

Case 4:

Colombia towards reuse-oriented sanitation; review of experiences, national policies, legal and institutional framework

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“Sanitation Policies and Regulatory Frameworks for Reuse of Nutrients in Wastewater and Human Excreta”

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Contents

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- Need of change in the sanitation approach
- Experiences of reuse-oriented sanitation
- Institutions, policies and legal framework
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Colombia

- some facts



- **Biodiversity:** Andes mountains, rainforests, tropical grasslands etc.
- **Population:** 44 millions
- **Ethnics:** 84,2% mestizo (mix of Indigenous and European), 20% European descendants, 14% mulatto (mix of African and European), 4% African descendants, 3% zambo (mix of Indigenous and African descendants) and 1,7% indigenous people
- **Main exports:** Coffee, flowers and other agricultural produce, petroleum, coal, gold, etc.
- **Social situation:** Every sixth Colombian live in extreme poverty and about 60 % are poor. Colombia has an estimated 4,3 millions of internally displaced persons. Strong urbanization tendencies.

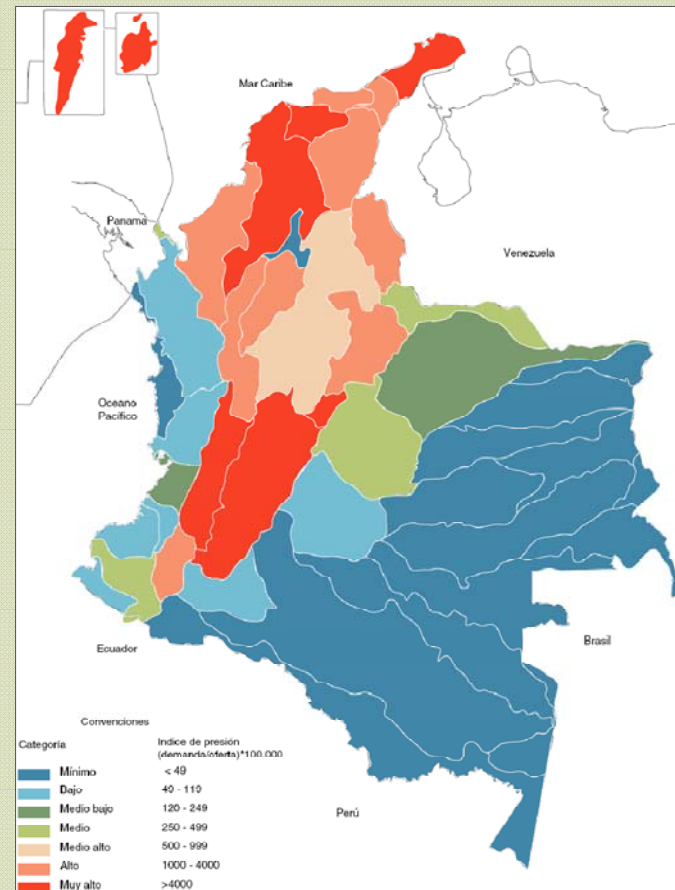
Need of change in the sanitation approach?

WATER SUPPLY DEFICIENCIES

- Main urban centres have deficiencies in water supply due to high consumption and deteriorating water quality
- Areas with low precipitation
- Potable water coverage:
Urban 97,4%; Rural 68,6%



Small stream in a Cali suburb



Pressure on water availability

SANITATION DEFICIENCIES

- About 30% of the population (equal to 13,9 millions) lack basic sanitation
- Only about 8% of all generated wastewater receives treatment
- Basic sanitation coverage:
Urban 90,2% (connected to sewerage); Rural 57,9%



Abandoned bucket-flushed toilet



Bogotá River

NUTRITIONAL DEFICIENCIES & AGRICULTURAL POTENTIALS

- 14% of children under 5 years suffer chronic malnutrition
- 1,1 million small scale farms (average size of 1,1 Ha)
- Organic agricultural production from 0 to 60.000 Ha in the last ten years

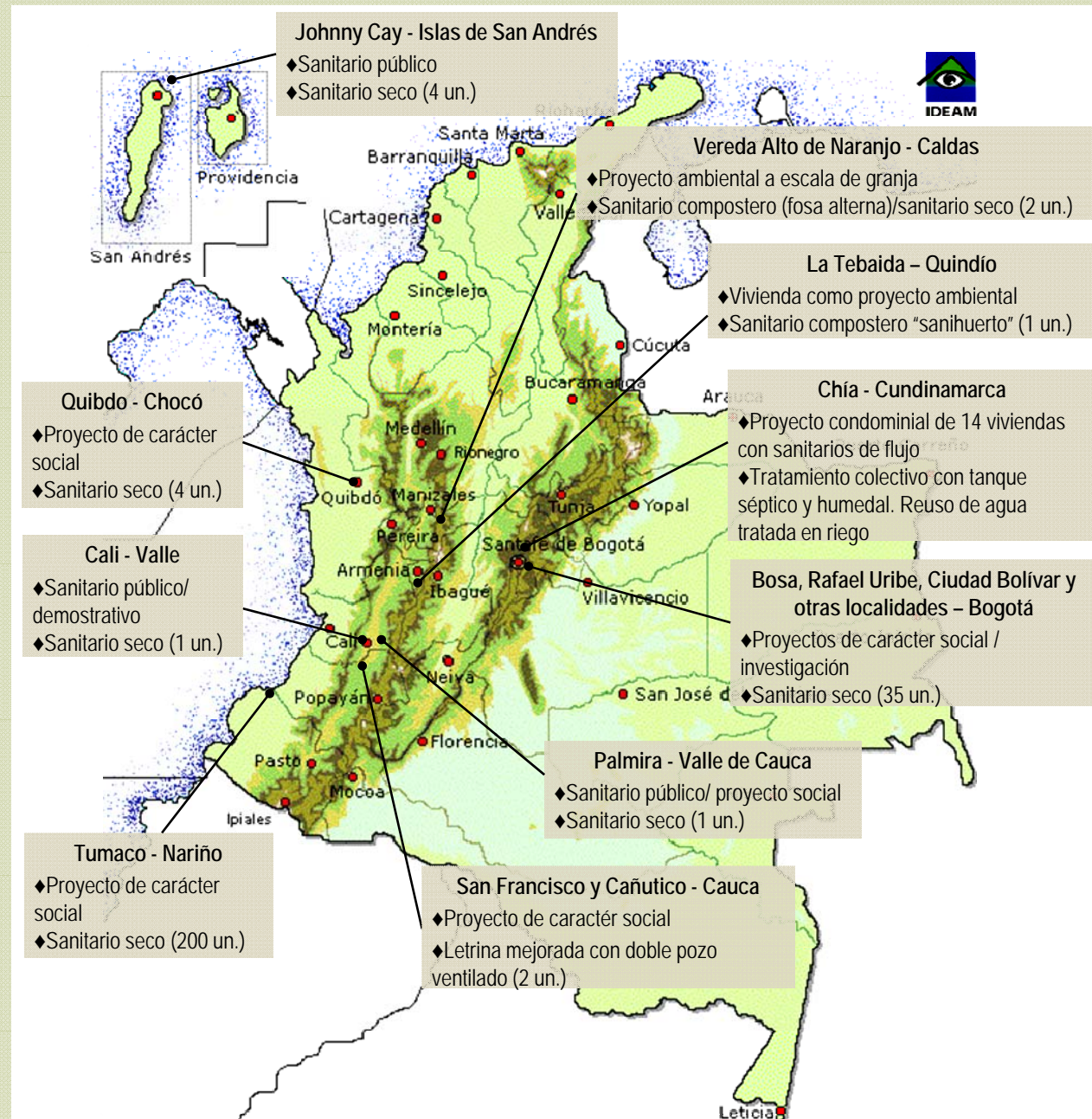


HEALTH IMPACTS

- The average annual cost in public health due to inadequate conditions in water supply, sanitation and hygiene is estimated to US\$975 millions.
- Higher investments in the water and sanitation sector led to an increase in intestinal infection diseases (104% from 2003 to 2006)



Colombian ecosan experiences





Housing Aid Projects

(Bogotá, San Andrés Islands, Chocó, Boyacá and Nariño)



Public UD-toilets (1 and 2 vaults)

*Johnny Kay
(San Andrés Islands)*



*Nashira - Woman community centre
(Cauca Valley)*



Composting toilets / 2-vault UD-toilet

Ecological demonstration centre (Quindío)



Ecological farm (Caldas)



Farm / school (Cauca Valley)



ECOSAN EN

COLOMBIA

Constructed wetland to treat domestic wastewater for reuse in irrigation - Condominium

(Bogotá)



Deficiencies in reviewed projects

TECHNICAL



SOCIAL - MANAGEMENT

- Lack in capacity building and support from implementing organizations
- Lack of experience of alternative sanitation in implementing organizations
- Lack of involvement of families in project process
- Lack of strategies to manage sub-products

Summary of reviewed experiences

- Focus on social projects
- Mainly in rural or poor peri-urban conditions
- Reuse is rarely the entry point to dry sanitation
- In general good acceptance and appropriation
- However, some technical and social deficiencies

Institutional structure of water and sanitation sector

National level	National Planning Department	→	Macroeconomical policies
	Ministry of Environment, Housing and Territorial Development (MAVDT)	→	Sector policies
	Commission for the Regulation of Potable Water and Basic Sanitation	→	Regulation
	Superintendent of Public Domestic Services	→	Control and surveillance
	General Control Agency of the Republic	→	Fiscal control
	Ministry of Social Protection	→	Policies and control of water quality
Regional and local level	Regional Environment Authorities	→	Executors of environment policies
	Municipalities and private companies	→	Providers of services and executors of policies
	Community and users	→	Service beneficiaries and social control

Policies and legal framework

KEY LEGAL DOCUMENTS

- CONPES 3343 (National Guidelines for Socio-Economical Policies) – Guidelines and strategies for sustainable development of the water, environment and territorial development sectors
- Law 99 de 1993 - National Environmental Law
- Technical regulation for the water and sanitation sector (RAS-2000)
- Decrete 1594 de 1984 on the use of water and liquid residuos

Reuse-oriented sanitation in the legal framework

- In general, RAS-2000, considers waterborne sanitation with conventional sewerage as the adequate solution for urban and sub-urban zones, while on-site systems are considered transitional
- In rural areas alternative solutions can be considered, such as VIP, dry family fertilizing latrine (dry toilet) and septic systems
- However, septic tanks or dry latrines should only be considered in settlements with less than 100 inhabitants
- Reutilization of wastewater is promoted, with adequate treatment to comply with environmental norms. In individual rural systems it is recommended to separate greywater to facilitate safe disposal and reuse in irrigation

Reuse-oriented sanitation in the legal framework

- Rainwater harvesting is promoted in arid areas. However, in other circumstances the principal approach is to drain rainwater in stormwater systems
- The regulation do not mention the term excreta, accordingly it only manage the terms wastewater, sludge and biosolids (stabilized sludge). Furthermore, there is no national norms for permitted contamination levels for use of biosolids.
- There are political will, regulative framework and economical sanctions to reduce and control contaminated discharges to water bodies, however in general the system has not been efficient.

National working group on Alternative Sustainable Sanitation

OBJECTIVES

- Share information and knowledge
- Facilitate intersectional support and transfer of experience
- Technical support for local, regional and national projects
- Standardization of technical aspects
- Diffusion of Ecological Sanitation

MEMBERS

- Pan-American Health Organization - PAHO/WHO
- District Health Secretary
- El Bosque University - Health and Environment Institute
- Fundemar
- Valle University
- Procco Colombia
- Plan International
- Uniminuto
- Alter-Eco

Ongoing policy development

NEW RAS-2000 CHAPTER J UNDER REVISION

- Chapter J is regulating on: “Alternative water and sanitation technologies for the rural and peri-urban sector”
- Elaborated by the Ministry of Environment, Housing and Territorial Development

The following aspects were found relevant to highlight regarding reuse-oriented sanitation in the revised version:

- Rainwater harvesting included with design recommendations
- Simplified and decentralized waterborne systems included, which facilitates treatment and reuse
- Ecological sanitation included as a new concept.
However, the information on ecosan is presented at the end of the document
- Dry sanitation systems are mentioned under waterborne sanitation for the rural zone
- The UDDT is categorized as latrine, which gives a negative impression
- *Reference is made to a future technical guideline on non-waterborne system*

Ongoing policy development

PLANNED RAS-2000 GUIDELINES FOR DRY SANITATION

- The working title of the guidelines is: “Construction of ecological sanitation systems with non-waterborne toilets”
- Collaboration between the Ministry of Environment, Housing and Territorial Development and the Pan-American Health Organization
- Work will be supported by the National Working Group for Ecological Sanitation in Colombia
- Stockholm Environment Institute is offering technical and scientific support

The main objectives with the guidelines are to achieve the following:

- Formalize the implementation process of ecological sanitation projects in Colombia.
- Support the design of new sustainable ecological sanitation projects.
- Provide support to obtain an adequate function, use, operation and maintenance of these systems based on an ecological sanitation approach.

Remarks on the ongoing policy work

Important advancements have been taken to mainstream reuse-oriented in Colombia. However the potential of this approach is not fully being exploited.

- Overlying regulation strict about waterborne sanitation with conventional sewerage in urban context, i.e. alternative solutions for reuse is restricted to more isolated rural areas. Hence proposed guidelines are restricted to rural areas.
- According to the proposed Chapter J of RAS-2000 there are just two main system categories: waterborne sanitation and latrines. This categorization does not support the implementation of dry sanitation.
- Dry sanitation is mainly seen as a convenient solution to solve critical water and sanitation situation in informal or poor settlements. Considered as the a last possible solution.
- Hence, the development of reuse-oriented sanitation is not promoted, neither the inclusion of more sophisticated designs adapted to middle and upper income groups.

Proposed strategies for the future

- Flexibility in the choice technological solutions should be allowed in the national water and sanitation regulation to promote a sustainable development
- Technology selection should be based on sustainability criteria, including among others environmental and socio-economical aspects
- Other key sectors must be invited in future policy development
- The terminology of dry sanitation systems must be adjusted (e.g. avoiding the term latrine) and also the term human excreta included besides wastewater
- Policy work must be combined with reinforced capacity building, e.g. including reuse-oriented sanitation in university curricula and other capacity building activities
- Important with project implementations in middle and upper income groups to increase the status of reuse-oriented systems

¡Gracias!

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