

**House Hold Survey for water consumption in Hebbal, Bangalore Project of  
University of Western Sydney, Australia**

Principal Investigator:	Mr. A.R. Shivakumar
Annual Budget:	Rs. 2,46,860/-
Supported by:	University of Western Sydney, Australia
Project Duration:	6 Months (starting July 2013)

**Background:**

University of Western Sydney, Australia has conducted projects related to water consumption, water conservation and projects related to water saving in urban areas. Dr. Dharma Hagare, Senior Lecturer in Civil and Environmental Engineering, School of Computing and Engineering and Mathematics, University of Western Sydney has collaborated with Civil Engineering Department, IISc. for analyzing water consumption pattern in Bangalore.

Dr. Dharma Hagare requested Karnataka State Council for Science and Technology (KSCST) to carry out a short term survey in Hebbal area of Bangalore North. The survey focused on a sizeable number of households serviced by Bangalore Water Supply & Sewerage Board. The main focus of the survey was on water consumption data and its analysis in Hebbal area.

KSCST carried out this survey and collaborate with University of Western Sydney.

**Methodology:**

The water consumption pattern in around 200 households in Hebbal area of Bangalore which are serviced by Bangalore Water Supply & Sewerage Board (BWSSB) was initiated. The services of BWSSB engineers and Water meter readers was utilized for carrying out the data collection work.

To achieve the objectives of the project a questionnaire was developed at KSCST and the same was used to collect detailed data on household water consumption.

The draft questionnaire was sent for comments to Sydney. Dr. Dharma Hagare promoter of the project approved the questionnaire with minor modifications and the modifications were incorporated into the questionnaire.

The meeting of the Assistant Engineer, Mr. Jayaprakash of BWSSB, Hebbal Division along with consultant Mr. Thippeswamy was held on 14<sup>th</sup> August, 2013 at KSCST. The strategies for collecting elaborate data as per the questionnaire were developed. BWSSB command Area for water supply in Hebbal was be divided into four sections and a random sample of 50 households were surveyed in each section. The meter readers (1) Mr. Muniyappa (2) Mr. Siddeshaiah, (3) Mr. Jayaram and (4) Mr. Lazzer from Hebbal Division was assigned with data collection work.

10% of the houses in the selected sample was visited by Principal Investigator of the project and Assistant Engineer from BWSSB.

The survey work was initiated by four meter readers on 21.08.2013. The data collection of 200 households as per the required questioner is complete in all respect.

The survey data is complied in the excel format in the computer and is analyzed.

The analysis of the data collected resulted in a comparative study of water supply and demand patterns between Sydney, Australia and Bangalore and the highlights are:

Sydney has a population of 4.12 million spread over 12,428 km<sup>2</sup>. On the other hand, Bangalore has a population of 8.47 million spread over 741 km<sup>2</sup>. In terms of sources of water supply, while Sydney gets most of the water from surface water sources, Bangalore gets its water both from surface and groundwater sources. In addition, in the case of Bangalore, there is a considerable amount of water demand met by rainwater harvesting and private tanker supplies. The average water consumption for Sydney is about 293 L/capita/day. On the other hand the average quantity of town water supply to the Bangalore residents (who do not have access to other supplies) is about 190 L/capita/day. This was further reduced to 110 L/capita/day for the households who have access to additional sources such as borewell, rainwater harvested and/or private tanker waters. It appears that the Bangalore water supply system is relatively more decentralised than the Sydney water supply system.

**Project Completion:**

Data collected successfully and submitted to University of Western Sydney, Australia. Project completion report along with the fund utilization certificate submitted.