

“Leadership and Institutional Change in the Public Provision of
Transportation Infrastructure: An Analysis of India’s Bihar”

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ABSTRACT

This study examines the role of leadership in the development of transportation infrastructure, specifically bridges, in the Indian state of Bihar during the 2000s. Drawing from interviews and quantitative data, we show that leadership was a critical factor in fostering institutional change in the state government's bridge organisation. Three leaders worked as a coalition to mobilise resources, enforce new rules of the game, and motivate staff; thereby transforming the organisation from a chronic under-provider of bridges to a more effective provider. Our study contributes to the emerging research about how the role of leadership shapes development outcomes in low-income countries.

1. INTRODUCTION

The government of Bihar has long struggled to provide adequate bridge infrastructure for the more than 100 million people who live in this eastern state of India. Although adequate bridge infrastructure is a critical need in many developing countries, this is an area of special

concern for Bihar given that the state lies in a region that is highly flood-prone. Hence, during floods, the lack of useable bridges in Bihar sometimes results in villages being cut off from cities, markets, schools, and hospitals for lengthy periods of time.

For decades, the state's poor bridge infrastructure appeared to stem from both financial issues and from inefficiencies within the state bridges organisation, Bihar Rajya Pul Nirman Nigam Ltd (hereafter 'BRPNNL'). From 1975 to 2005, BRPNNL built only 314 bridges in the state, a number that failed to satisfy the population's basic infrastructure needs. BRPNNL was described as 'totally inefficient,' its staff had 'no work ethic,' and the tendering process was reportedly rife with corruption. In 2005, the state government floated a proposal to liquidate the organisation.

In the short timespan since then, BRPNNL has significantly improved its ability to provide bridge infrastructure. Between 2005 and 2010, it constructed 538 bridges in the state. After operating at a financial loss for 32 years, BRPNNL recorded a profit of over 20 million USD in 2010. In the year between June 2010 and June 2011, BRPNNL built an additional 325 bridges. Today, residents in the capital city of Patna and the surrounding area note that the improvement in bridge infrastructure has had many positive effects on local communities. An organisation on the verge of liquidation in 2005, BRPNNL has since expanded its activities to road construction, irrigation, and sanitation.

How did an organisation that was a chronic under-provider of a public good transform itself into an effective provider over such a short period of time? This study seeks to answer this question by drawing on 35 interviews and quantitative data collected in Bihar and New Delhi during 2011. We demonstrate that the role of leadership at the state and organisational levels was

a critical factor in bringing about an institutional change in the way that the Bihar government provides bridge infrastructure.

We begin with a brief review of the literature on the determinants of governmental public goods provision. Next, we present a theory for how the role of leadership can affect governmental public goods provision in a low-income context. We then analyze Bihar's bridge sector and the activities of BRPNNL in significant depth. We conclude by examining the ways in which the case of Bihar informs ongoing research about the role of leadership, institutional entrepreneurship, and the barriers to institutional change in government organisations.

2. THE POLITICAL ECONOMY OF GOVERNMENTAL PUBLIC GOODS PROVISION

Most academic work about governmental public goods provision looks at why and to what extent the government provides public goods, and how government-society interactions or structural factors affect this level of provision.¹ Much of this work focuses on high-income countries. For scholars and development practitioners who study low-income countries, the focus tends to be on the issue of state capacity and the financial and political barriers to public goods provision. Rent-seeking and corruption – which, it is argued, occur at a higher magnitude in the low-income context – often play a central part in these analyses. In this section, we briefly review the extant work on the barriers to governmental public goods provision as they apply to a low-income country.

Scholars have long examined how political economy factors shape the level of public goods provision. For instance, studies show that leaders provide more public goods in countries

that hold competitive elections (Bueno de Mesquita et al, 2003; Lake and Baum, 2001; Olson, 1993). That being said, the presence of special interest groups or factors such as ethnic diversity can skew the allocation of public goods towards some sub-populations at the expense of others (Alesina, Baqir and Easterly, 1999; Alesina and La Ferrara, 2005; Banerjee and Somanathan, 2007). Other research finds that incumbent leaders are likely to favor ‘visible’ public goods projects, such as food distribution, in order to attract votes for upcoming elections (Besley and Burgess, 2002).

The level and quality of public goods provision may be affected by the strength of civil society and social organisations (Putnam, 1993; Boix and Posner, 1998). Tsai (2007) finds that in places where formal government accountability is weak, informal institutions that allow local citizen groups to hold the government accountable can foster improvements in public goods provision. Mass media can also play a role in building government accountability (Besley and Burgess, 2002), and the gender of leaders can affect what type of public goods are provided (Chattopadhyay and Duflo, 2004). Given all of these findings, we would expect public goods provision to be somewhat better in democratic, ethnically-homogenous countries where civil society or citizen groups are strong, especially in regard to projects that are highly visible to the population.

At the same time, an abundant stream of research highlights other, potentially more consequential, barriers to public goods provision, such as rent-seeking and corruption. Broadly speaking, rent-seeking occurs when actors or groups try to manipulate the political environment in order to capture various economic advantages, such as preferential policymaking, subsidies, favors, or monopoly rights (Tullock, 1971; Krueger, 1974). Examples of how rent-seeking can

affect public goods provision is when, for instance, hospitals are built only in cities from which powerful politicians hail or procurement tenders are awarded only to favored firms.

Corruption can affect public goods provision when politicians are bribed to target projects towards a particular firm, or when contracted firms misuse or embezzle money earmarked for government projects (see Rose-Ackerman, 1998). Although some research suggests that corruption may increase efficiency in certain contexts (Leff, 1964) and may be a necessary part of development (Bayley, 1966), corruption can hurt the quality of public goods provision (Mauro, 1995). Shleifer and Vishny argue that the demand for secrecy in corruption diverts public goods away from the 'highest value projects, such as health and education, into potentially useless projects, such as defense and infrastructure, if the latter offer better opportunities for secret corruption' (1993: 616; see also Tanzi and Davoodi, 1997).

In summary, current research suggests that the main barriers to achieving a high level of governmental public goods provision in a low-income context are: the presence of a nondemocratic political regime, demographic forces, low government accountability, and corruption and rent-seeking. Overcoming some of these barriers, such as rent-seeking and corruption, is a formidable – but not insurmountable – challenge. Other barriers, such as a nondemocratic political regime, may be shaped by a complex set of historical state-society forces.

What about the role of human agency? Can the actions of a 'leader' spark an institutional change that shifts a country from a low level of governmental public goods provision to a higher one? Researchers have yet to provide a sound answer to this question, primarily because the role of leadership is often underspecified and difficult to disentangle from other factors. Indeed, isolating a leader's influence from other factors that shape institutional change is the main

challenge to ascribing causality to the role of a leader. The next section seeks to tackle this challenge by articulating a theory about how leadership can affect institutional change and improve governmental public goods provision in a low-income context.

3. THE ROLE OF LEADERSHIP IN GOVERNMENTAL PUBLIC GOODS PROVISION

What is a ‘leader’? While countless definitions of this concept can be found in the social science and business management literatures,² we define a leader as follows: Someone with formal or informal authority who can command others to do things within some well-defined limits. To date, there is a large body of work that examines how the role of leadership contributes to political, economic, social, and organisational outcomes (see the review in Ahlquist and Levi, 2011). Closely related to this literature are writings on institutional entrepreneurs and how institutional change can occur via the role of human agency (see DiMaggio, 1988; Fligstein, 1997; Powell and DiMaggio, 1991). Although there is increasing scholarly interest in the role of leadership lately, even ancient and modern philosophers sought to better understand the role of leaders – perhaps the most famous being Machiavelli. Today, international lending agencies and NGOs are taking up the question of how leadership affects development outcomes (see Brady and Spence, 2010; Lyne de Ver and Kennedy, 2011).

What does the literature on leadership and institutional entrepreneurship tell us that can be applied to the issue of governmental public goods provision in low-income countries? Many researchers posit that leaders can help overcome problems of collective action and coordination in organisations by building trust and reducing information asymmetries between individuals (for

example, see Calvert, 1992; Colomer, 1995). Scholars also argue that leaders can provide necessary resources for the task of fostering institutional change (Dorado, 2005). Further, leaders can alter the rules of interaction between individuals (see Goldstein, Hazy and Lichtenstein, 2010) or institute a system of rewards and punishment that changes how individuals work together in an organisation (for example, see Andreoni, Harbaugh, and Vesterlund, 2003; Rivas and Sutter, 2009). Finally, leaders can motivate change and foster adaptation in organisations (for example, see Davis, 1942; Heifetz, Linsky, and Grashow, 2009) or emerge as ‘visionaries’ and champions of reform (see Gray and McPherson, 1999).

In light of these arguments, we theorise that a leader operating in a low-income context must play three necessary roles in order to foster institutional change in governmental public goods provision (see Figure 1). First, a leader must *mobilise resources* towards the goal of effective governmental public goods provision. These resources can take the form of people, skills, finances, knowledge, ideas, or other context-specific items. Leaders seeking to improve a country’s transportation infrastructure, for instance, need access both to financial resources and to highly-trained civil engineers. In a low-income context, leaders desperately need access to a continual stream of resources to steadily maintain a higher level of public goods provision.

Second, leaders must *establish and enforce new rules of the game* that govern the provision of a public good. Institutional change in an organisation occurs when these new rules are adopted, there is a shift in individuals’ behavior, and thus a higher equilibrium results. Some examples of new rules that are required in a low-income, low equilibrium situation are: better methods of monitoring the performance of officials, better sanctioning mechanisms for corrupt behavior, and new rules for allocating scarce resources among agencies. Leaders often need to invoke the powers of other government institutions, such as the judicial system, in order to

enforce the new rules of the game. Whereas the direct authority of leaders is often helpful in instituting new rules and bringing about institutional change (Fligstein, 1997), an exclusively top-down approach is not sustainable over time. Institutional change requires *all* individuals in an organisation to share the goal of upholding the new rules of the game.

Third, leaders must marshal *motivational and persuasive powers* to rally others to take part in the process of institutional change in an organisation that provides public goods. In one respect, this is needed to foster better performance from individuals who must coordinate their actions towards achieving policy and project goals. Individuals operating in a low equilibrium may be unable to envision the organisation operating at a higher equilibrium or to have ‘a sense of the possible.’ Leaders are the agents who can provide this vision, frame it, and persuade others to join the effort (Lawrence and Suddaby, 2006). If an exogenous shock occurs in a low-income context – for instance, financial resources are withdrawn or a coup in the government takes place – an organisation needs to be adaptable. Leaders can provide the guidance, motivation, and inspiration for individuals in an organisation to transition through difficult situations.

Theoretically, a single agent can play all three of these necessary leadership roles. However, this may be unfeasible. The agent who can provide resources may not be able to effectively enforce the new rules of the game. For instance, a central government can provide the financial resources to build a new hospital, but a local official is better able to monitor the construction firm that builds the hospital. More importantly, having a single agent play all of these necessary leadership roles may be undesirable. The imposition of institutional change *deus ex machina* from a single authority figure has less chance of succeeding over time than a process whereby multiple leaders at various levels of an organisation invest themselves in the process of change.

Building on the above, we argue that institutional change has a higher probability of success if leaders across different hierarchical levels of authority band together as a coalition to play the necessary leadership roles (on coalitions, see Andrews, McConnell and Wescott, 2010; Fligstein, 1997; Maguire, Hardy, and Lawrence, 2004; Lawrence and Suddaby, 2006). This ‘leadership coalition’ can be defined formally or informally. It can be established after one leader plays a necessary role – for instance, provides financial resources – and then other like-minded leaders coalesce to utilise the resources for the goal of better public goods provision. As in any successful coalition, each leader plays a role that is essential to the coalition’s overall power. Furthermore, certain characteristics will strengthen a leadership coalition, such as when there are formal relationships of authority across the organisational hierarchy. Here, leaders not only share the common goal of institutional change but they are endowed with a sense of responsibility and duty.

Leadership coalitions across hierarchical levels of authority may help overcome the ‘paradox of embedded agency’ (see Battilana, 2006; Greenwood and Suddaby, 2006; Seo and Creed, 2002). This important point from the literature on institutional entrepreneurship holds that, because agents are shaped by the institutional environment they are embedded in, it is difficult to ‘break out’ and innovate as a leader. If leaders from different hierarchical levels are cooperating with each other in a coalition, the actions of one leader can help pull the others out of a low equilibrium status quo. When one leader serves as a ‘first mover’ for institutional change, this can provide the shock that helps dislodge embedded leaders. From an analytical standpoint, identifying the first mover in a leadership coalition can help pinpoint causality and potentially resolve the ‘chicken-or-egg’ question that looms large in understanding how agents create institutional change.

To summarise our theory, we argue that a leader can foster institutional change in governmental public goods provision in a low-income context if she mobilises resources, establishes and enforces new rules of the game, and marshals motivational and persuasive powers. If any one of these three roles is unable to be played, we argue that institutional change is unlikely to occur. Furthermore, we argue that institutional change is more likely to succeed if leaders across different hierarchical levels of authority form a coalition. Next, we apply our theory to a case study of the Indian state of Bihar.

4. METHODOLOGY

To construct a case study of Bihar, we collected both quantitative and qualitative data. First, we obtained data on state government funding for bridge building activities and time-series financial data on the activities of BRPNNL. These data were obtained in Patna. Second, we conducted 35 face-to-face, semi-structured interviews during April-May 2011 in New Delhi, Patna, and two locations in Bihar's Muzaffarpur and Patna districts.

Prior to conducting the interviews, we used local consultants to identify a representative sample of individuals with in-depth knowledge and experience in Bihar's transportation sector. These individuals belonged to the following occupational and descriptive categories: senior- and junior-level officials with Bihar State Road Development Corporation Ltd (hereafter 'BSRDCL') and BRPNNL (including the current managing directors), senior- and junior-level engineers with BSRDCL and BRPNNL, consultants and engineers from firms completing projects with BSRDCL and BRPNNL, members of Bihar's local business community, development

consultants and researchers, and local residents of areas where infrastructure development has occurred.

We also conducted in-depth interviews with two individuals who were frequently identified by others as playing critical roles in the development of Bihar's bridge infrastructure: R.K. Singh and Pratyaya Amrit. R.K. Singh, currently India's home secretary, was the managing director of BSRDCL from 2005 to 2009. Pratyaya Amrit, currently managing director of BSRDCL, was managing director of BRPNNL from 2006 to 2009. We specifically refer to these two interviews in the analysis below in order to reveal an experience-based, first-person account of how leaders contributed to the growth of Bihar's bridge infrastructure. In the case of all other interviews and due to the need to preserve anonymity, we coded interviewees according to their job/position followed by a number. For instance, 'Official 1' is the first Bihar state government official we interviewed. 'Researcher 2' is the second Bihar-based researcher we interviewed.

These interviews were useful for gaining a highly nuanced understanding of the process by which Bihar's bridge sector grew over the 2000s and the role that leaders played. Interviews also helped to confirm the quantitative data that were collected. The quotations we selected from interviews are those that help us construct a 'rich description' of our case of Bihar, one of the main advantages of a qualitative methods approach. The data and evidence we collected allows us to construct the first study of Bihar's bridge sector since its rapid growth during the 2000s. Next, we present the evidence of the growth in Bihar's bridge sector before applying our theory to understanding the institutional change that occurred.

5. BIHAR'S BRIDGE INFRASTRUCTURE: PAST AND PRESENT

Adequate roads and bridges are critical to the livelihoods of all Biharis. Living in a wetland area that merges with the foothills of the Himalayas, over three million Biharis were seriously affected by a flood in the Kosi basin in August 2008. This natural disaster spread over five districts and killed at least 250 people. Overall, 28 of Bihar's 38 districts are flood-prone. Without adequate bridges, communities become completely cut off from outside towns and markets. Some areas, like the Sitamarhi district which borders Nepal, used to be cut off from the capital city of Patna for six months a year due to flooding.

Roads in Bihar are also problematic. In a 2007 report, a Special Task Force on Bihar concluded that 'The [road] network is inadequate both in capacity and quality to meet the needs for the development of the State economy' (Government of India, 2007). Furthermore, as in other parts of India, the quality of transportation infrastructure in Bihar varies greatly between rural and urban areas (Pritchett, Murgai, and Wes, 2006).

In the 30-year span from 1975 to 2005, BRPNNL constructed just 314 bridges in the entire state (Srivastava, 2012). When the government was considering a liquidation of BRPNNL in 2005, the organisation had been running at a loss for all of these 30 years. Pratyaya Amrit, former managing director of BRPNNL, reasoned that the problems with the organisation were 'the same as those which can affect many government organisations....There is too much non-plan expenditure, budget constraints, late execution, and low commercial profitability' (Interview, Amrit). More than one government official mentioned that, prior to 2005, motivation to work was low. One official described the environment as one of 'demoralisation' which permeated the organisation (Interview, Official 1).

After the state proposed liquidation in 2005, BRPNNL ‘made a decision to rewrite itself,’ according to one official (Interview, Official 2). The new state government headed by Chief Minister Nitish Kumar injected an enormous amount of funds into BRPNNL and, soon afterwards, the organisation began building bridges at an unprecedented rate. As Figure 2 indicates, within a few years, BRPNNL had already constructed more bridges than were built in the entire 30-year span between 1975 and 2005. Figure 3 exhibits the financial turnaround that occurred in the organisation over this time period.

INSERT FIGURE 2 AND FIGURE 3 HERE

By 2008, BRPNNL had transformed itself from an organisation that had perennially operated at a loss to one that finally yielded a profit. Project turnover increased from 8.7 million USD in 2004-2005 to 175 million USD in 2009-2010. Since 2010, the organisation has expanded its operations beyond bridges to road projects, commercial buildings, irrigation projects, and beautification projects in Patna (Interview, Amrit). An organisation that was once unable to perform its basic function as a provider of bridge infrastructure now aspires to lead projects outside of Bihar and, perhaps one day, outside of India (Interview, Engineer 3).

Next, we apply our theory of leadership to explain the institutional change that took place in BRPNNL and resulted in the rapid growth of bridge infrastructure. We analyse each of the necessary leadership roles in depth, from how resources were mobilised to the new rules of the game and the techniques of motivation and persuasion. The data and evidence demonstrate that these roles were played by three leaders operating in an informal coalition under clearly defined hierarchical relationships.

6. LEADERSHIP AND THE MOBILISATION OF RESOURCES

In November 2005, Nitish Kumar took office as the chief minister of Bihar. Kumar's electoral victory represented the beginning of a new political era that brought an end to the 15-year rule by Lalu Prasad Yadav and Rabri Devi, a husband-and-wife team who had served as consecutive chief ministers since 1990. Some of Kumar's early efforts went towards reducing crime, improving transportation infrastructure, fostering governmental transparency, and increasing the role of women in local elections.³ High crime rates and poor infrastructure were two problems in particular that plagued Bihar for decades. They were seen by some members of the local business community as the foremost barriers to investment and economic development in the state (Interview, Business Owner 1).

Since Kumar took office, the state's economic growth has been impressive. Bihar averaged over 11 per cent growth from 2004 to 2009, whereas from 2000 to 2004 it averaged just 3.5 per cent.⁴ Even between 1994-1995 and 2001-2002, the state averaged only 3.8 per cent, significantly less than the national annual growth rate of 6.1 per cent over these years (World Bank, 2005). Though researchers continue to debate which factors are responsible for Bihar's growth since 2005 and whether or not it is sustainable (Das Gupta, 2010), many hold that the state's focus on infrastructure and the associated spillover in the construction sector has played some part (Gupta, 2010; Nagaraj and Rahman, 2010).

After Kumar took office, the state seemed to prioritise improving bridge infrastructure in particular. As Figure 4 shows, an unprecedented increase in state spending for bridges occurred

after 2005. Although slight increases in spending coincided with the timing of elections prior to 2005, spending for bridges under Kumar increased exponentially.

INSERT FIGURE 4 HERE

Why did Kumar devote such an enormous amount of funds to improving the state's bridge infrastructure? Bihar observers are divided on the answer to this question. One researcher remarks that the increased commitment to infrastructure was 'simply the result of the giant revenue surplus' the government inherited in 2005 (Interview, Researcher 1). However, the revenue surplus of Bihar was 16.7 million USD in 2005-2006, whereas spending on bridges after 2005 was substantially higher, over 32.7 million USD in 2005-2006 and over 119.6 million USD in 2006-2007. Given that total state expenditure was about 4.7 billion USD in 2005-2006,⁵ we can calculate that funding for bridges in 2005-2006 was still less than one per cent of total state expenditure. This statistic not only suggests that state spending for bridges was actually modest but also that *prior* spending for bridges was entirely insufficient. This was clearly the case under Kumar's predecessors, Lalu Prasad Yadav and Rabri Devi, whose governments spent far less than most in India (see Mathew and Moore 2011).

Others argue that Kumar spent heavily on infrastructure because bridges and roads are 'low hanging fruit for the government in order to get re-elected' (Interview, Researcher 2). As noted above, research suggests that leaders may increase spending for infrastructure projects in periods just prior to elections. This is because bridges and roads are highly visible public works projects and, generally in Bihar, are common pool goods that can be used by all members of the population. Indeed, a government official noted that, due to the importance of bridges to the

livelihoods of all Biharis, the government ‘will not give a good message to the people if there are bad bridges’ (Interview, Official 1). However, the data show that funding for transportation infrastructure remains high even after Kumar was re-elected in 2010.⁶

The government’s commitment to spending on bridge infrastructure is complemented with media coverage that highlights their achievements in this area. Various news sources cover Bihar’s bridge building activities, and the inauguration of a new bridge brings attention to Kumar and his government. New bridges are typically inaugurated *en masse* in public ceremonies. On 12 June 2008, Kumar inaugurated 140 bridges in one day; on 10 June 2011, he inaugurated 312 bridges.⁷ Kumar continually states his government’s aspiration to make the travel time from any part of Bihar to Patna less than six hours. Further, his speeches often attach symbolic importance to the state’s bridge building efforts. For instance, he was reported as saying: ‘Our government is building bridges not only on rivers; it is also building bridges of trust in society, connecting people of different communities.’⁸

Kumar’s decision to dramatically increase spending for bridges required executive power and isolation from influences that might try to direct funding into other sectors. One researcher states that, since taking office, Kumar has been successful at shielding himself from outside influences in order to make ‘the difficult decisions for development in the state.’ He also says, ‘Kumar centralised his power and insulated the government’ and ‘in Bihar, Nitish Kumar is the policy and the government’ (Interview, Researcher 2). While Kumar’s government is observed to be less centralised than the previous one under Rabri Devi (Gupta, 2007), there may be a benefit to centralisation in a low-income context where institutional change is needed.

Indeed, centralisation of decision-making authority can be necessary in order to foster institutional change in a chronically under-providing government organisation.⁹ Increasing the

funding for BRPNNL and instituting other new rules of the game (discussed below) gave the organisation more freedom to utilise funds in the ways that they saw fit. In essence, Kumar exercised leadership by making the decision to provide the space for *other* leaders in BSRDCL and BRPNNL to emerge. Many officials, staff, and engineers in BRPNNL reiterated the notion that Kumar's government wanted to give them more funds and more freedom to do what was critical for the development of the state. One official says, 'The old problems [prior to Kumar] were mainly funding...Now the environment is conducive to our activities, and we have the full support from the government' (Interview, Official 2). Another says that Kumar 'understands BRPNNL...[whereas] the basic idea about BRPNNL was not understood by governments in Bihar for decades' (Interview, Official 1).

Increasing funding and endowing others with authority did not guarantee that Bihar would improve its bridge infrastructure, especially to the extent that it did after 2005. Project execution is where 'the rubber meets the road' and where the standard problems in public goods provision can prevent even the most forward-thinking and financially-sound organisations from succeeding. As this study's introduction makes clear, BRPNNL was operating at woefully inefficient levels for decades and lacked a basic understanding of the rules and procedures essential for the sound management of bridge infrastructure projects. In addition, staff and officials were reportedly demoralised and unmotivated. In order to understand how these challenges were overcome, we next examine how new rules of the game were established and enforced.

7. LEADERSHIP AND THE NEW RULES OF THE GAME

Alongside the provision of financial resources, Kumar established new rules that improved the ability of BRPNNL to utilise these resources. The most significant of these was the decision to increase the level of funding for which cabinet approval of projects is required. Under Lalu Prasad Yadav, this ceiling was about 50,000 USD and was accompanied by other restrictions on unapproved spending. As many note, this led to considerable delays in development projects being executed in the state (Mathew and Moore 2011; Nayak and Saxena, 2006). Kumar increased this ceiling to about 4 million USD. This new rule significantly accelerated the project approval process, and numerous BRPNNL officials emphasised that this reform was critical in allowing them to begin work on projects far sooner than before.

Many other new rules of the game were established by another individual who was identified as a leader, R.K. Singh. He played a second necessary leadership role – establishing and enforcing new rules of the game – that affected BRPNNL’s activities and resulted in institutional change. In July 2005, R. K. Singh took over the post of managing director of BSRDCL, the umbrella organisation under which BRPNNL is situated. Singh held this position until July 2009, one of the longest tenures of any managing director of BSRDCL in Bihar’s history. Singh says that when he arrived at the post he observed a number of problems: the staff seemed ‘demoralised, there was no work culture, and the working capacity was not there’ (Interview, Singh). Additionally, there was a shortage of contractors in the state, in part due to long-standing concerns about security and crime. The process of sanctioning projects was very long. Finally, many regulatory and bureaucratic barriers prevented projects from being initiated and executed efficiently. As Singh explains, ‘people just stopped tendering contracts and projects were not executed’ (Interview, Singh).

Singh noted that, in the beginning, one of his major focuses was to attract new firms to work in Bihar. In order to do so, he organised road shows in Mumbai and New Delhi. However, attracting outside firms was difficult due to 'Bihar's negative image' as a place of rampant corruption and criminal activities. Singh said that one of his basic messages to firms was that 'law and order is not an issue anymore,' and he committed to providing security while projects were executed (Interview, Singh). Singh also sought to reinvent the image of Bihar by changing the discourse that had long existed about the oft-maligned Indian state. Indeed, scholars often point to a change in discourse as an important component of how institutionalisation occurs (see Phillips, Lawrence, and Hardy, 2004).

A number of government officials confirmed in interviews that security was the main reason behind the lack of contractors in Bihar. However, over the last five years, signs of an improved security situation are apparent. One contractor says, 'Security under Lalu was always a problem, but Lalu used to say: "We have no control." Today, there are fewer problems' (Interview, Contractor 1). A contractor with an international firm, currently working on rural projects in Bihar, also reports, 'Law and order is not a problem anymore' (Interview, Contractor 2). According to official statistics, crime in 'road dacoity' (banditry) decreased 3.16 per cent from 1998 to 2004 and decreased 16.02 per cent from 2004 to 2008. 'Road robbery' increased 6.04 per cent from 1998 to 2004, yet decreased 15.14 per cent from 2004 to 2008 (Government of Bihar; cited in Das Gupta, 2010: 56). Although security still remains an issue in rural parts of Bihar (Interview, Official 2), travel-related and road-related crimes have decreased since 2005. The cause of this decline is unclear and needs to be investigated by researchers. Also, Das Gupta (2010) makes the critical point that other types of crimes increased in Bihar from 2004-2008.

Singh played a necessary leadership role by establishing the new rules that both BRPNNL and contracting firms needed to follow. These new rules addressed the sanctioning and monitoring of projects, as well as the regulatory framework that governed how the state would undertake infrastructure projects. First, the time delay in sanctioning projects was addressed. Singh notes that even though the fiscal year begins in the summer, ‘by December most of the projects were not yet sanctioned’ (Interview, Singh). Quite often, the state government’s allocation to BSRDCL for infrastructure projects would go unspent when the fiscal year ended. Singh says that Kumar’s reform regarding cabinet level approval for projects was very helpful in this respect. He says, ‘by May projects could get sanctioned. The time to sanction a project was reduced from 11 months to 2 months’ (Interview, Singh).

Singh simplified the process of registering contractors. Prior to his arrival, ‘It would take five to six years sometimes to register a contractor’ (Interview, Singh). Singh decided to remove all the old registration rules and trimmed the length of the business application to two pages. He states, ‘Now, the registration process is simple. The contractor provides money and management and we will provide the engineers, if needed’ (Interview, Singh). Singh explains that contractors now only need the following for registration: proof of existence from a birth certificate, proof of capital, and proof of no criminal background. Singh estimates that since the registration reform, it takes about 15 days to register a contractor. He says that, ‘If it was ever more than 15 days, then I wanted to know’ (Interview, Singh). Staff members of BRPNNL recalled that sometimes registration was completed within 24 hours (Interview, Engineer 1). Singh also scrapped the old bidding document that firms had to submit and simplified it by introducing a ‘Standard Bidding Document.’

Singh started an e-tender website that puts all the information online, reinforcing the transparency of the bidding process.¹⁰ He says that once he made changes to the registration and bidding process – removing the ‘many layers of bureaucracy’ – he felt that ‘everything was in place now’ to start improving the state’s transportation infrastructure (Interview, Singh). He estimates that, after these reforms, more than 200 contractors came to work in Bihar. He feels that these changes were what was needed to create competition in the sector. The change ‘brought new entrepreneurs into the area, which is exactly what I wanted to do’ (Interview, Singh). One contractor agrees that many companies now vie for infrastructure contracts in Bihar. He says, ‘Competition [to secure bids] is very high now. Before, there was practically a monopoly’ (Interview, Contractor 1). An official from BRPNNL notes that they sometimes get as many as 28 bids for a single project (Interview, Official 3).

Singh instituted a number of new rules regarding the execution and monitoring of infrastructure projects. He demanded that contractors present a work plan and offered a system of incentives and penalties. He imposed fines for late completion but gave bonuses for early completion (Interview, Singh). Currently, the government provides a two per cent bonus for bridge projects if firms finish early and a two per cent penalty for late completion (Interview, Official 2). Monitoring has increased with the introduction of third party quality checking, and Singh himself participated in monitoring the progress of some projects. He says, ‘monitoring was not done in the past at all ... [but] once you take away accountability for performance, it all falls apart’ (Interview, Singh).

One of the oft-cited reforms in the area of monitoring was the introduction of ‘Mobile Inspector,’ which provides field engineers with GPRS-enabled phones to take photos and register data. This program allows BRPNNL officials to monitor both bridge quality and their staff’s

activities in real time. BRPNNL also began providing laptops to officers up to the rank of assistant engineer. They were reportedly the first organisation in the state to use VPN connectivity in mobile phones and to install Wi-Fi at the headquarters. This change vastly improved the lines of communication between BRPNNL staff and field engineers. As one official explains, ‘There is regular communication between the staff using mobile phones and email so that we can solve problems as quickly as possible’ (Interview, Official 4).

Many BRPNNL staff agreed that the organisation is dedicated to dealing with problems immediately. An engineer states that in the first two years after Singh was appointed, the demands were high but the capacity of the organisation was still quite low. He recalls ‘working day and night and losing sleep dealing with problems that emerged’ (Interview, Engineer 2). Singh acknowledged that the workload was massive during the first few years, but he felt that he was surrounded by a team of staff and engineers who were talented and trustworthy (Interview, Singh). He prided himself on the fact that he was very hands-on, personally monitoring and testing the quality of the aggregates used at the construction sites.

Singh established a new selection process for the location of bridges. He says, ‘We established a transparent process. There are three main criteria: First, is the area flood-prone? Second, what is the population demand? Third, what is the area like [is it conducive to bridge construction]?’ (Interview, Singh). Another official states that the decision for bridge location is ‘demand-driven’ and emerges from ‘surveying the population’ (Interview, Official 2). Yet, some individuals who have worked with BRPNNL suggest that politics does play a role and that communities with constituencies of powerful politicians are sometimes the recipients of better infrastructure.

Singh made major changes in how staff at BSRDCL and BRPNNL are appointed. Traditionally, the state government would select a chairman for BRPNNL who was not a government officer. Singh insisted on a government officer and hand-picked the new managing director, Pratyaya Amrit. This choice of a government officer as opposed to a selected chairman would, in Singh's words, 'depoliticise the position' (Interview, Singh). Further, prior to Singh's arrival, the appointment of assistant engineers and superintendents was only done with the approval of the minister and chief minister. Singh insisted on exercising control over the postings of officials in Bihar and emphasised a strict chain of command. He says that officials respected his decisions and that he was confident that he would not be overruled (Interview, Singh).

How was Singh able to implement all of these new rules of the game? Two factors were important. First, Singh 'received considerable freedom from Nitish Kumar's government, and they promised not to interfere in BSRDCL and BRPNNL's activities,' which made it possible for him to adopt and push through these reforms (Interview, Singh). Another official agrees that, since the election of Kumar, BRPNNL 'has a degree of autonomy from the government' (Interview, Official 2). Second, Singh believes that it was helpful that he was a senior official with a strong reputation prior to his post, having already served as Bihar's home secretary. This gave him a social position that was endowed with legitimacy, an important characteristic of institutional entrepreneurs (Battilana, 2006; Seo and Creed, 2002).¹¹

Singh created an environment with little tolerance for those who broke from the ranks or tried to follow practices other than those that Kumar and he instituted. This development is evidenced by the way they dealt with corruption in infrastructure projects. One contractor reflects that 'Politics in choosing contractors is less than before' (Interview, Contractor 1). Singh told private firms that 'there is a total sea-change in the approach to corruption now and it is not

tolerated' (Interview, Singh). Furthermore, he says that he wanted to be notified of any complaints or problems with corruption and that he would deal with each issue personally. Some in Bihar are more skeptical about the decline in corruption. A member of the local business community says, '90 per cent of corruption in Bihar occurs in construction....There will always be corruption when there is public sector investment, but I do not think this is always a bad thing' (Interview, Business Owner 1).

In sum, Singh's implementation and enforcement of new rules of the game was a critical leadership role and had a positive effect on bridge provision in Bihar. He realised that the combination of many small problems – such as the long wait to register a firm and the inadequate monitoring of bridge inspections – produced an environment that failed to support new infrastructure projects and led to an inefficiently run organisation overseeing these projects. However, the introduction of new rules does not necessarily entail proper implementation. Singh achieved implementation by demanding a well-defined and multi-layered system of controls and monitoring, which he reinforced by the strength of his reputation and because of the freedoms given to him by Kumar. Yet, as managing director of BSRDCL, Singh was not necessarily in a position to directly influence the day-to-day work environment of BRPNNL. Pratyaya Amrit, managing director of BRPNNL from 2006-2009, was in this position and marshaled powers of motivation and persuasion to spur individuals in the organisation to push their performance to a higher level.

8. LEADERSHIP AS MOTIVATION AND PERSUASION

In April 2006, R. K. Singh appointed Pratyaya Amrit to the post of managing director of BRPNNL. After Amrit assumed this post, the organisation asked the government to withdraw the petition for liquidation. Upon his arrival, Amrit observed a number of changes that needed to be made to boost the performance of BRPNNL. Some of these changes were financial, whereas others addressed the work environment of the organisation (Interview, Amrit). They all addressed how officials, staff, and engineers performed their everyday tasks and how they contributed to the goals of better bridge provision in the state.

An issue that Amrit sought to tackle early on was payment of salaries. Prior to his arrival, officials sometimes did not receive their salaries regularly. As reflected in interviews, this was a major source of stress within the organisation. One official cited this as the primary problem and a major demotivating force (Interview, Official 1). In order to address this issue, BRPNNL put a proposal before the state government that would give the organisation a ‘centage,’ or service charge percentage, on all bridge projects conducted. The state government accepted this proposal, and the organisation’s centage is currently nine per cent. The centage was an important innovation because it ‘created a fund to take care of the financial responsibilities of BRPNNL so that they could then do their work (Interview, Official 1).

Once the salary problem was addressed, Amrit shifted his focus to finding creative and powerful ways to motivate the staff. As Amrit recollects, he ‘provided them with plenty of administrative freedom and pulled all levers of motivation: advancement, recognition, fear, and anger’ (Interview, Amrit). He began instituting more training opportunities for staff members and put forward a proposal to send some officials outside of India for advanced training and skill building. One official recalls, ‘We held capacity-building activities for engineers and sent some outside of the country for training...to Canada, France, Australia, and the United States’

(Interview, Official 2). An official who went on a trip to Canada mentioned that opportunities to receive training abroad are virtually unheard of in the Indian government (Interview, Official 4). Expanding officials' skills and learning innovative project management techniques also contributes to the collective knowledge of the organisation, an important goal for leaders to foster in the context of development.

Amrit instituted a system of performance incentives at BRPNNL. Currently, the organisation offers paid foreign vacations and salary bonuses as rewards for high performance (Interview, Amrit; Interview, Official 2). Also, Amrit tried to foster a friendlier work environment, and many staff members say that they were pleased with the small efforts he made to boost morale, such as sending birthday cards, organising picnics, and hosting holiday celebrations that included family members. Motivational speakers were hired to visit the organisation. Further, Amrit instituted mandatory health check-ups for staff (paid for by BRPNNL), set up an exercise gymnasium, and offered yoga camps. When told about the motivational incentives that BRPNNL offered its staff members, a Bihar researcher reflects that 'this is what is commonly done in corporations in India and outside the country, but it is very uncommon in a government office' (Interview, Researcher 4).

Providing incentives such as international travel has been a highly effective motivational tool at BRPNNL. Unlike financial incentives, where other staff members may not find out about a colleague's bonus, international travel rewards and special training opportunities will be known by everyone. In a place where international travel is not a common experience, the practice of offering foreign vacations and skill building experiences abroad is one way to help motivate staff and reward high performance.

Some early successes were critical to inspiring the staff and helped them to maintain momentum. In April 2007, the Katunjha Bridge was built in Sitamarhi district, reducing the time to reach Patna from 13 hours to less than 4 hours. Amrit calls this a ‘turning point’ for BRPNNL in terms of what they could achieve in bridge construction. Other officials remark that new bridges in Gaya district and an isolated area of Siwan district were notable achievements as well. Following these successes, ‘Now, there’s lots of teamwork and proper planning – technical planning and financial planning...now the staff has the zeal and dedication to work’ (Interview, Official 2).

Amrit reinforced on a daily basis the reforms that Singh instituted at the organisational levels of BSRDCL and BRPNNL. Similar to Singh, Amrit focused on speeding up project deadlines, increasing monitoring, reducing information gaps between engineers and officials, improving technology and enhancing communication, monitoring the tendering process, and punishing corruption (Interview, Amrit). Also like Singh, Amrit makes himself available to his staff 24 hours a day and travels to remote areas to monitor the performance of projects. When a need for coordination with district administrations arises, for instance on issues of moving machinery or security problems, Amrit handles the correspondence personally (Interview, Official 3). An official says that Amrit always triangulates his sources of information by speaking to numerous individuals, from engineers to contractors to staff members, in order to fully understand what is going on for each project (Interview, Official 3).

How was Amrit able to motivate his staff and successfully transform the work environment of BRPNNL? During the interviews, many staff members and engineers expressed admiration at the level of professionalism Amrit brings to the job. Personally taking part in monitoring the progress of projects and making himself available to staff at all hours of the day

sets an example of the level of dedication necessary to positively affect bridge provision in the state. Amrit also emphasises management areas that are rarely addressed in government offices, seeks to make personal connections among staff members, and creates a friendly and supportive work environment. Finally, the ability to garner support from junior-level officials and employees is a way that the organisation's changes became institutionalised and were not viewed as being imposed in a strictly top-down fashion.

9. CONCLUSION

The case of Bihar highlights how the role of leadership can be a critical factor in fostering institutional change in governmental public goods provision. A state that is often criticised in the Indian press, Bihar has made important strides in the last five years in economic growth and transportation infrastructure. We argue that the achievements in infrastructure, specifically bridges, are the result of the actions of three leaders who operated informally as a coalition. Nitish Kumar provided the financial resources, instituted a critical new rule of the game, and helped create the space for leaders to emerge from BSRDCL and BRPNNL. R.K. Singh established and enforced the new rules of the game for bridge construction activities in the state. Pratyaya Amrit motivated and inspired officials, staff, and engineers to perform at a higher level. Without the coordinated actions of these three leaders, we contend that Bihar would not have experienced a complete turnaround in its ability to provide bridge infrastructure.

Our study makes a contribution to the emerging literature on the role of leadership in shaping development outcomes. Understanding how the role of leadership affects development is

a relatively understudied area of the field, despite the seemingly intuitive argument that sound leadership is an important prerequisite for positive outcomes. Our study attaches some specifics to this intuition by outlining the necessary roles that leaders must play in order to positively affect governmental public goods provision. All of these roles are essential to play in a low-income context because resources are limited, funding levels year after year are often unpredictable, corruption and rent-seeking are real forces to counter, regulatory institutions are underdeveloped, and monitoring is very costly.

It is often difficult for a single agent to play all three of these necessary leadership roles at the same time. For example, a leader may have the power to enforce new rules of the game but lacks adequate resources. Or, she may hire a large group of highly-trained individuals but she cannot motivate them to do good work. The case of Bihar makes the crucial point that one agent does not need to fill all of these roles herself. Instead, leaders can work alongside one another in a leadership coalition. In fact, working together as a coalition has many advantages and, as we argue, increases the probability of institutional change. Many interviewees also repeated the notion that each of the three leaders played a critical role, and that if one was not present then the organisation's turnaround would not have occurred.

In analysing how the role of leadership shapes development outcomes, future work needs to look at other examples of public goods and services that affect the welfare of individuals in low-income countries. Furthermore, the thorny issue of how to understand coercion as a tool that leaders employ needs to be studied (see Ahlquist and Levi, 2011: 19). In the case of Bihar, the role of R.K. Singh in establishing and, perhaps more importantly, *enforcing* new rules of the game was critical to laying the foundation that allowed regulatory institutions and a monitoring system to emerge. Whether or not future managing directors will be able to achieve the same

level of enforcement is a question that only time can answer. For Bihar, a managing director that continues to enforce the rules will be essential in order to keep improving the state's bridge infrastructure.

Finally, as others note, there is a pressing need to address the issue of how leaders can emerge endogenously from a group of individuals (for example, see Dewan and Myatt, forthcoming). This question is of great importance for low-income countries seeking local solutions to development challenges. In the case of Bihar, the endogenous aspect of these three leaders' emergence undoubtedly aided their success. These individuals had previously committed themselves to public service in Bihar and had a much closer understanding of the state's infrastructure needs than an internationally-based development organisation. As researchers and practitioners continue to think about how leadership affects institutional change and shapes development, it will be critical to explore these questions about the ways in which leadership coalitions form, the role and usefulness of coercion as a leadership tool, and the importance of endogenous leadership.

10. ENDNOTES

1. A voluminous literature examining collective action problems among the citizenry in the context of public goods provision is available (see Olson, 1965; Ostrom, 1990). In this study, we focus on the governmental side of public goods provision and ignore how collective action problems from the citizenry shape public goods provision (see Tsai, 2007: 256).
2. Stogdill noted that ‘there are almost as many definitions of leadership as there are persons who have attempted to define the concept’ (1974: 259).
3. See <http://www.nytimes.com/2010/04/11/world/asia/11bihar.html>.
4. See <http://www.forbes.com/2011/01/03/forbes-india-person-of-the-year-nitish-kumar.html>.
5. See <http://www.thehindu.com/news/states/other-states/article1483347.ece>.
6. See <http://www.patnadaily.com/index.php/news/6998-modi-presents-2012-13-bihar-budget.html>
7. See <http://news.oneindia.in/2011/06/10/nitishinaugurates-312bridges-aid0126.html>.
8. See <http://www.ndtv.com/article/india/nitishs-bihar-builds-one-bridge-a-day-41424&cp>.
9. Whether or not society benefits from centralised versus decentralised decision-making in terms of public goods provision is a different, but critically important, question (see Oates, 1972; Besley and Coate, 2003). Future work on public goods in Bihar needs to investigate if the level of access and quality of bridge infrastructure varies in different parts of the state.
10. See <http://tenders.bih.nic.in/Main.asp?Show=All>.

11. The tenure of leaders can affect their reputation (both positively and negatively) and whether or not their authority is judged as 'legitimate.' We thank an anonymous reviewer for reminding us of this component of leadership.

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Necessary leadership roles:

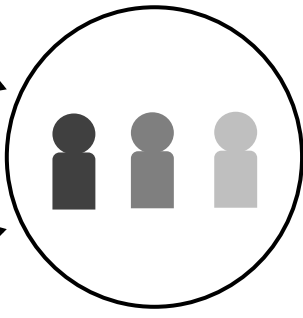
Mobilising resources

Enforcing new rules of the game

Motivation and persuasion

Coalition formation mechanism:
formal authority, shared goals

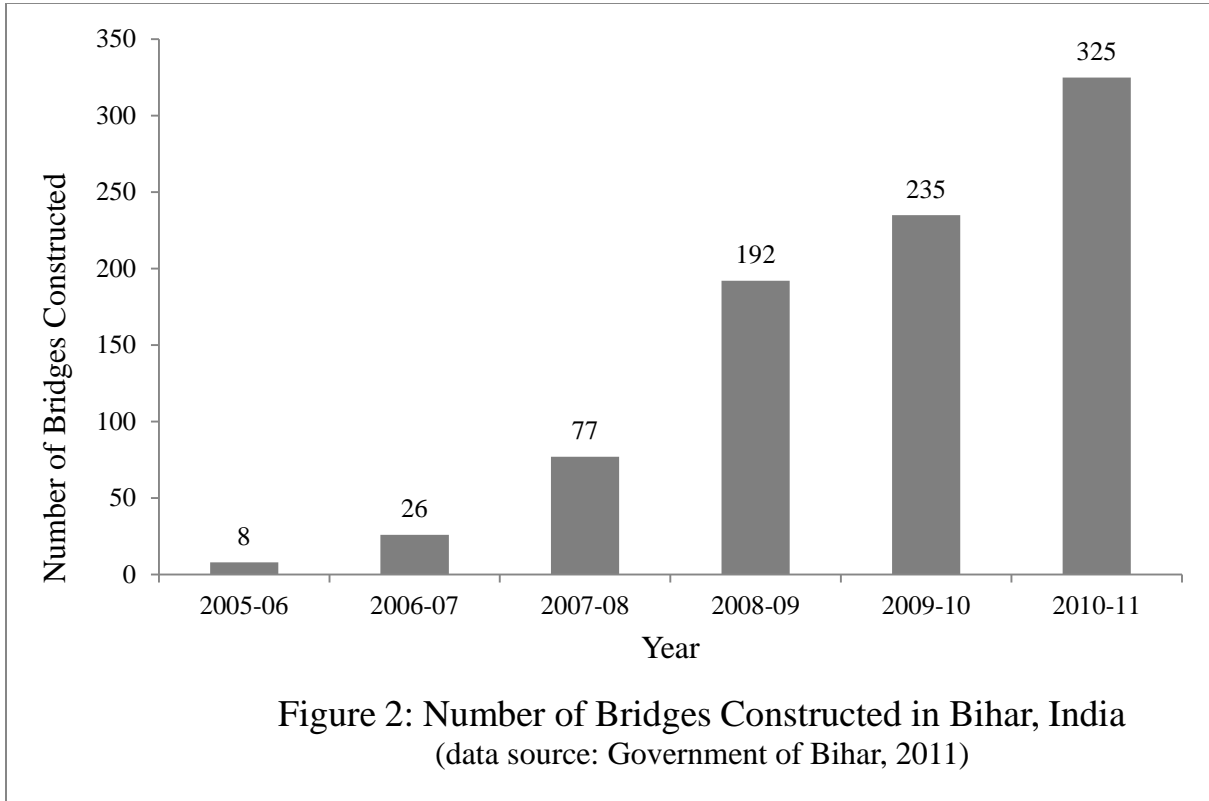
Leadership coalition



+

Probability of Institutional Change

Figure 1: Leadership, Coalition Formation, and Institutional Change in Governmental Public Goods Provision



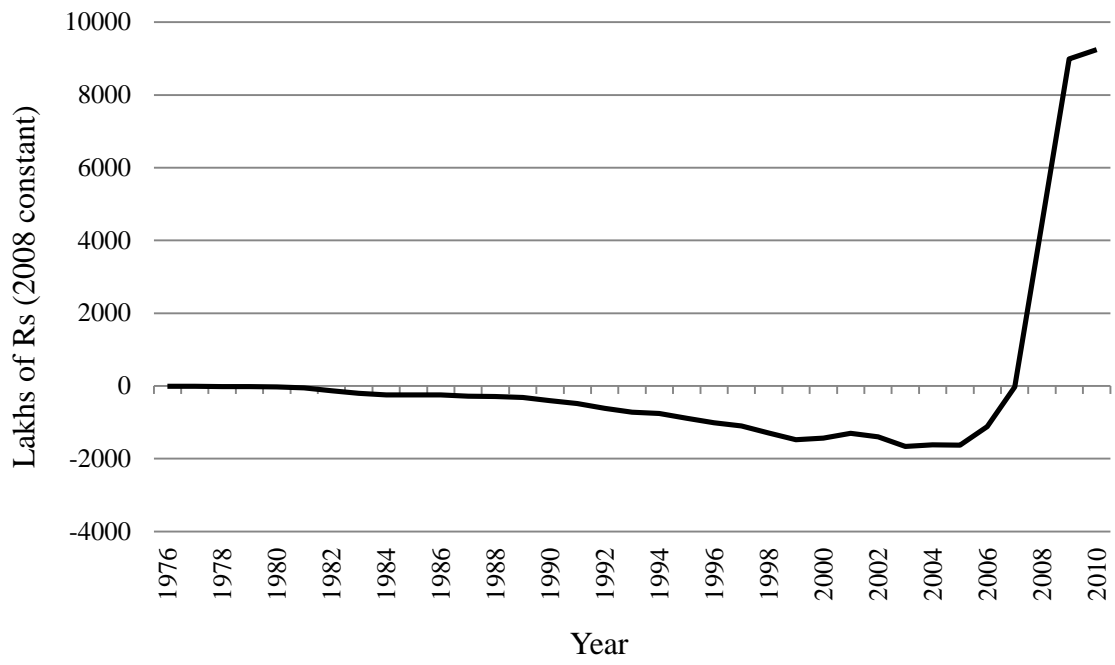


Figure 3: Profit/Loss of BRPNNL
(data source: Government of Bihar, 2011)

