

SAWA PGD Fellow : Veeralakshmi V

Institution : CWR

Designation :

Title : *Water Market in Chennai: A study of water transfer from Peri-Urban villages: Kovilambakkam and Nanmangalam*

Email :



#### Background:

Adequate supply of water is essential to the economy of the state and healthy well-being of its citizens. The Chennai City receives water supply mainly from surface sources reservoirs which depend on rainfall. The dependency on groundwater had increased in recent years because of erratic rainfall and increasing demand. Considering the quality of available water in Chennai city and reduction in base sources, the groundwater transfer from peri-urban and rural area has become an inevitable one. The continuous extraction and transfer of groundwater from peri-urban areas to Chennai city lead to groundwater depletion in those areas.

The earlier studies in water market, explained the social impacts of groundwater market, particularly, in agriculture and rural employment. Generally, in the water market, three groups are directly involved: Water sellers, buyers and intermediates who transfer the water through lorry tankers. Often, these three groups function in an independent manner. Normally, the consumers do not have any idea about the source and quality of water they obtain in markets. Likewise, the sellers in the village also do not bother about where the water is taken to and for what purpose. Intermediate group just transfers the water like any other commodity.

#### Objectives:

The present study is an attempt to understand the nature and function of water market considering all the above mentioned three groups in a comprehensive manner. The specific objectives of the study are: i). To examine the significance of water market (rural-urban) in Chennai water supply and its socio-economic implications. ii). To study the role of different actors (sellers, distributors and buyers) and profitability of the sale. iii) To analyze the quality of the transported water with respect to different urban uses.

#### Study area:

Two villages in peri-urban area of south Chennai namely Kovilambakkam and Nanmangalam, where groundwater market is functioning, were considered for the study. These two villages are located in Tambaram taluk of Kancheepuram district. The population of Kovilambakkam is 9277 and Nanmangalam is 3323 as per 2001 census. Nearly, 15% of the village area is occupied by water bodies. There are five water bodies in Kovilambakkam and two in Nanmangalam village. These tanks receive water through rainfall only. These villages witness significant growth in the present. Also, water is being transferred to urban and peri-urban places from these villages.

#### Methodology:

As an initial step a reconnaissance survey was carried out. The selling farmers and the location of groundwater extraction wells were identified through physical observation and from the people through informal interviews. Also, secondary data like land use pattern, population and water resources in the study area were collected. Rainfall of surface sources to the Chennai city and quantity of water supplied to Chennai city and industries were also collected from CMWSSB. The information gathered through the interviews and from official records has been analyzed suitably according to the objective of the study. Also, water samples from the extraction wells where groundwater sale is prevailing, were collected and their qualities were analyzed.

#### Research findings:

From the interviews and discussion with the selling farmers, it was found that the case study villages were primarily agricultural areas and water sale was emerged in these villages during 1992 in response to the demand from the city. . While analyzing the socio economic aspects of the sale it was found that most of the selling farmers were living in own houses. 40% of the farmers directly involved in the sale, 50 % indirectly through leasing out their wells for groundwater sale and 10% are doing both agriculture and water sale.

50% using electric motors for pumping, 40% using diesel pumps and 10% are using both. The peak demand periods are March, April, May and June months and the extraction time is 8 PM to 8 AM and 12 PM – 4 PM. More profit in groundwater sale, labour scarcity in agriculture, crop security from cattle damages, younger generation not interested in doing agriculture and non-availability of land as it was sold as residential plots are the few factors which farmers felt as the reasons for engaging in groundwater sale.

#### Discussion:

The groundwater sale from these case study villages has both positive and negative impacts. The positive impacts are it explored the water potentiality of the villages which invites new settlement and rapid expansion of facilities. Also, it provides job opportunities for more than 500 families in these areas. The negative impacts are, road damages and traffic hindrance, change in water quality, reduction in cropping area and change in cropping pattern, shift in occupation and the most important one is fall of water table.

Looking at the consumer end, there are different ways through which the consumer gets the tanker water. The consumers place their orders either to the tanker operators or agents and these people buy water from the selling farmers and distribute to the required customers. Few institutions who are the bulk and regular consumers of tanker water settled an agreement with the tanker operators to provide the required supply at a specified rate throughout the year. Hence there is no rate fluctuation on these consumers. But for the seasonal consumers it varies. Mineral water companies leased in the well for their bulk requirement either monthly or annual basis. While comparing the profit of selling farmers and tanker operators in the whole process, it was found that the tanker operators are gaining more from the sale.

While analyzing the attitude and perception of the different actors in the water transfer process, 70% of the selling farmers have no other business interest and only 30% have other options. 60% of the farmers are quite comfortable with this business and 40% are not satisfied with it because of the problems like public protest and official threats etc. As most of the tanker lorry operators are migrants for want of job and they are not educated beyond 10th level, this sale provides better job opportunities and livelihood option for them. The consumers are willing to buy tanker water as they are prompt in service. According to the consumers in residential areas, this process saves their time in acquiring water which can be spending in effective way. Also they opined that the quality of transported water is found to be good in almost all period except in peak summer some taste changes found to be there. It was found that 20 - 90 per cent of the consumers demand is met through tanker water which varies upon availability of other sources.

Most of the higher income group consumers depend on bubble top cans for drinking. Middle and low income group use tanker water with or without any processing. Some of them chlorinated the water before use. Ninety percent of the consumers in residential areas do not know the source of tanker water but they are complacent about the quality of water. In few institutions and commercial places they demand for the quality certificate and had little awareness about the source and quality of transported water. But they were not aware of the bacterial quality of the water. In group housing and multistorey apartments the dependency on tanker water is found to be more. People living in places where local groundwater is unfit for any use is spending Rs. 1000 per month per household for water.

The water quality analysis shows that all the transported water is bacterially contaminated. It was found that BOD, COD value and coliform counts exceeded the BIS permissible standards in the all the samples. Few had some chemical parameters exceeded the desirable norms.

Hence the study concludes that water market is not avoidable, as most of the sources to Chennai city water supply are surface sources, which depends on rainfall. The present market from south Chennai area is functioning in an informal way. Formal regulatory mechanism is needed to protect the sustainability of groundwater resources. The wells located in residential areas or near to polluting sources should not be selected for groundwater market. If such wells are selected its water quality has to be confirmed. Also the wells selected for sale should be isolated from adjoining areas and should be protected from anthropogenic pollution. The quality of well-water should be assessed periodically to confirm its suitability for different use.