

# Knowledge transfer and utilization in water system management: knowledge and perceptions in daily practice

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## Abstract

The aim of this research is to explore the possibility of enlarging the accessibility, usefulness, and utilization of knowledge about the physical-water system for decision- and policymakers. By studying the use of knowledge in the decision-making and policy-making processes, an attempt will be made to identify the institutional conditions which stimulate or obstruct knowledge exchange and utilization. In this paper, the difficulties in knowledge exchange and utilization are discussed from the scientists and the practitioners' point of view.

## Introduction

The Netherlands has an extensive knowledge infrastructure on water-system management, often with basis in natural or technical science. The increasing complexity of water-system management requires a new perspective on knowledge creation. For example, connecting knowledge based on natural science research to social science research. Another aspect that deserves attention is the use of knowledge by decision- and policy makers. The practice of regional water-system management shows that the available knowledge about a physical water system is often difficult to comprehend for decision- and policymakers.

Water boards generate many data on water system conditions and develop knowledge in collaboration with consultancy agencies and research institutes. Concurrently, water boards receive knowledge from the scientific community (e.g. technical or natural science based knowledge). Unfortunately, knowledge exchange and the use of knowledge do not automatically yield an obstacle-free decision-making process. For reasons we do not fully understand, scientific research is not always entirely utilized in the decision-making process. In cases where the scientific evidence points clearly toward an optimal solution for a policy problem, why do decision-makers sometimes make sub-optimal decisions?

## Difficulties in knowledge exchange - and utilization

Many researchers address the problems one may encounter in the process of knowledge exchange and the utilization of knowledge. Jasanoff (1986) points at the position of scientific knowledge in the policy-making process. Specifically, decision-makers take many types of information and varying interests into account; scientific knowledge is just one of many elements in the policy-making process. Schon and Rein (1994) observe the dilemma of "rigor of relevance" between researchers and practitioners. In short, scientists prefer to tackle structured problems that allow a stringent scientific approach and in practice policy makers confront unstructured problems with social dimensions that cannot easily fit into a scientific paradigm. Research utilization can also have many meanings. According to Weiss (1979) the use of knowledge is not always visible. Knowledge is rarely "copy/pasted" into the decision making process; knowledge transforms. In her earlier work, Weiss (1973) points out that scientific research itself can have a political stance. In other words, decision makers might ignore research which does not fit their political view of a given problem. Another problem in knowledge exchange and utilization stems from dissimilar discourses. Dryzek (1997) describes discourses as a shared world view. If scientific research does not fit a discourse, it will be extremely difficult for others to utilize that research. Often researchers describe problems with knowledge exchange and utilization from the scientist's perspective. To identify the institutional conditions which stimulate or obstruct knowledge exchange and utilization, one should also take into account the practitioner's perception of the problem. What does the daily practice of water system management demand from research, in order to have that research successfully exchanged and utilized?

## Methodology

In order to investigate the perceptions of policy-makers concerning barriers in knowledge exchange and utilization, I interviewed practitioners from the water board Regge en Dinkel. I chose a semi-standardized interview technique for two important reasons. First, some questions might be very sensitive, (e.g. asking about the way water board governors use scientific information), therefore the interviewer must tailor the question depending on the sensitivity of her respondent. This method is also useful in avoiding influencing the respondent when naming and describing problems with exchanging and the use of knowledge.

## Problems and demands from daily practice

Due to the integrated character of water system management, the policy-making process becomes longer and more complex. This makes timing crucial in presenting scientific research. As soon as knowledge absorbs into the policy-making process, there is practically no further opportunity to revise that knowledge. It is almost impossible to change the assumptions made at the beginning of the policy process. One of the problems in knowledge exchange and utilization is that policy makers have time pressure when making decisions. Research and policy making have very different time scales, which can also make coordination difficult.

When policy-making involves multiple stakeholders, the process also gains a political connotation. It is possible that the scientific research which is the basis for a policy proposal fades into the background in favour of political arguments. This may lead decision-makers to choose a sub optimal solution. Policy makers find it difficult to cope with the uncertainty in choosing a certain policy measure and the effects that measure will have on the water system. Cause and effect relations are often not visible. Scientific research can rarely provide the certainty that policy makers are looking for. Scientific

research is difficult to translate into working practice. In water system management, problems are usually very local. Scientific research tends to be too general to apply, yet at the same time translating scientific findings to a local situation is often time consuming and costly. Decision makers generally think in terms of cost-benefit. Natural science based research does not really fit a decision maker's frame of reference.

## Plans for further research

This research explores possibilities for expanding the accessibility, usefulness, and utilization of knowledge about the physical-water system for decision- and policymakers. As shown above, researchers often approach studies regarding knowledge exchange and utilization from a science perspective (i.e. "how do we get research utilized?"). It is not only interesting but also useful to take a counter perspective, asking: "what does the policy process demand from scientific research?" The results from these interviews are a first step towards answering that question. Further research concentrates on a bottom up description of knowledge exchange and utilization. Specifically, I compare different policy problems and projects among water boards. In addition, this project adds to the development of a theoretical framework focusing on frames of references, institutional arrangements, and networks.

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