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Measures for a Sustainable Drinking Water Supply in the Rural Areas of the Mekong Delta

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Abstract

Although, water is omnipresent in the Mekong Delta, the drinking water supply is - especially in the rural areas - still an unsolved challenge. Surface water is polluted by agrochemicals, domestic and industrial waste water. In some areas ground water can not be used for the drinking water supply because of a high salt- and iron content. Furthermore, a continuous decrease of the ground water table can be observed over the last few years. Due to the tropical climate, rain water is only available over the rainy season. Storing rain water requires ideal hygienically conditions which are not always given. Also, existing drinking water treatment plants are designed after one scheme and they do not consider the quality of the raw water.

For two exemplary study sites in the rural area of the Mekong Delta measures for the improvement of the drinking water supply situation are formulated. At first, fundamental data was collected and various field investigations (e.g. water sampling, hydro-geological tests) were carried out. Because of diverse conditions of the two study sites, different concepts for the improvement of the drinking water supply are necessary. Both concepts consider the three dimensions of sustainability; that includes the improvement of the drinking water quality and the hygienic conditions, the minimisation of the investments costs and operating costs and the moderate use of the water resources and the minimisation of the waste water disposals into the water bodies.

As a first step, the installation of rain water harvesting facilities is recommended and the direct inflow of untreated waste water should be minimised at both study sites. At the first study site the improvement of an existing ground water treatment plant is recommended. To lower costs and to optimise the water quality an adjustment of the treatment scheme to the raw water quality is required. For the second study site the construction of a surface water treatment plant is suggested. Here, due to a high suspended solid flux a pretreatment is needed.

Keywords: Mekong Delta, rural water supply, sustainability, Viet Nam