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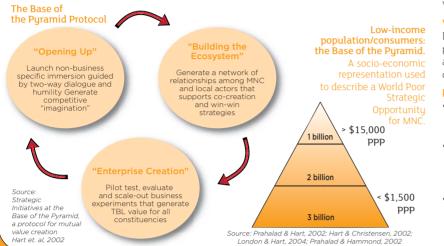
Can a (safe)water market creation at the "Base of the Pyramid" solve the arsenic contamination problem in a Bangladesh village? The case of the Social Business Project Grameen Veolia Water Ltd

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Context: "Social Business" and "BoP": a way for companies to alleviate vulnerability by combining innovation, markets, public participation, cooperation and entrepreneurship, within an embedded market creation process (Yunus, 2010, Hart, 2009, Prahalad, 2004) through "hybrid value chain" (business partnership with NGOs) (Ashoka, 2007).



Research objective: To contribute to the Research Program "BoP / SB practices and theories as a mean of corporate innovation for transition towards sustainability" through an action research led by the CSR - BoP ESSEC IIES team in partnership with VEOLIA about the Grameen Veolia Water Ltd (GVW) case.

Veolia objective: In response to the United Nations Millenium Development Goals, to implement the Goalmari/Padua pilot project aiming at making poor villagers access to safe water, in an R&D and learning perspective. Besides, to draw up the scaling out of a new Social Business model.

Research questions:

- Can the SB / BoP approach be applied successfully in the drinking water sector, with a water network oriented business model? Under what conditions?
- How can MNC and their local partners (NGOs, local companies, local entrepreneurs, community partners) deal with traditional rules, social norms and the strain between modernity and tradition to generate positive changes?
- Can a BoP / SB market creation be combined with institutional innovation to deal with agonistic vested interests while enabling the necessary changes /social innovation for people to access arsenic free drinking water?

Context: Bangladesh Arsenic Crisis Arsenic contamination in Bangladesh Natural groundwater contamination (US National Institutes of Health), WHO arsenic standard: 10µg/L; Bangladesh arsenic standard: 50µg/L First arsenic contamination identified in 1993 (Bangladesh DPHE),

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- 34 to 77 millions people at risk (HEALS study, 2010), 59 districts out of 64 (Safiuddin & Masud Karim, 2001)
- Arsenic contamination leads to chronic diseases, skin diseases and several lethal cancer,

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- High mortality and morbidity effects: "the attributable proportion based on the arsenic concentration in well water for all-cause and chronic disease mortalities to be 21% and 24%, respectively » (HEALS, 2010),
- Arsenic mitigation actions in Bangladesh 1999-2006: World Bank "BAMWSP" arsenic mitigation project, 1998-2004 : National Arsenic Mitigation Policy, National Screening Program. Shallow Tube well (STW) were analysed and contaminated
- TW were painted in red. Deep Tube Well (DTW) were recommended. A mass information campaign on arsenic was
- conducted. 2000-2001 : WHO-Unicef, DPHE-Unicef mitigation programs, Surface water recommended as the sole arsenic safe water,
- Still an under-addressed problem
- Strong critics from civil society and NGOs, but few changes in (poor) villages.

METHODOLOGY

Theoretical background, topics, theories, framework and tools:

- BoP / Social Business
- Ecological Economics
- Transition Management, Innovation for sustainability
- Human Capability Approach
- Actor Network Theory / Translation Sociology • Social-Ecological System (SES) Framework
- Resilience theory

Organization of the action research project

Action Research Steering and Governance					
Step 1. Collecting and organizing data and available knowledge	Step 2. Understanding and building the problem, producing new knowledge and analysis	Step 3. Complementary knowledge, topics and issues	Step 4. Action plan	Step 5. Building a reporting / assessment framework Sustainability and strategic assessment	Step 6. Modeling and out scaling - > other Water Social Businesses
 business data technical data social data economic data, livelihood, landowning institutional data health (arsenic) data public policy 	 first infield research mission first analysis report first recommendations 	 anthropological study (Drishti Research Center, Th. Blanchet, Dhaka) environmental health analysis social capital and leadership assessment 	 business management sanitary communication institutional design 	 multi- stakeholders, multi-criteria," top down / bottom up" and deliberative method assess the project impacts 	 functional analysis generic functions contextual diagnosis resources analysis modelling



Tap Points: 21 Private connections and community connections: 4 Water price at tap point: 2,5 BDT / 10 L (0,25 cts€ / 1 L)

Grameen Healthcare Trust

- Water consumption spending / month average income: 1 to 2%
- Targeted population: 100 000 (40 000 at Goalmari & Padua Unions)
- Users / Clients: 6 000 (5 000 Goalmari, 1 000 Padua) Users / Clients (market penetration): 15% (10% Goalmari, 40% Padua)
- Households and maximum distance tap points / houses Goalmari: 1 000 / 250 m - Padua: 200 / 50 m

The GVW organization and operational results

- A surface water drinking water production plant (Meghna River) with a standard technology,
- Pricing and distribution: - Price: between 2 and 3 Tk/ 10 L, depending on distance of the tap point to the water plant - Payment: token, pre-paid card, cash payment Water network + tap points + private connections
- Grameen ladies / water dealers
- Spontaneous wholesalers (local entrepreneurs)

Vater production and distribution / Goalmari (Bang **Goalmari Veolia Water Ltd**

Goalmari arsenic situation: VERI exposure study

- 219 households / 412 individuals ; Questionnaire + urine testing TW water use for drinking: 78%; River water use for coocking: 81%
- No use of arsenic mitigation system
- Average arsenic concentration in TW water: 42,6µg/L

Iterative (re)framing of the "problem" with knowledge and new topics, alongside the business evolution

Collaboration with GVW business management: business model, communication, participatory process and institutional organization

using non safely closed 20 L Jar- Injunctive marketing messages Top Down and technical legitimacy approach Jar business creation in Dhaka and cross subsidization: Urban market (Dhaka top of the wealth pyramid area) to contribute to finance BoP market

• Several areas of development (see

• Cessation of injunctive marketing

pricing: 2,5 Tk/10L))

Anthropological study

Business model improvement (single

• Experimentation of some participatory

innovation practices: new forms of

relationship with households /

figure)

consumers

Average urine contamination: 105,9 **µ**g/L 99,8% of the population show a arsenic level over the 10µg/L WHO standard

RESULTS GVW Main Issues Categories: Publics and political authorities Veolia and Research Partners Government • Business model and management: running efficiently and successfully the Goalmari / Padua Project Manager / Communication Manager Deputy Water Business **GVW SB** VERI (Veolia Water Research Institute) Upazila Parishad (UZP) Veolia Water AMI (Africa Middle East India) Business partnerships and Human Resources: business partners for "hybrid value chain", "right **Stakeholders** Drishti Research Centre people at the right place" (skills, qualifications,...) Grameen Market social construction: Institutional design, market social embedding, social changes (new YunusCenter Local NGOs GrameenBank consumption and associated institution) BRAC GrameenBank local branch Scientific and sanitary communication and policy: to handle the sanitary communication under Solidarités (French NGO) Prof. Yunus uncertainty and complexity (arsenic, arsenic health impact), with caution regarding clients GVW staff Local entrepreneurs • Community impacts making: health social, economical and environmental impacts Sanitary authorities Dhaka (office, Water dealers DPHE (Department of Public Water wholesalers • Learning process for Veolia and GVW to achieve success and to prepare out scaling managing director) Health Engineering) Shopkeepers Goalmari (technical BSTI (Bangladesh Standard Tube Well technicians Technological Institute) and sales team) Other authorities Arsenic stakeholders lmams Asian Arsenic Network Teachers ICDDR,B (International Center for Doctors and Diarrhoeal Disease Research, healthcare Bangladesh) Clients / households professionals UNICEF Men, Women, Children Very poor (marginalized) / Poor / Medium income Migrants, Muslims, Hindus SB/ BoP market creation as a resilience process Grameen borrowers Regime shift S: State Market creation & Business model R: Regime Sanitary situation Social environment social construction of risk S2_{R1} • Men and women status / behavior • "Needs" do not create a market SB/BoP market creation effect • Arsenic crisis: a public to water consumption • Price is not the key issue management / policy failure to be Social norms: Purdha, religious • Grameen Bank: a pure banking solved at the local level norms, family lineages, Kolosh player, not a social organizer Inefficient arsenic mitigation plan religious and traditional beliefs (Kali 尒 • Water safety: an expert good based on tube wells Goddess, etc.) • Consumers trade off: health, • Uncertainty about arsenic tube well Social status: wealth, modernity, contamination social ranks, water as a conspicuous convenience, social legitimacy instability Lack of health prevention behavior consumption Need to work with appropriate • Denied arsenic illness Agonistic economic and political NGOs (but few NGOs on the field) **S1**R1 interests: local politicians, tube well Need to invest in institutional technicians desian • Low level of social capital / agency **Social Institutions** • Unclear leadership (to be further studied) Regime 1 (Arsenic Contamination / poverty trap) Regime 2 **DISCUSSION** A social sustainability problem: Needs of water supply governance combined with water market: Base of the Pyramid and Social Business initiatives have • GVW is not an ecological sustainability issue, but a social Collective organization versus individual consumption: water

sustainability (Capability approach, Sen 1993, Agency, etc.) issue due to arsenic contamination and institutional failures. The problem is not one of deterioration or depletion of natural resource / natural system, but one of a social misuse of a (plentiful) natural resource, water. It is a governance and institutional problem, entailing social norms, social rules, and beliefs.

A market oriented approach:

The position and role of market in the problem: water market as a central institution in the GVW Project versus markets weaker role in typical SES case studies

An economics of quality issue: water safety and health prevention

- Uncertainty and complexity of arsenic effects are adding an additional complexity.
- consumption is partly an individual decision, but social norms are at stake. Water network and water are part of a collective infrastructure, to be economically sustainable in a collective management scheme
- GVW shows the difficulties of creating social innovation, social changes, with a technical and market approach
- GVW entails the question of mixing governance and institutional organization / rules making and market creation

Although it is not centered on a natural resource deterioration problem, the GVW case is matching the SES Framework because of the interplay between knowledge, institutional, political and economic dimensions. Moreover, regarding some aspects, it is close to the irrigation institutional system cases (Ostrom 2007).

to generate effective innovations for transition towards sustainability. To this end, Organizational Changes and social interactions with natural resource systems are to be adressed in a dynamic and complexity perspective. For this purpose, SES framework and Resilience are relevant. Veolia and Grameen Veolia Water will benefit from the SES perspective as an efficient grid to put together the pieces of the problem and identify upsides and obstacles. • Moreover, BoP and SB Projects, and BoP and SB academic community (mainly Business School) will benefit from the SES Framework and the Resilience theory

Project Partner:

EOLIA

ESSEC IIES partners:





