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## Resource Constraints in Urban Food Production: A Survey of Red Bricks Kilns in Khartoum State, Sudan

ISHTIAG FAROUG ABDALLA<sup>1</sup>, SAHAR BABIKER ABDALLA<sup>1</sup>, DETLEV MOELLER<sup>2</sup>, JENS GEBAUER<sup>3</sup>,  
KAMAL EL-SIDDIG<sup>1</sup>, ANDREAS BUERKERT<sup>3</sup>

<sup>1</sup>*Agricultural Reserach Corporation, Sudan*

<sup>2</sup>*University of Kassel, Department of Farm Managment, Germany*

<sup>3</sup>*University of Kassel, Organic Plant Production and Agroecosystems Research in the Tropics and Sub-tropics, Germany*

### Abstract

Some parts of the Blue and River Nile banks, the most fertile land in Sudan, are used for traditional red brick production which heavily competes with vegetable cultivation for land. The rapid urbanisation leads to the expansion of this industry and encourages land owners to rent land for both purposes. Red bricks are mainly produced by traditional techniques, whereby biomass fuels (fuelwood and cow dung) are used for burning. Modern brick production where fossil fuel is used as an energy source makes up for less than 2% of the total annual brick production.

The main objectives of this study are to ascertain the profitability of this industry compared to agricultural land use and to quantify the carbon dioxide emission used in traditional red brick making. A number of 50 kiln owners around Blue and River Niles were interviewed during July 2009 and relevant secondary sources were reviewed. Descriptive analysis was used to analyse information and data collected.

Red bricks production is the only source of income for about 85% of the interviewees and landowners constitute about 15% of them. Land rent value for kilns can be more than 5 times the value from shared crop cultivation. The rainy season is considered the “off season” for red bricks production, and work is continued in most kilns from September to June. At the same time prices of both inputs and outputs are highly unstable throughout the season. Red brick making uses an average of about 0.017 t per 1000 bricks of fuel wood. Labor constitutes with 58% the greatest share of the total production costs. The average yield of a kiln per season is about 1.7 million bricks. The Benefit/Cost ratio for each thousand bricks is about 123%. Overall, these brick making industries destroy and erode clay soil, cause serious deforestation and likely are an important source of greenhouse gas emission as they use huge amounts of fuelwood from unsustainably managed forests and dung cakes for brick burning, with the brick kilns being of low combustion efficiency.

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