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KOLKATA'S URBAN GREEN SPACES

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Urban green spaces are public and private open spaces in urban areas, primarily covered by vegetation, which are directly (e.g. active or passive recreation) or indirectly (e.g. positive influence on the urban environment) available for the users

Three main components of urban forest and green spaces are: Patch (urban domestic gardens, public and private parks, gardens, urban forest patches etc.), Corridor (roadside avenues, walkways and urban greenways etc.), and Network structure (layout of all the patches and the corridors connecting the patches).

ROOFTOP PLANTATIONS

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Given the accelerating rate of urbanisation worldwide, urban green spaces are becoming increasingly important to society as nodes of interactions between humans and nature.

Our very own Nobel Laureate Rabindranath Tagore had said – 'trees are earth's endless effort to speak to the listening heavens'.

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Ecological Benefits

- Trees have been shown to **absorb pollutants**; moderate the impact of human activities by, for example, absorbing pollutants and **releasing oxygen**.
- They contribute to the maintenance of a healthy urban environment by **providing clean air, water and soil.**
- In studies, vegetation has been shown to **lower wall surface temperatures** by 17°C, which led to a reduced air conditioner use by an average of 50%.
- They improve the urban climate and **maintain the balance of the city's natural urban environment**.
- They preserve the local natural and cultural **heritage** by providing habitats for a diversity of urban wildlife and conserve a diversity of urban resources.

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Social Benefits

- Green **spaces provide a refreshing contrast to the harsh shape, colour, and texture of buildings.**
- Particular types of green space can offer a **bigger diversity of land uses and opportunities** for a wide range of activities, help to foster active lifestyles, and can be of real benefit to health.
- Well-managed and maintained green spaces **contribute to social justice** by creating opportunities for people of all ages to interact.
- They **enhance cultural life** by providing venues for local festivals, civic celebrations and theatrical performances.
- Urban green spaces provide **safe play space for children**, contribute to children's physical, mental and social development and play an important role in the basic education of schoolchildren with regard to the environment and nature.

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Economic Benefits

- Property owners value the urban forest by the premium they pay to live in neighbourhood urban green spaces and public parks. Study on effects of neighbourhood parks on the transaction price of high-rise private residential units in Hong Kong indicated **that neighbourhood parks could lift price** by 16.88%, including 14.93% for availability and 1.95% for view.
- Urban shade trees offer significant benefits in **reducing building air-conditioning demand** and improving urban air quality by reducing smog.
- Further, a five-city study in USA suggests that although these cities spent $13–65 annually per tree, benefits ranged from $31 to $89 per tree. **For every dollar invested in management, benefits returned annually ranged from $1.37 to $3.09**

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Urban Green Spaces and Climate Change

- Urban green spaces can act as '**park cool islands' by cooling air**. The extent of the cooling effect is greatest when temperatures beyond the park are the highest.
- **Green spaces which are permitted to dry out and lose soil moisture actually result in** a higher absorption of day time solar energy and higher night time radiation adding to the **urban heat island effect**.
- Green space can **help with water management** as it provides a permeable surface, reducing surface run-off into drains and therefore lowers the risk of flooding during peak flows.
- In addition green spaces allow water to filter down and **replenish groundwater**.
- Urban green spaces provide **valuable habitats for animals and plants** but species can respond strongly to environmental change.
- There is a need for **wildlife corridors** within towns and cities to help plants and animals move in response to climate change.
- vegetation and soils, particularly trees, **can counter poor air quality by absorbing greenhouse gases** such as carbon dioxide and other air pollutants, i.e. green space can act as 'carbon sinks'.

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The issue of required open green spaces per capita in urban systems has remained controversial.

In ***20th century***, experts in Germany, Japan and other countries proposed ***a standard of 40 m² urban green spaces in high quality or 140 m² suburb-forest area per capita*** for reaching a balance between carbon dioxide and oxygen, to meet the ecological balance of human well-being.

Currently, developed countries have tended to adopt a general standard of green space of ***20 m² park area per capita***. International minimum standard suggested by World Health Organization (WHO) and adopted by the publications of United Nations Food and Agriculture Organization (FAO) is a minimum availability of ***9 m² green open space per city dweller***. There is yet another yardstick, which refers to London but has relevance to any city.

Cities renowned for their urban green spaces often has 20 to 40 % coverage of total geographical area and 25 to 100 m2 urban green space per capita.

At present, about 20 % of Delhi's geographical area is under green cover, making per capita green space availability to around 22 m2. It has grown to become one of the greenest capitals of the world.

KOLKATA HAS URBAN GREEN SPACE RANGING BETWEEN ONE TO 2 PERCENT

Kolkata has 2m sq green per capita according to theThe Asian Green City Index, 2011

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Climate change is likely to intensify the problem **of urban flooding through a combination of more intense local precipitation, riverine flooding in the Hooghly and coastal storm** surges. If such intense precipitations are accompanied by extreme weather events such as cyclones, it can lead to widespread and severe flooding that can bring the city to a standstill for a few days. A major cause of such periodic flooding during the rainy season is the current adaptation deficit that Kolkata faces to cope with such recurrent events. This arises not only from deficiencies in physical infrastructure that lead to flooding but also from problems with land-use, socio- economic and environmental factors that can aggravate the impact of such flooding.

As the impact of flooding is likely to grow in the time horizon of 2050, **the city needs a comprehensive and effective strategy that invests in both soft and hard infrastructure** to tackle flooding problems in Kolkata.

Climate Change Impact & Adaptation in Kolkata Metropolitan Area, Draft, April 2010; Report No. 53282-IN, Environment, Climate Change and Water Resources Department, South Asia Region

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SOFT INFRASTRUCTURE -Enforcing land use and building codes to reduce obstruction and encroachments of floodplains and environmentally sensitive areas such as canal banks and wetlands **and to prevent conversion of green spaces and natural areas that can act as retaining zones during flooding to delay runoffs or reduces their volume through infiltration.**

Climate Change Impact & Adaptation in Kolkata Metropolitan Area, Draft, April 2010; Report No. 53282-IN, Environment, Climate Change and Water Resources Department, South Asia Region

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SURVEY OF KOLKATA PARKS

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March 2011 – Project Report on Status of Calcutta's Parks and Gardens and Integrated Management Plan - ENDEV

June 2011 – Survey of Kolkata Parks by Centre for Contemporary Communication (CCC). Survey implemented by Nature Mates – Nature Club. A First ever Kolkata Parks Map was published by CCC and released by the MMiC- Parks and Gardens, KMC

June 2012 – The list of Parks found in 2011 was updated by CCC with the help of 15 Borough Chairpersons of KMC. 711 Big and Small Parks were found**. A Parks Directory published.**

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OUT OF 141 WARDS OF KOLKATA MUNICIPAL CORPORATION,

CCC-Nature Mates did not find any Parks in Ward Numbers

11, 24, 37, 42, 43, 52, 61, 133, 135, 137, 139

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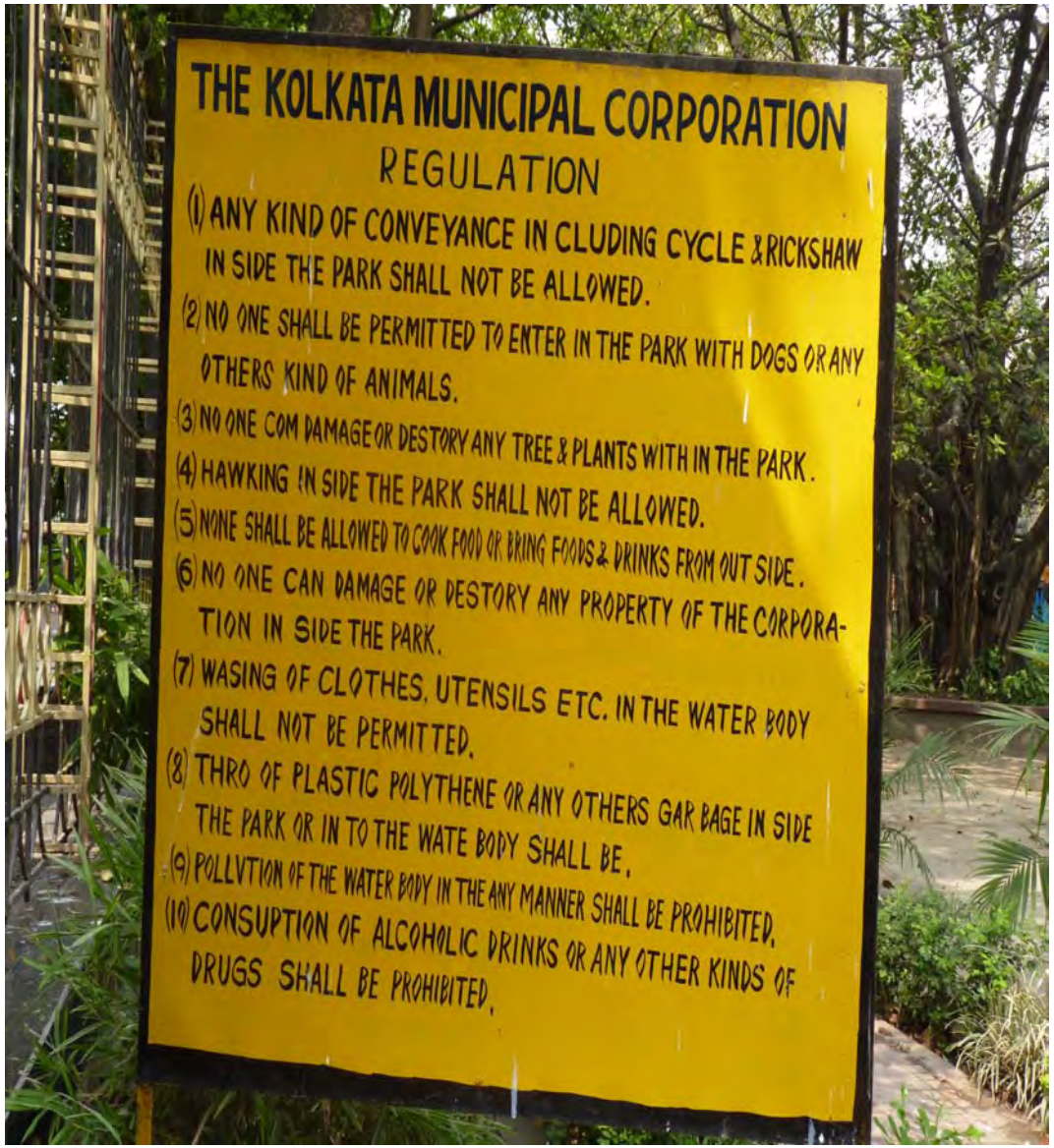
WHAT SURVEY FOUND



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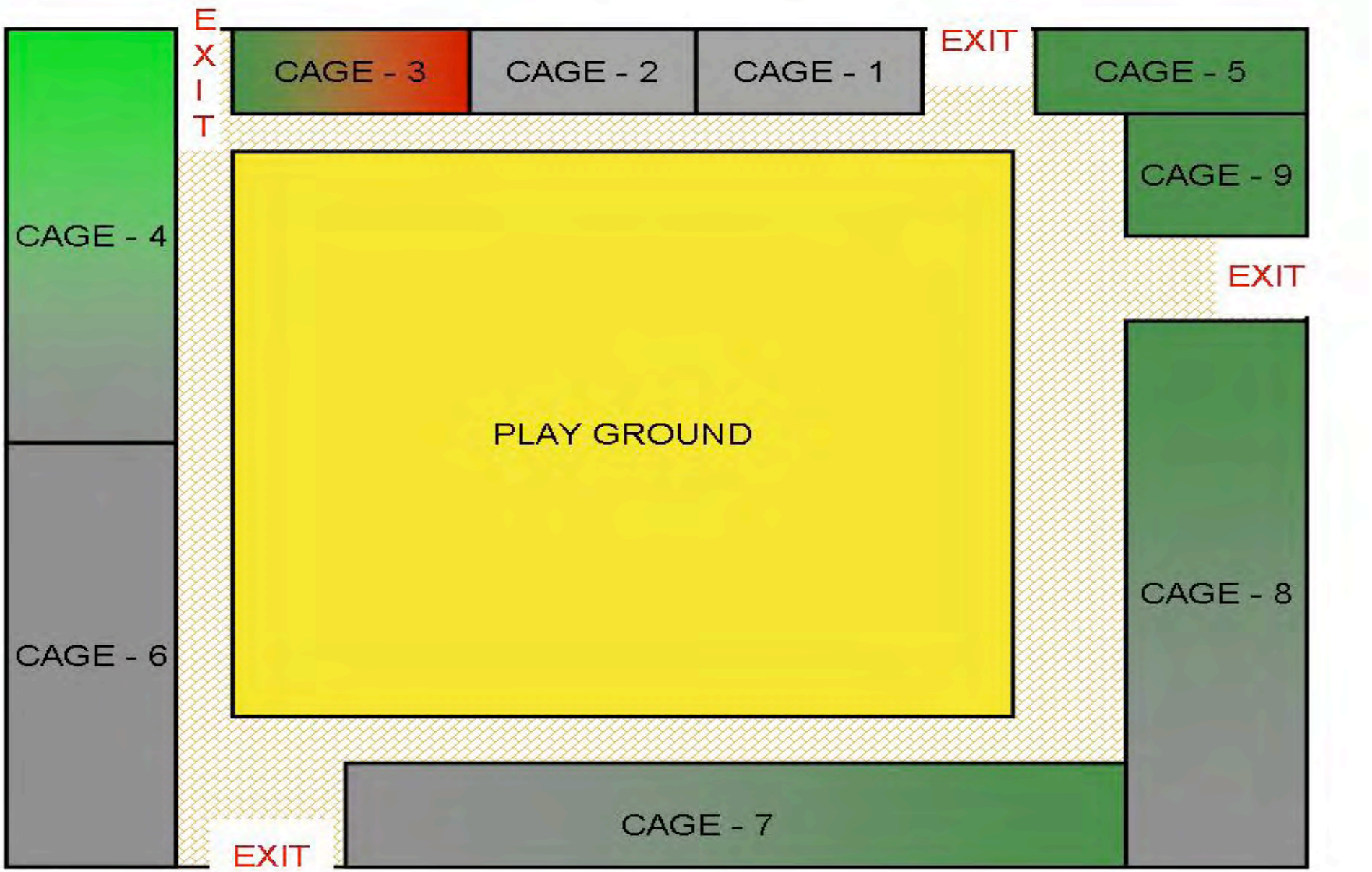

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“Kolkata- Risks and Readiness”
to mitigate urban disaster

CAN KOLKATA’S PARKS – 711 OF THEM, AND ITS URBAN GREEN SPACES BE ONE OF THE STRATEGIES TO MITIGATE URBAN DISASTER

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KOLKATA'S PARKS

for city beautification
or/and
for mitigating urban disaster and Kolkata's preparedness

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KOLKATA'S PARKS

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THANK YOU