Analysis on the Condition of Recreation, Parks and Open Spaces in Yangon and RPOS’s Role

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Abstract—This document gives the conditions of Recreations, Parks and Open Spaces in Yangon. Yangon has seen dramatic growth over the last 30 years, with population increasing by over a million people to approximately 5 million today. By 2025, this number is expected to reach 6 million. Population growth and expanding urban development have and will have, major implications for the provision of recreation, parks, and open space (RPOS). As population and urban growth continue, it will become increasingly important to conserve open space and create recreation opportunities in order to maintain the region’s unique character, a high quality of life, and environmental quality.

Most of the people in Yangon are living in high-rise building because of the high of land prize. Their living areas are look like a box and poor in lighting and ventilation. Their lifestyles look like living in a box the whole day. Then, they go to their work. Similarly, almost of the offices are open in the multi-storied buildings. Therefore, the public in urban area are passing their whole day in the building. Everybody needs the relax time to reduce the stresses. So, the provision of recreation, parks and open spaces are really required for public in Yangon. According to the increasing of population, the requirements of recreation, parks and open spaces are more required and more important for public in Yangon.

Especially, recreation parks and open spaces are more required in the urban area because of the population density of urban area is more than the rural area. Planning of recreation, parks and open spaces can providing the pleasure of public, health of public, conservation of nature and wildlife, advantages in economic, and attraction to visitors public. Therefore, the role of recreation, parks and open spaces is existed the most important role in Yangon.

Keywords—Recreations, Parks and Open Spaces (RPOS)

I. INTRODUCTION

This document is studying on the existing condition of RPOS of Yangon. Yangon is the economical city of Myanmar. When the population of the Yangon is increasing more and more, the role of RPOS in Yangon are very important for the Public. So, we need to study on the important role of RPOS of Yangon. This document will show the role of RPOS and the existing condition of RPOS of Yangon.

II. EXISTING CONDITIONS OF RECREATION, PARKS AND OPEN SPACES IN YANGON

The laws and regulations for public parks and greenery have not yet been well-developed in Myanmar. YCDC enforced a bylaw namely “Parks and Recreation By-law (Order No.8/99)” in 1999, to accurately define public parks and playgrounds and manage those areas. In light of the bylaw, Department of Playgrounds, Parks and Gardens of YCDC is in charge of managing public parks and appurtenant facilities in Yangon City under their vision statement, namely “To be a Green City” in order to mitigate climate change by local action and to provide comfortable recreation open-spaces for the citizens.

According to the “Parks and Recreation By-law” is enforced in YCDC. In the by-law, public open-spaces are classified as follows:

- **Public Park**: an enclosed space which was duly established in accordance with the characteristic of the city with trees, fruits, flowers, rest-houses, playgrounds and so on so that the citizens are able to recreate in it,
- **Scenic Spot**: a space which was established for public recreation and for scenic beauty in the city,
- **Nursery**: a space which cultivates and stores trees, flowering plants and grass to be planted in public parks and other relevant spaces,
- **Round-about**: a space which is inside the road, at the center of junction, and at the corner of the roads, and
- **Playground**: a place which was established for the purpose of public sports use or children use.

According to the responsibilities and duties stated in “City of Yangon Development Law”, Yangon City needs to provide public parks, playgrounds and gardens for the citizens. In 1964, Yangon City was expanded and taken in new townships of suburbs as its boundary. Department of Playgrounds, Parks and Gardens of YCDC has responsibilities and duties as follows:

- To maintain existing parks and playgrounds and to construct new parks and playgrounds in the area of YCDC;
- To maintain existing scenic spots and lakes and to construct new scenic spots,
To cultivate and supply trees and flowers and to facilitate equipments for the parks,
To remove old dangerous trees and braches from the parks,
To maintain the plants in the round-about,
To construct and maintain necessary buildings and structures in the parks,
To procure and distribute necessary equipments and materials for the department and parks,
To manage the fund established by entrance fees of parks,
To propose budget plan of the department, and
To manage the officers and staffs, and demarcate of the tasks and duties of those.

Table 1 summarizes the numbers and the areas of public parks and appurtenant facilities in the whole area of Yangon City. Some of the areas are calculated provisionally, according to some sample data. [1]

<table>
<thead>
<tr>
<th>Type</th>
<th>The number</th>
<th>The total area</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Park</td>
<td>58</td>
<td>188 ha</td>
<td>All managed by YCDC</td>
</tr>
<tr>
<td>Public Spaces which have equivalent function to Public Parks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoological and Botanical Garden</td>
<td>2</td>
<td>-</td>
<td>Zoological Garden Yangon, and Hlwga Park</td>
</tr>
<tr>
<td>Playground</td>
<td>76</td>
<td>22 ha</td>
<td></td>
</tr>
<tr>
<td>Round-about</td>
<td>7</td>
<td>1.3 ha</td>
<td></td>
</tr>
<tr>
<td>Roadside (Triangle Space)</td>
<td>58</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Private Spaces</td>
<td>14</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Protected Area</td>
<td>1</td>
<td>624 ha</td>
<td></td>
</tr>
</tbody>
</table>

Source: Data from Department of Playground, Parks and Garden, Yangon City Development Council (YCDC)

In YCDC there are 58 public parks with a total area of 188 ha (470 acre). It can be said that the main characteristics of Yangon’s public parks are lakes and lakeside landscape such as Thitaw Zone Park (along Kan Daw Gyi Lake) and Mya Kyuntar Park (along Inya Lake), and these charming parks provide good amenity spaces for the citizens. On the other hand, looking at the total area of public parks in YCDC, the parks area of 188 ha seems to be quite small, especially when considering the population of approximately 5.142 thousand. If the total area of public parks is divided by the population, it gives a parameter of park area per person, it is quite a small Figure of 0.37 m² of park space per person, which compares so small with other cities in the world, such as 29.3 m² in New York and 4.5 m² in Tokyo, as shown in Figure 1. [2]

III. APPROPRIATE TYPES OF OPEN SPACE IN YANGON

The following are the appropriate types of open spaces in Yangon. Each type of open space has its own ‘Vision’, which describes the purposes and particular features of the open space. [3]
Parks and Gardens: A landscaped area laid out and managed to high standards, which is well maintained, safe to visit and provides pleasant areas to walk, sit, admire floral and landscape features, shrubs, trees and other natural characteristics. Area to be clean and free from dog fouling and include appropriate facilities (for the size of the site) such as paths, ponds, bandstands, seats, bins, toilets etc. all in a good state of repair.

Natural and Semi-Natural Green space (includes Urban Woodlands): A well-managed, easily accessible, semi-natural and native environment designated and protected for wildlife and managed to encourage nature conservation and enhancement. Includes water areas, information boards, bins, picnic areas, paths, appropriate car parking and is clean with no litter, fly-tipped rubbish or dog fouling etc.

Outdoor Sports Facilities: A wide range of well-located and accessible sporting facilities which not only include the traditional sports but also include the appropriate sports facilities. Facilities to be of high quality, well drained and include changing rooms, toilets, adequate parking, signage, and all weather play areas and floodlights where appropriate. All areas to be clean and well maintained and free from dog fouling.

Amenity Green space (includes Green Corridors): Areas to be designed to incorporate nature conservation and enhancement and provide connectivity for the movement of people and wildlife. To be planted using native species where appropriate and managed to take into account the habitats of such flora and fauna. Landscape needs to include large areas of tree and shrub planting, wild flower areas, and other wildlife features such as small wetland areas etc. with appropriate access. Areas meet to be clean, well maintained, and free of litter, dog fouling and have sufficient bins and seats provided.

Provision for Children and Young People: Exciting, stimulating, well equipped areas that provide a wide range of high quality facilities including play equipment, casual play areas, skateboarding areas, bike areas, basketball courts, teen shelters etc. as appropriate, which cater for the needs of children and young people of all ages and abilities. Facilities to be well maintained, safe, secure, dog free and located within a clean environment with good access.

Allotments and Community Gardens: Secure sites for the production of home-grown food and flowers with adequate provision of both water and electricity and accessible to people of all physical abilities. Ideally sites should also include car parking, toilet facilities and facilities to deal with non-organic waste material and recycling, be well drained, and have good access paths, meeting huts and rubbish bins.

Ceremonies, Festivals and Monument areas: Local provision with cemeteries across the district, which are safe and accessible to all. Well landscaped and laid out areas with highly maintained landscape features providing pleasant areas to walk, sit, contemplate and reflect. Areas should include facilities such as water points, information boards, historical data, seats, bins, toilets etc. as appropriate, which are all fit for purpose [3]

IV. CALCULATION STANDARD OF EXISTING AMOUNT OPEN SPACE

Calculate the existing amount open space within the following distance thresholds of the new housing development which will be calculated using GIS to identify a catchment around the proposed development site with a radius equal to the relevant distance threshold. GIS with then calculate the amount of open space of each type within the relevant catchment.

1. Parks and Gardens: 1 km
2. Natural and Semi Natural Green spaces (includes Urban Woodlands): 3 kms
3. Outdoor Sports Facilities: 3 kms
4. Amenity Green space (includes Green Corridors): 1 km
5. Provision for Children and Young People: 1 km
6. Cemeteries, Disused Churchyards and Other Burial Grounds: 3 kms

For ease of measurement and clarity for developers, each of these distance thresholds is measured ‘as the crow flies’ from the edge of the new housing development. [3]

V. OPEN SPACE QUANTITY STANDARDS AND CALCULATION

Compare the existing amount of open space and the total population within the relevant distance with the following quantity standards:
1. Parks and Gardens: 0.08 hectares per 1000 people
2. Natural and Semi Natural Green spaces (includes Urban Woodlands): 2.7 hectares per 1000 people
3. Outdoor Sports Facilities: 1.63 hectares per 1000 people
4. Amenity Green space (includes Green Corridors): 1.8 hectares per 1000 people
5. Provision for Children and Young People: 0.1 hectares per 1000 people
6. Allotments and Community Gardens: 0.4 hectares per 1000 people
7. Cemeteries, Disused Churchyards and Other Burial Grounds: 0.5 hectares per 1000 people [3]

Assess whether the developer is required to provide for a new area of open space. A new area of open space will normally be required if the existing amount of open space is insufficient to cater for the needs of the total population. Using Amenity Green space as an example:

1. The quantity standard for Amenity Green space is 1.8 ha per 1000 people.
2. The estimated population of the new housing development is 50 people and the existing population within the distance threshold (1 km) of the development is 600, giving a total population of 650 people.
3. (1.8 ha / 1000) x 650 = 1.2 ha
4. The existing amount of Amenity Green space within 1 km of the development is 0.8 hectares. This is a lower level of provision than 1.2 ha per 1000 people. It means that unless new Amenity Green space is provided, the open space needs of residents from the new housing development will not be met. The developer will therefore be required to provide sufficient new Amenity Green space to meet the needs of residents from the new housing development. [3]

If a new area of open space is required, calculate how large that area should be. Using the same example:

1. (1.8/1000 ha) x the estimated population of the new housing development (50) = 0.09 ha
2. The developer will therefore be required to provide 0.09 ha of new Amenity Green space. [3]

VI. MINIMUM SIZE STANDARDS OF OPEN SPACE

In many circumstances it will not be possible to provide any or all of the types of open space that are required on-site. In assessing how to provide open space it is necessary to have regard to the guidelines on minimum size standards for each type.

To ensure the provision of useable areas of open space which can be easily and economically maintained, open space should not normally be provided on-site if the levels required fall below the following minimum size standards:

1. Parks and Gardens: 0.25 hectares
2. Natural and Semi Natural Green spaces (includes Urban Woodland): 0.25 hectares
3. Outdoor Sports Facilities: 0.8 hectares
4. Amenity Green space (includes Green Corridors): 0.1 hectares
5. Provision for Children and Young People: 0.04 hectares
6. Allotments and Community Gardens: 0.2 hectares
7. Cemeteries, Disused Churchyards and Other Burial Grounds: No standard

VII. CALCULATION THE REQUIREMENT OF RPOS FOR YANGON PUBLIC

1 ha = 2.47 acre
1.8 ha = 4.45 acre (for 1000 peoples)
4.45 acre = 1,000 peoples

4,348,000 peoples (Yangon) = 19,348.6 acres (approximately)

The existing area of RPOS in Yangon is approximately 1294.83 Acre (624 ha). So, the more areas of RPOS are required in Yangon for Public.

VIII. SPACE STANDARD

The National Recreation and Parks Association (NRPA) outlines the following steps in the development of a community’s own standards.

1. Review literature and existing data, including existing plans for parks and open space, economic development, and educational facilities; comprehensive plans of the community, region and state; demographic data; and the inventories. The recreation plan and standards of other communities, similar or not, might also be reviewed.
2. Collect any data not obtained in the review of existing sources, which may be data collected in the course of policy plan preparation. They should include more specific articulation of goals and objectives and should delineate the scope of the standard. The criteria used for inclusion and exclusion of land from the baseline will have a critical impact on the selection of which features of a site or potential site are to be evaluated.
3. Use the data to develop the standard. This is the analytical step wherein standards are selected. It may begin and end with the adoption of another community’s standards, based on a review of standards that have been developed elsewhere. Ideally, however, the community’s patterns, and resources, which would be described in the first two steps. [4]

IX. FUNCTION OF GREEN SPACE

The function of green space can be characterized as follows:
1. To meet human needs for recreation and aesthetics.
2. To protect and enhance the environment.
3. To shape the extent and patterns of development and community. [4]

X. URBAN GREEN SPACE

Urban green space can be defined as public and private open space 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.

Urban green space can be also defined as any area of open land or water, not designated as Green Belt, with value for amenity, outdoor sport or recreation, or for its contribution to the character of an area or as a link between such areas.

Green space refers to any municipally-owned natural open space including ravines, nature reserves and hazard lands (such as slopes and flood plains). Park land is part of an established public park, whether for active or passive recreation. Urban green space can be classified as follows:

- Wilderness areas
- Protected areas
- Natural park areas
- Urban park areas
- Recreational areas
- Urban development open spaces

Green space is undeveloped land, not necessarily provided for formal recreation or public amenity, which makes a positive visual and environmental contribution to the town. Green space I the urban environment occurs in an variety of forms:
1. Public parks and ornamental gardens
2. Grounds of large houses, institutions, commercial and educational properties
3. Public and private playing fields

4. Incidental open spaces associated with the layout of planned housing (and industrial) estates
5. Children’s play space in residential estates
6. Allotments
   Private gardens; and various other open spaces, including land incidental to the laying out of roads, footpaths and cycle ways.

Practical support from the local community, the ability to implement and maintain the proposal and the need and demand for local action are the purpose on green space enhancement sites.

The purposes of Green belts are as follows:
1. To check the unrestricted sprawl of the large built up areas of the city;
2. To preserve the openness of the city’s countryside and green wedges;
3. To assist in urban regeneration, by encouraging the recycling of derelict and other urban land.

The strategy on green environment is categorized in the followings.
1. To protect green space
2. To enhance the provision and quality of green space
3. To make green space accessible to all sections of the community
4. To encourage the appropriate management of green space
5. To give protection to valuable wildlife habitats and landscape features. [4]

XI. STUDYING ON THE GUIDING PRINCIPAL OF RPOS PLANNING FOR YANGON

Subject specific guiding principles are useful in the regional planning process because they establish a common understanding from which decision makers from diverse backgrounds can proceed. Unlike the guiding principles for regional planning, RPOS-specific principles do not address the planning process but instead are value-laden and fact-based statements. The following RPOS principles are organized into four categories: personal/social, economic, ecological, and organizational/administrative. Personal and Social Guiding Principles for RPOS Planning:

Physical connections increase the value of parks, trails, and open space. “When open spaces are linked together, their quality improves. By linking animal habitats with wildlife corridors, the animals within them can migrate as they naturally do. Likewise trails that link parks to neighborhoods provide families with easier access to recreation opportunities” (Chester County Planning Commission, September 2002).
It is important to ensure that connectivity is evident in urban settings as well as in countryside.

**Reasonable access to a variety of recreation and parks opportunities is a universal need.** The physical, social, and psychological benefits of nature and recreation should be accessible to all residents. Ideally, residents and visitors should have access to a variety of settings that encompass the major landscape types of the region as well as to a spectrum of recreation opportunities that range from primitive to highly developed.

**Great parks, open space, and recreation opportunities improve quality of life in a community.** Recreation and parks are essential to quality of life. Recreational activities have been associated with positive self-esteem, happiness, independence, satisfaction with life, as well as with other psychological, social, and physical benefits (Canadian Parks and Recreation Association, 1997).

**Outdoor recreation bestows direct health benefits, and communities that emphasize outdoor recreation in their development will have healthier residents.** Parks and open space offer physical fitness as well as mental and spiritual benefits for everyone. To capture those potential benefits, communities need to create welcoming places for both spontaneous and structured play (ARPA, 2009).

**Recreation, parks and open space help communities celebrate diverse cultural traditions, reinforce local identity, and build civic pride.** Municipalities that involve their residents in the planning, design, and management of recreation, parks and open space develop knowledgeable and engaged citizens who feel connected to their communities. Involvement can offer a place for positive social interaction and lead to broader discussions about other important community development issues (ARPA, 2009).

**Parks are an important place to learn about, appreciate, and care for Alberta's natural and cultural heritage.** Parks preserve natural history as well as archaeological and historic sites. They also offer a forum for formal and informal education on a wide range of subjects and the opportunity to appreciate nature and engage in volunteerism.

**Outdoor recreation is essential to balanced child and youth development.** Epidemic obesity, elevated stress and rising rates of Attention Deficit Disorder suggests that lifestyle changes over the past several decades are having a harmful impact on children.

Children today spend too much time indoors. Parks and open space can reconnect children with nature, and increase creativity, social skills, and problem-solving ability. Children that play out-of-doors are happier and healthier. (ARPA, 2009).

**Recreation and parks play a key role in serving special populations — low-income, special needs, and recent immigrants.** Children from low-income families are far less involved in sport and recreation pursuits (Canadian Parks and Recreation Association, 2009). Persons with disabilities are more likely to be constrained from participation in local parks and recreation services (Harper, et al., 1999). New immigrants and ethnic minorities have low rates of participation in sport and recreation (Loveland, et al., 2008). Targeted efforts help special populations’ access recreation and parks.

**Parks can strengthen urban and rural areas.** Parks have the power to define the shape and feel of a municipality and its neighborhoods. High quality, well maintained parks and open space can attract people and businesses—revitalize commercial areas, stabilize faltering neighborhoods, and provide a point of local pride for residents (ARPA, 2009). Rural areas can diversify and strengthen their economy with new tourism opportunities—ecotourism, agri-tourism, natural heritage recreation, and outdoor adventure.

**Recreation and active living are essential to personal health.** People who exercise live longer and have better health, increased physical mobility, improved psychological well-being, and an overall improved quality of life (Canadian Parks and Recreation Association, 1997). Economic Guiding Principles for RPOS Planning:

**High quality parks and trails grow wealth by increasing property values.** Passive parks and open space positively impact real property value. Buyers are willing to pay a premium for a house with view of or access to high quality green space. Trails too can boost the value of adjacent properties. A 2007 study conducted in Alberta, found that proximity to green spaces resulted in residential house value premiums of 10 to 15% (ARPA, 2007). The increased property values derived through residential lots adjacent to parks increases municipal tax revenues.

**Parks and open space amenities contribute to an enhanced quality of life that attracts workers and business, especially the highly skilled “creative class”.** The work of renowned economist Richard Florida and other urban researchers highlights the importance of recreation and parks, a key measure of economic diversification and quality of life (ARPA, 2009).
By attracting visitors and tourists, parks add to the local and regional economy. Parks often become a municipality’s or a region’s signature attraction and a tool for attracting tourists. What’s more, the organized events held in public parks bring substantial revenue to the hosting community (ARPA, 2009).

Recreation, parks and open space provide community residents with direct savings. Parks and open spaces provide economic benefits in the form of direct use value, health value, and community cohesion value. In this way, RPOS offers cost-effective opportunities to meet policy objectives – improved health, food and water security, better air quality, and reduced risk from natural hazards.

Recreation and parks are significant to Alberta’s economy. Conservative snapshots of recreation and parks expenditures depict a recreation and parks sector that is significant and growing in both economic output and employment effects. Clearly recreation and parks are economic drivers with potential to further diversify the Alberta economy at a time of renewed concern about the need to do exactly that. Total GDP impact of recreation and parks on Alberta’s economy was conservatively estimated at $2.3 billion in 2001 (ARPA, 2006).

1. Ecological Guiding Principles for RPOS Planning:

Parks and open space provide a haven for wildlife. Habitat loss is the leading cause of biodiversity decline. Parks and protected areas are the critical anchors for biodiversity and ecological integrity.

For this reason, protected open space should include an adequate representation of the natural regions, sub-regions, and landscape features found within the seven planning regions. However, connections are key. Integrity is enhanced when parks and protected areas are part of a network of protected areas and the areas surrounding them are also in good ecological health.

Parks and open space have the potential to perform important ecological services. Community parks and open space have the potential to contribute to flood control, modify urban temperatures, protect water resources, improve air quality, increase biodiversity, and capture and store carbon.

Parks and open space are essential prerequisites to, and elements within, sustainable development processes and practices. Sustainable development is about built environments that embrace and are in harmony with nature and natural systems.

Parks and open space, together with environmental and municipal reserves are primary vehicles for implementing and sustaining systems and protected areas and landscapes. They are anchors within any conservation system. They contribute significantly to development of an appropriate balance between human activities and natural processes.

2. Organizational and Administrative Guiding Principles for RPOS Planning:

High-quality RPOS throughout Alberta is the result of the work of skilled professionals and efficient organizations. Alberta’s RPOS providers are well-informed and well-trained professionals and RPOS departments, agencies, and organizations are efficiently run. Planning, training and monitoring helps recreation and park agencies improve service delivery to citizens.

RPOS will result through shared governance involving timely and innovative investments by public, private/corporate and voluntary sectors. [5]

XII. IMPORTANT ROLE OF RECREATION, PARKS AND OPEN SPACES FOR PUBLIC

If you work all the time, and don’t have time for some proper recreation, you will feel tire. Recreation is beneficial for both physical and psychological well-being. The “need to do something for recreation” is an essential element of human biology and psychology. Recreational activities are often done for enjoyment, amusement, or pleasure and are considered to be “fun”. The term “recreation” implies participation to be healthy refreshing mind and body.

The Values and Benefits of Recreation for professionals are numerous. In fact, recreation has been shown to help people live longer adding up to two years to life expectancy. So, recreation, parks and open spaces (RPOS) are providing to enhance quality of life. Quality of life is an all-encompassing term used to describe people’s happiness and well-being. Really, health is one most important component of life, but other aspects are also enhanced by RPOS. It helps you release the tension and maintain equilibrium. RPOS is a fact that to reduce your stress and is the important and best activity to refresh your senses and prepare you for the next battle. Recreation activities are best mechanism to refill your energy and make you feel alive again. It is best way to charge you up when you feel exhausted.
RPOS are essential to environmental health. Green space improves air quality, helps mitigate the impacts of environmental disaster, and is essential to water quality and quantity. The benefits of RPOS have real economic value as in the saving to taxpayers in reduces social services, reduced healthcare costs, and reduced spending on disaster relief and infrastructure needed to provided services now performed naturally.

RPOS is essential in the Human Development process. It brings beauty to an area with people’s satisfaction and improving their quality of life. Recreation together builds strong family, the foundation of a stronger society. Recreation and park services are often the attraction for tourism, a growing sector of our economy. The provision of parks, open spaces and protected natural environments, recreation can contribute to the environmental health of our communities.

**XIII. EXISTING RPOS FACILITIES IN YANGON**

Apart from public parks, YCDC provides and manages 76 playgrounds with a total area of approximately 22 ha. As shown in Table 2, Older Suburbs, New Suburbs, and Inner Urban Ring seem to have relatively more playgrounds in their areas, while in contrast CBD has no playground at all. Regarding types of playground, the playgrounds used for sort of football occupy around 80% of the total share.

Round-abouts and roadside green spaces are kinds of green open-spaces which attaches to road facilities and managed by Department of Playgrounds, Parks and Gardens of YCDC as well as the public parks. Currently there are seven (7) round-abouts in YCDC with a total area of approximately 1.26 ha. Additionally there are 58 roadside green spaces, which are so-called “triangle” by YCDC.

<table>
<thead>
<tr>
<th>Township Group</th>
<th>Number</th>
<th>Area (acre)</th>
<th>Area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBD</td>
<td>0</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Inner Urban Ring</td>
<td>14</td>
<td>9.27</td>
<td>3.71</td>
</tr>
<tr>
<td>Outer Ring</td>
<td>5</td>
<td>2.08</td>
<td>0.83</td>
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<tr>
<td>Northern Suburbs</td>
<td>11</td>
<td>13.71</td>
<td>5.48</td>
</tr>
<tr>
<td>Older Suburbs</td>
<td>28</td>
<td>16.58</td>
<td>6.63</td>
</tr>
<tr>
<td>South of CBD</td>
<td>3</td>
<td>0.91</td>
<td>0.36</td>
</tr>
<tr>
<td>New Suburbs</td>
<td>15</td>
<td>11.67</td>
<td>4.67</td>
</tr>
<tr>
<td>Total</td>
<td>76</td>
<td>54.22</td>
<td>21.69</td>
</tr>
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*Source: JICA Study Team based on the date from Department of Playgrounds, Parks and Gardens of YCDC*

<table>
<thead>
<tr>
<th>Type of Playground</th>
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<td>Football</td>
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<tr>
<td>Net Football</td>
<td>3</td>
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<tr>
<td>Children Football</td>
<td>4</td>
</tr>
<tr>
<td>Futsal</td>
<td>2</td>
</tr>
<tr>
<td>Children Playground</td>
<td>12</td>
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<tr>
<td>Volleyball</td>
<td>4</td>
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<tr>
<td>Total</td>
<td>76</td>
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</table>

*Table 2: A List of Playgrounds by Township Groups in YCDC*

*Table 3: Type of Playgrounds*
In the Greater Yangon, there are 14 golf courses currently which are owned and operated by either private or public bodies, as shown in Table 4. Mingalardon Township seems to have the most golf courses in number.

<table>
<thead>
<tr>
<th>No</th>
<th>Name</th>
<th>Ownership</th>
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<tbody>
<tr>
<td>1</td>
<td>National Golf Range</td>
<td>Public</td>
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<tr>
<td>2</td>
<td>Myanmar Golf Club</td>
<td>Public</td>
</tr>
<tr>
<td>3</td>
<td>Okkala Golf Resort</td>
<td>Public</td>
</tr>
<tr>
<td>4</td>
<td>Yadana Thiri Golf Club</td>
<td>Public</td>
</tr>
<tr>
<td>5</td>
<td>Yangon Golf Course</td>
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<td>6</td>
<td>City Golf Resort</td>
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<td>7</td>
<td>Royal Mingalardon Golf &amp; Country Club</td>
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<tr>
<td>8</td>
<td>Dagon Golf Club</td>
<td>Public</td>
</tr>
<tr>
<td>9</td>
<td>Defence Golf Course</td>
<td>Public</td>
</tr>
<tr>
<td>10</td>
<td>Mingalardon Golf Course</td>
<td>Public</td>
</tr>
<tr>
<td>11</td>
<td>Myodaw Golf Course</td>
<td>Public</td>
</tr>
<tr>
<td>12</td>
<td>Pun Hlaing Golf Club</td>
<td>Private</td>
</tr>
<tr>
<td>13</td>
<td>City Star Golf Club</td>
<td>Private</td>
</tr>
<tr>
<td>14</td>
<td>Yae Nan Golf Course</td>
<td>Public</td>
</tr>
</tbody>
</table>

Source: Department of Playgrounds, Parks and Gardens of YCDC

XIV. CONCLUSION

After Studying on the condition of RPOS of Yangon, the more areas of RPOS are required for the Yangon’s public. The condition of RPOS in Yangon is really need attention for the future of Yangon.

In the whole YCDC, there are only 58 public parks and the total area is 188 ha (470 acre) which corresponds to 0.37 m² of park space per person. This number seems to be much smaller for the urban population, therefore increasing the number and area of the public parks as well as other public open-spaces are recommendable for achieving sustainable urban development in the future.

There are currently nine (9) townships in YCDC which have no public park at all, namely Latha, Lanmadaw, Botataung, Tarmwe, Seikkan, Dawbon, Hlaing, Shwe Pyi Thar, Dagon Seikkan, and six (6) periphery townships, while in contrast Bahan Township alone has seven (7) public parks.

For provide amenity and public open spaces for the citizens and to mitigate negative environmental impacts, creation of public parks in these townships without public parks should be prioritized.

Yangon has lowland hills in the central area running almost in a north-south direction with an average height of 30 m. On the lowland hills, several lakes and marshes remain in urbanized area. Of those, Kan Daw Gyi Lake, Inya Lake and Hlawga Lake are protected as public parks or protected areas properly. Other green spaces including golf courses with ponds should also be paid more attention for conservation, because these water areas are very important and precious for flood control and mitigating environmental pollution.

Without any criteria or standard related to make new public parks, increase of park in number and area may be very difficult in the future due to its cost especially in the case that private sector has an initiative for urban development. To improve living conditions in newly urbanizing area, it is necessary to make more of new public parks by setting new criteria or standard to be applied to new urban development activities. And it is recommendable to set a goal of a parameter of public park area per capita for future’s Greater Yangon.

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