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Hydrology and Earth System Sciences Discussions

Interactive comment on "Projeto *Vida no Vale*: universal access to water and sanitation in the North East of Minas Gerais (Brazil)" *by* L. Kauark-Leite et al.

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We are trying to answer the questions raised in the following text. In addition, complements and improvements have been added in a new version of the paper.

Anonymous Referee #3 - *Particularly, the issue of rural areas could be emphasised (it is not only a question in Brazil)*

(Authors answer) We fully agree that the issue of Water and Sanitation Services (WSS)

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Interactive Discussion

Discussion Paper

in rural areas is worldwide. Nonetheless, in Brazil, the urban-rural disparities are most striking as the water coverage is nearly universal in the urban areas and reaches only 57% in the rural areas, the coverage for sanitation is 83% in urban areas and 37% in rural areas. Therefore, in Brazil, the reduction of the WSS urban-rural disparities remains an essential challenge, fuelled by a very strong social demand. It is only since the early 2000s that this issue has been set on the political agenda, in Brazil.

In most developing countries, public authority awareness increases about WSS in rural areas (e.g. Akuoko-Asibey, 1996; Madulu, 2003; Mwendera, 2006). But studies or evaluation of the programs launched in order to tackle this issue remain very rare and significantly scarcer than the studies dealing with WSS in urban, poor areas.

To emphasise the issue of WSS in rural areas, we incorporated the following sentence (2686, L16): "The issue of access to Water and Sanitation Services (WSS) in rural areas is worldwide. Among the largest disparities in WSS are those between urban and rural populations. For example, the urban-rural divide in drinking water is at its widest in sub-Saharan Africa, where 81% of people in urban areas are served, compared with 41% in rural areas (UNICEF, 2006)."

- the sources of the project could be explained (it is not the first one of this kind, even if this one is particularly relevant)

(Authors answer) Brazil has achieved near universal coverage of drinking-water in urban areas, but coverage in rural areas remains low. Minas Gerais is a large Brazilian state, often referred to as "Brazil within Brazil", due to its great heterogeneity in indicators such as HDI and infrastructure at the local level, as well as a clear regional pattern of lower welfare outcomes in the northeast of the state compared to the south. Municipalities located in the north of the state resemble more the bordering Northeast and Center-West regions of the country (Elbers et al., 2008). Therefore, Minas Gerais can be divided in two distinct sub regions in a way that resembles the classic north-south division that applies to Brazil as a whole (Atlas do Desenvolvimento Humano, UNDP).

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The *Vida no Vale* project which applies to the low-income, northern region of Minas Gerais can be considered as a reliable small-scale model for designing a consistent, replicable system for other poor regions.

The sources of the *Vida no Vale* project are linked with the recent political history of Brazil. After the military dictatorship (1964-1984), Brazil came back to democracy in January 1985, with the election, as President of Brazil, of Tancredo Neves, an opponent to the military regime. In 2002, his grandson, Aécio Neves, was elected governor of Minas Gerais and re-elected in 2006. His government, based on social-democratic ideas, asserts a fundamental aim of social justice. In 2003, a first development program was implemented in Minas Gerais, "*Plano Mineiro de Desenvolvimento Integrado (PMDI; 2003-2020)*", setting the reduction of regional disparities in the access to WSS on the political agenda. The strategic objectives of *PMDI* have been translated into structural projects. Within one of them (*Programa Mais Saude nos Vales do Jequitinhonha, Mucuri e Sao Mateus*), the *Vida no Vale* project was designed by a small group of engineers and economists, sharing with the Minas Gerais governor team similar intellectual and political values inherited from a common past (transition from military dictatorship to democracy, failure of the liberal policies, criticism of WSS privatisation, need for new solutions between private and public sectors,...). In September 2005, a government decree created the legal framework of the *Vida no Vale* project and appointed the project team for conducting its actual implementation. It is beyond the scope of this paper to analyze how the *Vida no Vale* project came into being and to investigate the social-political aspects of the project background.

- and the conclusion could better put it in perspective (other cases? General results?) in order to escape descriptive approach.

(Authors answer) There are probably other comparable projects aimed at improving the WSS in the rural areas of developing countries but, to our knowledge, there are no similar projects in Brazil, gathering in the same project all these characteristics: e.g. actually achieving an universal (rural and urban) access to WSS with no cut-off of the

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village number of inhabitants, project design at the hydrological scale of a large river watershed ($\sim$ 100 000 km^2), decentralization by creating a regional subsidiary of the existing water company, social participation in the project governance, implementation of small-scale pilot projects aimed at validating the project design,...

We tried to better highlight the innovative, main features of the project and the general findings which could make the project replicable in other poor regions by adding the following paragraph in the conclusion (2703, l23): "At a general level, the project could be considered replicable to other poor, rural areas in developing countries by addressing key rural WSS challenges through a comprehensive, innovative design. The project economic sustainability is achieved by assuming that the assets have to be public and by a progressive price structure calculated to cover the operational expenses and the long-term maintenance requirements. A private partnership with local, small enterprises is intended for handling technical tasks at reduced cost. The technical design involves innovative technologies (e.g. automation, telemetry, remote control,...), as key points for improved operational functioning and cost reduction. Essential innovative features appear at the institutional level: decentralization is achieved by creating a regional subsidiary of the existing water company and by attempting a smooth transition from the prior management to management under the project. Public participation in the production and control of WSS as well as an independent, transparent evaluation of the project achievements are part of the project design."

Referee # 3 Detailed comments *2690, l. 20-28: origin of this information?*

This information is widely spread throughout the Brazilian WSS sector. Many technical reports relate the creation and the evolution of the National Sanitation Plan (PLANASA), its outcomes and shortfalls (e.g. Parlatore, 2002).

Why did this occur? One explanation of PLANASA's decline is that the tariff structure became unsustainable because of the very high inflation which occurred in Brazil during the 80s. Another point is that the decentralisation promoted by the new 1988

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constitution turned the highly centralized PLANASA system unsuitable (Seroa da Mota and Moreira, 2006; Sabbioni, 2008).

We completed the paragraph about PLANASA and added 3 recent references to cite a precise origin of the information: "In the middle of the 80s, the PLANASA model started to break down when the Federal Government started to neglect its duty of regulation, leading to self-regulation by the water companies which defined their own goals and investment plans, without any control by either the licensing authority or the citizens. This deregulation resulted in the stagnation of WSS development (Parlatore, 2002). PLANASA's decline can be mainly explained by the very high inflation which occurred in Brazil during the 80s and turned the tariff structure unsustainable. Moreover, the decentralisation process promoted by the new 1988 constitution turned the highly centralized PLANASA system unsuitable (Seroa da Mota and Moreira, 2006; Sabbioni, 2008)."

2691, l. 18: you can't have both "etc." and "..." OK

2697, l. 20 sq.: capacity and willingness to pay are very widespread. Refer to literature? What are the "useful data" collected?

(Authors answer)

Willingness to pay (WTP) is indeed a widespread concept. Assessing the willingness to pay for water and sanitation services continues to be an active topic of research (e.g. Rosado et al., 2006). But the operational projects frequently pay little attention to the local population willingness to pay and refer to literature results. In the *Vida no Vale* project, the WTP assessment was included, based on a classic contingent valuation method (e.g. Briscoe et al., 1990; Faria, 1995). This survey was mainly aimed at providing accurate, local WTP data concerning the different types of services: regular access to safe drinking water, sewage collection and treatment, septic pit cleaning. Different household samples were selected corresponding to their actual WSS level: remote rural settings with no safe drinking water, urban and rural areas with drinking

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water access, and urban areas with water access and sewage collection. The main data supplied by the survey are the WTP monetary values for these household categories and for the type of WSS. The socio-economical features of each group, notably the income distribution, have been assessed.

In order to turn this paragraph more precise, it has been modified in the following way: "The willingness to pay for an improvement of WSS of the project region population has been accurately assessed through a contingent valuation method (Briscoe et al., 1990; Faria, 1995) based on a sample of 2500 households, 50% in the sedes and 50% in the rural area of the same municipalities. A different focus of investigation was established for the rural and urban samples: in the rural area, the analysis concerned the improvement of the drinking water service and the implementation of regular cleaning of septic tanks. In the sedes, the improvement of sewage collection and treatment or sewage treatment implementation has been the main focus. This study provided the monetary values of the local willingness to pay of the different household categories and for the different type of WSS. The socio-economic features of each group, notably the income distribution, provide useful data for detailing the new system design."

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