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"Development on the margin"

Farmer Perceptions on Economic Costs of Wastewater Irrigation in Hyderabad, India

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Abstract

In Hyderabad, India – as in many developing regions – significant amounts of sewage and industrial wastewater are diverted into natural water bodies, largely without prior treatment. As this water is used by farmers, health risks are likely, but economic advantages from wastewater use due to less fertilizer requirements or reduced electricity/fuel expenditures compared to pumping groundwater cannot be ignored.

This study focused on selected economic effects of wastewater irrigation along a 40-km downstream stretch of the Musi river, which becomes a sewage channel, especially in the dry season. The research area comprises settlements where both wastewater and groundwater irrigation are common. Data on irrigation, crop yields, agricultural prices, labor and fertilizer use collected by several institutions were cross-checked with farmers and market data. Crop cultivation in the area comprises mostly of paddy (ca. 72 % of agricultural land) and paragrass for the dairy industry (26 %).

Among rice farmers fertilizer application was higher among groundwater users, while many paragrass farmers did not use any fertilizer. Those who used it had similar costs as groundwater users. Thus wastewater use is not an economic advantage. The result was similar for pumping which equally concerned wastewater users, as the river water has to be lifted to the fields. In general, electricity costs were subsidized and hence low for both water sources. Often the remaining costs were included in the land rent and paid by the land owner.

Paddy farmers noticed a decline in rice quality when using river water, which has been explained with the high salinity, metal and nitrogen levels of the wastewater. This has a strong economic impact as low quality rice attracts up to 50% less revenue. A resulting shift in crop selection from paddy to paragrass was registered while other farmers changed rice varieties, stopped fertilizer use or mixed river and groundwater.

All interviewed farmers would prefer access to clean water sources. Positive economic effects of wastewater use appear to be limited to those areas without groundwater access.

Keywords: Agricultural economics, farmer perceptions, urban agriculture, wastewater irrigation

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