

Governance in the Transport Sector

Minister of Transport

Brasilia, May 2012

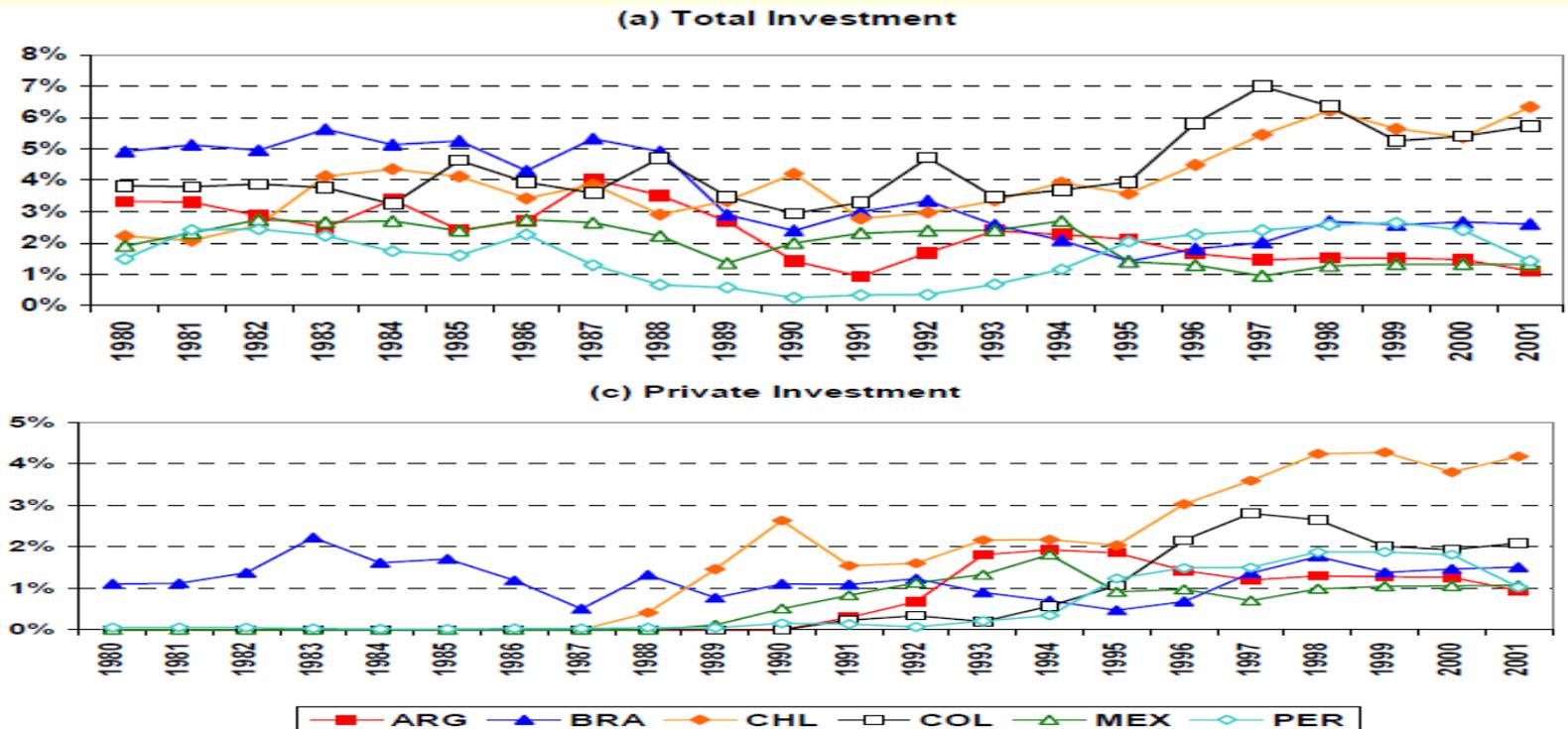
Public Private Partnership in Transport Infrastructure Projects

Lessons From The Chilean Experience

Eduardo Bitran, Universidad Adolfo Ibañez ,Chile

With Private Participation, Chile was able to increase Investment, quality and coverage.

- Chile was able to have a period of very rapid growth 1986-98 without infrastructure bottlenecks. It raised investment from 2% of GDP in the early eighties to over 6% in the late nineties, with all the increase done through private investment (4% of GDP).



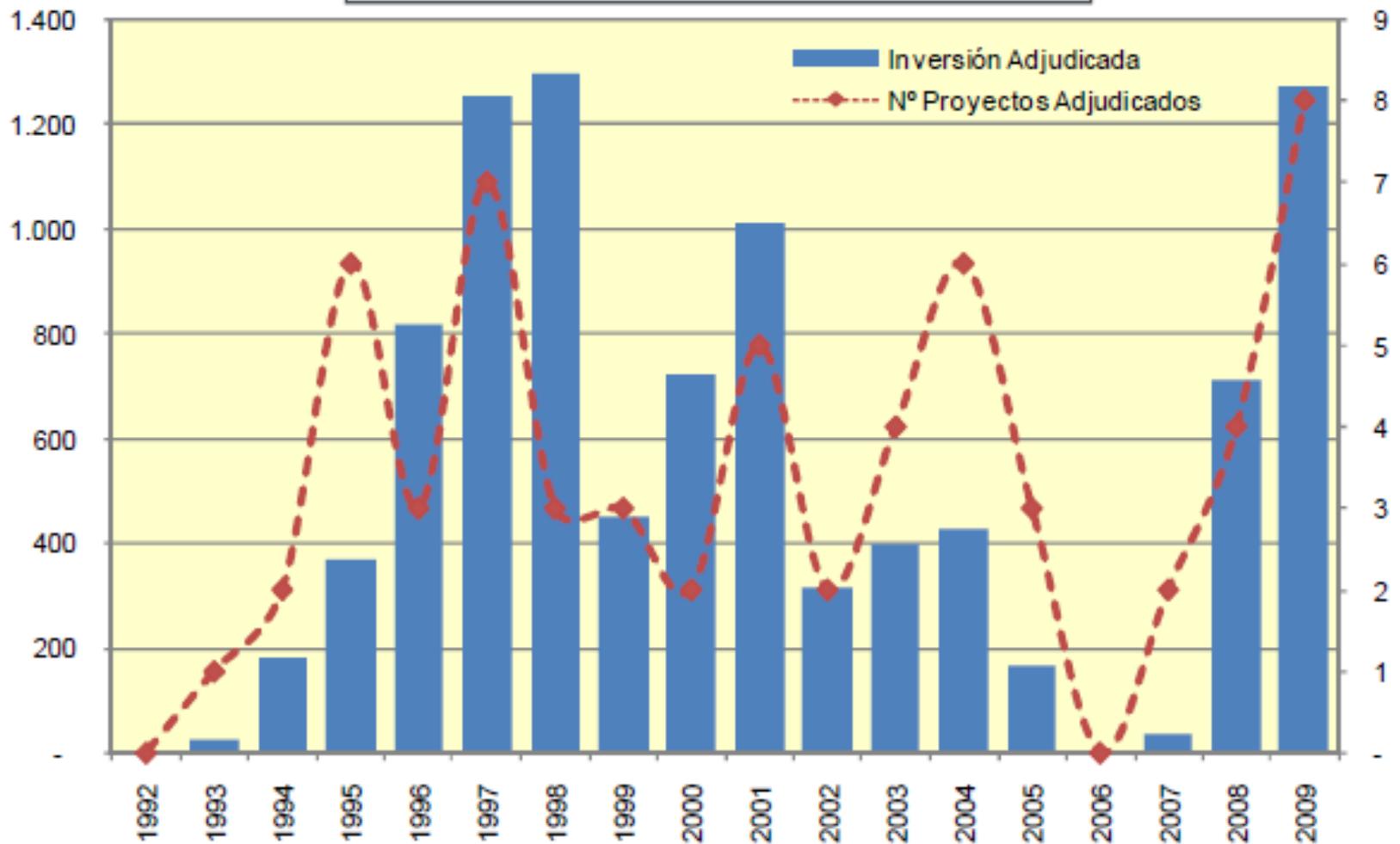
Chilean experience with PPP in Transport Infrastructure

- **1991** Legal Reform allowing Concessions of Public Roads.
- **1992** privatization of Cargo rail Road with open access and the SOE in charge of the track.
- **1993-1996:** 8 roadway projects for US\$ 800 millions.
- **1996:** Legal reform: A PPP law. Making more attractive private participation facilitating government subsidies, creditors step in rights, priority for creditors over future revenues, reducing power of MOP.
- **1997** Breaking up of National Port Company and initiation of Concessions of Port Terminals, with competition among terminals.
- **1996-2000:** 8 highway projects for US\$ 5 billion on PANAMERICANA and transversal routes 2100 Kilometers; 10 airports with US\$ 300 million; 6 public ports Land lord model, with concessions on individual terminals with competition among concessioners, US\$ 800 million.

Chilean experience with PPP in Transport Infrastructure

- **2000-2005:** 4 urban highways with free flow US\$ 1,5 billions, Infrastructure for Transantiago, US\$ 200 million.
- **2003:** MOP- Gate case, scandal due to over payment of MOP employees through Consultant companies. Deterioration and decline of project preparation capabilities.
- **2006-2008:** Reform Effort , modification of PPP regulation, limiting renegotiation discretion, enhancing power of MOP, better dispute resolution mechanism.
- **2008-2012** Reform slowdown, Decline and recovery on concession projects awarded

Chilean experience with PPP in Transport Infrastructure



What have we learned with 19 years of experience on PPP in the Transport sector and more than 50 projects and US\$ 11 billion invested?

- **What were the Benefits, Costs and implementation problems?**

Benefits of long term Concessions in Transport Sector

- Facilitate and create flexibility for the development of projects where users have willingness to pay for services;
- Facilitate establishing specific level of service standards that can be easily monitored;
- Allows addressing anti maintenance bias of Public Work Ministries;
- Create market discipline if allocation of risks are properly designed (commercial risks should be born by the firms).
- Allows technology modernization through FDI;
- Foster Public sector modernization focusing the role of the state (Increase labor productivity. Improvement of service efficiency in ports, airports);
- Facilitate the trade off between investment and operational cost;
- Facilitate recovery of infrastructure with natural disasters

Cost of PPP in Transport Infrastructure sector: Incomplete Contracts, Transaction Cost, risk of post contractual opportunism in long term contracts

- Regulation and Contractual schemes influence Transaction costs
 - Critical the balance between Expropriation and Hold up Risk.
 - Rules versus discretion
 - Ways out with proper compensation, dependency on bidding scheme.
- Bidding Mechanism
 - Fix term contract awarded on the base of minimum toll or subsidy versus or
 - Lest Present Value of Revenue and variable term.
- Application of Financial equilibrium clause or compensation for “Acts of Authority”
- Arbitration in equity or in law, the latter prevent spurious litigation
 - What about “Permanent non binding Dispute board Resolution for technical matters non jurisdictional.
- Bidding for new works, separating concession business from construction.
- Limits on renegotiation and call options if major reinvestment is needed.

Is there a Fiscal Benefits with Concessions? Only if it facilitates charging for the service. Otherwise it is an off balance sheet financing of public investment that permit circumventing budget constrains.

- The effect on aggregate Demand and public finance are equivalent If a road is improved charging tolls with Treasury financing or having a concessioner charging the toll and getting the financing to invest operate and transfer when the debt is fully paid.
- Nevertheless only in the latter case investment is excluded from the fiscal deficit during the investment period.
- This fiscal accounting exacerbates problems of dynamic inconsistency (Political Cycle). Investment anticipation will take place and more debt would be incurred than socially efficient in order to increase the chance of reelection.
- In 2009 IMF proposed to change EU accounting of PPP, it failed and now many countries are facing the burden of the “debt”.

Implementation Problems in Concessions in Transport Infrastructure

- **Lousy Fiscal Accounting** exacerbate Time inconsistency (influence of electoral cycles) which is critical for efficiency.
- Political pressure to speed up investment end up with poorly prepared projects, significant environmental and social conflicts and huge cost overrun, which are used by private participant for very high claims;
- Political bias for overinvestment since costs are paid by future governments and users, but the political benefit of emblematic infrastructure is obtained today,
- Renegotiation lends the possibility of channeling significant future subsidies surpassing budget constrains (In Chile, 70% transferred to next government.).
- Extensive renegotiation increases cost overruns, transparency issues, and affect the incentives in bidding processes (bid low and you will manage to rearrange the contract down the road). Adverse selection effect on quality of future bidders.
- **High hold up risk**, encourage force renegotiation and eventually rent seeking,
- **Inadequate dispute resolution schemes** have generated excessive litigation, with a bias in favor of Concessionaires.

When can we expect “value for money”?

- The Product or service that it is necessary to provide has clearly definable standards and wide agreement exists on this matter.
- Big changes are not expected in the specifications of the product or service during the life of the PPP.
- The technology is relatively stable and other factors of the environment do not change so that they do not need constant changes of the contract.
- The risks of the project are understood and the contract can include precise mechanisms to deal with the consequences of his materialization.
- The scheme does not have an excessive contractual complexity.
- When the project has a size that justifies costs of making the deal.
- If It facilitates the efficient cost recovery from users.
- If It introduces flexibility in human resource management.
- **When private cost of financing does not dramatically exceed public cost of financing**

Value for Money Improvement

- **Compensating for increases in financing cost**
 - WACC 9%; Social discount rate 6%
 - NPV of Investment 60%, NPV of Maintenance 40%
 - Private provision required a 35% increase in efficiency.
- PPP is a second best due to lack of incentives of Public sector to Provide good service and maintenance.
- Options Move to first best: Public provision with quality of service committed and independent evaluation(Superintendence)
- Improved second best:
 - Unbundling: financing, construction and maintenance
 - Public credit enhancement, partial public financing
 - Public Enhancing for development of Private Monoliners
 - Minimum Private equity is critical for transferring risk and creating incentives.
 - Independent quality of service monitoring.

Cost of PPP in Transport Infrastructure sector: Incomplete Contracts, Transaction Cost, risk of post contractual opportunism in long term contracts

- Risk Allocation Affect incentives, Transaction cost and overall cost of financing
 - How to deal with Demand risk, completion risk, Financial risks and political risk.
- How to Bundle or unbundle the projects:
 - Default risk and limited capital market efficiency increases significantly the cost of financing, reducing value for money. When to separate financing, investment, operation and maintenance?
- BOT or DBOT In Roads?:
 - level of Engineering, environmental studies, right of way. Affect renegotiation probability but also the transfer of risks.
- **Contractual design is critical in determining Transaction Cost, efficient risk bearing and incentives and the possibility of obtaining Value for Money**

How to design contracts and Bids mechanism?

- If the service is a natural monopoly, with inelastic demand the best scheme is “Least Present Value of Revenue” with endogenous term with ex ante competition.
 - Reduces demand risk and risk premium
 - Reduces monopoly gains ex post or pressure for renegotiations.
 - If demand increases too fast contract is shorten and new investment could be call for bidding.
 - Facilitate adjustment or termination to the contract
 - Requires strong oversight over quality of services.
- In Roads in Chile bidding on LPV of revenue, traffic guaranty to recover 70% of the investment(protect the principal of the debt), tolls set based on general policy and lump sum subsidies defines in bidding.
 - Biding based on Revenue (LPV + Sub) allocate to min Subsidy or if Subsidy = 0 Min LPV of revenue.
 - We have applied the formulae to airports with success

Renegotiation in Road Projects Chile, Colombia and Peru

Table 3. Sample's Summary Statistics per Country

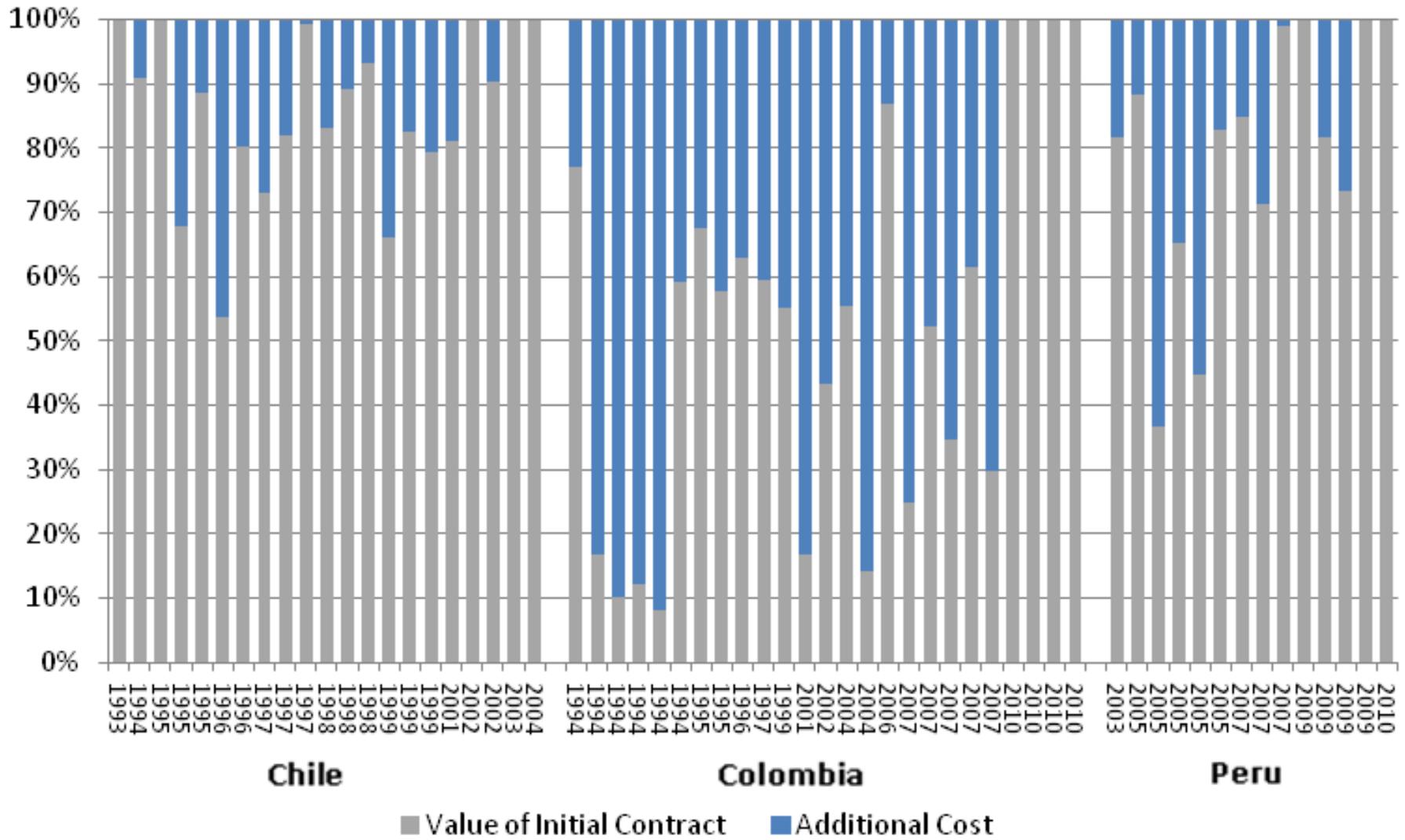
| | Chile | Colombia | Peru |
|---|------------------|-----------------|--------------------|
| Total Road Concessions | 21 | 25 | 15 |
| Initial Value Contract* Million USD | 281.3 | 263.2 | 155.2 |
| Initial term*, Years | 25.1 | 16.7 | 22.1 |
| Length*, Km | 114 | 194.8 | 383.4 |
| Concession Years elapsed* | 12.5 | 9.0 | 4.6 |
| Renegotiated Road Concessions | 18 | 21 | 11 |
| Total Renegotiations | 60 | 403 | 44 |
| Number of Renegotiations** | 3.3 | 19.2 | 4.0 |
| Time of first renegotiation** Years | 2.7 | 0.9 | 1.4 |
| Fiscal cost of Renegotiations** Million USD | 54.8 | 262.5 | 223.0 ¹ |
| Fiscal costs/Initial Value** Percentage | 20.3 | 278.5 | 26.5 |
| Added term by renegotiation** Years | 3.4 ² | 11.9 | 7.1 |
| Added length** Km | 0 | 76.6 | 0 |
| Number of Renegotiations/ Concession years elapsed | 0.2 | 1.8 | 0.6 |

Source: Authors from OSITRAN (Peru), INCO (Colombia) and MOP (Chile).

* Simple Average.

** Simple Average. The number of concessions in the denominator might differ from the total number of road concessions in the country (Not all concessions were renegotiated and some renegotiated concessions might have incurred in fiscal costs, nor added extra term or length).

Figure 4. Additional Cost of as Fraction of the Total Value of Concession Projects

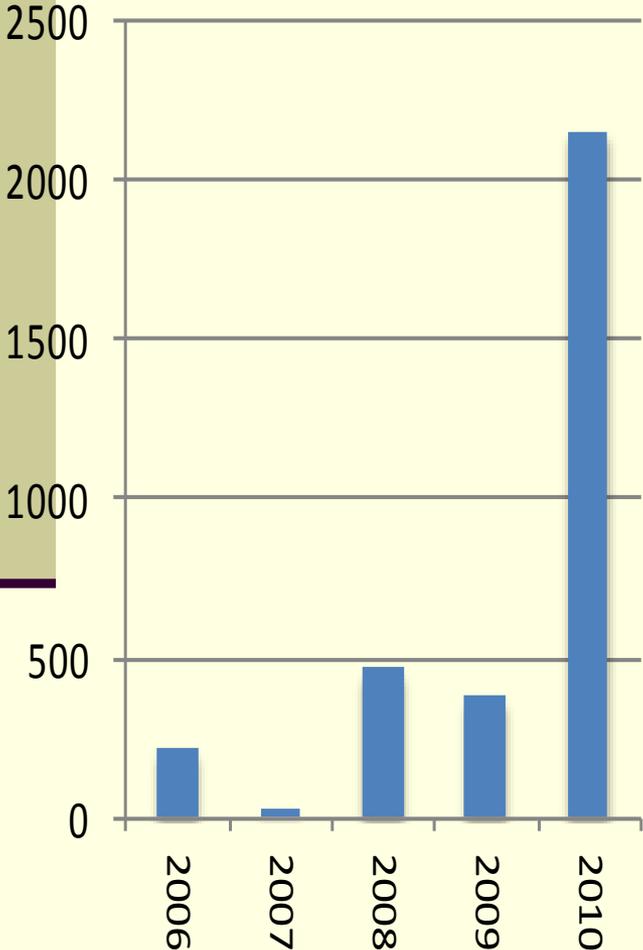


Source: Authors from OSITRAN (Peru), INCO (Colombia) and MOP (Chile).

Note: The x-axis indicates the year in which the concession contract was initially signed.

Extreme Time Inconsistency: The Case of Colombia

Future Funds Assigned



Future Funds to be Payed

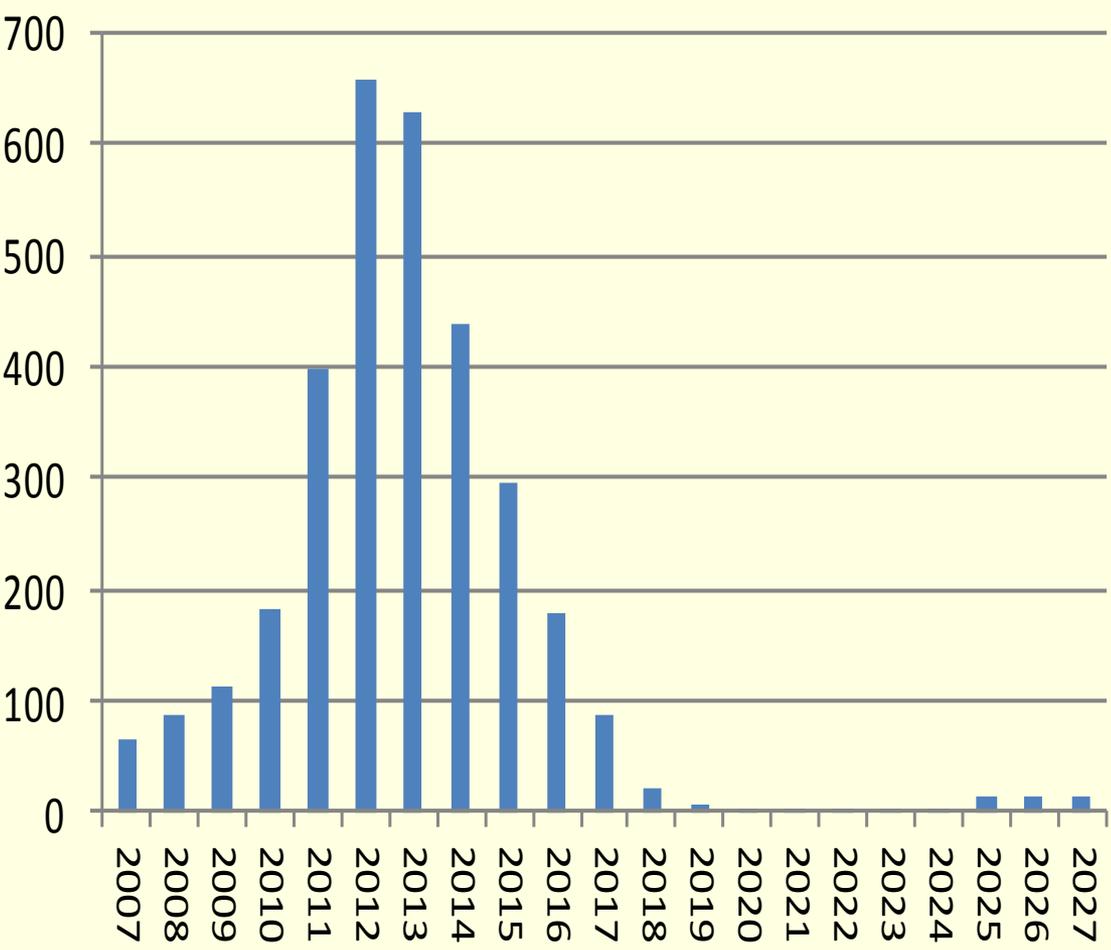


Table 4. Characteristics of contract changes

| | | Chile | Colombia | Peru |
|------------------|-------------------------------------|-------|------------------|------|
| Total | | 60 | 403 | 44 |
| How | Bilateral agreement | 83% | 98% | 100% |
| | Arbitration | 17% | 2% | 0% |
| | Government-led | 85% | 53% ¹ | 41% |
| | Firm-led | 12% | 24% | 36% |
| | Jointly-led | 4% | 24% | 23% |
| When | During Construction | 53% | 29% | 70% |
| | After Construction | 47% | 71% | 30% |
| What for | Complementary works | 69% | 39% | 19% |
| | Change Conditions | 22% | 55% | 82% |
| | Both | 9% | 1% | 0% |
| | Add new stretches | 0% | 5% | 0% |
| Paid when | Present fiscal transfer | 66% | 42% | 14% |
| | Deferred fiscal funds | 55% | 6% | 0% |
| | Other costs realized later | 36% | 28% | 39% |
| | No cost | 14% | 24% | 47% |
| Result** | Fiscal transfer | 66% | 48% | 20% |
| | Increase concession term | 12% | 12% | 14% |
| | Higher toll tariffs | 24% | 1% | 0% |
| | Other types of payment ² | 16% | 0% | 0% |
| | Without direct cost ³ | 15% | 45% | 77% |

Source: Authors from OSITRAN (Peru), INCO (Colombia) and MOP (Chile).

* For Chile, these do not add up to 100% as most renegotiations paid with present fiscal transfers included either deferred fiscal transfers or other forms of payment of indeterminate future cost.

**Do not add up to 100%. Many renegotiations entailed more than one of these results

Why so many renegotiations in Public Works concessions?

- Adverse selection: the business is to offer below the costs and to recover with the renegotiation later on. This implies attracting companies with special connections and aptitude to dispute in this field.
- Regulatory asymmetries that increase the risk of leaving the state hostage (High hold up risk).
- Projects poorly prepared by the political urgency.
- Incentives to do emblematic projects and to expand existing budget authorizations, transferring the cost to next governments.
- Ambiguity with regard to the compensations to which the concessionaires have right.
- Disputes resolution in conscience or equity encourages the litigation.
- High risk of collusion in the conciliation schemes.
- Limited transparent counterweights in the adjustments of contracts.

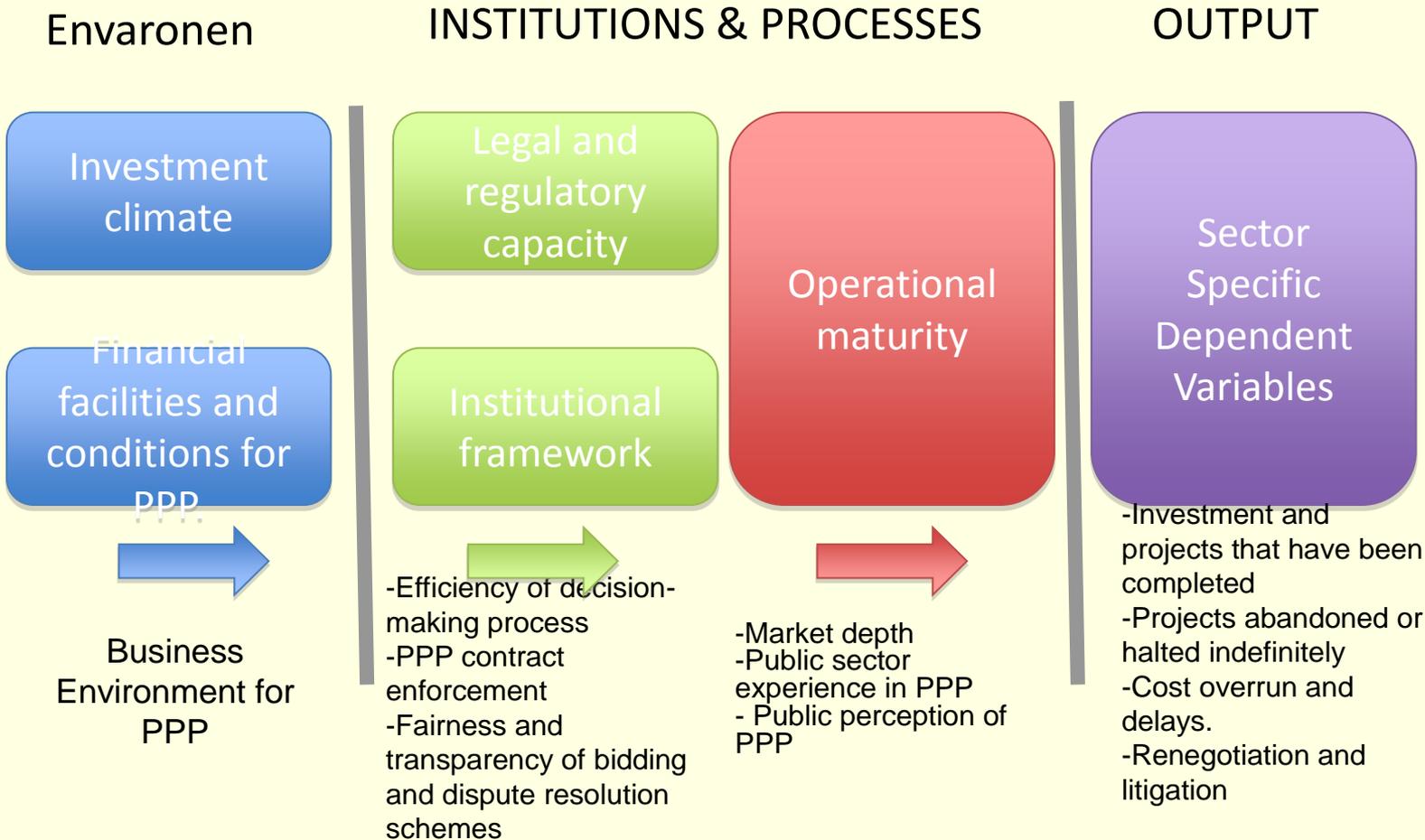
Ports: State as Land lord and grantor of Single Operator Concessions

- Breaking up of the national State port company into several city port authorities.
- Concession of mono operator berths inside public ports with limits to vertical and horizontal integration Investment developed; technological improvement; huge increase in transfer speed; significant improvement in productivity.
- Bidding process establishes price caps.
- Competition among ports and operators in each macro zone
- Strong lobby against limitation to vertical and horizontal integration
- Government is awarding new container terminals, keeping restrictions to vertical and horizontal integration key factor for new jump in efficiency.
- Lack of development of railroad cargo and multimode approach to planning transport infrastructure is becoming a major problem. It has limited the reduction in logistic cost. Still 18% of Gross value of products, doubling OECD countries level, but better than the 25% average of LAC.
- Ports have still been the most successful PPP experience in Chile.

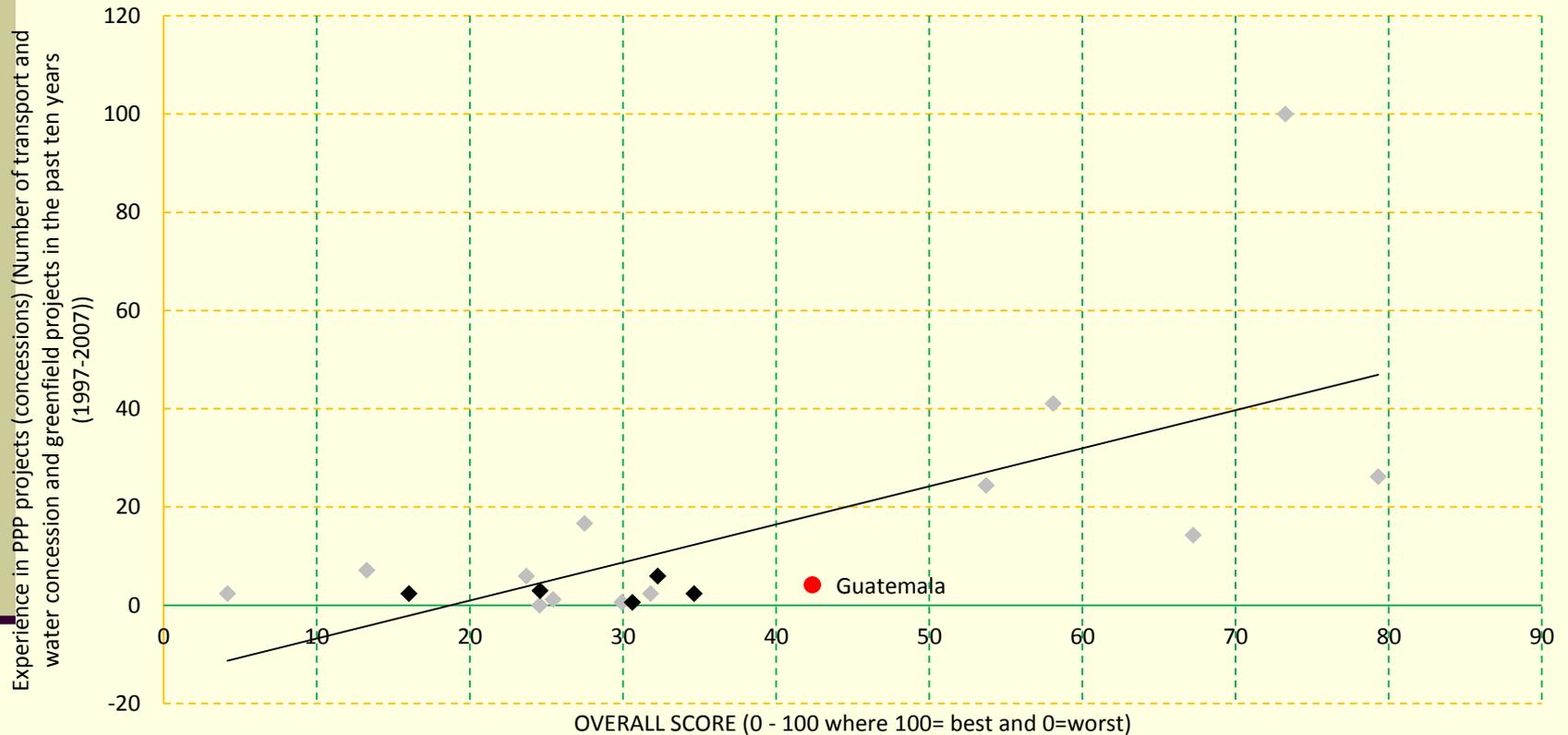
Cargo Railroad Privatization

- Privatization of the cargo operator with the government keeping the ownership of rail and passenger services.
- Overinvestment in passenger service over a billion US\$ between 2002-2005 .
- Improper maintenance of the track for cargo operations
- Bias in the allocation of right of way (against cargo).
- Lack of critical investment in infrastructure for cargo operation at both levels.
- Insufficient experience of private cargo operators, less efficient than comparable operators.
- Cargo railroad participate in only 3% of the cargo market. Given the characteristic of Chile, it should be over 10%. Implication, higher cost of transporting heavy cargo, lack of multimode integration has limited improvement in logistics.
- Urgent Restructuring Needed

Ability to develop Efficient PPP in Transport Sector INFRASCOPE-2010 EIU-MIF



Correlation Between Infrascopes index and Performance



Operational Maturity the most important factor

R2= 0,678

Country Ranking

| Puesto | País | Puntaje / 100 |
|--------|-------------------|---------------|
| 1 | Chile | 79,3 |
| 2 | Brasil | 73,2 |
| 3 | Perú | 67,2 |
| 4 | México | 58,1 |
| 5 | Colombia | 53,7 |
| 6 | Guatemala | 42,4 |
| 7 | Panamá | 34,6 |
| 8 | Costa Rica | 32,3 |
| 9 | Uruguay | 31,8 |
| 10 | El Salvador | 30,6 |
| 11 | Trinidad y Tobago | 29,9 |
| 12 | Argentina | 27,5 |
| 13 | Jamaica | 25,4 |
| 14 | Honduras | 24,6 |
| 15 | Paraguay | 24,5 |
| 16 | Rep. Dominicana | 23,7 |
| 17 | Nicaragua | 16,0 |
| 18 | Ecuador | 14,2 |
| 19 | Venezuela | 4,2 |

Comparison among Countries

| | | | Colombia | | Chile | | Peru | | Brazil |
|---|-----------------|---|----------|---|-------|---|-------|---|--------|
| OVERALL SCORE | 0-100, 100=best | ✓ | 53.7 | ✓ | 79.3 | ✓ | 67.2 | ✓ | 73.2 |
| Regulatory framework | 0-100, 100=best | ✓ | 50.0 | ✓ | 84.4 | ✓ | 75.0 | ✓ | 71.9 |
| Consistency and quality of PPP regulations | 0-4, 4=best | ✓ | 2.0 | ✓ | 4.0 | ✓ | 3.0 | ✓ | 3.0 |
| Effective PPP selection and decision making | 0-4, 4=best | ✓ | 2.0 | ✓ | 3.0 | ✓ | 3.0 | ✓ | 3.0 |
| Fairness/openness of bids, contract changes | 0-4, 4=best | ✓ | 2.0 | ✓ | 3.0 | ✓ | 3.0 | ✓ | 2.0 |
| Dispute resolution mechanisms | 0-4, 4=best | ✓ | 2.0 | ✓ | 3.0 | ✓ | 3.0 | ✓ | 3.0 |
| Institutional framework | 0-100, 100=best | ✓ | 50.0 | ✓ | 75.0 | ✓ | 75.0 | ✓ | 75.0 |
| Quality of institutional design | 0-4, 4=best | ✓ | 2.0 | ✓ | 3.0 | ✓ | 3.0 | ✓ | 3.0 |
| PPP contract, hold-up and expropriation risk | 0-4, 4=best | ✓ | 2.0 | ✓ | 3.0 | ✓ | 3.0 | ✓ | 3.0 |
| Operational maturity | 0-100, 100=best | ✓ | 46.7 | ✓ | 72.2 | ✓ | 53.6 | ✓ | 87.5 |
| Public capacity to plan and oversee PPPs | 0-4, 4=best | ✓ | 2.0 | ✓ | 3.0 | ✓ | 2.0 | ✓ | 3.0 |
| Methods and criteria for awarding projects | 0-4, 4=best | ✓ | 2.0 | ✓ | 4.0 | ✓ | 3.0 | ✓ | 3.0 |
| Regulators' risk allocation record | 0-4, 4=best | ✓ | 1.0 | ✓ | 3.0 | ✓ | 3.0 | ✓ | 3.0 |
| Experience in PPP projects (concessions) | higher=better | ✓ | 41.0 | ✓ | 44.0 | ✓ | 24.0 | ✓ | 168.0 |
| Quality of PPP projects (concessions) | lower=better | ✓ | 3.0 | ✓ | 4.0 | ✓ | 3.0 | ✓ | 4.0 |
| Investment climate | 0-100, 100=best | ✓ | 72.4 | ✓ | 85.4 | ✓ | 75.2 | ✓ | 58.8 |
| Political distortion | 0-100, 100=best | ✓ | 35.6 | ✓ | 73.7 | ✓ | 33.22 | ✓ | 41.90 |
| Business environment | 0-100, 100=best | ✓ | 54.1 | ✓ | 67.8 | ✓ | 67.42 | ✓ | 59.88 |
| Political will | 0-3, 3=best | | 3.0 | | 3.0 | | 3.0 | | 2.000 |
| Financial facilities | 0-100, 100=best | | 55.6 | | 97.2 | | 61.1 | | 72.2 |
| Government payment risk | 0-4, 4=best | | 2.0 | | 4.0 | | 3.0 | | 3.0 |
| Capital market: private infrastructure finance | 0-4, 4=best | | 2.0 | | 4.0 | | 2.0 | | 3.0 |
| Marketable debt | 0-4, 4=best | | 3.0 | | 4.0 | | 3.0 | | 3.0 |
| Government support and affordability for low income | 0-100, 100=best | | 2.0 | | 3.0 | | 2.0 | | 2.0 |
| Subnational adjustment | | | 50.0 | | 50.0 | | 50.0 | | 75.0 |

Chile and Brazil best performers: Nevertheless still significant challenges

- Regulation and contract design: Still high transaction cost and significant renegotiation.

Public Tendering Law of 1993, which establishes an “honest service balance” principle Incentivize renegotiation

Bidding Mechanism, Dispute resolution, Regulation of Renegotiation.

Improving regulation and contract design to reduce transaction cost and renegotiations

- **Institutions:** “the Agência Nacional de Transportes Terrestres” Prepare the project for bidding, call for bids, oversee, renegotiate and enforce projects, operation and quality of services.

Check and Balances for renegotiation and enforcing quality of services.

Significant Asymmetry among states, they have their own legislation and institutional scheme.

- **Capability:** main constraint in the “Agência”, BNDES had helped.

What about Chile?

- Whenever competition have been forced the results has been significantly improved.
- Chile has been able to attract needed investment With 20 years of over 5% growth no relevant bottle necks have emerged.
- Where competition or accountability have been limited the consumers and state have pay a higher cost.
- A new agenda for reform is needed to promote competition, reduce regulatory capture, enhance accountability, check and balances and transparency. Significant increases in TPF could emerge from new wave of reform
- Lack of multimode planning in transport remains a major constraint to reduce logistic cost.

Proposed Changes in Chile for reducing Opportunism, renegotiation and risk of hold up and improving quality of service.

- Renegotiation rules within the law. NPV of marginal project equal zero with rules for determining the discount factor. Yes
- Independent regulator will check whether changes imply transfer of unjustified rents. No
- Force bidding of construction for new projects when in operation. Yes
- Limits to new works during investment 25% and 30% in operation. Yes
- Call option with compensation during construction if there are significant changes in projects. Yes
- Call option in the last 40% of the concession with full compensation if NPV formulae is utilized. No
- Preparation of environmental assessment by State. Yes
- Initiation of concession with right of way secured No
- Legal assurance of compensation only when the principal(state) changes factors affecting directly the project which were unforeseen at the time of handing in the proposal. Yes
- Harmonization of complex projects through prequalification. Yes
- Reduce the procedure and time for solving cases of serious non compliance. Yes
- Limits to the possibility of stopping construction through legal resources. Yes

Institutional Reform: the way forward

- Creating “check and balances”
- Get financial implication right. Investment done committing the payment of future subsidies is equal to government debt. Bias toward Concessions. Should count as government debt.
- Cost benefit analysis is as important as in public Investment (Private Initiatives creates significant pressure.
- Create a Policy board with independent experts and government Ministers for: defining policies on concessions.
- Create a Technical semi autonomous Agency for Advising State institutions granting concessions (decentralization of capacity for granting concessions, avoid the single agency approach)
- “Check and balance” between Agency, board and granting State institution.
- Focus on performance base contracts
- Create an independent regulator for oversee and enforcement of contracts with focus on fulfilling explicit commitments in terms of quality of services and technical standards.
- Create a permanent independent Dispute Board for pre judicial dispute resolution mechanism as a means of conciliation.