

A Strategic Network of Research Parks

Promoting innovations and entrepreneurs towards low carbon goods and services

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Universities and their Role in Economic Development

- ❖ Old models of economic development no longer sufficient
- ❖ Huge growth in R&D outsourcing by industry
- ❖ > 1/2 of US economic growth from innovation industries that barely existed a decade ago*
- ❖ 3/4 of new jobs are found in entrepreneurial companies fueled by innovation – many from universities

“America’s research universities have become the engine of the nation’s prosperity. They are the key to the fate of the global economy in the 21st century.”

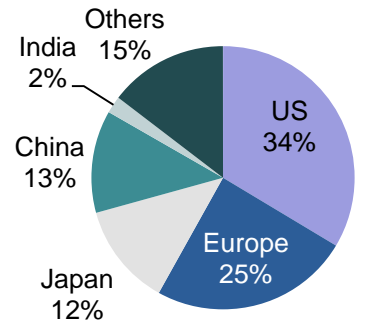
- Jonathan Cole, *The Economist*, 2010

*Source: The Economist, April 2001

R&D Spend linked to Innovation

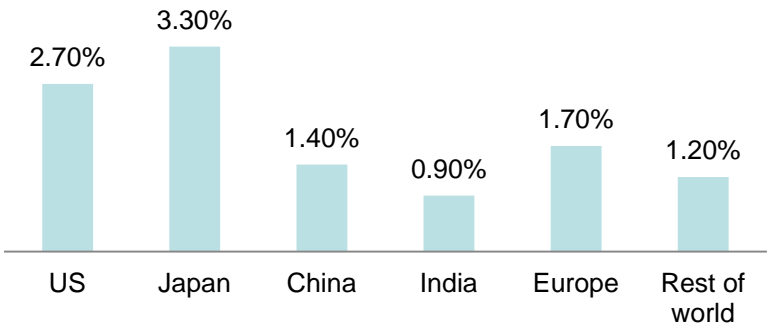
- ❖ The phrase Research and Development (R&D), according to the Organization for Economic Co-operation and Development (OECD), refers to "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications"
- ❖ The pace of technological progress is directly proportional to the efforts on R&D
- ❖ The expenditure levels on R&D could therefore act as reliable indicators of innovative capacity. R&D is the basic constituent of promoting innovation
- ❖ Major World Economies invest into R&D as a tool in Nation Building

Share of individual economies of total global R&D spend of \$1143 billion



Gross Expenditure on Research and Development (GERD) is a parameter for computing Human Development Index

R&D Spending as % of GDP

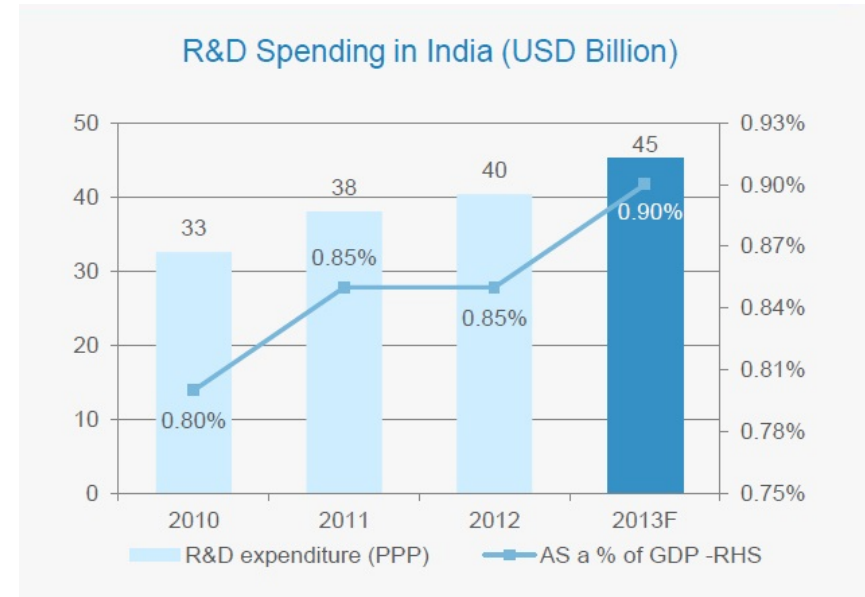


Investment into R&D as a percentage of GDP is a norm for assessment of development indices of nation

Source: [Indian President's Speech](#), December 2012

Indian Scenario

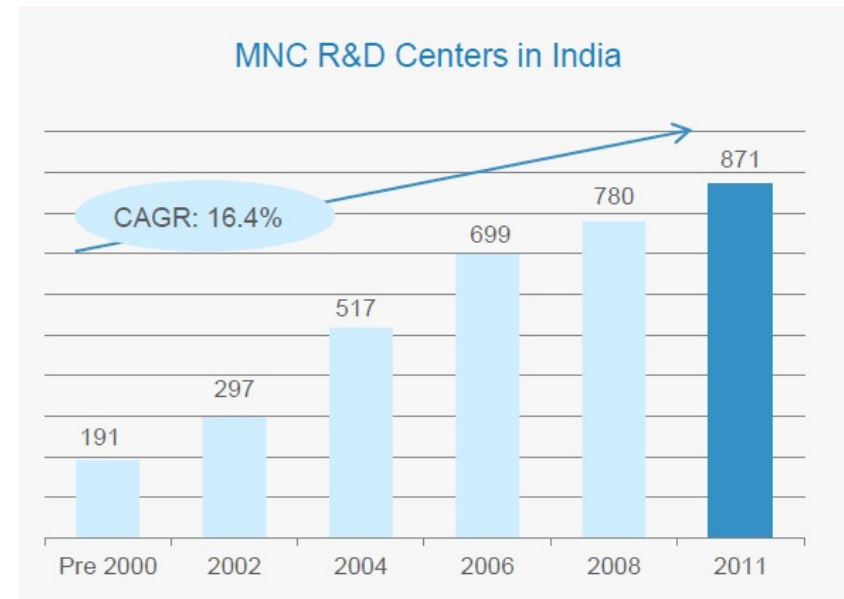
- ❖ India's share of global R&D spending rose to 2.8 per cent in 2012 from 2.6 per cent in 2010 and is forecasted to reach 3.0 per cent by 2013
- ❖ Majority (about 75%) of the R&D spending in India is from the public sector
- ❖ The Planning Commission of India expects to double the government's R&D spending from the current 0.9 per cent of GDP to 2 per cent by 2017
 - Of which Indian industry is expected to contribute about 50 per cent of the increase in R&D spending
- ❖ Due to a strong technological knowledge and skill-base India can leap forward through innovation in several critical areas.
- ❖ India is also a vast storehouse of indigenous knowledge and appropriate technology innovations.



Source: Battelle, Aranca Research
Notes: F - Forecast

India is fast emerging as a global R&D hub

- ❖ The number of MNC R&D centers in India has grown at a CAGR of 16.4 per cent to 871
- ❖ Around 30 per cent of the top 1,000 global R&D spending organisations have centers in India
- ❖ Most of the centers are located in metro cities – Bengaluru, Delhi, Mumbai, Chennai and Hyderabad.
- ❖ MNCs have begun spreading out to tier-2 cities after 2005 India's robust talent pool of over 200,000 engineers has grown at an average rate of 9 per cent over the last five years; this has been supporting increased R&D activity
- ❖ Innovation is traditionally driven by Indian entrepreneurship
- ❖ However, Partnerships among academic and public funded research and private sector-led manufacturing have been weak.



Source: Zinnov Consulting, The Indian R&D Landscape, 2012
Notes: CAGR - Compound Annual Growth Rate,

India: Efforts by IITs and IISc

In India, the Research Park is relatively recent phenomenon with limited success

IISc

- SID: Society for Innovations and Development

IIT Bombay

- SINE: Society for Innovations and Entrepreneurship

IIT Delhi

- FITT: Foundation for Innovation and Technology Transfer

IIT Kanpur

- SIIC: SIDBI innovation and incubation centre

IIT Kharagpur

- STEP: Science and Technology Entrepreneurs' Park

IIT Madras

- IITM Research Park

These Parks are not governed under an Umbrella Theme that leads to focused research & innovation and at the same time lead wider outcomes aligned with national goals

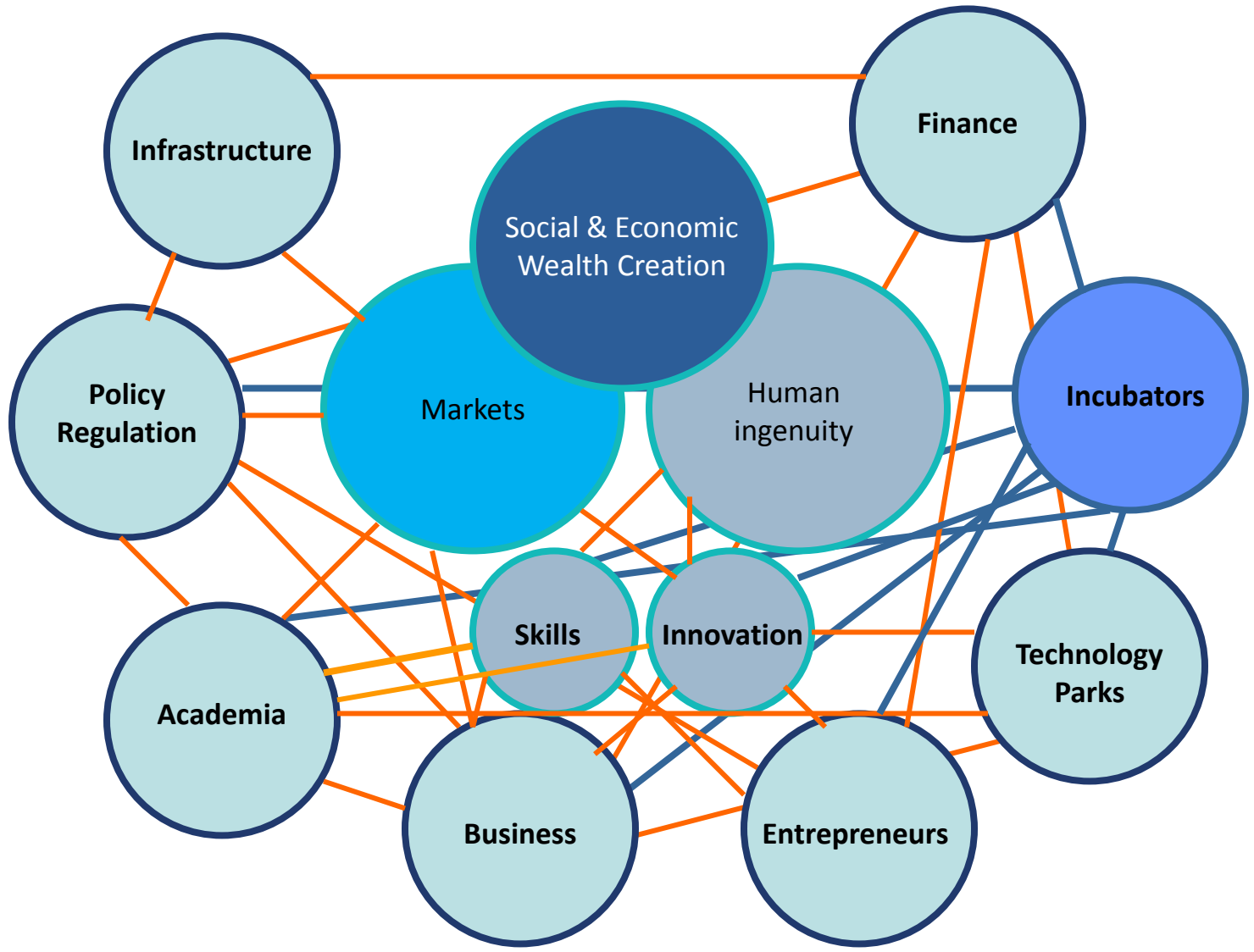
Climate Change as an Umbrella Theme

- ❖ Climate change is proposed to be an umbrella framework for the Research Park to set the focus and at the same time provide opportunities for multifarious collaborations between partners and align with the national agenda.
- ❖ The World Bank under its development gateway & innovation program is currently supporting Climate Innovation Centres in developing countries. An outline business plan to this effect has been prepared (see http://infodev.org/infodev-files/resource/InfodevDocuments_1009.pdf) that indicates financial support from donors such as the World Bank and UK DFID.
- ❖ Accordingly, a Climate Innovation Centre is envisaged at the proposed Park, with the focus on water, waste, energy, ICT, built environment and food
- ❖ This spread of themes has an advantage of flexibility while anchored with the national agenda of combating climate change as well as sustainable development.
- ❖ Additionally, off set funds from Ministry of Defence (MoD) could also be looked into, as a source of finance as the emphasis here is on transfer of clean technology across the sub-themes cited above,

Low Carbon Goods & Services

- ❖ Government of India has made a plan with the help of high level working group on Low Carbon Goods and Services
- ❖ Industry associations like Confederation of Indian Industry (CII) have prepared industry specific action plans to move India to low carbon economy
- ❖ CII and Boston Consulting Group (BCG) prepared a strategic paper on Green Manufacturing that focuses on Low Carbon related innovations
- ❖ Product and service oriented approach gives advantage of integration and provides solutions that could be taken up for up scaling, replication and commercialization
- ❖ To achieve this objective, an ecosystem based approach will be most appropriate

Need for *Eco-System* based approach



Source: Presentation database on [IICPSD](#), Istanbul

Relevance of Research Parks

- ❖ An effective R&D strategy for climate change would require combining government financing, social responsibility and public accountability of the public sector, with the finance, technology, managerial efficiency and entrepreneurial spirit of the private sector.
- ❖ We need Disruptive Innovative Solutions to sustainably meet the growing demand along the emerging themes
- ❖ Academic and public funded research systems and private sector-led manufacturing need to be better linked
- ❖ University research is a key component of a nation's capacity for innovation. Increasingly, research at universities are being seen as sources of innovation that can drive economic development, as opposed to institutions created exclusively for scientific discovery and teaching. MHRD has expressed support for 50 Research parks

Relevance of Research Parks

- ❖ encourage greater collaboration among universities, research institutes, laboratories, and small to large businesses,
- ❖ provide a means to help convert new ideas into innovative technologies for the market
- ❖ recognised as a proven tool to incubate new companies, enable them for up scaling and attract entrepreneurs for replication

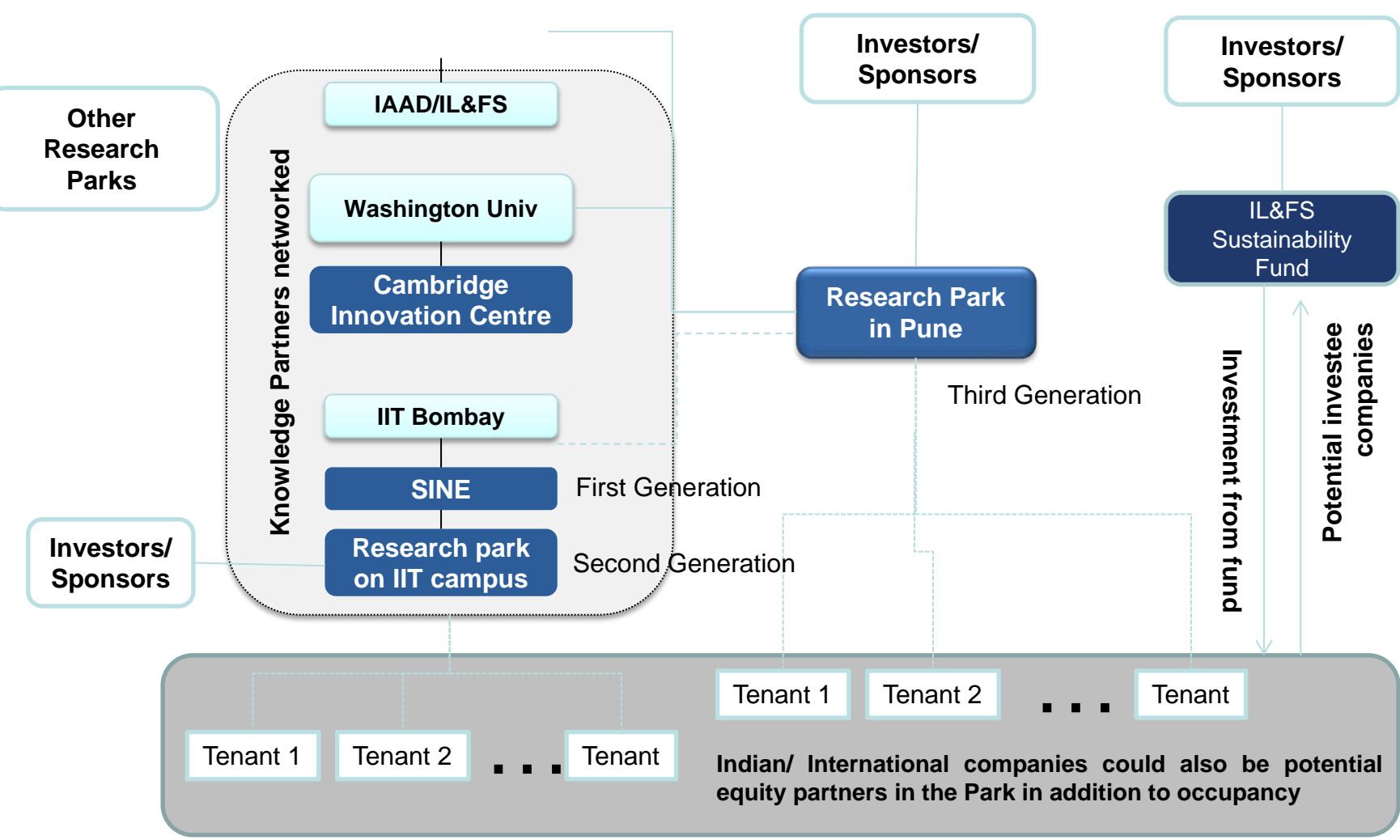
Proposition – Research Park in Pune, India

Vision

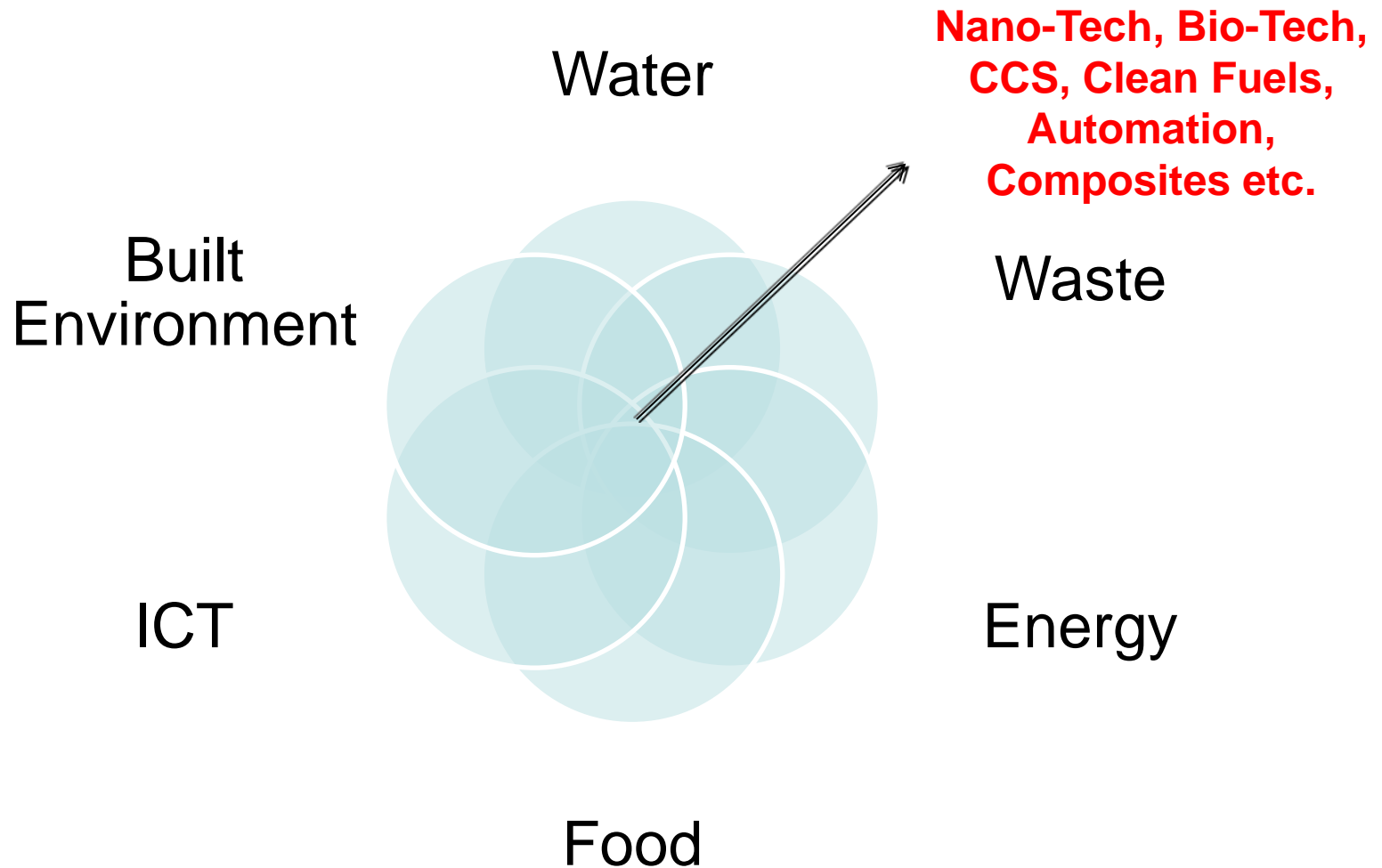
“ To bring together industry and academia and achieve critical mass of both human and infrastructure resources following the international trend of establishing high end Research & Development Technology parks “

- ❖ IIT Bombay is planning to set up a Research Park of about 2 million sq. ft. built up area (185,806 sq. meters) at an identified location on their campus in Mumbai, in addition to its existing incubation Centre called SINE
- ❖ IL&FS is proposing to set up a larger scale Research Park over 25 acres (10 hectares) near the city of Pune that is around 3 hours drive from IIT Bombay Campus in India
- ❖ This Park could potentially provide opportunities for third generation of incubatees of SINE or to second generation incubatees of the proposed Research Park at IITB
- ❖ Washington University at St. Louis (WUSTL) is also setting up a Research Park in US that will be an extension of the Cambridge Innovation Center (CIC)
- ❖ WUSTL, IIT Bombay and IL&FS are already partners on general cooperation on Technology, Knowledge sharing and Practice education (agreed by signing MoU) and will lead this initiative together

Proposed Collaborative Approach



Key Sub-themes and Areas of High Tech Research



Research across sub-themes to encourage innovations towards low carbon goods and services

Next steps

- Form a Working Group
- Develop a White Paper on the Network of Research Parks centered around the theme of Low Carbon Goods and Services
- Acquire Funding to support preparation of Detailed Feasibility Report with a Business Plan
- Conduct a workshop with Existing Research Parks in India involving relevant Ministries
- Hold meetings with potential Park occupiers, investors and supporters. Get the commitments
- Visit Research parks overseas to garner experience
- Arrive at the institutional structure, governance and establish the linkages
- Prepare detailed feasibility report and the business plan for presentation at the next Corporate Conclave (April, 2014)



IL&FS Overview

An Introduction: IL&FS Eco & value System

Earliest Infrastructure Developers

- ❖ Formed in 1988
- ❖ Initial participants were Indian Banks and Institutions
 - ❖ Central Bank of India, Housing Finance Development Corporation, Unit Trust of India
- ❖ International and Domestic Institutional Investors inducted over the years
 - ❖ ORIX Corporation (Japan), Abu Dhabi Investment Authority, LIC of India, State Bank of India
 - ❖ Earlier stakeholders include : IFC, Govt. of Singapore, HSBC

Unique Positioning

- ❖ Multiplicity of roles : As sponsor, developer, advisor, and financier
- ❖ Promoted over 50 sector dedicated Special Purpose Vehicle companies
- ❖ Developing infrastructure projects worth over US\$25 billion
- ❖ In-house capabilities to take projects from 'concept' to 'commissioning'

Pioneering Development Role Play

- ❖ Promoted India's first private sector toll road and water supply project
- ❖ Sponsored India's first infrastructure focused PE fund with AIG
- ❖ Early entrants in niche growth areas like waste management, renewable energy, education with a strong social orientation

Strong Partnerships

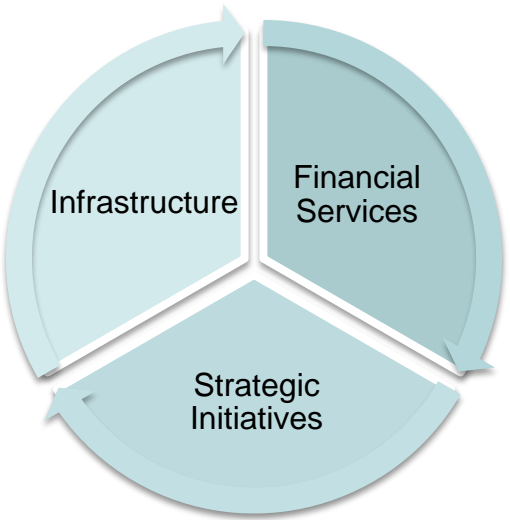
- ❖ Established a consortium of financing partners
 - ❖ Consortium of over 35 PSU and non-PSU Banks
 - ❖ Borrower relationships with the WB Group, ADB, KfW, etc
- ❖ Robust initiatives with Government (RIDCOR, GIFT, JV with NSDC, etc)
- ❖ Strong partnerships with PSU and Corporates (Mangalore SEZ with ONGC, etc)

Present Across Infrastructure Value Chain : Sector Platforms

From concept to commissioning, IL&FS houses the expertise to provide a complete array of services necessary for successful project completion: feasibility studies, documentation, finance, development, management, technology, execution, and exit

●	IEDCL	Power
●	ITNL	Roads
●	IMICL	Maritime
●	IETS	Education
●	IIDC	PPP Advisory
●	IWL	Water
●	IEISL	Waste Management and Environmental Services

●	IFIN	Financial Services
●	IIML	Private Equity
●	ITCL	Trusteeship
●	ISSL	Capital Markets



US\$1.8 bn assets ●
 US\$3.2 bn AUM ●
 Largest independent provider of trusteeship services ●

- ~14GW generation capacity
- 12,000 lane km road assets
- Associated with US\$4 bn maritime assets
- Over 1 mn trainees/students targeted
- Bidding for projects of ~US\$800 mn

Model Economic Township (METCO) : Haryana SEZ JV with Reliance Industries Ltd	6,600 acres multi-product SEZ
Gujarat International Finance Tec-City (GIFT)	62 mn sq. ft. international finance city

Source: Company

Sustainable Development – a Strategic Intent

Environment & Social Policy Framework (“ESPF”)

- ❖ Adopted the E&S Report in 1995 for the infrastructure segment and adopted ESPF in 2008 across the group
 - Recognized Environmental and Social (E&S) considerations in its business operations
 - Add value, minimize impacts, risks & increase effectiveness of infrastructure projects
- ❖ Signatory to UNEP Finance Initiative covering the financial services segment

Social Inclusion Group (“SIG”)

- ❖ SIG is a corporate framework set up in 2010 to :
 - Develop inclusive developmental interventions in IL&FS project catchments
 - Integrate the findings of the SIG in project design and implementation
 - Develop frameworks and tools to measure the impact and social return on capital
- ❖ Working on multiple IL&FS project catchments by collaborating with Govt., NGO’s & private sector and devising Interventions in livelihood, education, infrastructure, health, financial Inclusion, governance. For instance :
 - Use biomass power to add value to agricultural produce of the region
 - Implement water harvesting and storage systems
 - Introduce out-of-school and in-school interventions
 - Roll-out of tele-medicine applications using existing infrastructure

IL&FS Academy for Applied Development (“IAAD”)

- ❖ Recently set-up entity, with focus on research and education for achieving sustainable development
- ❖ Member of MAGEEP, a unique international network consisting of 29 leading global research universities spanned across the world, working together in energy, environmental and sustainability research and education
- ❖ Partnerships with IIT Bombay, Administrative Staff College of India (ASCI), Malaviya National Institute of Technology Jaipur (MNIT)

Nalanda Foundation

- ❖ Not for profit entity providing education, infrastructure to children with learning difficulties

IL&FS Strategic Advantage

- ❖ IL&FS ecosystem provides the set-up of Research Park a unique positioning
 - Experience in support and advisory to network on clusters with focus on policy advisory, project development/execution for development of Small Medium Enterprises (SMEs)
 - Pan-India presence across infrastructure value chain
 - Network of Institutional relationships developed over the lifetime of various IL&FS projects
- ❖ Deep domain expertise , ability to scale operations
 - Operational knowhow and knowledge pool across group, ability to handhold operations
 - Pioneer in identifying and scaling up operations across new sectors
- ❖ Access to capital and funding requirements
 - Strong institutional balance-sheet
 - Access to other “socially responsible” investors for specific projects
 - Access to government grants / schemes for additional funding
- ❖ New change levers for IL&FS group strategy going forward, encapsulating the research frameworks into real projects on ground and foster the innovations
 - IL&FS Academy for Applied Development
 - IL&FS Sustainability Fund
 - IL&FS Research Park



Appendices

Appendix A: IL&FS Corporate Structure

IL&FS Limited - Holding Company

<u>Infrastructure</u>			<u>Financial Services</u>		
Company	Sector	IL&FS Stake (%)	Company	Sector	IL&FS Stake (%)
IL&FS Energy	Power	87.5%	IL&FS Financial Services	Lending	100.0%
IL&FS Transportation ²	Roads	70.8%	IL&FS Inv. Managers	Private Equity	50.3%
IL&FS Maritime	Maritime	90.0%	IL&FS Securities	Securities Market Services	81.2%
IL&FS Education	Education	68.9%	IL&FS Trust Co	Trusteeship Services	90.0%
IL&FS Water	Water	95.0%			
IL&FS Infra Dev	PPP Advisory	100.0%			
IL&FS Environment	Waste Management	95.1%			
IL&FS Engineering ¹	Infra Devpt	29.8%			
IL&FS Technologies	e-Governance	38.5%			

¹IL&FS -14.75% and IFIN- 15.03%

²IL&FS - 69.5% and IFIN- 1.3%

All Stakes as on March 31, 2013

Appendix B: Critical Success Factors for successful Research Parks

A Capital

- 1 Ownership
- 2 Management
- 3 Access to Private Equity/ Venture Capital
- 4 Anchor Occupants
- 5 Business Incubation Services

B Linkages

- 1 Market (product & services)
- 2 Value Chain (forward and backward linkages)
- 3 Centers of Excellence
- 4 Value added services by park management

D People

- 1 Quality
- 2 Salary
- 3 Throughput

C Infrastructure

- 1 Land
- 2 Physical infrastructure
- 3 Communication infrastructure
- 4 Social infrastructure
- 5 Environment