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**TO COOPERATE  
OR NOT TO COOPERATE...?**

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# **TO COOPERATE OR NOT TO COOPERATE...?**

*Collective action for rehabilitation  
of traditional water tunnel systems (qanats) in Syria.*

## ACADEMISCH PROEFSCHRIFT

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aan de Universiteit van Amsterdam  
op gezag van de Rector Magnificus  
prof. dr. D.C. van den Boom  
ten overstaan van een door het college voor promoties  
ingestelde commissie,  
in het openbaar te verdedigen in de Agnietenkapel  
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JOSEPHA IVANKA WESSELS

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This research was partly carried out in cooperation with on-going studies of the Natural Resource Management Programme (NRMP) at the International Center for Agricultural Research in the Dry Areas (ICARDA), Aleppo, Syria and the Integrating Land Management in Dry Areas Programme of the United Nations University (UNU), Tokyo, Japan. The work was financed by the Dutch Ministry of Foreign Affairs, Directorate-General for International Cooperation (DGIS), the Dutch and German Embassies in Damascus, the Swiss Agency for Development and Cooperation (SDC), United Nations University (UNU) and personal funds.

The fieldwork of this study was partly done within the framework of the ICARDA research project “Renovation of Traditional Water Supply Systems: sustainable management of groundwater resources”. The project started in 1999. The project was divided into three phases and proposed methods for collective action at community level on the use of ancient water extraction techniques. Phase 1 focused on the communal use of a single qanat system in a remote village in the North of Syria. During this phase, an actual qanat renovation was carried out. Phase 2 concerned a survey of several communities in Syria using qanat systems. This phase focused on general site information, development of social and hydrological criteria and advices for a qanat renovation similar to phase 1. Phase 1 & 2 were carried out within the Associate Expert scheme from the Dutch Ministry of Foreign Affairs, Directorate-General for International Cooperation (DGIS) under the auspices of the International Center for Agricultural Research in Dry Areas (ICARDA) with further financial support of the Dutch and German Embassies in Damascus and the Swiss Agency for Development and Cooperation (SDC). Phase 3 was concerned with the comparative evaluation of use and renovation of qanat systems in Syria using video recordings. Phase 3 was carried out under Special Service Agreement under the auspices of the United Nations University (UNU) with the help of the UNU grant HQ-2001-SSA-O-00178. The writing of the PhD dissertation and any additional research work between 2002 and 2008 was supported through personal funds, the SDC and the Amsterdam Institute for Metropolitan and International Development Studies (AMIDst), University of Amsterdam.

*The conclusions of the present document are those of the author and do not necessarily represent the opinions or policies of any of the organisations mentioned above.*

*To my children, born during the writing of this book*