

Changing Roles of Traditional Small Urban Green Spaces (*Telajakan*) in Bali, Indonesia

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Abstract

Bali Island, Indonesia is undergoing rapid land use changes due to heavy development pressure and its fast growing urban population. One such urbanization phenomenon is the shrinkage, deterioration, and disappearance of traditional small urban green spaces in Denpasar, Bali. Focusing on *telajakan*, a strip of traditional green space between the wall of a housing compound and a ditch/pedestrian path in a roadside, the study aims 1) to investigate and document the changes that are occurring with regards to *telajakan* and 2) to assess the functions (roles) of *telajakan* in Denpasar. The research methods include vegetation assessment at a lot scale and in-depth homeowner and village leader interviews with the help of local experts. The results show that *telajakan* space is often paved over to give way to more front space for the property owner and to ease maintenance. It is also minimized or destroyed as the owner builds a more “western” style house. Traditionally *telajakan* has multiple functions such as provision of plant and flower materials for Balinese daily rituals, regulation of stormwater from the property, and offering semi-public space for street vendors and neighbours. However, the results show that: diversity of planted species is decreasing; only a couple of functions such as aesthetics and economics are strongly favored; and the semi-public nature of *telajakan* is being lost. Since *telajakan* is as much traditional green open space as part of the aesthetics of the Balinese architecture, its loss, minimization, and degradation lead to the loss of Balinese culture and identity. On the other hand, new meaning is given to *telajakan*'s functions such as neighborhood beautification and exhibition of the owner's pride in the modern context. Therefore, policy recommendations to conserve *telajakan* in the changing urban fabric need to balance these changing needs of *telajakan* for its use and conservation of traditional rituals and culture of Bali.

Keywords

Telajakan, Bali, Urban Green Spaces

1. Introduction

The island of Bali, Indonesia, a popular tourist destination, is undergoing rapid land use changes due to heavy development pressure and its fast growing urban population. Consequent urban environmental problems are typical but many such as the loss and shrinkage of green spaces, conversion of green spaces to urban uses, urban flooding, illegal garbage disposal, and poor sanitation.

One such urbanization phenomenon is the shrinkage, deterioration, and disappearance of traditional small urban green spaces in Denpasar, Bali. We have focused on *telajakan*, a strip of traditional green space between the wall of a housing compound and a ditch/pedestrian path in a roadside (**Figure 1**). The width of *telajakan* is determined by Balinese traditional architecture, which case between 1.0 and 2.2 meters, and by Bali Regulation No. 10/1999, which case between 0.5 and 2.0 meters [1]. Traditionally *telajakan* has multiple functions such as provision of plant and flower materials for Balinese daily rituals, regulation of stormwater from the property, and offering semi-public space for street vendors and neighbors. The meaning, concept, and functions of *telajakan* in the context of traditional open space are elaborated in Yudiantini [1].

Lately, as Denpasar undergoes rapid urbanization, *telajakan* itself and the functions of the plantings in *telajakan* are changing as well. However, because *telajakan* has always been part of traditional southern Balinese architecture, local people pay little attention to the changes that are occurring and few scientific studies have been conducted on *telajakan*. Therefore, two research objectives are first to investigate and document the changes that are occurring with regards to *telajakan* and second to assess the functions (roles) of *telajakan* in Denpasar, Bali.

2. Previous Studies

The significance of this study is that first, any ecological analysis of *telajakan* is close to non-existent; no data is available or has been published (at least in



Figure 1. An example of *telajakan*.

English). There are, however, some preceding studies on urban green spaces in Bali. Cultural and historical studies of *telajakan* do exist, including Yudiantini (2012) whom argues that *telajakan* has helped form the identity of the Balinese on the traditional village landscape in Bali [1]. Putra *et al.* (2013) illustrate the transformation of the traditional Balinese house for tourist facilities, and documented the process of marketization and re-embedding of the traditional elements adjusted for the modern context [2]. Brata (2014) examined the process of commodification of *telajakan* in Ubud Village, concluding that the *telajakan's* value as traditional green open space is neglected, resulting in ecological damage and the extinction of the aesthetics of the Balinese architecture, and witnessing the destruction of the Balinese identity [3].

With regards to the functions of *telajakan*, literature review shows that the primary functions of the plants in *telajakan* are religious and economic [1]. Plants are used for religious ceremonies, medicinal purposes, spice, aesthetics, and micro economy [4]. *Telajakan* provides a space to place the *penjor* during traditional ceremonies [1]. Dwijendra (2008) documents a semi-public nature of *telajakan* though every *telajakan* is owned, provided, and maintained by the household [5]. *Telajakan* used to provide a place for communication with neighbours, and used to be a place for street vendors and wagon stops [5]. *Telajakan* also provides for stormwater management, onsite infiltration, runoff control, and involves some evapotranspiration with vegetation.

3. Methods

In early May, 2016, the authors discussed the idea and framework of the research with Dr. Ngakan Ketut Acwin Dwijendra of STD (Sekolah Tinggi Desain) Bali, an expert of *telajakan* from the viewpoint of traditional Balinese architecture. Dr. Acwin suggested that the authors observe a couple of areas in Denpasar where he believes that *telajakan* is still intact. As some authors drove to the suggested areas in search of good examples of remaining *telajakan*, they stumbled into an area where, based on their expert opinion, apparently a traditional *telajakan* remains. There they observed the *telajakan*, took photos, and interviewed the owner about the plantings, use, and maintenance of the *telajakan*. This is sample 1 (in Village X in northern Denpasar).

During the interview, new information about local government's *telajakan* competition was obtained. The owner said that there is a street (in another village) nearby which has won the competition. He thought that the *telajakan* of the street was a better example of "good" *telajakan*. After the interview, the authors looked for this street, and found it. The authors then took photos of the *telajakan* on both sides of the street, interviewed the owner who appeared to have the most well-maintained *telajakan* with bonsai trees. This is sample 2.

In late August, 2016, some authors returned to sample 1 and this time identified the vegetation species planted and recorded the number of different species. They also measured the width of the *telajakan*. Afterwards, authors did the same to sample 2. This time, they also identified the planted species and measured the

width of some other *telajakan* on the street. These *telajakan* are sample 3 - 5. Samples 2 - 5 are in Village C in northern Denpasar. The authors also interviewed the village leader and asked about the competition and how they maintain *telajakan*. They also interviewed a member of vegetable farmers group and the owner of sample 2 again, and asked about the species selection, way of maintenance, whether or not he knows about the competition, etc. The authors used Keng [6] and Periplus Editions [7] as references for identifying the vegetation species and their functions. All the *telajakan* samples in this study are located in the housing in the villages.

4. Results

There are four major results. First, for all five samples, aesthetics, economics, rituals, and canopy (shade) are the four most important functions which the planted species have (Figures 2-6). Especially, aesthetic function is provided by almost 100% of the planted species. Economic function is the second most

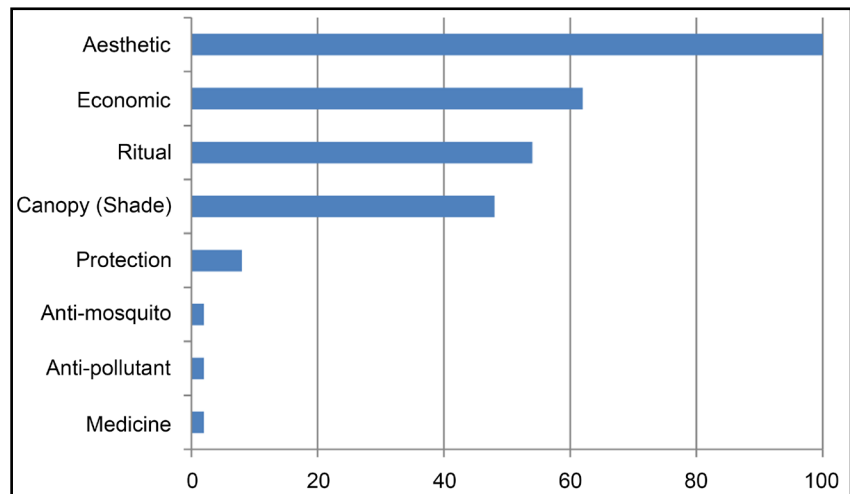


Figure 2. Percentage of the functions provided by the plants in sample 1.

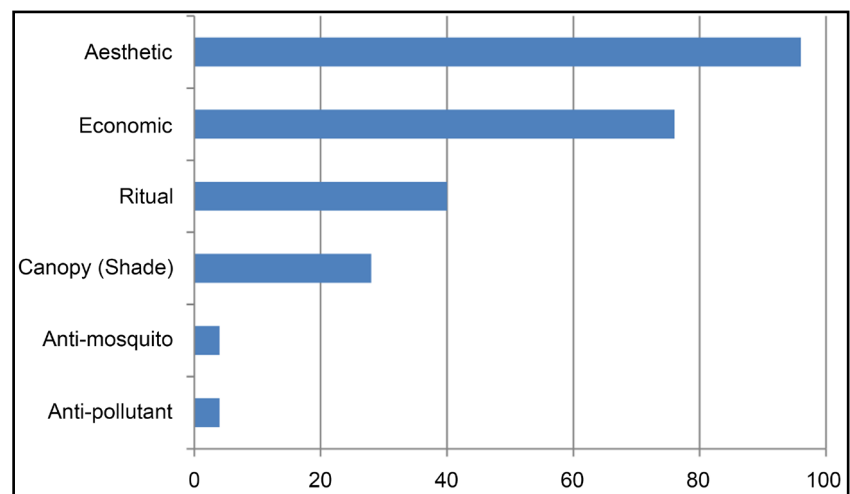


Figure 3. Percentage of the functions provided by the plants in sample 2.

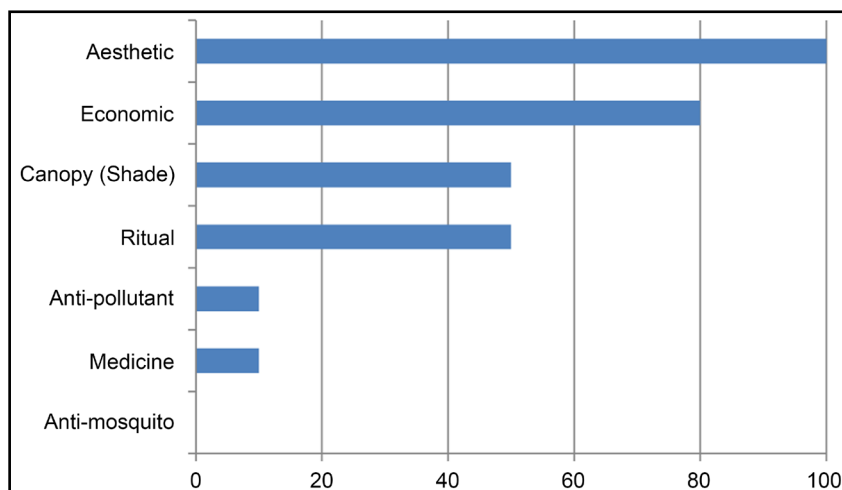


Figure 4. Percentage of the functions provided by the plants in sample 3.

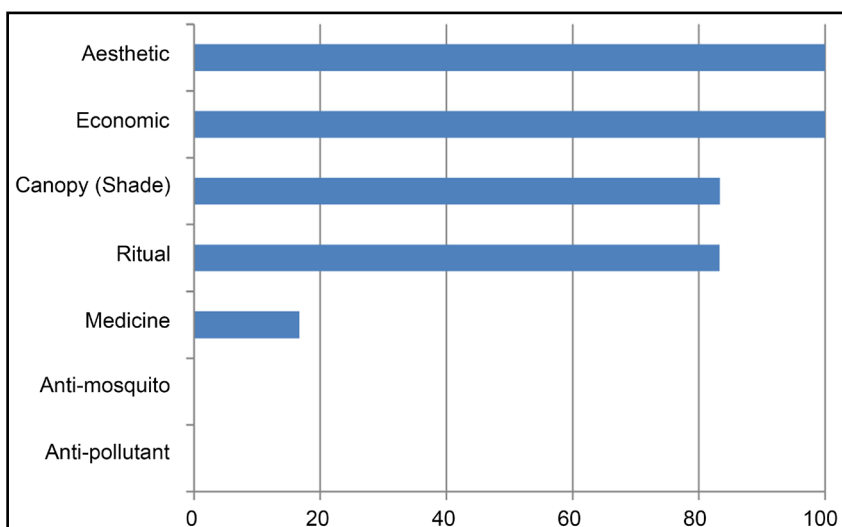


Figure 5. Percentage of the functions provided by the plants in sample 4.

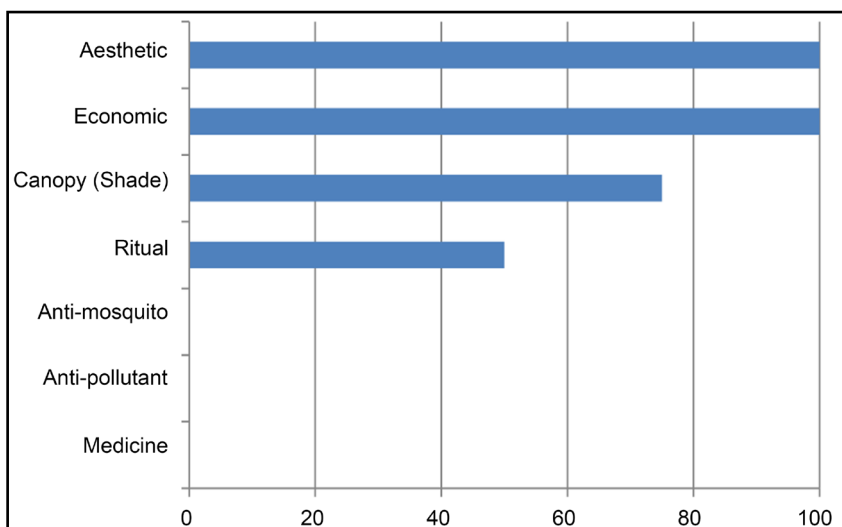


Figure 6. Percentage of the functions provided by the plants in sample 5.

provided function with the average of 83.6%.

Second, in terms of the total number of different species, sample 1 has the most number of species. 51 species are identified in sample 1, followed by 26 species in sample 2, 11 species in sample 3, 6 species in sample 4, and 4 species in sample 5 (**Table 1**). As for the width of *telajakan*, sample 1 is the narrowest with 85cm; the average width of sample 2 - 5 is much wider with 272.3 cm (**Table 1**).

Third, when comparing sample 1 (in Village X) with sample 2 - 5 (in Village C), we find that: 1) sample 1 has by far the most number of species (most diverse); 2) (soil erosion) protection function exists only in sample 1; 3) in sample 2 - 5, there are more species with economic function; and 4) there are not as many species with anti-mosquito function in sample 2 - 5 on average as species in sample 1 (**Figures 2-6**).

Fourth, more weeds were observed in sample 1 than in sample 2 - 5 with almost no weeds. Sample 2 - 5 are very well-maintained, evident in the existence of lolly-pop bonsai branches (**Figure 7**) with the ground weeded and swept by the owners and the neighbourhood clean-up group. The appearance of sample 1 is shown in **Figure 11** and sample 2 - 5 in **Figure 7** and **Figure 13**.

5. Discussion

5.1. Transformation of *Telajakan* Space Itself

As Denpasar undergoes rapid urbanization, *telajakan* is often paved over to give way to more front space for the property owner and to ease maintenance. It is also minimized or destroyed as the owner builds a more “western” style house. Based on our field observation, when an owner operates a shop, *telajakan* is paved over to provide 1) more frontal shop space and 2) temporary parking space for customers who come by cars and motorcycles. Even when *telajakan*

Table 1. *Telajakan* width and the number of species in each sample.

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Width (cm)	85	300	227	278	284
Num. of Spp.	51	26	11	6	4



Figure 7. Bonsai trees in *telajakan*.

remains as part of a housing compound, it is sometimes paved with concrete for easier maintenance (**Figure 8**). *Telajakan* also gives way to a more inner (completely) private space inside the wall.

5.2. Changes with Regards to the Plantings in *Telajakan*

5.2.1. Functions

In the past, the species planted were used mostly for ritual purposes. The planted species provided plant and flower materials for Balinese daily rituals (offering to the gods) (**Figure 9**). However, in the present, ritual function is not the most important function needed by *telajakan* owners. The results show that aesthetics is by far the most provided function by the plantings, followed by economic function. The fact that aesthetic function is provided by almost 100% of the



Figure 8. Diminishing and deteriorating *telajakan*.



Figure 9. Plant and flower materials used for the offering.

planted species underscores its importance to the *telajakan* owners (*i.e.*, housing compound owners). The observation that there were almost no weeds in sample 2 - 5 corroborates the value of a “neat look” of *telajakan* as a social status and the increased importance placed on the aesthetics. What matters most to *telajakan* owners nowadays is the appearance of *telajakan* and the economic value of most of the species. For example, in Village C, where samples 2 - 5 were taken, planting of pudak (*Dracaena angustifolia*) is preferred as a cash plant (Figure 10). According to the interviews, the owners can sell *Dracaena angustifolia* after it grows to a certain size.

5.2.2. Comparison between Sample 1 and Sample 2 - 5

Based on the expert opinion, sample 1 is considered to be a more traditional type of *telajakan* than sample 2 - 5. This is because: 1) not only does sample 1 have the most diverse plant species but also it has the most number of functions (Table 1); 2) there is a variety of height and kinds from tall trees to short shrubs; and 3) there are some weeds in sample 1. Even though some may criticize the existence of weeds as poor maintenance, these weeds add to the diversity of species with a complex vertical structure (Figure 11).

When comparing sample 1 with sample 2 - 5, only in sample 1 protection function is observed; in sample 2 - 5 there are more species with economic



Figure 10. Pudak planted as a cash plant.



Figure 11. Sample 1 more traditional style *telajakan* having a complex vertical structure (Photo: Kosuke Hishiyama).

function. The effect of protection function on stormwater control will be discussed later. Sample 2 - 5 has fewer numbers of different species (less diverse) with higher percentage of the species offering economic function. The example of *Dracaena angustifolia* as a preferred cash plant in the neighbourhood is explained above. What is interesting in terms of function is that even though this village had won *telajakan* competition (public hygiene and remove mosquito habitats) many times in the past (**Figure 12**), sample 2 - 5 does not necessarily contain as many species with anti-mosquito function as sample 1.

Having won the *telajakan* competition many times in the past may have to do with the width of *telajakan*: average *telajakan* width of sample 2 - 5 is three times wider than that of sample 1 (**Table 1**). The wide *telajakan* accommodates enough space for showcasing bonsai trees and other species with beautiful forms and color (**Figure 13**). The space also allows for growing cash plants such as *Dracaena angustifolia* and *Amaryllis* sp.

5.3. Overall Discussion on the Changes of *Telajakan*

Traditionally *telajakan* has multiple functions such as provision of plant and flower materials for Balinese daily rituals, regulation of stormwater from the property, and offering semi-public space for street vendors and neighbours.



Figure 12. *Telajakan* competition trophies.



Figure 13. More contemporary style *telajakan* with plantings focused on aesthetic function.

However, the results show that only a couple of functions are strongly favoured, focusing on aesthetic and economic aspects, and that the semi-public nature of *telajakan* is being lost. Although not all changes are negative, the loss and shrinkage of *telajakan* certainly affects the custom and daily lives of ordinary people.

As we have discussed so far, the current situation that *telajakan* space itself is diminishing and paved over negatively affects its stormwater regulation function. In the past, more rainfall was absorbed by the soil and the plantings in *telajakan*; some was evapotranspired by the plants. The finding that only in the more traditional *telajakan*, there is a species with (soil erosion) protection function also hints that *telajakan* in the past had more rainwater absorption and erosion control capacity partly due to the kinds of species planted. Numerous *telajakan* in Denpasar City helped reduce runoff water and the chance of urban flooding. Now with the reduction and loss of *telajakan*, urban flooding has become more common, affecting the lives of city residents.

The loss and marginalization of *telajakan* also affect how people interact on the streets. In the past, conversation sprang up and more interaction was born as neighbours and passers-by stop to buy small bites and drinks from street vendors parked in the *telajakan* space. More eyes on the streets may have helped reduce crime in the neighbourhood. Nowadays, people come by cars and motorcycles, buy what they need, and leave in a hurry. There is not as much interaction among the shop owner, customers, and the neighbors even when *telajakan* space is provided for temporary parking and frontal shop space.

Telajakan's loss and its changing functions are feared to lead to the loss of traditional southern Balinese culture and tradition. However, not all changes are negative. For example, as seen in sample 2 - 5, local government's *telajakan* competition gives new meaning to *telajakan* to showcase owners' financial status and neighborhood's pride through aesthetically pleasing, neat, and clean streets, which also reduce mosquito habitats, reducing the spread of dengue fever and increasing public hygiene. Promoting *telajakan* through this kind of competition may hint a new way of *telajakan* conservation in the modern context.

6. Conclusion

Since *telajakan* is deeply rooted in traditional Balinese architecture, its loss, degradation, and marginalization necessarily lead to the loss of Balinese culture and identity. However, our research finds that new meaning is given to *telajakan's* functions such as neighbourhood beautification and exhibition of the owner's pride and financial status in the modern context. Thus, when making policy recommendations to conserve *telajakan* in the changing urban fabric, the conservation of traditional rituals and culture of Bali needs to be balanced against the changing needs of *telajakan* for its use.

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References

- [1] Yudiantini, N.M. (2012) Natah and Telajakan: The Role and Identity in Indigenous Villages. *Proceedings of International Seminar on Place Making and Identity* 2012, Jakarta, Indonesia, 26-27 September 2012, 179-187.
- [2] Putra, I.D.G.A.D., Lozanovska, M. and Fuller, R. (2013) The Transformation of the Traditional Balinese House for Tourist Facilities: Managing a Home-Based Enterprise and Maintaining an Architectural Identity. *Proceedings of the 2013 Asia-Pacific Management and Business Application International Conference on Management and Business Science*, Denpasar, 5-6 September 2013, 53-67.
- [3] Brata, I.B. (2014) Commodification of Telajakan at Ubud Village, Gianyar, Bali. *E-Journal of Cultural Studies*, 7, 1-6.
<http://ojs.unud.ac.id/index.php/ecs/article/view/8417/6280>
- [4] Yudiantini, N.M. and Jones, D. (2015) The Role of Traditional Regulation in the Indigenous Villages for Conservation of Village Pattern. *Proceedings of 21st International Sustainable Development Research Society Conference*, International Sustainable Development Research Society, Geelong, Victoria, 10-12 July 2015, 1-10.
- [5] Dwijendra, N.K.A. (2008) *Arsitektur Rumah Tradisional Bali*. Kerjasama Bali Media Adhikarsa [dengan]. Udayana University Press, Denpasar.
- [6] Keng, H. (1978) *Orders and Families of Malayan Seed Plants*. Singapore University Press, Singapore.
- [7] Periplus Editions (1999) *500 Popular Tropical Plants*. Periplus Editions (HK) Ltd., Hong Kong.



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