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Abstract for the introducing presentation of

Drinking water treatment with ceramic filters in Africa

Communication Skills I

Maria Schulte
Erasmus student
maria.schulte@rub.de

Drinking water treatment with ceramic filters in Africa

1. Introduction or why this topic is important…

1.8 million people die annually because of diarrhea, of which 88% can be traced back to unsafe water and poor hygiene. (WHO, 2007) According to estimations of the World Health Organization (WHO), 94% of these diarrheal diseases can be avoided by improved water supply and sanitation. (WHO, 2007) 1.1 billion people worldwide do not have access to "improved" drinking water supply and especially in large parts of Africa the supply of good drinking water is inadequate. (WHO, 2007) African countries where more than 75% of the population have access to clean drinking water constitute an exception (in 2002). (WHO / UNICEF, 2004) Altogether in 2010 about 344 million people living in Africa did not have access to improved drinking water sources. (AMCOW, 2012)

Too often there is no safe central wastewater treatment plant and method. In order to improve the quality of the drinking water, the water can be cleaned directly at the point of use. This can significantly reduce the risk of dying from waterborne illnesses. In most cases these "point-of-use" treatment facilities are easy to manufacture and improve water quality enormously. (Mwabi et al., 2011) The diarrheal diseases are reduced by this considerable increase in the microbial water quality. It is also a very cheap version of water purification. (WHO, 2007) One of the most common "point-of-use" technologies is the ceramic water filter. (Murphy et al., 2010) In developing countries (such as the African countries) it can be produced locally because only a few raw materials are needed and the traditional craft methods of the individual countries can be applied. According to that the required know-how for the production is already available and only little costs are incurred. In comparison to other filter method productions a lower effort is required. Due to the porosity of the filters, suspended solids, filiform bacteria and protozoa can be retained from the water by means of physical removal. (Basson and Simonis, 2012) A similar and alternative "point-of-use" technology in developing countries are sand filtration processes, which can also be produced directly on site and therefore are a cost-effective way of water treatment. (WSP, 2010)

2. Overview of the further procedure

By choosing this topic for an detailed presentation, the following suptopics are regarded in detail:

- The manufacturing of ceramic filters: the used materials, the composition of materials, the shapes of the filters and the way of producing them
- Advantages and disadvantages of ceramic filters
- Guidelines of the WHO for safe drinking water: the most important indicators Escherichia coli, Pathogens (bacteria, viruses, protozoa)
- The question if ceramic filter do have sufficient cleaning performance to satisfy those Guidelines?
- A comparison with sand filtration systems (as mentioned briefly above)
- The question if ceramic filters ensure enough safe drinking water to ensure the required 20 l water per day and person for a minimum of health and hygiene

3. References

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