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From Tucson to Uruguay and Back: Securities and Inequalities in Water Infrastructure

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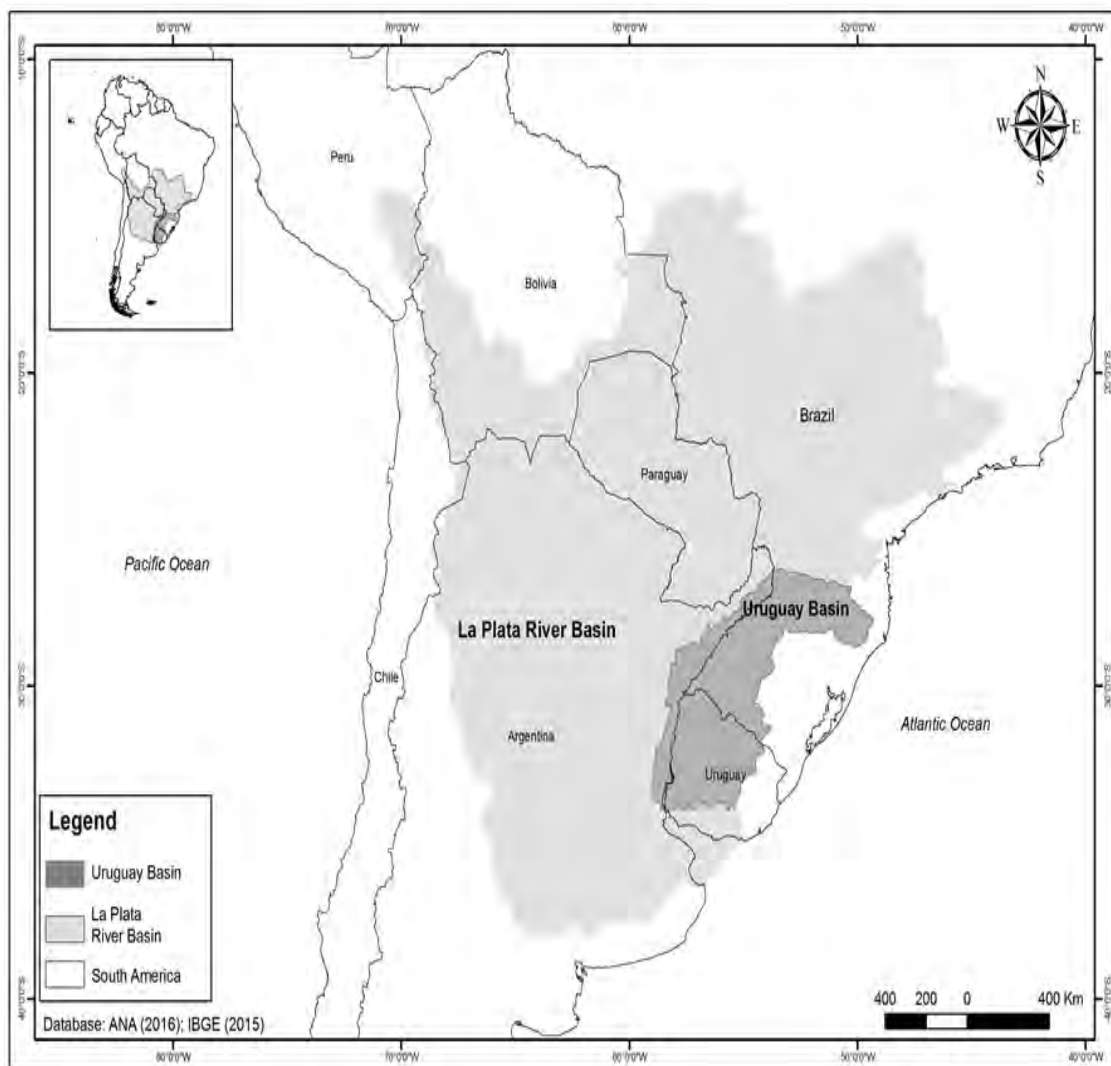


Table 1. Planned and operating hydroelectric dams in the Uruguay River Basin

Hydropower	Phase	Height (m)	Power (MW)	Country/River
Passo da Cadeia	Planned	940	1,680	Brazil (Pelotas River)
Pai-Querê*	Planned	762	290	Brazil (Pelotas River)
Barra Grande	Operating	647	690	Brazil (Pelotas River)
Machadinho	Operating	440	1,140	Brazil (Pelotas River)
Itá	Operating	370	1.450	Brazil (Uruguay River)
Foz do Chapecó	Planned	265	855	Brazil (Uruguay River)
Itapiranga	Planned	193	724	Brazil (Uruguay River)
Panambí	Planned	130	1,048	Argentina-Brazil (Uruguay River)
Garabí	Planned	89	1,152	Argentina-Brazil (Uruguay River)
Salto Grande	Operating	35	1,890	Argentina-Uruguay (Uruguay River)

*Environmental license denied by IBAMA Source: *Banco de Informação de Geração (BIG-ANEEL)* and EBISA (2010).



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Green infrastructure

From Wikipedia, the free encyclopedia

Green Infrastructure or **blue-green infrastructure** is a network providing the “ingredients” for solving urban and climatic challenges by building with nature.^[1] The main components of this approach include [stormwater](#) management, [climate adaptation](#), less [heat stress](#), more [biodiversity](#), [food production](#), better [air quality](#), [sustainable energy](#) production, clean water and [healthy soils](#), as well as the more anthropocentric functions such as increased [quality of life](#) through recreation and providing shade and shelter in and around towns and cities.^[2] Green infrastructure also serves to provide an ecological framework for social, economic and environmental health of the surroundings.^[3]

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Street-side [swale](#) and adjacent [pervious concrete](#) sidewalk in [Seattle](#), US. [Stormwater](#) is [infiltrated](#) through these features into soil, thereby reducing levels of [urban runoff](#) to city [storm sewers](#).


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Green Infrastructure

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Build Resiliency to Drought

Fragile local water supplies are being stressed by decreased precipitation associated with climate change in some areas of the country. When a storm event does occur, rain falling on roofs, parking lots, streets, and other hard surfaces runs directly into city storm drains or water bodies. Communities are losing valuable water that could be used or stored for use when it is needed most.



On this page:

- How To
- Resources
- References

This page contains technical information and references for state and local government officials working in the field of stormwater management.

How To




United States
Environmental Protection
Agency

EPA 100-R-14-006
October 2014
www.epa.gov/smartgrowth

ENHANCING COMMUNITIES WITH GREEN INFRASTRUCTURE


Rooftops to Rivers II:

Green strategies for controlling stormwater and combined sewer overflows





UPDATE October 2013




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NRDC
The Earth's Best Defense




GREEN
RESERVE

The American Recovery and Reinvestment Act (ARRA), Green Project Reserve of 2009, through the State Revolving Fund, provided funding for a wide variety of qualifying projects in the categories of: *green infrastructure, energy efficiency, water efficiency, and other innovative projects.*

Green Infrastructure in Arid and Semi-Arid Climates

Adapting innovative stormwater management techniques to the water-limited West.

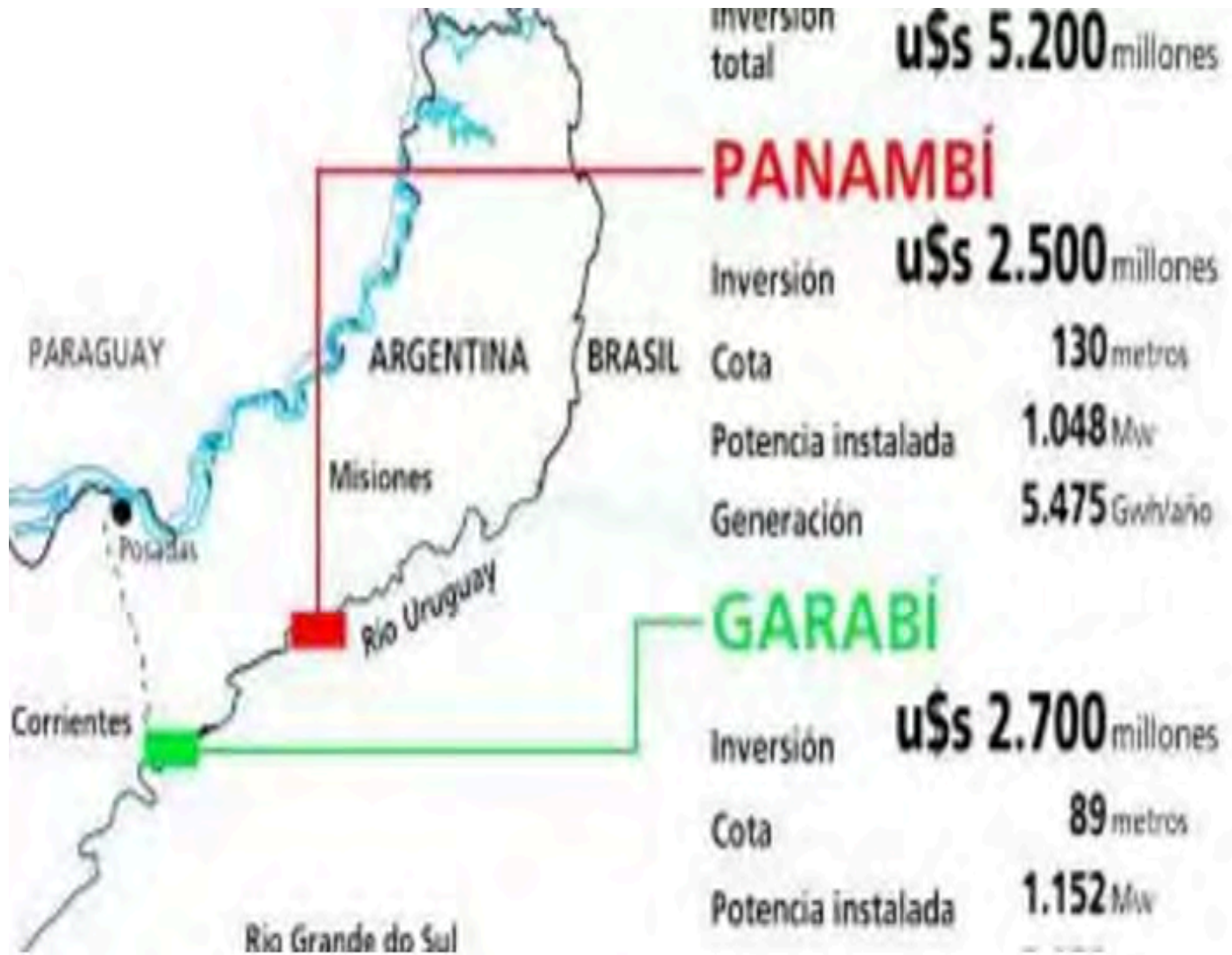

Infrastructure and security

Who and what is being secured?

- Water resources are being secured for **human consumption and to enhance resilience**

Narrative in the Uruguay River Basin: nested in regional economic development & regional politics

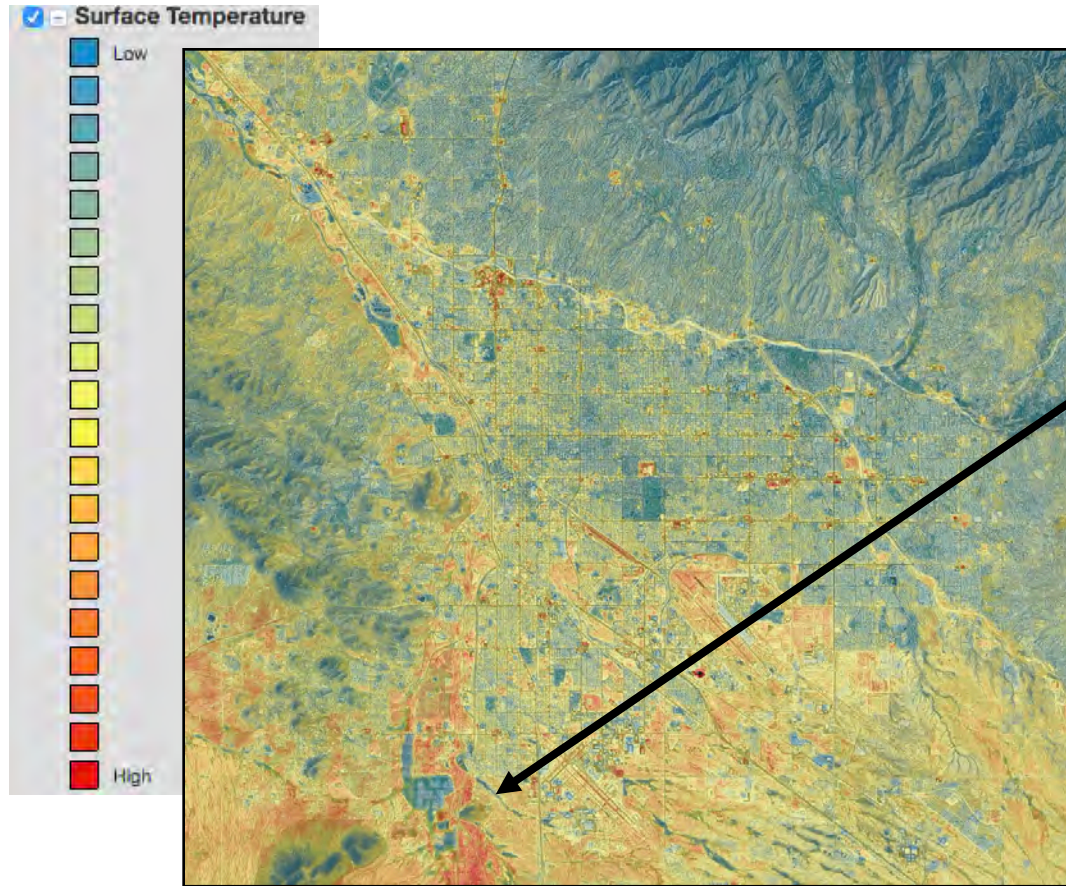
Narrative in Tucson, Arizona: alternative to “waste” & nested in larger state and national politics



Garabí-Panambí binational hydroelectrical project

- complex of two dams along the Uruguay River on border of Argentina & Brazil
- environmental, social and ecological impacts
 - resettlement of local populations
 - flooding of native forests and grasslands

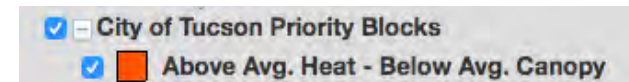
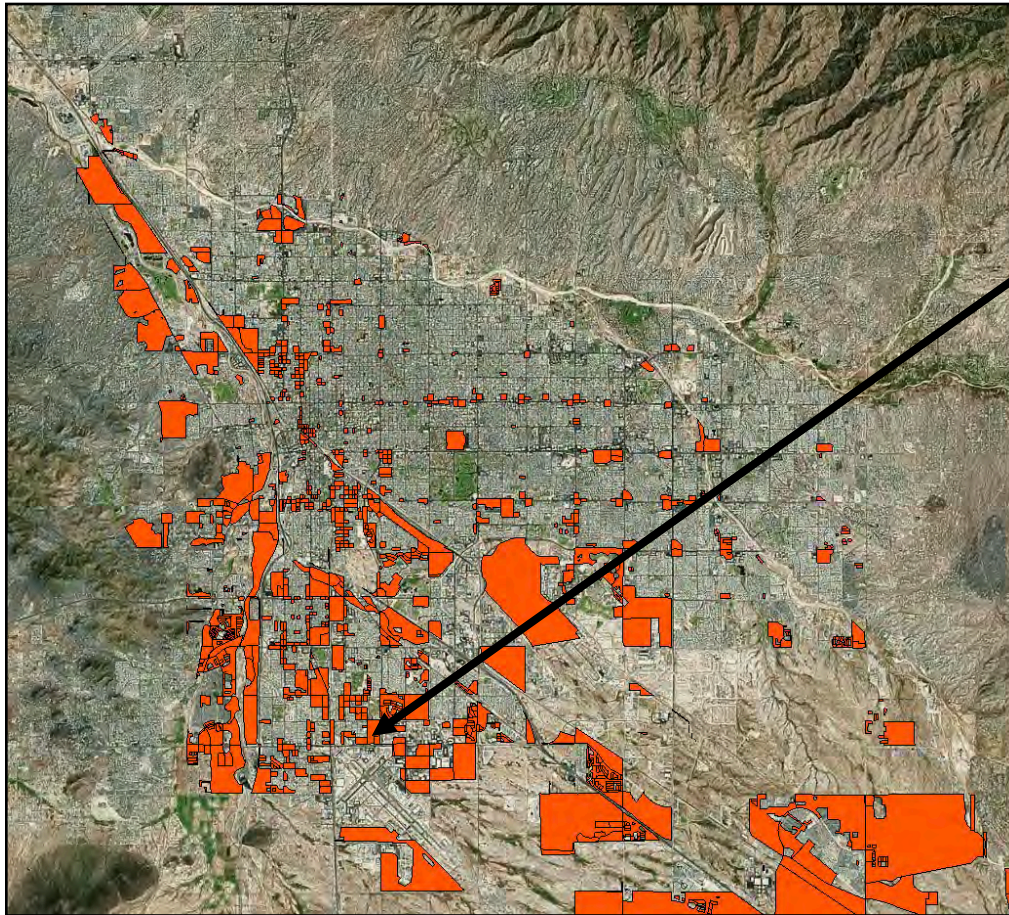
The south side of Tucson is vulnerable to flooding and extreme heat



Flooding in the south side of Tucson

Surface temperature in Tucson, AZ (data from PAG)

Tree campaign priorities focus on areas that have above average heat and below average tree canopy



Priority blocks in Tucson, AZ (data from PAG)

Inequality and security

Is inequality being deepened? How are inequalities being experienced?

- Distributional and procedural injustices/inequities
- Earth System Governance New Science Plan: economic, social and cultural equality
- Multiple insecurities
- Inequalities are exacerbated by new institutional mechanisms of resilience
- Can perpetuate conflicts and divisions

How do you engage policy to reconsider benefits and burdens as a means for redress?





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Aprenda sobre todos los sistemas de cosecha de agua de lluvia a detalle y lo que puede hacer en su propia casa.



Tucson verde para todos

Engaging communities for an equitable and greener Tucson

Water security and inequality/justice/equity?

- Inequality as context to challenge narrow views of security
 - Inequality lens offers multiple intersecting dimensions that drive and shape the ability of human societies to address global environmental change in fundamental and complex ways
- *How best to consider scale, power and justice in water security?*
 - Cycles and spirals of justice
 - Marian J. Patrick (2014). The Cycles and Spirals of Justice in water-allocation decision making, *Water International* 39(1): 63-80.
 - Integrative approaches to water security
 - Mark Zeitoun et al. (2016). Reductionist and integrative research approaches to complex water security policy challenges. *Global Environmental Change* 39: 143–154.
 - Capabilities and water security
 - Wendy Jepson et al. (2017). Advancing human capabilities for water security: A relational approach. *Water Security* 1: 46–52.