BEYOND THE SCIENCE - COLLABORATIVE APPROACHES TO EARLY DETECTION OF PESTS

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New Approaches for the Early Detection of Tree Pests and Pathogens LWEC project

1. To develop improved and cost-effective tools for the early detection, surveillance and monitoring of alien pests and pathogens of trees and other plants to improve the UK's biosecurity.
2. To exploit technical advances to support the health and resilience of UK trees and woodlands.
3. To use an interdisciplinary consortium to develop particular tools.
4. To use an innovative interdisciplinary, co-design approach and through early engagement with policy-makers and stakeholders, to ensure that the tools developed are fit-for-purpose in the real-world.
5. To create tools that can be used in a range of inspection contexts.
6. To add to our national capabilities in tree health and leave a lasting legacy
7. To develop tools that are also generic in nature

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Stakeholder engagement – what, why, how?

- **WHAT**? Stakeholder engagement means interaction with actors with interest or responsibility in your topic of study/practice

e.g. inspectors, foresters, nursery owners, commercial, policy makers, public

- **WHY?** Stakeholder engagement required for effective socio-technological innovation (e.g. Flichy 2008)
- It can lead to more effective solutions, enhance buy in and increase cross actor understanding (Blackstock et al 2007)

Stakeholder engagement – what, why, how?

- **HOW**? Interdisciplinary research across natural and social sciences

BUT then role of social science

A) Pragmatic assistance in stakeholder engagement?
B) Add on research unit to explore what works?
C) Theoretical driver of research process? (Are we doing action research? Implies a new ***process*** of research)

e.g. O'Brien et al 2013; White 2013

RESEARCH QUESTIONS

- **What stakeholder engagement processes are effective in delivering socio-technological innovation? (why, who, when, how?)**
- **Can we develop 'new' ways of doing science?**

Our conceptual research questions:

- In what way and to what extent can stakeholder engagement influence TRLs?
- How do we perceive the ‘border’ in biosecurity?
- How do human relationships influence technology development?
- and more……..

Stakeholder engagement and the ‘acronym soup’

“We aim to develop a lasting legacy for bio-security through connection and resource availability”

1. mapping and engaging with stakeholders in the detection of tree pests and pathogens in UK and beyond using the ‘Stakeholder Analysis and Engagement Plan Template’ (SAEPT)
2. investigating the process of socio-technological innovation through ‘Socio-technological Learning Laboratories’ (SLLs) and ‘Technology Readiness Levels’ (TRLs)
3. developing a network of stakeholders with interests in the early detection of tree pests and pathogens, in particular through annual ‘Learning Platform’ (LP) workshops

‘Good practice’

Included recognition of stakeholder typologies, power, trust and relationships, interest and forms of engagement

- SAEPT - Included information, guidance, templates to record 2 week stakeholder interactions, matrices to complete on TRLs, SLL plans etc for project team members.

- LP1 - Included framing talks, small discussion groups, Dragons den, lunchtime Technology Fair, keynote listener

- SLLs - Included field visits, lab open days, specific meetings



Successes and failures - No! lessons learned

- Dragons' Den – success but more challenging for the scientists than we imagined
- LP1 – success but mostly engaged 'the usual suspects'
- SAEPT – some success in getting scientists to think about TRLs as useful but hopeless in getting them to complete templates
- SLLs – need to be specific and highly relevant

Scientists say:

About what comprises stakeholder engagement:

Regarding an opportunistic meeting "*I never considered that as a stakeholder interaction*"

"*I never thought of them [industrial/commercial representatives] as being stakeholders*"

About when stakeholder engagement works:

"*when we get on*"

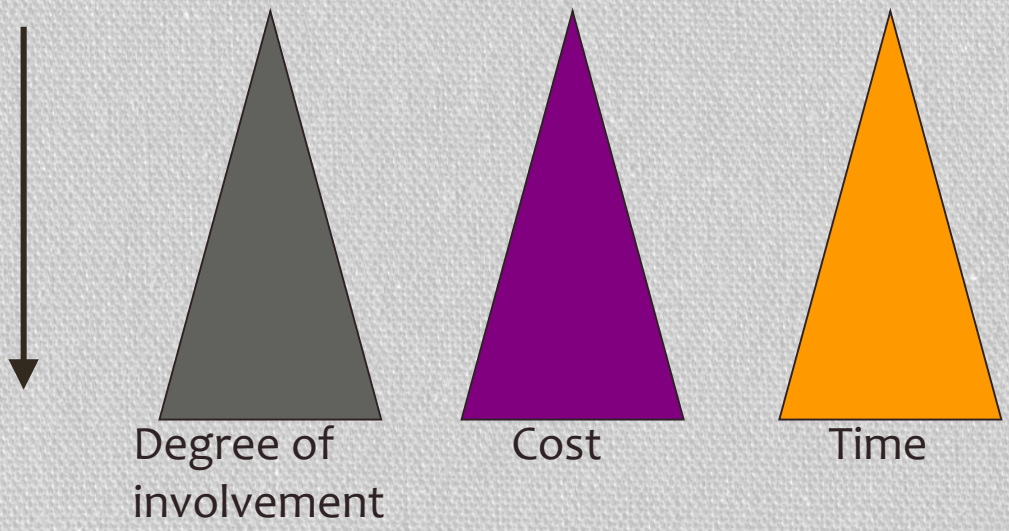
"*if you organise events [SLLs] I'll come*"

About changing the process of research

"*going to a conference… and will probably include application not just science in my talk [as a result of this project]*"

Extent of engagement

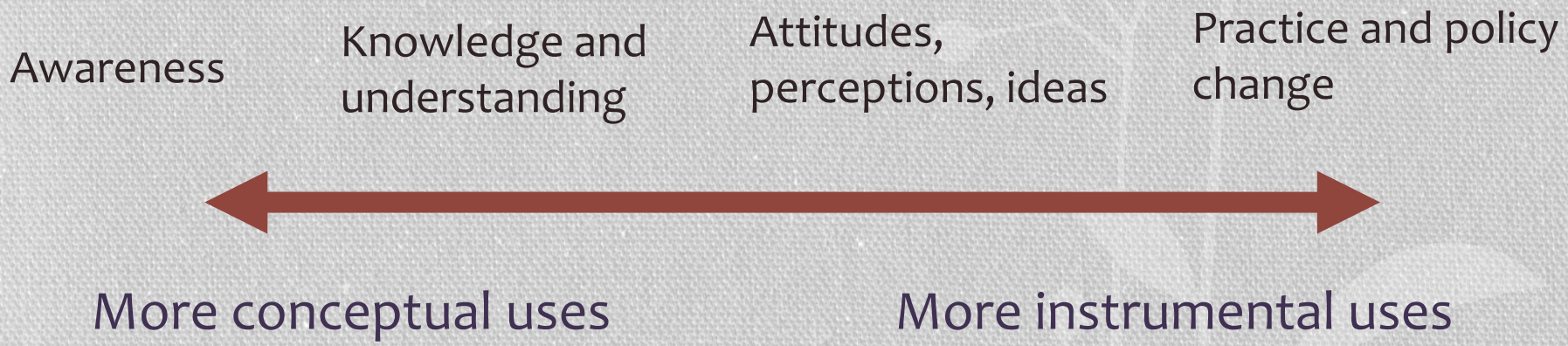
Inform
Consult
Involve
Empower



Extent of engagement depends on:

- ✓goal of initiative
- ✓stage of initiative development
- ✓philosophy of implementing agents
- ✓Mobilisation of community

Continuum of research use



Nutley et al 2007

Pragmatic lessons

- Enable personal contact between individuals
- Have fun and be creative!
- Social Learning Labs worked well – fieldtrips out and invite in
- Think about who you engage with and when
- Process as well as outcome important
- Think long term understanding not short term gain

Reflections and conclusions

- ***By how much*** **will stakeholder engagement benefit socio-technological innovation? So how should it be prioritised?**
- **Persistence, creativity, trust and specificity enabled better engagement**
- **Scientists are changing how they *think* but struggling to change how they *act*; external drivers impedes interdisciplinarity and engagement**
- **Changing the process of research will be slower than we thought so we need to adjust expectations at policy, technological and academic levels**
- **Where is the border? Pre-border versus post-border emphasis (inspection), regulation, biophysical boundary….**

acknowledgements

www.protectingtreehealth.org.uk

The project team comprises members of FERA, Forest Research, the Centre for Ecology & Hydrology, the James Hutton Institute, Rutherford Appleton Laboratories and the Universities of Aberdeen, Oxford, Exeter, Greenwich, Hertfordshire, St. Andrews and Worcester.

A new vision of science…

- Consilience of knowledge production formats?
- Synthesis focus and porous disciplinary boundaries
- Multiscale approach
- Cultural and genetic evolutions
- Shared visions
- Post-normal science?
- Democratisation of science?
- Mode II science?

Costanza (2003) and Carolan (2006) and Gibbons (1994)