**Botanical Garden in Ex-Situ Conservation**

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**Background**

Botanical garden is often referred to as multitude of living plants, which is orientated precisely to demonstrate the interrelationship within different plant groups. [1] It may subdue specialized plant species like medicinal herbs, cacti, succulents etc. In modern times, botanical garden is more or less associated with group of ornamental plants. In the past times, they were often linked with physic or medicinal garden of single specimen of zoological peculiarity [2].

Conservation culminates protection, preservation, management of wild life and natural resources. Conservation of rare, endangered species is a global challenge. For the proper conservation of wildlife and to promote the concept of biodiversity, two types of conservation system were introduced:

* Ex-Situ Conservation
* In-Situ Conservation

In-situ conservation deals with conservation of genetic resource in its natural habitat whereas ex-situ conservation focuses on conservation of genetic resources outside of its natural habitat. Examples of ex-situ conservation include zoological park, seed banks, tissue culture banks and botanical gardens. [3]

Botanical gardens are either established by government or with the help of private administration. Key Royal Botanical Garden is the oldest and largest botanical garden which was established in 1840 AD [4]. There are many benefits of botanical garden. It acts as a center for conducting scientific research, especially for taxonomists. Plants habituated to different climates can co-exist. Moreover, it plays a significant role in displaying the diversity of plants; especially cultivated ones. Accordingly, we can administer the fact that botanical gardens play a major role in ex-situ conservation of plant biodiversity.

The cultivation of plants and garden has been present for thousands of years. The first example dated around 3000 years ago in Ancient Egypt and Mesopotamia. Later, the herbalists invigorated the concept of botanical garden. With the end of the 16th century, there were overall fiver gardens in Europe. Pisa (1543) and Padua (1545) were the first established gardens in Europe. In the beginning, botanical gardens were majorly associated with medical schools of universities. [5]

Nepal is no guest to the customs of botanical garden. One of the most recognized botanical garden in Nepal is ‘ National Botanical Garden ‘ which is located in Godawari, Lalitpur. Different wild tree species, herbs, shrubs, orchids, cacti, succulents and fern ornamentals are grown; also counting green house, herbarium and tissue culture laboratory. The garden’s original layout was planned by two British advisors. The main focus of the garden revolves around enriching the garden with indigenous plants to accumulate its collection for carrying out scientific researches, conservation of plants, demonstration of bio-diversity and for educational purposes as well. [6]

We can clearly evaluate its importance in the field of conservation of diversity. However, there are some drawbacks to the system of botanical garden. Number of species that can be conserved in a botanical garden will always be limited due to unavailability of space. Majority of the gardens are established near urban areas in temperate countries. Nonetheless, the majority of botanical and animal diversity is discovered on tropical climate, but since majority of the gardens are in temperate countries, the collection must be expanded which limits the availability of space. Very few individuals of each species can be held which severely restricts the range of genetic diversity found in protected wildlife. [7]

Botanical gardens play a significant role in ex-situ conservation of plant biodiversity. They hold the key to safeguard the threatened species. They are able to create awareness in public, so as to promote sustainable use of natural resources possible in all levels of society. However, there is still a lot to be done in the field of management of ex-situ conservation in botanical gardens, although efforts are being carried on. [8]

**Objective**