program considers the modernization and improvement of the following 7 roads.

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>LENGTH (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irapuato-La Piedad.</td>
<td>74.3</td>
</tr>
<tr>
<td>Querétaro-Irapuato</td>
<td>93.0</td>
</tr>
<tr>
<td>Tapachula-Talismán con Ramal a Ciudad Hidalgo.</td>
<td>39.0</td>
</tr>
<tr>
<td>Nuevo Necaxa-Tihuatlán</td>
<td>84.8</td>
</tr>
<tr>
<td>Rioverde-Ciudad Valles</td>
<td>113.2</td>
</tr>
<tr>
<td>Nueva Italia-Apatzingán</td>
<td>31.7</td>
</tr>
<tr>
<td>Mitla-Entronque Tehuantepec</td>
<td>169.2</td>
</tr>
<tr>
<td><strong>TOTAL LENGTH</strong></td>
<td><strong>605.2</strong></td>
</tr>
</tbody>
</table>
PROJECTS FOR PROVISION OF SERVICES (FIRST GENERATION)

- **RIOVERDE-CIUDAD VALLES** (IN OPERATION)
- **QUERÉTARO-IRAPUATO** (IN OPERATION)
- **NUEVO NECAXA-TIHUATLÁN** (IN OPERATION)
- **NUEVA ITALIA-APATZINGÁN** (IN OPERATION)
- **MITLA-ENTRONQUE TEHUANTEPEC** (UNDER CONSTRUCTION)
- **IRAPUATO-LA PIEDAD** (IN OPERATION)
- **TAPACHULA-TALISMÁN** CON RAMAL A CIUDAD HIDALGO (IN OPERATION)
The project is formulated as a combined scheme under the model of Projects for Provision of Services (PPS) and traditional Concession.

The scheme consists of:

- Build, operate, conserve and maintain the Carretera 1 "Nuevo Necaxa - Ávila Camacho" Section of 37 km (PPS).

- Exploit, operate, conserve and maintain the Carretera 2 "Ávila Camacho - Tihuatlán" stretch of 48 km, this stretch is currently being built under the public works scheme and once completed it will be integrated into the Nuevo Necaxa-Tihuatlán Concession.
***COMBINED SCHEME PPS-CONCESSION “NUEVO NECAXA-TIHUATLÁN”***

**Simbología**
- **Rojo**: Red federal libre de peaje
- **Verde**: Autopista en operación
- **Azul**: En proceso

1. **Asunción - Tejocotal**
   - Longitud: 18 km.
   - Inversión: $2,300 mdp

2. **Necaxa - Ávila Camacho**
   - Longitud: 37 km.
   - Inversión: $4,390 mdp

3. **Tejocotal - Nuevo Necaxa**
   - Longitud: 18 km.
   - Inversión: $2,300 mdp

4. **Asunción - Tejocotal**
   - Longitud: 18 km. en operación

5. **Libramiento de Tulancingo**
   - Longitud: 22 km. en operación

6. **Ávila Camacho - Tihuatlan**
   - Longitud: 48 km.

7. **Ávila Camacho - Tuxpam**
   - Longitud: 37 km.

8. **Pirámides - Tulancingo**
   - Longitud: 79 km. en operación

9. **Ecatepec - Pirámides**
   - Longitud: 22 km. en operación

10. **México - Pachuca**
    - Longitud: 12 km. en operación

11. **Tihuatlán - Tuxpam**
    - Longitud: 37 km., en operación
Benefits of the project:

- It will overcome the historical barrier of the Eastern Sierra Madre.
- It will connect the altiplano with the Gulf in 2 hours 30 minutes, which will reduce the travel time in 1 hour 30 minutes.
- It will reduce the costs of vehicular operation.
- It will integrate a new NAFTA corridor: Mexico-Tuxpan-Tampico-Matamoros-Chicago-Toronto.
- It will offer a shorter connection between the highlands and the EU / Canada market.
- In Veracruz, it will detonate the development of the port of Tuxpan and that of the north of the State.
- The highway will turn Hidalgo into a strategic logistics center with connections throughout the country.
- The highway will offer a right of way of high specifications for facilities such as gas pipelines and fiber optics and will improve access to the Chicontepec oil basin.
- Operate with efficiency, security and economy for users.
The construction of the Carretero 1 "New Necaxa-Ávila Camacho" section includes:

- The construction of 37 kilometers to four lanes.
- Project speed: 110 km / hr
- 6 twin tunnels with two lanes of circulation, with a total length of 7,210 m; among those that stand out, tunnel "Zoquital" of 1,380 m and "Túnel Necaxa" of 990 m.
- 1 "San Marcos" special bridge 850 m long and 217 m high.
- 9 Bridges and 2 viaducts, with a total length of 1,750 m.
- 14 Overpasses.
- Tunnel control and supervision system
- Communication system for user attention and emergency response.
- Conservation and maintenance for 30 years
- For the specification of services, the road is divided into 12 sections, 6 in each direction.
NUEVO NECAXA - TIHUATLÁN

Texcapa Bridge II. L = 210.00 m
Armed and trimmed garnishes.

Ecological Corridor Bridge I. L = 60 m.
Slab cast in both clearings of the left body

Ecological Corridor Bridge II. L = 132.5 m
Launcher trabes type Nebraska.

Tunnel Las Pilas. L = 352 m
Reinforcement grouting prior to excavation.
XICOTEPEC BRIDGE AND ZOQUITAL TUNNEL
EL CANTIL BRIDGE
PUENTE EL CANTIL BRIDGE AND Y ZOQUITALTUNNEL
San Marcos Special Bridge. \( L = 850 \text{ m}, \ h = 217\text{m} \)

Armed steel and falsework in the pile voussoir 2.
San Marcos Special Bridge.
The bridge with the second highest pile in the world
SPECIAL BRIDGE SAN MARCOS
SPECIAL BRIDGE SAN MARCOS
NUEVO NECAXA - TIHUATLÁN

Huauchinango tunnel. L = 106 m.
Appearance of the concrete lining in the left tunnel.

Zoquital tunnel. L = 1.382 m.
Appearance of the concrete lining in the left tunnel.

Tunnel Necaxa. L = 988 m.
Excavation, where the complete section is observed.

Bridge the Cantil. L = 272 m.
Batteries no.6,5,4,3. and stirrup no. 1.
TUNEL ZOQUITAL
FLORA AND FAUNA RESCUE PROGRAMS
IRAPUATO – LA PIEDAD
QUERÉTARO - IRAPUATO
NUEVA ITALIA – APATZINGÁN
RIOVERDE – CIUDAD VALLES