Pak. J. Agri. Sci., Vol. 40(3-4), 2003

FARMERS PERCEPTION ABOUT SOCIAL IMPACT AND CONSTRAINTS IN WASTEWATER IRRIGATION

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This research was an effort to check farmers' perception about social constraints in wastewater irrigation. The data were collected from Faisalabad District. The universe of the study consists of two peri-urban communities of Faisalabad i.e. Chakera and Prokianwala. Fifty respondents were selected from each of the area under study. As per research achievements of the project, it was concluded that 50% of the respondents were using wastewater to irrigate their lands and preferred to use untreated wastewater for irrigation as it has more nutrients than any other water source. Consequently 50% of the respondents were showing its losses in the form that it is bad for health and land. A 74% of the respondents mentioned that wastewater did not have any type of health effect.
Keywords: Social constraints, peri-urban communities, wastewater irrigation

INTRODUCTION

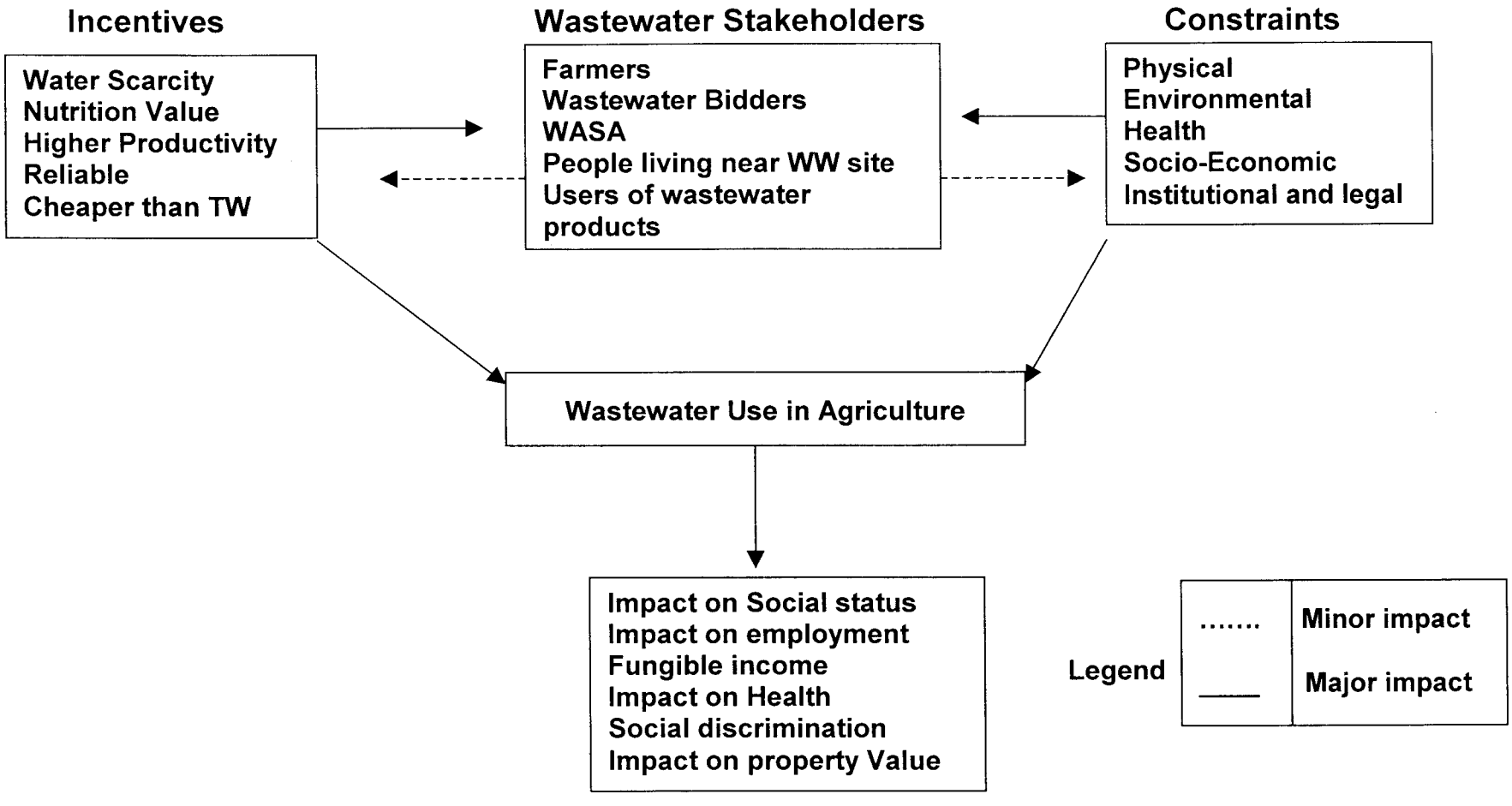
Pakistan is facing acute shortage of good quality irrigation water. In irrigated agriculture areas of Pakistan canal water and ground water are major sources of irrigation. Due to scarcity of canal water the dependency on groundwater is rapidly increasing in Pakistan. Groundwater is not only expensive and unaffordable for small farmers but also of inferior quality. Much of the wastewater produced in urban and peri-urban areas is already used, directly or indirectly, for irrigation almost without treatment. It appears that suitable technologies for decentralized treatment are avoidable but that other barriers to the wide adoption of the decentralized approach exist. These barriers include lack of finance and suitable land, deficiencies in knowledge and skills and a lack of flexibility in official design standards (Parkinson and Taylor 2001).

Due to poor quality groundwater salinity is increasing on agricultural farms. In peri-urban areas where canal water is scarce and ground water is brackish, farmers tend to use wastewater as alternate source of irrigation. Wastewater is a mixture of natural organic and inorganic substances mixed with chemical compounds. Irrigation has been the main tool for the advancement of societies for centuries. It has turned many of the earth's war areas into important crop production region. Wastewater irrigation originated as an unplanned activity and has been practiced since centuries by poor farmers in urban and peri-urban areas (Mustafa, 2002).

The use of domestic wastewater for crop production has been practiced since centuries. The most wastewater occurred on "sewage farm" or areas specifically designed for such use in Australia, the large well-designed farm was establish in 1897 and still in operation today, irrigating some 10000ha with wastewater. The impetus for this sewage was to minimize or prevent pollution in rivers and conserve water nutrients to improve agriculture (Shuval, 1991). Due to its dual nature wastewater has both positive and negative impacts. The positive impacts include the availability of reliable water supply, saving in cost of fertilizer due to presence of plant nutrients. While negative impact are ground water pollution through nitrate leaching and possible loss of productivity of land due to accumulation of heavy metals and toxic chemicals and threat to public health. Besides all negative impact farmers are willing to use untreated wastewater because they do not have alternate source of water for crop production. But due to physical, institutional and social factors its use is not so extensive. The present study was designed to explore the impact of wastewater irrigation on farmer's social status, access and control over wastewater resource on social standings of certain social-economic groups in a community, wastewater users and their characteristic, farmer's perception about costs and benefits of wastewater irrigation, the constraints in using wastewater and the perception of farmers on minimizing these constraints.

MATERIAL AND METHODS

The micro-level study was based on primary data collected through field survey. We interviewed random sample of 100 farmers, 50 respondents from non-users of wastewater for irrigation from village Prokianwala, 30 respondents from the users of untreated wastewater for irrigation and 20 from the users of treated wastewater for irrigation from village Chakera. To explore study objectives, a well-designed interviewing schedule was prepared. Data thus collected were analyzed by using appropriate statistical techniques. Descriptive statistics have been employed to draw the conclusion.



Structure of Social Impact & Constraints of Wastewater Irrigation.

RESULTS AND DISCUSSION

The present study shows no significant results. Wastewater was the only source of irrigation in both of the villages i.e. Chakera and Prokianwala, which was a cheap and reliable source of water, full of nutrients. A major proportion of the respondents (40%) were illiterate in Chakera, where as (24%) of the respondents were illiterate in Prokianwala. Farmers were using wastewater to irrigate their land for 16-20 years. A large proportion of the respondents mentioned wastewater benefits in the form that it was useful for crops and there was no use of fertilizer and sprays (Figure 1), while half of the respondents were showing its losses in the form that it is not good for health. Majority of the respondents preferred to use untreated wastewater to irrigate their lands as it has more nutrients than any other water source (Figure 2, 3). A major proportion of the respondents (42%) were becoming habitual by the annoyance of wastewater odor, while (50%) were not annoyed by wastewater filthiness. A large proportion of the respondents were showing awareness about religious acceptability of wastewater irrigation, where as (66 %) of them did not show awareness about religious acceptability of wastewater irrigation. It was observed that crime rate was more than now before wastewater in agriculture. The type of crimes before wastewater use in this study area, were theft/robbery and drug abuse. A major proportion of the respondents (40 %) mentioned social status responsible for the committing of these crimes. No institutions (NGO's, CBO's) were working in the area, and no farmer's organizations are organized at village level. The standard of living of village Prokianwala was better as compared to village Chakera. A 74% of the respondents mentioned that wastewater did not has any health hazard. It was by the majority of the respondents that wastewater did not has any residual effect on health. Majority of the respondents (52%) in Chakera got women involved in wastewater farming, while 88% of the respondents in Prokianwala did not involve women in wastewater farming. It was observed that majority of the children in both of villages were not getting any kind of education.

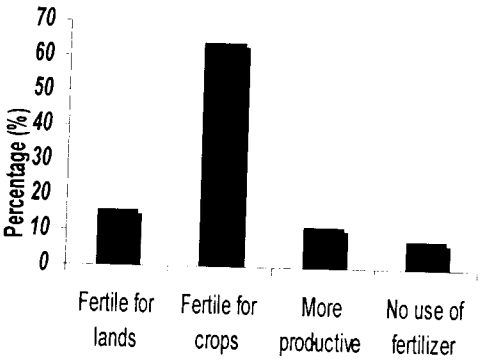


Fig. 1. Advantages/benefits of wastewater irrigation

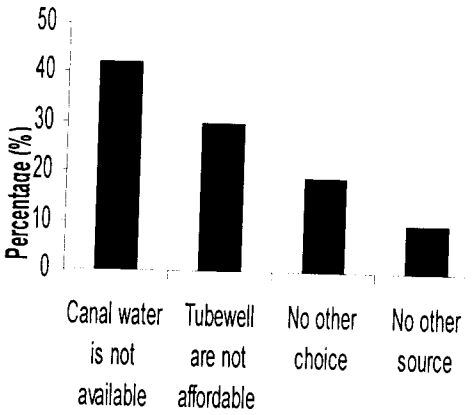


Fig. 2. Reasons of using wastewater for irrigation

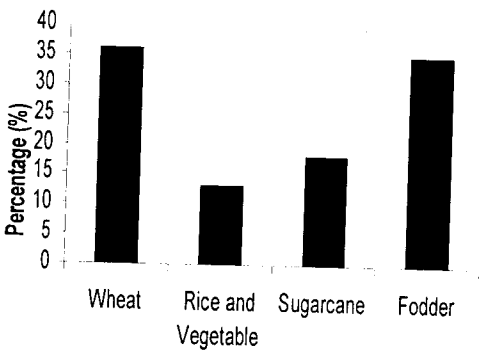


Fig. 3. Type of crops grown with wastewater irrigation

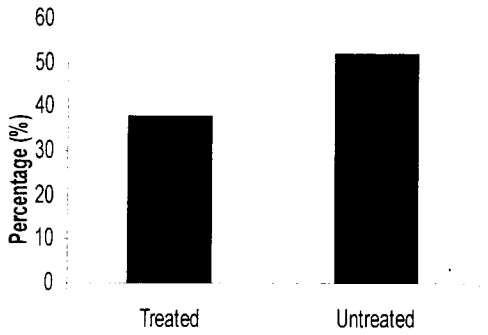


Fig. 4 Type of wastewater used for irrigation

CONCLUSION AND RECOMMENDATIONS

Every farmer has its own perception about the cost and benefits of wastewater irrigation. According to most of the wastewater users, no problem was raised due to wastewater irrigation in terms of land productivity, yield per acre, labor hiring, health risks etc. it has been seen that most of the farmers were using wastewater, but untreated wastewater was preferred by most of farmers. They were well aware about the limits for use of wastewater religiously but as ever said that they don't have any other choice but use wastewater for irrigation purposes. According to farmers of wastewater irrigation area, wastewater do not have any kind of effect on human health working in it. According to framers, the constraints were not prohibiting them to use wastewater for irrigation rather it is productive and beneficial for them. So wastewater irrigation should democratize and popularized so that farmers can get a reliable source of water to irrigate their lands. Under all these circumstances wastewater should not be considered as harmful for the farmers in one form or the other, because farmers seems to be fully satisfied with it. So it should not be banned and WASA officials should restrain any action on it.

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