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## International Journal of Disaster Risk Reduction

journal homepage: [www.elsevier.com/locate/ijdr](http://www.elsevier.com/locate/ijdr)

# The role of private sector for reducing disaster risk in large scale infrastructure and real estate development: Case of Delhi



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## ARTICLE INFO

Available online 7 November 2014

## Keywords:

Private sector  
 Infrastructure  
 Disaster risk reduction  
 Real estate  
 Delhi  
 Delhi metro rail corporation  
 Delhi International Airport  
 Risk sharing  
 Risk transfer  
 Exposure

## ABSTRACT

This study is an attempt to investigate the role of private investment in large scale infrastructure projects in reducing disaster risk in India within the context of a regulatory environment. It attempts to identify gaps in the processes of planning, stakeholder incentives and the enabling environment for the inclusion of disaster risk reduction measures in the developmental processes of large scale infrastructure projects. The study is done in reference to four large infrastructure and real estate projects in Delhi, India.

Key findings: There are gaps in the regulatory environment that drive lack of incentives for the private sector stakeholders to invest in disaster risk reduction measures in large scale infrastructure projects. The approval processes and capacities of authorities are not sufficient to ensure the inclusion of disaster risk reduction measures, which leads to developments built in disaster prone areas, increasing the exposure and thereby the risk to property, people, systems and economy.

This study was commissioned by the United Nations International Strategy for Disaster Risk (UNISDR)<sup>1</sup> for the Global Assessment Report 2013 (GAR13) titled “From Shared Risk to Shared Value: The Business Case for Disaster Risk Reduction”. It is published in the context of increasing global losses owing to disasters, and an enhanced realisation by senior management in private sector regarding the role that disaster risk reduction methodologies play in reducing uncertainty, building confidence, cutting costs and creating value.

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*Abbreviations:* AAI, Airport Authority of India; BIS, Bureau of Indian Standards; BMTPC, Building Material and Technology Promotion Council; CED, Civil Engineering Department; COA, Council of Architects, India; CMIE, Centre for Monitoring Indian Economy; DDA, Delhi Development Authority; DIAL, Delhi International Airport Private Limited (also as Delhi International Airport here); DLF, Delhi Land and Finance Buildings Private Limited (also as DLF Buildings here); DMRC, Delhi Metro Rail Corporation (also as Delhi Metro here); DND, Delhi–NOIDA–Delhi Toll Road; DPR, Detail Project Report; DRR, Disaster Risk Reduction; EFC, Expenditure Finance Committee; EREC, Earthquake Risk Evaluation Centre; FAR/FSI, Floor Area Ratio/Floor Space Index; GAR, Global Assessment report, 2013; GDP, Gross Domestic Product; GMR Group, Grandhi Mallikarjuna Rao Group; GNCTD, Government of National Capital Territory of Delhi; Gol, Government of India; GSDP, Gross State Domestic Product; HUDA, Haryana Urban Development Authority; IL&FS, Infrastructure, Leasing and Financial Services Ltd.; IRDA, Insurance Regulation and Development Authority; JnNURM, Jawaharlal Nehru National Urban Renewal Mission; JV, Joint Venture; MoHUPA, Ministry of Housing and Urban Poverty Alleviation; MoUD, Ministry of Urban Development; MRTS, Mass Rapid Transit System; msf, Mega Square Feet; NBC, National Building Code; NCT/NCR, National Capital Territory/National Capital Region; NDMA, National Disaster Management Authority; NFA, Net Fixed Assets; NOIDA, New Okhla Industrial Development Authority; NTBCL, NOIDA Toll Bridge Company (P) Ltd.; OECF (Japan), Overseas Economic Cooperation Fund (Japan); PPP, Public Private Partnership; RTI Act, Right to Information Act; SEZ, Special Economic Zone; SPV, Special Purpose Vehicle; ULB, Urban Local Bodies; UNISDR, United Nations International Strategy for Disaster Reduction; WRD, Water Resources Department

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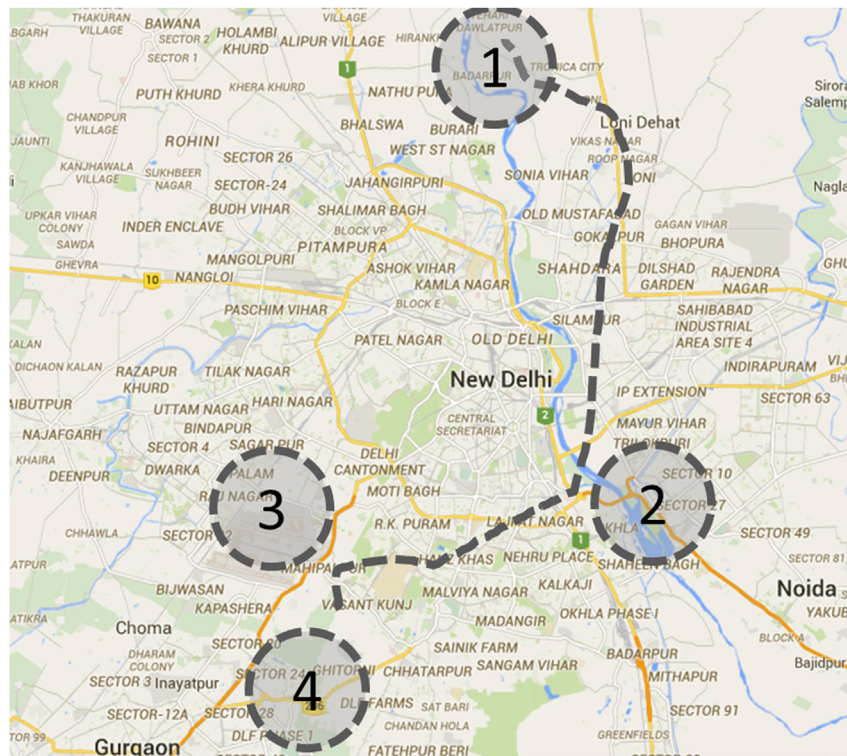
<sup>1</sup> The UNISDR terminology will be used for terms such as disaster, risk, reduction, capacity, exposure, hazard, mitigation, preparedness, prevention and risk transfer, unless otherwise specified.

## 1. Scope and methodology

In the context of a policy and regulatory regime for the National Capital Territory of Delhi, case studies of private investment in large scale infrastructure and real estate sector were investigated. Four large scale infrastructure projects that have developed in the last decade in Delhi were considered as case studies for the purpose of this research (Fig. 1). There are multiple agencies involved in the four selected cases having varying shares of risks. They are ordered in the increasing magnitude of private participation (Table 1).<sup>2</sup>

The research process for each of the case studies involved:

- Strategically assessing the hazard risk. It assesses the hazard exposure in the short, medium and long terms as well as hazard-specific vulnerabilities of the physical, social and financial environment. A qualitative 3-point scale has been used to rate the risks based on secondary data, interviews, site visits and the team's assessment. This is indicative to assist in management scoping and decision-making, and a more detailed assessment may-be required to provide a more rigorous analysis. This research does not comment on the structural stability of the built infrastructure or the relative capacities to respond to various risks in these case studies.
- Analysing the role of different stakeholders through the pre-project and post-project phases. This is a qualitative assessment of their stake and influence based on secondary data, interviews, site visits and the team's assessment, in order to help identify the gaps.
- Analysing the enabling environment and the regulatory context. Enquiries were also made about the socio-techno-political decisions guiding physical location of each case and their implication on disaster risk reduction.
- Analysing considerations of hazard exposure, vulnerabilities and risks for making investment decisions. Risk transfer measures were studied by understanding the insurance available, accessed and used in each case study. This includes the joint venture contract to explore stake and conditions of risk sharing.



**Fig. 1.** Locations of the four case studies – 1. Delhi Metro Rail (yellow line), 2. DND (toll road), 3. Delhi International Airport, 4. DLF CyberCity (building). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

<sup>2</sup> While DIAL and DND are examples of Public Private Partnerships (Department of Economic Affairs, Ministry of Finance, GOI), DLF and DMRC are not (Ministry of Corporate Affairs, GOI). DLF is listed under Exports from SEZs notified under the SEZ Act, 2005. This policy intended to make SEZs an engine for economic growth supported by quality infrastructure complemented by an attractive fiscal package, both at the Centre and the State level, with the minimum possible regulations. b. DMRC comprises of public agencies as partners but is a registered company under the Companies Act, 1956. But it further has private entities offering loans, insurance and other services, but of the four case studies, has least private participation.

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