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NZARES

# On-Farm Impacts of environmental policy – a journey through time

**Prof. Nicola M. Shadbolt & Barbara Valentine**
Massey University

**Paper presented at the 2013 NZARES Conference**
Lincoln University – Canterbury, New Zealand. August 28-30, 2013

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# *On-Farm Impacts of environmental policy – a journey through time*

Professor Nicola M Shadbolt & Barbara Valentine
NZARES, Lincoln University, Canterbury
August 28-30th, 2013

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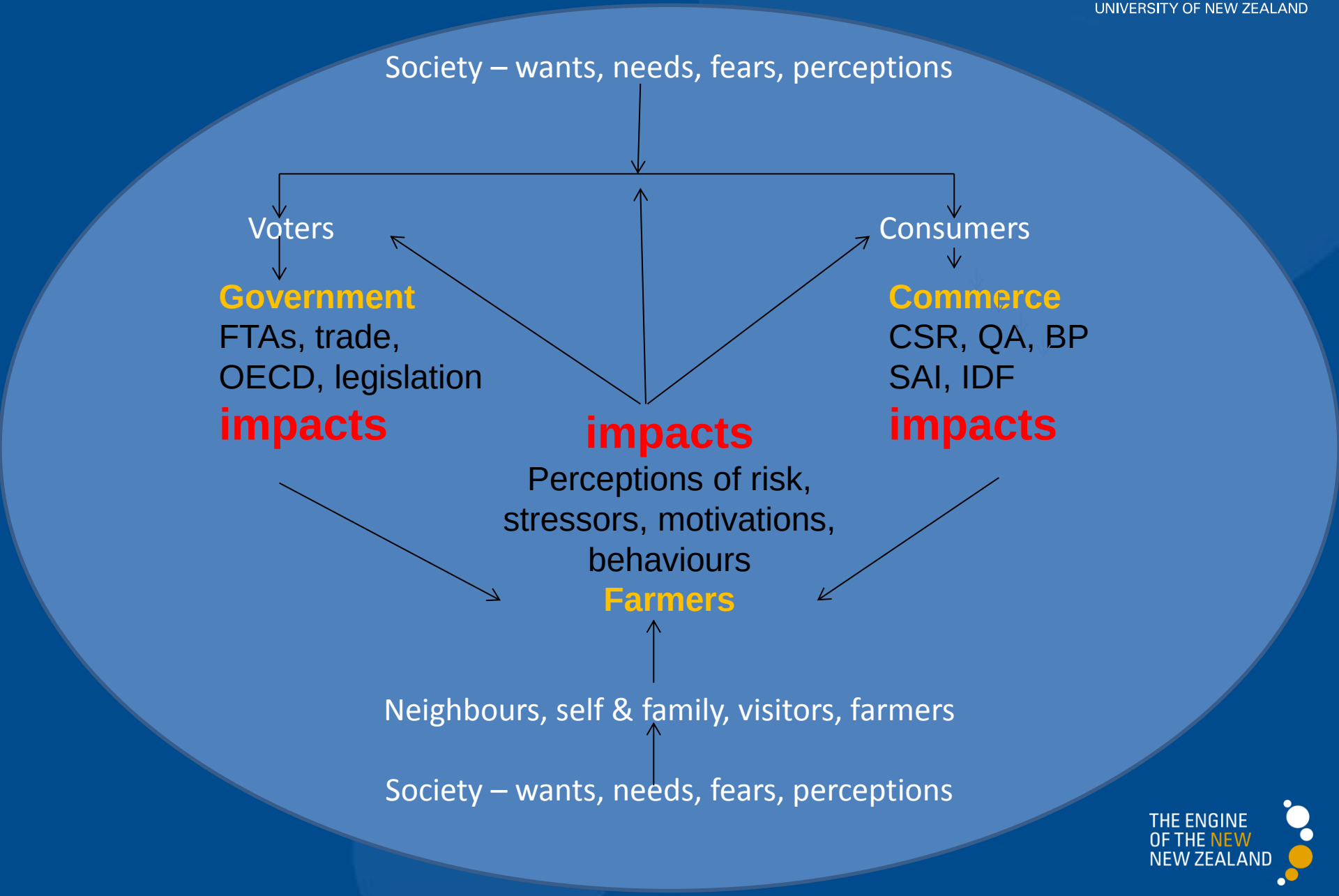
# Background

- 1994-95 Manawatu Wanganui Regional Council
- 1997-99 National Science Strategy for Sustainable Land Management Southern North Island Committee
- 1998- 2008 OECD Agri-Environmental Indicators researcher & discussant - farm management indicators
- 2002-2003 Standards NZ committee for the development of National Organic Production Standards (P8410)
- 2002-2012 Organic/Conventional Comparative Dairy Systems Trial – link on www.onefarm.ac.nz
- 2006 Ballance Supreme Farm Environment Award
- 2010- Board of Fonterra Cooperative
- 2011- Dairy NZ Chair of Farm Management and Director, Centre of Excellence in Farm Business Management, Board of Directors of the International Food & Agribusiness Management Association
- 2012- European Commission contract – co-researcher assessing farmers' cost of compliance with legislation – env, an welfare, food safety
- Managing Editor for International Food & Agribusiness Review journal and on Editorial Board of International Journal of Agricultural Management

# Overview



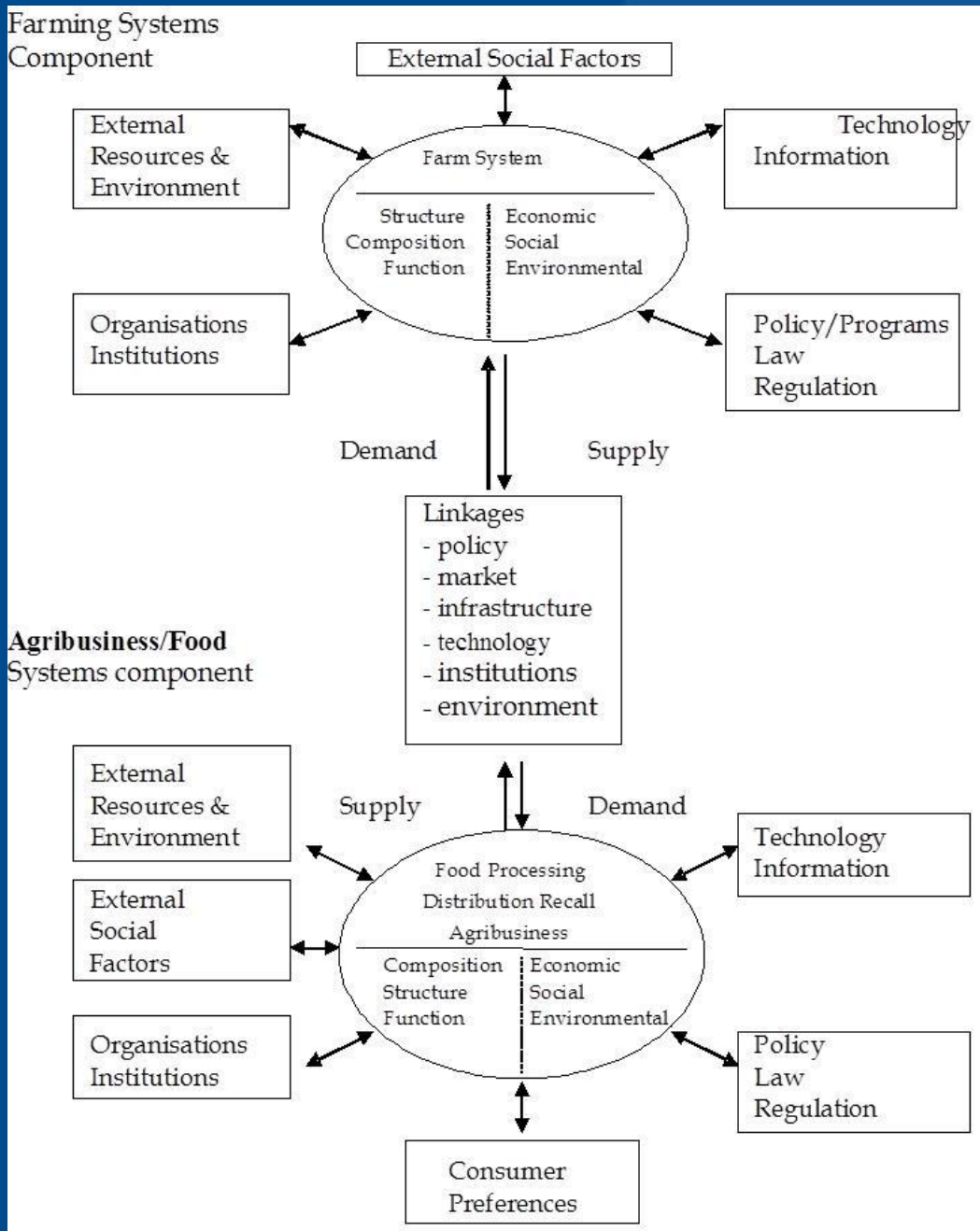



**Figure 1:** Components and linkages in the agri -food system from farm to consumer. Source: OECD (2004b)

# Perceptions of Risk

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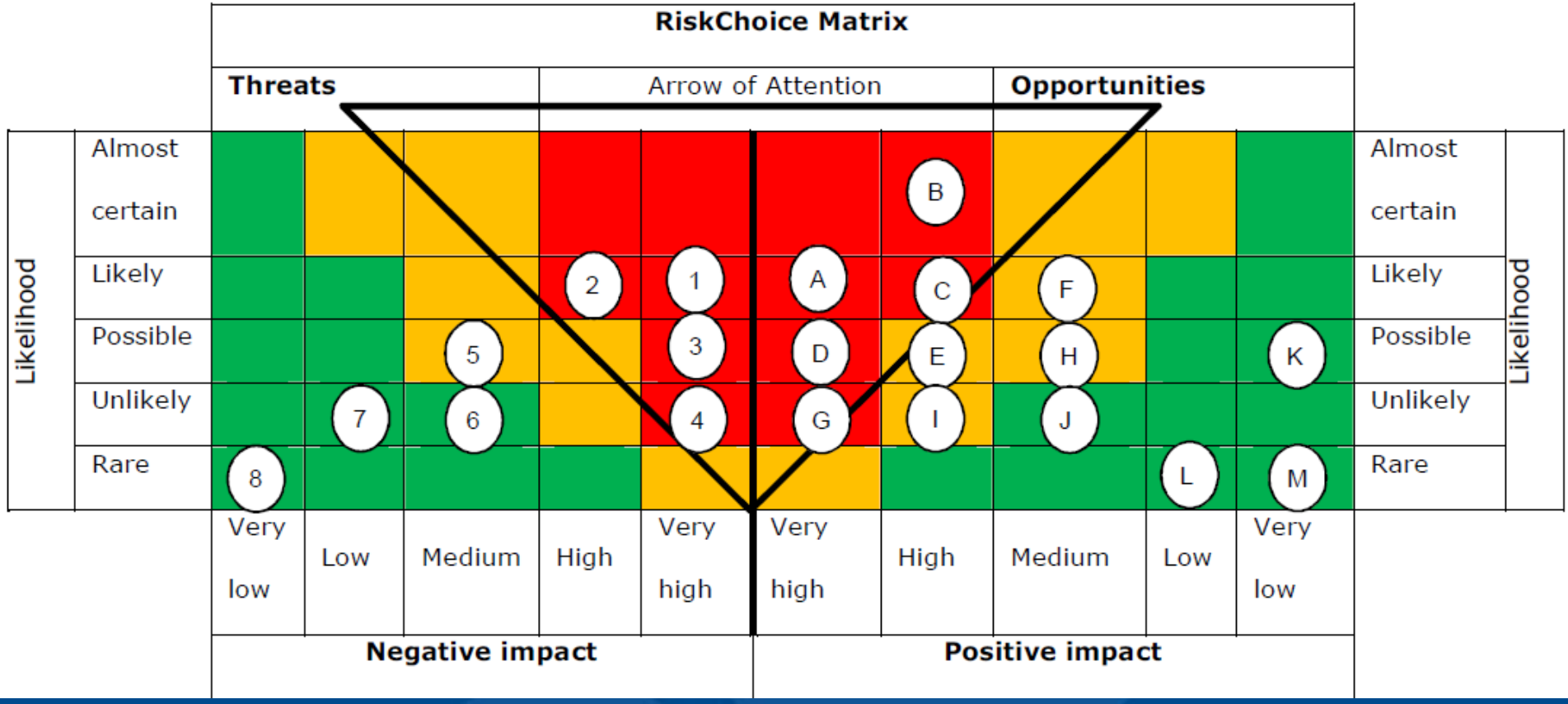
## 1. RiskChoice Matrix




Farmers' perceptions of risks from regulatory risks increased between 1992 (Martin,1994) and 2004 (Pinochet-Chateau et al., 2005)

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# Perceptions of Risk

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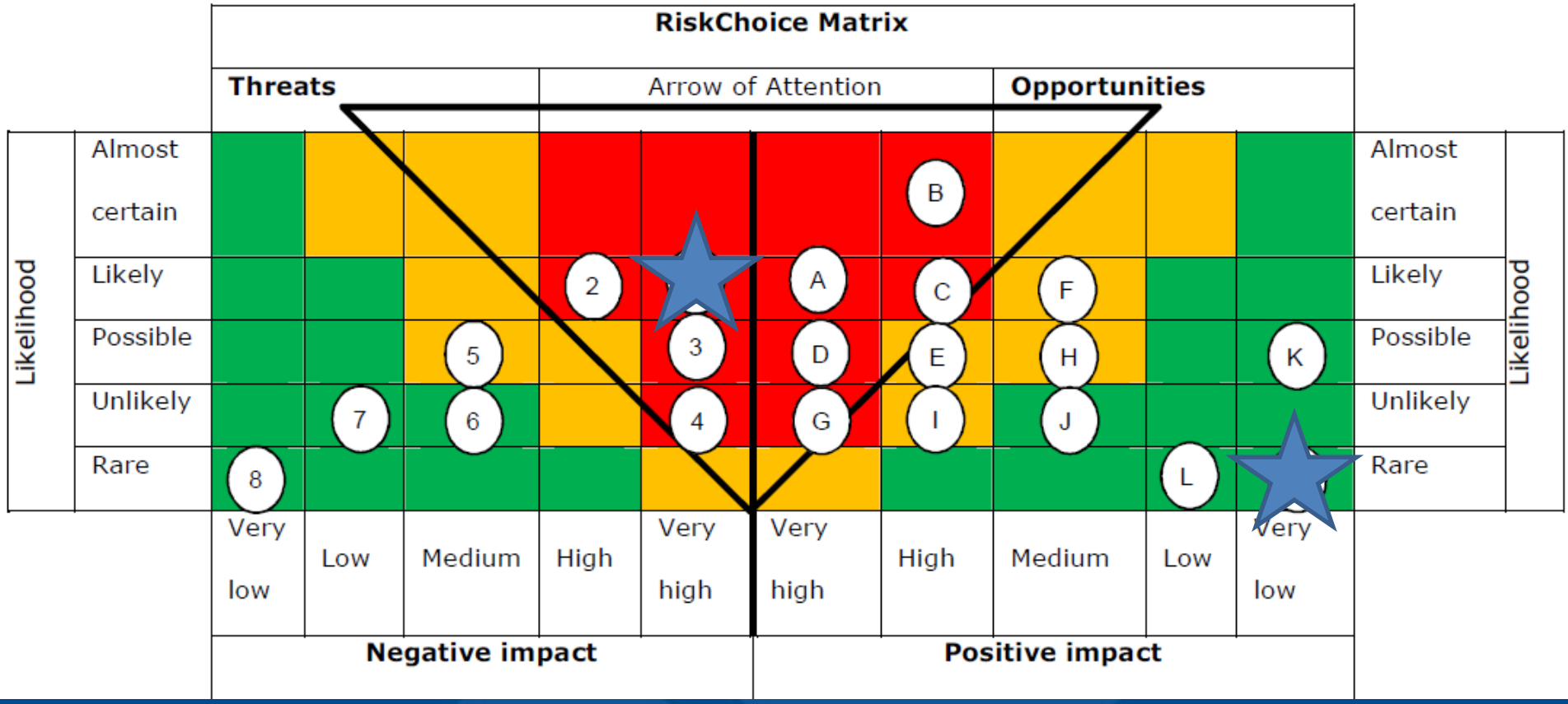
## 1. RiskChoice Matrix




Farmer perceptions in 2011 put regulatory risks at 1st and 2nd place for negative impact in two studies (Shadbolt et al, 2013)

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# Stressors

One of the three most common stressors with British farmers was problems arising from compliance and the effects of new legislation and regulations.

Simkin, Hawton, Fagg, & Malmberg (1998), Booth and Lloyd (1999); Deary, Willock, and McGregor (1997)

Four of the top 12 stressors for NZ farmers related to government bureaucracy

Firth et al. (2006)

# OECD agri-environmental indicators

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- There are multiple drivers and responses
- Difficult to separate causality from correlation
- Relationship between policy makers and farm decision makers is not straight forward
- Need to disentangle various policies and other external influences
- Farmer decision making and how it can be changed is the policy makers' challenge

http://www.oecd.org//greengrowth/sustainable-agriculture/agri-environmentalindicators.htm

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# Agri-environmental indicators

Send Print Tweet

Key points in OECD countries | Indicators and data | Publications | Related OECD work | Other related work | Contact

To help improve measurement of the environmental performance of agriculture, OECD has established a set of agri-environmental indicators, developed in co-operation with Eurostat and FAO.

These indicators inform policy makers and society on the state and trends in agri-environmental conditions, and can provide a valuable aid to policy analysis.

## Key points in OECD countries

- Agriculture uses on average 36% of land and 44% of water resources, with significant effects on the environment.
- Agricultural nutrient balance surpluses – nitrogen and phosphorous – have decreased since the early 1990s.
- Pesticides sales decreased by 1.1% per year in the 2000s.
- Agricultural water withdrawals decreased by 0.5% per year in the 2000s, more rapidly than the average 0.3% yearly reduction of total freshwater withdrawals, while the total irrigated area was reduced by 0.3% per year over the same period.

## Indicators and data

The times series primary database used for the **OECD Compendium of Agri-environmental Indicators** provides cross-country coverage on an annual basis since 1990 (where available):

- Complete database
- By theme:
  - > Agricultural production
  - > Agricultural land use
  - > Organic farming
  - > Transgenic crops
  - > Nutrients
  - > Pesticides
  - > Energy consumption
  - > Biofuels
  - > Soil erosion
  - > Water resources
  - > Water quality
  - > Ammonia
  - > Greenhouse gas
  - > Methyl Bromide
  - > Biodiversity

- By country:

| | | | |
|---|---|---|---|
| Australia | France | Korea | Slovenia |
| Austria | Germany | Luxembourg | Spain |
| Belgium | Greece | Mexico | Sweden |
| Canada | Hungary | Netherlands | Switzerland |
| Chile | Iceland | New Zealand | Turkey |
| Czech Republic | Ireland | Norway | United Kingdom |
| Denmark | Israel | Poland | United States |
| Estonia | Italy | Portugal | |
| Finland | Japan | Slovak Republic | |

## Publications

### OECD Compendium of Agri-environmental Indicators


This report provides the latest and most comprehensive data and analysis on the environmental performance of agriculture in OECD countries since 1990. It covers key environmental themes including soil, water, air and biodiversity and looks at recent policy developments in 34 countries.

» Read this publication online

**Previous publications:**

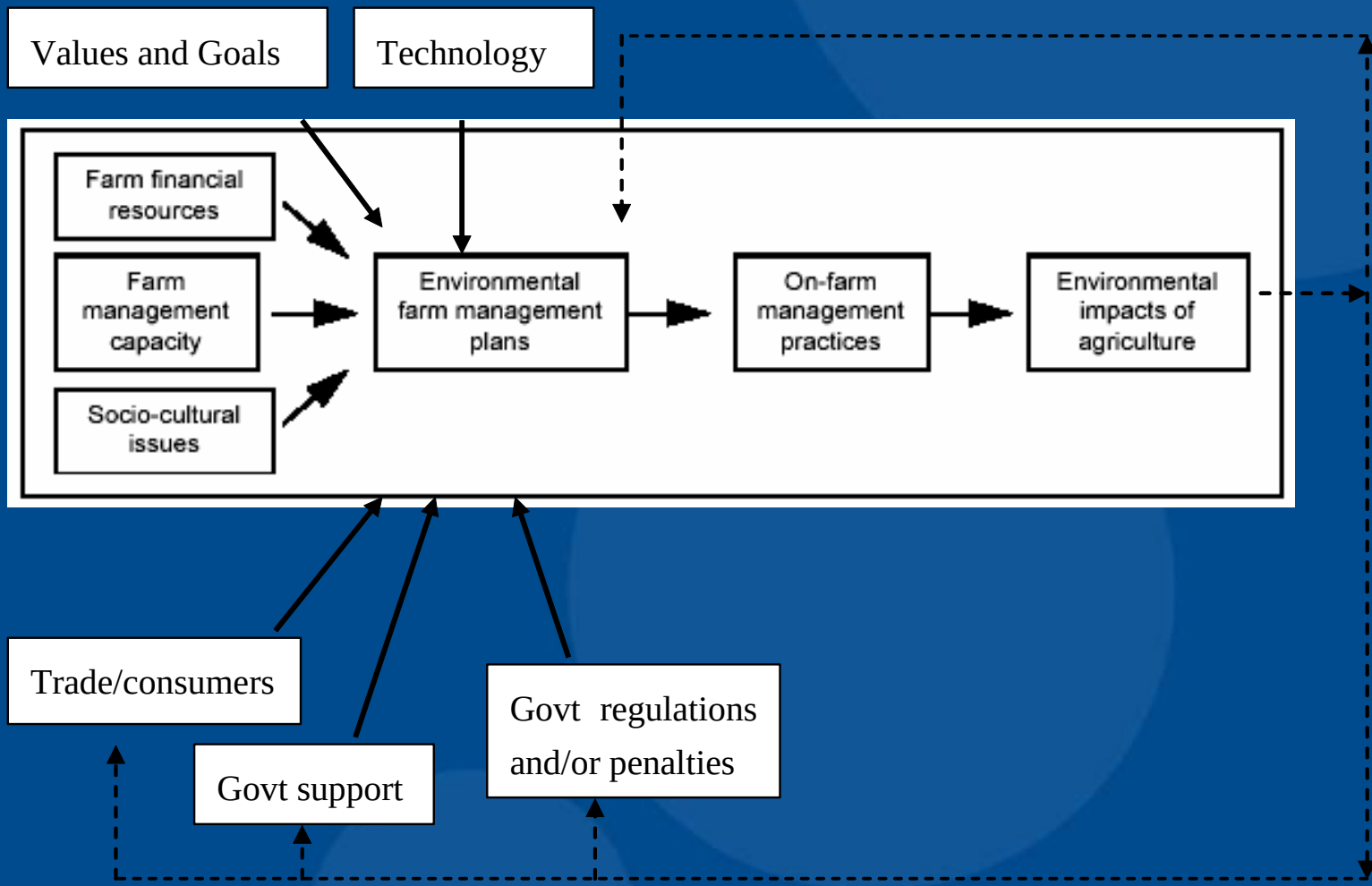
- Environmental Performance of Agriculture in OECD Countries Since 1990
- Volume 1 : Concepts and Framework
- Volume 2 : Issues and Design - The York Workshop
- Volume 3 : Methods and Results
- Papers and proceedings from OECD workshops on agri-environmental indicators

# Farm Management Capacity

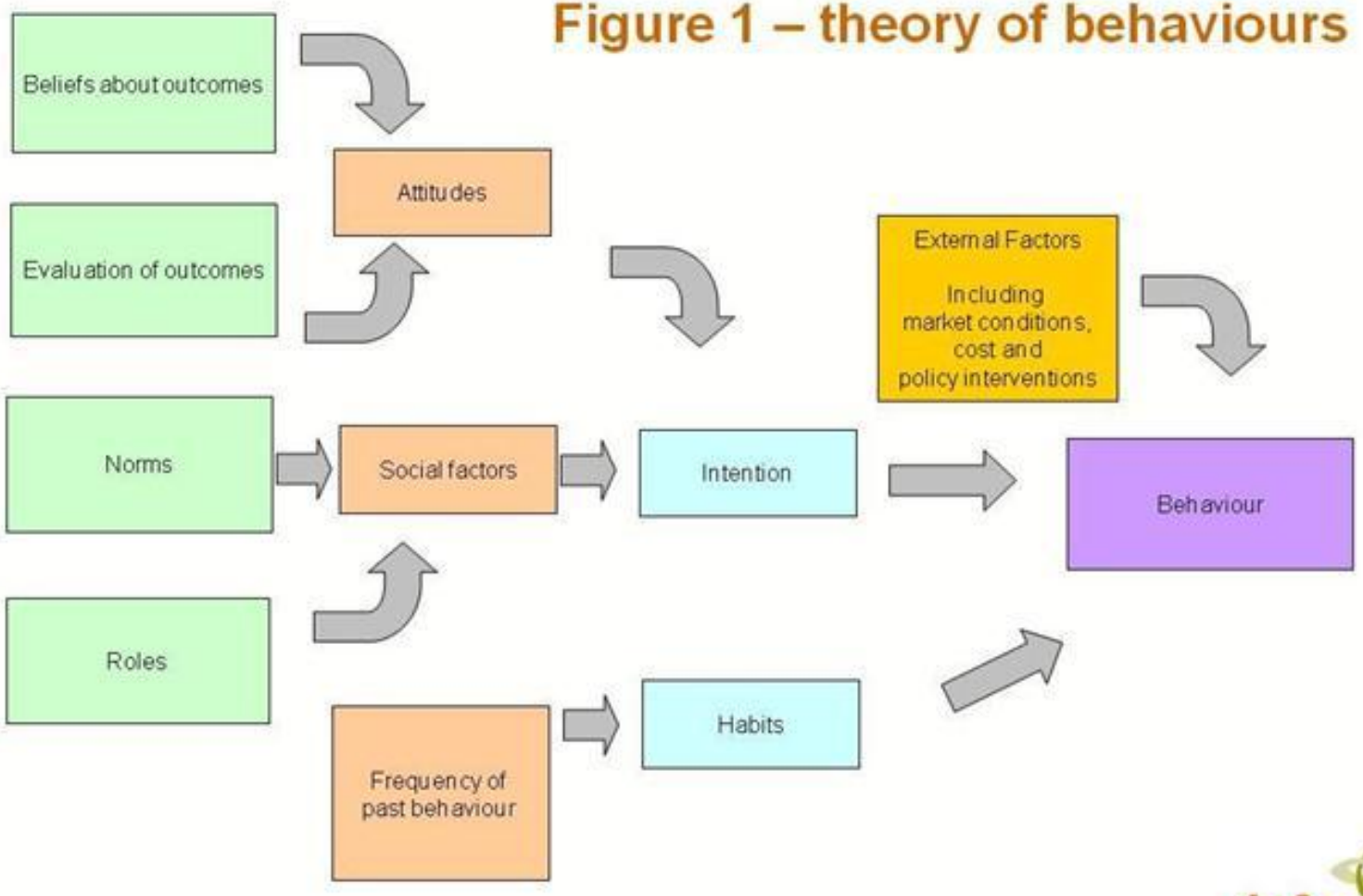
- Identified as a critical aspect
- Indicators have included:
  - Ratio of agricultural advisers – number of public and private agricultural advisers trained in environmental management practices per farmer (OECD, York workshop,1999)
  - Trends in farm income – income from agricultural activities, farm household incomes, debt/equity ratios;
  - Number and share of farmers participating in agri-environmental education programmes;
  - Number and share of farmers participating in agri-environmental groups and/or programmes;
  - Expenditures on agri-environmental management research and extension as a share of total agricultural budgetary expenditures on research and extension. (OECD, expert meeting in NZ, 2004)

# Farm Management Capacity

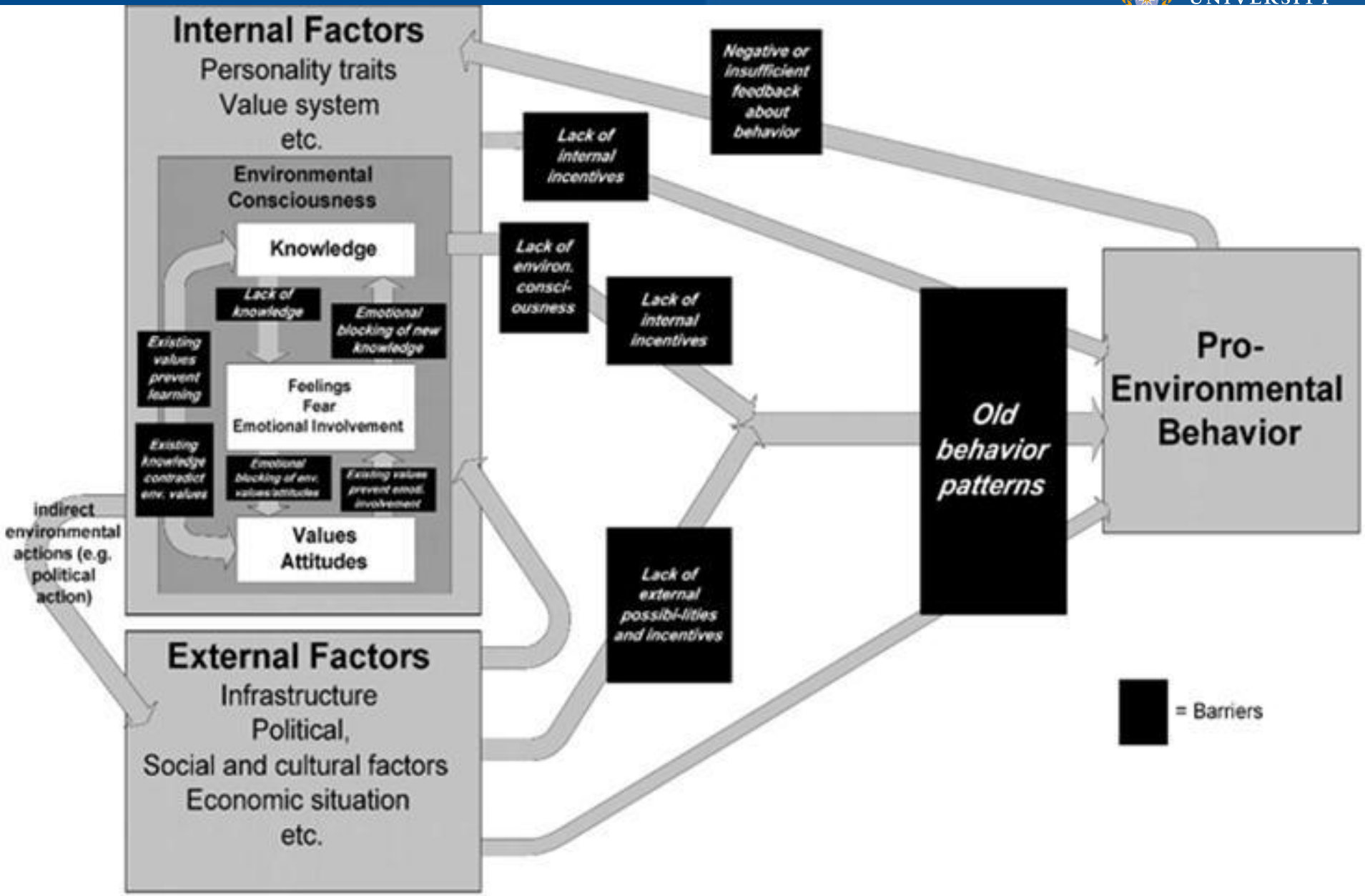
- Is a reflection of
  - Human capital (knowledge, skills, competitencies, attributes etc)
  - Social capital (shared norms, values & understanding that facilitate cooperation)
  - Cultural capital (values, history, traditions & behaviours that link a specific group)
- Current indicators do not reflect the above so do not measure wider societal influence
- Is a critical omission in Volume 4 as is THE important link between policy and agri-env. outcomes


Values and Goals
Technology
Farm financial resources
Farm management capacity
Socio-cultural issues
Environmental farm management plans
On-farm management practices
Environmental impacts of agriculture
Trade/consumers
Govt support
Govt regulations and/or penalties

# Figure 1 – theory of behaviours




Model adapted from Theory of Reasoned Action and Theory of Planned Behaviour




Kollmuss & Agyeman, 2010

# Legislation

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"The central government has so far provided little statutory guidance in the form of national standards and policy statements to local authorities regarding implementation of the RMA and monitoring of environmental conditions."

"Differences in technical capacity, knowledge, skills and issues among local authorities translate into differences in environmental management, and businesses complain that the regulatory playing field within the country is not level."

OECD Environmental Performance Review of New Zealand 2007, p. 17 & 18

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# Policy Instruments - Brouwer et al., 2000

- legislation and regulations imposing standards *directly* on farms, for example minimum standards for animal welfare, the disposal of pesticides
- legislation and regulations affecting the *availability* of certain products to the producer, such as pesticides, which will have cost implications;
- legislation and regulations, which impose obligations on farmers by affecting their practices *indirectly* (e.g. minimum standards for water quality which can be respected only by adhering to a limited range of farming activities);
- legislation establishing *procedures* such as controls on land use, consent procedures for removing landscape features, et cetera.
- *codes of practice,* which may be entirely voluntary (e.g. organic production), quasi legalistic or, in a few cases, binding.
- *cross-compliance* measures which apply only to those producers receiving benefits under a public programme.
- voluntary standards initiated by public agencies and promoted widely to producers; and
- voluntary standards developed by processors, retailers or other downstream markets,

| Measure/ Country | AUS | CAN | EU | JPN | KOR | MEX | NZL | NOR | CHE | TUR | US |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Regulatory Require-ments | XXX | XX | XXX | XXX | XXX | XXX | XXX | XXX | XXX | XXX | XXX |
| Environ-mental cross-compliance | NA | NA | XXX | X | X | NA | NA | XX | XXX | NA | XXX |
| Payments based on farming practices | X | X | XXX | X | X | X | X | XX | XXX | X | XX |
| Payments based on land retire-ment | NA | NA | X | NA | NA | X | NA | NA | X | NA | XXX |
| Payment based on farm fixed assets | X | X | X | X | X | X | X | X | X | X | X |
| Environ-mental taxes/ charges | NA | NA | X | NA | NA | NA | NA | X | NA | NA | X |
| Tradeable rights/ permits | X | NA | X | NA | NA | NA | NA | NA | NA | NA | X |
| Technical assistance/ extension | XX | XX | X | X | X | X | XX | X | X | X | XX |
| Commun-ity-based measures | X | X | NA | NA | NA | NA | X | NA | NA | NA | NA |

the linking of environmental conditions to the receipt of agricultural support payments

Source: OECD (2010)

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# Impact of these legislations

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- 1-3% increase in costs, but what about value?

- European Commission contract “Assessing farmers’ costs of compliance with EU legislation in the fields of environment, animal welfare and food safety” – includes NZ & Argentina
- Horizon Regional Council One Plan impact – DairyNZ & Massey University research
- Canterbury Regional Council – LUDF research

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# Corporate Social Responsibility

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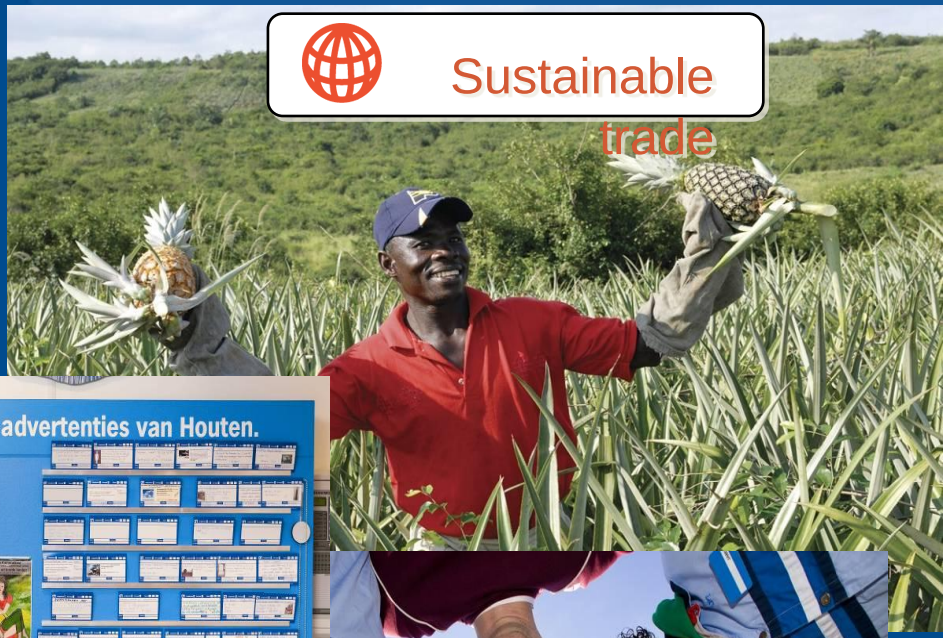
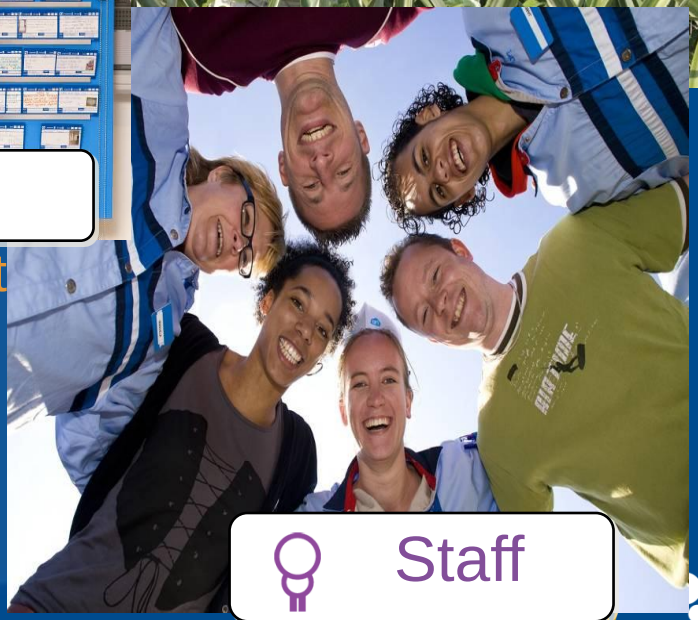
Health



Sustainable trade


Local





Staff

Nestlé Good Food, Good Life

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# Nestlé in society: Creating Shared Value and meeting our commitments

## Nestlé signs up to Women's Empowerment Principles

We've joined other businesses in showing our support for the United Nations' initiative to empower women

Contact us

Sign up
CSV news

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Faqs

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Nestlé in society: Creating Shared Value and meeting our commitments

Summary (pdf, 2 Mb)
Full report (pdf, 6 Mb)

CEO interview

Our CEO Paul Bulcke shares his views on Nestlé in society and Creating Shared Value.

Related websites

- The Nescafé Plan
- Nestlé Cocoa Plan
- Nespresso Ecolaboration
- Water Challenge blog

## NUTRITION

We play an important role in offering the right kind of products and helping consumers make the right nutritional choices.

## WATER

With demand set to rise by 50% by 2030, the world is facing a fresh water crisis. We're determined to help address this crisis.

## RURAL DEVELOPMENT

Rural development is at the very heart of our Company and one of our three CSV focus areas.

## ENVIRONMENT


We're helping to protect the environment and scarce resources, now and for future generations.

## SOURCING

We're working hard to ensure we source raw materials in a responsible and sustainable way.

## HUMAN RIGHTS

We recognise our responsibility to respect human rights in our operations and supply chains.


UK ROGER BEALE – *FINANCIAL TIMES*

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# Corporate Social Responsibility

## Examples of collaborative activity in the pre-competitive space

www.saiplatform.org

www.dairy-sustainability-initiative.org

www.idf-lca-guide.org

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# Thank you

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