

## Linking Sanitation to Agriculture: Recycling Nutrients from Human Excreta in Food Production

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## Abstract

Poor sanitation services and water scarcity have become a global issue and not only a problem relevant to arid zones. In addition, hunger and malnutrition, poverty and limited energy access that constrain the achievement of human wellbeing and economic growth are worldwide problems, including Brazil. Large conventional municipal wastewater treatment plants are often expensive to establish and difficult to operate. As a result many cities and villages in developing countries are unable to set up such facilities and operate them. Decentralized wastewater treatment systems have proved to be successful in many communities, particularly in peri-urban settlements in Asia and Africa. This approach is based on the principles of decentralization of responsability, simplification of technology and the focus is on recycling the waste and nutrients.

Palavras-chave: human urine, ecological sanitation, unfertilized soil, urban agriculture, permaculture.