

# Industrial Sustainability and Japan

Professor Steve Evans  
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- Scene setting
- General observations
- Workshop results
- Q&A
- Introduction to workshop

## UK Delegation

**Professor Sir Mike Gregory**

Head of the Institute for Manufacturing (IfM),  
University of Cambridge.

**Professor Stephen Evans**

Professor of Life Cycle Engineering, Cranfield  
University.

***Professor Shahin Rahimifard***

Professor of Sustainable Engineering,  
Loughborough University.

**Dr Derek Gillespie**

Portfolio Manager, Manufacturing Technologies  
and Engineering Design, Manufacturing the Future  
programme, EPSRC

***Dr Tim Short***

Senior Lecturer, Centre for Engineering  
Sustainability, University of Liverpool.

**Dr Jacquetta Lee**

Lecturer, Centre for Environmental Strategy,  
University of Surrey.

**Dr David Morgan**

Embedded Researcher, Institute for Manufacturing,  
University of Cambridge.

## Sustainable Industrial System – UK framing

- Sustainability
  - Triple bottom line
  - Equity
    - Intergenerational & Global
- The industrial systems contribution to a sustainable society
- Urgency.



## **Eco-efficiency**

How to make current products in a low-carbon, resource efficient manner.



## **Eco-factory**

How to transform our factories and products.



## **Sustainable Industrial System**

Explore how the entire industrial system might change

## Industrial Sustainability – Japan framing (e.g. Nakano, 2011)

- Sustainability of industry
  - Longevity
  - Skills
  - Commons
- Contribution of industry to a sustainable society
  - Eco-manufacturing
  - Green supply chain
- Common ground
  - Recognisable activities

Nakano, M., 2011, A Conceptual Framework for Sustainable Manufacturing by Focusing on Risks in Supply Chains  
[ADVANCES IN PRODUCTION MANAGEMENT SYSTEMS. NEW CHALLENGES, NEW APPROACHES](#)  
[IFIP Advances in Information and Communication Technology, 2010, Volume 338/2010, 160-167.](#)

## **General Observations** based on visits

### *UK on Japan*

- High level of technical prowess
- Systems thinking growing

### *Japan on UK*

- Strength in multi-disciplinary work
- Practice / problem led engagement

## Workshop

20+ presentations

5 minutes each

1. What are the research needs that will help us to achieve a sustainable industrial system?
2. What are the promising topics for collaboration?



## Workshop Discussions (1) – Emergent Topics

- Need for a Vision for sustainable industrial system
  - Required
  - Must involve academia, industry & government
- Need for a common language for assessment
  - Which respect local solutions
- Systems perspectives is essential
  - Policy
  - Comparative studies can create insight

## Workshop Discussions (2) – Emergent Topics

- This is a global issue
  - International collaboration is essential to avoid duplication
  - Local solutions
- Standardisation is a key
  - Tools (e.g. Eco Design, LCA) and Information flows
- New tools for the wider system
  - Not just firm level or product level
  - Social & economic system, Governments & consumers

## Workshop Discussions (3) – Emergent Topics

- UK and Japan have common characteristics
  - So comparisons and mutual learnings are useful
  - While showing sensitivity to cultural differences
- Case studies as mutual learning tool
  - E.g. Voluntary agreements; e.g. Courtauld I / II

## Discussion Points

- Education
  - Key enabler
  - Core component of *any* engineering education
- Interaction with industry
  - Learning from leaders
  - Supporting those with energy
  - Help industry learn from each other

## Concluding remarks

- Many opportunities for collaboration
  - Case studies of leading practice
  - Collaborations with complementary skills & research exchanges
  - UK company data with Japanese company data
  - Education
  - Research trajectories
- More detailed discussions required to progress

## Next Steps Today

- Now: question the group
- Break (coffee & posters)
- Breakout groups
- Feedback

## Q&A

## Workshop

Tasks for the breakout groups:

1. Comment on findings (*agree/disagree/add*)
2. Identify any shared interests
3. Describe actions you think would be interesting or useful for yourself or the group



## Group Leaders

A - Prof. Steve Evans  
B - Dr. Derek Gillespie  
C - Prof Sir Mike Gregory  
D - Dr. Jacquetta Lee

## Group Scribes

Manjusha Thorpe  
Dr. David Delamore  
Dr. Elliot Woolley  
Sam Short

Please nominate someone to report back to the group



# The EPSRC Centre for Innovative Manufacturing in Industrial Sustainability



# Group Feedback

## Next Steps

- [www.ifm.eng.cam.ac.uk/sis/Japan](http://www.ifm.eng.cam.ac.uk/sis/Japan)
  - Today's presentations
  - Pdf of report
  - Links to groups, institutions & presentations
- Additional comment
  - Report
  - Reflection
  - Non-attendees
- Workshop report
  - Circulated for comment (5<sup>th</sup> August)
  - Shared with Japanese colleagues (31st August)