

# The Reality of “Safe Drinking Water” in Rural Areas of the Mekong Delta, Vietnam



A. Rechenburg<sup>1</sup>, F. Wieneke<sup>2</sup>, S. Herbst<sup>1</sup>, T. Kistemann<sup>1</sup> M. Exner<sup>1</sup> and F. Dangendorf<sup>1</sup> †

<sup>1</sup>Institute for Hygiene and Public Health, University of Bonn, D-53105 Bonn, Germany (email:arechenb@ukb.uni-bonn.de)

<sup>2</sup>Institute for Agricultural Policy, Market Research and Economic Sociology, University of Bonn, D-53105 Bonn,

## Introduction

Statistics on drinking water supply refer usually to the source water and often neglect treatment procedures and storage opportunities that might result in unsafe drinking water and by this in health risks. Within the SANSED project a survey was carried out at point of use of drinking water and problems of the present situation were analysed. The results show the advantages and risks of existing procedures and can help to develop improved education programmes.



## Background

### Socialist Republic of Vietnam

- Population: 79.7 Million
- 64 provinces
- 1,6 diarrhea episodes/year for children < 5 years
- 67% of rural population with access to improved drinking water (WHO/UNICEF;2004)

### Research Area

#### Mekong Delta, Can Tho

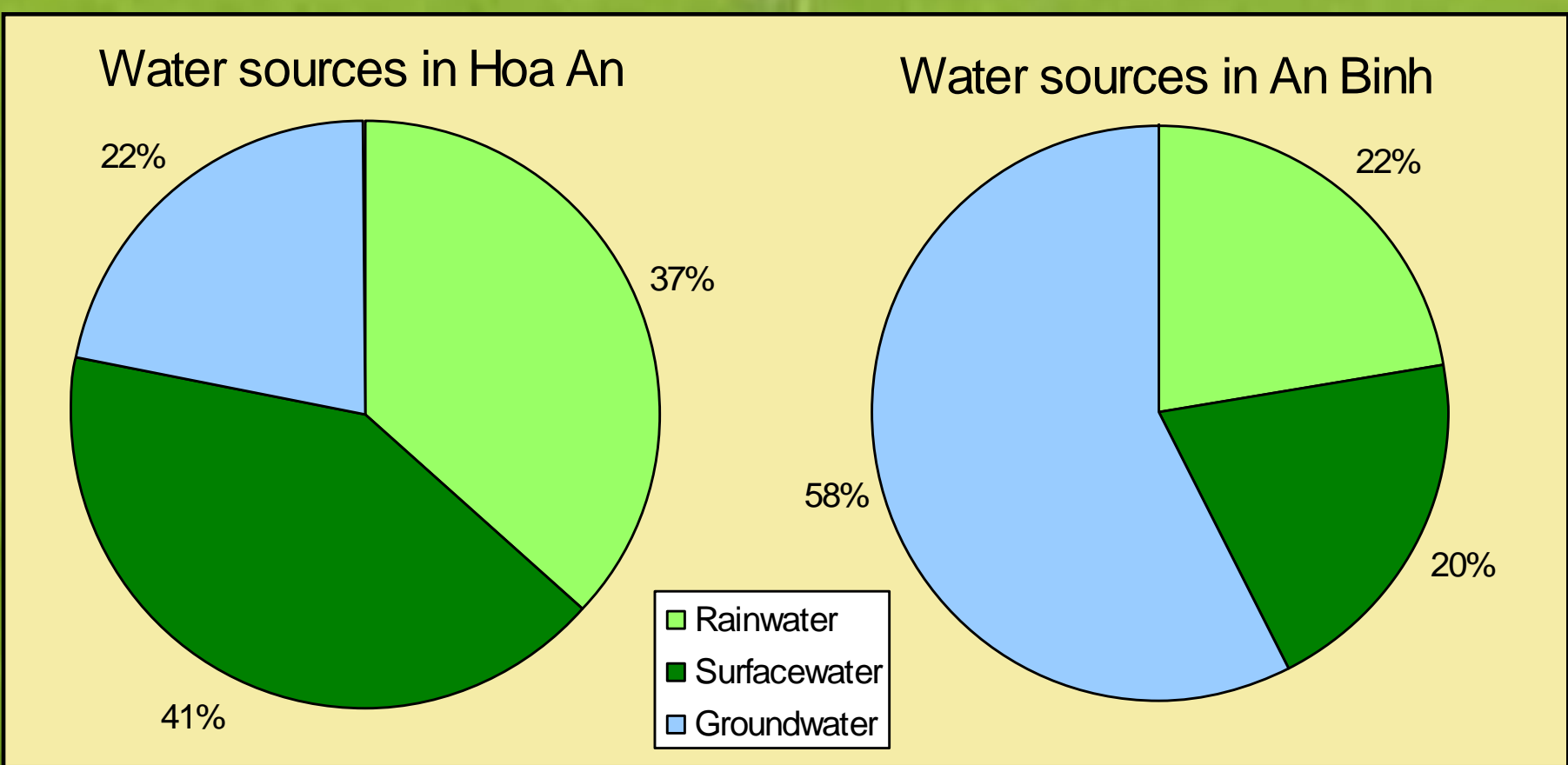
- 40.000 km<sup>2</sup>
- Delta population: 1.1 Million
- 88% rural population

## Methods

- Survey of 218 households in three communities concerning consumption habits, health related water use and economic situation
- One year monitoring of the microbiological quality of drinking water during household water treatment and storage on a monthly basis in two households
- Sanitary inspection of the monitored households according to WHO standards

## Water sources:

- 58% of the population with access to improved drinking water supply
- 85% of the population to be connected until 2010 (UN)
- Use of rain water is common; number of households doubles during rainy season
- In several areas people have to use surface water instead of ground water due to salinity. Here 78% use surface water and/or rain water and apply treatment
- Use of multiple water sources within one household is common



Distribution of drinking water sources in two different areas (Hoa An = rural and An Binh = periurban)

	n	E. coli [cfu/100mL]			
		0	1-10	11-100	>100
Storage Pot	25	2	2	17	4
Ceramic Filter	12	4	5	3	0
Boiled Water	13	6	5	0	2

E. coli concentrations in treated drinking water

## Household water storage and treatment:

- 99% of the households treat their water; combination of treatment methods is common
- most common treatment: flocculation with aluminum sulfate and boiling
- Chlorination was practiced in 7 of 218 households
- Treatment and storage is done in 150 L clay containers
- National standard TCVM 6187 (1996) for drinking water: 0 E.coli/100mL; exceeded by >50% of boiled water samples



Pipe to collect drinking water out of a canal



Storage pot for drinking water from a water work



Groundwater well with storage pots in the back



Storage pot and boiled water



Hand pump and storage pots

## Results

- Surface water is preferred by the majority of the population
- Surface water is highly contaminated by faeces, garbage, waste from ships, chemicals, etc.
- Maintenance of drinking water sources and drinking water storage is inadequate
- On average Storage pots contain 10<sup>2</sup> E.coli/100 mL; narrow dispensers were not observed
- People in rural areas would like to use rain water instead of surface water

## Conclusion

- Develop risk communication strategies
- Pay more attention on treatment and storage of drinking water at point of use
- Cooperation of universities, NGOs and public authorities in the field of water hygiene and sanitation together with community participation to work out the most effective methods
- Identify participation obstacles and develop suitable training materials

## References

- [http://www.unicef.org/infobycountry/vietnam\\_statistics.html](http://www.unicef.org/infobycountry/vietnam_statistics.html)
- <http://www.un.org.vn/>