Bridging the Information Gap between Scientists and Decision Makers in the Eastern Nile

By

M. H. Barendrecht

in partial fulfilment of the requirements for the degree of

Master of Science

in Applied Physics

at the Delft University of Technology and the National University of Singapore,

to be defended publicly on Thursday April 30, 2015 at 10:00 AM.

Supervisor: Prof. dr. ir. W. G. M. Bastiaanssen

Thesis committee: Dr. E. Mostert, TU Delft
Ir. H. Smit, Unesco-IHE
A. Onencan, TU Delft
Dr. Ir. B. Enserink TU Delft
Dr. Ir. Pat Yeh NUS
Prof. Dr. Liong NUS

An electronic version of this thesis is available at http://repository.tudelft.nl/.
ABSTRACT

Scientific research is scarcely used for policy making (Hickey, Forest, Sandall, Lalor, & Keenan, 2013). The problem is as much a lack of communication of research results as a mismatch between the information produced by scientists and the information needed by the decision maker (Hickey et al., 2013; Timmerman, 2004). This information gap is a problem all over the world, but it is perhaps an even more important issue in the Nile River Basin. The Nile river flows through eleven countries and these countries have to share its relatively small flow of 84 BCM (as measured at Dongola, Sudan). There have been several Nile treaties that allocate shares of the Nile waters to the various countries and try to ascertain that there will always flow sufficient water to the downstream countries (Salman, 2013). The latest treaty, which is still operative, is the 1959 Nile Waters Agreement (Nile Treaty, 1959). This agreement, between Egypt and Sudan, divides the complete flow of the Nile between these two countries. The other countries do not accept this treaty and claim that they also have the right to use (part of) the Nile waters. That this gives rise to conflicts is no surprise, especially in the Eastern Nile Basin, which includes both the biggest consumer of (Egypt) and the biggest contributor to (Ethiopia) the Nile flows. While scientists of the different countries are able to work together, they are not able to communicate their research findings to the decision makers and therefore, the conflict at the decision making level remains. Bridging the information gap is an important step in bringing the countries towards further cooperation. The water accounts of the Nile Basin (Karimi, Bastiaanssen, & Molden, 2013) might provide a useful tool in bridging this gap. Because of their tangibility, transparency and integrated approach, they might be a more comprehensible and trusted resource for the policy makers in the Eastern Nile countries. The aim of this research was therefore to identify and describe the information gap and determine whether Water Accounting + can indeed help in bridging it.

There are two sides to the information gap: (1) the decision makers’ information needs and (2) the information provision by the scientists. This includes not only the information itself, but also the presentation and the way it is communicated. The decision makers’ information needs were assessed using open, in-depth interviews. Five elements of useful research were derived from the information needs: multidisciplinarity, relevance, usefulness, presentation and trust. Additionally, a framework for the evaluation of water resources and hydrological models was developed based on a literature review. The framework was adapted according to the interviews results. Both the elements of useful research and the framework were used to evaluate the research that is done by the scientific community of the Eastern Nile. The models used and developed by the Eastern Nile Technical Regional Office, as well as the research presented at the New Nile Opportunities Conference and the publications on water resources management in the Nile of the year 2014 were evaluated to determine their usefulness for decision making.

Comparing the two sides enabled the identification of the information gap. On one side of the gap are the decision makers. They need multidisciplinary research that is tuned to their personal needs and the needs of society. It should be relevant (i.e. address an issue that the decision maker wants to solve) and...
provide plans and options, with pros and cons. It should be presented in a short message, avoiding jargon and provided by someone they trust. The analysis of the research that is done by the scientific community shows that the scientists are producing research on the technical aspects only, not taking into account the socioeconomics or other aspects. Also, their research is not focused on the needs of the countries and generally does not provide any plans. ENTRO is highly restricted by its mandate and can only disseminate its research outcomes if the countries all agree on the outcomes.

With the information gap identified the usefulness of Water Accounting + in bridging this gap was assessed. The water accounts were evaluated using the framework and on their compliance with the elements of useful research. Additionally, the interview respondents were asked for their opinion on Water Accounting +. Both decision makers and scientists think that Water Accounting + is a useful concept and that it can give the decision makers a basic understanding of the water resources in a river basin. It can provide a more multidisciplinary approach to water resources management, provided that the socioeconomic aspects are included. However, Water Accounting + should, just like other research, try to address issues relevant to the countries and provide clear messages and options for the decision makers. Trust is a very important issue. The decision makers in the countries are not likely to trust any other data than their own, nor will they trust a scientist they do not know. This problem can be partly dealt with by validating the accounts together with national experts and international peers. Also, it is probably better to target the decision makers’ advisors instead of the decision makers themselves when presenting the accounts. It is recommended to construct water accounts on national level and address the current needs of the individual countries. Once the water accounts are accepted at a national level, they might be trusted to give basin wide solutions, as well.