

# Managing in an era of uncertainty

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decision support tools water climate change

**about 2,310,000 results**



This area would be  
used to place an  
explanatory tagline  
or overview statement.



## About The Academy

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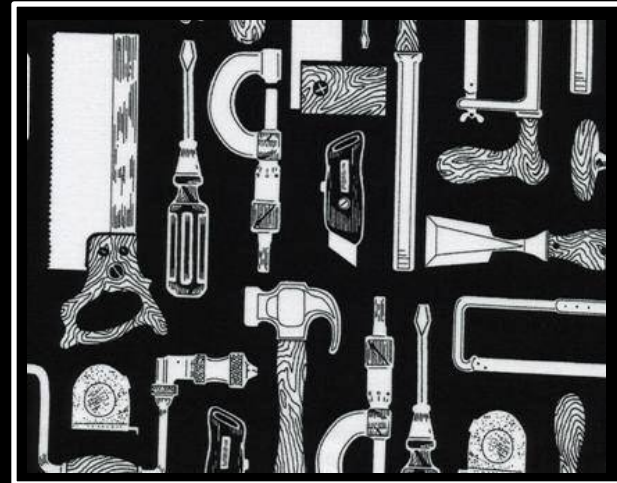
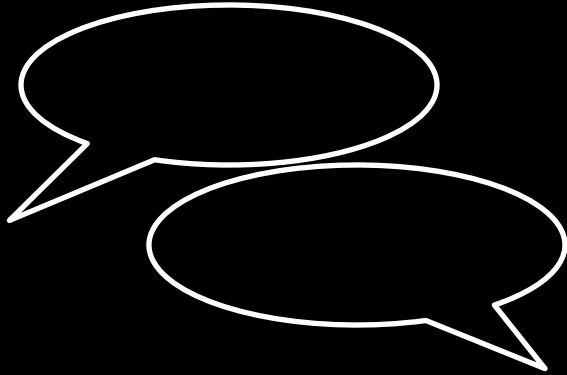


## What's New!

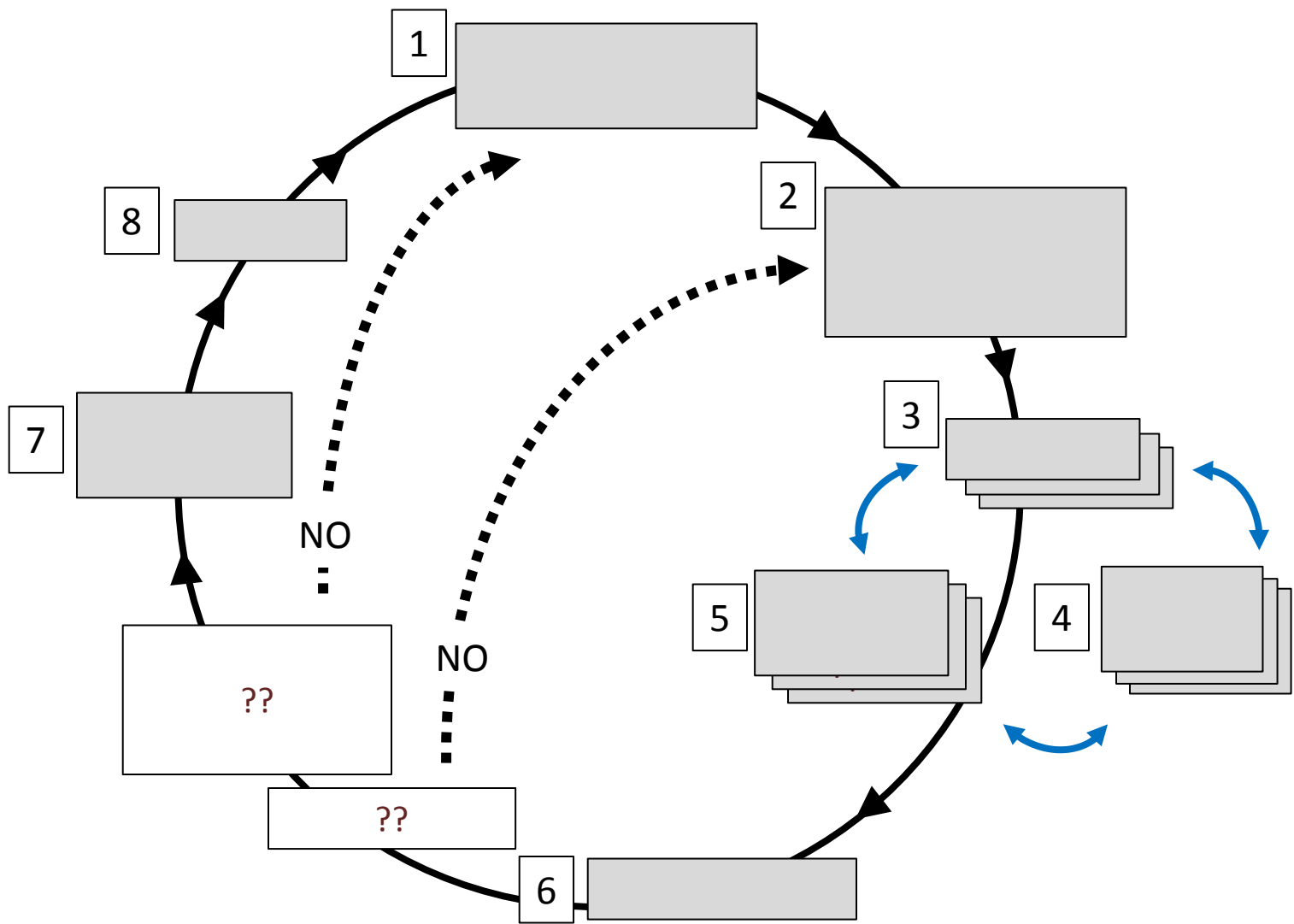
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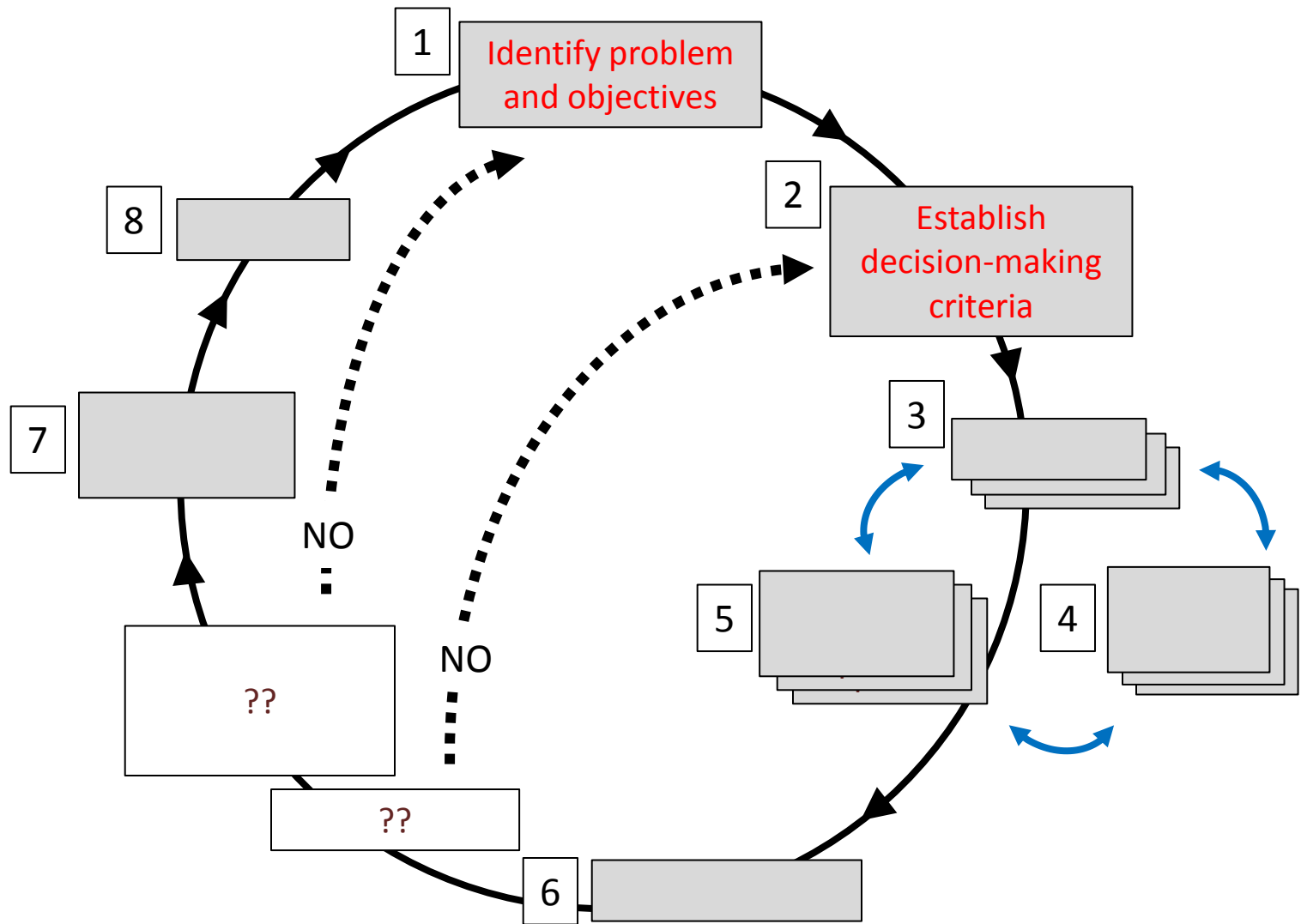


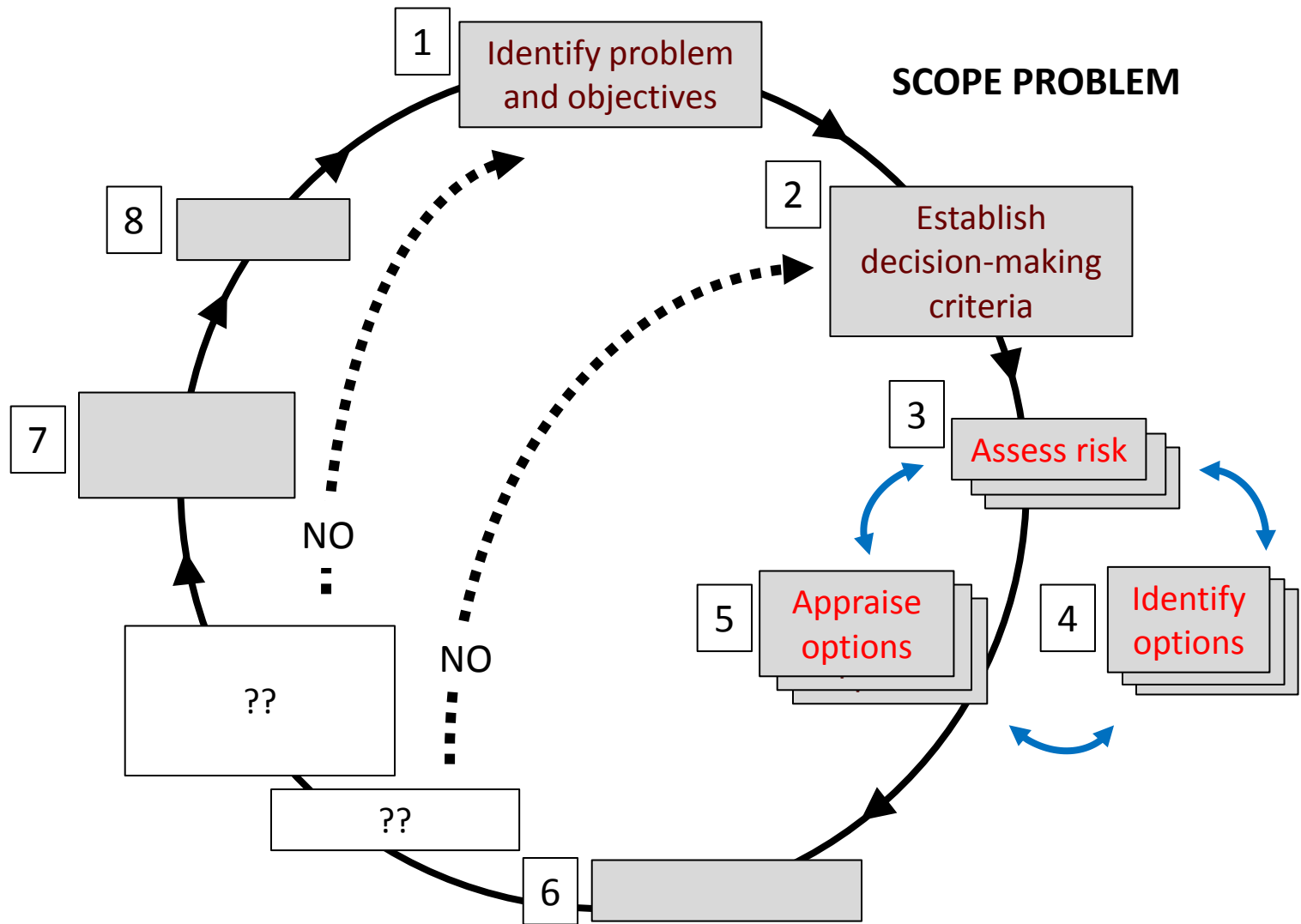
# Discussion Topics



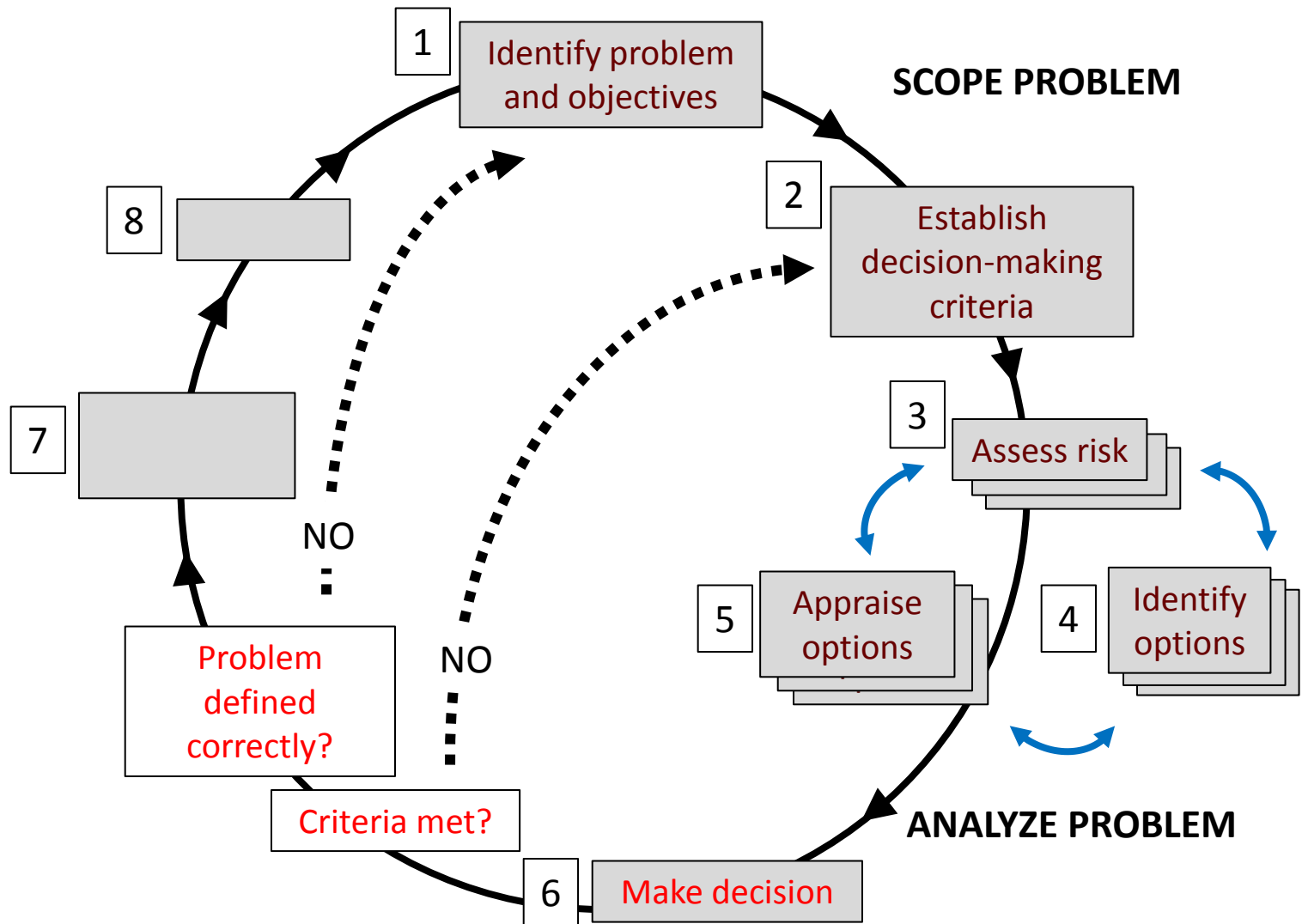
# “Iterative Risk Management”

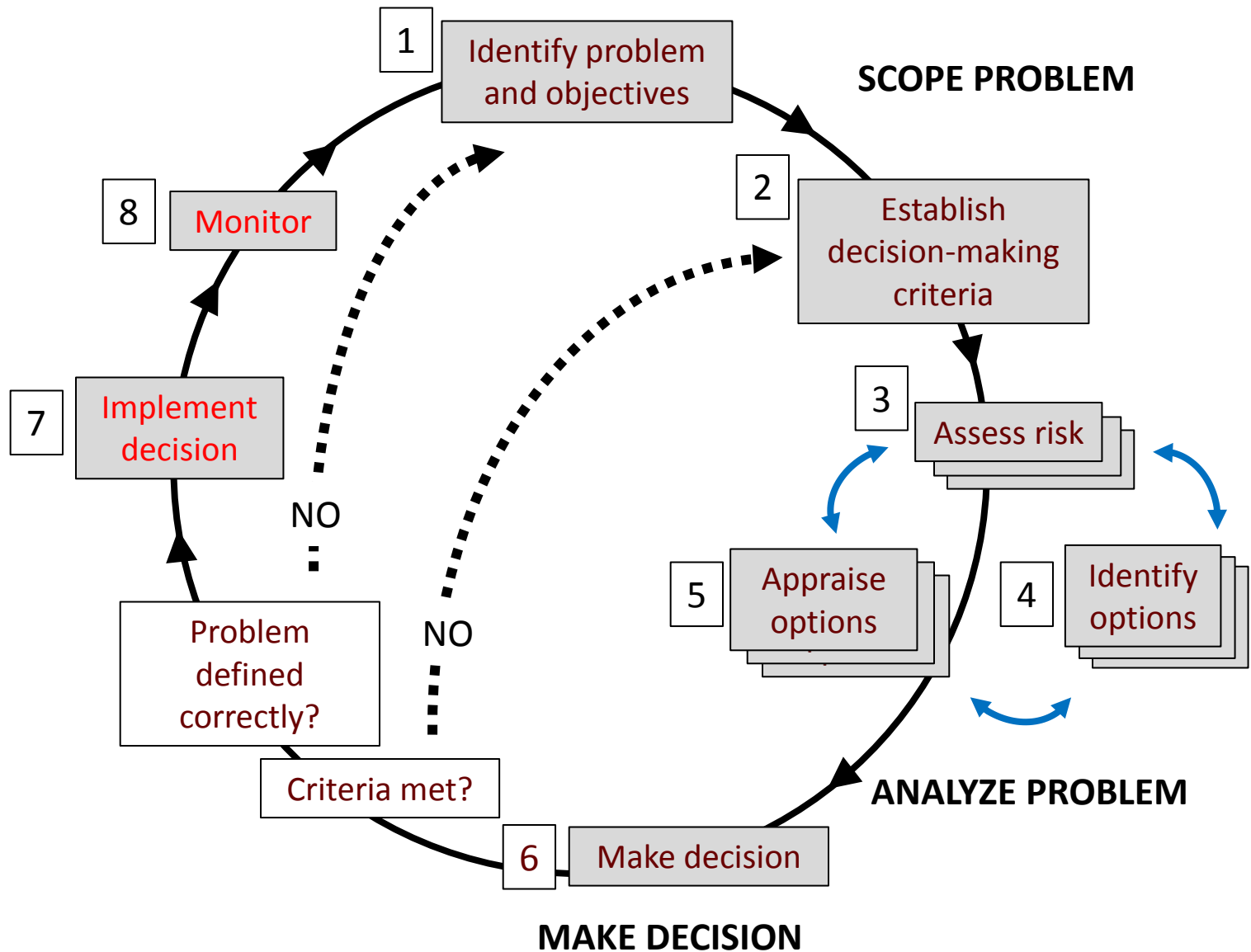












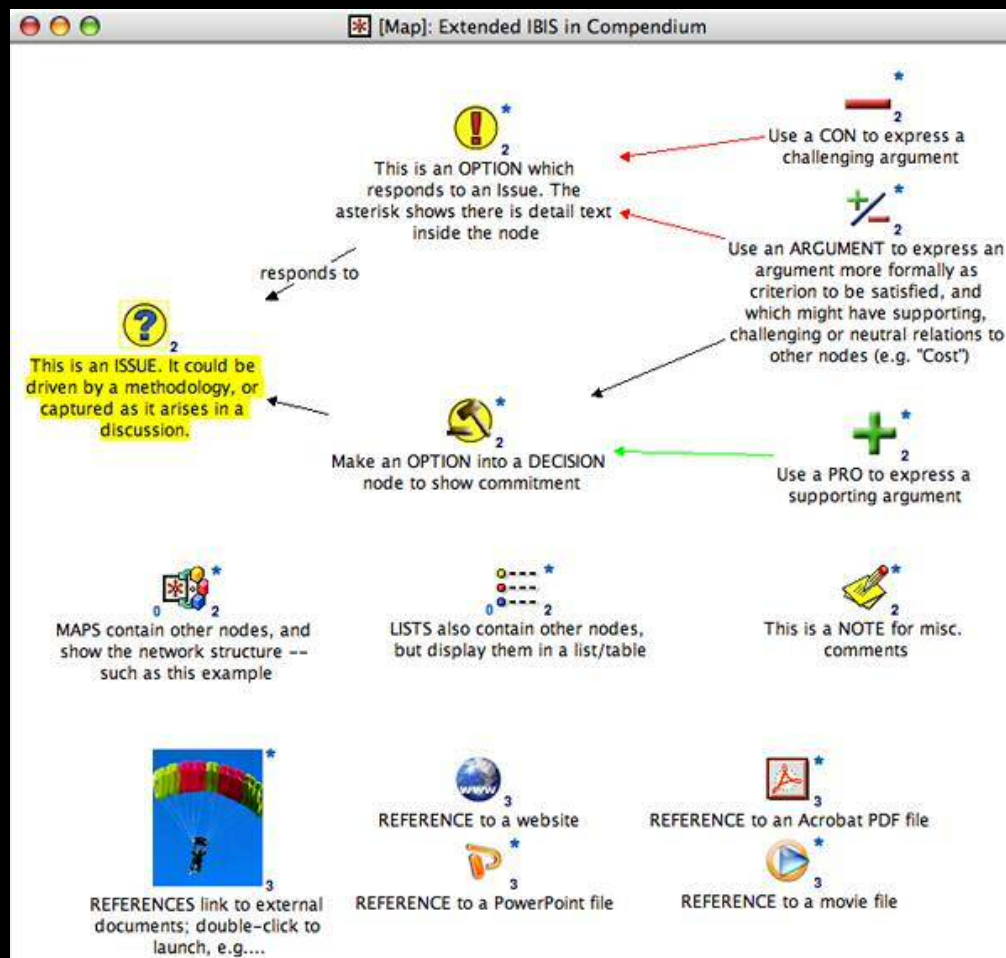
# SCOPE PROBLEM

Stage 1. Identify problem and objectives

Stage 2. Establish decision-making criteria

## Tool Example: COMPENDIUM

“The software provides a visual environment that allows people to structure and record collaboration as they work through *wicked problems*.”



## ANALYZE PROBLEM

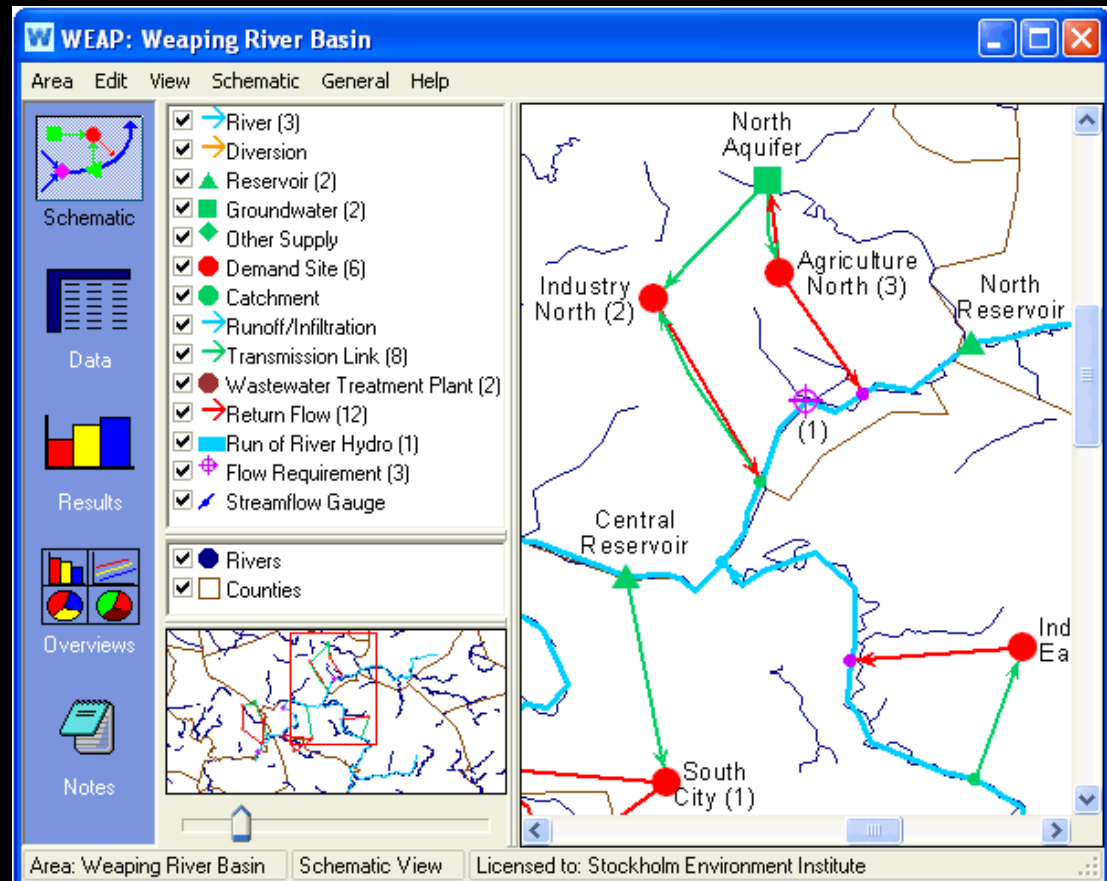
Stage 3 (i,ii,iii). Assess risk

Stage 4 (i,ii,iii). Identify options

Stage 5 (i,ii,iii). Appraise options

### Tool Example: **WEAP** (Water Evaluation and Planning)

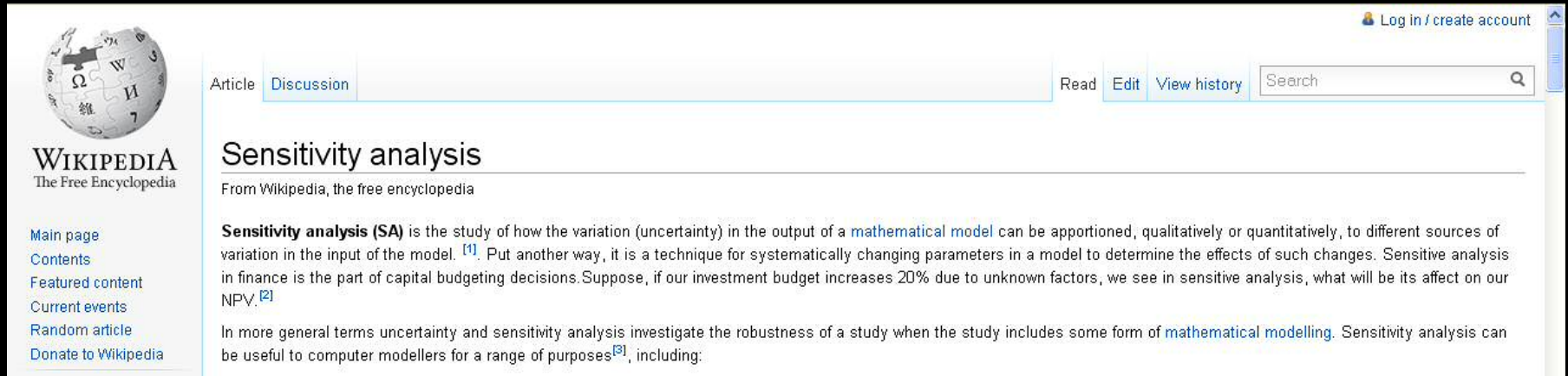
“WEAP is ... used to create simulations of water demand, supply, instream flow requirements, water quality, etc., all under scenarios of varying policy, hydrology, climate, land use, technology and socio-economic factors”



# MAKE DECISION

## Stage 6. Make decision

### Tool Example: **SENSITIVITY ANALYSIS**



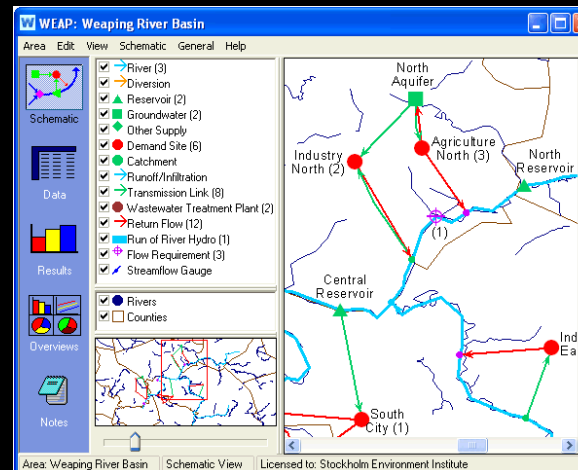
The screenshot shows the Wikipedia article titled "Sensitivity analysis". The page includes the Wikipedia logo, navigation links (Main page, Contents, Featured content, Current events, Random article, Donate to Wikipedia), and article tabs (Article, Discussion). The article text defines sensitivity analysis (SA) as the study of how the variation (uncertainty) in the output of a mathematical model can be apportioned, qualitatively or quantitatively, to different sources of variation in the input of the model. It also mentions its application in finance and its use in investigating the robustness of a study.

**Sensitivity analysis**

From Wikipedia, the free encyclopedia

**Sensitivity analysis (SA)** is the study of how the variation (uncertainty) in the output of a **mathematical model** can be apportioned, qualitatively or quantitatively, to different sources of variation in the input of the model. <sup>[1]</sup> Put another way, it is a technique for systematically changing parameters in a model to determine the effects of such changes. Sensitive analysis in finance is the part of capital budgeting decisions. Suppose, if our investment budget increases 20% due to unknown factors, we see in sensitive analysis, what will be its affect on our NPV. <sup>[2]</sup>

In more general terms uncertainty and sensitivity analysis investigate the robustness of a study when the study includes some form of **mathematical modelling**. Sensitivity analysis can be useful to computer modellers for a range of purposes<sup>[3]</sup>, including:



## POST-DECISION

Stage 7. Implement decision

Stage 8. Monitor

Tool Example: **MODIS DATA**

The screenshot shows the USGS LP DAAC website. The header includes the USGS logo with the tagline "science for a changing world" and the NASA LP DAAC logo with the text "LAND PROCESSES DISTRIBUTED ACTIVE ARCHIVE CENTER". Navigation links include HOME, ABOUT, PRODUCTS, GET DATA, TOOLS, USER COMMUNITY, and CUSTOMER SERVICE. A search bar is located on the right. The main content area is titled "MODIS Reprojection Tool" and includes a login section with fields for Username and Password, and buttons for Login and Sign Up. A "Forgot your password?" link is also present. The right sidebar contains a "Download" section with links to various software versions (Windows 10 MB, Linux 6 MB, Linux 64 7 MB, Solaris 2.7 7 MB, Macintosh OS X (Intel) 6 MB, MRTBatch.jar 0 MB) and a "Manuals" section. The footer includes links for NEWS FEED, SITE MAP, and a globe icon.

USGS Home  
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Search USGS

NASA LP DAAC  
LAND PROCESSES DISTRIBUTED ACTIVE ARCHIVE CENTER

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▶ ASTER DAR Tool  
▶ MODIS Reprojection Tool  
▶ MODIS Reprojection Too...  
▶ LDOPE Tools

News Feed Site Map

### MODIS Reprojection Tool

The MODIS Level-3 Land products are generated by the MODIS Adaptive Processing System (MODAPS), located at the NASA Goddard Space Flight Center, as gridded output in the Sinusoidal (SIN) projection. These data products are then sent to the LP DAAC for archive and distribution.

The LP DAAC contracted the South Dakota School of Mines & Technology to undertake software development of the MODIS Tool. The initial version of this software will enable users to read data files in HDF-EOS format (MODIS Level-2G, Level-3, and Level-4 land data products), specify a geographic subset or specific science data sets as input to

#### Login

Username  
Password  
Login Sign Up  
Forgot your password?

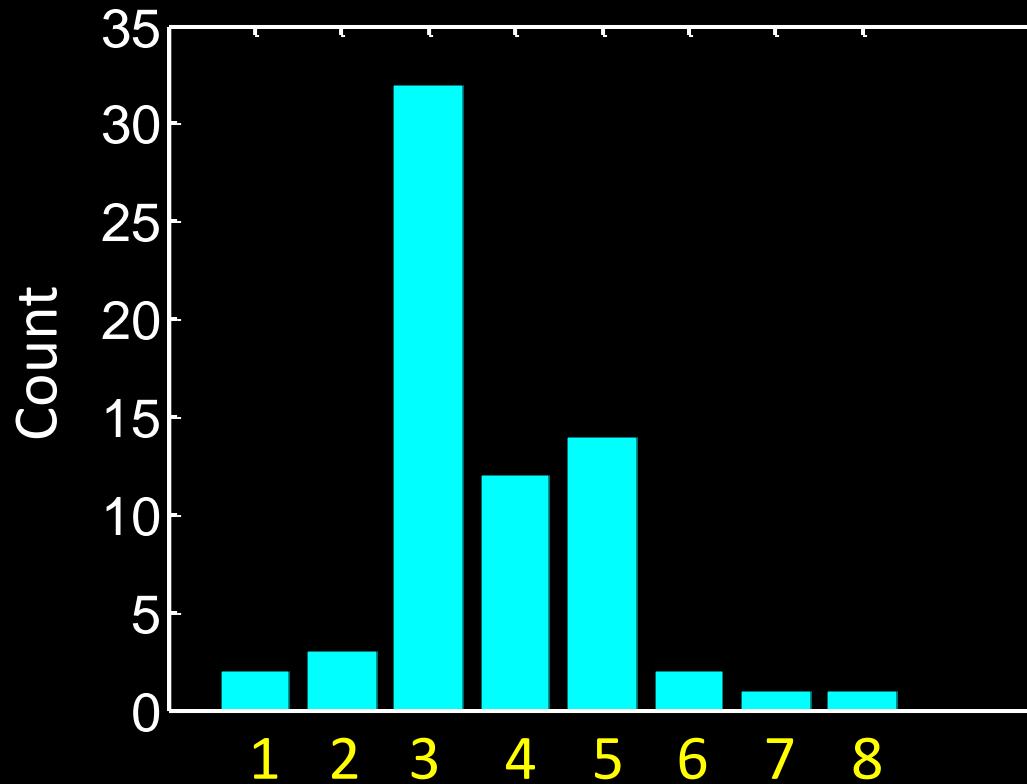
#### Download

Please log in to download files.

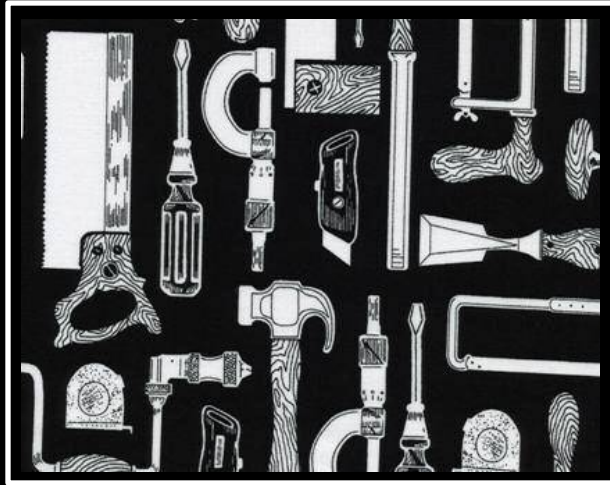
- Windows 10 MB
- Linux 6 MB
- Linux 64 7 MB
- Solaris 2.7 7 MB
- Macintosh OS X (Intel) 6 MB
- MRTBatch.jar 0 MB

#### Manuals

## Tools by STAGE

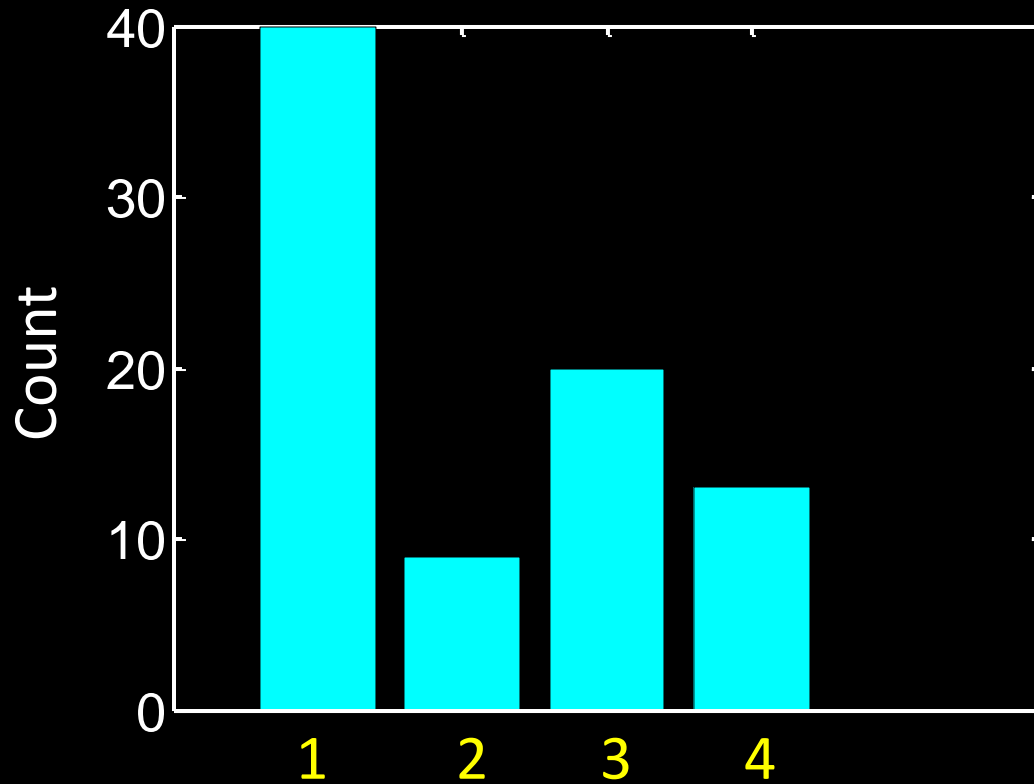


1&2 Problem scoping  
3,4&5 Analyze problem  
6 Make decision  
7&8 Post-decision



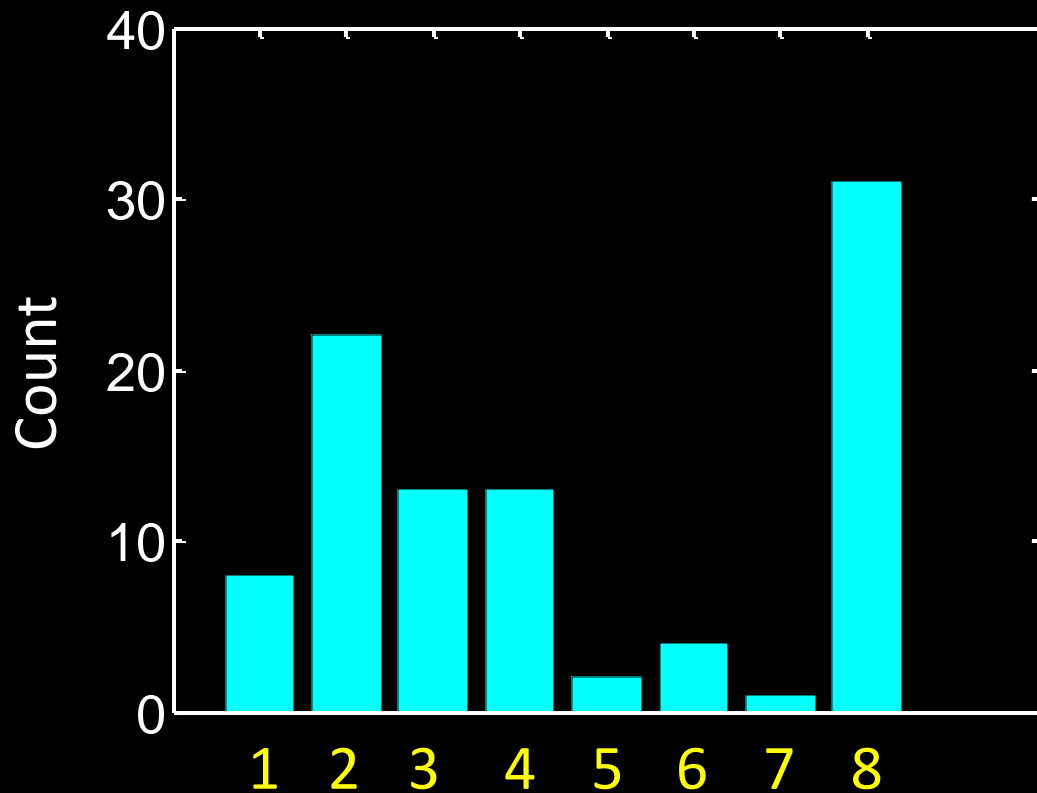


## Tools by TYPE



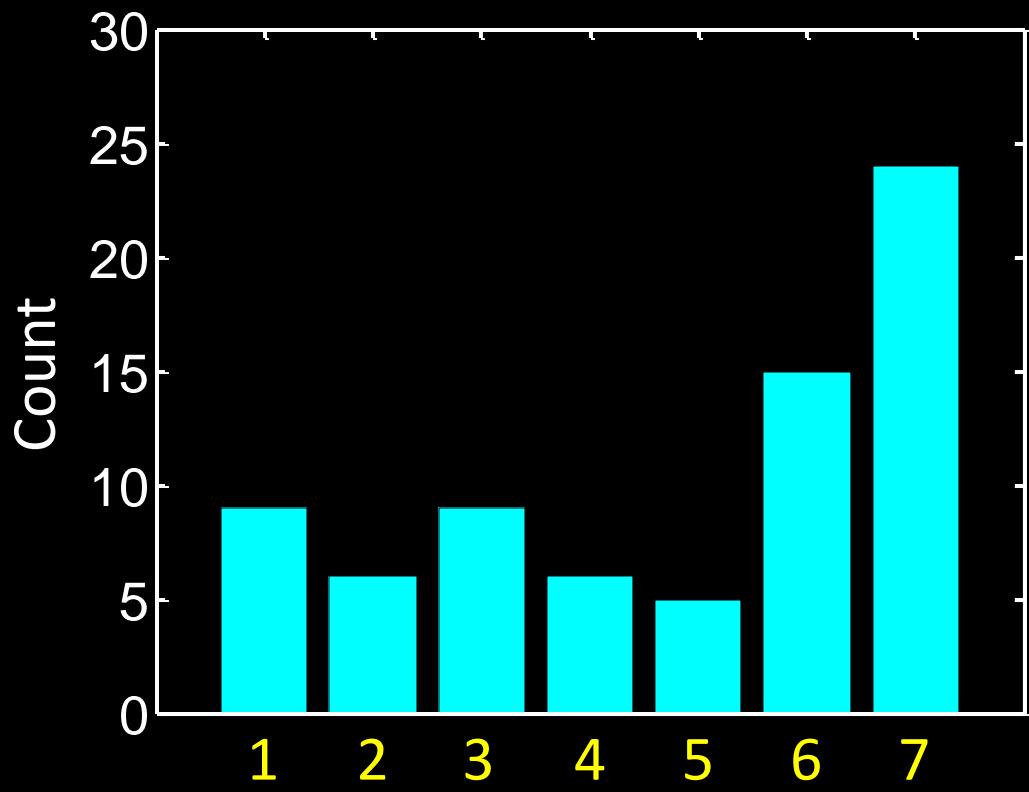
1. Data
2. Information
3. Guide
4. Online Courses

## Tools by SECTOR



1. Groundwater
2. Surface water
3. Water quality
4. Water supply
5. Energy
6. Finance
7. Policy
8. General

Tools by KEYWORD



- 1. Basic Climate Science
- 2. Downscaling
- 3. Vulnerability
- 4. Scenario building
- 5. Non-stationarity
- 6. Adaptation
- 7. Other

1. Relevance
2. Legitimacy & Credibility
3. Usability
4. Connection & Communication

1. Scientific accuracy
2. Teaching effectiveness
3. Ease of use and technical quality

Next Steps?



Thanks !