

Hygienic aspects of sanitation and nutrient recycling in selected rural areas of Uzbekistan and Viet Nam



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Uzbekistan

- Area: 447,000 km²
- Population: 26 million
urban 36%, rural 64%
- Access to improved sanitation: 57%
urban 73%, rural 48%

Khorezm province

- Area: 4,550 km²
- Population: 1.4 million
urban 37%, rural 63%
- Access to improved sanitation: 96%
- Access to sewerage: 12%

Source: Field study 2003, WHO & UNICEF 2004, OBL STAT & OBL SES, Urgench 2001



Within the work

of the ZEF/UNESCO Khorezm project a risk factor analysis regarding water, sanitation, hygiene and diarrhoeal diseases was carried out in 2003 and 2004.

Thus, in 189 randomly selected households spot checks and interviews using standardised questionnaires were carried out in summer 2003.

About 30% of the households applied human excreta directly to the vegetable garden or agricultural land; another 50% use safer nutrient recycling practices and bury human excreta close to trees or somewhere else in the garden.

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Simple latrines in Khorezm

Excreta management in Khorezm

In Khorezm, hygienically unsafe nutrient recycling of human excreta is common. Human excreta from pit latrines are dug out by family labour and applied as fertilizer to agricultural fields and vegetable gardens.

Furthermore, open disposal of children's faeces and frequently open defecation of children contribute to an environment loaded with faecal-oral pathogens.

Introduction

Nutrient recycling by application of human excreta to maintain soil fertility has been practiced in the Eastern Asia and the Western Pacific for 4,000 years. In other countries the need for nutrient recycling increases due to the economic downturn, resulting in socio-economic constraints for the population, e.g., in rural areas of countries in transition like the Central Asian republics.

Are there differences concerning hygienic aspects of human excreta management in Central and South-East Asia?

- In rural areas of the Mekong delta the environment is faecally contaminated by disposing excreta directly into surface water via the VAC farming system.
- In Khorezm potentially safely disposed human excreta is brought back to the environment by application as insufficiently treated or untreated fertilizer.
- Thus, in both regions different practices lead to heavy faecal pollution of the domestic and public environment and pose a hazard to public and personal health.

Viet Nam

- Area: 330,000 km²
- Population: 84 million
urban 26%, rural 74%
- Access to improved sanitation: 41%
urban 84%, rural 26%

Mekong Delta

- Area: 40,000 km²
- Population: 17 million
- Access to sanitation: 83%
- Access to sanitary sanitation: 20%

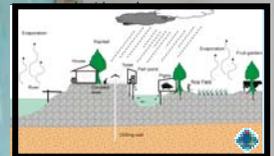
Source: WHO & UNICEF 2004, Pop. Reference Bureau 2007
World Bank et al. 2003

sansed

The SANSSED project develops site-adapted concepts for decentralised water supply and waste water treatment.

In pilot facilities, nutrients contained in human and animal excreta are converted into substrates for fertilising, either by applying biogas digestion and/or vermicom-posting.

The hygiene module assesses the reduction efficacy of different excreta sanitising techniques and the impact of a ground water work to human health.



Scheme of a typical VAC farm
Vuon=orchard, Ao=fish pond, Chuong=livestock
Source: Le Anh T. 2003

Excreta management in the Mekong Delta

In local farming systems excreta are predominantly used as fodder in aquaculture. For this reason simple latrines are located directly over fish ponds which leads to heavy faecal contamination of the surface water, used for drinking and other personal purposes as well as for irrigation.

Hence, the excreted faecal pathogens contaminate not only water, but also fish, vegetables and soil.