

# The Implementation of Industrial Parks

## Some Lessons Learned in India

*Yannick Saleman*

*Luke Jordan*

The World Bank  
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## Abstract

Industrial parks are as popular as they are controversial, in India and globally. At their best they align infrastructure provision and agglomeration economies to jolt industrial growth. More often, they generate negative spill-overs, provide handouts, sit empty, or simply do not get built. This paper disaggregates how parks are built and how they fail. It contextualizes parks in India, followed by a thick case study of an innovative scheme that appears

to buck the trend. This performance is then explained by the way in which the scheme's design and action fit India's political economy. The paper concludes by considering how the analysis and the lessons learned might inform the design and implementation of industrial park programs and other public interventions, in India and elsewhere.

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# The Implementation of Industrial Parks: Some Lessons Learned in India

Yannick Saleman<sup>\*</sup>

Luke Jordan<sup>†</sup>

## **JEL classification**

D78 - Positive Analysis of Policy-Making and Implementation

H11 - Structure, Scope, and Performance of Government

H44 - Publicly Provided Goods: Mixed Markets

L52 - Industrial Policy; Sectoral Planning Methods

L67 - Industry Studies: Manufacturing - Other Consumer Nondurables: Clothing, Textiles, Shoes, and Leather

O14 - Industrialization; Manufacturing and Service Industries; Choice of Technology

O25 - Industrial Policy

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Financial and Private Sector Development

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<sup>\*</sup> Yannick Saleman is a Private Sector Development Consultant with the Competitive Industries Global Practice of the World Bank Group, based in New Delhi ([ysaleman@worldbank.org](mailto:ysaleman@worldbank.org)).

<sup>†</sup> Luke Jordan is a Private Sector Development Specialist with the Competitive Industries Global Practice of the World Bank Group, based in New Delhi ([ljordan@worldbank.org](mailto:ljordan@worldbank.org)).

## **CURRENCY EQUIVALENTS**

(Exchange Rate as of February 15, 2013)

Currency Unit = Indian Rupees (Rs.)

54 INR = US\$1

1 Lakh (100,000) INR = US \$1,850

1 Crore (100 Lakh) INR = US \$0.185 million

## **ABBREVIATIONS AND ACRONYMS**

APES	Apparel Parks for Exports Scheme
DIPP	Department of Industrial Policy & Promotion
DPR	Detailed Project Report
FPS	Food Park Scheme
IDC	Industrial Development Corporation
IIUS	Industrial Infrastructure Upgradation Scheme
IL&FS-CDI	Infrastructure Leasing and Financial Services – Cluster Development Initiative
MFPS	Mega Food Park Scheme
MoT	Ministry of Textiles, Government of India
PAC	Project Approval Committee
PMC	Project Management Consultant
PPP	Public-Private Partnership
PSC	Project Scrutiny Committee
SEZ	Special Economic Zone
SITP	Scheme for Integrated Textile Parks
SPV	Special Purpose Vehicle
TCIDS	Textile Centers Infrastructure Development Scheme
ToR	Terms of Reference

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## INTRODUCTION

The theory of industrial parks is seductive. It holds that governments must provide public goods, particularly infrastructure, for industrial firms to be competitive; co-located firms generate agglomeration economies; and so the public goods should be concentrated on areas of colocation. If the firms are not there yet, the provision of infrastructure will somehow induce them to be. If the area is demarcated, and the general economic environment difficult, exemptions can be made that will further entice firms and create competitiveness (in this case making the parks what is most generally termed “Special Economic Zones”, or SEZs).<sup>1</sup>

There are some cases where the practice has approached the theory. The most commonly cited cases are in East Asia, but parks also dot much of the developed world. Many question the true cost-benefit of such parks, though often with somewhat weak counterfactuals.

In much of the developing world, though, the case is somewhat simpler. The practice is far enough from the theory for subtle arguments to be moot. Industrial park and SEZ programs are often rightly criticized for producing white elephants; eroding the tax base; creating vehicles for land speculation; delivering hand-outs to favoured firms; and funneling spending to favoured districts. That is if the parks are even completed in less than a decade.

More than one of these failures has afflicted industrial park schemes in India over the last few decades. The instrument though has continued to grow in its use, if often rechristened as “cluster development” or using variations around the term “zones”. Many of the most high-profile programs have very mixed records, often delivering under-target, several years late and with low take-up.

However, in the last few years a program has been developed and implemented in India, originated by the Ministry of Textiles, which seems to perform substantially better than the norm there. While results are still indicative, the scheme gets parks built; it guards against speculation and capture; the parks attract investment; and, in several cases, they show signs of generating real cluster effects.

At the core of the scheme’s relative success are the details of its design, and the manner in which those details fit to the political economy of building parks in India. In particular the scheme keeps parks right-sized, neither too small nor too large; makes location and dimension decisions costly to those who make them (much more costly than forfeiting a consulting incentive fee); reduces the role of forecasts; places the burden of navigating local informal relationships on those best placed to do it; aligns roles and incentives; creates ‘soft’ infrastructure through the way it builds ‘hard’;<sup>2</sup> and, from the outset, focuses the public sector and its hired consultants on catalyzing and monitoring groups of firms as owner-users, rather than initiating, designing or managing the parks.

In the model, government grants are closely tied to areas where there are immediate gains from coordinated action: common infrastructure and facilities and sometimes more limited help with land. Firms which seek to gain access to support under the scheme need to cooperate on a number of immediate issues in order to access assistance. This builds agency that can lead to further externalities, whether through cooperation or “thick” markets such as for machinery and labor. This does not, however, work automatically: the effect requires a close fit between the incentives created

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<sup>1</sup> The term “SEZ” can sometimes be used by policy-makers with a *specific* meaning as regards the regulatory and other (mostly tax-related) exemptions provided, but it is considered the most generic term in the literature for parks providing *any* type of regulatory exemptions, and therefore was used as such here.

<sup>2</sup> “Hard” refers to physical infrastructure, such as roads, rail and power, and the operational systems required for it to operate. “Soft” refers to social infrastructure, such as organizations for collective action, firm capabilities, skills, health services, cultural preservation, and so forth.

and the political and entrepreneurial context. It required substantial early work by the lead Ministry and its advisors to identify firms capable of leading this process among their peers, though once a demonstration effect had been created they were able to switch to a heavy focus on monitoring.

The study does not begin to claim that the scheme is a panacea. It remains early days, even if the signs are encouraging. In particular, though the scheme seems to be generating forms of cluster organization, it could experiment with doing more to capitalize on these and generate agglomeration economies quicker. The first wave of parks, now reaching operational mass, might be fertile grounds for such repeat experiments.

However, this is not a model which can be understood simply. Its performance is not uni-causal and its features are complex and deeply related to its context, in particular its local political economy, industry structures and firm capabilities. The scheme depends on the existence of a base of firms with the financial means to participate in park building (typically requiring \$44,000 in equity) and more importantly with the management capabilities to at least initiate self-organization. It requires at least some “leader” firms, with the ability to recognize the value of common organization, and estimate that it outweighs the risks of free-riding and delays by “follower” firms, who themselves may join for more near-term instrumental benefits, such as reducing the transaction costs of obtaining sufficient land and scale in local infrastructural services. In turn though, this creates a risk of such leader firms, if large or able to wield substantial influence, turning this organization into a vehicle of capture. The fragmented nature of the textile industry in India likely mitigates this risk, but this may not hold if the scheme is “pushed” too quickly into other sectors or contexts.

Attempting a superficial replication is then likely to lead to one or more forms of failure, including creating the scope for corruption and collusion (and there are some signs that, even in India, the scheme is being “pushed” into sectors where it may not be appropriate). However, this does not mean there is no scope for learning, and it is our belief that there are a range of environments in which this scheme may have useful features. Nevertheless, this paper does not attempt to present a best practice for implementing industrial parks. It attempts to deepen our knowledge of how and why industrial parks fail, and how schemes can sometimes be designed in their detail, and implemented in practice, to avoid at least some types of failure.

Perhaps most broadly, it attempts to delineate the type of questions which must be asked when designing the implementation of these and other industrial policy programs. These include: what are the precise steps involved in undertaking the intervention? What performance failures might arise as these are undertaken? Where might these steps, and these performance failures, intersect? Who is given responsibility for each step? How strong or weak are their incentives to avoid the performance failure? Are there others, capable of performing the step, with stronger incentives? What is the size of each discrete intervention, and how does it interact with the prevailing political settlement (how noticeable is it, and is that beneficial or harmful)? What ripple effects could there be on the long-term pressures for or against reform, by either strengthening or removing different voices?

The remainder of the paper is structured as follows: the first section disaggregates the roles in building industrial parks, the types of failure witnessed in implementation, and relates these to each other. The second describes the model under consideration, and the third provides data on its results so far. The fourth considers tentative signs of agglomeration economies and positive and negative spillovers beyond the parks. Section five explains its performance by considering its alignment of formal and informal incentives and capabilities. Section six examines the challenges to scaling up and replicating the scheme. The paper then concludes with directions for further research and action.

## I. INDUSTRIAL PARKS: THEORY AND PRACTICE

The rationale for industrial parks has traditionally been twofold. First, the provision of functional infrastructure is much easier to plan in a geographically limited space, particularly for delivery-constrained governments.<sup>3</sup> Second, the concentration of firms can provide significant spillover effects both inside and outside the park<sup>4</sup>: information spillovers, including knowledge and technology; the specialization and division of labor among enterprises; the development of skilled labor markets; and the development of markets around the parks.<sup>5</sup>

The general type of an industrial park is a concentrated set of firms operating on a demarcated 'hard' infrastructure platform. Beyond this, a number of different forms have been developed. Most involve additional regulatory features, often to bypass unsupportive business environments, facilitated by the "limited" area involved, in which case the umbrella term is "Special Economic Zones" (SEZs). Such variations include: "tax" parks (which provide tax benefits); technology parks; "green" parks; "export processing zones"; and many others. In this paper, "industrial park" will be used in its most general sense, i.e., involving the provision of common infrastructure to a group of industrial firms in a demarcated area, while forms involving additional regulatory or other measures will be specifically denoted as such.

In whichever variant, industrial parks in theory are a tool to develop a more general form of industrial organization: industrial "clusters", a concentration of interconnected firms in a particular field. Such clusters can form "organically", or can be the target of deliberate policies.<sup>6</sup> The pursuit of active cluster development, like that of industrial parks themselves, can be a controversial policy goal. On the one hand, the growth of industrial clusters is frequently cited as a driver of China's rapid growth. Many emerged spontaneously, but government (especially local government) also provided crucial support for their development.<sup>7</sup>

On the other hand, cluster development, and industrial park and zone programs in particular, have also been subject to significant criticism. There have been controversies regarding land allocated for their construction, sometimes at large scale, especially when parks are long delayed or scarcely occupied, fueling accusations of land speculation. It has also proven difficult to demonstrate additionality, i.e. that the activity in parks would not have happened without their construction and the public money that has been spent to support it. This latter criticism has been strongest for policies that not only provide public money for park construction but forego revenues in the form of taxes or resort to specific regulations such as looser labor laws to attract investment.

Yet the criticisms seem to have had little to no impact on practice. Whether or not one side or the other of the general debate is correct, park and zone programs continue to proliferate, and many continue to under-deliver. To take just a few examples, many parks in Central America have eroded the tax base there; in Africa, industrial parks are often known to stand mostly empty even after many years; and a number of industrial parks in Afghanistan supported by various donors either did not

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<sup>3</sup> Marshall, A. (1920). *Principles of Economics*. London: Macmillan.

<sup>4</sup> This review builds on previous writings by Douglas Zhihua Zeng (2006, 2010, 2011).

<sup>5</sup> Sonobe, Tetushi, & Otsuka, K..(2006). *Cluster-Based Industrial Development: An East Asian Model*. New York: Palgrave Macmillan.

<sup>6</sup> World Bank. (2010). *Innovation Policy: A Guide for Developing Countries*. Washington, DC: World Bank Institute; Porter, M. (1990). *The Competitive Advantage of Nations*. New York: Free Press; Schmitz, H. (1995). "Small Shoemakers and Fordist Giants: Tale of a Supercluster." *World Development* 23 (1): 9–28..

<sup>7</sup> Ganne, B., & Lecler, Y., eds. (2009). *Asian Industrial Clusters, Global Competitiveness and New Policy Initiatives*. Singapore: World Scientific Publishing Co. Pte. Ltd.



become operational or failed to attract demand. Yet a glance at pipelines of development programs across continents finds no slackening in the creation of new industrial park programs.<sup>8</sup> Since the available evidence strongly suggests this will continue, there are likely more gains in understanding how and why park programs do or do not deliver than in attempting to frame a general law of their merits.

These general characteristics apply strongly to the Indian context. For decades state-level industrial development corporations have been building industrial parks. At the center, multiple ministries and plan periods have framed new industrial park schemes. The most visible recent attempt was the SEZ program, launched in 2005, which stumbled in implementation.<sup>9</sup> Many examples of successful parks have been built in India, through both center and state initiatives, but the overall record is decidedly mixed, and timelines tend to be long and lengthening (as will be described in more detail below).<sup>10</sup>

Several factors are often posited to explain the failures of industrial park programs. Some are highly specific, such as the threat of conflict, but most are broad, for example, poor sector targeting; poor location choice; insufficient investment in infrastructure; poor implementation capacity and lack of authority; and lack of high-level support and stability.<sup>11</sup> When these are surmounted, or sidestepped, relative failure is also attributed to factors such as a lack of support for technology acquisition, skills building and quality assurance, or other actions that would generate “cluster effects”.<sup>12</sup>

Such diagnostics focus on the absence of particular institutional *forms*, rather than the *functions* that should be served by the different stakeholders.<sup>13</sup> This runs this risk of building in “strong priors about the nature of the problem and the appropriate fixes”,<sup>14</sup> and can stand in the way of finding solutions in terms of *performance*. We therefore find it more useful to classify implementation failures of industrial parks into four main performance categories:

- (i) the parks do not get built;
- (ii) the parks are built but there is little demand from firms to locate and invest in them;
- (iii) the parks are built and generate demand, but with few “cluster effects”;
- (iv) the parks are successful but have neutral or negative side-effects on investment climate outside the park (“negative spillovers” and “crowding out”).<sup>15</sup>

Two important points must be made on this classification. First, categories (i) and (ii) relate to performance failures in terms of *outputs*, while (iii) and (iv) relate more to *outcomes*. The underlying causes affecting park building (i) and investment attraction into them (ii) are very different from those affecting the development of clustering externalities (iii) on the one hand and the provision of local public goods (iv) on the other. It is still early stage for the scheme examined here to provide a formal

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<sup>8</sup> For example, in a recent analysis of the WB CI Practice affiliate’s desire for knowledge by topic, the largest unmet demand for knowledge related to parks and zones. The authors are personally aware of park programs recently formulated or in development in countries ranging from Ethiopia to Brazil to Myanmar to Afghanistan.

<sup>9</sup> World Bank (2012), “Learning from SEZs in India”, Unpublished.

<sup>10</sup> Farole, T., and Akinci, G., eds. (2011). *Special Economic Zones: Progress, Emerging Challenges, and Future Directions*. Washington, DC: The World Bank.

<sup>11</sup> Dinh, H.T. et al. (2012). *Light Manufacturing in Africa: Targeted Policies to Enhance Private Investment and Create Jobs*. Africa Development Forum Series. Agence Française de Développement and The World Bank.

<sup>12</sup> Zeng, D.Z. (2006). *Knowledge, Technology and Cluster-based Growth in Africa: Findings from Eleven Case Studies of Enterprise Clusters in Africa*. Knowledge for Development (K4D) Program, World Bank Institute, The World Bank.

<sup>13</sup> Blum, J., Manning, N. & Srivastava, V. (2012). *Public Sector Management Reform: Toward a Problem-Solving Approach*. Economic Premise, Number 100, December 2012. The World Bank.

<sup>14</sup> Rodrik, D. (2008). *The New Development Economics: We Shall Experiment, but How Shall We Learn?* Cambridge, MA: John F. Kennedy School of Government, Harvard University.

<sup>15</sup> What we term “cluster effects” and “negative spillovers” are explained in detail in section IV.

evaluation of the last two failures, and hence to make definitive statements about outcomes. As such, the study is principally focused on outputs, as these are necessary, if not sufficient for outcomes, and it is precisely the production of these outputs which has proven difficult and elusive (as discussed further below). Therefore the focus of this study is on evaluating how and why a scheme has managed to perform at getting parks built and attracting demand for them. However, the scheme's potential in avoiding failure types (iii) and (iv) is explored, and areas of focus for a future evaluation identified.

Second, the ordering above is time-wise. In particular, the opportunity cost of (i): not getting the parks built, and therefore probably not spending all the public money that was committed, could be lower than the opportunity cost of (iv): successful parks but with negative side-effects (such as tax erosion, or diminished pressure for reform, discussed below), if those side-effects are large enough. However, there is not an *a priori* ranking of the opportunity costs of the failures, because of the variation in the size and configuration of schemes. A very large "white elephant", whether built and empty or absorbing human and political capital and financial commitments (if not disbursements) for years, could have a larger opportunity cost than a moderate park with minor external effects.

These performance failures can be related to the process of building and operating industrial parks, the stakeholders involved and the functions they have been assigned. The steps in the process can be broadly enumerated as: (1) identification of park location; (2) identification of potential demand and overall dimensions; (3) procurement of land; (4) design and dimensioning ("master planning") within the park; (5) financing and financial structuring and planning; (6) procurement of infrastructure building; (7) construction of infrastructure; (8) operation & maintenance; and (9) monitoring and evaluation.

These roles have been shared in many different ways between national, sub-national and local levels of government, and as many as four types of private sector firms: consultants hired by the government for demand identification, and/or designing and financing of the parks; "developers" who typically prepare the master plan for the parks; hired "constructors" and "operators" who construct the parks and manage their operation and maintenance (i.e., who follow more than make decisions); and "users", i.e. the private entrepreneurs occupying the park themselves. In this light, it is of limited use to call an industrial park delivery model "private sector driven" or "public-private" as soon as the private sector is "involved". With a large number of process steps and roles, the critical questions are: Who does the "private sector" refer to (real estate developers, consultants, users)? And, what steps will they undertake?

In this light, the pertinent question for a park scheme is *how* the choice of a certain part of the public or private sector to implement these steps increases or decreases the possibility for such failures. The phrases "private sector" or "PPP" need to be used carefully. Often, this implies private sector involvement primarily in the later steps of internal dimensioning (4); infrastructure construction (7) and park operation & maintenance (8), whereas the more crucial location selection (1), and demand identification and overall dimensioning (2) are predominantly, if not exclusively, taken on by a public entity. Even if this entity is supported by a technical consultancy, client-consultant agency and conflict of interest problems mean such steps may be *de facto* public and very often political.

Moreover, the "private sector" is heterogenous. The incentives and costs facing a consultant, a developer and the users of the park are very different, as is their situation – formal and informal – within the local political economy. It is important to caution against the prior assumption that "the private sector" will be better at all steps. Whether this is so, and *who* is meant by the "private sector", will depend on specific capabilities and incentives. The design of industrial park programs should consider each of these steps, and seek to understand, in the light of the local political economy, which

actors would be better or worse suited to which roles. Among the conjectures we will explore below is that such “role allocation” is the most important parameter for park implementation.

To illustrate, **Table 1** provides an indication of how the different functions or steps enumerated above might hypothetically map with the different types of failures mentioned earlier in some instances. **Table 2** gives an example of the mapping of actors with implementation steps in a typical “public-private partnership” model, showing the limited role played by the users/entrepreneurs, which will become a central point of the discussion below.

**Table 1:** Steps in industrial park development and potential failures

Function vs. Failures	(i) Park does not get built	(ii) Not enough demand	(iii) Limited cluster effects	(iv) Negative spillovers
(1) Location selection		X	X	
(2) Demand identification		X	X	
(3) Land procurement	X	X		X
(4) Design & dimensioning	X	X	X	X
(5) Financing and structuring	X		X	
(6) Infrastructure procurement	X			
(7) Infrastructure construction	X			
(8) Operation & maintenance		X	X	
(9) Monitoring & evaluation (M&E)	X			X

**Table 2:** Example mapping of stakeholders and responsibilities

Steps vs. Stakeholders	Government / public agency	Private consultancy	Private developer	Pvt construction / operation firm	Park users (firms)
(1) Location selection	X				
(2) Demand identification	X	X			
(3) Land procurement	X				
(4) Design & dimensioning	X	X	X		
(5) Financing and structuring	X	X			
(6) Infrastructure procurement			X		
(7) Infrastructure construction				X	X
(8) Operation & maintenance				X	X
(9) M&E	X				

## II. DESCRIPTION OF THE SITP MODEL IN INDIA

The Scheme for Integrated Textile Parks (SITP) was inaugurated in 2005 by the Ministry of Textiles (MoT) of the Government of India (GoI). The objective was to create “world class infrastructure” for the industry and create “new textile parks of international standards at potential growth centers” to realize the full potential of the Indian textile sector.

The SITP’s most prominent innovation is the far greater, and far earlier, role it gives to the *users* of the park. In contrast to almost all other schemes the authors are aware of, the roles of the Centre and State are diminished, consultants are used quite differently than in common practice, and third-party developers are conspicuous by their absence. The former two concentrate on organizing, supporting and monitoring groups of firms, who must then navigate the formal and informal requirements for getting the park built.

In terms of specific roles, the MoT aimed to provide a robust implementation and funding *framework*, but then to delegate actual implementation and focus on monitoring. The entrepreneurs who will use the park are first required to organize themselves by forming a Special Purpose Vehicle (SPV). The SPV then selects a specialized Project Management Consultant (PMC) from a list empanelled by the MoT and under a standardized Terms of Reference (ToR) supplied by the Ministry, to prepare a Detailed Project Report (DPR) for the MoT.<sup>16</sup> How the choice from the list is made is left to the SPV members’ discretion.

The SPV is then provided with a partial grant for the construction and operation of the park, for which they are also required to contract a PMC, though at this point it does not have to be chosen from the MoT panel. In practice, this PMC (the “SPV-PMC”), chosen for the execution of the park, is usually the same as the “MoT-PMC” which prepared the DPR and later provides advisory services to the MoT.<sup>17</sup> For simplicity, we will therefore restrict our attention to this case in the remainder.

In more detail, the policy makes the entrepreneurs the drivers and ultimate decision-makers of the entire initiative for the creation and functioning of the park, but with support from the PMC across the steps of industrial park development. The PMCs are required to possess “considerable infrastructure development experience”, for “speedy implementation of the project”. The bar to be an empanelled PMC is high: as of 2012, only seven PMCs had been empanelled, across India.<sup>18</sup> Project structuring, feasibility study and costing of all aspects of the project are done by the PMC, according to decisions made by the SPV, which has the responsibility to define its needs and make final decisions on location, project design and costing. When complete, the PMC transmits the DPR for appraisal to a Project Scrutiny Committee (PSC) headed by the Joint Secretary of the Ministry of Textiles. If passed, the project is submitted for approval to a Project Approval Committee (PAC), headed by the Minister of Textiles.

If the project is approved, the central government then contributes a significant share of the funds for common infrastructure, and the SPV finances the rest. This contribution is up to 40% of the total or 40 crores (~\$8m), whichever is lower, as “grant-in-aid”, i.e. this does not constitute equity in the SPV. SPVs have the possibility to solicit States and state/locally-affiliated bodies such as Industrial

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<sup>16</sup> Empanelled PMCs as of 27 March 2012 were Infrastructure Leasing and Financial Services Limited – Cluster Development Initiative (IL&FS-CDI), ICICI Winfra; Industrial Consultants; CS Architects; Kushal Global-Pearl Academy of Fashion; Technopark Advisors; and Magus Consulting

<sup>17</sup> IL&FS-CDI, the largest PMC on the MoT panel by number of parks managed (80%), says they have played both advisory and execution roles in 80% of the parks they manage, and that the ratio was similar for parks managed by other PMCs.

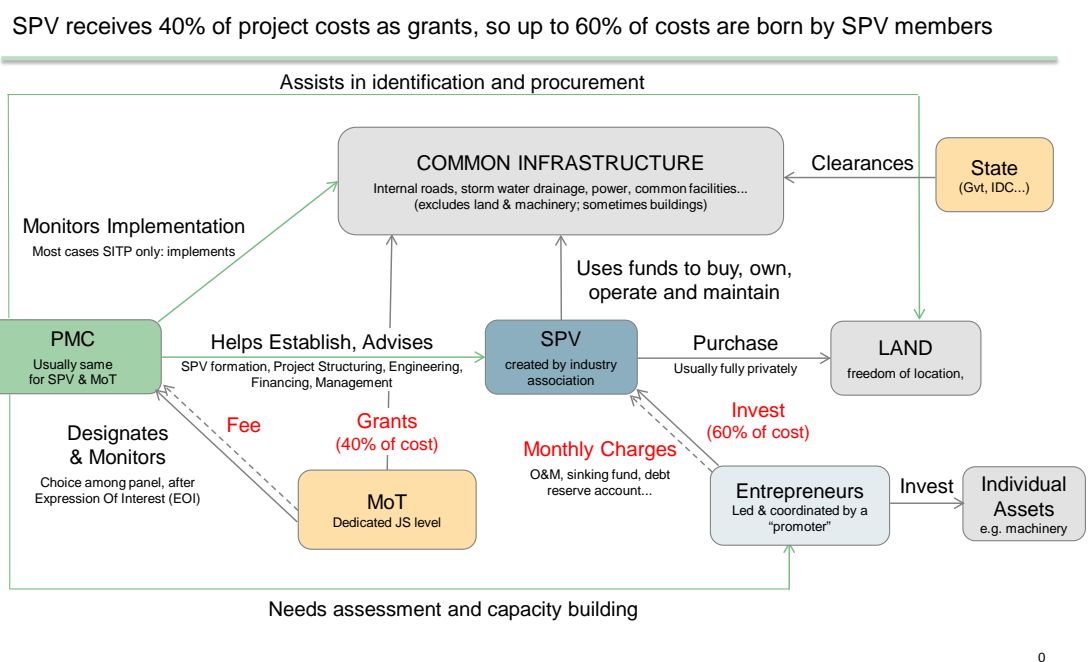
<sup>18</sup> The policy is now being revised and a new panel will be chosen.

Development Corporations (IDCs) for additional contributions to finance their 60% share, for example under State-funded schemes. State/local contributions can also be under the form of subsidized land or other benefits. PMCs may also invest in the SPV's equity, if interested and requested by the entrepreneurs.<sup>19</sup>

However these additional sources of financing are subject to the SPV members contributing at least 51% of the equity, so that they retain managerial control. There is a limit of 20% of ownership for any single private entity within the cluster, so that there is no legally dominant firm,<sup>20</sup> and the land area occupied in the park must also be proportional to the equity contribution. The MoT initially provided a guideline of approximately 50 members per park, but has since allowed some flexibility by providing a matrix of the additional investment expected per entrepreneur when the number is lower. **Figure 1** shows a diagram of the basic SITP scheme structure and grant financing, while **Figure 2** highlights potential state and other contributions.

**Figure 1: SITP design and grant structure**

## SITP Design & Basic Grant Structure



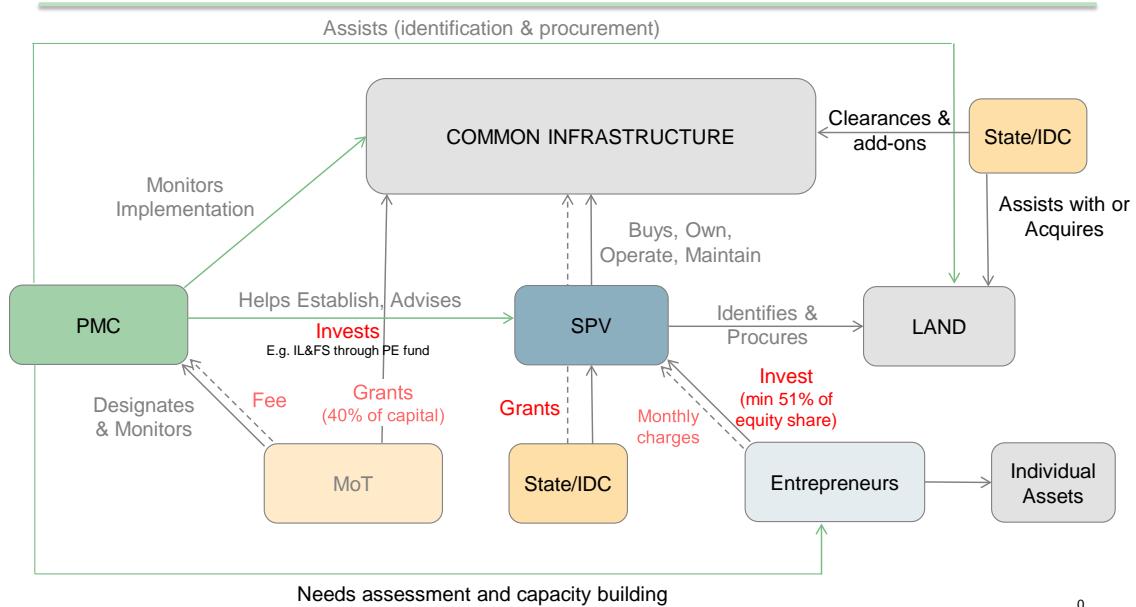
<sup>19</sup> IL&FS has participated in the equity in two parks, the Palladam Hi-Tech Weaving park in Tamil Nadu, and the Pochampally Handloom Park in Andhra Pradesh.

<sup>20</sup> 20% is the legal threshold for giving key decision powers to an equity holder, although the threshold was not explicitly mentioned in the policy document and it was not clear if it could be circumvented by the use of two legal entities of the same group.

**Figure 2: State and other bodies' contributions**

## State/Local and Other contributions

State/Local & other institutions can contribute subject to SPV retaining 51% of equity share



To raise funds for the SPV's share of costs, the PMC supports the SPV to structure and obtain financing, most often securing term loans for 40% of the costs by using common assets as collateral. Financial innovations may be used to facilitate securing the loan, such as including a 6-month debt repayment fund,<sup>21</sup> or having reimbursements made individually, despite the debt being raised in common through the SPV, to limit free riding<sup>22</sup>. This leaves approximately 20% of the costs as the equity portion of funding, to come in the most part as equity from the parks' users.

Project costs, as described by one of the PMCs, include: land purchase and site development<sup>23</sup>; common infrastructure (roads, water supply, storm water drain, power provision, etc.); factory buildings; common facilities (lab, training center, etc.); engineering fees (for engineering design); and pre-operative costs (depending on components, and usually around 5% of costs). Factory buildings are eligible for grants only if built and owned by the SPV, and not by individual firms in the cluster. The latter option is most common when firms in the cluster are heterogeneous. If firms are more homogenous, there can be large cost savings and added flexibility by building identical factories. This might have implications for the fitness of the model to different types of industries, due to the level of homogeneity in firms' processes. For example spinning or weaving parks would typically be homogenous, as opposed to garmenting parks, and the conjecture is that the scheme structure might favour the former type, in terms of project costs and/or completion time. We do not have enough data

<sup>21</sup> The debt repayment fund is effectively a debt service reserve account that allows the SPV to sustain up to 6 months of non-repayment of the loan, for example in the case of a liquidity crunch, before defaulting on the loan (which would trigger the seizure of assets by the lending institution).

<sup>22</sup> This innovation was described by IL&FS as originating from them and being unique among empanelled PMCs.

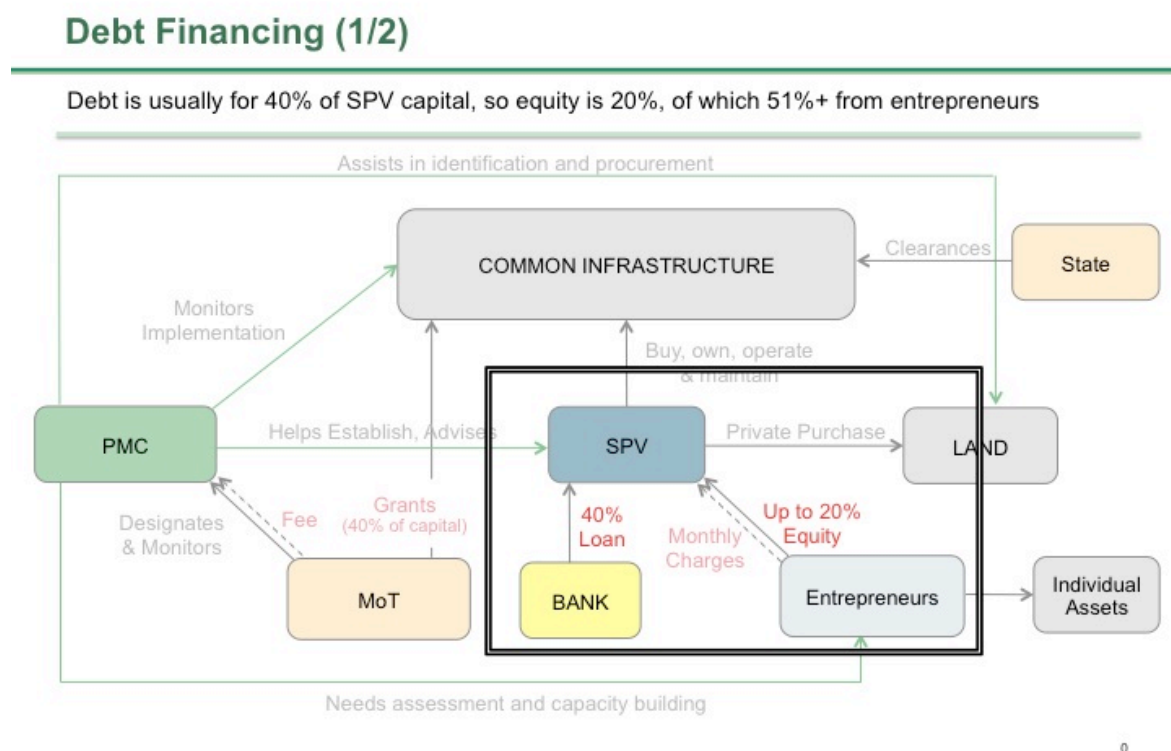
<sup>23</sup> Land is not eligible for the Central Government grant, but instead counted as equity contribution from the SPV, who is responsible for finding and buying it.

at this point to make such an analysis, but flag it for further research. Machinery is excluded from the costing of the project for the provision of grants, and is to be funded by individual units.

During operations, the SPV charges its members monthly to recover the money from investments made and repay the debt. The level and structure of these charges are often designed by the PMC during project initiation. The largest PMC usually includes in the fees: maintenance charges; utility charges; infrastructure charges proportional to the area occupied; contributions to a sinking fund (in case of major repairs); and financial payments<sup>24</sup>. **Figures 3a and 3b** show diagrams of the debt financing mechanisms used and possibilities of financial structuring. Note that these financial structures are at the discretion of the users, PMCs and financial institutions. New financing models for the costs not funded by the grants do not require MoT sanction, encouraging innovation.

Finally, project monitoring and evaluation are undertaken by the MoT, through the PMCs. The PMC is required to devise a “suitable monitoring and evaluation system” and must furnish “monthly reports/returns to the MoT” (samples available from the authors on request). The PMCs are paid a fee by the Ministry for their work (we consider the fee structure in Section V).

**Figure 3a:** Typical debt financing structure

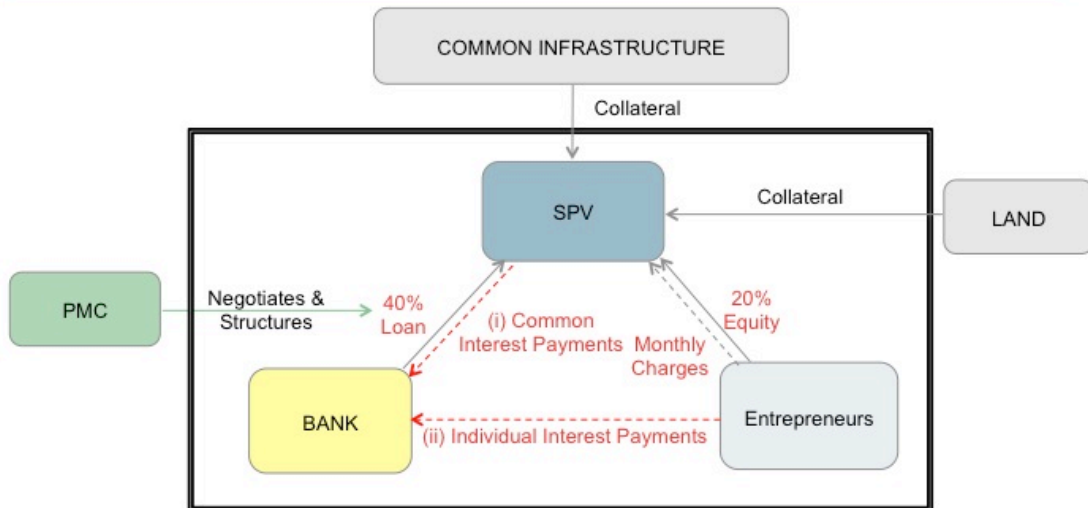


<sup>24</sup> For example IL&FS suggests firms contribute around 10% of the monthly payment to a Common Debt Repayment Service Fund (CDRSF), to meet dues in case of default of a member. This solidarity mechanism typically allows the structure to survive temporary liquidity issues of a member, for example because of delays in getting payments from clients. The member is asked to replenish the fund when the situation normalizes. These innovations would be conditional of MoT review and approval at the Project Scrutiny stage.

**Figure 3b:** Alternative debt repayment mechanisms (innovation of PMC IL&FS)

## Debt Financing (2/2)

Structuring is done by the PMC; reimbursements are either: (i) through the SPV; (ii) individual Common assets (land, common infrastructure) are used as collateral



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Comparing this model to the implementation framework developed above, the SPV, with the PMC, is involved in or has exclusive execution responsibility for all of the steps (1) through (8). The crucial decisions are costly to those who make them, who are also those with the thickest information about the local conditions needed to site the parks.

Location selection (1) and land procurement (3) are supported by the PMC but decided and executed by the entrepreneurs themselves. By participating in the SPV the entrepreneurs make a costly signal of demand, providing robust demand identification (2), even if, as does occur, the government or the PMC initiates the process by approaching the entrepreneurs. Demand is therefore more or less actual, rather than potential or projected, before subsequent steps are triggered. Dimensioning (4), financing (5) and procurement are the responsibility of the PMC. Infrastructure provision (7) and O&M (8) are executed by specialized contractors, chosen by the SPV (though again with assistance from the PMC). **Figure 4** illustrates a typical PMC's involvement in the park development process.

Two initial notes are important here on the capabilities of the firms involved, and on what the scheme offers to them. First, while the aggregate investment requirement from participating firms may seem large, it can and often is brought within range of a wide number of firms through the financing arrangements. Of the Rs 2 Cr (~\$400k) average cost per firm, Rs 0.8 Cr (~\$160k) are financed through grants, most often an additional Rs 0.8 Cr through bank loans and in many cases Rs 18 lakhs (~\$36k) through state grants, leaving a still sizable but less stringent Rs 22 lakhs (\$44k) to be paid directly as equity per firm. While substantial, this should be within range of a small to medium firm, for example in weaving being approximately the same cost as one to two modern autolooms.

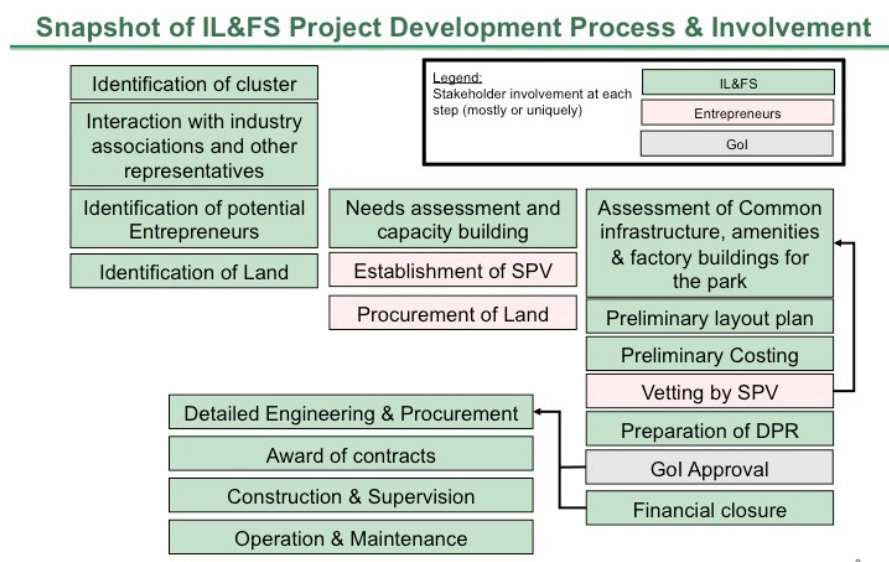
A more difficult requirement is likely to be that for the management capabilities to create and manage the SPV, including the ability to identify fellow firms and motivate them to join. This will be treated in more detail below, but the critical role here seems to be that of a "lead" firm (or firms), which see early the potential of the scheme for creating collective benefit, and which then identify other



“follower” firms to participate. These latter must be convinced to delay set-up or expansion plans and take part in a collective enterprise requiring a high degree of trust and a costly commitment of capital. Not only must such firms exist, but the scheme must offer to solve some problem they face which they find difficult to solve alone. While it is difficult to make definitive conclusions on this score, our conjecture is that the “lead” firms are motivated by the promise of cluster effects, and the “followers” of solving the small-scale infrastructure service and land purchase market failures endemic in India. This will be discussed at greater length below.

Last, we make note of what the SITP does *not* offer. The Center provides no assistance in procuring land, while States may do so, but have tended not to, and have tended not to be asked (a topic discussed at more length below). SITP parks have no exceptional regulatory provisions and no ongoing fiscal subsidies to the firms as individual units or to the SPV. It funds only 40% of the cost of the parks’ infrastructure. In money and regulation, it is *less* generous to firms than most industrial park schemes, which should be borne in mind as we turn to consider its results.

**Figure 4: PMC project development process snapshot<sup>25</sup>**



### III. EARLY RESULTS: PARK COMPLETION AND DEMAND GENERATION

#### *Relative success in getting parks built*

To analyze the SITP’s results to date, data was obtained primarily from Infrastructure Leasing and Financial Services, Cluster Development Initiative (IL&FS-CDI, here simply referred to as IL&FS), following approval from the MoT<sup>26</sup>. IL&FS is the most active PMC<sup>27</sup>, with 32 projects currently

<sup>25</sup> Modified from an IL&FS document

<sup>26</sup> A meeting with the Ministry of Textiles confirmed that using IL&FS data on their parks would be most efficient to conduct an analysis of the scheme.

<sup>27</sup> IL&FS is a limited company headquartered in Mumbai and with equity participations from Life insurance Corporation of India (25.9%), ORIX Corporation Japan (23.6%), Abu Dhabi Investment Authority (11.3%) and Housing Development Finance Corporation (10.7%), as well as the IL&FS Employees’ Welfare Trust (10.9%) and other smaller participations including from CBI and SBI. It started as a leasing company, then expanded into doing infrastructure PPPs. The creation of IL&FS-CDI, initially as an integral part of IL&FS and then as a separate (but 100%-owned) subsidiary, was triggered by the launch of the SITP scheme in 2005.

under management, of the 40 approved in the first round of the scheme. The data was complemented with field visits and interviews conducted at multiple sites in two states with among the largest number of parks (Gujarat and Tamil Nadu), as well as meetings with relevant state authorities and industry associations when possible (further details of field visits are available from the authors on request).

The data provides a strong indication that type (i) implementation failures (parks not being built, or not in a timely manner) are largely being avoided under SITP. The scheme began in 2005 with a target of 25 parks, later extended to 40 parks because of high demand. By 2011, all 40 parks had been approved and had at least begun construction. By 2013, almost all were operational or close to being operational. Specifically, of the 40 parks, the breakdown of advancement as of October 2012 was as follows: 11 fully completed; 13 started commercial production; and 16 parks at various stages of construction. The list of parks and their basic characteristics is given in **Exhibit 1** at the end of this paper. The time-wise approval of parks under SITP is as per **Table 3** below.

**Table 3: Time-wise approval of textile parks under SITP**

<b>Year of Approval</b>	<b>Number of Parks</b>
FY 2005-2006	07
FY 2006-2007	17
FY 2007-2008	03
FY 2008-2009	12
FY 2009-2010	01
<b>TOTAL</b>	<b>40</b>

In terms of spatial location, the first wave of parks principally located in the western and southern states, particularly Gujarat, Maharashtra, Tamil Nadu and Andhra Pradesh. Few located in major cities, but most were set up in secondary cities with strong industrial clusters (such as Surat in Gujarat, or in the textile belt around Coimbatore in Tamil Nadu). This accords with recent studies finding a shift of industrialization in India to secondary cities, a development which is likely to have beneficial effects for the inclusiveness of growth.<sup>28</sup>

Among IL&FS parks for which we have data, there is considerable variance in time-to-completion between projects. Most were completed or are expected to be completed within an average (and median) of around 6 years from approval time. The fastest has been completed in 3.9 years and the longest is expected to be completed in 9.1 years, and around 60% of parks have been completed or are expected to be completed in between 4.5 to 7 years.

Moreover, 2 of the 32 projects managed by IL&FS have been cancelled. The cancellations occurred while the projects had disbursed only 30% of the planned MoT grants (corresponding to milestone two of five in a typical park timeline), and these projects had been approved during the most active approval year, in FY 2006-2007. Two other projects were cancelled among the 8 non-IL&FS parks, both after 10% of committed grants had been disbursed.<sup>29</sup> But even adding those, this translates into a loss rate of less than 3% so far for what might be viewed as public grant “venture capital”.

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<sup>28</sup> Desmet, K., Ghani, E., O’Connell, S., & Rossi-Hansberg, E. (2012). The Spatial Development of India. Policy Research Working Paper. The World Bank.

<sup>29</sup> One was managed by SREI Capital Markets Ltd., the other by CS Architects Pvt. Ltd. Both were cancelled

In interviews the PMC attributed variation to the complexity of the project and the speed of obtaining clearances and financing. Environmental clearances in particular were said to lengthen completion time by approximately a year. What the data shows is a small positive correlation of average completion time with total cost, but no significant relationship was found with the size of businesses in the park (proxied by average land area per entrepreneur) or with the size of parks (in terms of land area).

There was some variance across states, with Gujarat, Karnataka and Andhra Pradesh faring best, and West Bengal worst. However, the statistical evidence is relatively weak given the small number of parks. Moreover, variations within states were at least as wide as those between states. For example in Tamil Nadu average completion time was close to the national average (6.7 years versus 6.4 years in the 32 IL&FS parks), but ranged from 4 to 9 years within the state. However controlling for states did not yield any additional significant results in terms of correlation between completion time and park attributes such as complexity (project cost), size (in acres) or the average size of businesses in the parks. **Exhibit 2** summarizes this time-to-delivery data.

While these gestation periods may seem long in some contexts, for industrial parks in India this pace of delivery is at the least respectable. There is a common perception that the speed of implementation, of “getting things done”, is a constraint on India’s growth, and long project timelines are common for general as well as industrial infrastructure.<sup>30</sup> Moreover, there is some evidence that the early years of the program represented a natural learning period, as stakeholders adjusted to an innovative policy and its arrangements. With the stakeholder system having achieved learning by doing, there are some indications momentum is building. The policy will be extended commencing this year, and 45 Detailed Project Reports (DPRs) are already on the Ministry’s table. The strongest evidence for the SITP’s ability to avoid type (i) and type (ii) failures, though, comes from a comparison with other industrial park schemes attempted in India in the last few years.

First, and probably the highest profile such attempt, was the SEZ scheme. This was launched to much fanfare in 2005, with the passage of the SEZ Act. Being enacted by national legislation, with wide coverage, and widely supported by public land acquisition, it attracted vastly greater interest than the SITP: 580 SEZs have been approved, but only 380 notified (i.e., land has been acquired), and of those only 124 were operational at the time of writing, a conversion ratio of 21%. The vast majority of the operational SEZs were IT office parks. In manufacturing, only 44 non-IT SEZs were in operation in mid-2011. This is roughly comparable to SITP parks, despite the significant fiscal and regulatory advantages offered by SEZs, the much wider sectorial scope of the policy and the broad support it has received from both states and Centre (including again through cheap government land).<sup>31</sup> Moreover, while SEZ approvals have been declining rapidly, and private sector interest waning, interest in SITP parks is only growing, despite the absence of tax breaks or similar instruments. **Exhibit 3** summarizes comparative figures between realizations under the SEZ Act of 2005 and under SITP.

Previous textile cluster schemes were also less successful than SITP, despite offering sometimes much higher levels of support. In those, the states or their agencies were responsible for most implementation steps, from location selection (1) to dimensioning (4), and from infrastructure provision (6) to park operation and maintenance (8), with monitoring (9) remaining mostly with the central government. TCIDS<sup>32</sup>, which offered assistance of 50% of costs capped at Rs. 20 crores, saw

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<sup>30</sup> 12<sup>th</sup> Five-Year Plan, Government of India.

<sup>31</sup> World Bank (2012)

<sup>32</sup> Textile Centers Infrastructure Development Scheme

some projects being completed, i.e., somewhat avoided type (i) failure, but most were small and brownfield, and many were perceived to be subject to a type (ii) failure, i.e., lack of demand.

A more recent scheme was APES (Apparel Parks for Exports Scheme). This targeted green field and larger parks. Location selection (1) was shared between state and center, dimensioning was pre-decided at between 150 to 250 acres (4), and land provision was the explicit responsibility of state governments (3). Despite offering grants for 75% of infrastructure costs (vs. 40% under SITP), APES saw only 2 projects approved: one in Tirupur, Tamil Nadu, where the industry association *de facto* took over implementation;<sup>33</sup> and one in Ludhiana, Punjab, which took more than 10 years to develop.

A similar pattern of results may be identified in other sectors. For example, the Ministry of Food Processing (MoFP) also had a cluster scheme, the Food Park Scheme (FPS), which was a centrally sponsored scheme, i.e., funding was flowing to the states that would then fund the scheme locally. The result was that financing (step 5) became even more problematic than when the Center was directly playing this role, leading to the failure to build parks at all (type (i) failure, and therefore all other types of failures).

In contrast, another central scheme for industrial parks that has made similar design choices as the SITP has been widely perceived as effective at avoiding type (i) and type (ii) failures. Like SITP, the Industrial Infrastructure Upgradation Scheme (IIUS) requires compulsory formation of an SPV to drive the process and appointment of the equivalent of a PMC for all-encompassing support. IIUS can only be used for existing parks, i.e. brownfield projects, so the challenge may be lesser. In addition the IIUS only took on SITP-like features in 2009, so the case has been studied in less detail. However, the IIUS applies to any sector, not only textiles, which provides some support to the hypothesis that role selection is crucial in avoiding type (i) and type (ii) failures, whereas the sector to which this applies is much less relevant (with caveats explained below). Further details on IIUS are available from the authors on request.

#### *Early indications in firm demand, investment and jobs*

Returning to the SITP, the data indicates that parks are not only built but are realizing investment. Long-run target investment in the 40 parks is approximately Rs. 20,000 crores, or \$4 billion.<sup>34</sup> Among IL&FS parks<sup>35</sup>, current investment has already reached 38% of the final target. In absolute terms, current investments represent 4 times grant disbursements, which is twice the policy's objective. Progress towards targets is not related to the average size of plots in the parks. This indicates the scheme has managed to spur extra private investment, beyond park infrastructure, across the SME size spectrum. Further, progress towards investment targets does seem positively related to additional grant disbursement, indicating that private and public investment are being sequenced together. Seven parks already show a ratio of private investment to public grants in line with the final targets. Exhibit 4 provides detailed investment data and statistics, while Exhibit 5 shows the relationships between investment figures and ratios with the percentage of government grant released, park project costs, average plot size and target investment/grant ratios.

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<sup>33</sup> This park was part of the field visits conducted as part of the study, and several entrepreneurs were interviewed.

<sup>34</sup> This corresponds to around \$2 million per entrepreneur per park on average, which might seem an ambitious target and if reached would mean the SMEs in the park would eventually graduate from being officially classified as "medium". Reaching half that target would still be a considerable achievement and does not seem out of line with investment rates observed during field visits.

<sup>35</sup> Excluding the two parks cancelled among IL&FS ones, the sample analysed here

Job creation and production will lag investment, and so the data can give only limited indications at this stage. The program's target is 300,000 jobs across all parks<sup>36</sup>, as well as 350,000 indirect jobs. This translates into a target of 230,000 direct jobs for the subset of parks managed by IL&FS. In those parks 42,000 jobs have already been created, or 19% of the end-state target, which is promising given most of the parks are only now commencing production.

The crucial question remains whether (or how many) investments would have been made (and jobs created) in the absence of the policy and the public money spent, in other words, the question of "additionality".<sup>37</sup> This might be posed locally, i.e., whether local entrepreneurs would have expanded anyway, or nationally, e.g., if investments which appeared new locally resulted in fact from cross-state raiding of firms. Unfortunately, the data available is insufficient to serve as a means to probe this question at the moment. The authors are not aware of an analytical technique that would yield a rigorous answer, even with a more complete dataset. As such, anecdotal evidence can, at this stage, only provide indications. In that regard, discussions with IL&FS and entrepreneurs suggest however that around two-thirds of capacity in the park is indeed additional.

While there would be an incentive for them to report this, individual entrepreneurs indicated, under repeated probing, that they would not have expanded or created their firms without the scheme. Some were already active in upstream parts of the value chain, such as machine sales, and entered the downstream segments through a park they came to know. Others had existing sites which had reached capacity and for which they said they had been struggling to find suitable expansion space. The machines visually observed in the park were new or of recent vintage, from high-end capital goods producers in Europe and the Far East. This was noteworthy in the weaving segment in particular, since textile weaving in India is little mechanized versus comparator countries, an acknowledged constraint on the sector's growth.

Nevertheless, we are conscious this does not amount to proof that new investment would not have happened anyway, though it should be noted much of the investment, in both parks and machinery, took place in a period of falling macroeconomic investment rates, particularly in manufacturing. Private investment growth fell 6.2 percentage points and manufacturing growth 11.8 percentage points in the period<sup>38</sup>. In the same timeframe the textiles sector was widely reported to be undergoing difficulties, with reports of rising defaults and struggling exports.

In terms of public-private investment ratios, early indications are that the grants are relatively efficient. Rs. 7.4 lakhs (~ USD 15k) have been disbursed so far per job created in IL&FS parks (though no jobs have been created yet in 7 of these 30 parks), and, if the final targets are met, the final cost would be Rs. 1.1 lakhs (~ USD 2k) per job. Similarly, if the targets are achieved labor productivity in the IL&FS parks would be Rs. 20.3 lakhs (~ USD 40k), compared with estimates of approximately Rs. 1.2 lakhs for the Indian textile & garment sector in 2005-2006, the most recent figures available.<sup>39</sup> While, as mentioned above, the parks seem on track to meet their jobs targets, the current absence of production data prevents an analysis of whether the productivity targets are similarly in reach. One interesting observation is the especially high productivity target for Gujarat

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<sup>36</sup> The approximation remains the same whether the 2 IL&FS parks cancelled are not accounted for or not

<sup>37</sup> Formally, transfers of capacity into the parks are forbidden.

<sup>38</sup> Authors calculations from World Bank and OECD national accounts data for the period from fiscal year 2005/2006 to fiscal year 2011/2012. Private investment is measured as private gross capital formation in current rupees (the data was not available in constant rupees), while manufacturing growth is measured in constant rupees with base year 2004/2005.

<sup>39</sup> Economic Services Group, National Productivity Council (2010). Productivity & Competitiveness of Indian Manufacturing Sector: Textiles & Garments. Report submitted to the National Manufacturing Competitiveness Council, Government of India.

parks (Rs. 42 lakhs per job on average, more than twice the average target), in line with high capital intensity of Gujarat’s economy, and the comparatively low number for Andhra Pradesh (Rs. 8 lakhs per job) which accounts for a large number of the jobs to be created, but which also comprises the two largest park projects. Exhibit 6 summarizes employment, production, grant efficiency and related data for IL&FS parks.

Of course, translating current trends to meeting targets requires sustaining demand beyond the first wave of entrepreneurs’ investments. While early demand generation required substantial marketing by the government and PMCs, the apparent success of the scheme has had a strong demonstration effect and the scheme now faces excess demand, as evidenced by the number of EoIs and DPRs for the next phase of the scheme. Moreover, while the early parks were concentrated in States that have historically had more developed textiles industries, the next phase looks set to achieve a broader coverage (**Table 4** below), though the impact of this may be reduced if it results in cross-state raiding. Overall, allowing the scheme to succeed first in states with initial advantages has facilitated rather than held back the later spread of the scheme to lower-income areas.

**Table 4:** State-wise approval of textile parks under SITP, by phase

State	Number of Parks approved in the first phase (2005-2010)	Number of Parks approved in the second phase (2005-2010)	Total
Andhra Pradesh	5	2	7
Gujarat	7	1	8
Himachal Pradesh	-	1	1
Jammu and Kashmir	-	1	1
Karnataka	1	1	2
Madhya Pradesh	1	-	1
Maharashtra	9	6	15
Punjab	3	-	3
Rajasthan	5	4	9
Tamil Nadu	8	2	10
Tripura	-	1	1
Uttar Pradesh	-	1	1
West Bengal	1	1	2
<b>Total</b>	<b>40</b>	<b>21</b>	<b>61</b>

#### IV. EARLY RESULTS: CLUSTER EFFECTS AND POLICY SPILLOVERS

The previous section analyzed data on SITP performance to date in avoiding failures of types (i) and (ii), in the failure framework presented above. This section presents the suggestive but consistent evidence gathered in the field and inferred from available data on whether the scheme is avoiding pitfall (iii) (lack of cluster effects or agglomeration economies). It also discusses the potential for, and safeguards against, pitfall (iv): negative spillovers or side-effects.

##### *Agglomeration economies*

There have been suggestive indications of scale efficiencies in “hard” inputs, though across some parks and not others. The first of these relates to environmental compliance. Since the cost of Common Effluent Treatment Plants (CETP) can be included in project costing, some entrepreneurs

indicated that, together with scale economies, it had altered the balance between the cost of complying with pollution regulations, versus the risk-adjusted cost of being caught.<sup>40</sup>

The several CETPs visited in SITP parks in Gujarat and Tamil Nadu were all of high standards, with advanced effluent monitoring and testing facilities, surveillance cameras on all critical effluent circulation and discharge areas and usually a complementary solid waste treatment facility. This could be contrasted with the Ministry of Environment and Forest (MOEF)'s CETP scheme, which also provides grants for CETPs, but on a more traditional model requiring multiple State and Centre clearances and interventions.<sup>41</sup> As such, it has had relatively limited uptake and has shown limitations in encouraging the building and maintenance of modern, efficient facilities.<sup>42</sup>

Second, electricity access, a perennial issue for manufacturers in most parts of India, was more easily alleviated by interacting with the State government through the SPV structure, and with the cumulative "weight" of entrepreneurs in the parks in terms of employment and taxes. This was observed, for example, in Tamil Nadu, where electricity shortfalls were relatively more acute than in other states. There all of the SITP parks visited had managed to negotiate with the local distribution agencies a dedicated power distribution station and specific power agreements (however, this does raise a risk of negative distortions, which will be discussed further below). In other areas the support of PMCs was again important in terms of providing technical advice to SPVs, for example those which decided to set up their own captive power plant (as in two of the SITP parks in Gujarat).

Turning to the effects of park implementation on "soft" infrastructure, there is some evidence that cohesion between entrepreneurs has been nurtured in the parks, with particular effects for self-resilience. The principal reasons parks could still fail after being built and filled include: lack of proper maintenance; entrepreneurs finding a way to pocket the grant money and leave; or a lack of flexibility for transfer of ownership in case an entrepreneur leaves. The first is unlikely given the SPV's structure. On that, and on the second, interviews suggested that the significant amount of money already invested by each entrepreneur in the park (through the SPV and individual investments already made) was a sufficient incentive to keep effort levels high and prevent fleeing.

In interviews it was also consistently mentioned that entrepreneurs facing difficulties benefited from joint support, from the indirect effects of the park's financial structure, and as importantly from mentorship and other forms of assistance from more capable members. While there might be a risk of this allowing inefficient firms to survive, the instruments seemed more targeted at temporary, liquidity-type issues (such as in the case of late payment of a large order). Further, the other members would have a strong incentive not to maintain low performing firms in the park, due to the damage it could do to the reputation, cohesion and financial health of the SPV. Barriers to exit might then be problematic, but several parks reported that they had some form of flexibility to sell the shells of entrepreneurs and to transfer SPV memberships (and one had already done so).

Access to and cost of finance were said to have improved thanks to the pooling and credibility effect of the SPV structure, and the support received from PMCs on designing business plans and

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<sup>40</sup> Although this was not true for dyeing and processing in Tamil Nadu where the requirement for expensive Zero Liquid Discharge (ZLD) still made it prohibitive for the most polluting industries such as processing to comply, even within a park.

<sup>41</sup> The IIUS, mentioned earlier, can also be used to fund CETPs, though only in existing industrial parks, and now uses an SITP-like design.

<sup>42</sup> The conclusions of the most recent report of the Central Pollution Control Board (CPCB) of the MoEF can be found at: <http://www.cpcb.nic.in/statusCETP.php>. The MoEF has acknowledged the deficiencies and the CETP scheme is now being modified for the 12<sup>th</sup> Five-Year Plan to require more SITP-like features such as constitution of an SPV for the users, though it retains a large role for States, especially on funding and land acquisition. The revised policy can be found at: <http://envfor.nic.in/downloads/public-information/revised-cetp.pdf>

structuring the financing.<sup>43</sup> Though bank financing still remained a difficult process, it was perceived that the scheme had made it possible where it was not before, and the support from PMCs was seen as particularly important for small to medium size firm entrepreneurs, most of whom lacked adequate financial skills and wanted to “focus on their business”.

Further, entrepreneurs in all the parks visited said grouping with peers had given them the confidence to invest more for expansion and upgrade. As mentioned above, machines in the parks visited were mostly recent or new ones, and even in the most modest units of the medium-sized Palladam weaving park in Tamil Nadu were highly automatized, high-quality ones originating mostly from Europe or Japan. From the interviews conducted, this investment behavior seemed likely due to the “risk-pooling” effect of regrouping in the parks, e.g. the ability to share or delegate job work or even sell or buy machines from “neighbours”. The sharing of knowledge among entrepreneurs was also evident, and might have worked among workers too through the presence of common training facilities. In some cases this has also prompted competitive poaching, with workers more easily reallocated to more efficient users, though other parks have attempted to prevent this.<sup>44</sup> Branding may also have been made easier by the grouping into parks<sup>45</sup>, and with improved logistics has helped entrepreneurs access new markets, including internationally, especially in parks focusing on one specific part of the value chain (such as yarn in Surat, Gujarat, and weaving in Palladam, Tamil Nadu).

However, these effects in particular have been highly variable. In some parks the entrepreneurs were proactive in pursuing initiatives such as common purchasing, common order bidding, and common marketing. In others, the entrepreneurs were more passive or reactive, and such initiatives were less advanced, in several parks being an expressed wish which had not been acted upon.

Overall, there is uneven but substantial evidence that the scheme is generating agglomeration economies, though heterogeneously across parks. We postulate that some of these economies are driving the high investment/grant ratio observed, through increased risk-taking and modern machinery acquisition. If valid, agglomeration economies should also result in firms in the scheme substantially outperforming the rest of the sector in productivity, i.e., would result in meeting or at least approaching the scheme’s very ambitious productivity targets.

However, the unevenness of these effects across parks indicates some scope to do more: the scheme, through the SPV and its tasks, brings disorganized firms into a coherent group, creating a “soft” platform which can be built upon (more so than when firms simply take up space in a park built by the state or by a developer). We will return to this theme below.

#### *Negative side-effects on investment climate outside the park (“negative spillovers” and “crowding out”)*

There remain the risks of type (iv) failures, negative externalities. The design of the SITP consciously attempts to avoid its parks becoming instruments of “fiscal wars” that result in a “race to the bottom” among neighboring states, the most common and easiest spotted form of negative spillover. There is,

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<sup>43</sup> See again how IL&FS helped resolve the issue of common repayment of loans, as mentioned in section III and illustrated in Figure 3b.

<sup>44</sup> A 2011 study by Grant Thornton for FICCI mentions the case of one park member offering higher wages than others and disturbing less profitable members. To avoid conflict, in some Parks, members agreed upon a fixed salary to be offered to a new entrant for first six months and not to poach each others workers.

<sup>45</sup> These initiatives can benefit from the collaboration established with PMCs. For example, IL&FS has helped the SPVs it advises choose a specific brand name and logo for their park.



though, another kind of negative spillover, best understood through the interplay of “voice” and “exit” by firms, with respect to the business environment.<sup>46</sup>

The “exit” of industries from a general, difficult economic environment into the “privileged”, but limited space of parks may tend to reduce their willingness to raise their “voice” (a costly action) to demand broad-based improvements (which would now only bring limited benefits). The effect may be strengthened if the first firms to take advantage of the opportunity to exit are the most capable of seeing and using government programs, and therefore perhaps the very firms that would be most effective in lobbying. If authorities are not naturally very sensitive to firms’ concerns, the result could be the stalling of broad-based reforms to improve the investment climate.

This risk may be mitigated if firms can move easily between many parks; and authorities are sensitive to such movement; and firms in the park still depend on firms outside them. Then firms inside and outside the park may move if the environment around them is weak, forcing a response. But if any of these conditions do not hold, for example if the firms in the park source from each other or through dedicated imports, then the result may have been simply to remove the relatively more effective advocates of reform from the political landscape.

Therefore the design of industrial park programs, including variants such as regulatory and tax zones, should be evaluated including these potential negative spillover effects. This may provide a word of caution regarding such zones: they provide a much higher degree of “exit”, since they typically offer, in addition to privileged infrastructure, lighter regulations across the board and large fiscal incentives.

On the other hand, when successfully implemented and scaled up, such as in China, such zones might offer the possibility of moving between them, creating a “race to the top”. To our knowledge, this conjecture has not been the subject of a specific study, but finds support in a range of related work, for example on the pressures to learn how to use SEZs in the early reform period of the 1980s, and on the ‘point’ to ‘surface’ model of experimental governance, including its application to ‘science and technology’ parks.<sup>47</sup> However, this conjecture depends on the way in which sub-national authorities there have been made sensitive to the exit from their province of high capability firms, and so have sought to use such zones to learn, rather than to provide an easy means to placate louder voices without undergoing more substantial reform efforts. This in turn depends on local governments’ heavy fiscal dependence on their local industrial bases.<sup>48</sup>

In other words, because such governments fear exit and the parks are not sticky enough to preclude it, local governments are strongly incentivized both to make the parks effective and to learn from them. This may be contrasted with India, where one may speculate that the large-scale exit of India’s IT firms into SEZs over the previous three years has contributed to their diminishing pressure for broader reform. The authors are not aware of specific research that rigorously tests this hypothesis, though it has found anecdotal support in conversations with policy makers in India and may be a fruitful area for future research.

In this regard, the SITP again provides some advantages, as it provides no regulatory exceptions. It promises to create a large number of parks, increasing the possibility of exit, though the SPV may create stickiness for one firm in its original park, at least in the early years. Most parks being of

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<sup>46</sup> Hirschman, A. O. (1970). *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States*. Harvard University Press.

<sup>47</sup> On the early reform period, see Vogel, E. F. (2011). *Deng Xiaoping and the Transformation of China*. Cambridge, MA: Belknap Press of Harvard University Press. For ‘point’ to ‘surface’, see Heilmann, S. (2008), “From local experiments to national policy: The origins of China’s distinctive policy process”, *The China Journal*, 59:1-30.

<sup>48</sup> Byrd, W. A., & Lin, Q. (1990). *China’s rural industry: Structure, development, and reform*. Oxford University Press.

moderate size (a point to which we return further below), their members are still dependent on the surrounding environment, and do not have an exit even from “trunk” infrastructure.<sup>49</sup> Financial support is significant, but still leaves most of the financing to be raised by the entrepreneurs themselves (whether it is through further grants, loans or equity), so they do not have full exit from the financial sector either.

However, there may be a countervailing effect, which creates a long-term risk for the program’s impact. This risk is that firms in the parks become highly organized and efficient at obtaining preferential treatment, effectively turning the parks into instruments of lobbying and capture. There is even a risk that this is occurring, for example, in the Tamil Nadu parks’ ability to secure electricity. If in doing so they deprive more productive users of electricity, this would be a substantial negative externality. While this cannot be tested yet, it bears watching in the future, particularly as more parks become operational.

More generally, as described above, the SPVs are a vehicle for collective action, often formed and led by highly capable firms. They could become *too* effective at local lobbying, resulting in capture of local schemes and increasing distortions in favor of the parks. On the one hand, this risk is inherent in all successful cluster development programs; on the other, the small size of the firms involved in this scheme may mitigate it. This in turn depends somewhat on the structure of the textile industry, and the size of the grants for the parks (treated further below). It is however another risk that needs watching, especially when adapting the scheme to other industries and contexts. For example, very large parks, or parks with very large firms, would create particular concern in this regard.

Overall, the SITP encourages entrepreneurs to build a new mechanism for voice, through organization into the SPV, and their connection with the PMC. It is far too early to tell if these will be effective in generating positive rather than negative spillovers. On the whole, however, the balance of risks seems neutral to positive, as it does for type (iii) failures, and more favorable than more common schemes.

## **V. EXPLAINING RESULTS: SITP DESIGN & THE POLITICAL ECONOMY OF IPs**

In sum, early data indicates the SITP has managed to avoid type (i) and type (ii) implementation failures (getting parks built and occupied), while providing some positive early signs on avoiding type (iii) and type (iv), generating cluster effects and avoiding negative spillovers. In this section we will attempt to understand this performance in terms of the mapping of implementation responsibilities (1 to 9) to the various stakeholders, and how that interacts with the political economy in which the parks are built.

Our principal contention is that the key achievements of the SITP design are to fit those roles to the incentive structure of that political economy so as to leverage existing but underused capacity (firms using the parks) as well as new capacities (PMCs), and to allow necessary flexibility while limiting the opportunities for collusion. This design created a latent potential which had to be triggered to become actual, through demonstration effects. That in turn was provided by the MoT and the first PMC’s focus on organizing capable firms, rather than organizing parks.

### *Engagement process and entrepreneurs’ cohesion*

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<sup>49</sup> Large, linear infrastructure, such as transmission lines, national highways, and freight railway. The presence of quality highways was explicitly mentioned as key to the viability of the projects in many cases, since it allowed locating parks far enough from the city to find land at a reasonable price, while allowing easy commute to it so as to benefit from agglomeration economies (including proximity to markets and to qualified labor). This has been justly pointed out by one of our reviewers as encouraging the development of secondary cities, and therefore also putting *additional* pressure for planning their development.

The initial phase of the scheme involved intense prospection on the part of the MoT and IL&FS-CDI, which had been chosen as sole PMC at the time. This engagement process was especially critical as the scheme was to rely heavily on the entrepreneurs and their ability to drive scheme implementation, from the very start. The objective was therefore to identify the entrepreneurs that had most demand and at the same time were most capable of organizing themselves to achieve that goal. The idea was to generate enough awareness in key dissemination points, and then let self-selection operate as willing and capable entrepreneurs would have an incentive to regroup and follow the most capable “leader”, while keeping less capable ones at bay. IL&FS explained that the most important quality of that entrepreneur was the ability to generate cohesion within the prospective SPV members.

In practice the procedure was as follows. First, IL&FS and the Ministry would identify in which states the main “organic” clusters in the relevant sector were located (e.g. textiles for SITP), and within those states which were the principal industry associations and chambers of commerce. Next, they involved the local offices of the MoT and the state government’s Ministry of Industry. Together they would focus on key dissemination points (industry associations, chambers of commerce etc.) and make presentations of the scheme three or four times to different groups. There would always be a Project Manager (of an existing SITP park if any, or a prospective one) at presentations, who could later bring interested entrepreneurs to project sites to see the infrastructure and talk to entrepreneurs, if the park was already built. Finally the PMC would offer capacity building on what it takes to make a successful park to those among the prospective entrepreneurs who confirmed their interest. This capacity building would focus on the processes of organizing and coordinating within the cluster.

This was clearly a time-intensive process. Here the PMC was vital. Since the PMC would only receive fees if entrepreneurs took up the scheme, and only if those were capable enough to successfully organize others, it had a strong incentive to find capable entrepreneurs and generate interest. Since the first PMC, IL&FS, had a long history of working with both Centre and State, and is partly government owned, it was well placed to be a trusted partner in the initial process, and to work the informal relationships needed among the various levels of government. At the same time, the importance of the textile industry in jobs and investment, as well as the need to find new solutions after prior schemes, likely played a role in the MoT’s drive to initiate the scheme, and State departments to cooperate in its launch.

Once the scheme was visibly yielding results, excess demand in new parks allowed the MoT to avoid most of these efforts, except in some new, less advanced target states. Such excess demand has also provided some confidence in the selectivity of the engagement process with entrepreneurs, again the most crucial aspect of the scheme. On the other hand, it might be feared that the first entrepreneurs to take up the scheme were also the most capable, and therefore that SPV quality could deteriorate as the scheme expands. This will merit close monitoring.<sup>50</sup>

The cluster effects observed in the previous section (the suggestive avoidance of pitfall (iii)) probably find their strongest spur in the initial cohesion-building exercise. This involves not just the initial formation of the SPV and initiative to apply for the scheme, but also the difficult process of selecting and purchasing land jointly – in practical terms but also financially, as the first grant installment is made only after monies to purchase land have been paid and the title obtained. This high “initiation

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<sup>50</sup> Another aspect to watch is the impact of location decisions on urbanization. There seems to be some evidence that industrial parks are spreading out to other cities, mostly secondary cities or other states, but not to *any* city or *any* other state. For example many projects were launched in Gujarat in the first phase, and much fewer in the current phase. The tension between agglomeration benefits and congestion costs (in particular land costs) for location choices has in fact been explicitly voiced by most of the entrepreneurs interviewed, in parks but also outside of them. For further discussion of this aspect of urbanization, see Ghani, et al. (2012).

cost” may have a positive effect on the willingness of entrepreneurs to keep organized to go through the rest of the difficulties of the park development process, possibly limiting free-riding.<sup>51</sup>

Overall, though, it should be asked why firms would undergo the process in the first place. A general answer would point simply to the local failures of infrastructure provision in India, so that firms’ alternatives to set up may suffer high congestion costs. There is evidence that such costs are pushing firms in India to move out of urban areas earlier in the development process than in comparator countries,<sup>52</sup> and in interviews this was often cited as a primary motivator for locating in a park.

On the other hand, the parks only partly solve this constraint, given their continuing dependence on trunk infrastructure. As such, other factors must be at work. One conjecture is that the firms see the SPVs as ways to reduce the individual transaction costs of obtaining land, by pooling the formal and informal risks and costs of doing so.

Several firms did report this as a benefit of the scheme which they valued. On the other hand, if this were paramount, we would expect to see fewer parks the better functioning were local land markets, and vice versa. In contrast, Gujarat, widely seen as having the least difficult industrial land market in India, has the most parks; and West Bengal, with a notoriously difficult environment for obtaining and converting land, has only one park, and that has taken the longest of all in the first wave to become operational. A more general comparison between states’ ratings on proxy indicators in Sub-National Doing Business indicators for India, from 2009, and the number of parks, reveals a similar pattern: there are more, rather than fewer parks, in states with better-functioning land markets.

So, while the limited data does not allow establishing significant relationships, it seems parks have been developed in greater numbers and fastest where there was a higher density of capable firms (Maharashtra, Tamil Nadu, Gujarat). On the other hand, there may be hidden threshold effects, so that the scheme is not effective at reducing costs in highly dysfunctional land markets, but is effective in moderately dysfunctional ones.

More generally, we would return to the fact, mentioned above, that the participating firms are not homogenous, but may be distinguished between “lead” and “follower” firms. The scheme likely answers different needs for these different categories.

Principally, it was clear to us that these “leaders” (and usually larger firms) had been motivated *ex ante* by the perceived advantages in clustering, and relatively less so by the subsidy and access to quality infrastructure (which they were more likely to be able to afford on their own). The “followers” that then joined were often smaller firms, relatively more attracted by the possibility to benefit from the initiative taken by the leaders, as well as the possibility to avail high quality infrastructure and obtain land for their own business at a relatively low cost.

### *Roles and responsibilities*

We now turn to the incentive structure of the scheme. Its design creates a set of interdependences between the GoI, the MoT, states, PMCs and entrepreneurs (through SPVs). These are reinforced by institutional mechanisms such as regular monitoring reports sent by the PMC to the MoT; quarterly reviews of the overall scheme by an Apex inter-ministerial committee at the GoI level; and the appointment of directors on the SPV board by the MoT (through its local representatives), the PMC,

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<sup>51</sup> Hirschmann (1970).

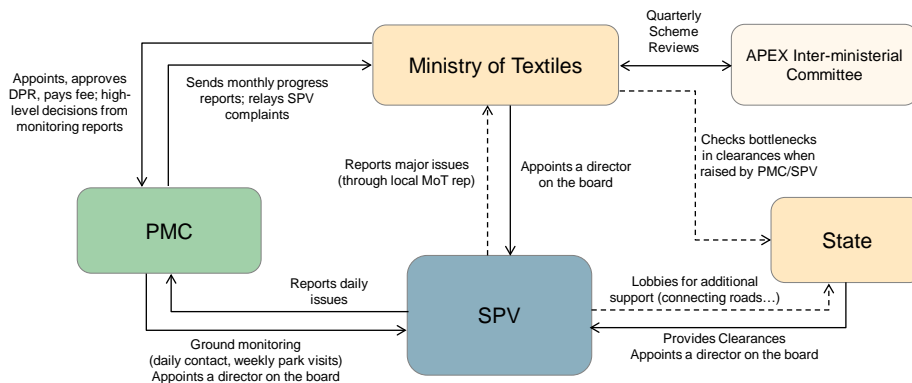
<sup>52</sup> See, as well as Ghani et al (2012) above, an extensive literature including: Lall, S. V., Shalizi, Z., & Deichmann, U. (2004). Agglomeration economies and productivity in Indian industry. *Journal of Development Economics*, 73(2), 643-673, as well as the in-progress “India Urbanization Review: Nurturing Metropolitan Economies and Connecting Peri-urban Areas”, World Bank, New Delhi.

and the State. A simplified diagram of this structure is represented in **Figure 5** below. We consider, in turn, how this structure fits the capabilities and incentives of each actor to their respective role.

**Figure 5:** Simplified diagram of SITP incentive structure

### Basic Incentive Structure

The overall incentive structure fits the political economy of relationships between stakeholders



First, the central government is the main grant provider. In theory, despite not holding an absolute majority stake in the SPVs, it might be tempted to interfere in other aspects of project implementation. In some cases elsewhere, for example, political considerations have been known to induce sub-optimal location selection. However, by virtue of India’s size and diversity, bureaucrats in central ministries have fewer incentives for such micro-targeting than State officials. The small size of the parks and the grants, in absolute terms, reinforce this bias, lowering incentives for location interference and increasing incentives for performance across all the parks.

In terms of capabilities, a central ministry rarely has the capacity (both in terms of local knowledge and manpower) to monitor at a micro level, so the devolution to a specialized agency (the PMC) allows the MoT both to focus on its core strategic mission and to obtain better micro data. In this regard, the crucial instrument in the SITP policy is the clear Terms of Reference (ToRs) for PMCs, who must send monthly progress reports, with a uniform, simple format that helps the ministry take rapid decisions. Strict rules and methods for grant disbursements limit the abuse of funds in theory (though we discuss this at further length below). Samples of the utilization certificates that condition the release of installments of grant money are available from the authors on request, as well as samples of the grant sanction orders.

Turning to the states, they can (and typically do) also participate in grant funding, but the limit on their participation in SPV funding is adapted to their lower funding capacity (compared to the Center) and somewhat limits grant wars between states.<sup>53</sup> Therefore they have a limited direct role, in step (5), but together with their ability to appoint a director on the board of the SPV this often proves enough to induce them to be engaged with the projects. This is critical as states are ultimately responsible for

<sup>53</sup> As mentioned earlier, combined contributions of states and other institutions to the SPV capital must be such that entrepreneurs retain at least 51% share of the equity part. In the typical case of a 40% (and in any case less than Rs. 40 crores) central government grant and 40% term loan, this means a limit of 9% of project costs (and less than Rs. 9 crores).

providing necessary clearances, in particular for land (principally, conversion of agricultural to industrial land). On the other hand, the relatively low amount of the State grant, such that the project often remains viable even in its absence, means State politicians and bureaucrats will most often lack the leverage to distort location decisions.

In addition, the SITP is relatively well adapted to the political economy of State-Center relationships. Since State and Centre contributions are separate, not subject to one another (in contrast, for example, to the Food Park Scheme mentioned earlier), they become less likely to be subject to disputes resulting in delays. The burden of engagement and coordination with various State agencies is placed not on the central ministry, but on local entrepreneurs, organized through the SPV and supported by the PMC's experience, skills and contacts.

Local entrepreneurs will in most cases be substantially better positioned to navigate the political economy of their State than a central ministry, and it is they who are tasked with this by the scheme. As a last resort, recourse to the center remains possible for entrepreneurs in case of major issues such as long delays in approval, which does maintain some pressure on states to perform. In short, rather than resting on State-Centre coordination for the multiple routine processes needed to build the park, the scheme leverages the latent capacity of local entrepreneurs, but provides them implicit leverage through, *in extremis*, recourse to the Centre.

As a result, the scheme, though having a uniform national design, adapts itself in its implementation to wide variations in local conditions. For example, the political incentives to develop industry in Gujarat are very strong, and GIDC<sup>54</sup> is recognized as one of the most efficient state industrial development corporations, while in Maharashtra the environment is often perceived as much less favorable on both counts. However, almost as many parks have been built or are being built in both, with limited and offsetting gains to each in time to completion, investment and job creation (cf. Exhibits 2, 4 and 5 for detailed figures). We would note however that both states do have a substantial base of capable local entrepreneurs. The scheme design seems then to shift the variable for success from a State's political economy or the quality of coordination between it and the Centre, to the capabilities of local entrepreneurs.

Those entrepreneurs' capacity is, crucially, also augmented by the PMCs. The effectiveness of PMCs of course depends on the thickness of the local consulting market: consultancies capable of performing this role must be present, and the more of them there are, the higher the bar for their selection can be set while mitigating capture risks.

The all-encompassing role of PMCs reduces coordination issues and increases the ability to deal with uncertainties as the project is being implemented. It is noteworthy that IL&FS has had both an advisory role for the government ("MoT-PMC") and an execution role for the firms ("SPV-PMC") in 80% of the parks it is PMC for, and the ratio was said to be similar for other PMCs. Although there are risks to such integration (examined in the last part of this section), the advantages are increased flexibility in adapting design as implementation proceeds, and the removal of one agent in the execution chain. The PMC can then have few excuses for delays in executing plans it has devised.

The PMCs also seem to intermediate effectively between the government and entrepreneurs. Their incentives are partially aligned with both: to remain empanelled, they must demonstrate their performance to the ministry by getting parks built and functional in a timely manner, while they are ultimately chosen for each park by the entrepreneurs themselves. They do not though share profits

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<sup>54</sup> Gujarat Industrial Development Corporation

with the entrepreneurs and do not have a formal interest in which parks or states perform better (though the potential for informal collusion is dealt with below). Their intermediation between the central ministry and local entrepreneurs has benefits both practical and political: it enables the ministry to oversee a large number of parks by monitoring a small number of PMCs; it overcomes potential distrust between private sector and government; and creates distance, so the government does not negotiate directly with individual entrepreneurs receiving grants.

Overall this means PMCs are key to the potential for the scheme to learn about itself, and to foster learning among the firms in parks. On the former, the PMCs observe the scheme's performance in a wide variety of contexts, and, by competing among each other, are incentivized to innovate within the existing scheme design. This has resulted, for example, in a number of the financing innovations described above. When the scheme design is refreshed, as is occurring at the time of writing, the knowledge gained by the PMCs can be rapidly consolidated. This does of course raise risks of capture and distortion by the PMCs. The ministry's ability to balance these risks and benefits will be critical to the ability of the scheme to improve its results, or conversely, to drop in performance.

The PMCs also enhance the ability of firms themselves to learn, acting as transmission mechanisms for knowledge between widely separate firms across India. It is not clear to what extent this potential is being actively exploited at present; the potential to do so more actively would clearly form part of any more general initiative to exploit the social infrastructure built by the scheme, in this case doing so across parks as well as within them.

That brings attention back to the entrepreneurs themselves. The scheme distinguishes itself by leaving the initiative and ultimate decision-making to them. The first advantage is that entrepreneurs represent the "demand" for the park and therefore are naturally best placed (in terms of incentives) to decide on an appropriate location: convenient for entrepreneurs in the SPV, for backward and forward linkages and so that the price of land does not make it prohibitive. Similarly, dimensioning of the parks is naturally best discussed with those who will be occupying them, i.e. SPV members, with technical advice from the PMC. Demand and dimensioning are thus subject to verification by the ultimate users in a way costly to themselves, i.e., in a more reliable means than by the signing of an 'expression of interest' or 'MoU', or by the completion of a "demand study" (whose point estimates of the future will almost always be wrong).<sup>55</sup>

Infrastructure design and procurement are then left under the flexible discretion of the entrepreneurs themselves, subject to monitoring and other means to control fraud (discussed further below). In contrast, for example, previous policies such as APES fragmented the grants into many portions to be used for specific purposes: Rs. 10 crores for infrastructure facilities, Rs. 5 crores for effluent treatment plants, Rs. 2 crores for training facilities and so forth.

### *Grant size, structure and collusion risk*

Turning from the division of roles to the grants themselves, we first note their size. The cap on the central grant of Rs. 40 crore and 40% of total cost in effect limits parks to an investment cost of around Rs. 100 crore (\$20m), corresponding in India to a size of around 100 acres.<sup>56</sup> The policy originally had a target of at least 50 entrepreneurs per park, but has subsequently introduced flexibility conditional on a floor on investment commitments: the aggregate minimum investment in land, factory buildings and plant & machinery in the park is Rs. 100 crores if there are more than 50

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<sup>55</sup> Neufville, R., & Scholtes, S. (2011). *Flexibility in Engineering Design*. The MIT Press.

<sup>56</sup> Since the grant is 40% of project costs, the cap of Rs. 40 crore grant is reached for a Rs. 100 crore. Since larger projects will typically generate larger scale economies, it is optimal to design a Rs. 100 crore park.

entrepreneurs, Rs. 150 crores if there are between 25 and 49 entrepreneurs, and Rs. 300 crores between 5 and 24 entrepreneurs.

In practice, park size has averaged 106.5 acres, and 56.5 entrepreneurs per park. Field visits indicate that such a size is large enough to create some agglomeration economies, but small enough to allow land acquisition in most cases, to not unduly disturb the local, state and national political economy (by creating large incentives for interference, as discussed above), and to allow for a functional organization of the entrepreneurs in the SPV. Achieving this “right-sizing” of parks is probably one of the most important effects of the specific SITP grant design, reinforcing the capacity and incentives implications of the role allocation design.

By contrast, many of India’s SEZs were considered too small, with only one or two firms, to result in agglomeration economies. On the other end of the scale, huge parks known as PCPIRs involve enormous land acquisition and infrastructure provision for areas of several thousand hectares.<sup>57</sup> SITP parks seem to strike a sweet spot in this respect: modest enough to get things done and fly under the radar politically, but large enough for their SPV to be an effective local actor, and for them to generate some agglomeration economies.<sup>58</sup>

The method of grant disbursement in SITP is also important for reinforcing both capacity and incentives. The first disbursement (of 10%) occurs after final approval of the project, which itself happens only after monies have been disbursed for land procurement and the SPV can prove it has received ownership of the land. Given land markets in India, the initial disbursement is then a selection mechanism on the capacity of entrepreneurs to navigate the local political economy. Subsequent disbursements are made in advance after the completion of specific milestones and the full utilization of the previous disbursement. The schedule usually has five milestones, with 10%, 30%, 60%, 90%, and finally 100% disbursement on completion of the park and start of production by at least 25% of the units. By disbursing in advance, the scheme reduces liquidity constraints faced by SMEs, in contrast to schemes that disburse on a reimbursement basis; disbursing in tranches linked to milestones (including a final one that checks proper demand for, and functioning of the park), as verified by the PMC for the MoT, incentivizes and disciplines both SPV and PMC. The structure also makes it difficult to use the scheme for subsidized land speculation: grants will not be disbursed if parks are not built.

The structure of the grant may though raise a concern of subversion of the scheme for personal gain, e.g., through diversion of the grants by the entrepreneurs. To date, to the authors’ knowledge, there has not been an accusation of misuse of funds or misappropriation against either the scheme or any of the parks. It is too early to rule this out in every case, and one cannot rule it out in theory.

The scheme’s design does though seem to provide relatively strong controls against it, and while this does not mean informal bargains might not be made, those do not so far appear to be impacting scheme performance. To understand why this might be the case, we return to the roles and incentives in the scheme, and how those interact with grant disbursement.

The recourse to PMCs as a new capacity provider and *in fine* as intermediaries between entrepreneurs and the government is vital to the scheme, but creates risks on both sides. First there could be collusion with the government to be selected to be on the panel of PMCs. On the other side, PMCs on

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<sup>57</sup> Petrochemical Investment Region. See the analysis of the SEZ scheme referenced previously.

<sup>58</sup> For example in all four SITP parks visited in Tamil Nadu, it was clear that the grouping in an SPV structure is what allowed entrepreneurs to negotiate a specific electricity feeder for the park with state authorities. Similarly in the case of the Surat Super Yarn Park in Gujarat, last-mile road connectivity was negotiated with and provided by the state infrastructure development corporation (GIDC) – thanks to the existing high quality highway nearby, this meant the park was accessible from the city even though land had been bought in an under-developed area to reduce costs.



the panel could bargain with entrepreneurs to be selected for projects. Both would potentially impact scheme performance. At the park development stage, in theory there could also be collusion of PMCs with entrepreneurs on progress reports and utilization certificates to share grant money instead of investing it in the parks. Conversely when PMCs combine design and “execution” responsibilities (“MoT-PMC” and “SPV-PMC” roles) they could budget more for themselves in the DPR. Finally PMCs could reduce their efforts (and save money) in park development and hide underperformance to both the government and entrepreneurs, since, as MoT-PMC, they are also responsible for monitoring.

Collusion on PMC selection on the panels is limited, in theory, by the use of a competitive two-stage bidding process. Early signs are that this process is quite rigorous, with a PMC having been dropped, and only seven selected in total.<sup>59</sup> Being on the panel in one 5-year Plan Period does not guarantee presence in the subsequent period, creating a strong incentive for performance over the period.

Further performance discipline on the PMCs is provided by their competition to be selected by firms to develop a project (and then have this project be approved),<sup>60</sup> such selection and approval being a precondition for the PMC to be paid the consulting fee by the government. Collusion with the entrepreneurs on selection is itself limited by the firms’ own profit motive and the phased disbursal process. In short, a low-performing PMC would have difficulty enticing firms to select it, as those firms would then be unlikely to receive the grants. The PMC would also simply not be paid, if its work was too low quality to result in an approved DPR.

There is also a tradeoff for PMCs once they are appointed for a project between the gains from colluding, overcharging or lowering efforts as described above and the risk of losing further appointments and corresponding fees if they are caught, or discarded because of underperformance. If fees are high enough and performance is rewarded in practice, PMCs are likely to choose not to engage in such activities.

Of course, this depends on PMCs facing a credible risk of being dropped from the panel in case of underperformance. But this has, it seems, already occurred, as MoT removed a PMC, SREI Capital Markets Ltd,<sup>61</sup> from the SITP PMC panel after it had suddenly “abandoned” the SPV it was supposed to support (though the cause of abandonment is not clear). Similarly, the fact that failing parks were abandoned relatively early might be indicative of the constraints on accurate reporting by PMCs.<sup>62</sup>

Finally, misappropriation is rendered practically difficult by the process through which grant money is channeled for project development. Except for the limited share of grant money that can be allocated to administrative expenses, the SPV has no direct access to grant money, which goes directly from an escrow account at a designated state-owned bank (usually the same that would provide the term loan) to the private contractor executing construction plans. This mechanism also allows verification that money is spent in the 60/40 proportion by the entrepreneurs (and other contributors) and the MoT,

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<sup>59</sup> More details would be needed on the exact assessment criteria to assess their appropriateness, but even a perfect list would not prevent collusion and subversion. Rather, the risk would be most affected by the incentives environment, which is what we focus on here.

<sup>60</sup> As mentioned earlier, the DPR approval procedure includes passing first a Project Scrutiny Committee, an inter-ministerial committee headed by the Joint Secretary for SITP in the MoT, and then a Project Approval Committee headed by the Minister of Textiles.

<sup>61</sup> SREI Capital Markets Ltd is a large, reputable firm with a 50/50 JV with BNP Paribas Leasing Solutions, the largest leasing group in Europe.

<sup>62</sup> The two IL&FS cancelled parks, already evoked earlier, were the Hyderabad Hi-Tech Weaving Park in Andhra Pradesh and the Shri Dhairyashil Mane park in Maharashtra. The MoT took the decision on observing the lack of progress by the SPV in moving forward after disbursement of 30% of the committed grant amount. The other two were the Vaigai Hi-Tech Weaving Park in Tamil Nadu (managed by CS Architects) and the Bharat Fabtex & Corporate Park in Rajasthan (managed by SREI Capital Markets), both cancelled after 10% disbursement, i.e. the first milestone.

respectively, for completion of the milestones. Maintaining the proportions (with some flexibility) along the payment schedule reduces further the opportunity for abuse of grant money. The fee payment structure for PMCs follows those same milestones, which further incentivizes PMCs to support completion of the parks in a timely manner.<sup>63</sup> Vendor selection must be approved by the SPV board, which includes entrepreneurs, state officials and others.

An underlying support for many of these controls may, again, be the modest size of the individual parks, interacting with the structure of the industry. The average industrial plot size per entrepreneur in the parks is around 6.1 acres, with a median of only 1.9 acres. Participants are small, likely without the financial resources to incentivize national agents and firms (officials or PMCs) to an extent that it would justify the risks that such national agents would face on a national scale (even if they were hypothetically susceptible). Even joining forces within a park, with 50 entrepreneurs per park on average, and the limit imposed of a 20% equity stake in the SPV, entrepreneurs would face a coordination issue – the maintenance of the secret – if attempting to defraud the scheme. Collusion would require a dozen of firms and officials to take significant risks in concert over a period of years, to misappropriate a relatively small grant.

So it may be that the mechanisms that limit subversion described earlier might not have worked in a less fragmented industry, or if larger firms had been involved, if parks were much larger, or if the grants available per park were more substantial. These might prove to be preconditions to replicating the model successfully in environments more conducive to informal bargains and subversion, or at least conditions that are strongly supportive of success in other cases. The high fragmentation of the textile sector in India means individual firms may have less influence on the government, and therefore less leverage for subversion of the scheme. This might not be true even in the same value chain, in input sectors such as Man-Made Fibers (MMF), which is almost duopolistic. It might also be of concern if the scheme is used for very large parks, whose SPVs might become locally dominant, particularly if the remainder of the local industry is undeveloped and unorganized and so lacks countervailing sources of voice.

## **VI. REMAINING PITFALLS AND THE CHALLENGE OF SCALING UP**

### *Reinforcing and sustaining cluster effects*

Despite the observations made in Section IV, there were many indications that cluster effects could be more actively strengthened and sustained. In some parks, entrepreneurs stated that they would like to pursue agglomeration effects further, but that liquidity pressures on the SPV had prevented them doing so. In other parks, some of the firms merely expressed interest, when prompted, in activities such as common purchasing.

Various schemes at both state and central levels are available to fund such activities in many cases, indicating that either a funding scheme is not an appropriate remedy, or those other schemes could be more effectively designed, perhaps learning from the SITP itself.

It could also be argued that, with firms already co-located, and receiving a grant, they should engage in these activities without subsidies, so that it is not clear what market failure remains in place. On the other hand, as mentioned earlier, it seems that the scheme design has been successful at creating strong cohesion between the entrepreneurs, by involving them from the (difficult) starting point of

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<sup>63</sup> The conclusion is not changed in the case where PMC roles are divided for advisory and execution, as the MoT-PMC will still be paid according to the grant disbursement milestones, and the SPV-PMC will be paid according to an SPV-determined schedule that would align with the SPV interest, which is also to complete the project.

park development, the identification and purchase of land. This is in contrast with other park programs where firms are called to fill in a park only after its completion, and therefore would be expected to have less sense of common belonging.

In other words, the means by which the scheme creates “hard” infrastructure also creates “soft”, in the form of a platform for the development of cluster effects. In that case, it may be that some form of limited support for demonstration effects may be an appropriate addition to SPV costs in SITP, but this would require further investigation.<sup>64</sup> It should also be investigated how certain design features, for example the format of monitoring reports, might divert efforts from developing such effects, though they have proven relatively effective at getting the common infrastructure built. An open question is to what extent the scheme will have the capacity to learn about and improve on such design features and their effects.

### *The prospects of expansion*

The relative success of the scheme has motivated its expansion, both in terms of adding new parks under SITP itself, as well as the model spreading to other sectors. Several other government entities and ministries, as well as some states, have now devised schemes that are highly similar to SITP. As mentioned above, the Department of Industrial Policy and Promotion (DIPP) already had a similar scheme, the Industrial Infrastructure Upgradation Scheme (IIUS) launched in 2003.

By definition it supports the upgrading of *existing* clusters, and did not initially require the involvement of a PMC or equivalent. IIUS was however modified in 2009 to add a “Project Management Agency” (PMA), engaged by DIPP to carry out the financial and technical appraisal of the projects, together with a requirement for entrepreneurs to “ensure that the project proposal is of highest quality and a consultancy organization of national repute is engaged for its preparation”. However it has had to rely on much more generous grant amounts and conditions to generate enough demand.<sup>65</sup>

Other sectors also now have similar schemes in various stages under their respective ministries: plastics under the Ministry of Fertilizers and Petroleum Products; the Mega Food Parks Schemes of the MoFP (replaces the more traditional FPS with an SITP-like scheme); leather under the Ministry of Commerce; engineering under the Ministry of Heavy Industries; and IT-Electronics with the recently launched Electronics Manufacturing Clusters (EMCs) of the Department of Electronics and Information Technology (DEITY). In such cases, it will be important that the relative roles, incentives and grant structures that work in the SITP are maintained and that the scheme is not pushed into sectors or contexts where its key features will no longer be effective. As noted above, this particularly relates to the industry structure, the capabilities of firms, and the size of the parks. We would, for example, be cautious about the prospects for “mega food parks”.

Given their importance, the capacity and incentives of the PMCs must also be kept in mind. For example, despite the competitive selection mechanism, PMCs might have weaker incentives to perform on each additional park they are awarded, once they each have “enough” parks to manage, i.e., such that losing access to new parks would lose some of its effectiveness in discipline. Moreover, if there are too few PMCs, their market might become oligopolistic. Neither risk appears likely at the moment, and in its inception the scheme only had one PMC, IL&FS, with few to no signs of non-performance by it while a monopoly. As such, the competition between PMCs, while important, may

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<sup>64</sup> Bloom, N., McKenzie, D. & al. (2012). Does management matter? Evidence from India. NBER Working Paper.

<sup>65</sup> The IIUS was typically offering grants worth 75% of project costs, subject to a ceiling of Rs. 50 crore. Further details are available from the authors on request.

be a lesser factor than other of the schemes' design features. The quality and robustness of PMC empanelment will be crucial to mitigate such risks.

In terms of their own capacity expansion to handle a larger volume of parks, IL&FS reported that they did not expect to face a shortage of adequate recruits, with the notable exception of "soft skills" requirements. At the ministry level, a fast and effective expansion of the scheme might also mean stretched capacities to monitor, despite the consolidating work of PMCs, and therefore a dilution of attention and ability to react to individual project difficulties. This may be mitigated by careful attention to the project pipeline, i.e., so that new waves of approvals are given only when earlier waves are nearing the completion of their construction. This appears, for example, to have been followed by the SITP.

### *The land issue*

In scaling up, both for SITP itself and for other parks, an issue outside the ambit of the scheme might be the availability and price of land, for the expansion of current parks and for building new parks. In existing parks, the price of land varied significantly across parks and across states. Considering the 32 IL&FS parks, prices range from an average of Rs. 1.7 lakhs per acre in Tamil Nadu to Rs. 1.3 crores (or Rs 130 lakhs) per acre for the park being built in West Bengal. Variations between parks within each state can also be quite significant, for example in Gujarat where prices ranged from Rs. 3.3 lakhs to Rs. 59.4 lakhs among the six parks built there.

Much of this variance might be attributed to the dynamics of industrial land markets in India in the last seven years, since the first parks were launched. Land in general has been rising rapidly in price, particularly land around any industrial area. In all the parks visited, surrounding land prices had increased by factors of more than 20 or 30 in the 5 to 6 years since the start of the projects, according to the entrepreneurs. This was a much larger increase than that of land prices in general in each state, and was a serious impediment to the expected future growth of the park. Many SPVs had to some extent anticipated the problem by buying typically twice the amount of land initially needed. This should be kept in mind when evaluating any industrial park program in India (SITP or not): land utilization may not be a good measure of whether a park has suffered a type (ii) failure. Exhibit 7 summarizes land prices and other land-related data, first according to the state, then according to the purchase process: private (with or without state assistance) or state.

On the other hand, despite increasing prices, entrepreneurs were confident that they could find land for new parks. This may again reflect the modest size of the parks. They were keen on roles (1) and (3) given to them in the scheme, i.e., having the flexibility to choose and negotiate park location and size according to their own price and viability criteria.<sup>66</sup>

Available data on existing parks is not conclusive on this issue, especially as land prices have sharply increased since the inception of the scheme. Price variability was lower in existing parks for land acquired through, or with support of, the local state authority, but the average price was not significantly lower (excluding one outlier), and average completion time was slightly higher. The highest expected completion time (9.1 years) is for the one park in Tamil Nadu where the state acquired the land for the park, in a state where otherwise completion time has been shorter than average. Similarly one of the two parks cancelled in the IL&FS sample also received state support, though the ratio of parks receiving some form of support for land is more around one third. However

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<sup>66</sup> Typically depending on the type of manufacturing activity considered: close to ports if export-oriented; close to raw materials if backward integration is most critical; close to the parent manufacturer for its ancillary/auxiliary activities etc.

the sample is too small to draw any firm conclusions: only 10 parks received state support, and those are spread over 5 states, with parks of variable size and structure (e.g. area per entrepreneur).

Some observations can still help in thinking about how to treat the land issue upon expanding the scheme. First, entrepreneurs interviewed systematically dismissed any interest in placing parks in SEZs, even when pressed on the potentially large fiscal gains and regulatory advantages. Some mentioned the requirement for exclusive export orientation as a constraint, but most suggested interference from the government (state or center) as the strongest impediment. In other words, given the controversy it causes, the more capable entrepreneurs seemed to prefer the government not be involved in land acquisition. Such acquisition would also raise the prospect of the scheme being accused of being a “land grab”, as occurred for SEZs, causing a public backlash. The MoT recently removed land purchase costs from project costs to calculate grants, to avoid financing soaring land prices and to put more pressure on entrepreneurs to negotiate these prices. This move does not appear to have prevented the excess demand for more parks mentioned above.

Second, early anecdotal evidence from the Ministry of MSMEs’ Cluster Development Program, targeted at Micro and Small Enterprises (hence its name MSE-CDP), tends to confirm the view that systematic state involvement in land acquisition causes multiple delays and cost increases. MSE-CDP is almost identical to SITP both in its grant design and in its role allocation, except that it makes the state responsible for the critical step of land location selection and involves it in acquisition. The result so far has been political exploitation of the land issue, with countless trials in process and rocketing costs, and a general slow-down because projects have to be processed through the whole state bureaucracy. When the state intervened for land acquisition in SITP, it was on an ad-hoc basis, and location selection (role 1) was still in the hands of the SPV, which likely means the SPV had already considered the local political economy of land acquisition.

We would note in closing that the position of the entrepreneurs within the SITP seems rather unique. In public discourse in India, and in individual and group discussions, there is a general clamor from the private sector for public support in acquiring land. Prior negative experiences seem slow to dampen this. It may be that the long history of public attempts to “help” textile SMEs, including the chronicle of earlier industrial park schemes, has led to firms in that sector being among the first to acknowledge that the interference that comes along with public acquisition is rarely worth the cost that is saved. This may be a mirror effect to the MoT’s own innovation as it developed the SITP.

## **CONCLUSIONS: LESSONS AND FURTHER RESEARCH**

Why do some industrial park programs result in operating parks, and many not? This paper has attempted to answer this by decomposing industrial park implementation into elementary steps and analyzing how role allocation among them interacts with the political economy. This was motivated by the examination of a Government of India scheme that introduced two key innovations: leadership left to entrepreneurs on all aspects of scheme implementation; and a shift by both government and its consultants from building parks and then inviting firms, to organizing and monitoring prospective firms, which then lead the building of the park themselves.

We found that not only these innovations, but how the design deployed them in the political economy, resulted in a relatively successful scheme, particularly in comparison to other industrial park programs in the same context. However, we found mixed evidence for avoiding type (iii) failures, i.e., for realizing “soft” cluster effects. Though our findings have been mostly anecdotal so far, there has been widespread agreement among SPV and IL&FS representatives alike that the key driver, or “root cause”, of current achievements has been the cohesion between the entrepreneurs themselves. Such

cohesion was frequently reported to stem from the “leadership” and “vision” of one of the entrepreneurs, but was likely reinforced by the capacity building efforts of the PMC<sup>67</sup>. Means to systematize these effects should be considered next, for example potentially through the addition of funding to already-built parks for initial demonstration effects in “soft” clustering.<sup>68</sup> However, programs to fund these types of “soft” capabilities are at least as prone to failure as industrial park programs, so the same innovation and care would need to go into any such addition.

It is important to note as well that the MoT already engaged early in an ongoing fine-tuning process of SITP, facilitated by the intermediation of PMCs, following feedback from the ground and analysis of early results. “Soft issues” have been part of the discussion, with for example prospects of including the salary of a professional manager of the SPV in project costs and of refining and intensifying capacity building exercises. In other words, the scheme shows early signs of building in the capacity to learn about itself. It remains to be seen if this will become a core feature of the scheme; whether the learning will increase, decrease or leave neutral the quality of scheme implementation and the generation of outcomes; and whether this learning will repeat regularly or be sporadic and largely ad-hoc.

However, as the scheme is scaled up, changes in the policy should be careful to preserve what has contributed to success so far. This includes avoiding the temptation of much larger parks, given the importance of the modest size of SITP parks. In this context, many mid-sized parks seem preferable to a few very large ones (or a multitude of too small ones). Similarly, we would exercise caution on having the government more involved in the acquisition of land for the parks.

Moreover, as the scheme spreads to other sectors, the design details will be crucial. For example, care must be taken that the industry structure and target firms (through the exact design parameters of the grants) are of the characteristics described in sections above. As importantly, the roles of location selection and park dimensioning should rest entirely or principally on the initiative and decision of the entrepreneurs, though at the outset catalyzed by the government or the PMC or both. If grants and parks are to be much larger than those in the SITP, the reasons for this should be carefully understood.

In time, though, as these schemes progress, comparisons of them to the SITP will yield a rich set of lessons. Perhaps the principal lesson so far is that role allocation is the most sensitive parameter of industrial policy design for effective implementation. These roles are more diverse than the labels “PPP” or similar would have us believe, and can be taken on by a wide variety of actors, whose incentives must be carefully understood in designing grant disbursement mechanisms. In other words, the manner in which the park program fits the political economy likely matters more to avoiding type (i) and (ii) failures than does sector selection, demand estimation by technical consultants, the payment structure for such consultants, or other areas that typically receive more attention.

This must be borne in mind when considering the possible replication of such a scheme, not only in other sectors in India, but in other countries. Such replication would be subject to an adaptation to the particular capacity and political economy conditions of each country. Variations such as industry structure might be relatively easy to measure, whether between sectors in the same country or between countries in the same sector.

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<sup>67</sup> As in most of our analysis, we extrapolate from our observations in IL&FS parks and our discussions with IL&FS representatives. We currently lack details on exactly how this capacity building effort is being conducted.

<sup>68</sup> Such capacity building exercises would likely be even more critical in the case of smaller entrepreneurs, such as those targeted by the MSE-CDP scheme mentioned earlier, as was confirmed by a state official deeply involved in the scheme

But the general political settlement, formal rules and institutions, and even more critically local *informal* rules would require a more in-depth analysis to assess their impact on the local political economy of scheme implementation. Political drive at the center might be different; institutions that can play the role of PMCs might be missing; entrepreneurship and the relationship of entrepreneurs with the local political environment might not be as developed; the entrepreneurs able to organize and build the parks might not yet exist; the scheme, if hastily combined with regulatory exemptions, might remove both the pressure for broader reform and the most effective advocates of it.

In all, the most important lesson from the SITP for policymakers elsewhere may then arise not from the specific features of the scheme itself, but from its demonstration that thinking in new and creative ways about who does what, and how, within a given political economy, can lead to policy innovations and relative successes in areas previously characterized by a long record of desultory performance.

## EXHIBITS

### Exhibit 1: List of 40 first parks and their basic characteristics

No	Project Name	PMC	State	Location	Project Cost	GOI's Grant	GOI Grant Released	No of firms	Land Area	Target Private Investment	Target Direct Jobs	Target Indirect jobs	Target Annual Production
					Rs. Crores	Rs. Crores	Rs. Crores		Acres	Rs. Crores			Rs. Crores
1	Hyderabad Hi-tech Weaving	IL&FS	AP	Mahboob Nagar	58.0	23.2	12.0	29	60	208.0	2 500	2 500	370
2	Hindupur Vyapar Apparel	IL&FS	AP	Ananthpur	102.3	40.0	24.0	2	73	265.5	10 500	22 000	340
3	Pochampally Handloom	IL&FS	AP	Pochampally	34.0	13.6	13.6	6	22	50.0	5 000	3 000	40
4	Brandix India Apparel City	IL&FS	AP	Vishakhapatna	134.4	40.0	40.0	17	1 000	4 878.0	60 000	90 000	7 000
5	MAS Fabric	IL&FS	AP	Nellore	254.7	40.0	12.0	16	582	1 982.0	31 000	15 000	2 500
6	Gujarat Eco Textile	IL&FS	GJ	Surat	128.8	40.0	40.0	33	104	705.0	8 000	17 000	850
7	Mundra SEZ Textile & Apparel	IL&FS	GJ	Kutch	103.5	40.0	40.0	11	116	775.0	3 077	4 500	800
8	Fairdeal	IL&FS	GJ	Surat	105.6	40.0	24.0	53	54	312.7	2 900	4 300	1 200
9	Vraj ITP	IL&FS	GJ	Kheda	114.8	40.0	36.0	21	70	550.0	6 250	12 500	617
10	Sayana ITP	IL&FS	GJ	Surat	116.8	40.0	36.0	50	57	298.6	3 155	4 733	1 312
11	Surat Super Yarn	IL&FS	GJ	Surat	104.8	40.0	36.0	27	43	230.6	1 000	2 000	1 250
12	RJD ITP	Magus	GJ	Surat	106.5	40.0	36.0	579	56	352.7	4 270	6 405	598
13	Metro Hi-Tech Cooperative	IL&FS	MH	Ichalkaranji	106.5	40.0	36.0	86	99	335.0	5 000	5 000	212
14	Pride india cooperative	IL&FS	MH	Ichalkaranji	58.2	23.3	21.0	85	27	203.0	1 500	2 500	300
15	Baramati Hi Tech	IL&FS	MH	Baramati	108.5	40.0	34.8	22	60	250.0	5 500	6 000	380
16	Shri Dhairyashil Mane Co-op Society	IL&FS	MH	Ichalkaranji	72.3	28.9	8.7	167	65	376.6	3 300	5 000	370
17	Deesan Infrastructure	Magus	MH	Dhul	103.1	40.0	12.0	50	106	721.7	4 410	6 615	2 135
18	Asmeeta Infrastructure	Magus	MH	Bhawandi	200.8	40.0	4.0	65	73	673.2	7 634	11 451	1 046
19	Islampur Integrated	Technopak	MH	Sangl	102.1	40.0	40.0	12	35	334.3	10 000	0	904
20	Latur Integrated	Technopak	MH	Latur	102.6	40.0	40.0	20	50	257.4	10 000	0	617



21	Purna Global	IL&FS	MH	Hingoli	91.8	36.7	22.0	41	55	205.0	1 100	550	200
22	The Great Indian Linen & Textile	IL&FS	TN	Perundurai	149.5	40.0	12.0	20	121	418.1	5 000	7 500	520
23	SIMA Processing Centre	IL&FS	TN	Cuddalore	111.6	40.0	12.0	10	248	475.0	5 000	15 000	500
24	Palladam Hi-Tech Weaving	IL&FS	TN	Palladam	55.4	22.2	22.2	90	65	161.3	2 500	3 500	300
25	Komarapalayam Hi-Tech Weaving	IL&FS	TN	Komarapalayam	34.8	13.9	12.5	57	31	125.7	1 500	1 500	350
26	Karur ITP	IL&FS	TN	Karur	116.1	40.0	40.0	42	104	227.0	3 000	4 000	623
27	Madurai ITP	IL&FS	TN	Madurai	87.3	34.9	31.4	15	110	409.8	3 000	4 000	900
28	Vaigai Hi-Tech Weaving	C.S. Architects	TN	Vaigai, Theni	65.1	24.0	2.4	90	41	145.2	6 080	0	361
29	Kanchipuram AACM Handloom Silk	C.S. Architects	TN	Kanchipuram	87.0	33.5	0.0	115	75	119.9	18 000	0	118
30	Jaipur Texweaving	IL&FS	RJ	Kishangarh	96.8	38.7	23.2	51	95	250.0	3 000	9 000	550
31	Kishangarh Hi-Tech Textile	IL&FS	RJ	Kishangarh	110.6	40.0	36.0	37	40	416.7	4 000	8 000	800
32	Next Gen Textile	IL&FS	RJ	Pali	101.4	40.0	24.0	53	100	416.2	9 450	10 000	1 050
33	Jaipur Integrated Texcraft	IL&FS	RJ	Jaipur	53.5	21.4	19.3	20	23	45.9	4 400	8 800	90
34	Bharat Fabtex & Corporate	SREI	RJ	Pali	103.1	40.0	4.0	27	120	416.5	9 450	0	922
35	Lotus Integrated Tex	IL&FS	PB	Barnala	110.3	40.0	36.0	8	100	847.7	2 400	2 950	1 740
36	Rhythm Textile & Apparel	IL&FS	PB	Nawanshehar	125.5	40.0	24.0	14	19	339.8	11 000	14 000	350
37	Ludhiana ITP	IL&FS	PB	Ludhiana	116.2	40.0	24.0	55	57	217.0	10 000	10 000	500
38	EIGMEF Apparel	IL&FS	WB	Kolkata	130.5	40.0	24.0	73	13	160.0	10 000	30 000	500
39	Doddabalapur ITP	IL&FS	KA	Doddabalapur	80.3	32.1	32.1	72	48	132.7	2 000	2 000	350
40	CLC ITP	IL&FS	MP	Chhindwara	95.7	38.3	11.5	20	47	301.7	2 000	1 000	400

## Exhibit 2: Park completion time statistics and graphs (IL&FS parks only)

### Completion time statistics by state

States	No of Parks	Average Grant Released	Average area/ entrepreneur	Average project cost	Average estimated completion time	Min	Max	Cancel
Units		%	Acres	Rs crore	Years	Yrs	Yrs	%
AP	5	68%	27.5	117	5.9	4.0	8.0	20%
GJ	6	93%	3.5	112	5.8	4.6	7.0	0%
KA	1	100%	0.7	80	5.9	5.9	5.9	0%
MH	5	71%	1.2	87	7.0	6.1	7.6	20%
MP	1	30%	2.4	96	6.0	6.0	6.0	0%
PB	3	70%	5.0	117	6.0	5.5	6.3	0%
RJ	4	75%	1.5	91	7.0	5.1	8.6	0%
TN	6	73%	7.0	92	6.7	3.9	9.1	0%
WB	1	60%	0.2	131	8.0	8.0	8.0	0%
<b>Total</b>	<b>32</b>	<b>75%</b>	<b>7.2</b>	<b>102</b>	<b>6.4</b>	<b>3.9</b>	<b>9.1</b>	<b>6%</b>

### Completion time statistics by park (30 total, 2 cancelled not included here)

Park Name	Grant released	Land Area	Area/ entrepreneur	Project Cost	Estimated Compl Time
Units	%	Acres	Acres	Rs. crore	Years
Baramati Hi Tech Textile	87%	60	2.7	109	7.0
Brandix India Apparel City	100%	1 000	58.8	134	4.0
CLC Textiile	30%	47	2.4	96	6.0
Doddabalapur Integerated Textile	100%	48	0.7	80	5.9
EIGMEF Apparel	60%	13	0.2	131	8.0
Fairdeal Textile	90%	54	1.0	106	5.8
Gujarat Eco Textile	100%	104	3.2	129	4.6
Hindupur Vyapar Apparel	60%	73	36.6	102	8.0
Jaipur Integrated Texcraft	90%	23	1.2	54	5.1
Jaipur Texweaving	60%	95	1.9	97	8.6
Karur Integrated Textile	100%	104	2.5	116	3.9
Kishangarh Hi-Tech Textile	90%	40	1.1	111	7.0
Komarapalayam Hi-Tech Weaving.	90%	31	0.5	35	7.0
Lotus Integrated Tex	90%	100	12.5	110	6.3
Ludhiana Integrated Textile	60%	57	1.0	116	5.5
Madurai Integrated Textile	90%	110	7.3	87	6.3

MAS Fabric (India	30%	582	36.4	255	6.8
Metro Hi-Tech Cooperative	90%	99	1.2	107	7.6
Mundra SEZ Textile & Apparel	100%	116	10.6	104	5.1
Next Gen Textile	60%	100	1.9	101	7.3
Palladam Hi-Tech Weaving	100%	65	0.7	55	4.7
Pochampally Handloom	100%	22	3.7	34	4.7
Pride india cooperative Textile	90%	27	0.3	58	7.4
Purna Global Textiles	60%	55	1.3	92	6.1
Rhythm Textile & Apparel	60%	19	1.3	125	6.1
Sayana Textile	90%	57	1.1	117	5.3
SIMA Textile Processing Centre	30%	248	24.8	112	9.1
Surat Super Yarn	90%	43	1.6	105	7.0
The Great Indian Linen & Textile Infrastructure Company	30%	121	6.1	149	8.9
Vraj Integrated Textile	90%	70	3.3	115	7.0
<b>Average</b>	<b>77%</b>	<b>119</b>	<b>7.6</b>	<b>105</b>	<b>6.4</b>

### Correlations with estimated completion times

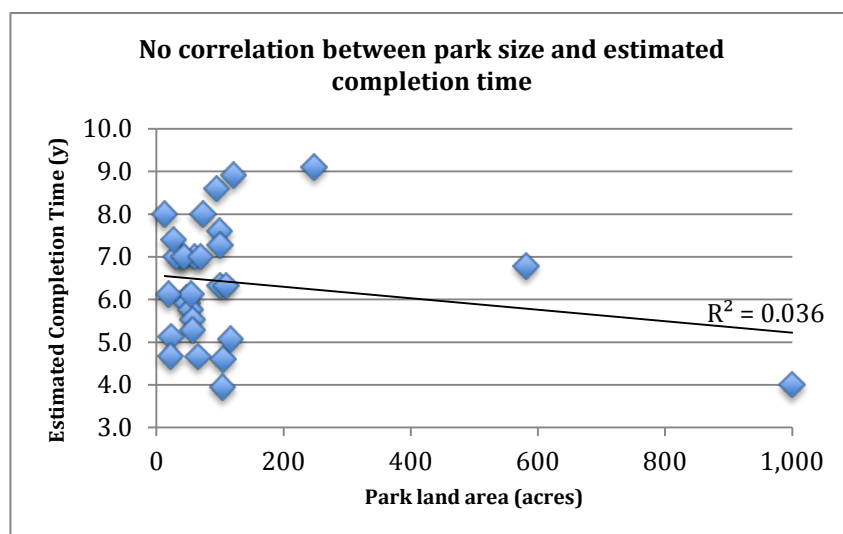


Figure Ia

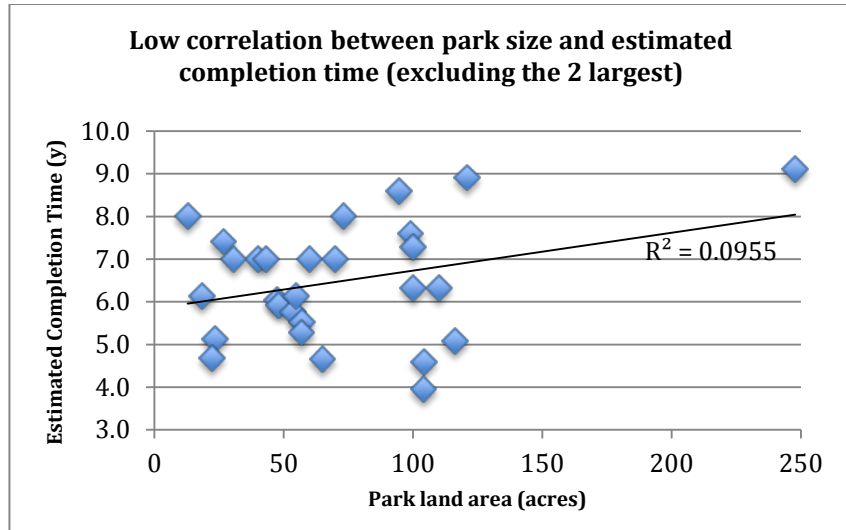


Figure Ib

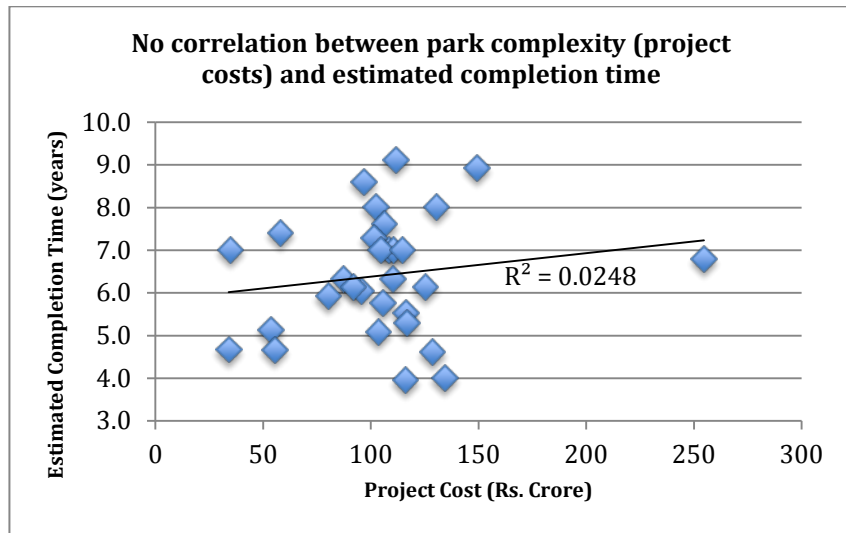


Figure IIa

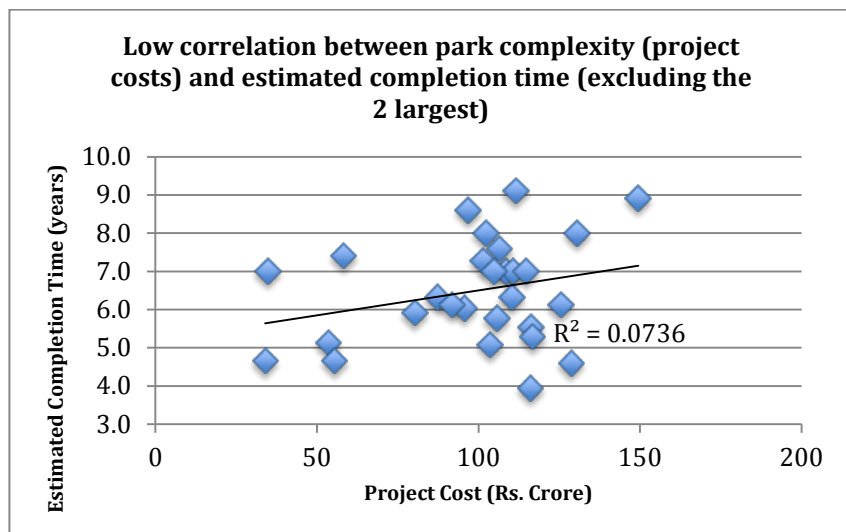


Figure IIb

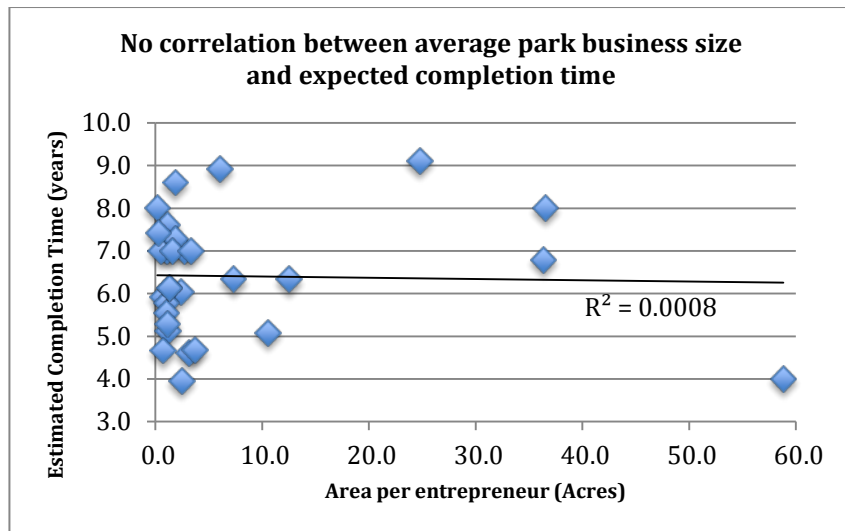


Figure IIIa

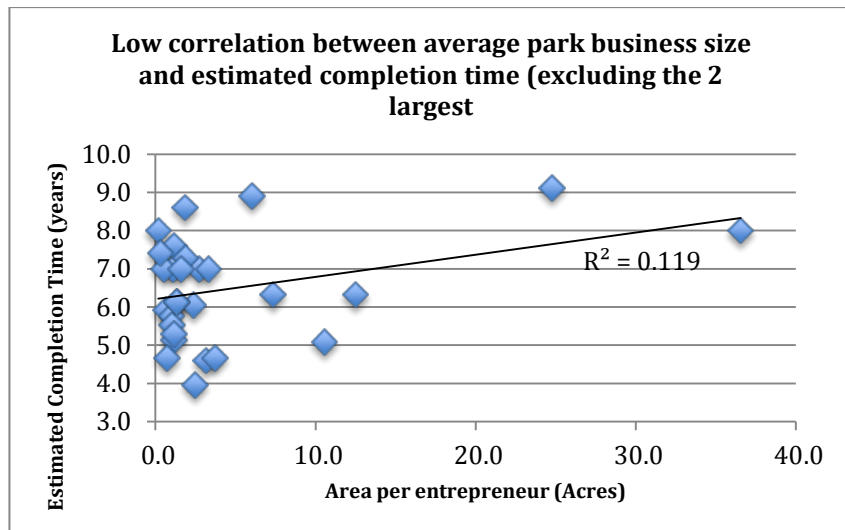


Figure IIIb

### Exhibit 3: Comparisons between SITP and SEZ Act implementation

Metric	SEZ Act	SITP
Official Start Date	February 2006	July 2005
Number of projects formally approved by end 2011	580	40
Number of projects notified by end 2011	380	36
Conversion ratio 1: notified/approved	66%	90%
Operational projects by end 2011	124	24
Conversion ratio 2: operational/approved	21%	60%
Of which non-IT	44	24

#### Notes

Formally approved means, for SEZs, having put in an application - the same definition is used for SITP

Notified means having secured necessary land and being ready to start building - the same definition is used for SITP

Operational means being at least in the first stage of production - the same definition is used for SITP

#### Sources

[http://www.sezindia.nic.in/writereaddata/pdf/List\\_of322notifiedSEZsunderSEZAct2005as19.6.09-masterlist.pdf](http://www.sezindia.nic.in/writereaddata/pdf/List_of322notifiedSEZsunderSEZAct2005as19.6.09-masterlist.pdf)

World Bank (2012), "Learning from SEZs in India", Unpublished

#### Exhibit 4: Investment statistics for IL&FS SITP parks

Investment statistics by state (average numbers, including all 32 parks)

States Units	No of Parks	Area /unit Acres	Project cost Rs crores	Target investment Rs crores	Grant Released %	Investment achieved %	Target investment /grant ratio	Current investment /grant ratio
AP	5	27.5	117	1477	68%	25%	38.2	4.7
GJ	6	3.5	112	479	93%	43%	12.0	5.8
KA	1	0.7	80	133	100%	121%	4.1	5.0
MH	5	1.2	87	274	71%	36%	8.4	3.4
MP	1	2.4	96	302	30%	5%	7.9	1.4
PB	3	5.0	117	468	70%	24%	11.7	4.0
RJ	4	1.5	91	282	75%	40%	7.4	2.6
TN	6	7.0	92	303	73%	33%	9.3	3.0
WB	1	0.2	131	160	60%	25%	4.0	1.7
<b>Total</b>	<b>32</b>	<b>7.2</b>	<b>102</b>	<b>518</b>	<b>75%</b>	<b>36%</b>	<b>13.8</b>	<b>3.9</b>

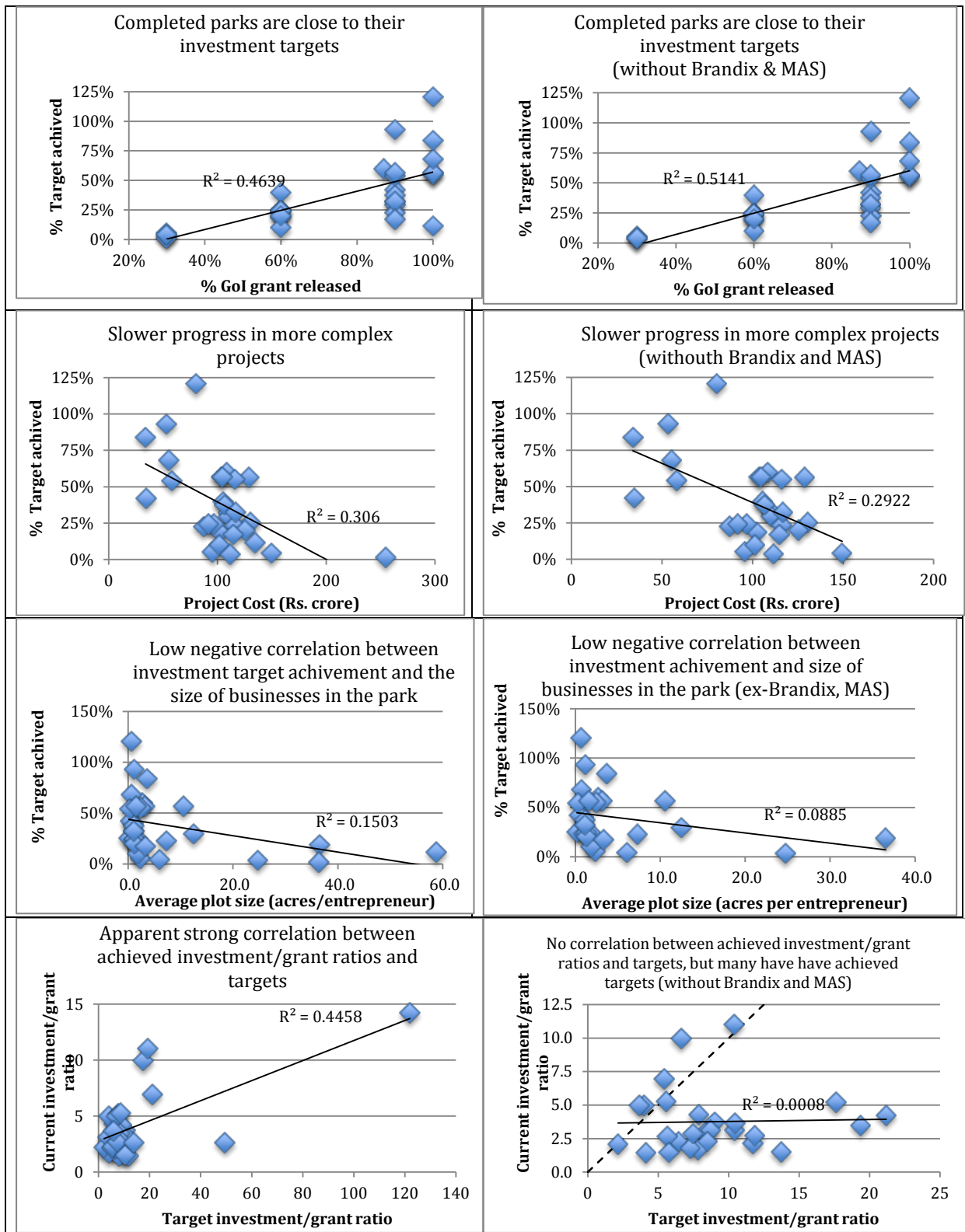
Investment statistics by park (removing the 2 cancelled parks)

Park Name Units	Area /unit Acres	Project cost Rs crores	Target investment Rs crores	Grant Released %	Investment achieved %	Target investment /grant ratio	Current investment /grant ratio
Baramati Hi Tech Textile	2.7	109	250	87%	60%	6.3	4.3
Brandix India Apparel City	58.8	134	4 878	100%	12%	122.0	14.2
CLC Textile	2.4	96	302	30%	5%	7.9	1.4
Doddabalapur Integerated Textile	0.7	80	133	100%	121%	4.1	5.0
EIGMEF Apparel	0.2	131	160	60%	25%	4.0	1.7
Fairdeal Textile	1.0	106	313	90%	40%	7.8	5.2
Gujarat Eco Textile	3.2	129	705	100%	56%	17.6	10.0
Hindupur Vyapar Apparel	36.6	102	265	60%	19%	6.6	2.1
Jaipur Integrated Texcraft	1.2	54	46	90%	93%	2.1	2.2
Jaipur Texweaving	1.9	97	250	60%	24%	6.5	2.6
Karur Integrated Textile	2.5	116	227	100%	55%	5.7	3.1
Kishangarh Hi-Tech Textile	1.1	111	417	90%	32%	10.4	3.7
Komarapalayam Hi- Tech Weaving.	0.5	35	126	90%	42%	9.0	4.2
Lotus Integrated Tex	12.5	110	848	90%	29%	21.2	6.9
Ludhiana Integrated Textile	1.0	116	217	60%	24%	5.4	2.1
Madurai Integrated Textile	7.3	87	410	90%	23%	11.7	3.0
MAS Fabric India	36.4	255	1 982	30%	2%	49.6	2.6

Metro Hi-Tech Cooperative	1.2	107	335	90%	37%	8.4	3.5
Mundra SEZ Textile & Apparel	10.6	104	775	100%	57%	19.4	11.0
Next Gen Textile	1.9	101	416	60%	10%	10.4	1.8
Palladam Hi-Tech Weaving	0.7	55	161	100%	68%	7.3	5.0
Pochampally Handloom	3.7	34	50	100%	84%	3.7	3.1
Pride india cooperative Textile	0.3	58	203	90%	54%	8.7	5.3
Purna Global Textiles	1.3	92	205	60%	24%	5.6	2.3
Rhythm Textile & Apparel	1.3	125	340	60%	20%	8.5	2.9
Sayana Textile	1.1	117	299	90%	32%	7.5	2.7
SIMA Textile Processing Centre	24.8	112	475	30%	4%	11.9	1.5
Surat Super Yarn	1.6	105	231	90%	57%	5.8	3.6
The Great Indian Linen & Textile Infrastructure Company	6.1	149	418	30%	4%	10.5	1.5
Vraj Integrated Textile	3.3	115	550	90%	17%	13.8	2.6
<b>Average</b>	<b>7.6</b>	<b>105</b>	<b>533</b>	<b>77%</b>	<b>38%</b>	<b>14.0</b>	<b>4.0</b>



### Exhibit 5: Scatter plots of investment target achievement



**Exhibit 6: Jobs, production and efficiency statistics (average numbers, IL&FS parks)**

States	No of Parks	Target Annual Production	Target Direct Jobs	Target Production /Job ratio	Current direct jobs (Feb12)	Target grant /job ratio	Current grant /job ratio
Units		Rs. Crore		Rs. Lakhs		Rs. Lakhs	Rs. Lakhs
AP	5	10 250	109 000	8	23 700	0.2	5.0
GJ	6	6 029	24 382	42	2 840	1.5	11.5
KA	1	350	2 000	18	250	1.6	12.8
MH	5	1 462	16 400	12	7 280	1.6	3.4
MP	1	400	2 000	20	0	1.9	N/A
PB	3	2 590	23 400	27	1 137	0.8	10.6
RJ	4	2 490	20 850	13	1 150	0.8	10.1
TN	6	3 193	20 000	18	5 420	1.0	2.1
WB	1	500	10 000	5	0	0.4	N/A
<b>Total</b>	<b>32</b>	<b>27 264</b>	<b>228 032</b>	<b>20</b>	<b>41 777</b>	<b>1.1</b>	<b>7.4</b>

## Exhibit 7: Land statistics by state and by purchase type (IL&FS parks)

*Land statistics by state (average numbers, 32 IL&FS parks)*

State/acquisition process Units	No of Parks	Land Area Acres	Area /unit Acres	Project Cost /acre Rs. Crore	Land cost /acre Rs. Lakhs	Min cost/acre Rs. Lakhs	Max Land cost/acre Rs. Lakhs
AP	5	347	27.5	0.9	2.8	0.0	5.4
Private	4	184	19.7	1.1	3.4	1.5	5.4
State	1	1000	58.8	0.1	0.0	0.0	0.0
GJ	6	74	3.5	1.7	21.0	3.3	59.4
Private	6	74	3.5	1.7	21.0	3.3	59.4
KA	1	48	0.7	1.7	32.7	32.7	32.7
State	1	48	0.7	1.7	32.7	32.7	32.7
MH	5	61	1.2	1.6	4.9	1.6	8.0
Private	1	55	1.3	1.7	1.6	1.6	1.6
State	4	63	1.1	1.5	5.8	4.1	8.0
MP	1	47	2.4	2.0	2.7	2.7	2.7
Private	1	47	2.4	2.0	2.7	2.7	2.7
PB	3	59	5.0	3.3	35.1	21.0	54.7
Private	3	59	5.0	3.3	35.1	21.0	54.7
RJ	4	64	1.5	1.8	11.1	0.7	36.3
Private	1	100	1.9	1.0	0.7	0.7	0.7
State	3	53	1.4	2.0	14.6	3.5	36.3
TN	6	113	7.0	0.9	1.7	0.5	3.5
Private	5	86	3.4	1.0	1.3	0.5	1.9
State	1	248	24.8	0.5	3.5	3.5	3.5
WB	1	13	0.2	10.1	125.8	125.8	125.8
Private	1	13	0.2	10.1	125.8	125.8	125.8
<b>Grand Total</b>	<b>32</b>	<b>116</b>	<b>7.2</b>	<b>1.8</b>	<b>15.2</b>	<b>0.0</b>	<b>125.8</b>

*Land statistics by purchase type: private (with or without state support), or state acquired*

Acquisition process/IDC Units	No of Parks	Land Area Acres	Area /unit Acres	Project Cost /acre Rs. Crore	Land cost /acre Rs. Lakhs	Min cost/acre Rs. Lakhs	Max Land cost/acre Rs. Lakhs	Estimated Completion Time Years
Private	22	91	6.2	2.0	17.4	0.5	125.8	6.2
APIIC, AP	1	582	36.4	0.4	1.5	1.5	1.5	6.8
(blank)	21	68	4.8	2.1	18.1	0.5	125.8	6.2
State	10	170	9.3	1.5	10.3	0.0	36.3	6.9
APIIC, AP	1	1000	58.8	0.1	0.0	0.0	0.0	4.0
KIADB, KA	1	48	0.7	1.7	32.7	32.7	32.7	5.9
MIDC, MH	4	63	1.1	1.5	5.8	4.1	8.0	7.3
RIICO, RJ	3	53	1.4	2.0	14.6	3.5	36.3	6.9
SIPCOT, TN	1	248	24.8	0.5	3.5	3.5	3.5	9.1
<b>Grand Total</b>	<b>32</b>	<b>116</b>	<b>7.2</b>	<b>1.8</b>	<b>15.2</b>	<b>0.0</b>	<b>125.8</b>	<b>6.4</b>