COMMUNICATING SCIENCE
Knowledge Brokerage and Knowledge Transfer

Beatriz Medina, Amphos 21

Ulf Stein, Ecologic Institute Berlin

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OUTLINE

1. PRINCIPLES OF KNOWLEDGE TRANSFER
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   • Terminology
   • Knowledge Brokerage (KB) Approach
   • Science Policy Interface
   • DISCUSSION

2. TOOLS
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   • Web 2.0 Tools – European Water Community
   • Carrying Out Dissemination - Events
   • DISCUSSION

3. EXPERIENCES OF KB
   • KB Initiatives In Water
   • Working With Knowledge Makers
   • Working With Knowledge Users
   • Lessons Learned
   • DISCUSSION
1. PRINCIPLES OF KNOWLEDGE BROKERAGE
TRENDS IN SCIENCE COMMUNICATION

SCIENCE + COMMUNICATION = M · C^2

Ideally

the offer meets the supply

More often

what is clear on one side may become a bit fuzzy on the other side

...
Flow of Information

- The internet is the main source of information for learning about specific scientific issues such as global climate change.
- Amount of information is enormous
TRENDS IN SCIENCE COMMUNICATION

% people well informed in science → low

Source: Eurobarometer 2010
Funding programmes are integrating contractual obligations regarding communication.

Communication in FP7

Grant agreement, Annex II, General conditions II.12. Information and communication

The beneficiaries shall, throughout the duration of the project, take appropriate measures to engage with the public and the media about the project aims and results and to highlight the Community financial support.

Communication in LIFE +

The communication obligations for LIFE beneficiaries include:

- Creating a project website.
- Submitting audio-visual material on two supports.
- Erecting and maintaining notice boards.
- Informing and inviting the European Commission to all seminars and public conferences.
- Writing a “Layman’s Report”
- An “After-LIFE Communication Plan” projects)
TRENDS IN SCIENCE COMMUNICATION –

- Communication often breaks down across disciplines / sectors: effective communication in Integrated Water Management?

- Research on technologies does not automatically create technological innovation

- Scientists are often overloaded with task of communicating

- Reluctance of some industries to innovate (technological inertia)

- Lack of investment and time in knowledge transfer and uptake
COMMUNICATION, WHY?

Bringing science to the public... and public to the science

- To show how societal challenges are addressed by science
- To show how scientific outcomes are relevant to our everyday lives
- To make a better and profitable use of scientific results
Promotion – Raising awareness

• ‘The activity of making potential users aware of ‘something’ and increasing its accessibility ‘ (Garforth 1996)

Dissemination – targeted provision of information

• (historically) ‘The process through which an innovation is communicated through certain channels over time among the members of a social system’ (Dearing, 2008)
• ‘The targeted distribution of information and intervention materials to a specific audience’ (Schillinger, 2010)

Uptake – Exploitation

• ‘Knowledge or innovation utilization by target groups’ (Landry, 2003)
• ‘Application of knowledge and technology by users’ (Garforth 1996)
The Science-Policy Interface

- Interaction between researchers and policymakers is limited by the divergence of these two worlds
- Academics have often very limited understanding of the policy makers and lack awareness of benefits from learning more about these (Clark and Kelly 2005)

<table>
<thead>
<tr>
<th>Science</th>
<th>Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding the world</td>
<td>Managing the world</td>
</tr>
<tr>
<td>Uncertainty is a fact</td>
<td>'Yes’ or ‘No’ decision wanted</td>
</tr>
<tr>
<td>Clientele diffuse or not present</td>
<td>Clientele present and insistent</td>
</tr>
<tr>
<td>Failure and risk acceptable</td>
<td>Failure and risk intolerable</td>
</tr>
<tr>
<td>Underestimate the complexity of policy</td>
<td>Overestimate the precision of science</td>
</tr>
<tr>
<td>„they ignore the hard evidence“</td>
<td>„they should learn about process and context“</td>
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Source: Saner 2007
The dilemma

- Water Management and its supporting knowledge are on a harmonized path among European Member States through the implementation of the Water Directive Framework (WFD), which came into force on December 22nd 2000 (Directive 2000/60/CE).

- More than 10 years later a lot of knowledge has been produced, yet it does not seem to have fulfilled water management needs. FUNDETEC (FP6-project) final report (12/2007)

- With the number of channels increasing, dissemination efforts have become more decentralized and more multifaceted, including repetitive messages being delivered through a suite of mediums
WHAT IS THE KNOWLEDGE BROKERAGE APPROACH?

Knowledge Brokerage: method to facilitate movement of knowledge from one place to another in order to help learn, innovate and improve.

Knowledge changes with context.

Two-directional learning and participatory process.

Knowledge user’s ideas for innovation.

Scientists

Researchers

Users

Businesses

Industry

Decision takers

Policy makers

Other researchers

General public

Scientific knowledge
KNOWLEDGE BROKERAGE: TOOLS AND FORMATS

Benefits

- *Shared understanding*
- *Provides responses to dilemmas and uncertainties in policy and management*
- *Support for research findings and joint action*
- *Develops a common language*
- *Matches policy and research needs*
- *Adjust timing differences between the two systems*
SCIENCE COMMUNICATION: ACTORS AND ROLES

- **Scientists and researchers**: Provide public and private sector with best available science.

- **General public, civil society**: Call for change & transparency, try to influence policy and business.

- **Policy-makers, decision takers**: Educate and provide legal framework; Implement.

- **Companies, businesses, industry, technology**: Take up science to create innovation, voice need for new research needs.

Communication
WaterDiss2.0: ANALYSIS OF DISSEMINATION AND UPTAKE

Online-Questionnaire and interviews with projects coordinators

- 22 responses from 60 projects to questionnaire
- 12 follow-up interviews with project coordinators

Relevant target groups
WaterDiss2.0: ANALYSIS OF DISSEMINATION AND UPTAKE

Relevant dissemination means

- All projects used multiple means to reach their target audiences
- Well-established dissemination means are most commonly used
- Innovative dissemination means are rather underrepresented
TYPICAL FACILITATORS FOR KNOWLEDGE TRANSFER

- Multiplicators
- Previous relationship with target Group
- Early dissemination
- Communication in native language
- Engage all partners
- Trainings at beginning and end of project
- Early / ongoing involvement of Stakeholders
- Specific communication message for each output and target group
- Revision of target group needs and adaptation
- Strong engagement of project coordinator
- Projects
- Clear communication and distribution of work
- Long-term relationships among consortium
- Synergies with past / running FP projects
- Alternative sources of funding after project end
- Appropriate geographic spread
- Policy relevant
- Adaptability
- Synergy with other topics

- Dissemination
- Flexibility
- Interactive workshop forms
- Contact with follow-up project
- Free access
- High demand for output
- Project partners and target group overlap
- Geographically diverse stakeholders
- Innovative
- Outputs
- Readiness for use
-Synergy with other topics
QUESTIONS FOR DISCUSSION

Your own experiences

• Which dissemination means do you normally use?

• Which cited barriers for uptake do you recognize? Which facilitators?

General trends

Are contractual obligations regarding dissemination in research funding problems good enough to guarantee quality of dissemination? How to monitor its success? Should there be some procedures?
2. KNOWLEDGE BROKERAGE TOOLS
DISSEMINATION STRATEGY

- To support the dissemination of research outputs to the potential users
- Adapted to a specific output
- Ensuring the good dissemination format and language
- Develop the DS right at the beginning of a project
INDIVIDUAL DISSEMINATION STRATEGY (IDS)

Output
- Type
- EU policy link
- Status
- Barriers
- Utilization goals

Target Group(s)
- Characteristics
- Messages
- Timing

Activities & Resources
- Channels
- Material
- Resources
- Responsibilities

Transfer to users

To do’s
INDIVIDUAL DISSEMINATION STRATEGY EXERCISE

Saturday 10th August
Developing an Individual Dissemination Strategy (IDS) at research output level

BEFORE SATURDAY:
KEEP AN EYE ON THE RESEARCH OUTPUTS PRESENTED DURING WEDNESDAY, THURSDAY AND FRIDAY SESSIONS.
The European Water Community provides dedicated space to water stakeholders:

For researchers to promote outputs and ensure they reach the operational area.

For practitioners (water managers, consultants, suppliers...) to access the appropriate tools/methods to fulfill their needs.

Join now on www.europeanwatercommunity.eu
**WEB 2.0 TOOLS: EWC**

**Submit water research outputs**
- Promotion of research output focused on:
  - Output description
  - Innovative aspects
  - Relevant: EU Directives
  - Targeted «end-users»
  - Contacts

**Search for water research outputs**
- Find the output that fulfills your needs using:
  - Key words
  - EU Directives
  - Type of «end users»
  - Date

**Access water research outputs**
- Available information:
  - Reports
  - Videos
  - Policy briefs
  - Contacts
  - Thematic groups

**Research outputs implementation**
- On EWC:
  - Find partners
  - Build projects
  - Innovate
  - Implement research results adapted to your needs

**Discuss and work on dedicated thematic groups**
- Create or join thematic groups to:
  - Exchange experiences
  - Ask your questions
  - Find solutions for management
  - Build projects
**Workshops**

- A **brief intensive course** to disseminate information about relevant projects and their outputs to water managers and practitioners. The scope of this dissemination is spatially and topically focused on **specific target groups**.

**Brokerage Events**

- Typically **1-day side-events** organized **back-to-back** with larger regular events such as **trade shows, exhibitions, or conferences**. **Project representatives interact with stakeholders** through booths, stands, and posters.

**Summer Schools**

- Target **young researchers and practitioners**. They aim to promote inter-relationships, interdisciplinary approaches, and sharing of research. They also **facilitate networking** for future consortia.

**E-Seminars**

- **One-two hours session, low attendance**, specific topically oriented (useful to explain outputs to key contacts). **High percentage of effectiveness**.
Engagement methods

- Role playing games
- Scenario workshops (20-25 p.)
- Focus groups (20-25 p.)
- Face to face interviews (1-3 p.)
  - Informal, conversational interview
  - General interview
  - Standardized, open-ended interview
  - Closed, fixed-response interview
- World cafe (15 and 40 participants)
WORLD CAFE

- Workshop on a topic of mutual interest
- 1-2 open-ended questions
- Change table/topic after approximately 30 minutes
- Rapporteur presents a summary from each table
QUESTIONS FOR DISCUSSION

• Have you ever used one of the mentioned tools? What was your experience (good/bad examples)?

• Do you think those tools can improve the impact of your research?

• What do you think is the added value of engaging target groups?
3. Dissemination – Good practices & recommendations
EXPERIENCES TACKLING SPI AND TECHNOLOGY INNOVATION

• The SPI activity of the *Common Implementation Strategy (CIS)* developed in the context of the WFD.

• The *WSSTP (European Technology and Innovation Platform)* is a legal entity operated by the European water sector. WSSTP aims at accelerating knowledge and technology transfer.

• The “*European Innovation Partnership on Water*" (EIP) being currently developed by the European Commission. EIPs help to pool expertise and resources by bringing together public and private actors at EU, national and regional level.

• The *Joint Programming Initiatives (JPI) on “Water challenges for a changing world”* coordinates between research funding bodies of Member States.

• Several support projects launched in 2010 and 2011 by the European Commission for improving the dissemination and uptake of previous research outputs: *AWARE, PSIConnect, STEP-WISE, STREAM, INNOWATER, WaterDiss2.0*
GOOD PRACTICES: EXAMPLES

FP6 BRIDGE - Background criteria for the IDentification of Groundwater thrEsholds (2005 – 2007)

- Strong involvement of project partners in the national WFD implementation
- Used a diversity of dissemination tools, from scientific papers to websites and newsletters
- Strong involvement of the advisory board with DG-ENV and DG-RTD
- Timing of dissemination activities according to the timetable of the CIS WGC on Groundwater
LESSONS LEARNT FROM WATERDISS2.0: WORKING WITH KNOWLEDGE MAKERS

- **Success of KB** much depends on:
  - the stage of a project in its lifecycle
  - the willingness of the project coordinator to engage in the process
  - a close cooperation of all partners

- Frequently collaborative projects have multiple target groups, but show a lack of sound characterization of potential users
LESSONS LEARNT:
WORKING WITH KNOWLEDGE USERS

- Identification of target groups in an early project stage is needed (proposal phase!)
- Effectiveness depending on the right choosing of representatives
- Knowledge users are often lost in the web and sources of information
- Messages need to be ‘translated’ for users
LESSONS LEARNT FROM WATERDISS2.0: DISSEMINATION MEANS AND CHANNELS

- Face-to-face meetings and **participatory approaches** are effective communication channels but are time-consuming.
- **Virtual aspects and social media** are highly relevant (e.g. Twitter).
- **Social media** need a critical mass of ‘followers’ and active participants.
- **Open access to data and information** - requires paradigm shift (Gatekeepers: Public, Journals, researchers).
QUESTIONS FOR DISCUSSION

- How can river basin managers and water authorities use knowledge created from your research?
- Which adjustments are necessary to improve and increase usability of the output?
- Do you think KB is a useful method to increase the impact of research?
- How can new technologies and social networks be useful and what are the factors limiting their use?
FURTHER LINKS

- **European Water Community: sign up and start sharing!**
  www.europeanwatercommunity.eu/

- **WaterDiss2.0 events**: waterdiss.eu/events

- **STREAM: Sustainable Technologies and Research for European Aquatic Management**, www.stream-project.eu

REFERENCES


