

Working Paper Series

49

Center for Development
Research

Department of
Political and
Cultural Change



Zentrum für Entwicklungsforchung
Center for Development Research

ISSN 1864-6638

Nadine Reis, Peter P. Mollinga

Microcredit for Rural Water Supply and Sanitation in the Mekong Delta

Policy implementation between the
needs for clean water and 'beautiful
latrines'

ZEF Working Paper Series, ISSN 1864-6638
Department of Political and Cultural Change
Center for Development Research, University of Bonn
Editors: H.-D. Evers, Solvay Gerke, Peter Mollinga, Conrad Schetter

Authors' address

Nadine Reis
Center for Development Research (ZEF), University of Bonn,
Walter-Flex-Str. 3
53113 Bonn, Germany
Tel. 0049 (0)228-73 4969: Fax 0228-731972
E-mail: nadine.reis@uni-bonn.de
www.zef.de

PD Dr. Peter P. Mollinga
Center for Development Research (ZEF), University of Bonn,
Walter-Flex-Str. 3
53113 Bonn, Germany
Tel. 0049 (0)228-73 4918: Fax 0228-731972
E-mail: pmollinga@uni-bonn.de
www.zef.de

Microcredit for Rural Water Supply and Sanitation in the Mekong Delta

Policy implementation between the needs for clean water and 'beautiful latrines'

Nadine Reis and Peter P. Mollinga

Contents

Abstract	1
Abbreviations	2
1. Introduction	3
2. Water supply and sanitation in Can Tho	5
2.1 Food security, modernisation and water crisis	5
2.2 Access to clean water: a matter of location and financial capacities	8
2.3 Problem statement	10
3. The VBPS microcredit programme on RWSS	10
3.1 Policy and institutional responsibilities	10
3.2 Implementation in Can Tho City	12
3.2.1 Distributed budget and general results	12
3.2.2 Sanitation	12
3.2.3 Water supply	14
3.2.4 Allocation of loans among rural households	17
4. Conclusion	19
References	21

Abstract

The rural population of the Mekong Delta is facing increasing problems due to the contamination of domestic water sources. Around half of the population lacks year round access to clean water. In combination with bad hygiene behaviour and poor sanitation there is a high risk for water-related diseases. On the policy level, microcredit schemes have globally become a popular element in addressing such problems. The present paper analyses the effectiveness of such a microcredit programme for rural water supply and sanitation in the context of the rural Mekong Delta in Vietnam. It is concluded that the programme has a positive effect with regard to the safer disposal of human excreta and the water quality in rivers and canals. However, the programme has only a marginal impact on poverty reduction as it reaches only better-off households that already have access to clean water. On a more general level, the paper shows how the outcome of rural water supply and sanitation policies are strongly influenced by a system of local ecological, technological and social settings, in particular by the interests of involved stakeholders. The authors finally challenge the common assumption that water supply and sanitation should in all circumstances be integrated into the same policies.

Keywords:

Rural water supply and sanitation, microcredit, policy analysis, Mekong Delta, Vietnam

Abbreviations

CERWASS	Centre for Rural Water Supply and Sanitation
CGL	Credit Group Leader
cPC	commune People's Committee
CPH	Centre for Preventive Health
DARD	Department of Agriculture and Rural Development
DOH	Department of Health
DONRE	Department of Natural Resources and Environment
FU	Farmer's Union
IEC	Information, Education and Communication
MARD	Ministry of Agriculture and Rural Development
MDG	Millennium Development Goal
MOH	Ministry of Health
MONRE	Ministry of Natural Resources and Environment
NRWSS	National Rural Water Supply and Sanitation Strategy
NTPII	National Target Programme II
PC	People's Committee
RWSS	Rural Water Supply and Sanitation
VBSP	Vietnam Bank for Social Policies
VU	Veteran's Union
WSS	Water Supply and Sanitation
WU	Women's Union
YU	Youth Union

1. Introduction

Vietnam's Mekong Delta is characterised by a rapid agricultural and industrial development and a high population growth occurring since the late 1980s. The rapid economic development has taken place without adequate measures for the sustainability of natural resource use. Today, the population is facing increasing problems due to the contamination of domestic water sources: around half of the population lacks year round access to clean water (GSO 2006: 310ff.). Access to clean water is especially problematic in rural areas without public water supply networks, and in the dry season, when rain water is not available. In combination with bad hygiene behaviour, and poor sanitation – only 26% of households have hygienic latrines (MoH/UNICEF 2007) – the risk for diseases is high.

Millennium Development Goal (MDG) number 7C calls for halving the proportion of people without sustainable access to clean drinking water and basic sanitation by 2015¹. Water-related diseases are the most common cause of illness and death among the poor in developing countries. They go back to two transmission routes: waterborne disease transmission occurs by drinking contaminated water and typically leads to diseases such as diarrhoea, typhoid and intestinal worms. Water-washed diseases are caused by insufficient clean water for washing and personal hygiene, which causes skin and eye infections (UNDP 2005: 17; WHO/UNICEF 2009).

Achieving MDG target no. 7C is also closely related to achieving other MDGs. Above all, access to safe water and hygienic sanitation has a strong impact on poverty reduction in that household livelihood security is based on the health of its members. Moreover, it is related to goals on child and maternal mortality, education, hunger, gender equality, and environmental sustainability (UNDP 2005: 18).

For Vietnam, the core national policy with regard to MDG target no. 7C is the 'National Rural Clean Water and Sanitation Strategy' (NRWSS), which was approved just before the UN Millennium Declaration in the year 2000. As responsibilities for urban and rural water supply are separated in Vietnam, and the problem is especially evident in rural areas, the programme is targeted to rural areas only. The main responsible agency for implementation is the Ministry of Agriculture and Rural Development (MARD), including its sub-branches and departments². The national goal is to provide all rural people with sufficient clean water and hygienic latrines by 2020 (MoC/MARD 2000: 11). For the period of 2006-2010, the 'Rural Water Supply and Sanitation National Target Programme II' (RWSS NTP II) is the main programme for implementing the NRWSS. It aims to provide 85% of the rural population with clean water (60 lcd), 70% of rural households with hygienic latrines and 100% of rural schools, clinics and other public institutions with clean water and hygienic latrines. The programme is supported by a consortium of three international donors – Denmark, Australia and the Netherlands - and follows the main principles of cost-recovery, demand-responsiveness and socialisation³.

Due to the finance gap in the RWSS sector and the paradigm of cost-recovery, microcredit schemes have globally become a popular element of RWSS policies in recent years. As an element of the NRWSS, the Vietnamese government approved a loan programme for RWSS in April 2004 (GoV No. 62/2004/QD-TTg), which aims to "increase quickly the rate of rural households having access to clean water and hygienic constructions [i.e. sanitation facilities, NR]" (VBSP 2008).

While water supply has been a policy issue for development agencies for many years, sanitation has only recently reached the focus of global policy makers. International donors increasingly emphasise the need for national governments to put special attention on sanitation, as "sanitation has often been given distant consideration behind planning for water supply" (IRC 2003: 23). Also in Vietnam, donors in RWSS

¹ The target on water supply and sanitation is one of the indicators in MDG Goal number 7: "Ensure environmental sustainability". Goal number 7 further calls for the inclusion of sustainable development into country policies, the reduction of biodiversity loss, and the improvement of lives of slum dwellers (<http://www.undp.org/mdg/goal7.shtml>).

² On provincial level, the Department of Agriculture and Rural Development (DARD)

³ 'Socialisation' refers to the goal of leveraging additional funds for financing RWSS from the private sector, including private business and local communities/households (SRV 2006: 10f.).

steadily emphasise the importance of including sanitation into water supply, which is illustrated by statements like the following.

"Without sanitation, water supply means nothing. [...] The water supply is there, so now the focus is on sanitation." (UNICEF project officer, Hanoi, 18.02.09)

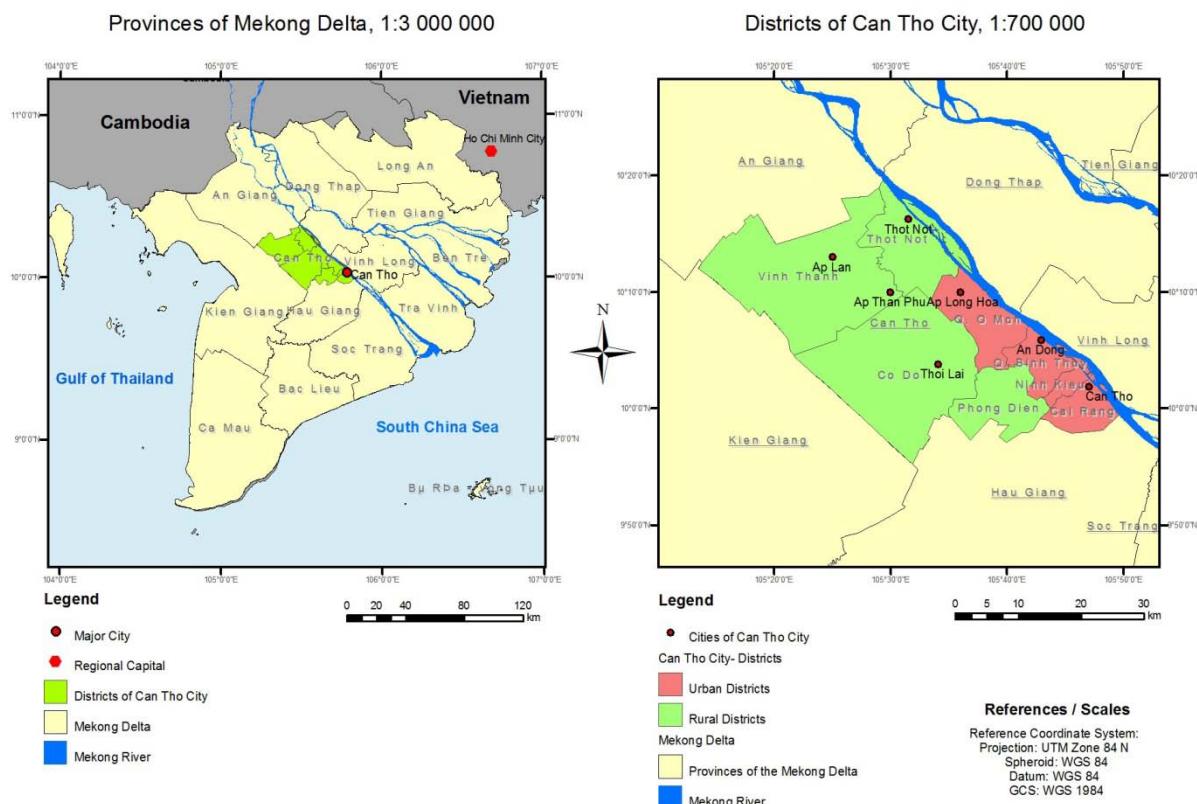
"For water supply technology, the government seems more and more capable, but sanitation and hygiene is the problem." (UNICEF project officer, Ho Chi Minh City, 28.08.08)

"Sanitation is forgotten in NTP, and it is still very much lacking. [...] People turn to tend into water. Water supply is easy."⁴ (AusAID programme officer, Hanoi, 27.05.08)

Research on water and sanitation has already pointed out that "policy debates and often generalised, globalised arguments that underpin them often remain disconnected from the everyday experiences of the poor"; moreover, it has been argued that current approaches fail to address the challenge of the 'liquid dynamics' in WSS systems: "the patterns of complexity and interaction between the social, technological and ecological/hydrological dimensions of water and sanitation systems" (METHA ET AL. 2007: 2).

The present paper tries to link to this debate by analysing the VBSP microcredit programme as part of the RWSS policy of the Vietnamese government. First, it aims to analyse the programme's effectiveness and whether it reaches its goals. In doing so, it contributes to the question if and in which way microfinance is a useful approach for solving the financing gap in RWSS. However, the paper goes beyond mere policy evaluation in that it shows how the local outcome of RWSS policies is strongly connected to those 'liquid dynamics' in water supply and sanitation systems, which are strongly influenced by local ecological, technological and social settings, but in particular by the interests of involved stakeholders.

Figure 1: Study area Can Tho City



Source: ZEF-WISDOM

⁴ Statements from interviews with international donor agencies involved in RWSS in Vietnam.

The paper is part of a larger PhD research project on the policy of rural water supply and sanitation in Vietnam that uses a case study approach in order to identify variables and causal mechanisms that affect policy-making in the RWSS sector. The PhD is carried out within the German-Vietnamese research project WISDOM⁵. One of the provinces of the Mekong Delta, Can Tho City, was chosen for the case study (see Figure 1). Field research was carried out between April 2008 and March 2009. The present paper draws on 28 semi-structured interviews that were conducted with officials on four administrative levels (commune, district, province and national government), staff of donor agencies as well as households in three rural communes⁶. It is amended by relevant literature, secondary statistics and newspaper articles from the Vietnamese press.

2. Water supply and sanitation in Can Tho

2.1 Food security, modernisation and water crisis

Beginning with major economic reforms in the middle of the 1980s (doi moi), the Mekong Delta has witnessed fast economic development in the last 20 years. Out of a situation of famine in the 1970s, Vietnam has developed to being one of the largest rice export nations in the world today, in which the Mekong Delta is the centre of rice production (MILLER 2005: 175). Along with this development, population has dramatically increased and is still growing. In 2007, the Mekong Delta had a population of 17.5 million (GSO 2009a).

Can Tho City was separated from Hau Giang province and established as a separate administrative unit in 2004. In spite of its administrative city status, many areas remain peri-urban or rural, with a large share of the population depending on agriculture for their livelihoods. Can Tho is densely populated with 836 people/km² (GSO 2009b). However, there are no hamlets or villages in the sense of spatially concentrated population agglomerations, as the settlement pattern is organised along the dense network of rivers and canals. The area has been described as "river-water civilisation" (LE ET AL. 2007).

As surface water is naturally abundant in the Mekong Delta, people traditionally take the river or canal water in front of their house for drinking and domestic water use. The water is usually prepared for household use with a crystal stone (alum), which flocculates the sediments in the water. However, the surface water is contaminated due to different pollution sources.

For defecation, people traditionally use fishpond or river toilets. A fishpond toilet basically consists of two planks which are installed above the pond, surrounded by a visual cover made of leaves, plastic sheets or other materials (see Picture 1). A CPH⁷ official explains that installing the toilets above ponds serves an economic aim.

"The people like to raise fish in this way because they think it grows faster." (Head of Office, CPH Can Tho, 05.06.08)

⁵ WISDOM = Water Related Information System for the Sustainable Development of the Mekong Delta, Vietnam. The research project is funded by the German Ministry for Education and Research (BMBF) (www.wisdom.caf.dlr.de).

⁶ The communes are Thanh Quoi in Vinh Thanh district, Truong Long in Phong Dien district, and Truong Xuan in Co Do district.

⁷ CPH = Centre for Preventive Health. CPH is an agency under the Department of Health on provincial level.

Picture 1: Fishpond toilet



The water of fishponds is regularly released into the river or canal for exchanging the water. According to authorities, one third of the waste is eaten by the fish, and two thirds are released into rivers and canals. If the household has no fishpond, the excreta are directly disposed into the river or canal. Current sanitation practices pose a health risk as excreta contaminate the water resource used for drinking and other domestic activities.

Besides human excreta, surface water resources have been increasingly polluted through the use of chemical pesticides and fertiliser for agricultural production, like typical statements from rural households illustrate.

"It is very dirty from fertilisers and pesticides, even the fish are dead." (Household interview, Truong Xuan commune, Co Do district, 21.10.08)

"The water is very polluted. In the flood season, the pesticides flow into the river. I am afraid of that." (Household interview, Vinh Trinh commune, Vinh Thanh district, 02.12.08)

"In the past, the river water had no pesticides. Today, there are a lot of pesticides." – (NR)
How do you know the water is polluted by pesticides? – "Because we also live on farming."
(Household interview, Truong Xuan commune, Co Do district, 22.10.08)

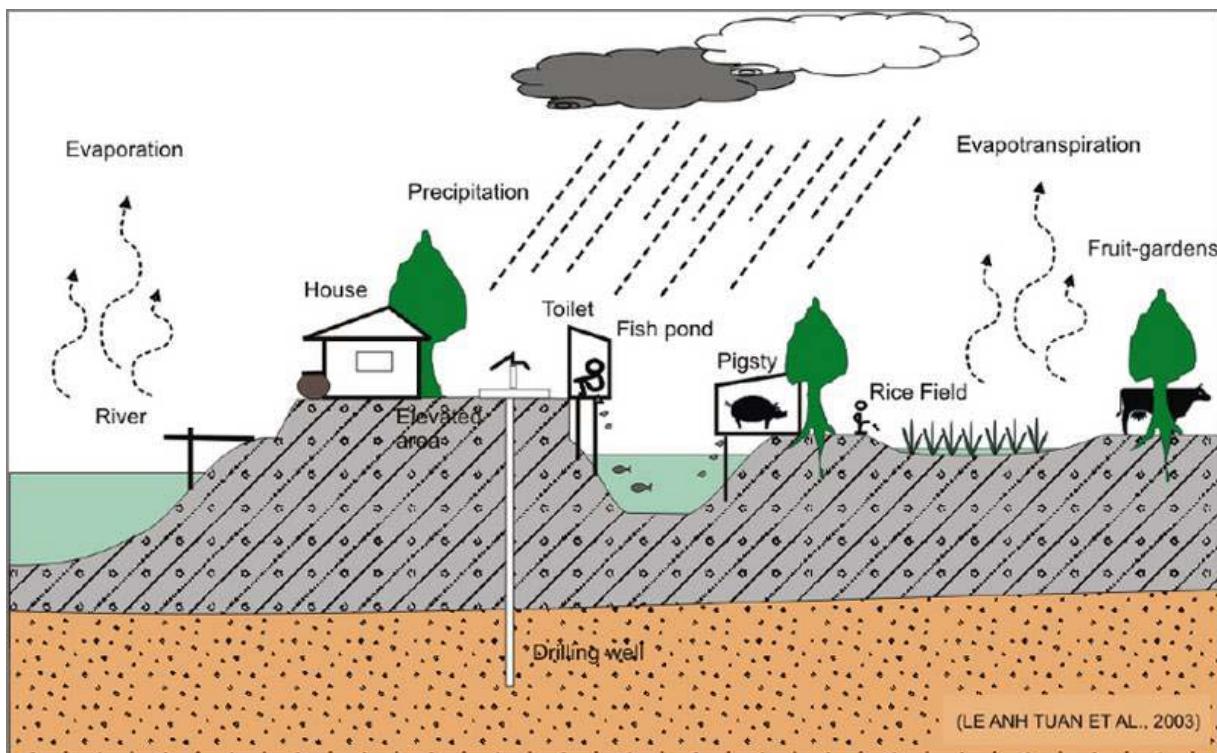
The amount of fertiliser and pesticides has increased steadily due to the expansion of rice cultivation⁸. Between 1995 and 2008, the area under rice cultivation has expanded from 3.2 million hectares to 3.9 million hectares. The problem is exacerbated by the fact that farmers "use much more than the needed level" of fertilisers and pesticides (MONRE 2008). Fish farming, mainly the production of catfish for export, is another reason for the pollution of surface waters – the area under aquaculture increased from 200.000 ha in 1995 to 700.000 ha in 2008 (*ibid.*). Especially the people in areas near the Hau River note the increasing pollution from aquaculture.

(NR) Has the river water quality changed in the last years? – (All are laughing) "Previously it was dirty, now it is very dirty, from fish farming. Previously, it was polluted by pesticides, dead animals and human waste...[...] Now it is much more polluted because of the factories in Tra Noc. The water is also polluted because many households breed fish in Dong Thap, Vinh Long, Thoi An, Thoi Long, Phuoc Thoi." (Members of People's Committee (PC) and Women's Union (WU) in Thoi An ward, O Mon district, 25.11.08)

Figure 2 schematically displays the interactions between water, land and human activity in the rural Mekong Delta.

⁸ Monitoring and modelling of pesticides and other water pollutants is currently carried out within the WISDOM project by researchers of the United Nations University for Environment and Human Security (UNU-EHS).

Figure 2: Water-related interactions in the rural Mekong Delta



Source: LE ET AL. 2003

Through the establishment of industrial zones along the Hau River, the water in rivers and canals is also contaminated with industrial wastewaters. In spite of existing laws specifying that industries must have treatment plants, most of the industrial wastewater is directly released into the rivers.

"Central industrial parks and industrial clusters of the city, including Tra Noc 1, Tra Noc 2, Hung Phu 1, Hung Phu 2 and Thot Not do not have a central wastewater treatment system. The number of enterprises having standard wastewater treatment systems is very low. All wastewater is concentrated into the drainage system of the industrial parks and then directly dumped into rivers and canals. According to the estimation, industrial wastewater of these industrial parks is around 30.000m³ per day." (TUOI TRE, 06.11.2008).

Moreover, the national government, supported by the World Bank, is constructing a large-scale irrigation infrastructure project (O Mon Xa No project), which has negative impacts on the quantity and quality of available surface water in the project area. Drains were constructed too small, or are still missing after the completion of the project (TUOI TRE, 27.02.2008). As a consequence, water discharges more slowly during the rainy season, while in the dry season "the lack of water in some canal areas has reached an extremely serious level" (SAI GON MARKETING, 20.06.2008). The project has caused a lot of discomfort among the local population.

(NR) Have you noticed any changes in the quality of the river water? - "It has worsened, because the people are constructing dykes, and the water in the canal has a high amount of iron and pesticides. So the water flow in the canals is polluted. [...] In the dry season, the water cannot flow into canals, so we do not have enough water to use." (Farmer from Truong Long commune, Phong Dien district, whose family uses river water; 29.10.08)

"The dikes and sluices just reduced the flow, so the dirty water has to be used." (Sai Gon Marketing, 20.06.2008, citing farmer from Truong Xuan commune, Co Do district)

Local authorities are facing complaints from the people, but are helpless in the face of the project as they are not in charge.

"The project makes the river water polluted a lot, and many inhabitants complain about this. But the project is from the central government, so we cannot do anything about it."
(Head of WU in one of the affected communes⁹)

Clean water availability has become a problem in Can Tho as surface waters are polluted due to the fast development of agriculture and industry, including an accompanying population growth. Policy failures, in particular the missing implementation of environmental laws and the construction of large scale irrigation infrastructure, have exacerbated clean water scarcity in the rural areas. MONRE¹⁰ admits that the level of E.coli in rivers and canals in the Mekong Delta exceeds the permitted level 2-5 times; the BOD and COD¹¹ levels are 1-3 times above the limit (MONRE 2008). According to DONRE Can Tho, levels of ammonia, a toxic produced in industry and agriculture, are 5-10 times over the standard in surface waters. However, not all parts of the population are affected in the same way by the depletion of surface waters, as discussed below.

2.2 Access to clean water: a matter of location and financial capacities

Today, the main characteristic of water supply in the rural areas of the Mekong Delta is the diversity of water sources that rural households make use of.

Rural areas are only partly served by water supply schemes. There are 426 groundwater based public water supply schemes in Can Tho, each usually serving between 50 and 200 households. However, not all households that are located inside the network areas are connected to the schemes. In order to connect to the scheme, households have to pay a connection fee, which presents an obstacle in accessing tap water. Another reason why some households are not connected to the stations is that they have their own well. Of the households that are connected to tap water, many use it exclusively for the purposes of drinking and cooking. For other purposes, they still use other water sources, in particular rainwater¹². Under these conditions, tap water does not have a 'natural monopoly' like in other regions (SPENCER 2005: 12). The 'competition' of tap water with other water sources is one of the reasons why it is economically not feasible to supply all rural areas with piped water schemes. Moreover, according to provincial authorities, it is relatively expensive to establish water supply networks in the rural Mekong Delta, because the pipes can only be laid into two directions (along the rivers and canals) due to the settlement structure, and the water has to be pumped over rather long distances. Hence, one water supply station can only supply a limited number of households compared to other areas.

Another problem concerning the CERWASS¹³ water supply stations is the use of ancient groundwater resources from a depth of around 80 – 120 m, which are rapidly depleting. For Can Tho, the groundwater level is estimated to decrease at a rate of around 0.5 m per year, in some areas even 0.7 m/year (NUBER 2008). Therefore, it will not be possible anymore to abstract groundwater through suction pumps in 5-10 years (NUBER/STOLPE 2008). CERWASS recognises the problem, but still counts on the current technology.

"Some small stations have the problem that the groundwater level decreases, so we are planning to deepen the wells and increase the power of the stations, set up the pump in the underground. We need money for investing in this. If the well cannot get water anymore, we have to abandon it and dig new wells. Now they are still working, but the problem will be there in 5-10 years, when they cannot get water anymore. Some stations use more water, so the solution is to set up the pumps in the underground." (Vice director, CERWASS Can Tho, 06.08.08)

⁹ The name of the commune and the interview date are not specified for ensuring anonymity of the interviewee.

¹⁰ MONRE = Ministry of Natural Resources and Environment. DONRE (Department of Natural Resources and Environment) is its branch on provincial level.

¹¹ BOD = Biological Oxygen Demand, COD = Chemical Oxygen Demand; BOD and COD are two common indicators for measuring water quality.

¹² In addition to saving money by using rainwater (as stated by some interviewed households), another reason is the higher value and better taste that is ascribed to rainwater (HERBST ET AL. 2008: 4).

¹³ CERWASS = Centre for Rural Water Supply and Sanitation. CERWASS is the provincial agency under the Department of Agriculture and Rural Development (DARD) which is responsible for Rural Water Supply.

However, MONRE has already noted that at the present extraction rates, "many aquifers will be exhausted very soon and require a million years for recovery" (MONRE 2009).

In consideration of the lacking economic and environmental sustainability, it is questionable whether the current approach of constructing such water supply stations is an appropriate solution for providing the whole rural population with safe water.

Referring to secondary data, it is difficult to assess how many people have access to clean water, because the available data show substantially different results. This is partly due to the application of a variety of definitions about what access to clean water means. It can be assumed that tap, well and rain water is usually safe for drinking and other domestic use. This is in line with the JMP¹⁴ definition of an improved drinking-water source (WHO/UNICEF 2009). Referring to CERWASS data, around 30% of households in rural areas are connected to piped water schemes. However, there is no reliable data on the number of private wells in Can Tho.

Based on the results of approximately 50 semi-structured interviews with rural inhabitants, the following types of households have been identified:

Table 1: Household typology of water supply in Can Tho

<i>Households inside the network area</i>		<i>Households outside the network area</i>				
Connected to the scheme	Not connected to the scheme					
Use water only from the scheme	Use a mix of water sources (additional use of well or rain water)	Have a well and do not want/need to connect	Use river/rainwater; want to connect, but have no money	Have a well and rainwater storage capacity (do not want/need water supply scheme)	Use river and rain water, but rely on river water in the dry season	Use only river water (no capacity for collecting and storing rainwater)

Have access to clean water
 Access to clean water is problematic

The table shows that there are three (partly overlapping) groups of households for which year-round clean water availability is problematic:

1. Households inside the areas of piped water schemes that cannot pay for the connection fee
2. Households that do not have enough capacity to store rainwater through the dry season¹⁵
3. Very poor households that have no capacity for collecting and storing rainwater.

In both areas with piped water scheme and areas without, clean water availability depends primarily on the financial capacities of a household.

In network areas, the financial burden consists of paying the fee for connection to the water supply station. According to information given by CERWASS, the current fee is 500.000 VND (around 20€). In addition, pipes have to be bought if the house is more than 10m away from the main pipe (as a station manager states, the cost for pipes is around 6.500 VND/m). Given that the official poverty line set by the Can Tho PC is 200.000 VND per month per person¹⁶, the connection to the water supply station can be a considerably high expenditure for rural families. Interviewees that lived in the network area, but were not connected to the station, stated as reason that they could not afford to connect to the schemes.

(NR) What is the reason that you are not connected to the water supply station? – "I do not have enough money." – How much would you need to connect to the station? – "500.000 – 700.000 VND for the water meter and the pipes." – How far is your house away from the

¹⁴ JMP = Joint Monitoring Programme for water supply and sanitation by WHO and UNICEF

¹⁵ The dry season usually lasts from December until March/April.

¹⁶ Source: Department of Labour, Invalids and Social Affairs (DOLISA) Can Tho

station? – “700 meters.” (Household interview, Truong Xuan commune, Co Do district, 22.10.08)

In areas without piped water schemes, access to clean water also requires financial means. Households having a well indicated investment costs between 1 and 2.5 million VND (ca. 40-100€) for installing a well. The cost is rather high because of the depth of the groundwater.

Whether households collect rainwater depends on the roof of the house, like these interviewees that use river water explain.

“We do not use rainwater. We heard it is not good because the roof is made of leaves. The pollution from the leaves goes into the water; then the water gets a bad smell and yellow colour.” (Household interview, Thoi An ward, O Mon district, 26.11.08)

If the roof is considered suitable for rainwater harvesting, it depends on the number of available jars whether and how long the rainwater can be stored during the dry season. Of the interviewed households that depend on river and rainwater, none had more than 2 jars and therefore none could store rainwater through the dry season.

Only in rare cases it was observed (at houses of government officials) that rural households bought bottled water.

2.3 Problem statement

The data has shown that the lack of access to clean water in Can Tho is very closely related to poverty, and that the problem is especially manifest during the dry season, when rain water is usually not available anymore. Moreover, the water quality and quantity in rivers and canals is even worse during the dry season than during the rainy season, as all respondents confirmed. Based on interviews with local women and staff of health stations it also became evident that water-washed diseases, namely skin rashes and gynaecological diseases, are particularly frequent during the dry season¹⁷. Poor sanitation is thereby only one of the sources of contamination of waters in rivers and canals.

Water and sanitation related health risks are exacerbated by very poor hygiene practices of the rural population in Vietnam. A recent household survey conducted in a sub-urban ward of Can Tho City found that nearly half of the respondents are not aware of the link between hand washing and diarrhoea (HERBST ET AL. 2008). In the Mekong Delta, only 22% wash their hands with soap after defecating, and only 16% do so before eating (MoH/UNICEF 2007: 90). Own observations have confirmed the low hygienic awareness of the rural population.

3. The VBPS microcredit programme on RWSS

3.1 Policy and institutional responsibilities

Microcredit schemes have been a successful element in poverty alleviation programmes in the past, and the approach has recently been transferred to other areas of development (SAYWELL/FONSECA 2006). In the past, microcredit was not considered a suitable instrument for financing WSS activities, because they were not seen as sufficiently attractive (NWP/IRC 2007). However, due to the large funding gap to meet the MDGs, and the popularity of cost recovery policies, microcredit is increasingly applied in the WSS sector (*ibid.*; METHA/KNAPP 2004). Regarding sanitation, it is also seen as a useful approach because the supply-driven strategy of building toilets with household subsidies often resulted in unused facilities. In contrast, leveraging greater household and community resources for financing sanitation requires more

¹⁷ With regard to waterborne diseases, such as diarrhoea, worms etc., research in the study communes has shown that there is often no, or only unreliable, data. One of the reasons is that the causes for certain diseases – like diarrhoea – are sometimes difficult to assess and cannot always certainly be attributed to water and/or sanitation by the staff of local health stations.

demand responsive approaches, and is thus seen as a more sustainable solution (METHA/KNAPP 2004: 10). The paradigm shift in global sanitation policy has been described as a shift from 'financing sanitation facilities' to 'funding sanitation promotion and leveraging resources' (*ibid.*: 16).

The Vietnam Bank for Social Policies (VBSP) was established in 2003 and is assigned by the government to implement microcredit programmes.¹⁸ The VBSP loan programmes are group-based lending schemes, which are usually operated through the Vietnamese mass organisations. Besides the Farmer's Union (FU), Veterans Union (VU) and Youth Union (YU), microcredit programmes are most often administered by the Women's Union (WU), which "has positioned itself as the predominant local conduit for microcredit projects throughout Vietnam" (LENHART 2000: 3). A WU representative indicates the reason:

"Because the Farmer's Union is not careful in managing the budget, they do not get much money."¹⁹

For every programme, the mass organisations on every administrative level sign a contract with the respective branch of the VBSP (which is organised on national, provincial and district level). It is stated in the contract, that in order to receive a microcredit, a household has to join a local credit group that is managed by a Credit Group Leader (CGL). The credit group decides which household can take a loan, and the amount and terms of the loan (NGUYEN 2008: 156). After the list of the demanding households has been approved by the commune People's Committee (cPC), it is sent to the VBSP on district level. The VBSP approves the list and asks CGLs to make the credit contracts. In order to make sure that the money is spent for the right purpose, local credit officers state that they have arrangements with construction companies. Local companies provide the construction material to the assigned households for 3 days without payment. During this time, 30-40% of the construction has to be implemented. Then the CGL - and according to the Centre for Preventive Health in Can Tho, also the staff from health stations - checks the quality of the construction. If it complies with the standards, the money is disbursed by the credit officers of the local VBSP branch.

The microcredit programme for RWSS started in 2004. In the beginning, it was run as a pilot project in 10 provinces and from 2006 on, it has been implemented throughout the whole country. The purpose of the loan is to "enhance people's health, improving the standard of living and developing the rural socio-economics". Beneficiaries of the programme should be households that do not have water supply and sanitation constructions yet, or that have constructions that do not meet the national standards (VBSP Instruction No. 1411/NHCS-KHNV). According to the regulations, households can take a loan of maximum 8 million VND (= approx. 320€²⁰), if they implement both a water supply and a sanitation construction, whereas the maximum for one construction is 4 million VND (approx. 160€). The loan period can be adapted to the dept paying ability of the household, but may not exceed 60 months.

Together with the VBSP, the Ministry of Agriculture and Rural Development (MARD), including its departments and offices, has the main responsibility for the implementation of the credit programme. The departments of MARD are also responsible for issuing feasible WSS models including the design and the estimated construction cost (MARD/VSBP Instruction No. 472, 2-3 b)). In most provinces and cities, as in Can Tho, the responsibility for water supply in the rural areas lies with CERWASS, and the responsibility for all activities related to sanitation and health, including IEC, has been transferred to the CPH under the Department of Health. Hence, CERWASS and CPH are the two government agencies that are assigned to carry out the loan programme in collaboration with VBSP and the mass organisations in every province or city.

Because the government considers the programme as humanitarian with a focus on assisting the poor, interest rates charged by the VBSP are very low and the loans have to be subsidised (LENHART 2000: 6). In fact, the interest rates are negative, because they are lower than the inflation rate. In the beginning of the programme, the monthly interest rate was 0.65%, in 2008 it was increased to 0.9%, i.e. a yearly rate

¹⁸ The former Vietnam Bank for the Poor under the Bank for Agriculture and Rural Development was closed in 2003 and the new VBSP was established, when the government decided to expand loan programmes for the poor (NGUYEN 2008: 155). The VBSP's funds derive from legal capital, income surplus, savings, loans funds under the programmes for poverty reduction and other social policies, and ODA funds (NGUYEN 2004: 4).

¹⁹ The name of the commune and the interview date are not specified for ensuring anonymity of the interviewee.

²⁰ Exchange rates are given for the middle of 2008 (June 2nd).

of 10.8%. Considering the high inflation rate of around 22% in 2008²¹, the real interest rate is -11%. This illustrates that the programme is a loss making activity and the VBSP is not financially sustainable (LENHART 2000: 6; NGUYEN 2004: 4). Under commercial circumstances, the interest rate would be substantially higher in order to cover all costs such as administrative costs, inflation costs, risk costs and a profit margin. Microfinance experts point out that subsidised interest rates undermine the viability and sustainability of the lending institution, because they often affect repayment rates and breed 'under the table payments' to credit officers (SEIBEL 2009; SEIBEL 1992: 93ff.).

3.2 Implementation in Can Tho City

3.2.1 Distributed budget and general results

At the time of the field research, there were four rural districts in Can Tho in which the programme was implemented. Up to May 2008, 20.583 constructions were implemented within the programme, of which 13.988 (68%) were for sanitation and 6.595 (32%) for water supply. Up to December 2008, there were 23.109 constructions in total²². If every household had only implemented one construction, it would mean that 18% of the total number of households in the four rural districts has taken a loan. However, as many households took a loan for both water supply and sanitation, it can be assumed that the number of households that benefited from the programme is lower. Assuming that the percentage of sanitation constructions was constant at 68%, this would mean that a minimum of 15714 households, i.e. 12% of all households in the rural communes, has taken a loan until the end of 2008. Hence, the real number lies between 12 and 18%.

The national statistics indicate that the programme was able to reach more and more households during its implementation time: while in 2006, 84.192 households took a loan, in 2007 it was already 158.207 and in 2008, 248.145 households²³. A WU representative from Co Do explained the increasing demand.

"At the beginning, it was very difficult to persuade them (the households) to build the latrines. But once one household started, the others saw the good example and it encouraged them to do the same." (WU representative, Co Do district, 11.07.08)

The total amount of money borrowed in Can Tho in 2008 was 61.130 billion VND (around 2.5 million €). The average loan for one household can be estimated to lie somewhere between 4.4 million and 6.4 million VND (around 175-253€)²⁴.

3.2.2 Sanitation

The CPH regularly sends two staff out to the communes in order to inform local authorities about the MoH hygienic latrine models. They hold a meeting to which they invite the PC, members of mass organisations, hamlet leaders and staff from local health stations. At these meetings, the CPH staff does not only inform about latrine models, but also about clean water standards, water pollution, water-related diseases, and how households are supposed to treat water with alum. It is the responsibility of local authorities to spread the information to the people.

There are four latrine models that the MoH classified as hygienic and can be constructed with the loan:

1. Double vault latrine: The latrine is operated without water ('dry option'). One vault is used for around 6 months until it is full (in a household with 6 persons), then it is covered and the second vault is used. After 6 months, the remains can be taken out and used as fertiliser. The

²¹ <http://www.vnbusinessnews.com/2008/11/inflation-rate-estimated-at-22-in-2008.html>

²² VBSP Can Tho City. The data given until the end of 2008 is not split up into water supply and sanitation.

²³ National VBSP Hanoi

²⁴ Calculated according to data from VBSP Can Tho for the number of implemented constructions in 2008 (14.011), and the amount of money that was borrowed for these constructions (61.130 million VND). The average loan would be 6.4 million VND if it was assumed that 32% that implemented a water supply construction are included in the 68% that constructed a hygienic latrine, because they took a loan for both constructions. The average loan would be 4.4 million VND if it was assumed that every household took the loan only for one construction.

liquid residues flow into an extra tank and can be used to water trees immediately. This latrine is relatively cheap to construct with only ca. 1 million VND. However this latrine type is inconvenient to handle as ash must be available to apply after every time it is used, and the latrine has to be covered after using it. Moreover, people in South Vietnam are reluctant to use human excreta as fertiliser as they consider it dirty. Hence, the double vault latrine is not seen as a suitable model for the Mekong Delta by the CPH in Can Tho.

2. VIP latrine: A rather simple latrine type, where the air flows out to the outside through a pipe. When the tank is full, a new hole has to be dug. According to CPH in Can Tho, it is cheap but inconvenient because of the smell.
3. Pour flush water seal latrine: This latrine is recommended by the CPH in Can Tho because with a cost of only ca. 1 million it is cheap to construct. It has one tank with small holes, where the organic substance is decomposed by bacteria in the underground. Liquids are disposed through the holes. After ca. 5 years the residues have to be dug out and put into another hole²⁵. By now, the cost is estimated by CPH to around 1 million VND.
4. Septic tank latrine: It is the type of latrine that is common in cities. It is operated with water ('wet option') and the excreta are decomposed in a large tank that is installed under the house. However, the residues cannot be fully decomposed and the tank has to be pumped out every few years (varying between 5 and 20 years, depending on the size of the tank and the number of people in the household). It is considered to be the safest and cleanest latrine, but it is also the most expensive. According to the CPH, it can be constructed with the 4 million loan, but local people say that meanwhile (due to the high inflation rate) it is not enough and they have to add own money.

Only models number 3 and 4 are considered feasible by the Can Tho CPH and are introduced to the local authorities. However, data from the three study communes suggests that in practice only the septic tank latrine is constructed with the loan. No other hygienic latrine type was seen, and officials from the VBSP as well as union representatives take it as a matter of course that 'hygienic latrine' means 'septic tank latrine'. This is illustrated by the fact that in all study communes, and also at district level VBSP branches, respondents complain that 4 million is not enough to construct a latrine.

There was one case where the representative from the FU stated that the septic tank latrine was the only model that was introduced by the CPH, so information deficits could be one of the reasons why the 'Pour flush water seal latrine' is not considered. However, even when people are informed about models such as the pour flush water seal latrine, they do not consider it better than the conventional fishpond or river toilet.

"The health station also informed about another latrine type, which costs around 500.000 – 600.000 VND. But the people want to have a sustainable construction and only invest once." (WU representative, Thanh Quoi commune, Vinh Thanh district, 13.01.09)

Such statements from interviewees suggest that there is a lack of cheap models for hygienic latrines that people consider better than the conventional fishpond or river toilets. The difference between a pour flush water seal latrine and a traditional toilet is not big enough for people to spend money, so the septic tank latrine is the only model for which there is demand.

It has further been observed that the factor 'modernity' is a major incentive for rural households regarding the construction of a new latrine. This observation is in line with the study conducted by HERBST ET AL. (2008), which found that 77% of respondents in their survey are satisfied with their traditional sanitary situation. In the course of in-depth interviews conducted later in the same study, it was found that the same people could still imagine having a "modern" toilet. Having a septic tank latrine plays the role of a status symbol, which a simple latrine model cannot fulfil. This is also illustrated by the term 'beautiful latrine', which was often used by interviewees to describe their new toilets, and by the pride with which households presented them.

²⁵ It is to be mentioned here that all effluent is still potentially dangerous as it always contains fresh faeces (i.e. there is a risk to ground water pollution in areas with high groundwater tables).

As latrine coverage has increased between 12 and 18% due to the RWSS microcredit programme, it can be assumed that the direct disposal of human excreta into the surface water has been reduced to the same degree. However, an issue that remains unclear is the future disposal of the residues in septic tanks. In urban areas, the tanks are emptied by the Can Tho Urban Public Works Company (UPWC), which sends a truck for pumping out the tanks when the household calls a service number. According to CPH, the same company is responsible for rural areas. However, cars or trucks cannot enter the narrow rural paths (see Picture 2) and the staff from UPWC does not seem to have a solution.

(NR) When the people construct latrines in the rural areas, how will they be pumped out if the streets are so small? – “They will pump them out by hand. They have double-vault latrines, so it takes 5 to 10 years, until they are full.” – When they pump out the latrines by hand, what can they do with the waste? – “Maybe they will call the company, or they will use the waste as fertiliser.” (Vice Office Manager, UPWC Can Tho, 04.12.08)

It was also the case that rural households were not aware of the fact that the tanks have to be pumped out, at least they do not consider this question relevant for the present time:

(NR) How is the waste of your latrine discharged? – “It is not necessary, the latrine cannot be full. It is a 2 vault septic tank latrine. If it is full, maybe it takes 15 or 20 years.”
(Household interview, Truong Xuan commune, Co Do district, 21.10.08)

Neither households nor authorities have paid attention to the issue so far.

Picture 2: Typical road in the rural Mekong Delta



3.2.3 Water supply

When research on the RWSS loan programme was carried out in the communes, local authorities only presented latrines to the researcher, but no facilities for water supply. On the question what households do with the loan for water supply, many interviewees gave evasive responses like

“Each household tries to get clean water.” (VBSP officer, district level, 16.09.08)

“The VBSP wants to give loans to all the households that have needs.” (VBSP director, district level, 16.09.08)

In some cases, the money had been used for digging wells. However, it is not allowed to dig wells with the loan anymore.

"CERWASS and CPH say that the people should not dig wells anymore, because it may pollute the groundwater resources. So we just allow the households to get a loan if they construct a filter or water container.²⁶" (VBSP director, district level, 25.09.08)

In Vinh Thanh and Phong Dien districts, the staff from the VBSP stated that the loans were used for constructing water filters or containers for rain water. However, in Thanh Quoi not a single such construction could be found (that was constructed with a loan). In another commune of Phong Dien, one water filter construction at a household was presented, but people said there were "only very few" such filters in the area. In Truong Xuan, WU representatives explained that the loan budget was only for sanitation. The FU had a budget for water supply in the beginning of the programme, but since 2008 the budget was only for sanitation.

"Previously, the VBSP gave a 1 million loan for connecting to the station, but now there are only loans for latrines." (WU representative, Truong Xuan commune, Co Do district, 23.10.08)

Asked for the reason, a FU representative again answers in an evasive way:

"The budget of the government is not enough, so they give priority to the poor households." – (NR) Why does the government give priority for latrines and not for water supply? - "I do not know, but the decision is related to the area of the stations." (FU representative, Truong Xuan commune, Co Do district, 21.10.08)

When officials were asked directly, how many percent of the loans were for water supply, and how many for sanitation, nearly all of them said it was mostly for sanitation – otherwise they would say something like "It depends on the local areas' demands". One VBSP representative explains:

"For water supply, it is around 10%. It is low because in the past, the households had access to clean water programmes and almost all hamlets have water supply stations. Around 90% are for sanitation. The rate is higher because the demand for beautiful and good latrines is very high." (VBSP vice director, district level, 25.09.08)

Also some other reasons were given, why loans were mostly used for latrines.

"Most loans in the RWSS programme are for latrines, because the budget is higher." (PC president, Truong Long commune, Phong Dien district, 28.10.08)

"The households can supply water on their own, contain it in jars. But for sanitation, they do not have enough money." (VBSP director, district level, 22.09.08)

However, it has been found that the main reason why RWSS loans are not used for water supply is that there are no models introduced by provincial authorities, like this representative from the FU states:

(NR) For water supply, did they inform you about models? – "No, they have no models. They only offer the loan for the ones that live in the station network area but do not access the station." (FU representative, Truong Xuan commune, Co Do district, 10.03.09)

Only after long investigations it was revealed by a government official that CERWASS does not fulfil its responsibility of introducing suitable models for water supply to the local authorities:

"Actually it is the responsibility of CERWASS, but in reality the VBSP introduced the systems to the local authorities."²⁷

VBSP staff investigated for feasible models from local companies which they introduced in some communes, but

"the technology is not very good, it cannot meet our expectations. [...] When constructing a filter system, the people research how to construct on their own, they were not informed much."²⁷

²⁶ Digging wells is not generally prohibited. It is very common that households that have the financial resources dig their own well. However the VBSP loans cannot be used for it anymore.

²⁷ Position, location and date of the interview are not specified in order to ensure the anonymity of the interviewee.

Considering that a large share of rural households relies on using polluted river or canal water for their daily activities, and that it is financially and ecologically not likely that all of these households can be connected to piped water supply schemes in the near future, household water treatment facilities may be the only way to increase the rate of households with access to clean water.

In An Giang province, the province North of Can Tho, a model for household water treatment was developed by a local consultant who was hired by the RWSS NTPII²⁸ (see Picture 3).

Picture 3: Model for household water treatment developed in An Giang



Source: anonymous

The model could be feasible as it can be constructed with locally available materials and is easy to operate and maintain. According to the consultant, the filter delivers sufficient water for one household, and the CPH in An Giang qualified the water quality as good. The filter is made of sand, charcoal and gravel, and is able to remove organic waste, pesticides, and even chemicals from the river water. The price for construction was estimated 2.250.000 VND by a private company; hence it would be possible to finance the model with a VBSP loan. However, also in An Giang, CERWASS has not made progress in realising such household water treatment facilities as solutions for the water problem in rural areas. An interviewee with insider knowledge about CERWASS says the following about the agency.

"Sometimes they know the idea is good, but they do not like it (...) They see that the filter is good, but they prefer the schemes." – (NR) Why? - "The benefit is for them...The filter is a benefit for the people." – (NR) Why is CERWASS not interested in introducing the household filter system? – "It is very sensitive, it is difficult to answer."²⁹

The interviewee hesitated to reveal more information about the kind of benefits that officials get from constructing water supply schemes in contrast to spreading the filter models. However, in the course of the study it was found that the reason why household water treatment models are beyond the interest

²⁸ An Giang is one of the 9 pilot provinces for NTPII in Vietnam, which were selected in the beginning of the donor support and receive additional funding and consulting from international experts.

²⁹ Position, location and date of the interview are not specified in order to ensure the anonymity of the interviewee.

of responsible agencies is related to the hybridisation of bureaucracy and private business, which has intensified since the introduction of a market-economy in 1986 (*doi moi*) (EVERS/BENEDIKTER 2009: 18). In the course of the economic liberalisation and privatisation in Vietnam, the old planned economy of state-owned enterprises was taken over by a "new form of state-interventionism" (GAINSBOROUGH 2009: 258). It is to be seen in this context that the interest of government agencies, as well as officials as private persons, are highly interwoven with the business interest of private enterprises that are contracted to carry out public tasks. In his study about strategic groups in the water sector in Can Tho, BENEDIKTER (2009) found that several cadres from CERWASS have invested private capital into a company that constructs water supply stations and sells water purifying technology. An interviewee with close relations to the political leadership in Can Tho puts it simple:

"Nowadays, the people in high government positions all become very rich.... (...) [At CERWASS, NR] the director, vice director, all have own companies that implement the constructions."³⁰

Considering that Vietnamese government salaries are extremely low³¹, officials have to earn the main share of their income from other rewarding activities in order to make a living (TSUBOI: 6). It is not surprising that it is difficult to draw the attention of government staff to public tasks that do not offer the chance for additional income, as it is the case with developing household water treatment models. At least until now, it is not considered a potential income source for CERWASS in Can Tho, and is thus neglected. In consequence, there is a lack of action with regards to water supply in the RWSS microcredit programme, and local authorities and households lack the information about suitable water supply models that could be implemented with the loan.

There is also evidence that the reliability of the available data on the distribution of loans for water supply and for sanitation within the microcredit programme is doubtful. According to the data obtained on provincial level, 7.963 sanitation constructions and 3.522 water supply constructions were implemented in Can Tho between January and May 2008. However, it was found in all three study communes that, against the regulations, more than 4 million VND have been disbursed to households for implementing only one construction, i.e. a septic tank latrine. For example in Thanh Quoi commune, the interviewed households received 6 or even 8 million for constructing a latrine. Considering that the average loan in Vinh Thanh district was already 5.3 million VND in 2008 if it is assumed that all households implemented only one construction³², and that models for water supply constructions are unavailable, it is questionable whether loans declared for water supply were not in fact for sanitation.

Summarising, the data suggests that the largest share of funds in the RWSS microcredit programme is spent for the construction of septic tank latrines, whereas the water supply component is mostly neglected.

3.2.4 Allocation of loans among rural households

Local mass organisations, especially the WU, are very active in promoting the RWSS microcredit programme, as shown by the high adoption of the loan programme. Many interviewees also stated that the demand for participation in the programme was very high. However, many people said that the funding from the VBSP was not sufficient to give a loan to all households that have demand. Before the CGL compiles the list of households, the VBSP informs the local authorities about the available budget, i.e. it is already known to the CGL how many households can receive a loan in one term. Moreover, CGLs stated that credit officers from the VBSP would only cut households from the lists, if they did not possess legal residence permits or identification documents. DUFHUES ET AL. (2002: 10) also found that credit officers usually approve the lists that they receive from cPCs. Consequently, the decision about who has access to a microcredit is taken at the commune and hamlet level, and there have to be mechanisms at the local areas to select the households that get to participate in the programme.

³⁰ Position, location and date of the interview are not specified in order to ensure the anonymity of the interviewee.

³¹ Monthly salaries are approximately between 15 or 20 US\$ for a university graduate, 60 US\$ for a 40 year old, and 100 US\$ for a 50 year old manager (TSUBOI: 6).

³² 2.336 constructions were implemented in Vinh Thanh with a budget of 12.345 million VND.

The first and most important mechanism hereby is the creditworthiness of a household. Credit groups and the cPC are highly responsible for the repayment of credit group members (NGUYEN 2008: 156), and local authorities and mass organisations are careful in selecting the households, like a VBSP officer explains.

"The authorities are afraid of giving money to the people, because the unions are afraid that they will not pay the money back." (VBSP director, district level, 16.09.08)

Moreover, the officer explains that the local unions receive a certain percentage of the monthly interest rates as a service fee, which is calculated with a formula included in the contract between the unions and the VBSP. In the case that a household does not pay the money, they will lose the service fee.

A local WU manager states that poor households are generally not taken into account when it comes to setting up a list of demanding households.

"Only the nearly poor can become member of the Women's Union. Poor households cannot become members, because the VBSP is afraid that they cannot pay back the money. DOLISA³³ will take care of them." (WU representative, Truong Xuan commune, Co Do district, 22.10.08)

It remained unclear whether this was a regulation decided on by local WU groups, or whether the interviewee just referred to the common practice. In any case, it seems to be contradictory to the stated aim of the VBSP to be an institution that serves the poor. NGUYEN (2008) and DUFHUES ET AL. (2002) also found that poor households in most cases lack access to the VBSP's credits. They are not only considered as a credit risk, but are in addition excluded from the powerful social and political network that determines the access to information about available credit funds (DUFHUES ET AL. 2002: 10).

It is further considered in the selection process whether the household already took a loan in another programme. Several CGLs mentioned that this was a criterion for being considered for the RWSS programme, like this group leader in Thanh Quoi commune:

"The other women [in the group] already got a loan for breeding, so I gave the loans to those that had not received a loan yet." (local WU group leader, Thanh Quoi commune, Vinh Thanh district, 13.01.09)

Moreover, interviewees explained that households that belong to the lower income groups would give priority for a loan with which they could directly increase their income, such as a loan for raising animals.

Another issue that plays an important role for which households are reached by the programme is the focus on septic tanks. As demonstrated earlier, the largest share of the budget is used by households which construct septic tank latrines. These households usually have access to tap or well water, because the latrine requires "plenty of water for flushing" (according to MoH decision 08/2005). It was not observed that any of these households did not have access to tap or well water. This also indicates that the programme mainly reaches medium-income and better-off households, for which clean water supply is mostly not problematic.

The observed conditions of houses of families that took a loan in the programme further confirm this outcome. All interviewees except one had rather big houses made of stone (in contrast to houses made of leaves), with a tiled floor (in contrast to an earthen floor). Picture 4 shows a typical construction that was implemented with the RWSS microcredit.

³³ DOLISA = Department of Labour, Invalides and Social Affairs. Households which are classified as poor receive certain benefits from the government, such as reduction of school fees, or in the case of RWSS, the free connection to piped water schemes. However, it was observed that poor households are often not connected to water supply networks in practice.

Picture 4: Septic tank latrine and bathroom



Septic tank latrine and bathroom that were constructed with a 6 million loan from the VBSP RWSS programme. In total, the construction cost was 8.5 million VND (around 335€). The facilities are supplied with well water that is pumped into a water container. Around one third of the water in the container is used per day. (Source: NR)

4. Conclusion

The study has shown that the RWSS microcredit programme within the NTPII has a positive impact on the latrine coverage in Can Tho: between 12 and 18% of the population in the four rural districts took a loan within the programme, while the largest share was used for constructing hygienic latrines. Referring to available data from CERWASS, it is unclear how many percent of all rural households have hygienic latrines; in any case, it can be concluded that the programme was able to increase latrine coverage, and thus has a positive effect with regard to the safer disposal of human excreta and the water quality in rivers and canals. In this sense, the programme also has an indirect impact on poverty reduction as it improves the water sources of the poor. However, as it has been discussed in chapter 3.2.2, it is still unclear how the remaining waste in septic tanks will be disposed when the issue becomes relevant in a few years. It has to be ensured that – given the lack of possibilities for disposal – the waste is not dumped into rivers and canals.

Moreover, while increasing the latrine coverage is an important element of improving the water quality in surface waters, it is only one of the causes for water pollution in the Mekong Delta. The disposal of large amounts of pesticides and artificial fertilisers, solid waste, residues from animal husbandry and fish farming, and untreated wastewater from industrial parks into rivers and canals are very complex problems that are still unsolved. In addition, the irrigation policy by the central government, consisting in the construction of large-scale infrastructure, is further exacerbating the scarcity of clean water in the rural areas of Can Tho. Considering the number and intensity of other causes of water contamination, increasing the number of hygienic latrines can only have a limited impact on the improvement of

domestic water sources. This reveals that the outcome of RWSS policy is very much interlinked with and dependent on other policies. For Can Tho, it is particularly essential to include urban wastewater and solid waste management into RWSS policy, if it is to have any success with regard to the improvement of surface water quality.

Besides the moderate impact on surface water quality, the programme has only a marginal impact on poverty reduction as it reaches only better-off households that already have access to clean water. There are several reasons why this is the case. First, there are no models for water supply that could be implemented with the loan – it is however the poor that would be in need of such models. The present approach of constructing groundwater based piped schemes is not a sustainable way of ensuring access to clean water for the rural population. Microcredit for household water treatment systems is a potential for achieving the goals of NTPII, which so far has not been utilised in Can Tho. But secondly, there is also a lack of cheap latrine models, which are acceptable to the local population, and do not require access to tap or well water and additional own funds, like the septic tank latrine does. Experiences from other world regions have already shown that affordable and acceptable latrine designs are a key success factor in microfinance for sanitation (SAYWELL/FONSECA 2006). It is therefore likely that the demand for loans within the present programme will come to an end as soon as all better-off households have been covered. The third reason lies in the exclusion of poor households from the microcredit scheme as they are not considered creditworthy and they do not have the social relations that determine the access to VBSP credits. This result stands in contrast to the idea of donors and the government to subsidise the loans because they are targeted to the poor, and also to the fact that poor water and sanitation is particularly problematic for the poor. A study carried out by AusAID in 2004 found that in contrast to the past, when poverty was a mass phenomenon in Vietnam, it is now focussed on particular groups such as landless and ethnic minority people. Those poor have become "harder to reach", and "are less likely to be lifted out of poverty without specific targeting and more focussed interventions" (AusAID 2004: 18)³⁴. The present study has shown that this assessment is highly relevant for the RWSS microcredit programme, which has currently no mechanisms for pro-poor targeting and thus misses to reach those that lack access to safe water.

As pointed out by METHA ET AL. (2007), local WSS systems are characterised by the interaction of complex environmental, technological and social dimensions. The case of Can Tho has well illustrated, how locally specific water supply and sanitation systems affect the outcome of RWSS policies. Socio-political factors, in particular the interests of local political elites, thereby play a key role for the adaption of policies framed on the national and global level. Interestingly, the present case has revealed that the inclusion of sanitation into water supply policy can have unintended effects on the local level. National policy provides models for hygienic latrines that can be implemented within the microcredit programme, but implies that provincial authorities develop models for water supply that are adapted to the local conditions. However, it is beyond the interest of political elites to engage in finding small-scale solutions for water supply, because they cannot make use of it for gaining additional income – at least they have not considered it as a potential income source so far. Hence, only the sanitation part of the programme is implemented. In the case of Can Tho, the combination of water supply and sanitation into one programme leads to the canalisation of money and resources towards the wealthier rural population that already has access to clean water. In consequence, the programme misses out the water supply needs of the poor.

The presented findings do not implicate that it is needless, or even counterproductive, to emphasise the importance of improved sanitation facilities for development. Especially as groundwater is not a sustainable option for water supply in Can Tho, it is in the long term essential to counter the pollution of surface waters with human excreta. The findings do however challenge the common assumption that water supply and sanitation should in all circumstances be integrated into the same policies. Moving "the sanitation crisis to the top of the agenda" (UNDP 2005: 166) must not mean that the problem of insufficient emphasis of sanitation within RWSS policies is turned upside down. Many reports and donor staff interviewed for this paper argue that an increased focus on sanitation is necessary as it usually falls

³⁴ Moreover, further research carried out within the WISDOM project has found that landless people in the Mekong Delta face an increasing pressure on their livelihoods due to the declining fish resources, on which they most often depend (GERKE AND EHLERT 2009).

behind the planning for water supply. However, as this study has demonstrated, improving water supply for the poor is not "easy" – using the words of the donor representative cited in the beginning. In contrast, this paper makes the case that in some circumstances sanitation can be the easier choice for political elites within RWSS policy, at the expense of water supply. It may therefore be necessary to revise the current paradigm of policy integration, in order to accord sufficient importance to both water supply and sanitation.

Further qualitative studies from other regions are needed in order to understand, which outcomes RWSS policies can have under different situations of 'liquid dynamics' as termed by METHA ET AL. (2007: 2), and to gain further understanding of the role of interests in the trade-off between water supply and sanitation.

References

- AusAID 2004. Mekong Delta Poverty Analysis. Online. URL:
http://www.ausaid.gov.au/publications/pdf/mekong_poverty_report_04.pdf (July 2009).
- BENEDIKTER, S. 2009. Oral communication.
- DUFHUES, T. ET AL. 2002. Fuzzy information systems in rural financial intermediation in Northern Vietnam. Paper presented at the International Symposium 'Sustaining food security and managing natural resources in Southeast Asia – Challenges for the 21st century' from January 8-11, 2002 in Chiang Mai, Thailand.
- EVERS, H.-D. AND S. BENEDIKTER 2009. Strategic Group Formation in the Mekong Delta - The Development of a Modern Hydraulic Society. Centre for Development Research, University of Bonn. Working Paper No. 35.
- GAINSBOROUGH, M. 2009. Privatisation as state advance: Private indirect government in Vietnam. In: New Political Economy, 14, 2, 257 – 274.
- GERKE, S. AND J. EHLERT 2009. Water Livelihoods in the Mekong Delta: Local Knowledge as a Strategic Resource. Centre for Development Research, University of Bonn. Working Paper No. 50
- GOV = GOVERNMENT OF VIETNAM 2004. Decision No. 62/2004/QĐ-TTg. Decision of Prime Minister on credit for implementation of RWSS strategy. Hanoi, 16. April, 2004.
- GSO = GENERAL STATISTICS OFFICE VIETNAM 2006. Vietnam household living standards survey 2006. Online. URL: http://www.gso.gov.vn/default_en.aspx?tabid=515&idmid=5&ItemID=8183.
- GSO = GENERAL STATISTICS OFFICE VIETNAM 2009a. Average population by province. Online. URL: http://www.gso.gov.vn/default_en.aspx?tabid=467&idmid=3&ItemID=7352 (July 2009).
- GSO = GENERAL STATISTICS OFFICE VIETNAM 2009b. Statistical Yearbook of Vietnam 2008. Hanoi.
- HERBST, S. ET AL. 2008. Perception of water, sanitation and health – a case study from the Mekong Delta, Vietnam.
- IRC = International Water and Sanitation Centre 2003. Sanitation Policies. Thematic Overview Paper. Online. URL: <http://www irc nl/redir/content/download/4000/46923/file/sanpolicy pdf> (July 2009).
- LE ANH TUAN ET AL. 2003. Research proposal – SANSED project, work group Hydrogeology and Water Resources Management. SANSED Workshop, 24.-29.03.2003, Can Tho University, Can Tho City.
- LE ANH TUAN ET AL. 2007. Flood and salinity management in the Mekong Delta. In: Tran Than Be, Bach Tan Sinh and Fiona Miller (eds.): Challenges to sustainable development in the Mekong Delta – regional and national policy issues and research needs. Bangkok, 5-68.

- LENHART, K. 2000. The influence of donors on microcredit sustainability. A case study of three microcredit programs in Vietnam: the Vietnamese Bank for the Poor, Save the Children- UK, and NIKE. Daniel J. Evans School of Public Affairs. Online. URL: http://collab2.cgap.org/gm/document-1.9.25914/2629_lenhartfinalpaper.rtf (June 2009).
- MARD AND VSBP 2005. Instruction No. 472/VB-LT-BNN-NHCS. Implementation of decision No. 62/2004/QD-TTg dated April 16th, 2004 of the Prime Minister regarding the credit implementation of the NTP on rural water supply and sanitation. Hanoi, March 04, 2005.
- METHA, L. ET AL. 2007. Liquid dynamics: challenges for sustainability in water and sanitation. STEPS Working Paper 6, Brighton.
- METHA, M. AND A. KNAPP 2004. The challenge of financing sanitation for meeting the Millennium Development Goals. WSP. Online. URL: http://www.sulabhenvis.in/admin/upload/pdf_upload/af_finsan_mdg.pdf (June 2009).
- MILLER, F. 2005. Environmental Risk in Water Resources Management in the Mekong Delta: A Multi-Scale Analysis. Online. URL: http://www.pik-potsdam.de/research/research-domains/transdisciplinary-concepts-and-methods/favaia/activity3/workspace/climate-change-and-natural-disasters/mekong-delta-case-study/miller2005_mekong.pdf (November 2007).
- MoC AND MARD 2000. National Rural Clean Water Supply and Sanitation Strategy up to Year 2020. Online. URL: http://www.cerwass.org.vn/English/index_e.htm (February 2008).
- MoH decision No. 08/2005/QD-BYT dated 11.03.2005 regarding issuing the sector standards: Hygiene standards for various types of latrines.
- MoH AND UNICEF 2007. A summary of national baseline survey on environmental sanitation and hygiene situation in Vietnam. Hanoi.
- MONRE 2008. Mekong Delta's environment degrading. 20.09.2008. Online news, water. URL: <http://www.monre.gov.vn/monreNet/Default.aspx?tabid=255> (October 2008).
- MONRE 2009. Experts warn that southern Vietnam aquifers seriously depleted. 01.07.2009. Online news, water. URL: <http://www.monre.gov.vn/monreNet/Default.aspx?tabid=255&ItemID=67935> (July 2009).
- NGUYEN THANH AN 2004. Notes from preliminary review on micro-finance for poverty reduction in Vietnam. Online. URL: http://collab2.cgap.org/gm/document-1.9.25784/25697_file_Ford_NotesonmicrofinanceinVietnam.pdf (July 2009)
- NGUYEN VIET CUONG 2008. Is a governmental micro-credit program for the poor really pro-poor? Evidence from Vietnam. In: The Developing Economies, XLVI-2 (June 2008): 151-87.
- NUBER, T. et al. 2008. Modelling the groundwater dynamics of Can Tho city – challenges, approaches, solutions. In: SANSED project (ed.). Decentralised water treatment systems and beneficial reuse of generated substrates. Proceedings of the international SANSED workshop, April 15-18, 2008, Can Tho University.
- NUBER, T. AND H. STOLPE 2008. Challenges of the groundwater management in Can Tho City, Vietnam. Presentation at the BGR Symposium on Sanitation and Groundwater Protection, 14.-17.10.2008, Hannover. Online. URL: http://www.geopotenzial-nordsee.de/nn_324952/EN/Themen/Wasser/Veranstaltungen/symp_sanitat-gwprotect/present_nuber_pdf.templatId=raw.property=publicationFile.pdf/present_nuber_pdf.pdf (July 2009).
- NWP = NETHERLANDS WATER PARTNERSHIP AND IRC = INTERNATIONAL WATER AND SANITATION CENTRE 2007. Microfinance for Water, Sanitation and Hygiene. An Introduction. Online. URL: <http://www.waterland.net/showdownload.cfm?objecttype=mark.hive.contentobjects.download.pdf&objectid=19CE8B1E-DE1E-B77E-09D6D4AC29CCADE9> (June 2009).
- SAI GON MARKETING (Sai Gon Tiep Thi), 20.06.2008. O Mon Xa No project. Ecological change, the costs are greater than the benefits.
- SAYWELL, D. AND C. FONSECA 2006. WELL factsheet: microfinance for sanitation. Online. URL: <http://www.lboro.ac.uk/well/resources/fact-sheets/fact-sheets-htm/mcfs.htm> (June 2009).

- SEIBEL, H. D. 1992. The making of a market economy: monetary reform, economic transformation and rural finance in Vietnam. Kölner Beiträge zur Entwicklungsländerforschung, No. 19. Saarbrücken, Fort Lauderdale.
- SEIBEL, H. D. 2009. Personal communication per E-Mail.
- SPENCER, J.H. 2005. Natural water and natural monopolies: Competition for and within the market for clean water in Can Tho, Viet Nam. Paper prepared for 'Regenerations: New leaders, new visions in Southeast Asia. Yale University, New Haven, 11.-12.11.2005.
- SRV = SOCIAL REPUBLIC OF VIETNAM 2006. National Target Program for Rural Water Supply and Sanitation (2006 – 2010). Final Draft. Hanoi.
- TSUBOI, Y. Corruption in Vietnam. URL: http://dspace.wul.waseda.ac.jp/dspace/bitstream/2065/804/1/20050406_tsuboi_eng.pdf (July 2009).
- TUOI TRE, 27.02.2008. People suffer from big project.
- TUOI TRE, 06.11.2008. Can Tho: All wastewater is dumped directly into rivers and canals.
- UNDP 2005. Health, dignity and development. What does it take? UN Millennium Project, Taskforce on Water and Sanitation. Online. URL: <http://www.unmillenniumproject.org/documents/WaterComplete-lowres.pdf> (July 2009).
- VSBP 2004. Instruction No. 1411/NHCS-KHNV. Specialist knowledge of rural water supply and sanitation program. Hanoi, August 03, 2004.
- VSBP 2008. Report on rural water supply and sanitation programme. 4 years (2004-2007), up to 30/06/2008. (Unofficial translation).
- WHO/UNICEF 2009. Joint Monitoring programme for water supply and sanitation. Water supply and health. Online. URL: http://www.wssinfo.org/en/133_gtWsh.html (June 2009).

- 1 Evers, Hans-Dieter and Solvay Gerke (2005). Closing the Digital Divide: Southeast Asia's Path Towards a Knowledge Society.
- 2 Bhuiyan, Shajahan and Hans-Dieter Evers (2005). Social Capital and Sustainable Development: Theories and Concepts.
- 3 Schetter, Conrad (2005). Ethnicity and the Political Reconstruction of Afghanistan.
- 4 Kassahun, Samson (2005). Social Capital and Community Efficacy. In Poor Localities of Addis Ababa Ethiopia.
- 5 Fuest, Veronika (2005). Policies, Practices and Outcomes of Demand-oriented Community Water Supply in Ghana: The National Community Water and Sanitation Programme 1994 – 2004.
- 6 Menkhoff, Thomas and Hans-Dieter Evers (2005). Strategic Groups in a Knowledge Society: Knowledge Elites as Drivers of Biotechnology Development in Singapore.
- 7 Mollinga, Peter P. (2005). The Water Resources Policy Process in India: Centralisation, Polarisation and New Demands on Governance.
- 8 Evers, Hans-Dieter (2005). Wissen ist Macht: Experten als Strategische Gruppe.
- 8a Evers, Hans-Dieter and Solvay Gerke (2005). Knowledge is Power: Experts as Strategic Group.
- 9 Fuest, Veronika (2005). Partnerschaft, Patronage oder Paternalismus? Eine empirische Analyse der Praxis universitärer Forschungscooperation mit Entwicklungsländern.
- 10 Laube, Wolfram (2005). Promise and Perils of Water Reform: Perspectives from Northern Ghana.
- 11 Mollinga, Peter P. (2004). Sleeping with the Enemy: Dichotomies and Polarisation in Indian Policy Debates on the Environmental and Social Effects of Irrigation.
- 12 Wall, Caleb (2006). Knowledge for Development: Local and External Knowledge in Development Research.
- 13 Laube, Wolfram and Eva Youkhana (2006). Cultural, Socio-Economic and Political Constraints for Virtual Water Trade: Perspectives from the Volta Basin, West Africa.
- 14 Hornidge, Anna-Katharina (2006). Singapore: The Knowledge-Hub in the Straits of Malacca.
- 15 Evers, Hans-Dieter and Caleb Wall (2006). Knowledge Loss: Managing Local Knowledge in Rural Uzbekistan.
- 16 Youkhana, Eva, Lautze, J. and B. Barry (2006). Changing Interfaces in Volta Basin Water Management: Customary, National and Transboundary.
- 17 Evers, Hans-Dieter and Solvay Gerke (2006). The Strategic Importance of the Straits of Malacca for World Trade and Regional Development.
- 18 Hornidge, Anna-Katharina (2006). Defining Knowledge in Germany and Singapore: Do the Country-Specific Definitions of Knowledge Converge?
- 19 Mollinga, Peter M. (2007). Water Policy – Water Politics: Social Engineering and Strategic Action in Water Sector Reform.
- 20 Evers, Hans-Dieter and Anna-Katharina Hornidge (2007). Knowledge Hubs Along the Straits of Malacca.
- 21 Sultana, Nayeem (2007). Trans-National Identities, Modes of Networking and Integration in a Multi-Cultural Society. A Study of Migrant Bangladeshis in Peninsular Malaysia.
- 22 Yalcin, Resul and Peter M. Mollinga (2007). Institutional Transformation in Uzbekistan's Agricultural and Water Resources Administration: The Creation of a New Bureaucracy.
- 23 Menkhoff, T., Loh, P. H. M., Chua, S. B., Evers, H.-D. and Chay Yue Wah (2007). Riau Vegetables for Singapore Consumers: A Collaborative Knowledge-Transfer Project Across the Straits of Malacca.
- 24 Evers, Hans-Dieter and Solvay Gerke (2007). Social and Cultural Dimensions of Market Expansion.
- 25 Obeng, G. Y., Evers, H.-D., Akuffo, F. O., Braimah, I. and A. Brew-Hammond (2007). Solar PV Rural Electrification and Energy-Poverty Assessment in Ghana: A Principal Component Analysis.
- 26 Eguavoen, Irit; E. Youkhana (2008). Small Towns Face Big Challenge. The Management of Piped Systems after the Water Sector Reform in Ghana.
- 27 Evers, Hans-Dieter (2008). Knowledge Hubs and Knowledge Clusters: Designing a Knowledge Architecture for Development
- 28 Ampomah, Ben Y., Adjei, B. and E. Youkhana (2008). The Transboundary Water Resources Management Regime of the Volta Basin.
- 29 Saravanan.V.S.; McDonald, Geoffrey T. and Peter P. Mollinga (2008). Critical Review of Integrated Water Resources Management: Moving Beyond Polarised Discourse.
- 30 Laube, Wolfram; Awo, Martha and Benjamin Schraven (2008). Erratic Rains and Erratic Markets: Environmental change, economic globalisation and the expansion of shallow groundwater irrigation in West Africa.
- 31 Mollinga, Peter P. (2008). For a Political Sociology of Water Resources Management.
- 32 Hauck, Jennifer; Youkhana, Eva (2008). Histories of water and fisheries management in Northern Ghana.
- 33 Mollinga, Peter P. (2008). The Rational Organisation of Dissent. Boundary concepts, boundary objects and boundary settings in the interdisciplinary study of natural resources management.
- 34 Evers, Hans-Dieter; Gerke, Solvay (2009). Strategic Group Analysis.
- 35 Evers, Hans-Dieter; Benedikter, Simon (2009). Strategic Group Formation in the Mekong Delta - The Development of a Modern Hydraulic Society.
- 36 Obeng, George Yaw; Evers, Hans-Dieter (2009). Solar PV Rural Electrification and Energy-Poverty: A Review and Conceptual Framework With Reference to Ghana.
- 37 Scholtes, Fabian (2009). Analysing and explaining power in a capability perspective.
- 38 Eguavoen, Irit (2009). The Acquisition of Water Storage Facilities in the Abay River Basin, Ethiopia.
- 39 Hornidge, Anna-Katharina; Mehmood Ul Hassan; Mollinga, Peter P. (2009). 'Follow the Innovation' – A joint experimentation and learning approach to transdisciplinary innovation research.
- 40 Scholtes, Fabian (2009). How does moral knowledge matter in development practice, and how can it be researched?
- 41 Laube, Wolfram (2009). Creative Bureaucracy: Balancing power in irrigation administration in northern Ghana.
- 42 Laube, Wolfram (2009). Changing the Course of History? Implementing water reforms in Ghana and South Africa.

- 43 Scholtes, Fabian (2009). Status quo and prospects of smallholders in the Brazilian sugarcane and ethanol sector: Lessons for development and poverty reduction.
- 44 Evers, Hans-Dieter, Genschick, Sven, Schraven, Benjamin (2009). Constructing Epistemic Landscapes: Methods of GIS-Based Mapping.
- 45 Saravanan V.S. (2009). Integration of Policies in Framing Water Management Problem: Analysing Policy Processes using a Bayesian Network.
- 46 Saravanan V.S. (2009). Dancing to the Tune of Democracy: Agents Negotiating Power to Decentralise Water Management.
- 47 Huu, Pham Cong, Rhlers, Eckart, Saravanan, V. Subramanian (2009). Dyke System Planing: Theory and Practice in Can Tho City, Vietnam.
- 48 Evers, Hans-Dieter, Bauer, Tatjana (2009). Emerging Epistemic Landscapes: Knowledge Clusters in Ho Chi Minh City and the Mekong Delta.
- 49 Reis, Nadine; Mollinga, Peter P. (2009). Microcredit for Rural Water Supply and Sanitation in the Mekong Delta. Policy implementation between the needs for clean water and 'beautiful latrines'.
- 50 Gerke, Solvay; Ehlert, Judith (2009). Local Knowledge as Strategic Resource: Fishery in the Seasonal Floodplains of the Mekong Delta, Vietnam
- 51 Schraven, Benjamin; Eguavoen, Irit; Manske, Günther (2009). Doctoral degrees for capacity development: Results from a survey among African BiGS-DR alumni.
- 52 Nguyen, Loan (2010). Legal Framework of the Water Sector in Vietnam.
- 53 Nguyen, Loan (2010). Problems of Law Enforcement in Vietnam. The Case of Wastewater Management in Can Tho City.
- 54 Oberkircher, Lisa et al. (2010). Rethinking Water Management in Khorezm, Uzbekistan. Concepts and Recommendations.
- 55 Waibel, Gabi (2010). State Management in Transition: Understanding Water Resources Management in Vietnam.
- 56 Saravanan V.S., Mollinga, Peter P. (2010). Water Pollution and Human Health. Transdisciplinary Research on Risk Governance in a Complex Society.
- 57 Vormoor, Klaus (2010). Water Engineering, Agricultural Development and Socio-Economic Trends in the Mekong Delta, Vietnam.
- 58 Hornidge, Anna-Katharina, Kurfürst, Sandra (2010). Envisioning the Future, Conceptualising Public Space. Hanoi and Singapore Negotiating Spaces for Negotiation.
- 59 Mollinga, Peter P. (2010). Transdisciplinary Method for Water Pollution and Human Health Research.
- 60 Youkhana, Eva (2010). Gender and the development of handicraft production in rural Yucatán/Mexico.
- 61 Naz, Farhat, Saravanan V. Subramanian (2010). Water Management across Space and Time in India.
- 62 Evers, Hans-Dieter, Nordin, Ramli, Nienkemoer, Pamela (2010). Knowledge Cluster Formation in Peninsular Malaysia: The Emergence of an Epistemic Landscape.
- 63 Mehmood Ul Hassan, Hornidge, Anna-Katharina (2010). 'Follow the Innovation' – The second year of a joint experimentation and learning approach to transdisciplinary research in Uzbekistan.
- 64 Mollinga, Peter P. (2010). Boundary concepts for interdisciplinary analysis of irrigation water management in South Asia.
- 65 Noelle-Karimi, Christine (2006). Village Institutions in the Perception of National and International Actors in Afghanistan.
(Amu Darya Project Working Paper No. 1)
- 66 Kuzmits, Bernd (2006). Cross-bordering Water Management in Central Asia.
(Amu Darya Project Working Paper No. 2)
- 67 Schetter, Conrad, Glassner, Rainer, Karokhail, Masood (2006). Understanding Local Violence. Security Arrangements in Kandahar, Kunduz and Paktia.
(Amu Darya Project Working Paper No. 3)
- 68 Shah, Usman (2007). Livelihoods in the Asqalan and Sufi-Qarayateem Canal Irrigation Systems in the Kunduz River Basin.
(Amu Darya Project Working Paper No. 4)
- 69 ter Steege, Bernie (2007). Infrastructure and Water Distribution in the Asqalan and Sufi-Qarayateem Canal Irrigation Systems in the Kunduz River Basin.
(Amu Darya Project Working Paper No. 5)
- 70 Mielke, Katja (2007). On The Concept of 'Village' in Northeastern Afghanistan. Explorations from Kunduz Province.
(Amu Darya Project Working Paper No. 6)
- 71 Mielke, Katja, Glassner, Rainer, Schetter, Conrad, Yarash, Nasratullah (2007). Local Governance in Warsaj and Farkhar Districts.
(Amu Darya Project Working Paper No. 7)
- 72 Meininghaus, Esther (2007). Legal Pluralism in Afghanistan.
(Amu Darya Project Working Paper No. 8)
- 73 Yarash, Nasratullah, Smith, Paul, Mielke, Katja (2010). The fuel economy of mountain villages in Ishkamish and Burka (Northeast Afghanistan). Rural subsistence and urban marketing patterns.
(Amu Darya Project Working Paper No. 9)
- 74 Oberkircher, Lisa (2011). 'Stay – We Will Serve You Plov!'. Puzzles and pitfalls of water research in rural Uzbekistan.
- 75 Shtaltovna, Anastasiya, Hornidge, Anna-Katharina, Mollinga, Peter P. (2011). The Reinvention of Agricultural Service Organisations in Uzbekistan – a Machine-Tractor Park in the Khorezm Region.
- 76 Stellmacher, Till, Grote, Ulrike (2011). Forest Coffee Certification in Ethiopia: Economic Boon or Ecological Bane?

ZEF Development Studies

edited by Solvay Gerke and Hans-Dieter Evers
Center for Development Research (ZEF),
University of Bonn

Shahjahan H. Bhuiyan

Benefits of Social Capital. Urban Solid Waste Management in Bangladesh
Vol. 1, 2005, 288 p., 19.90 EUR, br. ISBN 3-8258-8382-5

Veronika Fuest

Demand-oriented Community Water Supply in Ghana. Policies, Practices and Outcomes
Vol. 2, 2006, 160 p., 19.90 EUR, br. ISBN 3-8258-9669-2

Anna-Katharina Hornidge

Knowledge Society. Vision and Social Construction of Reality in Germany and Singapore
Vol. 3, 2007, 200 p., 19.90 EUR, br. ISBN 978-3-8258-0701-6

Wolfram Laube

Changing Natural Resource Regimes in Northern Ghana. Actors, Structures and Institutions
Vol. 4, 2007, 392 p., 34.90 EUR, br. ISBN 978-3-8258-0641-5

Lirong Liu

Wirtschaftliche Freiheit und Wachstum. Eine international vergleichende Studie
Vol. 5, 2007, 200 p., 19.90 EUR, br. ISBN 978-3-8258-0701-6

Phuc Xuan To

Forest Property in the Vietnamese Uplands. An Ethnography of Forest Relations in Three Dao Villages
Vol. 6, 2007, 296 p., 29.90 EUR, br. ISBN 978-3-8258-0773-3

Caleb R.L. Wall, Peter P. Mollinga (Eds.)

Fieldwork in Difficult Environments. Methodology as Boundary Work in Development Research
Vol. 7, 2008, 192 p., 19.90 EUR, br. ISBN 978-3-8258-1383-3

Solvay Gerke, Hans-Dieter Evers, Anna-K. Hornidge (Eds.)

The Straits of Malacca. Knowledge and Diversity
Vol. 8, 2008, 240 p., 29.90 EUR, br. ISBN 978-3-8258-1383-3

Caleb Wall

Argorods of Western Uzbekistan. Knowledge Control and Agriculture in Khorezm
Vol. 9, 2008, 384 p., 29.90 EUR, br. ISBN 978-3-8258-1426-7

Irit Eguavoen

The Political Ecology of Household Water in Northern Ghana
Vol. 10, 2008, 328 p., 34.90 EUR, br. ISBN 978-3-8258-1613-1

Charlotte van der Schaaf

Institutional Change and Irrigation Management in Burkina Faso. Flowing Structures and Concrete Struggles
Vol. 11, 2009, 344 p., 34.90 EUR, br. ISBN 978-3-8258-1624-7

Nayeem Sultana

The Bangladeshi Diaspora in Peninsular Malaysia. Organizational Structure, Survival Strategies and Networks
Vol. 12, 2009, 368 p., 34.90 EUR, br. ISBN 978-3-8258-1629-2

Peter P. Mollinga, Anjali Bhat, Saravanan V.S. (Eds.)
When Policy Meets Reality. Political Dynamics and the Practice of Integration in Water Resources Management Reform

Vol. 13, 216 p., 29.90 EUR, br., ISBN 978-3-643-10672-8

Irit Eguavoen, Wolfram Laube (Eds.)

Negotiating Local Governance. Natural Resources Management at the Interface of Communities and the State
Vol. 14, 248 p., 29.90 EUR, br., ISBN 978-3-643-10673-5

William Tsuma

Gold Mining in Ghana. Actors, Alliances and Power
Vol. 15, 2010, 256 p., 29.90 EUR, br., ISBN 978-3-643-10811-1

Thim Ly

Planning the Lower Mekong Basin: Social Intervention in the Se San River
Vol. 16, 2010, 240 p., 29.90 EUR, br., ISBN 978-3-643-10834-0