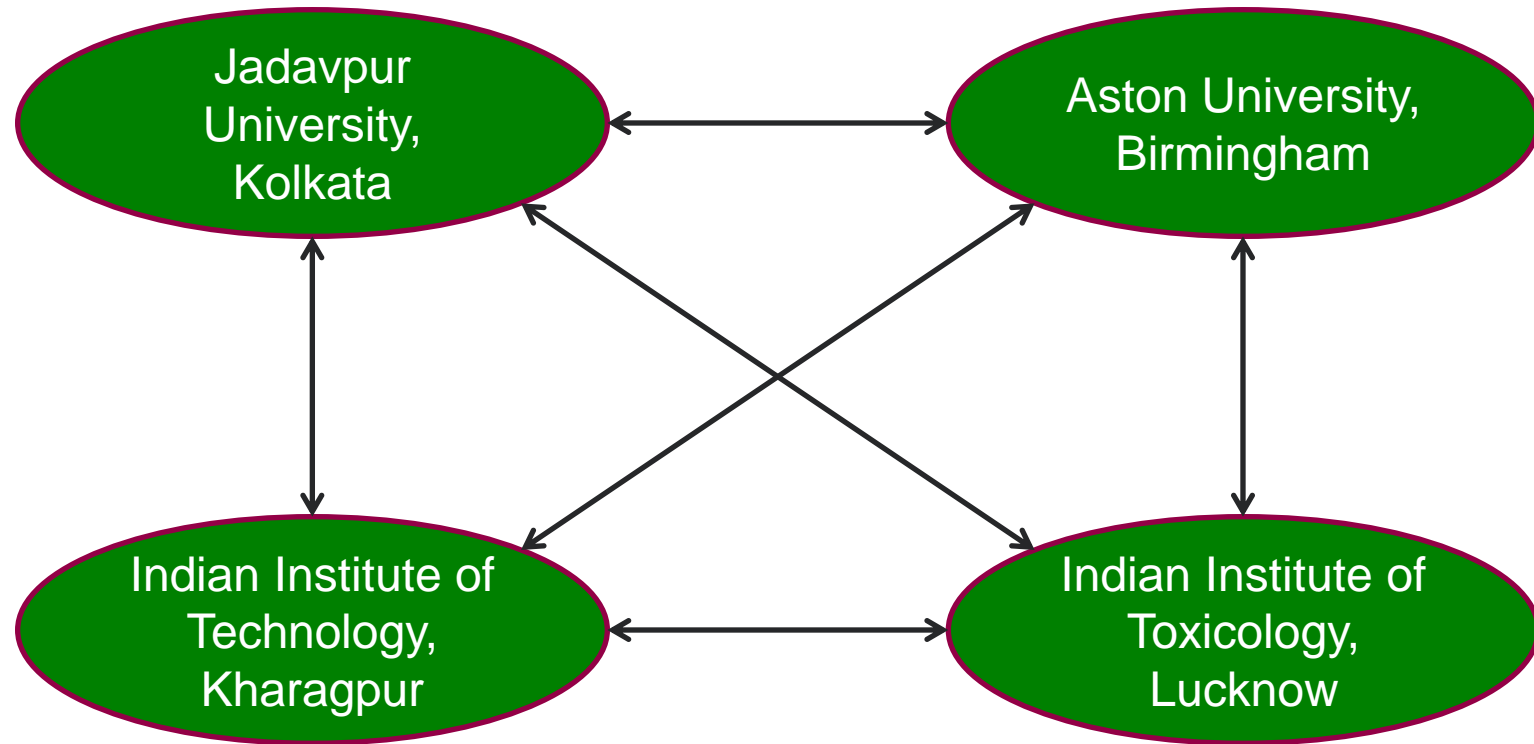


# Climate Change Issues and Environmental Performance of Small and Medium-sized Enterprises (SMEs) in India and the UK

Professor Prasanta K Dey and Professor Sadhan K Ghosh  
Aston University, Birmingham, UK and Jadavpur University, Kolkata, India



# Project Team



**UKIERI**  
UK-India Education  
and Research Initiative

## UK

- ▶ Prasanta K Dey (PI)
- ▶ Ataur Belal (CI)
- ▶ Stuart Cooper (CI)
  
- ▶ Jonathan Nixon (RA)
- ▶ Gaurav Ghoshal (RA)
- ▶ Mike Reid (RA)

## India

- ▶ Sadhan K Ghosh (PI)
- ▶ Pradip Ray (CI)
- ▶ V P Sharma (CI)
  
- ▶ S. Agrawal (RA)
- ▶ P. Sen (RA)
- ▶ S. K. Ghosh (RA)
- ▶ S. Chowdhury (RA)
- ▶ S. Kundu (RA)

# Content

- ▶ The situation of SMEs in the UK and India
- ▶ Preliminary survey finding on SMEs' environmental and social practices in the UK and India
- ▶ Environmental and social performance measurement framework
- ▶ Initial findings from the case studies
- ▶ Visits, workshops, publications, impact and sustainability

# Context

- ▶ Small and medium sized enterprises make up around 90% of the world's businesses and they employ 50-60% of the world's population
- ▶ Small businesses (*as a group*) remain critical to the UK economy, providing over 67% of the UK's private-sector jobs and contributing over 50% of UK GDP. The total number of SMEs in the UK is 4.5 million, and they employ approximately 13.8 million people.
- ▶ 70% of Indian GDP comes from SMEs
- ▶ SMEs are responsible for more than 50% of the industrial pollution in the Asia Pacific region and there are numerous examples which suggest that SMEs contribute significantly to environmental damage and GHG emissions.

# Environment and CSR

SMEs combined have a major impact on the environment and are often well placed to engage with communities.

SMEs often lack the resources, finance, time and knowledge to implement environmental and social improvement measures. In comparison, it is easier for large businesses to invest for long term benefits.

Hence there has been a drive from governments to engage with SMEs on the topics of the environment and Corporate Social Responsibility (CSR).

# What we are doing for the UKIERI project

We are investigating why and how SMEs are considering their environmental performance and Corporate Social Responsibility (CSR) overall in the UK and India

- What are the motivations and pressures for considering the environment and CSR?
- How can SMEs monitor their environmental and CSR performance?
- How can SMEs improve their environmental and CSR performance and what are the benefits/drawbacks?

A survey has been developed to gather information on a range of criteria covering environmental and CSR targets, motivations and monitoring methods. Our aim is to collect responses from over 100 SMEs in the UK and India from alternative fields of engineering, e.g. design, energy, construction, maintenance, software and automotive.

# Motivations

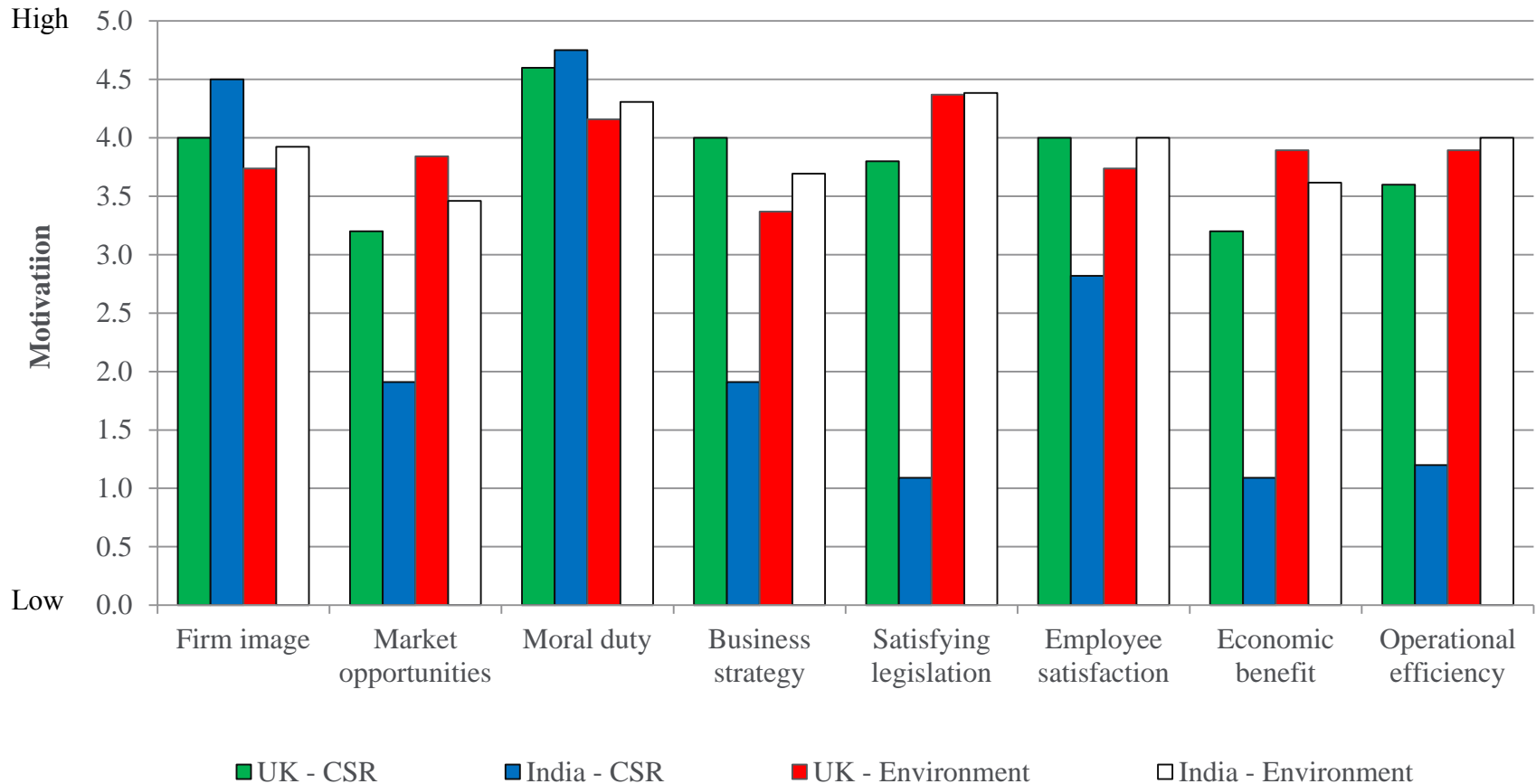
- ▶ Firm image
- ▶ Market opportunities
- ▶ Moral duty
- ▶ Business strategy
- ▶ Satisfying legislation
- ▶ Improved working conditions
- ▶ Operation efficiency
- ▶ Economic benefit
- ▶ Pressure from suppliers
- ▶ Internal Pressure from parent company, shareholders, employees, moral duty
- ▶ External pressure from customers, competitors, government, pressure groups



## Environmental targets and monitoring methods

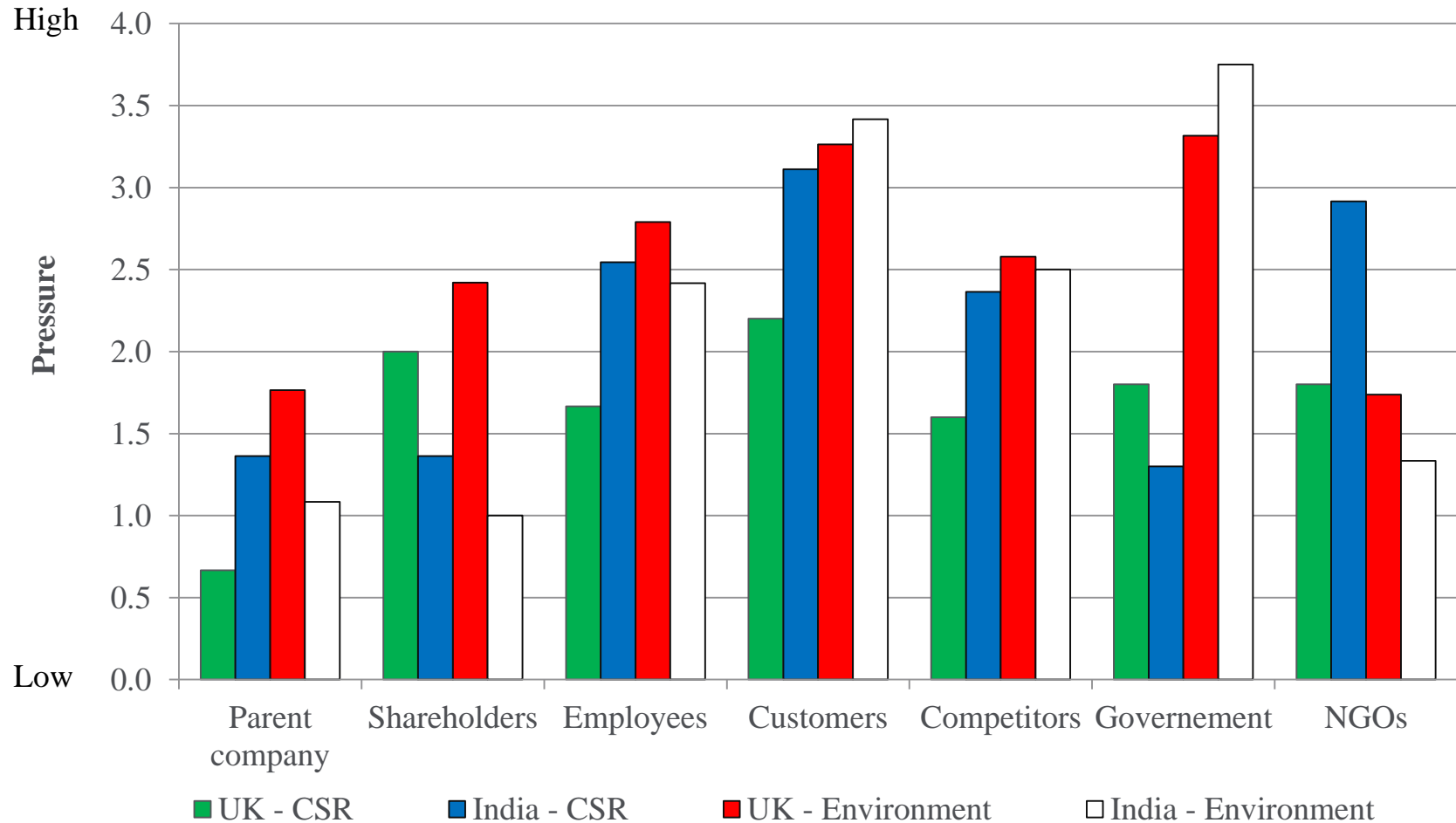
- ▶ Material consumption targets
- ▶ Waste targets
- ▶ Energy savings-targets
- ▶ Air emission targets
- ▶ Water usage targets
  
- ▶ Audits
- ▶ Staff training
- ▶ Member of an environmental group
- ▶ Environmental management system (ISO 14001)
- ▶ Formal Reporting
- ▶ Eco-literacy

## Motivations for SMEs in the UK and India to consider their environmental impact and CSR.



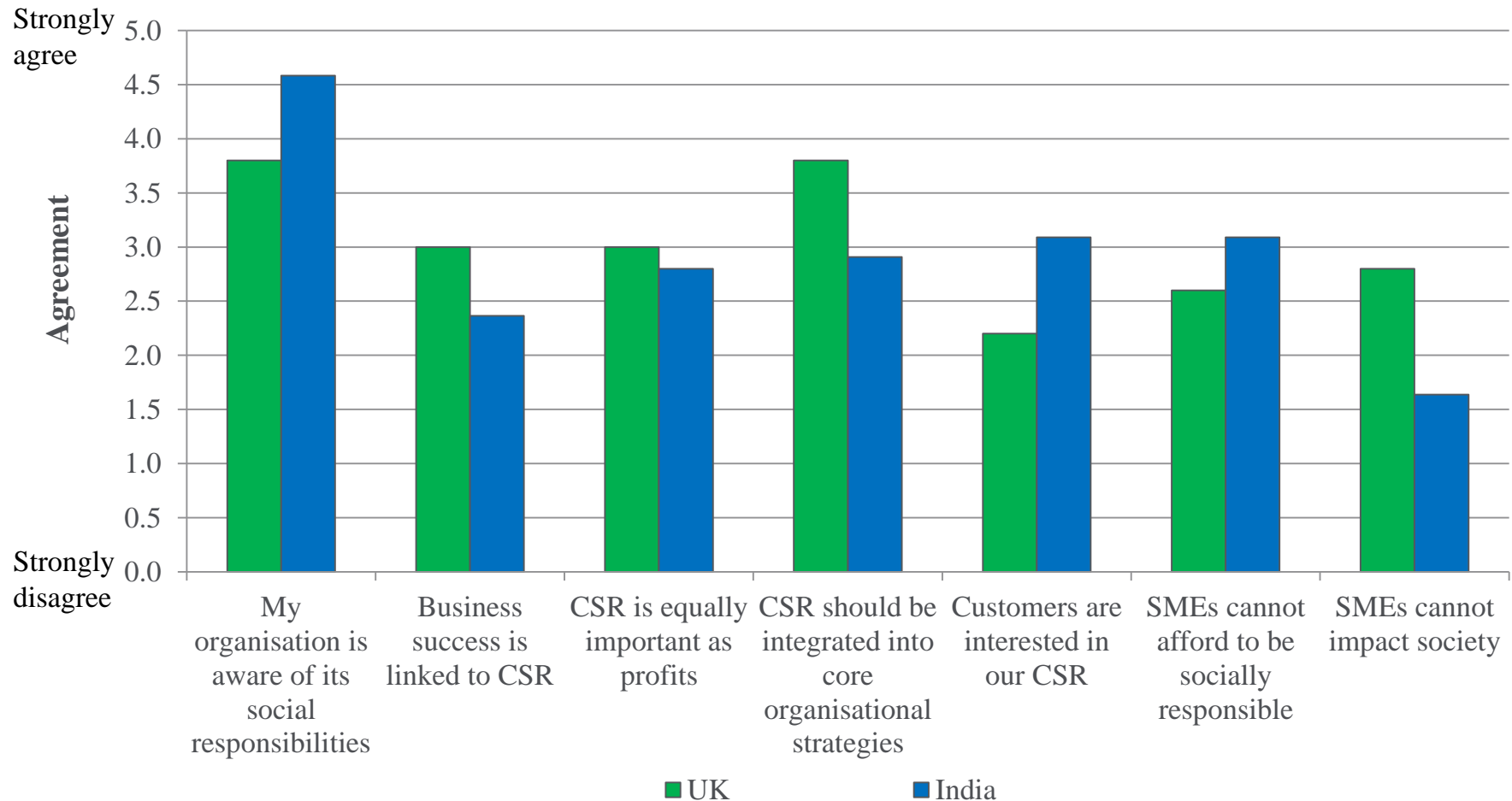
- Greatest motivation for SMEs to consider CSR comes from moral duty
- Greatest motivation for SMEs to consider the environment comes from legislation

# Level of pressure applied by alternative groups on SMEs in the UK and India to make them consider their environmental impact and CSR.



- Highest pressure for considering the environment comes from government
- Highest pressure for considering CSR comes from customers

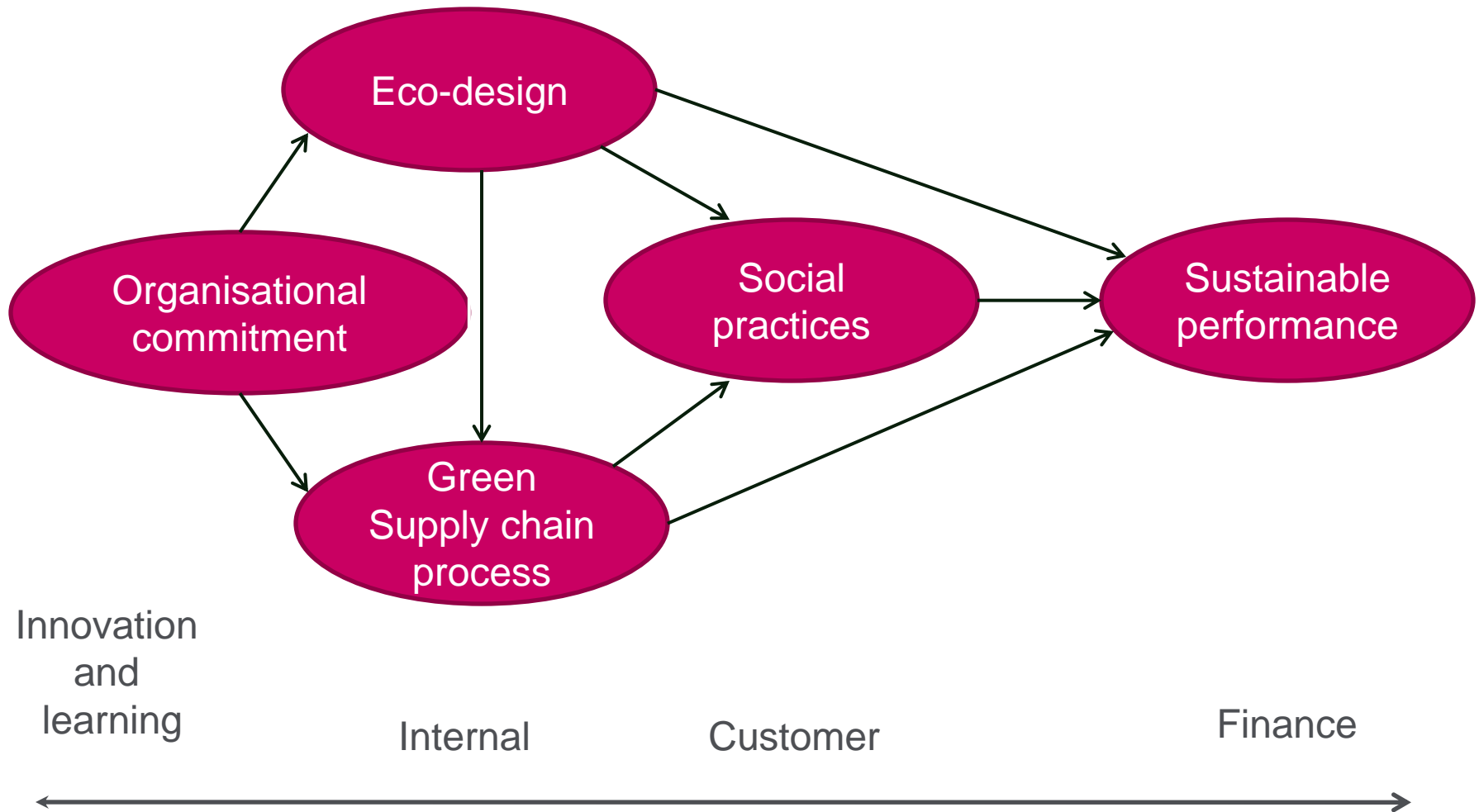
# CSR statements



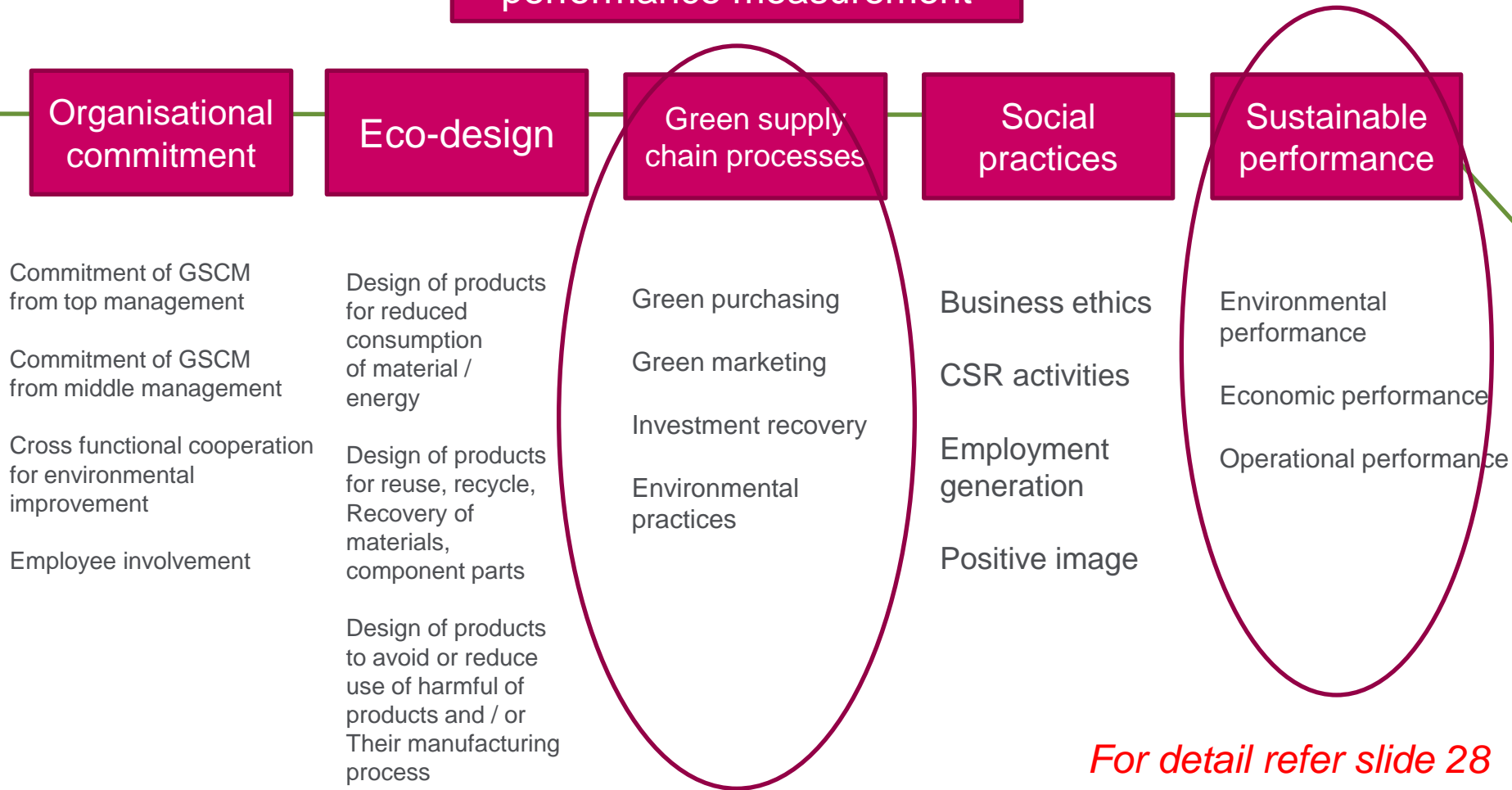
# How to measure green supply chain performance and suggest improvement

- Review Literature
- Develop conceptual framework
- Apply the proposed framework in case study organisations

## Causal Relationships Among Categories of Balanced Scorecard for GSCPM



# Green supply chain performance measurement



*For detail refer slide 28*

*For detail please refer slide 27*

# Green supply chain performance measurement

## Green purchasing

Providing design specification to suppliers with environmental requirements

Cooperation with suppliers for environmental objectives

Environmental audit for suppliers' internal management

Suppliers' ISO 14000 certification

Second tier supplier environmentally friendly practice evaluation

## Green marketing

Cooperation with customers for eco design

Cooperation with customers for cleaner production

Cooperation with customers for green packaging

Cooperation with customers for least energy consumption in logistics

## Investment recovery

Investment recovery (sales) of excess inventories / materials

Sales of scrap and used materials

Sales of excess capital equipment

## Environmental practices

Environmental compliance and audit procedure

ISO 14000 certification

Environmental management system

Eco-labeling of products



Sustainable  
performance

Environmental  
performance

Economic  
performance

Operational  
performance

Reduction of  
emissions

Reduction of  
usage  
of harmful  
materials

Reduction of  
accidents

Recycle of  
materials

State of art design  
of reverse logistics

Energy consumption

Cost of procurement

Water usage

Reduction of disposal  
cost

Reduction of waste

B

Optimum design

Minimum  
inventory

High capacity  
utilization

Improved quality

Effective reverse  
logistics

Reduction of time  
for recycling

# Case Studies in the UK and India

# Case studies in the UK

- ▶ Anderson Precision Gear, Scotland
- ▶ Kimal Plc. Bromsgrove, West Midlands
- ▶ Hydropower Dynamic Limited, Birmingham
- ▶ J8 Precision, Birmingham
- ▶ Wye Valley Brewery, Herefordshire

# Case studies in India

- ▶ New Allenberry Works, Kolkata;
- ▶ Maa Kali Textiles, Kolkata;
- ▶ Venkateswara Mahalakshmi & Co., Konnagar;
- ▶ Binay Udyog Ltd, Howrah,
- ▶ Dolphin Leather Impex, Kolkata.
- ▶ Crawlle & Ray Company, Howrah
- ▶ S&H Mfg. & Trading (P) Ltd. Kalyani
- ▶ Moitra Metals, Sodepur
- ▶ KE Technical Textiles, Kharagpur

# Visits

- ▶ Visits: India to the UK
  - ▶ Prof. S.K. Ghosh, Oct 31 to Nov 10, 2012 & Aug 26 – Sept 15, 2012, May 25 – June 14, 2013
  - ▶ Prof. P. K. Ray, Nov 03 - 10, 2012
  - ▶ Sannidhya K Ghosh, May 25 – July 7, 2013
  
- ▶ Visits: UK to India ,
  - ▶ Dr. Jonathan Nixon, Dec 07 – 14, 2012
  - ▶ Ataur Belal and Stuart Cooper, Feb, 2013
  - ▶ Prof. P K Dey, July 14 – Aug 29, 2013
  - ▶ Gaurav Ghosal, July 24 – Aug 15, 2013

# Major Workshops

- ▶ Workshops in India
  - ▶ July 23, 2012 (Jadavpur University)
  - ▶ Aug 2, 2012 (Jadavpur University)
  - ▶ Sept 26, 2012 (Jadavpur University)
  - ▶ Aug 2, 3, 2013 (Indian Institute of Technology, Kharagpur)
  - ▶ Aug 27, 2013 (Jadavpur University)
  
- ▶ Workshops in the UK
  - ▶ Sept 2, 2012
  - ▶ Nov 7, 2012
  - ▶ May 29, 2013

**Several small focus group discussions were held in both the countries**

# Media Publications

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- ▶ Press conference on 18<sup>th</sup> Aug at Kolkata Press Club
- ▶ TV interviews with several TV channels
- ▶ News coverage in several news papers

# Project finance

Start date: May 2012

End date: April 2014

- ▶ In India:
  - ▶ Funding: 13.5 lakhs
  - ▶ Spent: 55%
  
- ▶ In the UK:
  - ▶ Funding: £13,000
  - ▶ Spent: 80%



# Papers being developed

- ▶ “Environmental Performance Measurement and Evaluation for Manufacturing Organizations: A Review and Reflections”,
- ▶ “Sustainable Performance Analysis of Manufacturing Organizations using Theory of Constraints: A Case Study”
- ▶ “Exploring the Relationship between Inventory Management and Environmental Performance: A Comprehensive Framework”
- ▶ “Environmental and Social Performance of SMEs in India and the UK: A Comprehensive Study”
- ▶ “Sustainable performance measurement using balanced scorecard approach – Case studies”
- ▶ “Green supply chain performance measurement using multiple criteria decision-making approach”
- ▶ “Benchmarking environmental performance of Indian SMEs with the UK SMEs”

# Sustainability and Impact

- ▶ We are closely working with Federation of Small & Medium Industries, Indian Chamber of Commerce and Nanjangud Industries Association in India, and Institute of Environmental Management & Assessment, UK
- ▶ We are also working with Birmingham and Leicester city councils in the UK and several municipalities in India to promote SME business
- ▶ We are advising the case study companies in both the countries to measure and improve sustainable performance
- ▶ We are offering several Master's and Doctoral dissertations in all the institutions involved
- ▶ We have developed a few new research proposals that are emanated from this research and submitted for possible funding (British Academy, ESRC, Leverhulm)

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# Thank you for your attention