

# El Alto, Bolivia

## Large-scale ecological sanitation in the peri-urban District 7

**The El Alto eco-sanitation project transformed a peri-urban district, formerly lacking in municipal services, into a model of public health and resource efficiency with income generated from the use of fertilizers made from human waste.**

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### The project in brief

The El Alto District 7 eco-sanitation project was designed in response to local demand to address the water and sanitation situation of the indigenous Aymara and immigrant farming communities. Prior to the intervention, 51% of the population lacked adequate water and sanitation services. Today the project encompasses a total of 897 units equipped with a system of urine diversion dehydration toilets (UDDT), showers and hand washing basins, as well as on-site grey water treatment. The system includes the collection, treatment and sale of fecal matter and urine to produce fertilizers used for local agriculture. The project has seen continuous improvements and benefited about 4,500 inhabitants through the principle of zero or minimal water use, while closing the water and nutrient loop from generated waste. The project's educational component and its use of marketing to improve visibility has gained political support and inspired several eco-sanitation initiatives across the country on the local and at the national level. The Swedish International Development Cooperation Agency (Sida) and the Bolivian Foundation Sumaj Huasi supported the first implementation of the District 7 project. Later, through cooperation with the Stockholm Environmental Institute (SEI), the project spurred the creation of the National Directory of Sector Spaces in Basic Sanitation and Housing (DSSNV) as well as influenced both, the Vice Ministry for the Environment and Water and the Vice Ministry of Water and Basic Sanitation, to take decisive sanitation action at the national level. The DSSNV is a decentralized sustainable sanitation node to increase the rural and urban poor's access to adequate sanitation services. The DSSNV's activities include the training of professionals, generation of sanitation services through demonstration projects and the analysis of the project's effectiveness in cooperation with academic and research institutions.

### What makes it "Urban NEXUS"?

District 7 achieved an integrated Urban NEXUS eco-sanitation system that not only improves public health, but also generates fertilizers for agricultural use from human waste, which yields income through sales. Intensive marketing was used to promote the socio-cultural acceptance of the use of fertilizers made from sanitized human wastes in agriculture. Educational outreach and communications were fundamental to the introduction, construction and initial use of the sanitary units. Thus, the project served as a learning opportunity to demonstrate the feasibility and public acceptance of the eco-sanitation approach. Beyond that, the District 7 project increased capacity and technical knowledge through the DSSNV, the outcomes of which include the development



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<b>Date</b>	2006-2013
<b>NEXUS Sectors</b>	Water-Health-Social
<b>NEXUS Innovations</b>	Design + Technology; Communications+ User Behavior; Institutions, Delivery Models, Law and Policy
<b>Scale</b>	City-wide (897 units, 4,500 beneficiaries)
<b>Budget</b>	1.33 million EUR

## Urban NEXUS Definition

The Urban NEXUS is an approach to the design of sustainable urban development solutions. The approach guides stakeholders to identify and pursue possible synergies between sectors, jurisdictions, and technical domains, so as to increase institutional performance, optimize resource management, and service quality.

It counters traditional sectoral thinking, trade-offs, and divided responsibilities that often result in poorly coordinated investments, increased costs, and underutilized infrastructures and facilities. The ultimate goal of the Urban NEXUS approach is to accelerate access to services, and to increase service quality and the quality of life within our planetary boundaries.

ICLEI / GIZ 2014

## Further Reading

Fundación Sumaj Huasi official website:  
<http://www.sumaj.org>

Stockholm Environment Institute official website: <http://www.sei-international.org>

Swedish International Development Cooperation Agency (SIDA) official website:  
<http://www.sida.se/English/>

EcoSanRes, 2011, Sustainable Sanitation, Knowledge Nodes in Latin America:  
[http://www.ecosanres.org/pdf\\_files/ESR-factsheet%2016-LatinAmericaNodes.pdf](http://www.ecosanres.org/pdf_files/ESR-factsheet%2016-LatinAmericaNodes.pdf) (20 Aug 2014)

Video: UDDT project in El Alto (project by ABONA), Sustainable Sanitation Alliance:  
<http://youtu.be/D6-pdoVHslk> (20 Aug 2014)

Video: Cosecha de Papa Fertilizada con Humus Ecosan y Orina: [http://youtu.be/UP8\\_t7slhlo](http://youtu.be/UP8_t7slhlo) (20 Aug 2014)

GIZ and ICLEI, 2014, Operationalizing the Urban NEXUS: towards resource efficient and integrated cities and metropolitan regions, GIZ Study: [www.iclei.org/urbanexus](http://www.iclei.org/urbanexus)

of the Guidelines for Integration of Gender Projects for Basic Sanitation in Bolivia, Technical Guidelines for Ecological Sanitation, and Technical Guidelines for the Design and Implementation of Water and Sanitation Projects with Alternative Technologies (EcoSanRes, 2011: 1). Following an Urban NEXUS approach, the project has succeeded in integrating different institutional and managerial 'silos' to include separate jurisdictions, utilities, and departments such as the Fundación Sumaj Huasi, Stockholm Environment Institute, the Swedish International Development Cooperation Agency (Sida), the Ministry of Environment and Water of Bolivia, the Vice Ministry of Water and Basic Sanitation, and the Federation of Neighborhood Associations of El Alto.

## Scope for improvement

Systemic integration, while attempted, was not fully achieved, as the project's financial viability has proved tenuous. The costs of the project's waste collection and treatment services is funded by the households, which were intended to be covered by the sale of fertilizers; however, the project is currently experiencing a surplus in the production of fertilizer, which results in its being given away for free for demonstration purposes.

Additionally, although enhanced social integration has been attempted, such as the development of Guidelines for the Integration of Gender Projects for Basic Sanitation, the social relations and the behavioral impacts of the project remain unclear. A possible explanation is that the use and maintenance of the sanitation system is based on financial incentives rather than the idea of an improved health and quality of life.

## Replication

The project has contributed to the framework for sustainable sanitation development in an unserved part of the country, which is highly replicable given political will. In addition, improving decentralized sanitation services and contributing to the generation of knowledge and capacity related to the design, promotion and implementation of household-centered sustainable sanitation systems is replicable and recommended.

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