



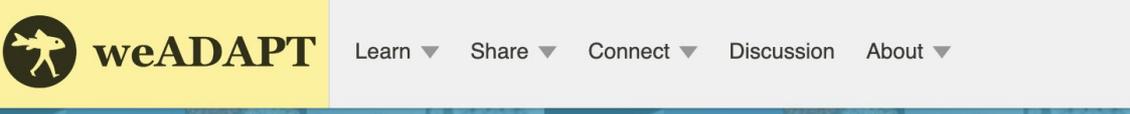
**Transforming knowledge  
management for climate action  
– a road map for accelerated  
discovery and learning**

Julia Barrott & Sukaina Bharwani (SEI)

28 May 2020



# Where it all started



## Climate change adaptation planning, research and practice.

weADAPT is a collaborative platform on climate change adaptation issues. It allows practitioners, researchers and policy-makers to access credible, high-quality information and connect with one another.



[Learn](#)



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### PROVIA Guidance on Assessing Vulnerability, Impacts and Adaptation to Climate Change

CONSULTATION DOCUMENT

## Adaptation task

### Vulnerability indication



APPRAISING  
VULNERABILITY  
AND  
IMPACTS

IMPACT  
ANALYSIS

← Back

<http://www.mediation-project.eu/platform/>

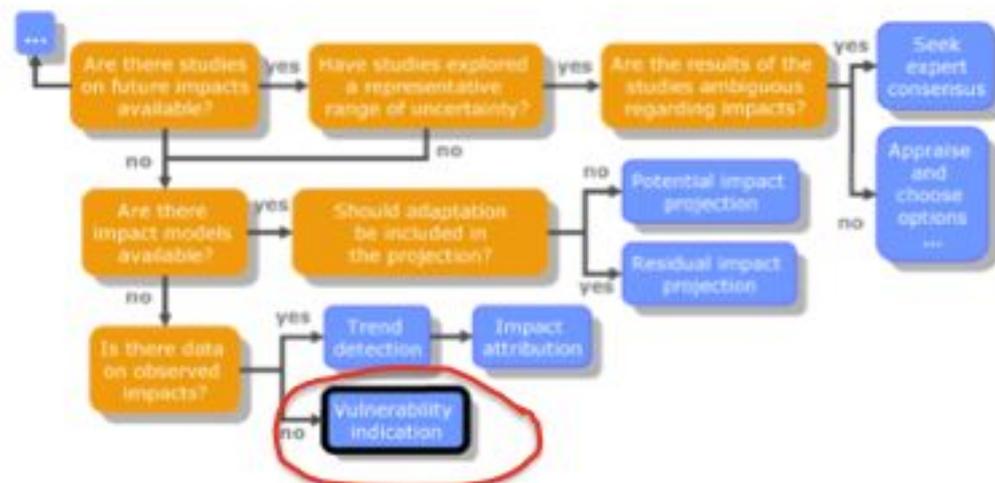
You are here: [Home](#) / [ATN](#) / [Appraising vulnerability and impacts](#) / [Impacts or capacity](#) / [Impact analysis](#)

## Vulnerability indication

Vulnerability indication approaches attempt to say something about possible future impacts based on data collected on the current state of the exposure unit, often combined with social system variables representing capacity.

Vulnerability indication approaches face the challenge that the aggregation of indicating variables into a

vulnerability index can hardly be supported by theory nor can the results be validated empirically (Hinkel 2011a). Due to the lack of theory, some approaches seek to validate through data generated in interviews and focus groups against the "narratives" of vulnerability present in the literature (e.g. Mustafa et al. 2008). Other approaches use expert judgement, but different experts usually rank dimensions differently (Brooks and Adger 2005). Nonetheless, current work on developing and improving vulnerability indicators to address these issues is ongoing (see e.g. Regions 2020, ClimWatAdapt Project and ESPON project). The difference between impact attribution and vulnerability indication approaches is that the former require data on observed impacts while the latter are only applied in the absence of such data.



ATN interactive decision tree - click any node to select it

Criteria checklist

MEDIATION Toolbox

Case steps

External resources

weADAPT case studies identified for task  
'Vulnerability indication' 1

[Mapping vulnerability of the elderly to climate change in Northern Europe](#)

### access details in weADAPT

follow the link to read more on this case study in weADAPT

(will open in a separate browser window)



# The PLACARD project

## PLAtform for Climate Adaptation and Risk reDuction

<https://www.placard-network.eu/>





# Who is in the room?

## PLACARD IKM Webinar - Collaborative Notes

### Participant introductions

**Notes:**

**(1) name, (2) job role, (3) country, (4) your interest in IKM?**

- 
- 
- 

### Multiple ways to engage

**User testing and evaluation of the Connectivity Hub (1) name, (2) sector.**

- 
- 
- 
-



## This webinar

### What we'll be discussing

- Key IKM challenges and user needs
- How a *shared* taxonomy can help
- The bigger picture: how this sets the stage for smarter IKM and AI
- A collaborative roadmap for getting there

### Objectives

- To discuss this vision and ways forward
  - What do you think? Did we miss something? What is needed?
- Galvanise support
  - Who wants to work on this?
  - How can we move forward together?

- **Voluminous data** - difficult to explore, organize and analyse vast amounts of data, particularly if there is a lack of structure or a common format or standard

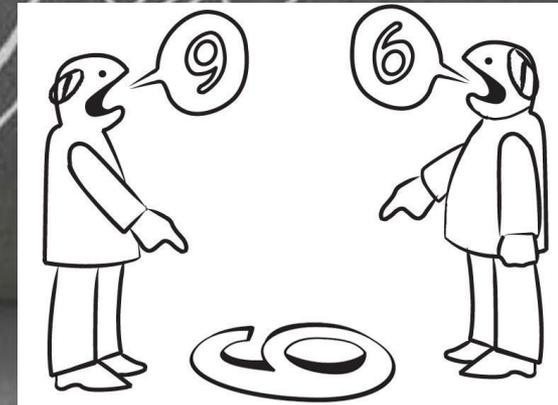
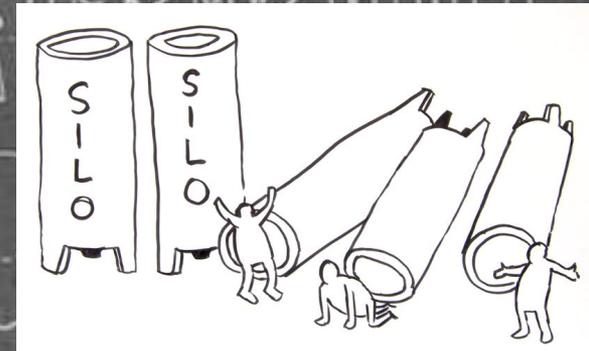
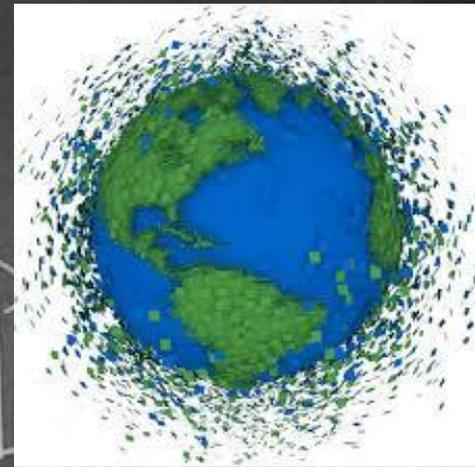
- **Fragmentation of information** - Knowledge is scattered across multiple platforms, data portals, and websites, though objectives may be similar

- **Disparate terminologies** -

- Communities each have their own terminologies which are often discordant

- They often use different terms to mean the same or similar things

- Results in inconsistency in the way related content is described or understood





## What users need

### Users want:

- **enhanced discovery and searchability**, in particular to quickly find related content such as project descriptions, outputs and implementing teams, and to filter and cluster search results according to certain attributes;
- **fewer entry points** between regional, national and international platforms so that they can find content from among platforms rather than searching each site individually;
- **dynamic, responsive systems** that help them find relevant knowledge, for example through automated alerts of new, relevant content, user help desks, and expert request services (automated or not).
- **clarity on language / terminology**

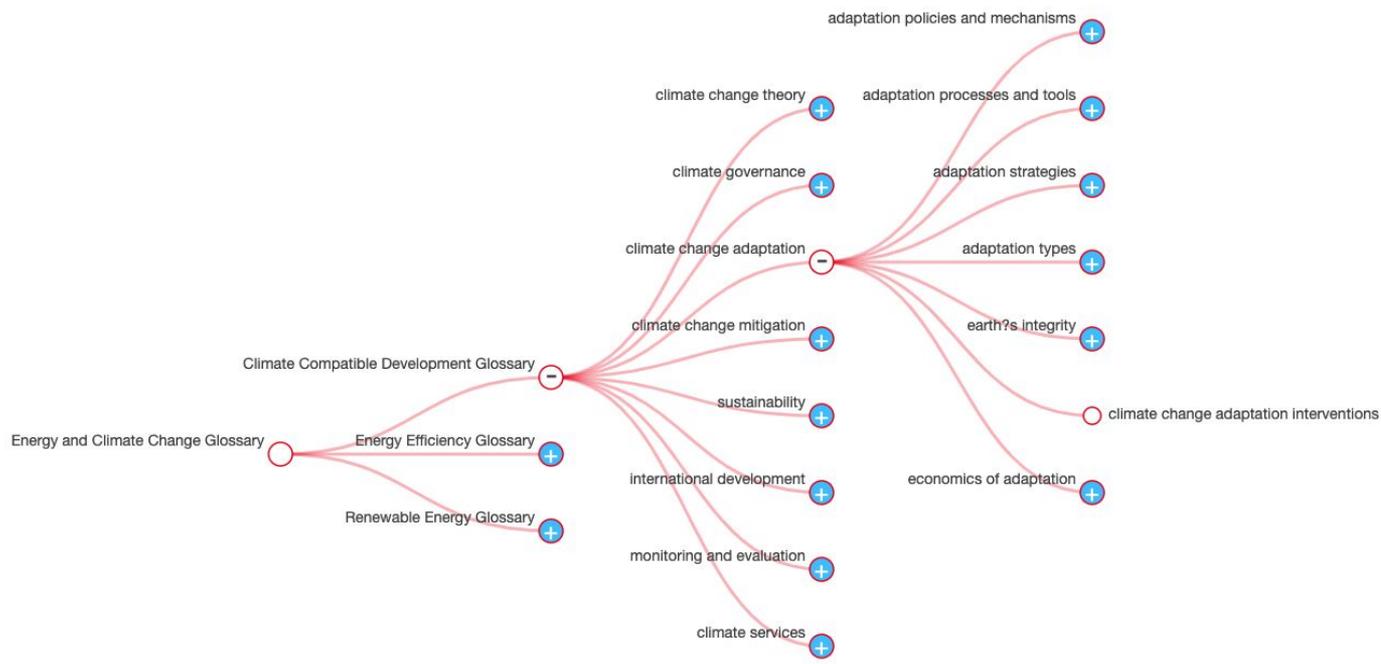
*....too little coordination and planners, coordinators, etc have too little time to keep on top of all initiatives. **Need a quick overview of who is doing what***

*We need clarity on language (**not a common language**)*



# What is a taxonomy?

- Structured set of terms that together describe a topic area
- Provide an overview of the vocabulary used in that subject area, and how terms related to each other
- Can add metadata to terms, e.g. definitions, related terms, notes on term usage (scope notes) and how this has changed





# Components of a taxonomy

The screenshot shows a web page from nature.com. At the top, there is a navigation bar with the site name and search/user icons. The main heading is 'Climate change', followed by a detailed definition. Below this is a 'Featured' section with three article cards, each containing a title, author, date, and a small image. A 'Related Subjects' section follows, with several tags like 'Attribution' and 'Climate-change impacts'. The bottom section is 'Latest Research and Reviews', featuring a research article with a title about CO2 emission budgets and a book cover titled 'POST-WAR AND CONTEMPORARY ART'.

Term / Concept

Definition

→ supports understanding

Tagged content

Related Terms / Concepts

→ useful connections

Tagged content



# Components of a taxonomy

PROJECT CORPORA TOOLS ADVANCED en Search Thesaurus Concepts

- PLACARD - DRR CCA
  - climate change adaptation (11)
  - disaster risk reduction (6)
    - disaster (5)
      - disaster damage (1)
      - disaster impact (2)
      - disaster management (4)
        - disaster preparedness (1)
        - disaster prevention (0)
        - disaster recovery (1)
        - disaster response (0)
      - disaster types (3)
      - mitigation (0)
    - disaster risk (10)
    - disaster risk reduction policy (1)
    - disaster risk reduction strategies (4)
    - hazards (13)
    - resilience (10)
- Lists
- Collections

## disaster

[+ Add to Collection](#)
[Ⓢ Add to Blacklist](#)
[ⓧ Delete Concept](#)

<http://reagle.info/glossary/PLACARD-DRRCCA/20>

Details Notes Documents Linked Data Triples Visualization Quality Management History

SKOS PLACARD +

**Broader Concepts**

[disaster](#)

**Narrower Concepts**

[disaster damage](#)

[disaster impact](#)

[disaster management](#)

[disaster types](#)

[mitigation](#)

**Related Concepts**

[disaster risk reduction](#)

**Top Concept of Concept Schemes**

[disaster risk reduction](#)

[Link to LOD](#)

**Exact Matching Concepts**

<http://dbpedia.org/resource/Disaster> LOD Source: EnDBPedia

**Close Matching Concepts**

**Broader Matching Concepts**

**Narrower Matching Concepts**

**Related Matching Concepts**

**Preferred Label**

[disaster](#) en

**Alternative Labels**

[disasters](#) en

[emergency](#)

**Hidden Labels**

**Notation**

**Scope Notes**

[UNDRR Annotation: The effect of the disaster can be immediate and localized, but is often widespread and could last for a long period of time. The effect may test or exceed the capacity of a community or society to cope using its own resources, and therefore may require assistance from external sources, which could include neighbouring jurisdictions, or those at the national or international levels.](#) en

[UNDRR: Emergency is sometimes used interchangeably with the term disaster, as, for example, in the context of biological and technological hazards or health emergencies, which, however, can also relate to hazardous events that do not result in the serious disruption of the functioning of a community or society.](#)

**Example**

**Definitions**

[UNDRR \(2017\): A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.](#) en



# Taxonomy in use: keyword tagging

**DOCUMENT / PUBLICATION**

**UK Climate Change Risk Assessment 2017**

SOURCE(S): COMMITTEE ON CLIMATE CHANGE (CCC)

This report presents the results and conclusions of an independent analysis of climate change risk in the United Kingdom. The aim of the report is to assess the urgency of further action or research in the next five years to help the UK prioritise their resources. The analysis includes the effects of climate change, adaptation measures that are already underway, such as investment in flood defences, and the effects of economic and demographic trends.

Following the systematic review of the available evidence, included in the Technical Chapters, the Adaptation Sub-Committee identified six key areas of climate change risk that need to be managed as a priority.

The six immediate priority areas are as follows:

- Risks of flooding and coastal change;
- The impact of high temperatures on health and wellbeing;
- Risks to natural capital;
- Risks of future water shortages;
- Impacts on the global food system;
- Risks arising from new and emerging pests and diseases.



### Classifications

**Region**  
East and South Africa

**Scale of implementation**  
Local National

**Ecosystem**  
Forest ecosystems Tropical evergreen forest

**Theme**  
Access and benefit sharing Biodiversity mainstreaming  
Habitat fragmentation and degradation Outreach & communications  
Restoration Traditional knowledge

**Governance type**  
By indigenous peoples and local communities

**Sustainable development goals**  
1 3 6 13

**Aichi targets**  
1 2 5 11

**Sendai Framework**  
Target 2: Reduce the number of affected people globally by 2030

**(I)NDC Submission**  
Rwanda - revised INDC

## How can foresight help to reduce vulnerability to climate-related hazards?

View Edit Revisions Workflow Nodequeue

Submitted by Stephanie Ferguson | published 7th Feb 2017 | last updated 13th May 2019

### Introduction

This **PLACARD** policy brief highlights how foresight – combining participatory futures thinking with strategic analysis – can support the integration of Climate Change Adaptation (CCA) and Disaster Risk Reduction (DRR).

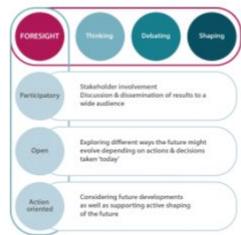
Foresight can be defined as a forward-looking approach to help decision-makers explore and prepare for a range of possible future scenarios, and influence and shape those futures.

Foresight typically involves systematic and participatory intelligence gathering, and medium- to long-term vision-building processes to uncover a range of alternative future ideas. For more background on this, see [FLIS Interest Group](#).

A foresight approach uses a range of methods, tools and formats with a high degree of participation and stakeholder engagement, examining future developments and integrating them into today's decision-making. For more background on this, see [JRC, 2001](#).

Elements of foresight science, policy and practice can strengthen CCA and DRR, link with international mechanisms such as the Sustainable Development Goals (SDGs) and explore the implications of the global agreements (Paris and Sendai) for European, national and local action.

\*Download the full text from the right-hand column.



Ask  
Discuss expert

**Theme**

**Transforming Development and Disaster Risk**  
Generating knowledge to integrate disaster risk reduction (DRR) with equitable, sustainable and resilient development, recognizing that development and DRR are interlinked.

[Explore Theme](#)

**Contributors**

**Markus Leitner**  
Project Manager at EEA  
[View Profile](#)

**Featured Download**

**PLACARD: How can foresight help to reduce vulnerability to climate-related hazards?**  
127 downloads

[Download](#)

Disaster Risk Reduction  
Climate Change Adaptation Foresight  
Climate Risk Reduction Participatory Approaches  
Developing Adaptation Strategies  
Forward Decision Making

## What are the barriers to using foresight in CCA and DRR?

**Climate ADAPT** SHARING ADAPTATION INFORMATION ACROSS EUROPE

Search all site. Q | Help | My Climate-ADAPT

ABOUT - EU POLICY - COUNTRIES, TRANSNATIONAL REGIONS, CITIES - KNOWLEDGE - NETWORKS

Home > Help > Share your information > General > Adapting to heat stress in Antwerp (Belgium) based on detailed thermal mapping

**Case studies**

**Adapting to heat stress in Antwerp (Belgium) based on detailed thermal mapping (2020)**

**Updated:** 2020-04-07

**Keywords:** Buildings, Disaster Risk Reduction, Health, Urban

**Sectors:** Heat stress, Urban greening, blue-green infrastructure, green roofs, heat forecast system, high resolution climate modelling, unpaved surface, urban heat island

**Climate impacts:** Extreme Temperatures

**Governance level:** Local (e.g. city or municipal level)

**Geographic characterization:** Europe

**Macro-Transnational region:** North Sea, North West Europe

**Biogeographical regions:** Atlantic

**Countries:** Belgium

**Case Study Description**

- Challenges
  - Objectives
  - Adaptation Options Implemented in This Case
  - Solutions
  - Importance and Relevance of Adaptation
- Additional Details
  - Stakeholder Participation
  - Success and Limiting Factors
  - Costs and Benefits
  - Legal Aspects
  - Implementation Time
  - Life Time
- Reference Information
  - Contact
  - Websites
  - Source



## Current issues

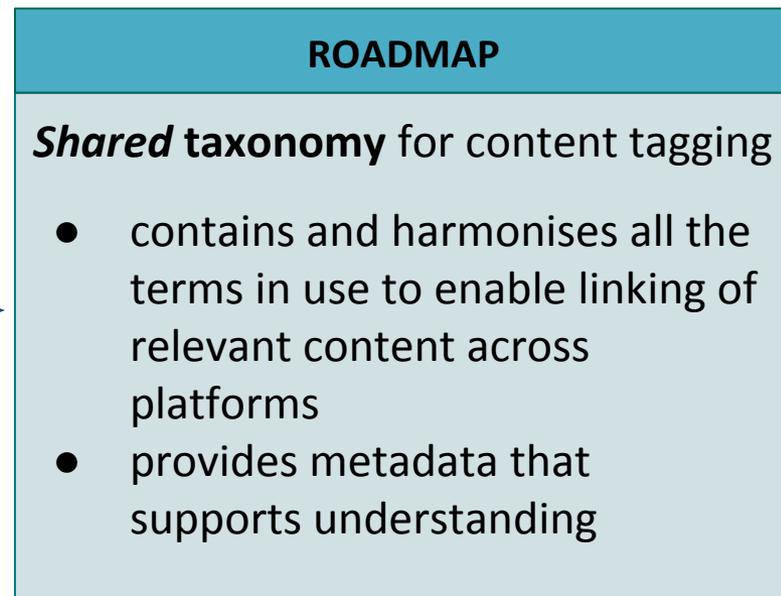
- Platforms and websites typically **use their own, separate vocabulary or taxonomy**
- These taxonomies are **not interconnected**, they only work within the platform/website
- They **use different variations of terms** - synonyms
- Few of these taxonomies contain **metadata** that incorporates definitions and scope notes

### Issues we face:

- Voluminous data
- Fragmentation of information
- Disparate terminologies

### What users want:

- enhanced discovery and searchability
- fewer entry points
- more clarity on language/terminology





# How shared taxonomies help link information & knowledge: the Connectivity Hub





# Connectivity Hub

Add my project

◀ Back to Home

Select Language ▼



**Role:** City planner with a background in disaster risk reduction (DRR).

**Location:** Arnhem, the Netherlands



Welcome to the Connectivity Hub, a new “search and discovery” tool that helps users find relevant knowledge and organizations working on climate change adaptation (CCA) and disaster risk reduction (DRR) issues. The Connectivity Hub is a testbed for the use of artificial intelligence (AI) and machine learning to produce new, policy-relevant insights. [Read more...](#)

### Search

### Popular searches

- flood
- infrastructure
- vulnerability
- migration
- health
- agriculture

<http://connectivity-hub.placard-network.eu>



SHARING ADAPTATION INFORMATION ACROSS EUROPE





**PLACARD**

Start New Search  
Start typing

Refine Search Results  
Type some keywords

Platform  
Select...

Type  
 Articles/Projects  
 Organisations  
 Keywords

Getting started  
Start a search, and then refine resulting search results.  
E.g. drought | Spain  
Or reduce results by unchecking the "Type" of content above.

Key

- Size of circle = amount of connected content
- Click the crosshair to see the item's connections
- Click the item title to see a summary and links to full details at the bottom
- Hover over any circle to see type and amount of connected content

Send feedback

Keyword:

# nature based solutions

11 articles 1 organisation

Alternate name: Nature-based approaches

Have you also considered?

ecosystem-based adaptation ecosystem services

Actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits. (Definition adopted at 2016 IUCN World Conservation Congress).

Solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions. (*Towards an EU Research and Innovation Policy Agenda for Nature-based Solutions & Re-naturing Cities - Final Report of the Horizon 2020 Expert Group*, European Commission, 2015).

Actions that work with and enhance nature so as to help people adapt to change and disasters. (Nature-based Solutions Initiative).

**Scope notes:**

'Nature-Based Solutions' (NBS), is a relatively new concept introduced specifically to promote nature as a means for providing solutions to climate mitigation and adaptation challenges (Cohen-Schacham et al., 2016, IUCN, 2012). Within Europe, policy-makers have integrated the concept into their current framework programme for research and innovation, 'Horizon 2020', providing a new narrative involving biodiversity and ecosystem services aligned with goals of innovation for growth and job creation (European Commission, 2015), and with

# Knowledge

Add my project Back to Home Select Language

# Harmonising language

Explore Close

Keyword:

## nature based solutions

11 articles 1 organization

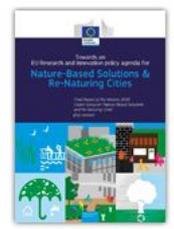
Alternate name: Nature-based solutions



Publication of the European Commission

LAW EU Publications

Publications > Publication detail > Add to my publications



**Ecosystem services:**

**Definitions:**  
Ecological processes or functions having monetary or non-monetary value to individuals or society at large. These are frequently classified as (1) supporting services such as productivity or biodiversity maintenance, (2) provisioning services such as food or fibre, (3) regulating services such as climate regulation or carbon sequestration, and (4) cultural services such as tourism or spiritual and aesthetic appreciation. (IPCC AR5, WG II Glossary of terms, 2014).

[Explore this resource](#)

Have you also considered?

ecosystem-based adaptation ecosystem services

Actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively

*Solutions & Re-naturing Cities - Final Report of the Horizon 2020 Expert Group, European Commission, 2015).*

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[Download and languages](#)

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Getting started  
Start a search, then refine resulting search results.  
E.g. drought | Spain  
Or reduce results by unchecking the "Type" of content above.





**PLACARD**

# Climate Tagger

 **climatetagger**

[ABOUT CLIMATE  
TAGGER](#) ▾

[CLIMATE TAGGER  
TOOLS](#) ▾

[SUPPORTERS &  
CONTRIBUTORS](#) ▾

[CONTACT](#)



TURNING DATA INTO

**KNOWLEDGE**



## This is just the beginning...

- ❖ The Hub is an example of what can be achieved by the implementation of a shared taxonomy across multiple platforms and websites.
- ❖ The Climate Tagger is an example of how such a taxonomy can be implemented, and how technology can help support standardisation.

This is a powerful way of **connecting content** and **promoting understanding**:

- It enables us to **connect - and find - related content**.
- It allows us to **analyse the climate action landscape** and connections between content: who is doing what and where, what topics/fields are emerging, how issues and approaches are evolving.
- Combined with APIs, this **better enables content sharing** between platforms.
- **Metadata, metadata, metadata...**

### What is needed:

- Standards for implementation
- Protocols for updating the taxonomy

#### ROADMAP

- **Standards for how tags are applied**
- **Protocols and governance**



# Towards Linked, FAIR Data

Add to Collection Add to Blacklist Delete Concept

<http://reegle.info/glossary/PLACARD-DRRCCA/20>

Details Notes Documents Linked Data Triples Visualization Quality Management History

SKOS PLACARD +

**Broader Concepts**

**Narrower Concepts**  
[disaster damage](#)  
[disaster impact](#)  
[disaster management](#)  
[disaster types](#)  
[mitigation](#)

**Related Concepts**

**Top Concept of Concept Schemes**  
[disaster risk reduction](#)

**Exact Matching Concepts**  
 <http://dbpedia.org/resource/Disaster>  
   
LOD Source: **EnDBPedia**

**Close Matching Concepts**

**Preferred Label**  
 disaster en

**Alternative Labels**  
 disasters en  
 emergency

**Hidden Labels**

**Notation**

**Scope Notes**  
 UNDRR Annotation: The effect of the disaster can be immediate and localized, but is often widespread and could last for a long period of time. The effect may test or exceed the capacity of a community or society to cope using its own resources, and therefore may require assistance from external sources, which could include neighbouring jurisdictions, or those at the national or international levels. en  
 UNDRR: Emergency is sometimes used interchangeably with the term disaster, as, for example, in the context of biological and technological hazards or health emergencies, which, however, can also relate to hazardous events that do not result in the serious disruption of the functioning of a community or society.

**Example**





# Towards Linked, FAIR Data

FAIR Data: data (content) that is, findable, accessible, interoperable, and reusable.

**Findability:** data and supplementary materials have sufficiently rich metadata and a unique and persistent identifier.

**Accessibility:** metadata and data are understandable to humans and machines. Data is deposited in a trusted repository.

**Interoperability:** metadata use a formal, accessible, shared and broadly applicable language for knowledge representation.

**Reusability:** data and collections have a clear usage license and provide accurate information and provenance.

<https://www.nature.com/articles/sdata201618>

<https://www.go-fair.org/fair-principles/>



## ROADMAP

**Standards in support of  
FAIR Data**



# Beyond taxonomy: Adding value with ontologies

Taxonomy provides a **foundation for powerful IKM:**

- Basis for keyword tagging, to link related content
- Metadata for supporting understanding
- Related terms for suggesting content

**Ontologies** add semantic information that provides additional contextual knowledge:

- **attribute characteristics** to a term
  - E.g. designate methods and approaches as “participatory”
- **classify terms** as a particular type of entity
  - E.g. “multi-criteria analysis” is a “decision-support method”
- **describe relationships** between terms
  - E.g. “community-based adaptation” *promotes* “sustainable livelihoods”



# Beyond taxonomy: Adding value with ontologies

## Ontologies:

- Allow for various **additional classifications** and defining **multiple relationships** among terms, beyond the simple tree structure of the taxonomy.
- Are a powerful method for deriving **tacit and implicit knowledge** regarding how terms are used and applied

Most importantly, **ontologies make semantic information explicit** for machines - provide the additional **contextual knowledge** that lays the way for **machines to think more like us**.

## Driving infrastructure:

- 'smart' decision-support tools
- intelligent content recommendation

### ROADMAP

**A common ontology framework** for adding semantic information; that outlines the classifications and relationships needed to support enhanced IKM.

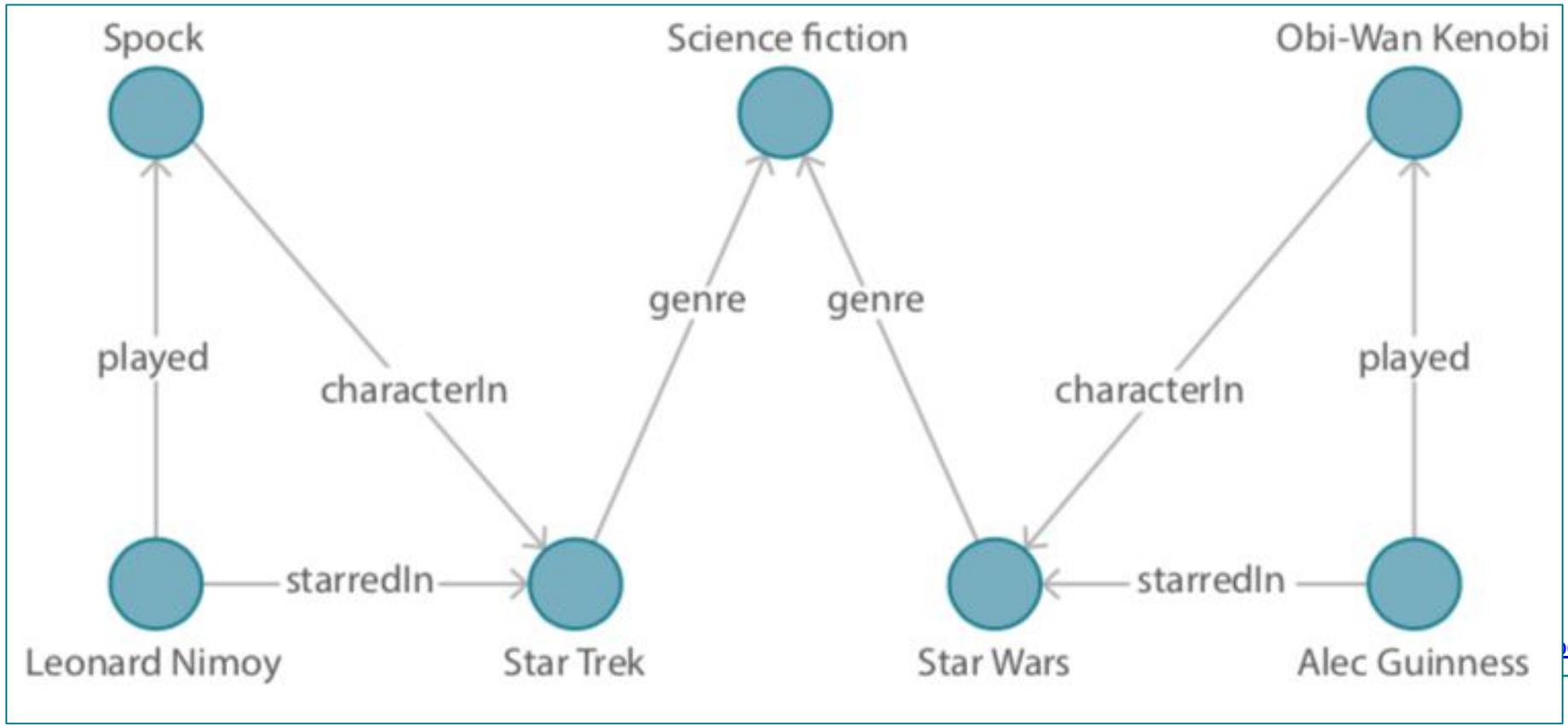


# Taking IKM to the next level with knowledge graphs

Shared taxonomy  
Common ontology  
Standardised implementation



The end goal of the roadmap  
⇒ a **climate action knowledge graph**





# Knowledge graphs in action

Knowledge graphs are everywhere... Alexa, Siri, Google...



All News Images Videos Books More Settings Tools

About 592,000,000 results (0.49 seconds)

### Top stories

**BBC**  
Planting trees doesn't always help with climate change  
6 days ago

**Nature**  
Short-term tests validate long-term estimates of climate change  
1 day ago

**PHYS.ORG**  
Asteroid, climate change not responsible for mass extinction 215 million years ago  
1 hour ago

More for climate change

www.ipcc.ch › site › 2018/02 › AR5\_SYR\_FINAL\_SPM PDF  
**Chapter Climate Change 2014 Synthesis Report Summary for ...**  
 It provides an integrated view of climate change as the final part of the IPCC's. Fifth Assessment Report (AR5). This summary follows the structure of the longer ...

climate.nasa.gov › evidence  
**The evidence for rapid climate change is compelling - NASA ...**  
 Vital Signs of the Planet: Global Climate Change and Global Warming. How do we know it's happening? Here's the evidence.

www.bbc.co.uk › news › science-environment-24021772



## Global warming

Global warming is the ongoing rise of the average temperature of the Earth's climate system and has been demonstrated by direct temperature measurements and by measurements of various effects of the warming. [Wikipedia](#)

### Climate change books 2019

View 15+ more

The Uninhabitable Earth	Losing Earth	We Are the Weather...	On Fire: The Burning...	Falter: Has the Human...

### People also search for

View 5+ more

Climate variability and cha...	Immigrati...	Environ... degradat...	Water scarcity	Gun control



# Leveraging the power of AI

## Climate Change Action Through Artificial Intelligence: Putting Knowledge Graphs to Work

July 1, 2020 | Webinar | 5:00 pm - 6:00 pm CEST

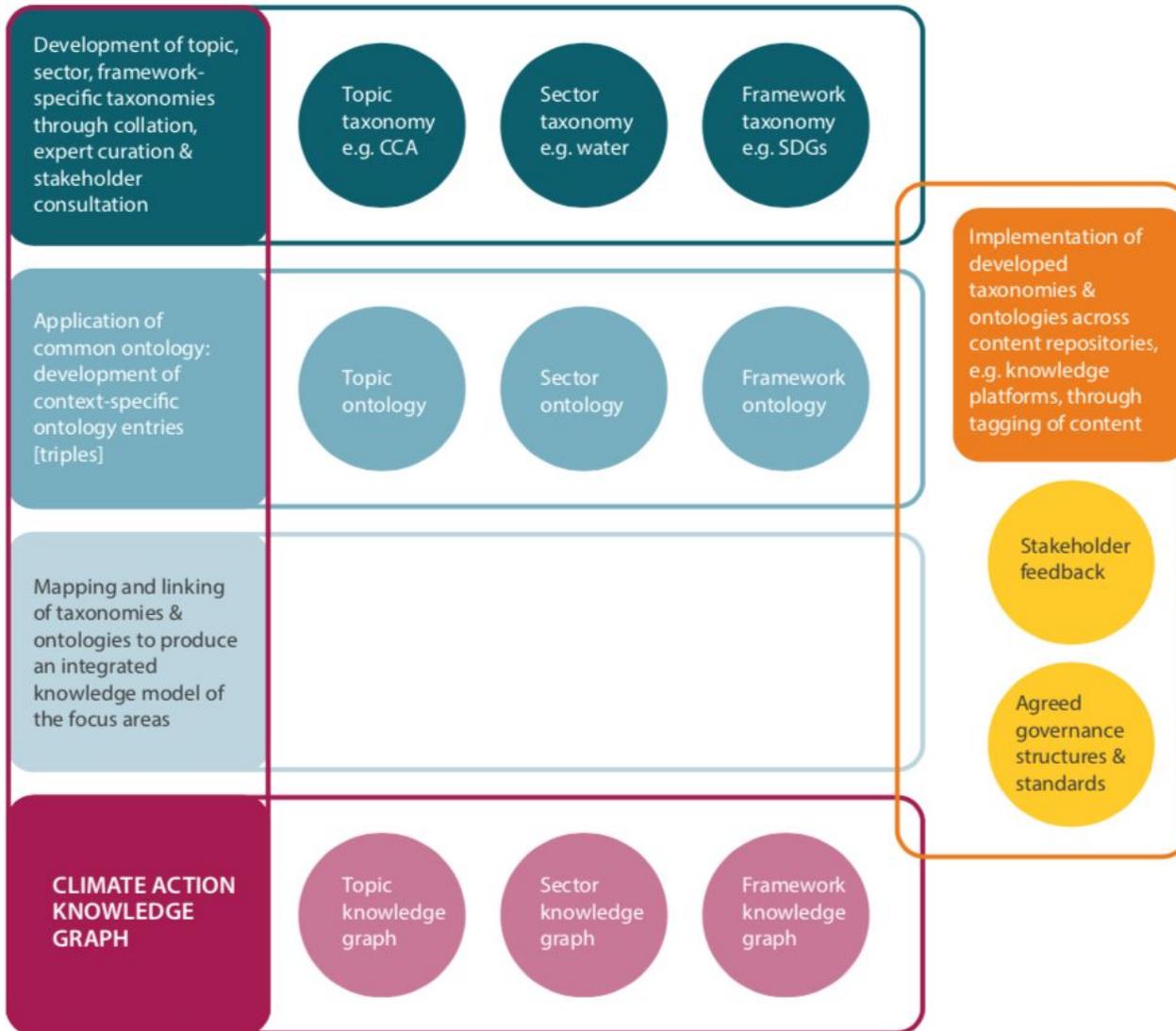


**SAVE THE DATE:** 01 July 2020 - 5 pm to 6 pm CEST.

<https://www.poolparty.biz/events/climate-change-action-through-artificial-intelligence-putting-knowledge-graphs-to-work>



# A road map for transforming IKM



- ❖ Six concrete steps that knowledge and platform managers can take now.
- ❖ Sixteen steps for the medium and long terms.



# The ideas behind the roadmap

## A collaborative, pragmatic process that:

- People/groups can join in at different stages, and progress at different speeds
- Enables contributions at different scales
- Recognises and makes use of work to date - helps to connect and give visibility to the many taxonomies and ontologies already available
- Is achievable - it builds on and makes use of existing standards, protocols, technologies and thinking

## At its core:

- **COLLABORATION**
- Equitable visibility and accessibility
- Inclusion of different initiatives, focus areas
- Focus on meeting user needs



## The detail - a team effort!

Steps are **led by actor groups**; **addressed as a community**; or undertaken by a **combination of the two**.

**Not a linear process** - activities can be undertaken in parallel and iteratively.

1. Collate and evaluate existing taxonomies and ontologies in relevant focus areas (topic, sector, policy framework).
2. Collate all the different data, knowledge and information types that the shared taxonomy and ontology need to describe and relate.
3. Conduct interviews and hold workshops with stakeholders to further explore the nature of content, terminologies and users' information and knowledge needs, including the design of IKM systems and knowledge integration.
4. Share, discuss and use outputs from steps 1-3 to explore significant overlaps in terminology and to establish components of a common ontology.



## The detail - a team effort!

5. Specify a set of (prioritised) core IKM activities that taxonomies, a common ontology, and the resulting overarching knowledge graph should support.
6. Agree on standards for quality assurance, metadata, and governance of the taxonomies, common ontology, and knowledge graph, and make key decisions about their licensing and publishing.
7. Agree on standards for the implementation and use of the shared taxonomies and common ontology to connect relevant content across websites, enable accurate clustering of knowledge for different decision-making contexts and ensure the linked data content pool is of sufficient quality to be useful to users.
8. Develop a governance model that specifies how future changes and enrichments of taxonomies, common ontology and resulting knowledge graph will take place.
9. Develop a common ontology framework to attribute characteristics to terms and describe the relationships between terms.



## The detail - a team effort!

10. Develop the focus area taxonomies and ontologies based on existing taxonomies and ontologies and their overlaps, the common ontology framework, the terminology used in that area, the content types that need to be described and the needs of stakeholders.
11. Enrich and expand the taxonomies and ontologies through text analysis of documents, websites, and other content to identify new terms for integrating into the taxonomy.
12. Add metadata to the focus area taxonomies to provide a rich base of information on the terms, including definitions and how they are used in different contexts.
13. Analyse overlaps and, where appropriate, link the focus area taxonomies and ontologies to produce an integrated, shared climate action taxonomy and ontology.



## The detail - a team effort!

14. Implement the integrated taxonomy and ontology in knowledge management systems to produce a knowledge graph of climate action.
15. Continue to enrich and expand the taxonomies, ontologies, and resulting overarching knowledge graph.
16. Regularly test and evaluate the taxonomies, ontologies, and resulting knowledge graph and explore their potential to better support users, including through AI approaches and the development of “smart”, responsive IKM systems.



## What (we think) we can be doing now

1. Follow existing good practice principles and standards where possible.
2. Sharing existing taxonomies and ontologies (both formal and informal)
3. Engaging experts to validate and improve taxonomies
4. Adopting and implementing shared taxonomies and ontologies within their websites to tag content with relevant key terms.
5. Developing application programming interfaces (APIs) to support interoperability and content sharing across websites.
6. Promoting awareness of the added value and importance of IKM within and across institutions in supporting knowledge uptake, informing decisions, and enabling powerful analysis using AI approaches.



## What is needed

To achieve the promise offered by IKM requires a shift in thinking about how to approach and undertake IKM. It also requires:

- Widespread **awareness of the value of IKM**, both *within* and *across* institutions.
- **Leadership** from major actors to elevate and progress the agenda.
- **Increased investment** in IKM to build capacity and IKM literacy.
- **Collaboration** on the development and uptake of authoritative, shared taxonomies and ontologies.
- Development and widespread adoption of **IKM standards**.
- Creation of a **governance model** that allows for ongoing evolution.



# Success case: AGROVOC

## AGROVOC Multilingual Thesaurus

Content language English  Search

Alphabetical

Hierarchy

- livelihoods
- loans
- losses
- marketing channels
- markets
- meal patterns
- models
- needs
- networks
- organizations
- patents
- plans
- policies**
  - agricultural policies
  - development policies
  - economic policies
  - energy policies
  - environmental policies
    - Clean Development Mechanism
    - climate change adaptation**
    - climate change mitigation
    - emissions trading
    - environmental charges
    - extension policies
    - fiscal policies
    - fishery policies

entities > policies > environmental policies > climate change adaptation

PREFERRED TERM

**climate change adaptation** 

BROADER CONCEPT

[environmental policies \(en\)](#)

RELATED CONCEPTS

[climate change \(en\)](#)

IN OTHER LANGUAGES

 التكييف مع تغير المناخ	Arabic
 适应气候变化	Chinese
 adaptace na změnu klimatu	Czech
 adaptation aux changements climatiques	French
 კლიმატის ცვლილებასთან ადაპტაცია	Georgian
 Anpassung an den Klimawandel	German
 Adattamento al cambiamento climatico	Italian
 Приспособление к изменению климата	Russian
 адаптация к изменению климата	
 adaptación al cambio climático	Spanish
 iklim değişikliğine uyum	Turkish

URI

[http://aims.fao.org/aos/agrovoc/c\\_1374567058134](http://aims.fao.org/aos/agrovoc/c_1374567058134) 

Download this concept:

[RDF/XML](#) [TURTLE](#) [JSON-LD](#)

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## Let's discuss...

- Do you see the need for linking relevant data across platforms/websites?
- What are the barriers?
- What are the other potential benefits?
  - e.g. building a taxonomy provides opportunity for really thinking what we mean by/how we think about certain terms, e.g. resilience)
- What we can be doing to promote IKM/gain buy-in?
- Where do people want to see this go?
- What taxonomies are already out there?
- How much interoperability is there already?
- What are the barriers to contributing to a linked dataset?
- Are there good examples already out there?



## Ways to engage

1. User testing and evaluation of the Connectivity Hub
2. Join specialist working groups on taxonomy development specialist area of interest e.g. EbA, health etc.
3. Join a mailing list / discussion forum on how to transform knowledge management and to explore new funding opportunities, in line with the roadmap

Please let us know how you would like to engage  
See Collaborative Notes document



# Next webinar



Please check the PLACARD website for further details: [www.placard-network.eu](http://www.placard-network.eu)

Climate change action through artificial intelligence: putting knowledge graphs to work

**Wed 01 July 2020 17:00 - 18:00 (CET)**

SEI, SWC, REEEP

