



Water and
Environment Centre

Nuffic/NICHE 027

Training in Policy Relevant Solutions Oriented Research

(3) Formulating Research Objectives

The Water and Environment Centre; Sana'a, the Republic of Yemen

February 9 and 10, 2013



UNESCO-IHE
Institute for Water Education



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For quality of life





Introduction

- ▶ Policy-makers and managers often complain that researchers are out of touch.
- ▶ Researchers often complain that policy-makers and managers make poorly informed decisions
- ▶ Actively building & maintaining relationships with key individuals through discussions, meetings, workshops or field days will ***increase the likelihood*** that research outcomes will inform policy decisions.

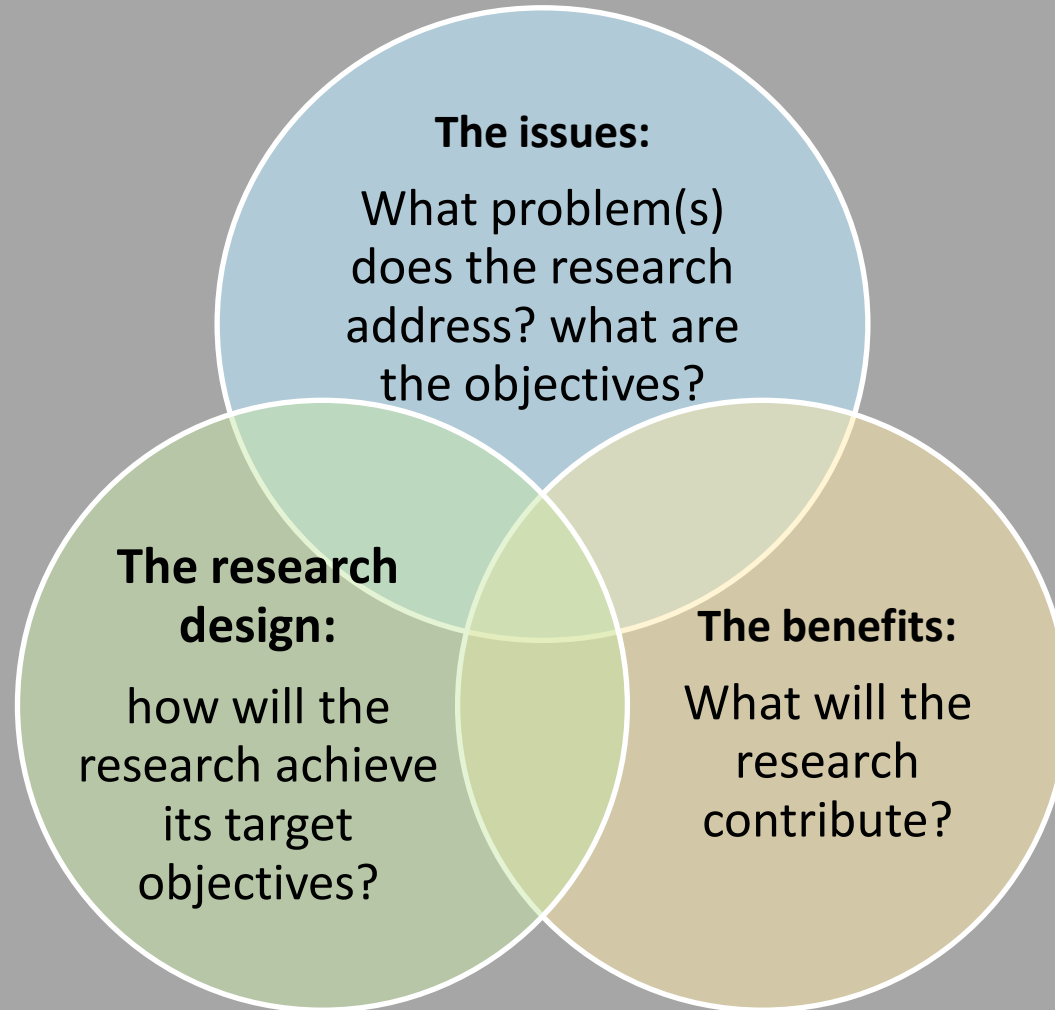




Objective of this session

- ▶ Discuss with illustrations how to formulate good policy relevant and solutions oriented research objectives that lead to an output:
 - ▶ Of interest to relevant politicians and decision makers
 - ▶ Gives you and your organization the opportunity to engage in useful conversation with politicians and decision makers





Essential Ingredients of Research



The output of a research is at best as good as its research objective

Setting concrete and well-considered research objectives is imperative to ensuring that your research is going to be meaningful, and that efforts aren't wasted on objectives that don't make sense or are impractical.

The key question here is: how do I formulate such objectives?





F

- **Feasible:** Adequate expertise and competency, affordable in time and money, manageable in scope

I

- **Interesting:** getting the answer intrigues the investigator, supervisor, policy maker ...

N

- **Novel:** generates new knowledge; confirms, refutes or extends previous findings

E

- **Ethical:** avoid plagiarism and issues considered unacceptable or immoral in a given society

R

- **Relevant:** addresses current top priority - technical, policy issues or is a stepping block to future research

FINER criteria for a good research question and objective



Read, Read, Read ...Literature Review



Literature review is not simply a list or summary of books and articles that the researcher has read. Instead, it combines the most significant aspects of the works you have consulted and synthesizes them in an integrated description of the field study

- ▶ Provides a conceptual framework for the reader so that the research questions and objectives as well as methodology can be understood
- ▶ Demonstrates to both an expert/non expert reader that the researcher is aware of the breadth and diversity of literature that relates to the research questions and objectives



Example of literature review

Smiths works looked at mental illness, asylums, and the archaeology of knowledge. Thomas and Dennis's histories of psychiatry and psychology shows that definitions of mental illness have differed across time and place. Stefan and Haile recorded that under colonialism science and medicine contributed to racial, class and sexual discrimination



How do you rate this out of 10



Example of literature review

This study draws on diverse approaches to the history of psychiatry, and to the origins of segregation in South Africa. Histories of psychiatry have shown that although having a probable partial biochemical basis, the criteria for the definition of mental illness have differed across time and space. The history of science and medicine in both Europe and in the colonial order provide a means of exploring the role of biomedicine (including psychiatry) in contributing to racial, class and sexual discrimination.

Is this better



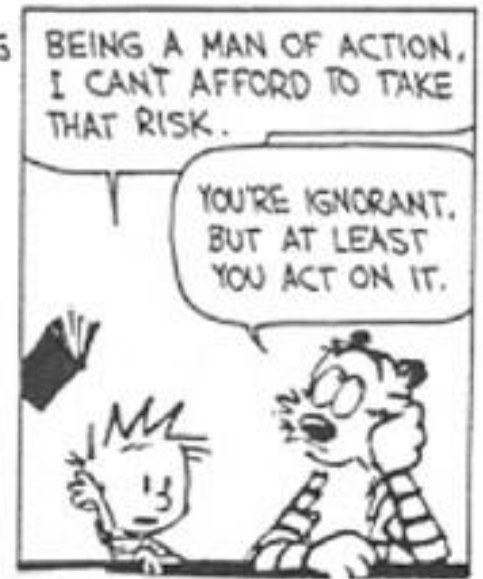
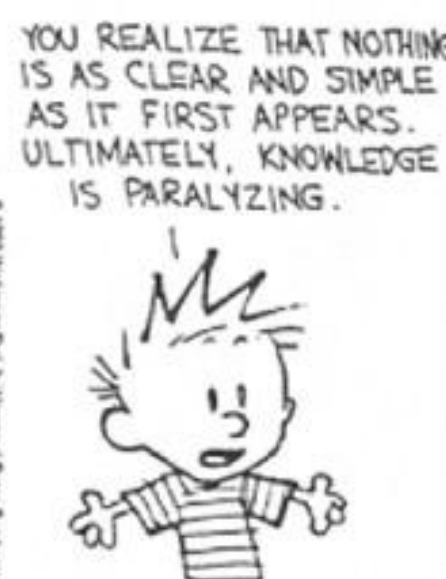
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Come with clear

**Straightforward
facts**

Calvin and Hobbes

By Bill Watterson



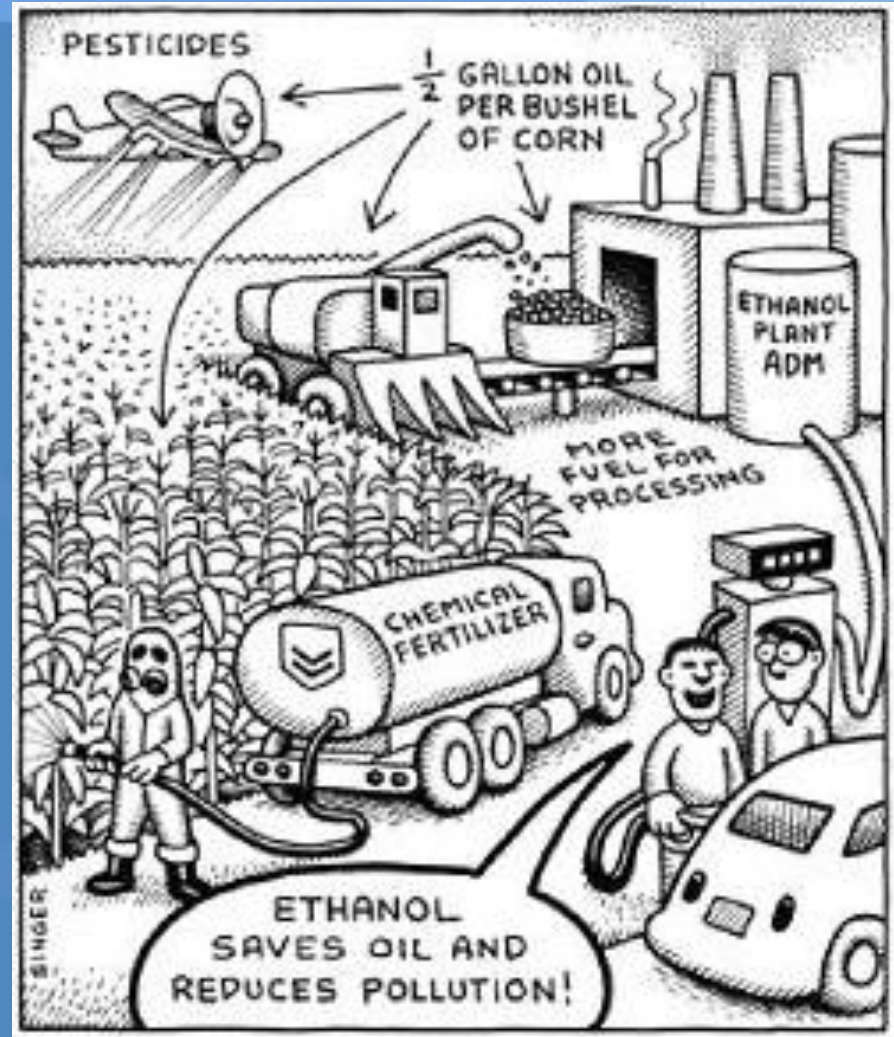
Source: <http://movingimages.files.wordpress.com/2010/08/calvin-and-hobbes-on-ignorance.gif?w=780>



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Go beyond

The Standard Story



Source: <http://alethonews.files.wordpress.com/2010/01/making-ethanol-cartoon.png?w=249&h=293>



The context: Defining policy-relevant research objective

- ▶ Policy-driven research objectives are often about providing *more focus or specific details*, looking at *how and why*, rather than the more typical science question about whether the effect exists





The context: Defining policy-relevant research objective

- ▶ “what” questions require a descriptive answer: What is the productivity of maize?
- ▶ “Why” questions build on descriptive information and are directed toward understanding and explaining: Why is maize productivity so low?
- ▶ “how” questions are concerned with bringing about change: How can the productivity of sorghum be increased?





Examples of research topics and objectives

Research topic: Water harvesting for groundwater recharge and flood mitigation

برداشت آب برای تغذیه آب های زیرزمینی و کاهش سیل

Research objectives

- ▶ Develop a water harvesting manual that details the different techniques that are necessary to improve groundwater recharge and mitigate floods
- ▶ تهیه یک نظامنامه برداشت آب که شامل جزئیات تکنیک های مختلف لازم برای بهبود تغذیه آب های زیرزمینی و کاهش سیل میباشد





Examples of research topics and objectives

Research topic: Water harvesting for groundwater recharge and flood mitigation

برداشت آب برای تغذیه آب های زیرزمینی و کاهش سیل

Research objectives

- ▶ Identify the three most effective practical water harvesting systems that have the potential to:
 - ▶ reduce the imbalance between groundwater recharge and use by 50%
 - ▶ Cut by 75% the frequency of large destructive floods.

شناسایی سه سیستم برداشت آب بعنوان موثرترین و عملی ترین روش ها که پتانسیل این را داشته باشند که :

کاهش عدم تعادل بین تغذیه آب های زیرزمینی و استفاده از آنها تا ۵۰٪

کاهش ۷۵٪ در فراوانی سیل های بزرگ مخرب





Examples of research topics and objectives

Research topic: Institutional Reforms of Water Sector Organizations

Research objectives

- ▶ Develop a social model for reforming water sector organizations
- ▶ Assess the different existing methods for reforming the water sector organizations?
- ▶ Analyse alternatives and recommend the most optimal reform that could result in zero-beauacrcay in decision making
- ▶ Develop and pilot test a reform process that could eventually lead to empowering women within the water sector





Examples of research topics and objectives

Research topic: Assessing Crop Water Productivity from Field to National Scale within the IWRM Framework - Case study: Qa'aJahran

Research objectives

- ▶ Develop an IWRM framework suitable to the Yemeni Agricultural Sector
- ▶ Analyse the impact of different water deficit irrigation approaches and cropping pattern on sorghum crop water productivity
- ▶ Identify a set of socially acceptable and economically feasible technical interventions that could increase sorghum water productivity by 20% while reducing government subsidy by half



- ▶ Have you read broadly and deeply on the topic of your question
- ▶ Have you spent time thinking *critically* about your objective and question
- ▶ Have you spent time discussing your research objective with others? (supervisors, mentors, your employers,)
- ▶ have you found out how people in other disciplines think about your objective
- ▶ do you feel ready to write your research proposal



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