



BCRUPD Policy Brief¹ No.1

“Re-making Open Spaces for Urban Climate Resilience: Employing A Green Infrastructure Approach” | July 2020

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FOR A BETTER URBAN FUTURE

Supported by:



Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

based on a decision of the German Bundestag

¹ The preparation of this policy brief was supported by the BCRUPD Project to promote policy discourse in promoting climate resilience in the context of using urban planning and design in the Philippines.

Open Space is defined as: *an area reserved exclusively for parks, playgrounds, recreational uses, schools, roads, places of worship, hospitals, health centers, barangay centers and other similar facilities and amenities*². These spaces are preserved within human settlements to promote healthy environments that enhance the quality of life of residents.

Under Presidential Decree No. 1216, developers of subdivisions shall reserve at least thirty percent (30%) of the total area to be developed and maintained as Open Space. Said allocation may be reduced for developments targeting lower income groups, provided that environmental and ecological balance in the area is preserved³.

*A Broader Concept; the Local Open Space System*⁴

The constricted definition ascribed to Open Space – primarily focused on recreational use and limited to subdivision owners – belies its real value to urban development and management. In fact, Serote asserts that a system of functional Open Spaces is an invaluable element of land use planning.

He describes functional Open Spaces as lands that are deliberately kept in their open character for their contribution toward maintaining the amenity value of the environment. Beyond the town square or plaza, parks, and community centers, Serote maintains that buffers, communal forests, and easements should be incorporated into the local open space system. He further suggests that prime agricultural lands, historical sites, and environmentally critical and hazardous areas

² See Presidential Decree No. 1216, dated 14 October 1977, Section 1

³ See Presidential Decree No. 1216, dated 14 October 1977, Whereas clauses

⁴ Serote, E. (2004). *Property, Patrimony, and Territory: Foundations of Land Use Planning in the Philippines*. Quezon City, Philippines. UP-SURP, p.369.

ought to be planned and designed to form part of local open space systems. Thus, increasing exponentially the range of land that may be considered as Open Spaces, and their potential uses.

In this wider context, the policy note seeks to propose a more comprehensive approach to the regulation, utilization and development of the country's Open Spaces, in order to achieve broader outcomes, with particular emphasis on achieving climate resilience.

Building Climate Resilience; Green Infrastructure as Driver

The Policy Environment; Building Climate Resilience of Settlements

Recognizing economic losses from disasters had been increasing at an alarming rate, and foreseeing further increases due to rapid urbanization, development frameworks have consistently emphasized the need for settlements to build resilience against calamities. Recent international and national development frameworks contain visions, goals and targets that require human settlements to be, among others, safe, resilient and sustainable.

Hereunder is a survey of International and National Development Frameworks, including relevant provisions, that support this general policy:

DEVELOPMENT FRAMEWORK	RELEVANT PROVISIONⁱ
Sustainable Development Goals (SDGs) ⁵	<i>"Make cities and human settlements inclusive, safe, resilient and sustainable."⁶</i>

⁵ See 2030 Agenda for Sustainable Development

⁶ See 2030 Agenda for Sustainable Development, Goal 11

Philippine Development Plan (PDP 2017/22)	<i>“Building Safe and Secure Communities⁷”</i>
Philippine New Urban Agenda (NUA)	<i>“Greener Cities that are environmentally sustainable, climate resilient and safe.”</i>
National Urban Development and Housing Framework (NUDHF)	<i>“Climate change resilience is a base for spatial structuring and sectoral development.”</i>

Green Infrastructure as Driver of Climate Resilience

Green Infrastructure refers to a strategically planned and managed network of open spaces and other environmental features and technologies necessary for the sustainability of any urban area. It uses vegetation, soils, and natural processes to manage water, temperature, and air quality to create healthier, beautiful and more resilient urban environmentsⁱⁱ.

Examples of Green Infrastructure include green roofs and walls, permeable surfaces, green streets, urban forestry, and green open spaces, such as parks and wetlands. It also includes a wide range of technologies for adapting and complementing buildings and infrastructure (such as roads, irrigation systems, floodgates, and canals) to be more efficient in coping with floods, storms and heat. It also covers natural water management systems, slope stabilization approaches, energy conservation measures and many natural materials and techniques.

Green Infrastructure applies or mimics nature to improve the performance of conventional infrastructure and often can replace it for cheaper and stronger results that allow for local community monitoring, maintenance and multiple uses⁸ⁱⁱⁱ. According to the World Bank, Green Infrastructure measures not only prove effective, but also provides co-benefits in the form of

⁷ See Philippine Development Plan, Chapter 12

⁸ Asian Development Bank. (2016). *Nature-Based Solutions for Building Resilience in Towns and Cities: Case Studies for the Greater Mekong Subregion*. Mandaluyong City, Philippines. p.9.

improved streetscapes, provision of local jobs, reduction of the heat island effect and improved air quality, among others⁹.

Transforming Open Spaces to Green Spaces

The Current Initiative

The Department of Budget and Management's (DBM) "*Green, Green, Green: City Public Open Spaces Assistance Program (GGG)*," seeks to make Philippine cities more sustainable, livable, and resilient through the development of public Open Spaces. The program seeks to, among others, address climate or disaster risks with the use of Green Infrastructure, in order to i.) manage surface water and reduce flooding; ii.) improve urban air and storm water quality, iii.) regulate the urban micro-climate; iv.) promote bio-diversity; v.) reduce carbon emissions; and, vi.) create a network of open spaces¹⁰.

A review of DBM Local Budget Circular No. 120, shows how resources from the national budget are earmarked for local government-led Green Infrastructure proposals in Open Spaces. This is truly a laudable initiative, which will maximize the utilization and promote multiples uses of Open Spaces. However, a closer look at the Circular also reveals several issues and/or bottlenecks that prevent the full potential of a Green Infrastructure approach. Firstly, GGG budgets are only incorporated annually to the General Appropriations Act, thereby undermining the program's continuity. Secondly, implementation is left to the DBM and LGUs, leaving out critical technical expertise on urban development, that may be better extended by the Department of Human

⁹ Jha, Abhas K. and Zuzana Stanton-Geddes, eds. 2013. *Strong, Safe and Resilient: A Strategic Policy Guide for Disaster Risk Management in East Asia and the Pacific*. Washington, DC : World Bank. p. 69.

¹⁰ Department of Budget and Management (DBM) Local Budget Circular No. 120, dated 15 August 2019.

Settlements and Urban Development (DHSUD)¹¹. Lastly, proposals for Green Infrastructure interventions on Open Spaces are merely project-based, and therefore, may be wanting in spatial analysis¹².

A Legal Framework for the Green Infrastructure Approach

To address the foregoing issues and/or bottlenecks, and to facilitate an expanded and continuing iteration of the GGG, found hereunder are relevant legal provisions of Republic Act No. 11201, creating the DHSUD:

LEGAL PROVISION	ISSUE ADDRESSED
<p>Sec. 5 III. (a.)</p> <p><i>Develop mechanisms and implement programs ... that will initiate and promote prototypes of housing and urban development interventions ... while encouraging the participation of local government units.</i></p>	<ul style="list-style-type: none"> - <i>Program consistent with Department mandate</i> - <i>Availability of technical expertise of DHSUD personnel and partners</i>
<p>Sec. 5 II (d.)</p> <p><i>Own and administer government-owned lands, ...which have not been used for the purpose for which they have been originally reserved or set aside for at least ten (10) years and identified by the Department as suitable for urban development</i></p>	<ul style="list-style-type: none"> - <i>Ability to administer Government Lands / Open Spaces for Green Infrastructure Approach</i>
<p>Sec. 5 II (b.)</p> <p><i>Provide technical assistance to provinces, cities and municipalities in building their capability to undertake housing and urban development and management,</i></p>	<ul style="list-style-type: none"> - <i>Continuing program and capability building</i>

¹¹ Republic Act No. 11201, Section 4: *The DHSUD shall act as the primary national government entity responsible for the management of housing, human settlement and urban development.*

¹² Department of Budget and Management (DBM) Local Budget Circular No. 120, Section 3.6

	<ul style="list-style-type: none"> - Availability of technical expertise of DHSUD personnel and partners
<p>Sec. 5 I (e.)</p> <p><i>Formulate a framework for resilient housing and human settlements... and mechanisms for programs, projects, and activities to protect vulnerable communities from the adverse effects of climate change and disasters.</i></p>	<ul style="list-style-type: none"> - Program consistent with Department mandate - Continuing program and capability building - Established framework for PPAs

Furthermore, the wide-ranging types of lands that may be considered as Open Spaces for purposes of Green Infrastructure interventions may be further delimited, by a review of laws including, but not limited to: a.) *National Integrated Protected Areas System (NIPAS) Act of 1992*, b.) *Water Code*, c.) *Civil Code provisions on easements*, and d.) *Agricultural and Fisheries Modernization (AFMA) Act of 1997*.

Beyond Climate Resilience: The Nexus between Green Spaces and Public Health

In line with the principle that Green Spaces should be ***multipurpose***, seeking to serve many functions and uses as well as building resilience, and in consideration of the on-going pandemic and its emerging impact to public spaces, it is high time to revisit the nexus between Public Spaces and Public Health. Thus, it is suggested that any PPA that seeks to transform Open Spaces to Green Spaces take into consideration the following points:

- Mainstream a health criteria in public space design;
- Revisit the potential of unused spaces, such as building rooftops, and increase the stock of green open spaces to promote social distancing;
- Green Open Space development should consider alternate and temporary uses such as temporary hospitals; and,

- Regulate the use of interior public spaces. ¹³

Conclusion and Recommendations

The consistent policy declarations requiring urban climate resilience; studies that support the use and efficacy of Green Infrastructure as a sustainable and cost-effective way to build resilience; and, the actual *roll-out* of a government program, *the Green, Green, Green*, which aims to address climate or disaster risks through enhancing public Open Spaces with Green Infrastructure – all point to the reasonable conclusion that the country should build urban climate resilience by taking advantage of and enhancing Open Spaces with Green Infrastructure.

This approach does not only find support in government policy documents, but also clearly provided basis in law. With the passage of Republic Act No. 11201, the new DHSUD should embrace their urban development mandates, and take on their task of, among others, promoting proto-type urban development interventions.

The DHSUD must look at the DBM's GGG; and establish a framework for *Employing a Green Infrastructure Approach in Re-making Open Spaces*.

In doing so, and in preparation for the above-mentioned task, it is advised to engage in sustained capacity building efforts to facilitate:

- *Crafting of Open Space/Green Infrastructure policies, strategies and standards;*
- *Preparation of modules to extend technical assistance to LGU's;*
- *Compilation of Best Practices, studies and conduct of continuing research;*
- *Institutionalization of PPAs;*

¹³ Honey-Roses, J., Anguelovski, I., Bohigas, J., Chireh, V., Daher, C., Konijnendijk, C.,... Nieuwenhuijsen, M. (2020, April 21). *The Impact of Covid-19 on Public Space: A Review of the Emerging Questions*. pp 3 to 11.

- *Integrate public health considerations in designs and plans; and,*
 - *Effective exercise oversight functions, develop and establish sector performance monitoring and assessment mechanisms.*
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ⁱ Other examples include:

- SDG 11.5 the relevant portion of which reads: “*significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters*”
- Provisions found under SDG 11 and 13 seek to promote sustainable and resilient buildings, as well as raising capacity for effective climate change-related planning
- Provisions found in Chapters 19 and 20 of the PDP that are aimed at promoting climate-smart and disaster resilient infrastructure.

ⁱⁱ Principles of the Green Infrastructure Approach

- Should be a foundation for town planning and development;
- Should be shaped by existing or past natural systems in the town area including its local landscapes, drainage patterns, habitats, and biodiversity;
- Should be a strategically planned and interconnected network set out in town master plans;
- Should be multipurpose, seeking to serve many functions and uses as well as building resilience in town areas and structures;
- Should involve local communities in design, construction, management, maintenance, and use;
- Should involve all relevant local authority departments in a coordinated and cross- sector manner; and
- Should be established permanently with financial support for continued maintenance and adaptation.

ⁱⁱⁱ Case Studies of Green Infrastructure Interventions (See pp. 46 to 62 of ADB *Nature-Based Solutions for Building Resilience in Towns and Cities*)

- Balephi, Nepal Landslide Slope Stabilization (category: slope stabilization, water and flood management)
- Pasig River Philippines Cleanup and Restoration (category: slope stabilization, water and flood management, solid waste management)
- Putrajaya, Malaysia Constructed Wetland (category: heat, energy, and greenhouse management, water and flood management)
- Seoul, Korea Cheonggyecheon River (category: slope stabilization, water and flood management heat, energy, and greenhouse management)
- Sydney, Australia Homebush Bay Wetlands Renewal (category: water and flood management, pollution management)
- Veracruz, Mexico Geotextile Bridge Abutments (category: slope stabilization, water and flood management)