Crafting Usable Knowledge for Sustainable Development

Discussion with Prof. Bill Clark (Harvard Kennedy School) at the Energy for Human Development (e4Dev) Seminar
February 26, 2018
Sustainable development?

“Environment is where we live; Development is what we all do in attempting to improve our lot within that abode. The two are inseparable....”

“Humanity has the ability to make development sustainable...“

(WCED, 1987)
Research for Sustainable Development…

<table>
<thead>
<tr>
<th>Quest for fundamental understanding?</th>
<th>Considerations of use?</th>
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<tbody>
<tr>
<td>Yes</td>
<td>Use-inspired research (Pasteur)</td>
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<tr>
<td>No</td>
<td>Basic research (Bohr)</td>
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<tr>
<td>No</td>
<td>“Soaking and poking”</td>
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<tr>
<td>Yes</td>
<td>Applied research (Edison)</td>
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</tbody>
</table>

(redrawn from Stokes, 1997)
...is about Linking Knowledge with Action

Purely basic research (Bohr)

Use-inspired basic research (Pasteur)

Purely applied R&D (Edison)

Improved understanding

Existing understanding

Improved policy and technology

Existing policy and technology

But How?

(redrawn from Stokes, 1997)
How to Craft Usable Knowledge: Overview

• The Goal
  – “Inform agitation” for sustainable development

• The Problem
  – Too many “researcher” discoveries/inventions not adopted by agitators

• One way forward for researchers trying to do better...
  – Four key things to know
  – Four key things to do
Challenge for this discussion

General theory ↔ Local Context

- Mine...
- Yours...

To Know: Coproduction in SES
- Innovation system
- Complex system
- Political system
- Adaptive system

To Do: Build capacity
- Knowledge governance
- Stakeholder collaboration
- Researcher training
- Social learning

HARVARD UNIVERSITY CLIMATE ACTION PLAN
A FOSSIL FUEL-FREE FUTURE
HARVARD’S CLIMATE ACTION PLAN:

FOSSIL FUEL-FREE BY 2050

FOSSIL FUEL-NEUTRAL BY 2026

Action agenda adopted by President & Governing Board (Feb 6, 2018)

based on

Knowledge mobilized by the Task Force on Climate Change (2016-7)
What researchers need to know:
Actionable knowledge and knowledgeable action are “coproduced”...

In a world full of snake-oil salesmen, coproduction requires building trust.....
Actionable knowledge and knowledgeable action are “coproduced”...

New knowledge needed for sustainability transitions comes partly from theory, mostly from practice.

In a world full of snake-oil salesmen, coproduction requires building trust.....
Innovation System
Reduction Goals and Progress (2006–2016)

- 30% reduction in absolute emissions
- 10% reduction in energy use
+ 12% growth in square footage
Actionable knowledge and knowledgeable action are “coproduced”...

New knowledge needed for sustainability transitions comes partly from theory, mostly from practice.

Because SES is complex, new knowledge will be incomplete, often leading to error, unexpected result.

In a world full of snake-oil salesmen, coproduction requires building trust.....
Surprise!

Scope 3 preliminary estimates

By 2050, set targets for purchasing externally-provided services or activities that rely as little as possible on fossil fuels.
Actionable knowledge and knowledgeable action are “coproduced”...

New knowledge needed for sustainability transitions comes partly from theory, mostly from practice.

Because SES is complex, new knowledge will be incomplete, often leading to error, unexpected result.

Researchers and DMs therefore need to be willing to acknowledge inevitability of surprise, adapt to it.

In a world full of snake-oil salesmen, coproduction requires building trust.....
What Researchers Need To Do: Build capacity to support co-production

Rules for knowledge production, certification, access, use differ across stakeholders... Need to fight for awareness, inclusion.

Knowledge-in-action is an experiment: Goal is learning fast, embracing failure, so build feedback, “county fairs,” safe spaces.

Linking K with A is craft skill, learned by training and doing... But how, and when, in career?

Across disciplines & interests is facilitated by “boundary workers” who remain vulnerable.
Discussion...

- **Mine:** How could “next-gen” universities better help to promote “informed agitation” for sustainable development?
- **Yours?**
Linking knowledge with action for sustainability...

A biased list of sources for further information

• Sustainability Science Program @ Harvard (This presentation and related materials)
  – www.hks.harvard.edu/centers/mrcbg/programs/sustsci
• PNAS Sustainability Science (current research)
  – http://sustainability.pnas.org/
• Annual Review of Environment and Resources (reviews of core topics in sustainability science)
  – http://arjournals.annualreviews.org/loi/energy
• Pursuing sustainability: A guide to the science and practice (new book by Pam Matson, Bill Clark, Krister Andersson; Princeton Univ. Press)
  – http://pursuingsustainability.org