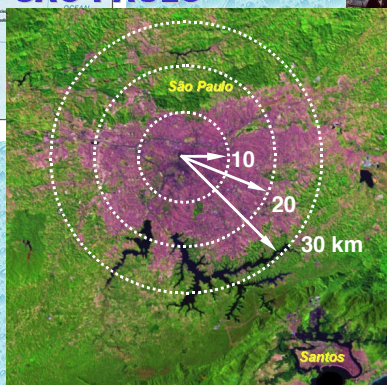


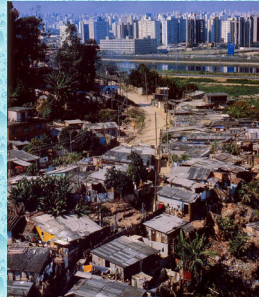
SUSTAINABLE SOLUTIONS IN LANDSCAPE CONSTRUCTION TO MINIMIZE ENVIRONMENTAL IMPACTS ON URBAN EXPANSION AREAS

Authors: Fernando Bontorim Amato and Marcelo Vespoli Takaoka
Institution: University of Sao Paulo

Map of Brazil



Urban Expansion



Slums and Squatter Settlements

OBJECTIVE

This project is intended to investigate sustainable solutions in landscape design and construction to satisfy housing needs, during the urban expansion process in the cities. The research is based on the case of Genesis, a residential development located in Sao Paulo metropolitan area, which adopted sustainable policies to minimize environmental impacts.

JUSTIFICATION

- Rapid urban growth and housing shortage;
- Social, economic and environmental problems;
- Inadequate access to shelter and urban basic services;
- Proliferation of slums and squatter settlements;
- Exploitation of natural resources and destruction of the habitats;
- Contamination of water and land by disposal of wastes;
- Sustainable solutions in new developments to protect the environment.

SUSTAINABILITY ISSUES

ENVIRONMENTAL RESPONSIVENESS

- Restore and enhance natural habitats and resources;
- Land Use: reuse already developed land, restore degraded land and preserve as much virgin land as possible;
- Capitalize natural features for storm water management, erosion control and roadway design;
- Minimize damage to the local ecosystems;
- Avoid destruction wildlife habitat;
- Improve the surroundings and restore ecology.

RESOURCE EFFICIENCY

- Physical Materials: land, water, soils, minerals, timber, fossil fuels, electricity, solar energy and so on.
- "Doing more with less – using fewer resources (or less scarce resources) to accomplish the same goals"
- Clustered development patterns reduce infrastructure needs, saving resources and money simultaneously;
- Apply to land use, building design, material selection, waste reduction, water conservation, and energy efficiency.

COMMUNITY AND CULTURAL SENSITIVITY

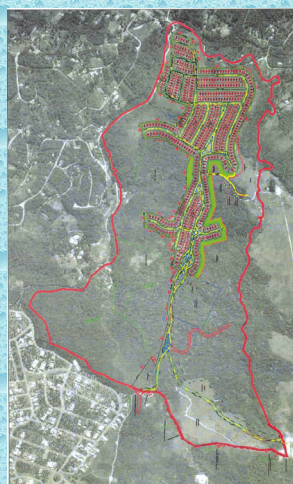
- Human interaction, safety and sense of involvement and neighborliness;
- Provide infrastructure of services, schools, work and shopping and offer public spaces for accidental or planned gatherings.
- Response to the local history, the culture, and the existing building environmental;
- Use vernacular design, purchase local products and materials, respect local customs and building practices and honor the cultural fabric of the region.
- Respect and promote a sense of place by recognizing the uniqueness that every setting offers.

Source: WILSON, A. et al. *Green Development: integrating ecology and real estate*. New York: John Wiley & Sons, 1998. 522p

1994



2002



Satellite Picture of Genesis: Site Selection to Clustered Development

CASE STUDY: GÊNESIS

DEVELOPERS: Y. TAKAOKA and JAG
Homepage: www.takaoka.eng.br

- 30 kilometers far from Sao Paulo city center;
- Planned 141-ha environmental responsible development;
- Survey with 333 local householders => concern regarding environmental preservation;
- Inclusion of more open space and wildlife habitat, downsizing the project;
- 466 residential lots, on a portion of the site that was already used as farmland (clustered development);
- Positioned as green project with high quality construction;
- Genesis broke ground in May 2002 and was completed in March 2004.

MAIN RESULTS

- Protect almost two-thirds of the land as "natural open spaces".
- Preserve and restore lands;
- Provide contiguous wildlife corridors and habitat areas;
- Streamline approvals and reduce liability risks.
- Developer sold 85% of the lots in three weeks (high absorption rate) with substantial price premium;
- Marketing: free press and product differentiation;
- New business opportunities;
- Education, health and productivity;
- Preserve cultural heritage and support local cultures;
- Satisfaction from doing the right thing.

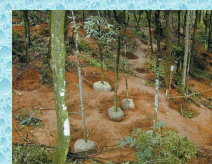
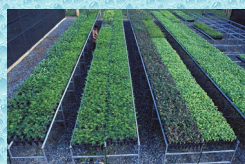
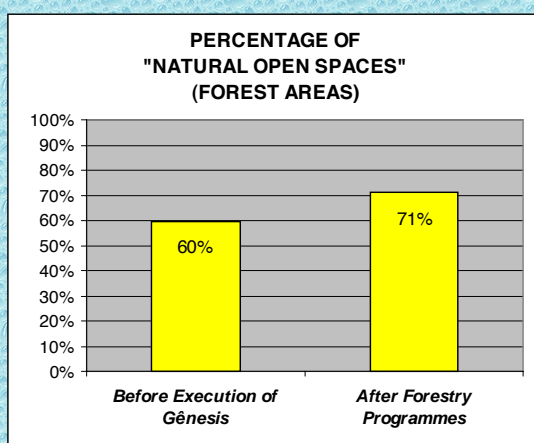
CONTACT ADDRESS

For further information on this project, contact Fernando Bontorim Amato or Marcelo Vespoli Takaoka:

UNIVERSITY OF SÃO PAULO – BRAZIL
Escola Politécnica - Department of Civil Construction
Av. Professor Almeida Prado, travessa 2, nº 83
ZIP CODE 05508-900 - São Paulo - SP

Tel: 55 11 3091-5234
Fax: 55 11 3091-5715

e-mail: fernando.amato@poli.usp.br
marcelo.takaoka@poli.usp.br



Forestry Programmes



Wall to protect and preserve the forest



Ecological Corridor



Dam: made of earth to form a reservoir as source of water

