University Alliance for Sustainability

Final Report: Short stay at Freie University

Motti Zohar

Hebrew University of Jerusalem

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The impact of water availability on trading routes and trading patterns in the semi-arid regions of southern Levant during late antiquity and early medieval periods (4th – 11th centuries)

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The ongoing scientific efforts to investigate global warming processes are strongly dependent also on the understanding of past climate. It has been suggested that present and future geopolitical conflicts are influenced by climate changes and the availability of water. Using paleo-climatology to better constrain natural variability in water availability as well as the possible impact on living societies will assist in predicting and adapting to global changes in sensitive regions. During February 2016 I have visited the institute of geographical sciences at Freie University in order to conduct a post-doctoral research proposal. The research is aimed at investigating the impact of water availability on trading routes and trading patterns in arid and semiarid regions in southern Levant (northern Sinai, southern Israel and western Jordan) between the 4th and 11th centuries CE.

The targets of the short stay were three-fold: (1) to conduct a post-doctoral research proposal; (2) to get familiar with the department of geography and to meet the primary contact persons; and (3) to initiate preliminary literature review and data acquisition for the proposed project. The main underlying hypothesis of the research is that due to the semi-arid character of the inspected region the availability of water was a crucial factor that dominated human activity and thus, to decrease vulnerability societies had to have high adaptability mechanisms in order to cope with possible shortages of water (an abstract of the conducted research proposal appears below at the end of this report).

My host was Prof. Brigitta Schütt (http://www.geo.fu-berlin.de/en/geog/fachrichtungen/physgeog/mitarbeiter/bschuett/index.html) who leads a research group within the framework of sustainability and concentrates on the interactions between landscape and human in historical times. The members of the research group examine the behavior of ancient societies during various time periods and in several regions around the globe. Their

conducted researches are fascinating. From this perspective, the visit was a great opportunity to collaborate and exchange ideas with non-Israeli researchers and benefit from their experience. During the stay, I have also participated in a two days workshop focused in traditional knowledge in water management and was able to work at the Staatsbibliothek looking for necessary data for my research.

The visit to Freie University contributed significantly to the understanding of the complexity one faces in investigating sustainability scenarios in arid and semi-arid regions. The main conclusion that arises from the discussions I had with other colleges is that such scenarios are complex and will be best addressed using interdisciplinary approaches that combine data and techniques from neighboring disciplines such as geography, history and archaeology. During the planned post-doctoral study I will definitely follow this conclusion!

Short abstract of the conducted research proposal

The paleo-climate of Palestine in the late antiquity and early medieval periods attracted much of the scientific attention for many historical reports from that time have been accumulated including reports of events such as droughts, storms and floods. Additional supporting evidence may be found also in physical indicators, archaeological remains and botanical proxies. As part of the climatic desert-fringe belt, Palestine suffered occasionally from lack of water which can be understood as the limiting factor for settlement activities at the time. Yet, in spite of the large number of relevant evidence, systematic evaluation of the availability of water at the time has not been implemented so far. The proposed interdisciplinary study bridges this gap and examines the historical share and existing materials in time and space in order to verify if and to what degree changes in water availability had an impact on trading routes and trading patterns.