

THE POLLUTION OF BRAZILIAN URBAN RIVERS, A STUDY ABOUT BOMBAS RIVER, JOAO PESSOA/PARAÍBA-BRAZIL.

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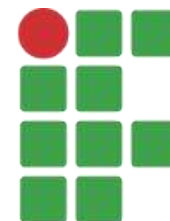
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**INSTITUTO
FEDERAL**
Paraíba

Campus
João Pessoa



Bombas River



Paraíba do Sul River



Tietê River



Tamanduateí River

velização. Moradores ao lado de esgoto de favela às margens do Rio Paraíba do Sul, em Campos / GABRIEL D. OBO

- According to U.S. Geological Survey's over **96%** of our water resources are saline, from Oceans, Seas, & Bays.
- The other **4%** are from Ice caps, glaciers, permanent snow, groundwater, lakes, rivers, and others.
- Less than **1%** are available for consumption.



<https://www.estudokids.com.br/diferenca-entre-mar-e-oceano/>

- **World Water Assessment Programme (WWAP) said the Over 80% of the world's wastewater – and over 95% in some least developed countries – is released to the environment without treatment.**



<http://www.converttech.com/dont-drink-the-water-without-treatment/>

- According to the latest census of the Brazilian Institute of Geography and Statistics (IBGE, 2010), the urban population of Brazil is about 160 million people, corresponding to 84.4% of the total population. **42.6%** of domestic sewage is collected and only **30.5%** receives some treatment.



<http://noticias.r7.com/sao-paulo/fotos/sabesp-tem-programacao-especial-para-dia-mundial-da-agua-20120320-5.html>

- **Together with the problematic of wastewater we have another kind of problems such as: poor management of solid waste, stormwater networks irregularities, lack of supervision by the Brazilian Public Power among other factors, which pose environmental and health risks.**



http://www.infobarrel.com/Polution_of_the_River_Tiete



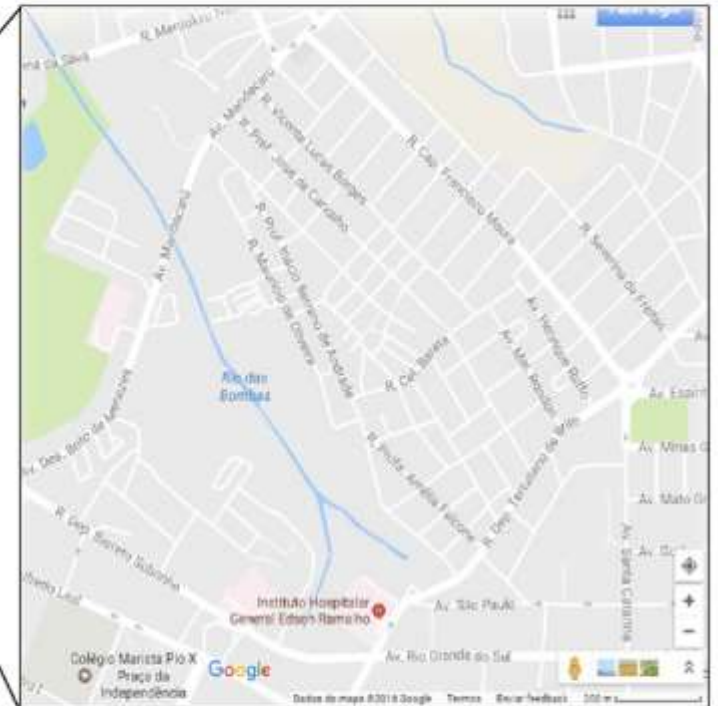
- **Bombas River** – Paraíba
- **Tietê River** – São Paulo
- **Tamanduateí River** –
São Paulo
- **Paraíba do Sul River** –
Minas Gerais, São Paulo
and Rio de Janeiro.

Bombas River Localization

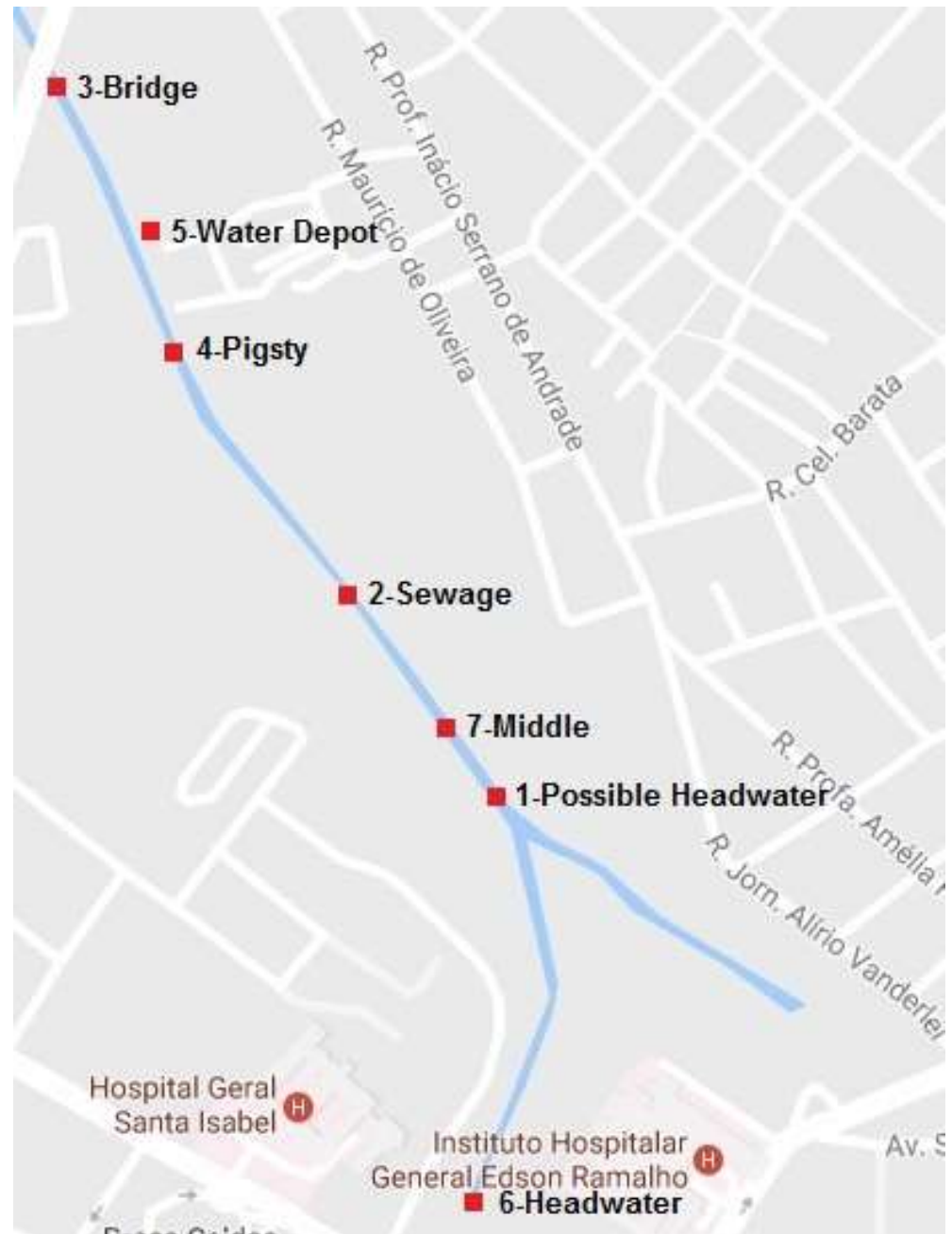
LOCALIZATION MAP



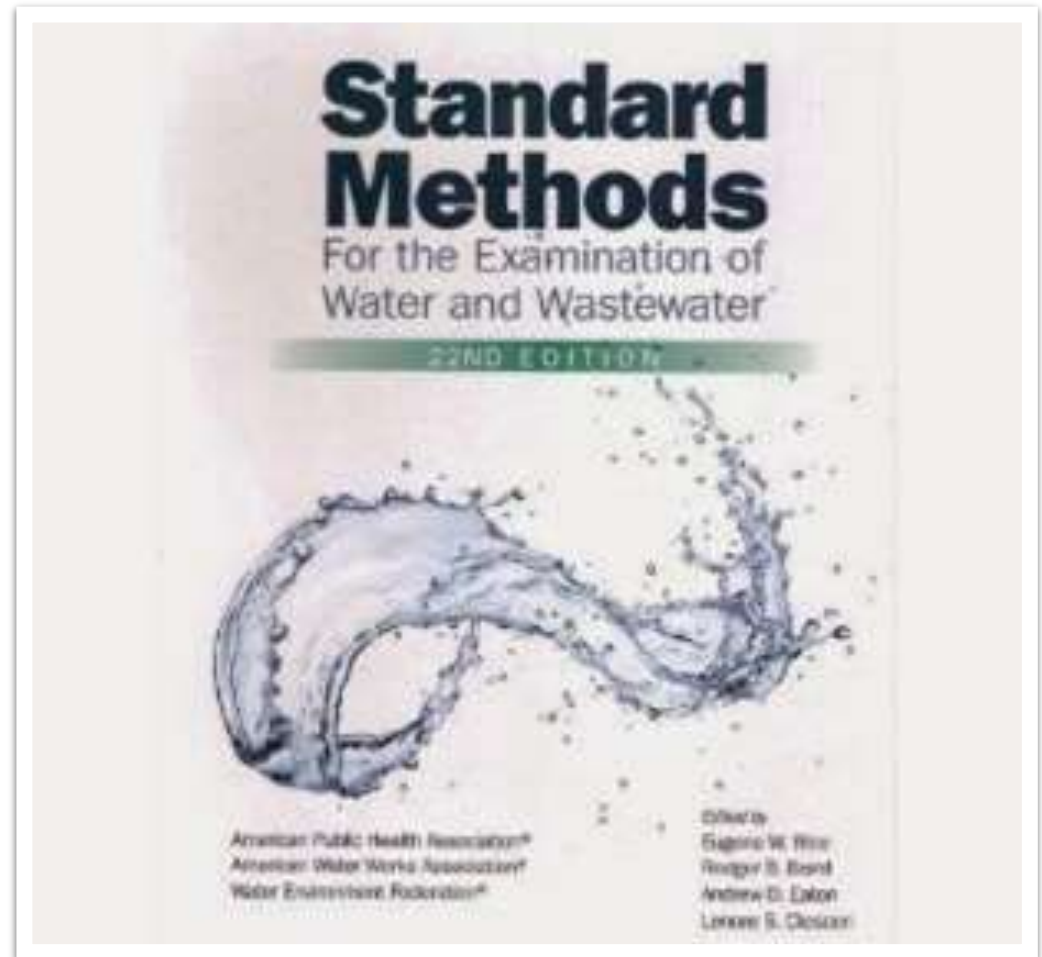
250 0 250 500 750 1000 km



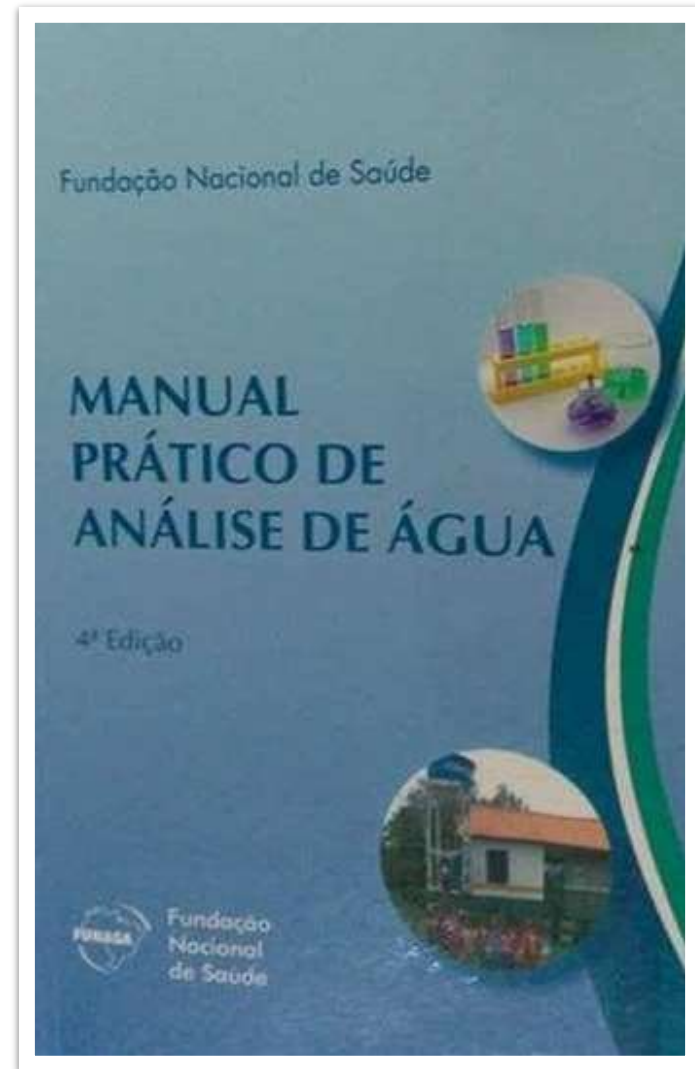
Collecting points



- The method used for the analysis was the **Multiple Tubes Technique** according to **Standard Methods for the Examination of Water and Wastewater**



- To determine the amount of coliforms the table of values of the Practical Handbook of Water Analysis provided by FUNASA (National Health Foundation) was used, it has a reliability limit of 95% where its values can vary between 0 and 1600 MPN (Most Probable Number).





- According to the Decree-Law number Ordinance No. 2,914 of December 12, 2011 of the Ministry of Health that legislates on the issue of **potability** in Brazil.
- CONAMA Resolution No. 274 of November 29, 2000 for **Bathing**.

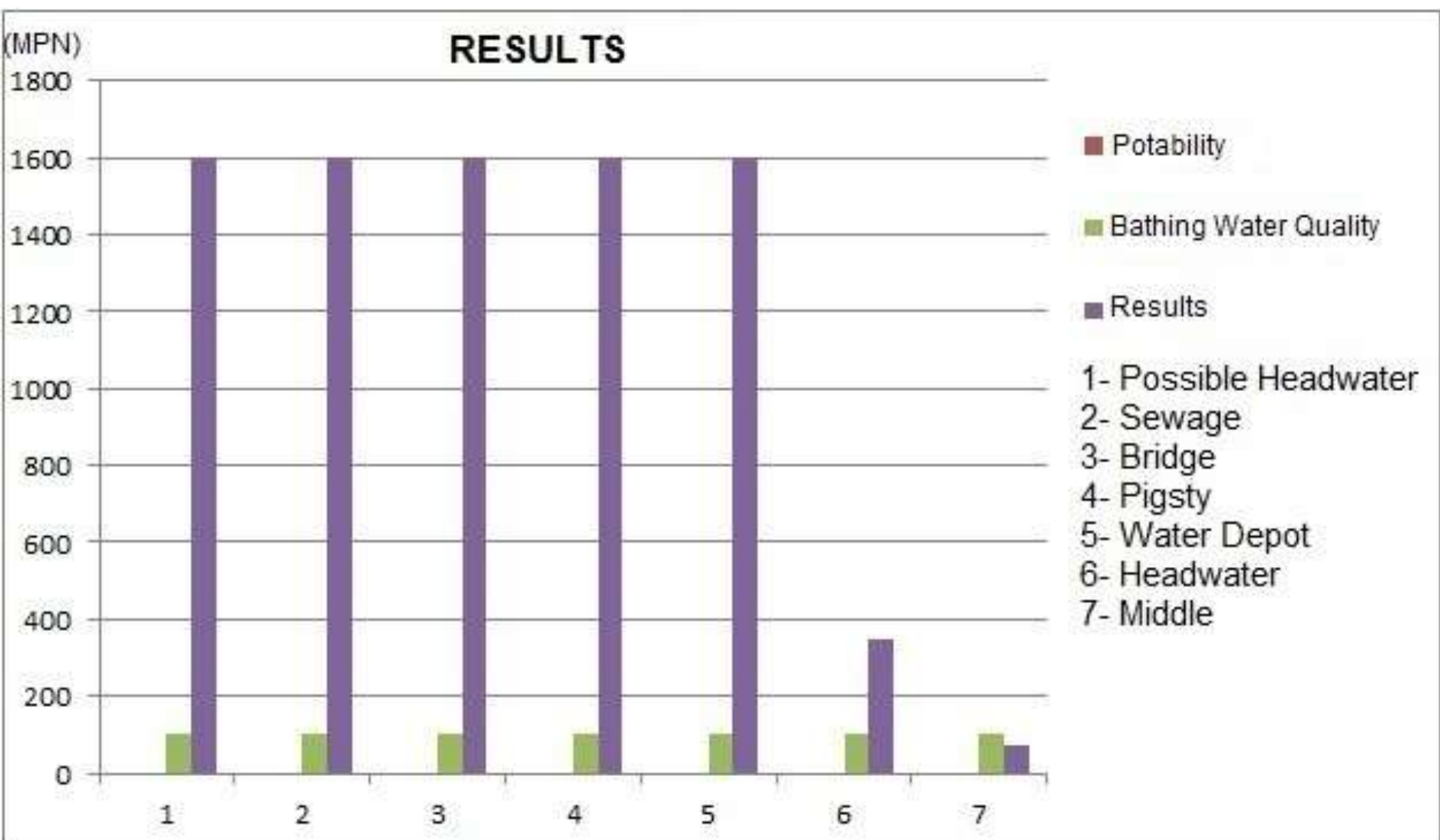
Collecting Samples (3 – Bridge)





1 - Possible Headwater







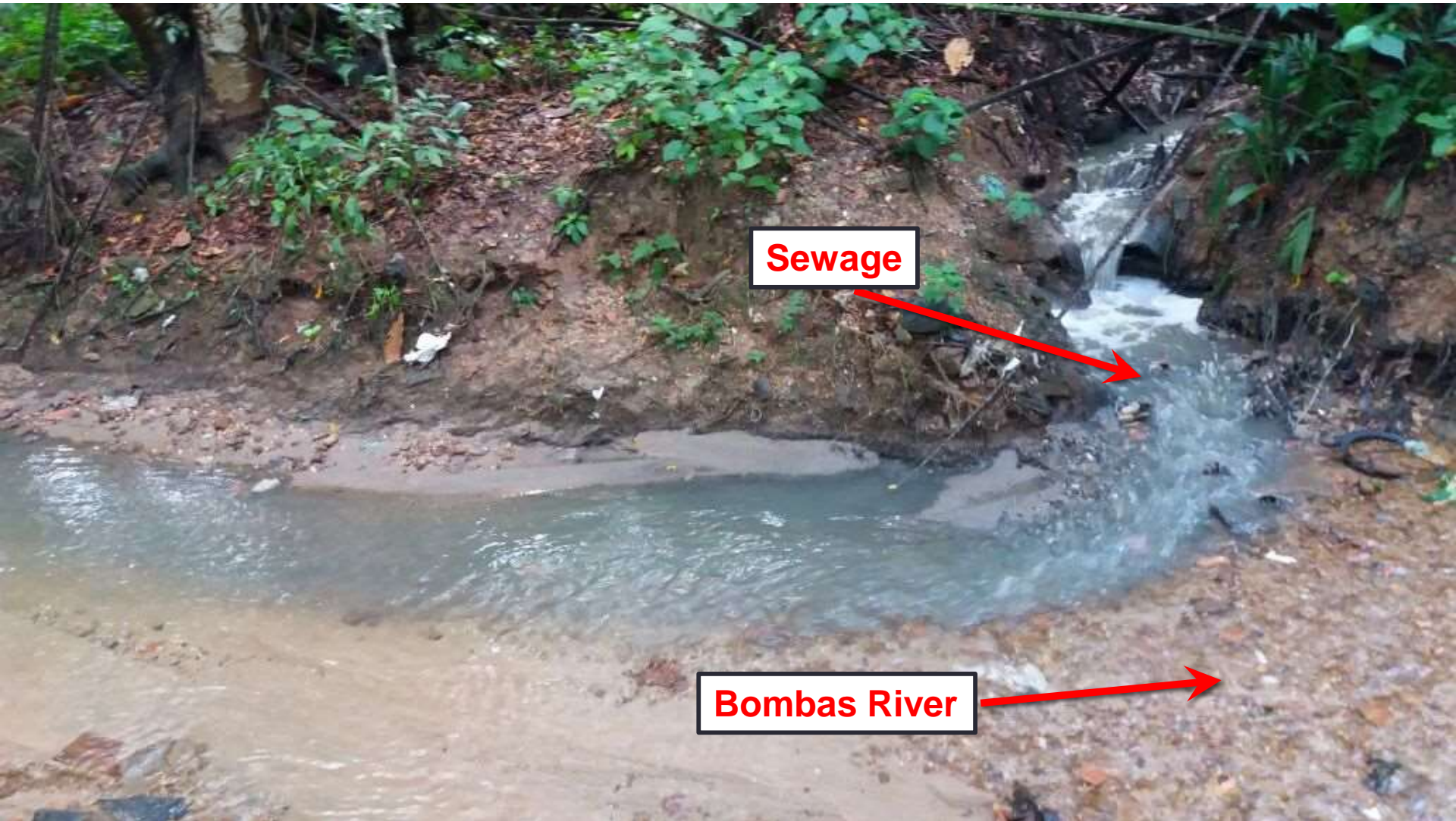
Broken sewer pipe

- Sewage goes through the Lauro Pires Xavier Park until it finds the Bombas River.

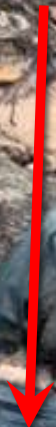
Other side of broken sewer pipe



- The meeting between the wastewater from the broken sewage network with Bombas River.



Solid Waste





Solid Waste

Tietê River



<http://ultimosegundo.ig.com.br/brasil/sp/2015-06-23/espuma-de-poluicao-do-rio-tiete-invade-cidade-na-grande-sao-paulo-veja-fotos.html>



<http://www1.folha.uol.com.br/cotidiano/2014/09/1517756-onibus-adaptado-para-navegar-cruza-trecho-do-rio-tiete-em-sao-paulo.shtml>

Paraíba do Sul River



<https://blogdopedlowski.com/2014/06/05/ururau-informa-policia-militar-realiza-prisoas-por-caoa-de-lancamento-de-esgoto-no-rio-paraiba-do-sul/>



<http://acervo.oglobo.globo.com/fotogalerias/rio-paraiba-do-sul-agua-em-risco-13572970>

Tamanduateí River



<https://aguasdomundo.wordpress.com/2015/01/12/sao-paulo-a-cidade-os-rios-e-suas-planicies-inundaveis-o-rio-tamanduatei/>



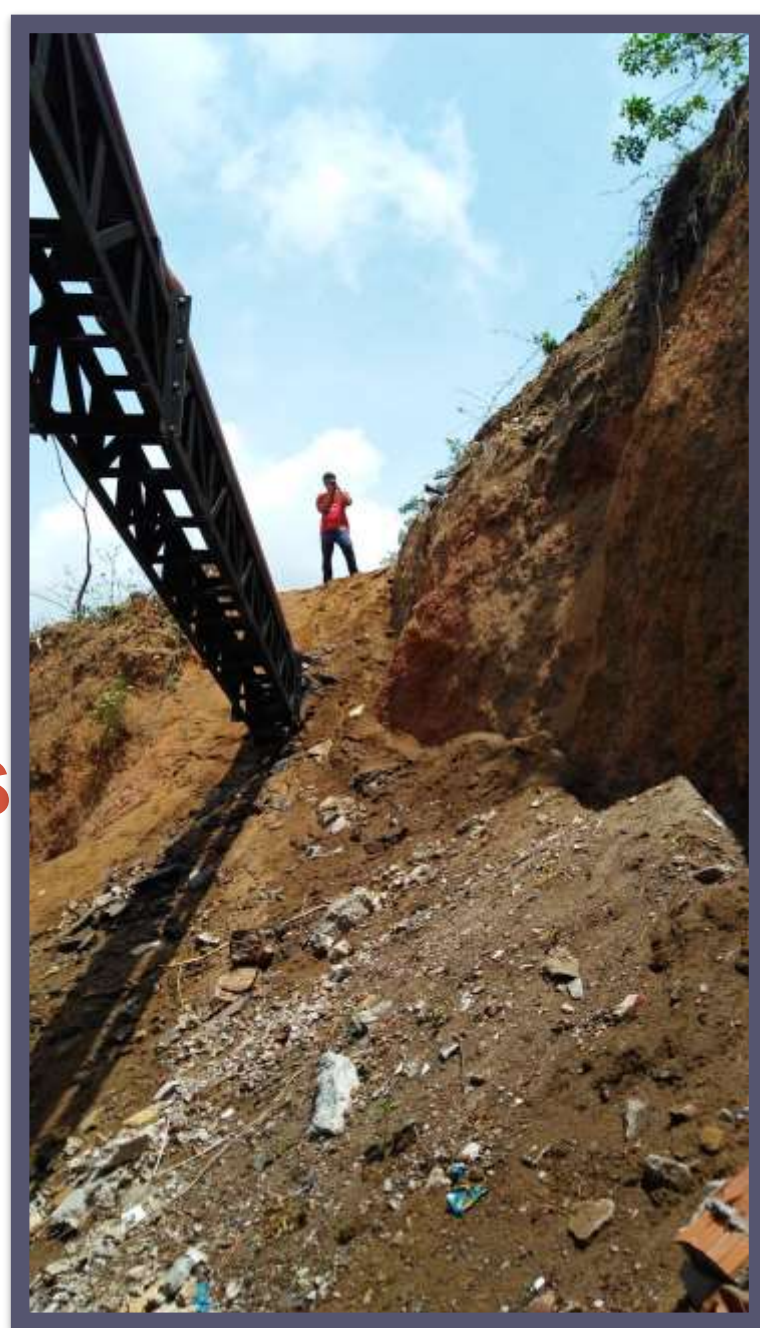
http://www.naturezabrasileira.com.br/foto/2562/poluicao_no_rio_tamanduatei__sao_paulo__sp.aspx

- The release of pollution in urban river by humans, may cause problems in the environment, such as the morphological change of rivers, death of special animals and plants in general (Santos, 2004)
- In addition to the damages caused to the environment the pollution of rivers can cause numerous diseases in humans, some of them if not taken properly care in time can be lethal, such as: **GASTROENTERITIS, PARATYPHOIDS FEVER, INFECTIOUS HEPATITIS, LEPTOSPIROSIS** and others.

- Urgent measures have to be taken so that it can still be possible to save urban rivers, which can bring us so much, both in relation to water availability and in aspects of quality of life. World's population is increasing and instead of taking care of these water sources we are going to the opposite way.



Actions





Actions

g1.globo.com/pb/paraiba/jpb-1edicao/videos/v/denuncia-rio-das-bombas-esta-sendo-poluído-em-joao-pessoa/5779264/

Apps Compre os melhores



Denúncia: Rio das Bombas está sendo poluído, em João Pessoa

MAIS INFORMAÇÕES

Tweetar G+1 0

Curtir 0



Edições 24 abr

mais vistos palavra-chave

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- <https://aguasdomundo.wordpress.com/2015/01/12/sao-paulo-a-cidade-os-rios-e-suas-planicies-inundaveis-o-rio-tamanduatei/>
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THANK YOU
