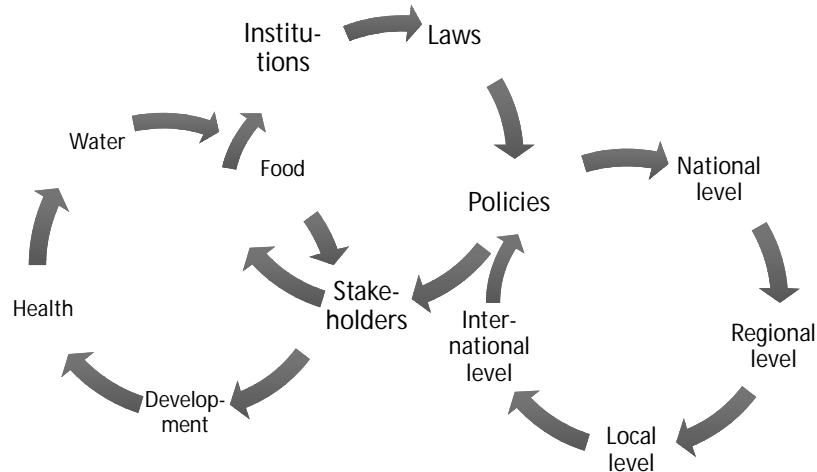


INTEGRATION

in water management and research



WHO & WHAT

- Researcher at Aalto University's Water & Development Research Group
- Group actively doing research particularly on large Asian river basins
 - Water and its diverse connections with development
 - Multi- & interdisciplinary approach: know-how & know-why
- My own background: studied water mgt at Aalto (then TKK) + many other things elsewhere
 - Research focused on Mekong River & integrated approaches in mgt & assessment



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CONTENTS

- Integration: what and why?
- Integration in management: case IWRM
- Integration in research: 'multi-disciplinarity'
- Some conclusions

PLEASE INTERRUPT,
ASK & DISAGREE!



1) Integration: what and why?

What is
integration? 

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Integration =

a process of combining different items and issues together

to form a whole,

usually with an aim to gain a comprehensive, systemic view.

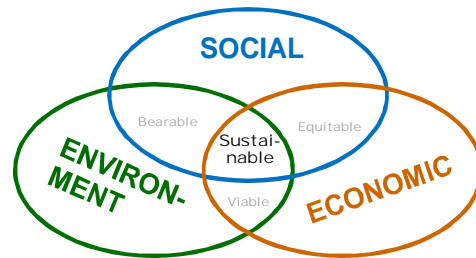
Keskinen (2010), based on Oxford Dictionary

INTEGRATION

- The buzzword of the day:
almost everything should be 'integrated'
 - Different fields:
 - Management, impact assessment, policies
 - Also research ('multi-disciplinarity')
 - Different sectors & areas:
 - Water, forests, land, rural development, urban planning, coastal zones...
 - Plethora of approaches (and acronyms):
IWRM, IRBM, IWM, ICZM, TWM, ILUP, IESM, IRD, IFM...

BACKGROUND

- Long, sporadic history (e.g. Egyptian farmers, the US in 1908)
- Present-day integrated approaches emerged in the 1970s as a response to **sectoral approaches**
 - Failure to consider environment + compartmentalisation
- The concept of **sustainable development** in 1980s
 - Brought in also people and their livelihoods (not just about protecting environment)



CHARACTERISTICS

- Integration means bit different thing in different contexts, but some general characteristics:
 - **Comprehensive** (understanding the context)
 - **Interconnected** (intricate interconnections within the context)
 - **Participative** (considering differing views)
 - **Goal-orientated** (what we actually want to achieve)
 - **Strategic** (long-term view + focus on key aspects)

Margerum & Born (1995), Keskinen (2010)

DEFINING INTEGRATION

- Hence: integrated \neq comprehensive
 - Why not?
- The beauty of integration: accepts that we cannot cover everything in every management context, as it would become too complex & messy
 - Need to find the most relevant things to focus on
- Based on comprehensive view, yet focusing on the most relevant things in a specific context
 - Challenging, almost absurd task
 - 'Context-specific focusing' / 'strategic selection'

DIFFERENT DIMENSIONS

- Usually things to be integrated are themes or sectors, such as water, land use and forests
 - But several other things can be integrated, too: policy levels, institutions, tools etc.
- Three general dimensions (Kidd & Shaw 2007)
 - Sectoral integration
 - Territorial integration (vertically and horizontally)
 - Organisational integration (strategic & operational)

IN SUMMARY...

- Various things to be integrated: themes, sectors, institutions, scales...
- Broadly, integration is about
 - Sustainable development + defragmentation
- Essentially integration is about comprehensive views with a focus, to link different items more closely together
 - Ultimate aim should be:
equal & sustainable water management

More: Keskinen (2010)

PARIPORINA – DOUBLE BUBBLE

*To integrate or
not to integrate,
is that the question?*

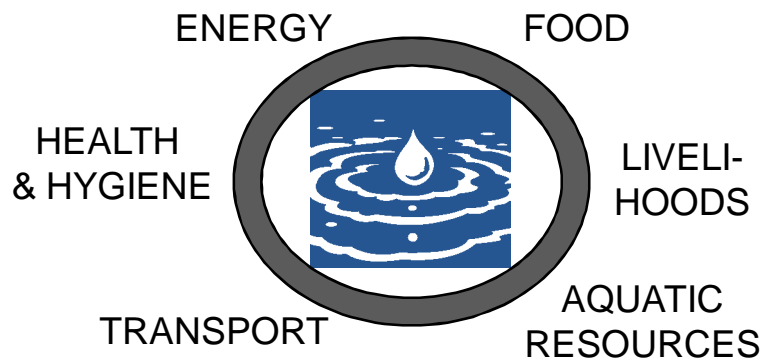
2 minutes!



2) Integration in management: case IWRM

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WATER= BLOOD OF THE PLANET



→ Critical resource for development

THE PROBLEM

Volume of water is fixed, but its use increases

- Population growth
- Urbanisation
- Changes in consumption patterns & diet
- Climate change
- Decreasing water quality

In 2000 twice as
much water was used
than in 1960

- Less water available per person
- Competing water uses

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THE PROBLEM – version 2

” There is a water crisis today.

But the crisis is not about having too little water to satisfy our needs.

It is a **crisis of managing water so badly** that billions of people –and the environment– suffer.”

World Water Report 2000

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SO WHAT TO DO?

- It is clear that we need to manage water in broader, more comprehensive ways
 - Taking into account various uses of water, including environment (*sustainability*)
 - Links to various different sectors (*defragmentation*)
- At the same time water use is becoming increasingly political
 - Increasing *participation*: key stakeholders included
- Integrated approaches seeking to address this 'triple challenge' (*sustainability, defragmentation, participation*)

INTEGRATION IN WATER MGT

- Several integrated approaches in water field
 - *Integrated Water Resources Management (IWRM)*
 - *Integrated River Basin Management (IRBM)*
 - *Integrated Catchment Management (ICM)*
 - *Integrated Watershed Management (IWM)*
 - *Integrated Coastal Zone Management (ICZM)*
 - *Integrated Water Management (IWM)*
 - *Integrated Water Resource Systems (IWRS)*
 - *Total Water Management (TWM)*
- Out of these, IWRM most influential as it has been embraced by the UN & several key actors

IWRM

How many know what it is?

Have you used it?
Seen it?
Researched it?

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IWRM?

The Paradigm for management of water currently

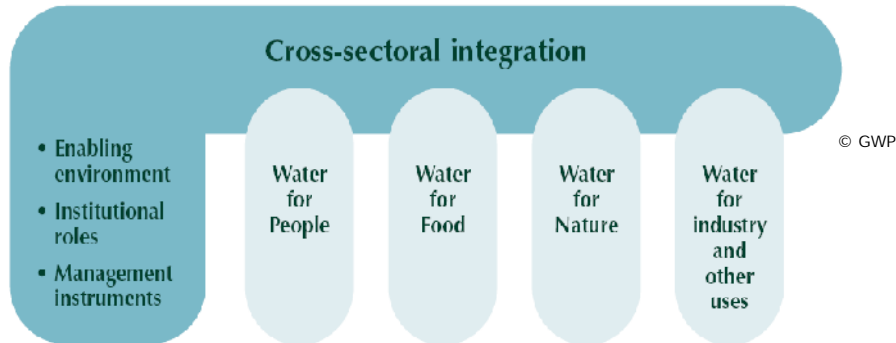
- Binding agreement, not just a promise (*WSSD 2002*)
- Acknowledged also outside water field (*Rio 1992, WSSD 2002*)

"IWRM is a process which promotes coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems"

GWP 2000



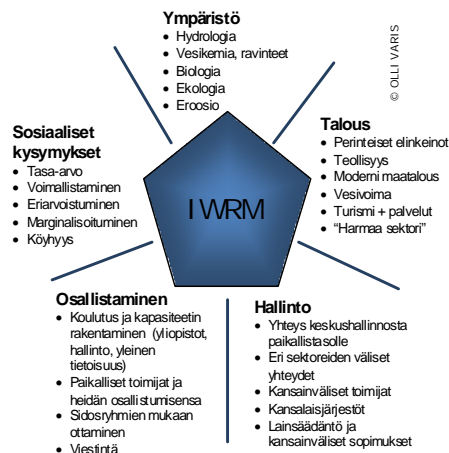
INTERPRETING IWRM (v.1)



- Focused on water use & utilisation within different sectors / users
- Emphasising institutions & mgt instruments

INTERPRETING IWRM (v.2)

- Three sectors to be considered: environment, social & economic issues
- Continuous process building on existing institutions
 - Governance
- Considering the views of different user groups
 - Participation



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CRITISISM TOWARDS IWRM

- Too broadly defined, so unclear what it actually is
→ Becoming a nirvana concept that fits all needs? (Molle 2008)
- One approach fits all –thinking
→ ‘For a hammer, all problems look like a nail’ (Biswas 2010)
- Too theoretical and technical, focusing on technical indicators instead of real outcomes
- Not addressing the real problems, but building on old, problematic institutions
- Developed by Westerners, without consideration of the problems in developing countries

Questions?
Comments?



3) Integration in research: 'disciplinarity'

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DISCIPLINES

- What is a discipline?
'a specific field of study that creates
its own branch of scientific knowledge'

→ A discipline thus provides the scientist with an identity:
maintains an institutional order and has own professional
standards and publication + education procedures
- Yet, the division of research into separate
disciplines is due to historical development
rather than to genuine scientific necessity

→ Challenge: leading to overspecialisation and
too narrowly defined research questions

‘Society has problems,
universities have disciplines’

Adapted from Scholz & Marks (2001)

DISCIPLINARITIES

- An increasing drive to find ways to link different disciplines more closely together
 - Different kinds of ‘multi-disciplinarity’
- Also research thus seeing increasing drive towards integration
 - Reasons are also similar:
 - Defragmentation of separate disciplines
 - Sustainable development

(already Agenda 21 of Rio’s UN Conference on Environment and Development in 1992 called for research that would be interdisciplinary and integrated)

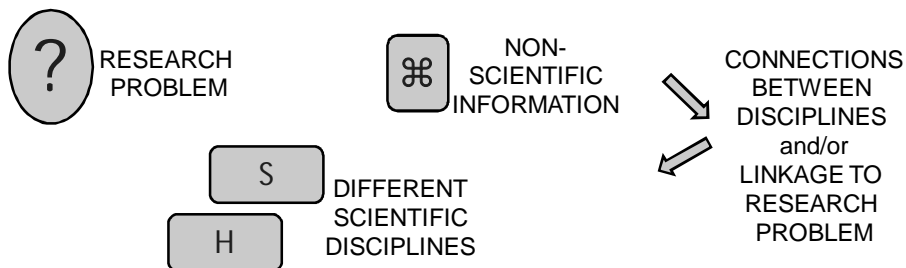
'MULTI-DISCIPLINARITIES'

- Disciplines can naturally be connected in different ways: different kinds of 'multi-disciplinarity'
 - Multidisciplinarity ('monitieteisyys')
 - Crossdisciplinarity ('poikkitieteisyys')
 - Interdisciplinarity ('tieteiden välisyys')
 - Transdisciplinarity
 - Others, too (mono-, pluri-, post-)
- But how these differ?
- Prof. Castro already provided an excellent overview: we'll go further to try to visualise it

TASK: VISUALISING MULTI-DISCIPLINARITIES

- Draw a visualisation for four multi-disciplinarity (multi-, cross-, inter- & transdisciplinarity)
- You may use the following shapes (add your owns, if needed)

5 minutes!



TASK: VISUALISING MULTI-DISCIPLINARITIES

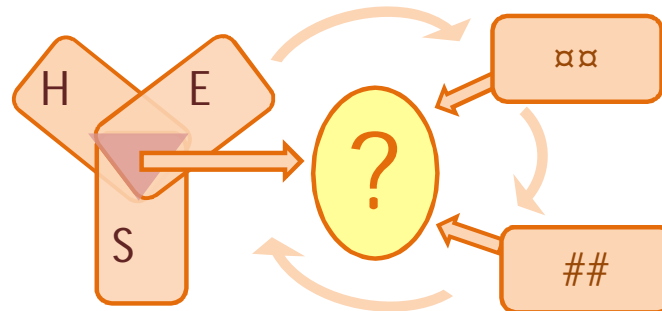
What did you find out?

- Are there differences?
- How they can be described?
- Does this make sense?

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TRANSDISCIPLINARITY:

Collaborative, dynamic problem solving approach crossing both disciplinary boundaries & different forms of knowledge production



© Marko Keskinen

'MULTI-DISCIPLINARITIES'

Naturally also many other ways to conceptualise / visualise multi-disciplinarity exist

- The level of 'common ground'
 - Research context vs. question
- Generalism vs. holism (Willamo)
 - Generalism: multiple views i.e. multidisciplinary (existing methods), Holism: comprehensive i.e. interdisciplinary (new methods)
 - When research team grows, generalism tends to dominate as holism becomes more difficult

4) Some conclusions

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INTEGRATION IN WATER FIELD

- Water resources management is changing:
increasing number of disciplines & aspects, yet
big questions are common (*sustainability, equality*)
→ Need for integration,
both within water field and with other sectors
- Yet, actual practices for integration still varied
and often –absurdly– sectoral (water, forest, land...)
- Plus social, institutional and political dimensions
+ local voices remain poorly represented
(as overall in water management)

SO WHAT' S THE PROBLEM?

- Although the idea sounds relatively simple, integration is not easy to achieve in reality
- The reasons for the challenge (my view):
 - Focus too much on 'sectoral integration'
 - Technical aspects i.e. just finding proper methods for integration
 - Focus too little on 'institutional integration'
 - Teams and organisations trying to do the integration
 - Integration is much more a mindset than a method: the team that does it matters more than the method: interaction!
- Yet, 99% of the discussion on integration still focusing on technical aspects (e.g. IWRM indicators)

WAY FORWARD?

- Need for multidisciplinary / -sectoral teams with interdisciplinary / -sectoral approaches
 - Team interaction more & more important
- 'Doing more with less': successful integrated management may actually require less detailed disciplinary studies and much more interaction
 - Slow, long process
- Integration works as mindset, but not always as actual approach
 - Also 'fragmentation' is good in some cases

