The global private infrastructure industry has experienced rapid growth over the past fifteen years and attracted some 1,700 companies. Infrastructure was generally managed by national, single-sector utilities, but technological and regulatory change has allowed companies to cross traditional boundaries. Although core competencies in specific sectors are still important, companies are beginning to exploit new sources of competitive advantage, such as the ability to efficiently manage an integrated network of diverse services (table 1). Electric utilities in Germany—RWE, Viag, and Veba—are entering telecommunications markets on the strength of their extensive cable and electricity distribution networks and their experience operating massive, companywide internal telecommunications networks. WMX Technologies of the United States is adding wastewater treatment plants and waste-to-energy ventures to its waste management repertoire.

This Note briefly surveys the origins of some of these global infrastructure companies (see table 2 for the ten most active ones) and shows how major companies are diversifying across sectors and regions (tables 1 and 5). It also gives a flavor of the approaches companies use to compete in the evolving market and discusses some of the risks they face.

**Origins**

The growth of some companies has its origins in recent deregulation and privatization. Many U.S. utilities, faced with an increasingly mature home market, are taking advantage of the Public Utilities Holding Companies Act of 1992.
TABLE 2  TOP TEN DEVELOPERS BY NUMBER OF PROJECTS, 
1984–SEPTEMBER 1995

<table>
<thead>
<tr>
<th>Company</th>
<th>Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compagnie Générale des Eaux (France)</td>
<td>74</td>
</tr>
<tr>
<td>Cable and Wireless Plc. (United Kingdom)</td>
<td>49</td>
</tr>
<tr>
<td>WMX Technologies Inc. (United States)</td>
<td>39</td>
</tr>
<tr>
<td>Lyonnaise des Eaux-Dumez (France)</td>
<td>38</td>
</tr>
<tr>
<td>France Telecom</td>
<td>34</td>
</tr>
<tr>
<td>Sprint Corp. (United States)</td>
<td>33</td>
</tr>
<tr>
<td>Cox Cable Communications Inc. (United States)</td>
<td>31</td>
</tr>
<tr>
<td>AT&amp;T (United States)</td>
<td>30</td>
</tr>
<tr>
<td>Comcast (United States)</td>
<td>29</td>
</tr>
<tr>
<td>Tele-Communications Inc. (United States)</td>
<td>29</td>
</tr>
</tbody>
</table>

Source: World Bank, Private Infrastructure Project Database.

TABLE 3  TOP TEN DEVELOPERS WITH STATE OWNERSHIP, 
1984–SEPTEMBER 1995

<table>
<thead>
<tr>
<th>Company</th>
<th>State share (percent)</th>
<th>Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>France Telecom</td>
<td>100</td>
<td>34</td>
</tr>
<tr>
<td>Electricité de France</td>
<td>100</td>
<td>24</td>
</tr>
<tr>
<td>Telefónica de España (Spain)</td>
<td>32</td>
<td>9</td>
</tr>
<tr>
<td>China International Trust and Investment Co.</td>
<td>100</td>
<td>7</td>
</tr>
<tr>
<td>Deutsche Telekom (Germany)</td>
<td>100</td>
<td>6</td>
</tr>
<tr>
<td>RWE AG (Germany)</td>
<td>29</td>
<td>5</td>
</tr>
<tr>
<td>IRI Group (Italy)</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>Telecom Finland OY</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>Telia AB (Sweden)</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>Singapore Telecom</td>
<td>89</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: World Bank, Private Infrastructure Project Database.

TABLE 4  TOP TEN DEVELOPERS FROM DEVELOPING COUNTRIES, 
1984–SEPTEMBER 1995

<table>
<thead>
<tr>
<th>Company</th>
<th>Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grupo ICA (Mexico)</td>
<td>16</td>
</tr>
<tr>
<td>Tribasa SA (Mexico)</td>
<td>16</td>
</tr>
<tr>
<td>Grupo Mexicano de Desarrollo (Mexico)</td>
<td>12</td>
</tr>
<tr>
<td>China International Trust and Investment Co.</td>
<td>7</td>
</tr>
<tr>
<td>Naviera Perez Companc (Argentina)</td>
<td>7</td>
</tr>
<tr>
<td>Empresa Nacional de Electricidad SA (Chile)</td>
<td>6</td>
</tr>
<tr>
<td>Compania Chilena de Generación Electrica SA (Chile)</td>
<td>5</td>
</tr>
<tr>
<td>Grupo Macri (Argentina)</td>
<td>5</td>
</tr>
<tr>
<td>Soldati (Argentina)</td>
<td>5</td>
</tr>
<tr>
<td>Techint Compania Tecnica Internacional (Argentina)</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: World Bank, Private Infrastructure Project Database.

which allows them to venture into new markets. Privatization has prompted such companies as British Gas and British Telecommunications to seek additional shareholder profits in overseas ventures. Some investors are driven by a need for secure supply. Germany's largest gas company, Ruhrgas, is investing in countries key to regular supply—countries in Eastern Europe and the former Soviet Union. Other companies are taking advantage of a historical head start. French water companies, for example, are exploiting their long experience in operating private water concessions at home in newly private ventures abroad.

Many companies competing in private infrastructure markets are publicly owned at home, such as Electricité de France (see table 3 for the top ten developers with state ownership). Telefónica of Spain and France Telecom bid aggressively for telecommunications companies in emerging markets. And firms from emerging markets are themselves poised to become developers. Tribasa, a Mexican construction company, building on its toll road experience, acquired the capability to arrange financing and is branching out into other infrastructure ventures, including water supply and waste disposal (see table 4 for the top ten developers from emerging markets).

Companies such as Asea Brown Boveri and General Electric, traditional equipment suppliers for public and private utilities, are diversifying into project development so as to benefit from control over the entire project, rather than only bidding for the equipment contract in the final stages. Along with equipment suppliers, engineering companies such as Fluor Daniel and Black & Veatch are taking a more active role in financing projects previously in the public sector and in some cases are functioning as developers. And companies such as Hopewell Holdings have built on their experience as project managers to become project developers; able to build good working relationships with governments, they can expedite complex contractual arrangements in uncertain regulatory and legal environments.

Approaches

From these origins, infrastructure companies are adopting a range of competitive strategies,
### TABLE 5: COMPANIES' GEOGRAPHIC DIVERSIFICATION, 1984–SEPTEMBER 1995

<table>
<thead>
<tr>
<th>North America and the Caribbean</th>
<th>OECD Europe</th>
<th>Eastern Europe and CIS</th>
<th>Middle East and Africa</th>
<th>Asia and the Pacific</th>
</tr>
</thead>
</table>
| **FRANCE TELECOM** US$13,300  | Canada  
United States  
Argentina  
Mexico  
Germany  
Greece  
Italy  
Portugal  
Spain  
United Kingdom  
Poland  
Russia  
Turkey  
Central African Republic  
Chad  
Djibouti  
Egypt  
Equatorial Guinea  
Gabon  
Guinea  
Israel  
Madagascar  
Mali  
Mayotte  
Morocco  
Niger  
Réunion  
South Africa  
India  
Iran  
New Zealand  
Pakistan  
Vanuatu |
| **CABLE AND WIRELESS PLC. (UNITED KINGDOM)** US$3,949 | United States  
Barbados  
Jamaica  
Puerto Rico  
Trinidad and Tobago  
France  
Germany  
Ireland  
Italy  
Netherlands  
Sweden  
Belarus  
Bulgaria  
Kazakhstan  
Latvia  
Russia  
Bahrain  
Republic of Yemen  
Seychelles  
Sierra Leone  
South Africa  
Australia  
Bangladesh  
China  
Hong Kong  
Ireland  
Japan  
Maldives  
Pakistan  
Republic of Korea  
Solomon Islands  
Tajikistan  
Taiwan  
(China)  
Vanuatu |
| **COMPAGNIE GÉNÉRALE DES EAUX (FRANCE)** US$28,227 | Canada  
United States  
Argentina  
Mexico  
Belgium  
France  
Germany  
Italy  
Portugal  
Spain  
United Kingdom  
Hungary  
Gambia  
Guinea  
Australia  
China  
Kazakhstan  
Korea  
Malaysia  
Pakistan  |
| **LYONNAISE DES EAUX-DUMÉZ (FRANCE)** US$27,528 | United States  
Argentina  
Mexico  
France  
United Kingdom  
Czech Republic  
Hungary  
Lithuania  
Gabon  
Guinea-Bissau  
Australia  
China  
Macao  
Thailand |
| **TRACTEBEL SA (BELGIUM)** US$7,204 | Canada  
United States  
Argentina  
Belgium  
France  
Germany  
Lithuania  
Netherlands  
Spain  
United Kingdom  
Belarus  |
| **ÉLECTRICITÉ DE FRANCE** US$11,643 | Argentina  
Belgium  
Portugal  
Spain  
Poland  
Côte d’Ivoire  
Ghana  
Guinea-Bissau  
Malawi  
China  |
| **AT&T (UNITED STATES)** US$6,363 | Canada  
United States  
Argentina  
Puerto Rico  
Venezuela  
France  
Spain  
United Kingdom  
Ukraine  
Uzbekistan  
New Zealand  
Philippines  |
| **EMPRESA NACIONAL DE ELECTRICIDAD SA (SPAIN)** US$2,830 | Argentina  
Colombia  
Costa Rica  
El Salvador  
Guatemala  
Honduras  
Nicaragua  
Panama  
Peru  
Spain  
Portugal  |

*Note: Dollar amounts indicate total cost of projects (in millions); for a project involving more than one developer, the full cost is added to each developer's total. Source: World Bank, Private Infrastructure Project Database.*
The Private Infrastructure Industry—Company Approaches

from sectoral diversification based on core functional skills to a focus on subsectors and single functions:

- **Municipal focus.** France’s Compagnie Générale des Eaux focuses on developing and maintaining relationships at the municipal level and has expanded into other municipally oriented services such as hospitals, cable television, parking facilities, passenger transport, and urban property development. Citizens Utilities in the United States is beginning to explore the potential for efficient distribution and delivery of an integrated range of services to the household, including gas, power, water, and telecommunications.

- **Regional focus.** Telefónica de España, in its aggressive pursuit of Latin American telecommunications privatizations, can be seen as capitalizing on its knowledge and common understanding of the consumers’ culture and language. Hong Kong–based Hopewell Holdings’ familiarity and trust with the Chinese government resulted in the opportunity to develop two power plants in China.

- **Vertical development.** Some companies are hoping to realize vertically integrated infrastructure networks. Tribasa plans to develop intermodal transport corridors in Mexico with ports, toll roads, and service facilities that improve logistics for manufacturing firms relying on just-in-time delivery methods.

- **Construction focus.** Large construction companies such as Grupo Mexicano de Desarrollo have focused on projects with significant construction components, such as toll roads and wastewater distribution systems, to take advantage of their expertise.

- **Narrow segment focus.** Enron of the United States bases its strategy around natural gas, concentrating on gas transport and distribution and gas-fired power plants. Its financial and risk management skills have allowed it to develop innovative financing schemes and tap new classes of investors.

**Risks**

Infrastructure companies face three key challenges. First, as companies adopt more of an ownership approach to infrastructure projects, they must have the ability to pull the deal together and connect the network of companies that will supply services. Development costs—mostly staff time and travel to put the deal together—can be 3 to 5 percent of the cost of projects worth several hundred million dollars. Second, to conclude a deal, companies must also be able to arrange a favorable financing package. Companies have approached the issue in a variety of ways. Asea Brown Boveri makes full use of export credit financing for its projects. Enron constantly pushes the frontier in tapping capital markets.

Third, although development teams breathe a sigh of relief once a project is funded and construction begins, regulatory problems may be just about to start. Highly visible problem cases have been Cogasco, a natural gas pipeline project in Argentina that went awry in 1982, and the more recent troubles of the Bangkok Expressway. In both instances, regulatory authorities failed to live up to the spirit of the contract. Whether the trend toward private infrastructure is sustained will depend on transparent and competitive solutions that render price regulation unnecessary or, where that is not possible, price regulation that balances the interests of developers, consumers, and governments. Ultimately, it is in the developers’ interest to help establish the system that will regulate their behavior. Such companies as AT&T of the United States, Germany’s RWE, and Hong Kong’s China Light and Power have actively helped to develop regulatory solutions, which allowed them to deflect pressure for nationalization.

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This Note draws on a new database under development in the Private Sector Development Department of the World Bank. The Private Infrastructure Project Database tracks private infrastructure activity worldwide and attempts to provide a comprehensive survey of private projects in gas, power, telecommunications, transport, water, and waste since 1984. See also Note No. 45.

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