

“The Pathway To A Low Carbon Sustainable Economy”



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What is Industrial Symbiosis?

Industrial symbiosis engages **traditionally separate** industries and other organizations in a **network** to foster **innovative** strategies for more sustainable resource use (including materials, energy, water, assets, expertise, logistics, etc)

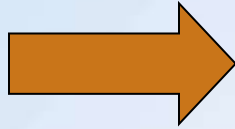
Through the network, **business opportunities** are identified leading to **mutually profitable transactions** for

- **innovative sourcing** of required inputs and
- **value added** destinations for non-product outputs
- + Exposure to best practice/knowledge transfer

Industrial Symbiosis for a Circular Economy

Linear System

Natural resources



Products



Waste (to disposal)

Circular system

Natural resources

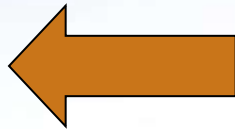


Products



Waste (to resource)

Products



Waste (to resource)



Natural resources

NISP Consistently Delivers;

Business, Social and Environmental Benefits

IS INCREASES

Jobs
Sales
Learning
Bottom line
Innovation
New business
Inward investment
Knowledge transfer
Utilisation of assets

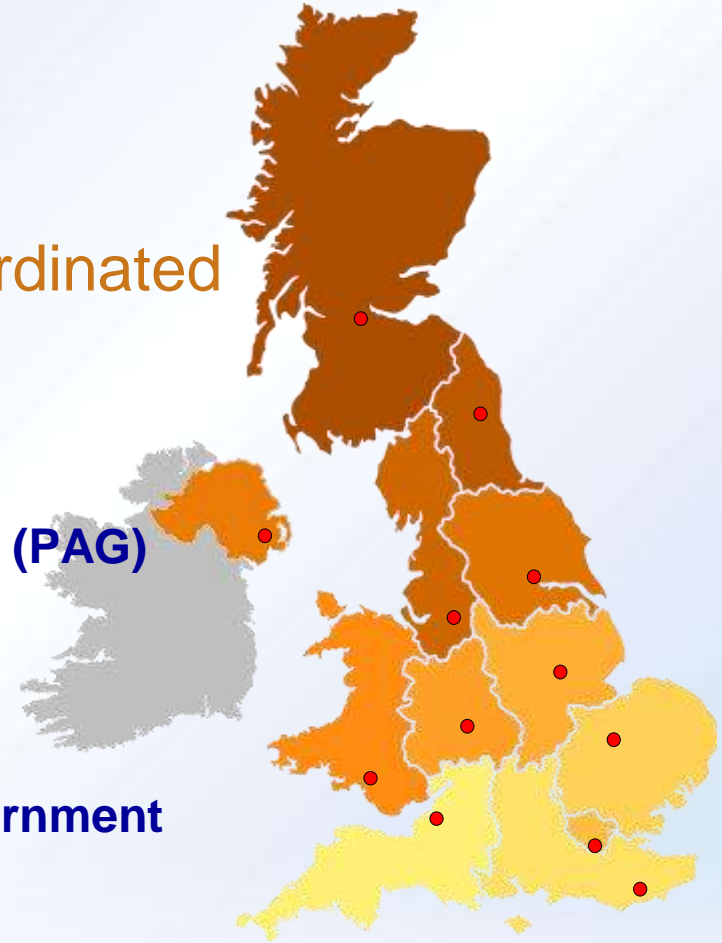
IS REDUCES

Use of natural resources
Use of potable water
Hazardous waste
CO₂ emissions
Transport
Pollution
Landfill
Costs
Risk

What is NISP?

Regionally Delivered, Nationally Coordinated

- **12 Regional Teams across the UK**
 - England, Wales, Scotland, & N. Ireland
- **Business led Programme Advisory Groups (PAG)**
 - (Michelin, Veolia, Lafarge, BMW etc)
- **Benefits of National Programme**
- **Funded and Sponsored in part by UK Government**
 - (Defra & BERR) but business initiative
- **FREE to industry & public sector support**



NISP has circa 13,000 members

Corporates

- Marley Eternit
- Veolia
- ConocoPhillips
- Anglian Water Services Ltd
- Associated British Ports
- SITA
- Diageo
- Shell
- Peel Investments
- Foster Yeoman
- Bombardier
- Michelin
- Corus
- HSBC

- Premier Automotive Group
- BOC
- IKEA
- Johnson Matthey
- Sainsburys
- Rentokil
- Lafarge Cement
- Coors Brewers
- Severn Trent
- Anderson Group
- Tarmac
- Laing O'Rourke
- Ford
- Carrilion
- Gulf Star Oil

SMEs

- B.C.R Company
- G&P Batteries
- Overtone Recycling
- Premier Waste
- Renewable Energy Growers
- Pennine Fibre Industries
- Firth Rixson Castings
- Country Chef
- The Cheese Co.
- Green BioDiesel
- Alutrade
- Betts
- Kingpin
- Auto Waste Solutions

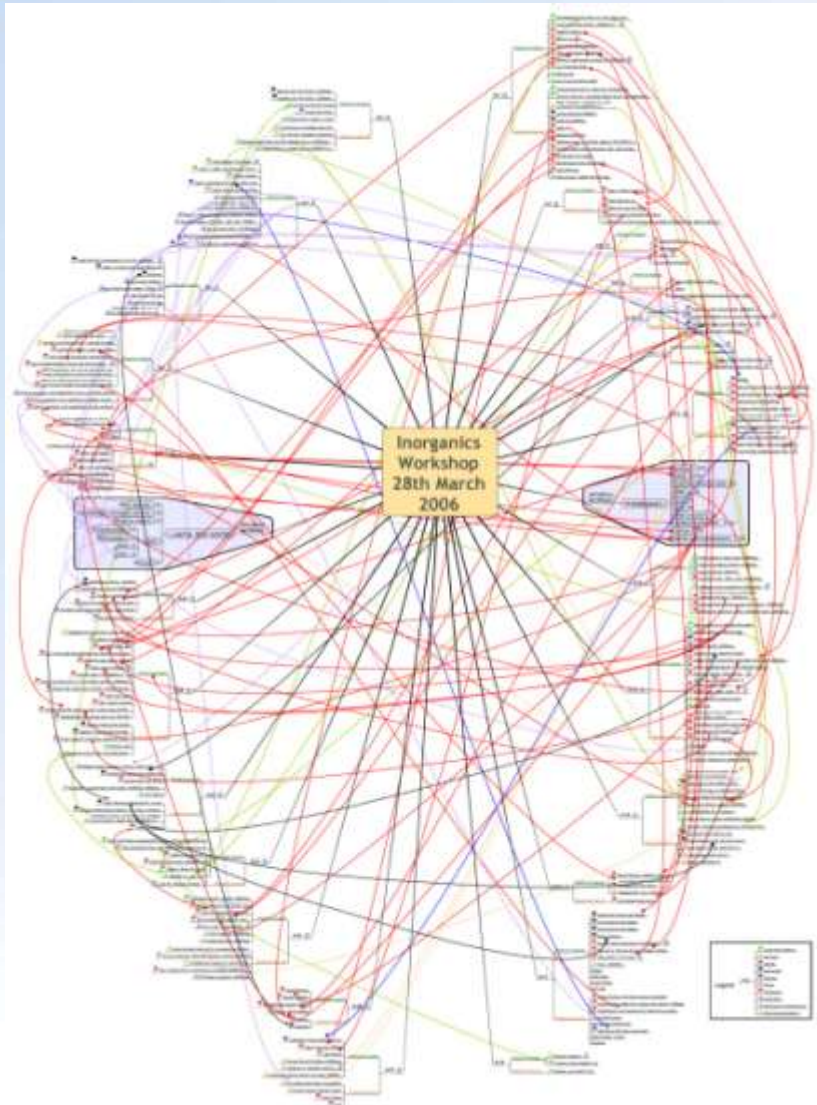
Micros

- Link Waste
- Arrow Environmental
- Marches Wood Energy Network
- Akristos
- Kito Engineering Solutions
- Facility Water Management
- Enviro (Grimsby)
- Clarkson Enterprises
- Sustainable Resources
- Advantage Waste Brokers
- UK Recycling

KEY POINTS

- All sizes: Multi-nationals, SMEs, Micros, Entrepreneurs
- All sectors/all resources

NISP Member Workshops



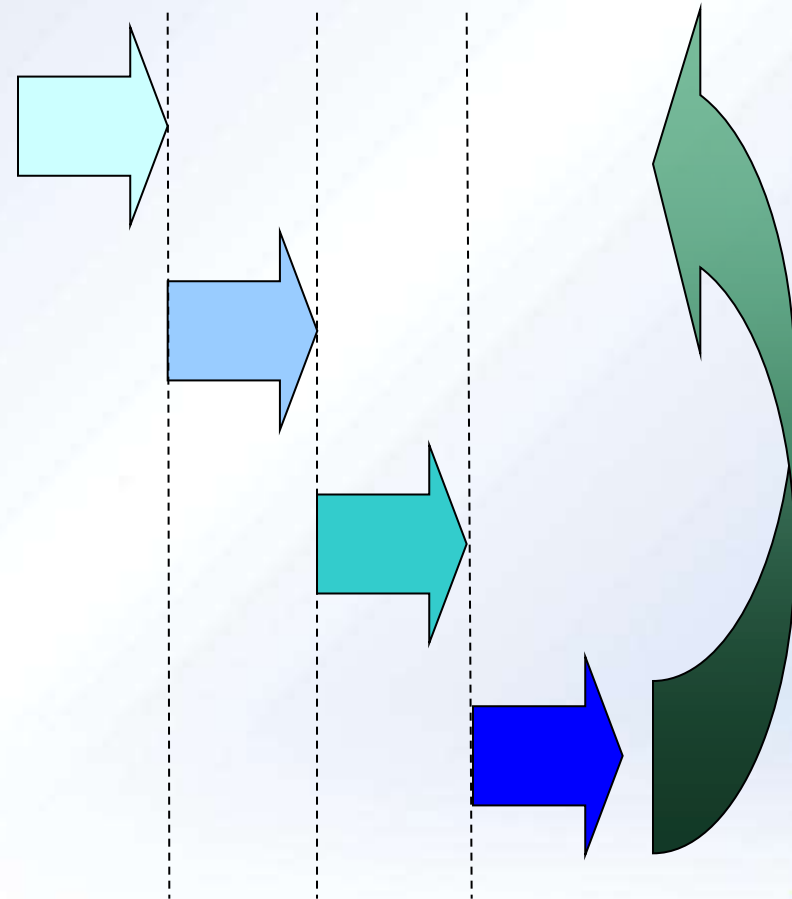
Verified Outputs 2005 to 2010

	Actual: Year on Year	Scenario 1: Decay, 5 Years	Scenario 2: Flat, 5 Years
<i>Economic</i>			
Cost Savings to Business	£156,082,258	£458,246,774	£780,411,290
Additional Sales for Business	£176,097,919	£528,293,757	£880,489,595
<i>Environmental</i>			
Landfill Diversion (Tonnes)	7,022,384	21,067,152	35,111,920
CO₂ Reduction (Tonnes)	6,038,059	18,114,177	30,190,295
Virgin Material Savings (Tonnes)	9,704,711	29,114,133	48,523,555
Hazardous Waste Eliminated (Tonnes)	363,626	1,090,878	1,818,130
Water Savings (Tonnes)	9,569,738	28,709,214	47,848,690
<i>Social</i>			
Jobs Created	3683	13,309	22,181
Jobs Saved	5087	18,379	30,632

Total £27m investment over 5 years.

Types of CO₂ Emissions Savings

- **Input savings** – lower embedded energy in recycled materials than virgin raw materials to be processed
- **Process savings** – savings in gas, electricity or other fuel use by one of synergy partners
- **Fuel substitution**- replacing fossil fuels with other fuel sources
- **Transport savings** – reduction in transport directly associated with synergy
- **Disposal savings** – reduction in biodegradable material sent to landfill



NISP IN ACTION

CASE STUDIES

Making a Meat & Bone Meal Of It

(John Pointon & Sons Ltd, Castle Cement)

- 150,000 tonnes animal by-products diverted from landfill
- 10 jobs created
- 277,000 tonnes CO₂ reduction
- Best practice solution to aid IPPC application
- Compliant with Animal By-products Regulations
- Reduced disposal and raw fuel costs
 - benefiting both companies



From Salt to the Earth (Befesa)

- Links to foundries via Cast Metal Federation
- Identified ways to reuse spent foundry sand
- Sustainable solution to landfill
- Valuable business diversification for Befesa (Whitchurch)

- Additional sales - £200k
- Landfill diversion – 10,000 tonnes
- CO₂ savings – 1,020 tonnes
- Cost savings - £300k
- Virgin materials saved – 10,000 tonnes
- Jobs safeguarded - 10



BEFESA



Guided Busway Never Tyres of Being Green (BAM Nuttall)

- BAM Nuttall contracted to provide Cambridge Guided Busway
- Required 40,000 m³ of infill material
- 3,000 tonnes of crushed concrete already procured
- NISP facilitated use of tyre shred as alternative material
 - 1.8m tyres used on project
- Virgin materials saved – 60,000 tonnes
- CO₂ savings– 6,120 tonnes
- Water saved – 1,440 tonnes



A Fruitful Collaboration

(Terra Nitrogen (UK) Ltd and John Baarda Ltd)

- 65 new jobs created
- 12,500 tonnes of CO₂ reduction
- Successful reuse of waste heat
- €30 million private investment in region



The New Face of Drink Production

(Brewer, Pharmaceutical Company, University of Birmingham)

- Innovative use of separation technology to isolate yeast components and manage their incorporation into beauty products.
- £37k grant leverage
- 2 fulltime PhD students
- New product launch by 2012



NISP MEMBER: BIRSE CIVILS

'Birse Civils is one of the real pioneers of the construction sector; embedding the principles of sustainability across all of its projects from the concept and planning stages through to final construction.'

Peter Laybourn, Programme Director, NISP

Birse Civils

John Daft – Project Manager Birse Civils

- Working in partnership with NISP since 2007
- Successfully delivered:
 - Selly Oak Phase 1A (Birmingham City)
 - Walsall Red Route (Walsall Council)
 - Northfield Improvements (Birmingham City)
- Current project:
 - Selly Oak Phase 2 (Birmingham City)

Benefits of Working with NISP

- Close Relationship, Weekly Meetings
 - Work together from start to finish, sharing information and contact details, continually identifying prospective supply possibilities
- NISP's Network
 - Provides potential contacts of prospective suppliers in and around Birmingham
- Customer involvement
- Regularly articles in NISP's Synergie newsletter
- Represented NISP at the AWM 2008 annual conference



Benefits of Working with NISP

- **For Our Business**, this means fully capturing the opportunities with all our supply chain secure a reputation for profitable low carbon enterprise.
- **For Our People**, this means upskilling to secure the benefits from new employment opportunities emerging from the low carbon economy, along with behavioural change, to enhance quality of life.
- **For Our Place**, this means creating the conditions for growth by optimising sustainable working methods and developing a low carbon built environment through energy efficiency and renewables.

Tyre Bale Project (Selly Oak Canal)

- Temporary canal diversion and tyre bale retaining wall



Selly Oak Phase 1

- New access road close to the new Queen Elizabeth Hospital.



Thank You

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