Criteria for Sustainable Planting Design Applications in Landscape Architecture Projects Under Arid Conditions

Abstract—Planting design is an important part of all Landscape Architecture projects (LAs). It needs new criteria in order to make it more sustainable. When arid conditions are dominant, these criteria will be more difficult. These limiting factors of harsh environment and aridity, such as high temperature and evaporation, low rainfall, poor and sandy soil, are largely diverse in many levels concerning water, soil, and climate. Thus they clearly appear in designing and impeding sustainable LAs. The planting design in LAs is governed by three major factors which are: plant species, water availability, and the control soil property and climate conditions. However, the designer can adjust and customize these designs aiming at satisfying sustainability principles by carefully selecting plant materials from native or exotic plants and dealing with new practices effectively within the landscape, such as managing water supplies, irrigation methods, plant water requirement (PWR), modifying soil properties to be more efficient, appropriate to hold water, and developing the planting design techniques to restrain aridity conditions. This study adopted field and environmental analyses of real projects to reach new criteria for planting design in LAs that are able, by increasing the functional and environmental compatibility to achieve sustainability under aridity conditions.

Keywords: planting design, Landscape Architecture, plant material, arid regions, sustainability, exotic plant, and native plant.