



GOLD VI

***Case-Based Contribution
to Chapter 7: Renaturing***
*GOLD VI Report on Pathways
to urban and territorial equality*

Building Resilience with Nature:

Restoring ecosystems and communities

through public policies

In partnership with:



Building Resilience with Nature: Restoring ecosystems and communities through public policies

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CITIES/COUNTRIES IT COVERS

San Juan (Puerto Rico); Portoviejo (Ecuador); Iloilo (Philippines)

CHAPTER

7: Renaturing

SUMMARY

The following compilation of case studies highlight flood risk management initiatives and projects involving renaturing solutions. Their main goal focuses on building resilience by restoring ecosystems and communities through public policies. Various approaches in different regions of the world are analyzed and include informal settlement land trusts, ecosystem-based solutions, and climate change and adaptation initiatives. For instance, the Community Land Trust (CLT) model in San Juan, Puerto Rico, addressed the challenges regarding land ownership in informal settlements and the heavily polluted Martin Peña Canal. The creation of the Comprehensive Development Plan, along with subsidies and involvement from private and public sectors were key to develop, regulate, and monitor its implementation. Secondly, the city of Portoviejo, Ecuador, built the Las Vegas Park as a reconstruction and economic revitalization response to the 2016 earthquake. Its innovative approach used ecosystem-based solutions which recovered riverbanks, implemented wetlands, and installed rainwater retention tanks. The initiative was an opportunity for the city to generate new recreational and leisure public spaces, revitalise the city centre, and confront the increasing flood risks threatening the area. Lastly, the city of Iloilo, Philippines, focused on investing and including policies towards climate change and adaptation solutions. The projects mentioned focus on river rehabilitation, mangroves protection, and rainwater harvesting systems installation.

Introduction

As discussed in this chapter, cities and regions around the world are increasingly facing hazards, shocks, and stresses. Despite the constant struggle to confront them adequately within their context, competencies, and resources, an array of initiatives and projects with **approaches integrating nature and enhancing ecosystem services in urban systems** are on the rise. The following four case studies from different regions highlight perspectives regarding an informal settlement land trust, peri-urban agriculture, ecosystem-based solutions, and climate change and adaptation initiatives. The compilation of these cases portrays the diverse manners transformational pathways addressing social, environmental, and just urban development can be developed and implemented.



Caño Peña Martin residents standing where the sewage goes into the channel
Source: United States Environmental Protection Agency

Community Land Trust (CLT) in San Juan, Puerto Rico

The Community Land Trust (CLT) model implemented in the densest informal settlement of **Puerto Rico** encompasses the 3.75 mile-long tidal channel Caño Martin Peña (CMP). As it initially established its informal settlements on mangrove wetlands, the decaying conditions of the channel involved heavily polluted water and a lack of a proper sewage system. These issues incited residents to call for governmental action towards flood risk management and land ownership in 2001. Through a participatory approach in a span of two years, the government assessed the community's concerns to dredge the canal and housing needs. As a result, the CMP Special Planning District's Comprehensive Development and Land Use Plan ensured a collective land title, revitalised the canal, and consequently avoided forced displacement. **Subsidies and involvement from private and public sectors** were key to develop, regulate, and monitor its implementation.¹

The initiative was initiated by addressing the impacts of the degraded channel and land ownership disputes. In 2004, the Puerto Rico Law 489 (the Martin Peña Canal Special Planning District Development Act)² was unanimously approved by the city legislature. This law enacted how the canal and its surrounding communities were going to implement its environmental rehabilitation. For instance, the Community Land Trust transferred public land ownership to be managed and administered collectively by its residents and was formalised by establishing its General Regulations in 2008. Its guiding principles and objectives include promoting resident participation in the decision-making process, encouraging equality, safety, and access to basic services; improving public spaces and transportation; and developing affordable housing. Alongside, the Proyecto ENLACE (Brodine 2017)

1. Bachmann, Laura. 2017. "An Informal Settlement in Puerto Rico Has Become the World's First Favela Community Land Trust." April 28, 2017. <https://rionwatch.org/?p=36081>.

2. United States Court of Appeals. 2010. "FIDEICOMISO DE LA TIERRA DEL CAÑO MARTIN PEÑA v. FORTUÑO." 2010. <https://caselaw.findlaw.com/us-1st-circuit/1520025.html>.

acts as an independent government agency, made up of public, private, and community representatives to monitor the implementation of the CMP District Plan. Their methodology aimed to **regularise property rights** and coordinate housing, infrastructure, urban and socio-economic development.

Additionally, a strong partnership with the “Grupo de las Ocho Comunidades Aledañas” (G-8) was crucial to facilitate effective communication between ENLACE and the CLT. The G-8 acted as a non-profit representing the 26,000 residents in the eight communities around the Caño area and consisted of twelve grassroots organisations. The G-8 monitors the compliance of the Comprehensive Development Plan by preventing residents’ displacement and gentrification of the area as well as ensuring citizen participation in the



decision-making process for social and environmental decisions.³ As a result, the CLT model in San Juan gained international attention for being the first one to be implemented for an informal settlement and its replication potential.

Caño Peña Martin informal settlements before the CLT
Source: Stephanie Maze/National Geographic/Getty Images

Ecosystem-based solutions in Las Vegas Park in Portoviejo, Ecuador

The Las Vegas Park was built by the central government of **Portoviejo** (Ecuador) as a reconstruction and economic revitalisation response after the 2016 earthquake. Before the disaster, the areas around the Portoviejo River had been abandoned and overlooked. The Park became part of an **interconnected system of green and public spaces** in the Portoviejo River Master Plan. With approximately 10.7 hectares, the design focused on implementing efficient strategies based on **flood risk reduction and resilience**. The project was built over three years with an investment of approximately US\$10.9 million. The funds proceeded from a mixture of municipal and post-earthquake reconstruction committee funds. A diverse group of committed professionals and stakeholders from government, social, private, and academic sec-

tors guided the development of the project. The main objectives included the reconstruction and economic reactivation of the city, flood risk reduction, environmental recovery, and the creation of modern public spaces.⁴

The Las Vegas Park represents the concept of Building Back Better at an urban scale by addressing deficits in green areas, as well as cultural and economic activities. It incorporates **ecosystem-based adaptation** (EbA) solutions throughout the park’s design. These include the recovery and repurposing of riverbanks as floodable recreational areas and the regeneration of an abandoned meander as a wetland with a stormwater retention tank where numerous species of fauna rapidly settled. Additionally, safe, and inclusive public spaces were

3. Brodine, Maria. 2017. “Proyecto ENLACE Del Caño Martin Peña : Restoring an Ecosystem and Building Resilient Communities in Puerto Rico.” Urban Waters Learning Network. 2017. <http://urbanwaterslearningnetwork.org/resources/proyecto-enlace-del-cano-martin-pena-restoring-ecosystem-building-resilient-communities-puerto-rico/>.

4. Urban sustainability exchange, and UCLG Learning. 2020. “Portoviejo’s Linear Park.” 2020. <https://use.metropolis.org/case-studies/portoviejos-linear-park>

developed throughout the park revitalising cultural, recreational, and economic activities. Due to its central location, multiple events within the various facilities, along with the incorporation of entrance fees and new businesses in the area restored the economic growth of the city. Since its inauguration in early 2018, residents enjoy high-quality cultural activities in public spaces and share a collective awareness towards the importance and care of the river and environment. Additional trust was successfully built towards political will and management, integrity promotion, and appropriate use of funds.⁵



Portoviejo River Master Plan
Source: Municipio de Portoviejo

Cleaning and rehabilitation
of wetlands
Source: Municipio de Portoviejo

Climate change and adaptation initiatives in Iloilo, Philippines

The city of **Iloilo** (Philippines) has proactively invested in climate change and adaptation solutions due to its past challenges regarding floods. The city is located on the southern shore of the Panay Island with a 21-kilometre coastline. Therefore, it is prone to flooding due to meteorological hazards and exposed to tsunamis. Since 2011, the City Comprehensive Land Use Plan (CLUP) identified adaptation and mitigation measures from **multi-stakeholder consultations** to make the city resilient. As a result, the Local Climate Change Action Plan (LCCA) and Disaster Risk Reduction and Management (DRRM) Plan included strategies regarding the rehabilitation of the Iloilo River, protection of mangroves, incorporation of rainwater harvesting systems,⁶ among others.

The first strategy was the Iloilo River Esplanade Development Project. It aimed to rehabilitate the 8.1 km long river and avoided the development of vehicular roadways. The demand for public spaces in the area was heard and met by incorporating green walkways, landscaping, recreation spaces, and bike lanes.⁷ Its implementation was dictated by a **zoning ordinance** regarding the Network of Green and Open Spaces and faced challenges regarding the river's pollution and informal settlements.⁶ These were addressed through **clean up campaigns and the resettlement of 1,000 residents to safe housing locations**. The project was divided into various phases and involved a collaborative effort between city officials, the surrounding community, along private and institutional sectors.⁹

5. UCLG Learning. 2019. "Climate Resilience and Urban Development." Peer Learning Note 26. Niteroi.

6. USAID. 2017. "URBAN DEVELOPMENT CAPABILITY PROFILES OF CDI CITIES." https://pdf.usaid.gov/pdf_docs/PA00TWDN.pdf.

7. Francisco, Katerina. 2016. "People's Project: How Ilonggos Turned a Road into a Riverside Park," March 23, 2016. <https://www.rappler.com/environment/iloilo-city-esplanade-people-project>.

8. Peñalosa, Jose Roni. 2018. "Climate Change Mitigation and Adaptation." *City Planning and Development Office*. Iloilo. <https://designingresilience.ph/wp-content/uploads/Iloilo-City-Urban-Planning-and-Design-for-Climate-Resilience.pdf>.

9. Francisco, Katerina. 2016. "People's Project: How Ilonggos Turned a Road into a Riverside Park," March 23, 2016. <https://www.rappler.com/environment/iloilo-city-esplanade-people-project>.

An additional initiative aimed to protect and rehabilitate mangroves along the riverbanks. The main goals were to create storm barriers, prevent coastal erosion, and incorporate biodiversity in the area to lessen the effects of climate change. The Katunggan Ecopark in Leganes is a similar initiative implemented in the province. Between 2009 and 2015, approximately 86,000 mangrove seedlings were planted in the area. Additional benefits of the initiative included **capacity-building activities** among various sectors, employment opportunities, and good governance practices backing up the projects.¹⁰

Furthermore, the construction of Rainwater Collecting Systems (RWCS) remained a priority to improve water resource management mechanisms. In 2017, the city shifted its approach **towards rainwater preservation** and enhanced its storage and treatment at a regional level. An initial ordinance mandated government facilities retrofitting to incorporate rain harvesting. Subsequently, the provincial government invested 16.4 million PHP to build 25 solar-powered rainwater harvesting systems in vulnerable areas and 42 ferrocement tanks in public schools.¹¹ A year later, the Department of Public Works and Highways



Iloilo River rehabilitation Esplanade project.
Source: PGAA Creative Design

of the city distributed 54.4 million PHP among 15 districts to install RWCS in public markets, public schools, and waterless communities.¹²

Lastly, the most recent CLUP Zoning Ordinance for 2021-2029 includes density bonuses as an incentive for projects incorporating CCA/DRRM technology and systems,¹³ like the ones previously mentioned. Therefore, the city has kept its commitment to protecting citizens through initiatives and a robust legal framework aiming to become a model for other cities to replicate climate change and adaptation projects.¹⁴

Conclusion

The compilation of the case studies above showcases the challenges and strengths local and regional governments face when addressing urban development policies that invest in nature. These policies aim to achieve justice and equity within a socio-environmental risk management perspective. The main hazard discussed pertains to flooding along with its repercussions and challenges. The variety of initiatives demonstrates how the development, regulation, and implementation processes demand different solutions depending on their context. For instance, some applied planning instruments and investment tools: promotion of solidarity and social cohesion, along with participatory land-use planning strategies (San Juan); usage of specific funds for disaster-related emergencies (Portoviejo); and climate change adaptation initiatives (Iloilo). Yet, they all coincide with involving local communities, considering local contexts, and ensuring long-term sustainability to build pathways for urban and territorial equality.

10. Mayuga, Jonathan L. 2017. "A Man-Made Mangrove Forest Thrives in Iloilo | Jonathan L. Mayuga." *Business Mirror*. March 26, 2017. <https://businessmirror.com.ph/2017/03/26/a-man-made-mangrove-forest-thrives-in-ililo/>.

11. Nepomoceno, Jeza A. 2017. "Iloilo Invests 16.4M in Rainwater Harvesting Facilities | Province of Iloilo." March 7, 2017. <https://watchmendailyjournal.com/2017/04/07/iloilo-penro-invests-p16-4m-rainwater-harvesting/>.

12. Lena, Perla. 2018. "DPWH Allots P54-M for Rainwater Collectors in West Visayas | Philippine News Agency." *Philippine News Agency*. September 20, 2018. <https://www.pna.gov.ph/articles/1048642>.

13. Local Development Council of Iloilo City, and City Planning and Development Office. n.d. "Iloilo City Comprehensive Land Use Plan 2021-2029." https://iloilocity.gov.ph/main/wp-content/uploads/2021/03/Vol2_ZoningOrdinance_IC_2021-2029_draft2021-03.pdf.

14. Francisco, Katerina. 2016. "People's Project: How Ilonggos Turned a Road into a Riverside Park," March 23, 2016. <https://www.rappler.com/environment/iloilo-city-esplanade-people-project>.

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In particular, the present paper has contributed to Chapter 7 on “Renaturing”, which focuses on the governance and planning of nature-based solutions, with specific emphasis on decoupling economic development and resource use, the transition to net zero carbon systems, risk reduction and urban resilience. The chapter explores how local and regional governments can promote approaches that advance these goals, placing the needs and priorities of structurally discriminated social groups at the core of their actions, and contribute to urban and territorial equality.

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