

Assessing city beautification with plants: the Kathmandu perspective

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The rate of urbanisation in Nepal is far below than the current global trend. However, Kathmandu, the capital city of Nepal, is reported to be one of the fastest growing cities in Asia, and probably highly polluted as well. One way to abate the pollution is to develop greenery in the city. In this regard, a qualitative assessment on the present status and future prospects of developing greenery in the city has been done in the present paper. For this work, a few major roads inside the city core and the 27.6 km Ringroad that is encircling the city have been marked as study sites. Plants-both planted and natural present along the Ringroad and inside, were recorded along with their flowering seasons. Plants included at a few Traffic Islands were also recorded. As many as 85 species were found either as a venue plants or grown in the neighbourhood gardens which have also imparted beauty to the roadsides. Eighty-five percent of such plants are trees and the rest are shrub. Additionally, the present paper has attempted to analyse the present status of urban forestry in Nepal and has come up with some suggestions for its better implementation.

Keyword: Urban forestry, city beautification, exotic and wild ornamental plants, Nepal

Urbanisation is a global phenomenon. It is rapid especially in the developing world. According to an estimate nearly half of the worlds' population reside in urban areas. In Nepal, its official figure is 14 % (MoPE 2004); however Kathmandu is reported to be one of the fastest urbanising places in Asia. In general, the urbanisation in Nepal has seen sprawling belts of uncontrolled development, often shanty towns, in which virtually all amenities and services are lacking.

Plants have significant impact on urban environment. They absorb solar radiation, regulate runoff water, reduce noise levels, act as carbon sink, filters dust particles, and provide habitats to a number of animals in general, and birds in particular. In cities, these could be achieved only through urban forestry-a term used often for describing plantation of trees in urban areas with integration of shrubs, flowers and lawns of local characteristics. It also aims to create an aesthetic environment for the public. Unfortunately, the concept of urban forestry seems to have not yet been realised in Nepal. The plants that we currently see in the city area do not fall under this concept. They have rather been introduced on an *ad hoc* basis, which therefore have failed to serve the public and to appeal to them.

Efforts of city beautification

Historical evidences on city beautification using plants are unavailable prior to Rana dynasty (1846-1950 AD). It is probably during the reign of Jung Bahadur Rana, the first Prime Minister of Nepal, to visit overseas (the UK and some European countries), planting trees in palatial gardens and on the narrow and limited streets of Kathmandu was thought of. Probably, some of his descendents also imported few exotic trees such as *Araucarias*, *Eucalyptus*, *Calistemon* and *Grevillea robusta* for planting inside the palace premises and on roadside habitats. Reminiscent of which can still be seen at a few palatial gardens.

After the fall of Ranas in 1950, the succeeding governments between 1950 and 1990 took little interest in beautifying the town. It is only during and after 70s, a portion of the newly constructed Arniko Highway falling inside the city such as Maitighar to Bhaktapur, and the Ringroad encircling Kathmandu city had trees immaculately planted imparting a beautiful look to the road habitats. The first SAARC summit held at Kathmandu in 1987 also necessitated conversion of small open patches of road habitats into gardens.

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The openness brought about by the restoration of democracy in 1990 made some individuals and business houses interested in sponsoring gardens as a part of their business promotion. This probably led to the building of small but strategically important traffic islands in the city core. Simultaneously, greenery at a few vacant places along the roadsides were developed.

The present context

Despite being located in a beautiful natural setting, and once called as one of the most beautiful places, Kathmandu, the capital city of Nepal, has now developed into a filthy concrete jungle. Nothing but the lack of government's interest in urban planning is to be blamed for such state of affairs. A sudden rise in price of land during the decade of 90s, purchasing a piece of land adequate enough for making individual garden was out of general peoples' imagination. Hence, houses have been built too close to each other in a small piece of land. The lanes are narrow, and there is virtually no space for plants. All these have made the living conditions very poor in new residential areas. In fact, one could even say that there are no 'proper residential areas' for general public. People are residing on their own, wherever they wished and whatever conditions available. Developing urban forestry in these 'new' areas was out of question.

Majorities of the older city core such as New Road, Putali Sadak, Dillibazar, Maitidevi, Baneshwor, and major busy traffic routes such as Shahid Gate-Kalimati, Kalimati-Balkhu, Tripureshwor-Patandhoka, Bhadrakali-Maitighar, Baneshwor-Chavel, Lainchour-Narayan Gopal Chouk, etc. are devoid of shade trees, making the street dull and bare. The photo below shows one of such sectors of



Such a dull and boring lane at Putalisadak-one of the busiest city cores does never appeal the pedestrians.

Kathmandu. Pedestrians find it very difficult to walk even for a short distance due to scorching heat. In such places, the ambient temperature rises even during winter season. Also, there is a woeful lack of open places for the public. In a capital city of almost 1.5 million people, there is not more than 3 ha of land set aside as public - one is the badly managed Ratna Park and the other is Shanka Park. There could not be a big joke than this. Tundikhel, once stretching from Ratnapark to Dasarath Stadium has now shrunk considerably. The remaining portion now serves as a parade ground than play ground.

Few trees planted earlier along the roadsides in Kathmandu included poplars and eucalyptus. Their selection was probably based on what the earlier authorities saw overseas. Unfortunately, these trees upon attaining a certain height could not withstand even moderate wind and rain, and kept on falling quite often damaging life and properties. This forced the concerned authorities although belatedly in 2003/4, to clearfell the trees from Old Baneshwor to Chavel and Maitighar to Bhaktapur sectors, which now look deserted at present-what could be called as putting a reverse gear.

The condition of the green belt (areas beneath trees and narrow internal access) at a 27.6 km long Ringroad also remained no longer appealing. On the one hand, the lack of plantation management is clearly evident, and on the other, the green belt is being treated by the local residents as a free property. Unarguably, all possible infringements to the green belt are still underway. Pathetically, no one has ever been prosecuted as yet. In combination these are contributing to making the city uglier.

Objective of the study

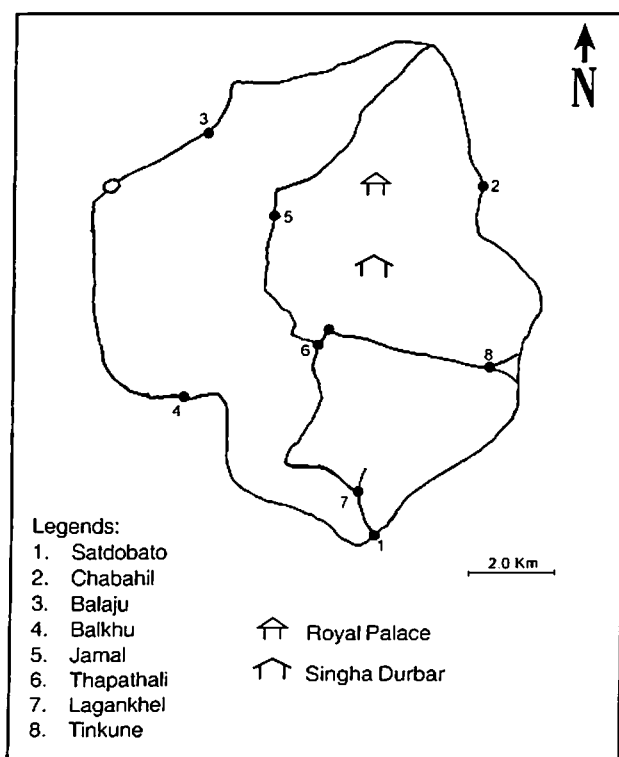
The scenario presented above indicates that the current effort to beautify Kathmandu using plants seems inadequate. Is it due to the lack of basic information on urban forestry in Nepal? or there is a sheer lack of commitment of the related authorities? The present paper attempts to find out the underlying reasons behind it.

One relevant article by Bhattarai and Malla (1998) had listed a good deal of species present in Kathmandu City areas, but since the sites are unknown, it is of little use. The present work hence attempts to provide a site-specific basic and first hand information on plants currently present in

Kathmandu city, and also puts forward some thoughts to help further works on urban forestry, to begin with from Kathmandu.

Methods

Sites: For the present work, the road habitat along the 27.6 Km Ringroad and the areas inside it (see map) have arbitrarily been selected. Except grasses, all the exotic and indigenous plants planted in order to build i) traffic islands and ii) roadside plantation aiming at some kind of city beautification were recorded. They were then categorised into ornamental flowers, shrubs and trees. Annual herbs having less significance in terms of urban forestry were left apart.



Map showing study sites at the Ringroad and inside.

Plant identification: Both trees and ornamentals plants employed along the road habitats and in traffic islands were recorded. The herbarium specimens of indigenous and exotic trees and shrubs were collected and tallied with those of the herbarium sheet housed at the National Herbarium of the Royal Botanical Garden, Godawari. The authors knew some of the trees, hence needed no identification. The exotic ornamental flowers were identified with the help of Bajracharya *et al.* (1997) and Hayakawa (2004). Flowering seasons of majority of the plants have also been recorded in the sites. Recording continued till one year beginning from March 2004.

Identification of a few exotic angiosperms such as *Populus*, *Eucalyptus*, *Morus*, *Agave*; and exotic gymnosperms such as exotic *Pines*, *Araucaria*, *Thuja* were found extremely difficult owing to the lack of herbarium specimen in National Herbarium. In such case, the only option remained to the authors was to cite the available literatures, which therefore might not have figured the species accurately. For this reason listing could be made only up to the generic level.

Observations and discussion

Table 1 shows the number of species (and their flowering seasons) observed along the 27.6 km stretch of Ringroad, and in the four major road sectors traversing the core of Kathmandu city namely Narayangopal Chouk to Jamal, Jamal to Thapathali, Thapathali to Lagankhel towards the south, and Thapathali to Tinkune towards the east (see map also). These species have either been planted exclusively as Roadside Avenue for example along Ringroad, or in gardens by the individuals that have contributed to greenery. Of the total species recorded (85), trees account for 85% and the rest are shrubs clearly indicating that there is no dearth of species in so far as roadside plantation for Kathmandu is concerned. Species distribution seems connected either to the availability of more open spaces in city core such as from Narayangopal Chouk to Jamal, or through plantation and protection done by the local residents as evident at Chavel to Balaju sector. Along the former sector, there are higher number of individual gardens and open spaces by virtue of government buildings, palaces, etc. whereas very apparently a public park, a commercial nursery established right at the greenbelt might have supported the higher number of species (Table 1). The lowest number of species present in Balkhu-Satdobato sector (only 20) could be attributed to the use of greenbelt for other purposes whereas for Thapathali-Tinkune is due to the lack of space for plantation, especially in the Thapathali area.

Apart from the species planted along the Ringroad, few other species were seen growing on their own as an escape or planted by unknown individuals (see box). Interestingly, these species (mostly shrubs) at their present state might look ugly weeds, but are potential enough to contribute to urban forestry if managed properly.

Plants at Traffic Islands

Since the recent past, there is a trend to develop the street corner or even the middle as garden, herein

Table 1: Species occurring along the various roadsides of Kathmandu city

SN	Species	Habit	Flowering season	Sectors at Ringroad				Sectors inside Ringroad				Thapathali - Tinkune		
				Sardobato - Chavel	Chavel - Balaju	Balaju - Balkhu	Balkhu - Sardobato	Narayangopadhouk - Jamal	Thapathali - Jamal	Thapathali - Lagankhel	Thapathali - Tinkune			
1	<i>Aegle americana</i> L.	S	Dec-Mar	-	-	-	-	-	-	-	-	-	-	+
2	<i>Aegle carinata</i> Roxb.	S	Dec-Mar	-	-	-	-	-	-	-	-	-	-	+
3	<i>Albizia</i> sp.	T	Apr-Jun	+	-	-	-	-	-	-	-	-	-	-
4	<i>Alnus nepalensis</i> D. Don	T	Oct-Dec	+	+	-	-	-	-	-	-	-	-	-
5	<i>Aruncaria bidrillii</i> Hook.	T	Mar-May (come)	+	+	-	-	-	-	-	-	-	-	+
6	<i>Aruncaria volucria</i> (Forster) Hook.	T		-	-	-	-	-	-	-	-	-	-	-
7	<i>Aruncaria zambinghani</i> Sweet	T		-	-	-	-	-	-	-	-	-	-	-
8	<i>Aruncaria</i> sp.	T		-	-	-	-	-	-	-	-	-	-	-
9	<i>Betula alnoides</i> Buch.-Ham. ex D. Don	T	Mar-May	-	-	-	-	-	-	-	-	-	-	-
10	<i>Bougainvillea glabra</i> Choisy	S	Mar-May	-	+	-	-	-	-	-	-	-	-	+
11	<i>Bougainvillea spectabilis</i> Willd.	S	Mar-May	-	+	-	-	-	-	-	-	-	-	+
12	<i>Buddleia asiatica</i> Lour.	T	Mar-Jun	+	-	-	-	-	-	-	-	-	-	-
13	<i>Buddleia paniculata</i> Wall.	T	Mar-Jun	+	+	-	-	-	-	-	-	-	-	-
14	<i>Callistemon citrinus</i> (Curtis) Skeels	T	May-Aug	+	+	-	-	-	-	-	-	-	-	+
15	<i>Caryota</i> sp. (Fish tail palm)	T	Non-flowering	-	+	-	-	-	-	-	-	-	-	-
16	<i>Casuarina equisetifolia</i> L.	T		-	-	-	-	-	-	-	-	-	-	-
17	<i>Cassia fistula</i> L.	T	May-Jul	-	-	+	-	-	-	-	-	-	-	+
18	<i>Cedrus deodara</i> (Roxb. ex D. Don) G. Don	T	Mar-Jul (come)	+	-	-	-	-	-	-	-	-	-	+
19	<i>Celtis australis</i> L.	T	Apr-May	+	+	+	+	+	+	+	+	+	+	+
20	<i>Cinnamomum camphora</i> (L.) J.S. Presl.	T	Apr	+	+	+	+	+	+	+	+	+	+	+
21	<i>Citrus</i> sp.	T	Mar-Apr	+	+	-	-	-	-	-	-	-	-	-
22	<i>Cryptomeria japonica</i> (L.f.) D. Don	T	Mar-Apr (come)	+	+	+	+	+	+	+	+	+	+	-
23	<i>Cupressus torulosa</i> D. Don	T	Jan-Feb (come)	-	-	+	-	-	-	-	-	-	-	-
24	<i>Cycas revoluta</i> Thunb.	S		+	+	-	-	-	-	-	-	-	-	-
25	<i>Dalbergia sissoo</i> Roxb.	T	Mar-Jun	-	-	-	-	-	-	-	-	-	-	+
26	<i>Ehretia acuminata</i> R. Br.	T	Mar-Jun	-	-	-	-	-	-	-	-	-	-	-
27	<i>Elaeagnus sphaerocarpus</i> (Gaertn.) K. Schum	T	May-Jun	+	+	-	-	-	-	-	-	-	-	-
28	<i>Erythrina crista-galli</i> L.	T	Apr-Nov	-	-	-	-	-	-	-	-	-	-	-
29	<i>Eucalyptus</i> sp.	T		-	-	-	-	-	-	-	-	-	-	-
30	<i>Eucalyptus</i> sp.	T		+	-	-	-	-	-	-	-	-	-	-
31	<i>Eucalyptus</i> sp.	T		-	-	-	-	-	-	-	-	-	-	-
32	<i>Eucalyptus</i> sp.	T		-	-	-	-	-	-	-	-	-	-	-
33	<i>Eucalyptus</i> sp.	T		-	-	-	-	-	-	-	-	-	-	-
34	<i>Eucalyptus</i> sp.	T		-	-	-	-	-	-	-	-	-	-	-
35	<i>Euphorbia pulcherrima</i> Willd.	T	Apr-Jun (fig)	-	+	+	+	+	+	+	+	+	+	+
36	<i>Ficus auriculata</i> Lour.	T	Apr-May (fig)	-	-	-	-	-	-	-	-	-	-	-
37	<i>Ficus benghalensis</i> L.	T	May-Jun (fig)	+	+	-	-	-	-	-	-	-	-	-
38	<i>Ficus benjamina</i> L.	T		+	+	-	-	-	-	-	-	-	-	-
39	<i>Ficus drupacea</i> Thunb.	T		+	+	-	-	-	-	-	-	-	-	-
40	<i>Ficus elastica</i> Roxb.	T		+	+	-	-	-	-	-	-	-	-	-
41	<i>Ficus racemosa</i> L.	T	Nov-Apr (fig)	-	-	-	-	-	-	-	-	-	-	-
42	<i>Ficus religiosa</i> L.	T	Apr-May (fig)	+	+	-	-	-	-	-	-	-	-	-

Box: Weeds existing on green belt at Ringroad that could be made useful for beautification

SN	Species
1	<i>Acorus calamus</i> L.
2	<i>Artemisia</i> sp.
3	<i>Canna edulis</i> Ker-Gawl
4	<i>Canna orientalis</i> Rosc.
5	<i>Cassia nairobensis</i>
6	<i>Cestrum elegans</i> Schlecht
7	<i>Cestrum nocturnum</i>
8	<i>Cestrum parqui</i> L.' Her
9	<i>Colocasia esculenta</i> (L.) Schott
10	<i>Daturas suaveolens</i> Humb.& Bonpl.ex Willd.
11	<i>Daturas tramonium</i> L.
12	<i>Duranta repens</i> L.
13	<i>Eichbornea crassipes</i> (Mart.) Solms
14	<i>Hedychium ellipticum</i> Smith
15	<i>Hedychium spicatum</i> Smith
16	<i>Jasminum humile</i>
17	<i>Jasminum mesheyi</i>
18	<i>Jasminum multiflorum</i>
19	<i>Jasminum dispernum</i>
20	<i>Jasminum officinale</i>
21	<i>Justicia adhatoda</i> L.
22	<i>Lantana camara</i> L.
23	<i>Lyännum chinense</i> Mill.
24	<i>Malvaviscus arboreus</i> Cav.
25	<i>Musa paradisiaca</i> L.
26	<i>Nicandra physalodes</i> (L.) Gaertn.
27	<i>Parthenium hysterophorus</i> L.
28	<i>Phramites karika</i> (retz.) Trin. ex Steud.
29	<i>Ricinus communis</i> L.
30	<i>Sambucus hookeri</i> Rehder
31	<i>Solanum pseudo-capsicum</i> L.

after referred to as Traffic Island. Few business houses have sponsored such gardens as a part of their business promotion, which is evident with distractive hoarding boards. Varieties of plants used in such traffic islands are limited. Table 2 presents a glimpse of species present in Traffic Islands of four major places in Kathmandu.

The Jawalakhel Roundabout, which is protected by virtue of Late King Birendra's statue and the Pulchok

area from Hotel Himalaya to Lalitpur Sub-Metropolitan Office have the highest number of species (13 each) followed by 12 near Thapathali bridge. However, the middle-sized Palm (*Caryota* sp.) seems to be attractive and probably adding beauty to the Tripureshwor roundabout.

Further potential

Malla and Kurmi (2004) have listed 202 species of wild ornamental plants growing at Godawari-Phulchoki sector. They have divided those species in different groups corresponding to 15 trees with attractive flowers; 20 evergreen trees; 4 with attractive spring and autumn colours; 14 plants with fragrant flowers; 53 flowering shrubs; 6 evergreen shrubs; 9 hedge plants. In addition, there are 8 plants with decorative fruits, some attractive climbers and so on. These could make a potential species for urban forestry in Kathmandu, and hence should be tested.

Bhattarai and Malla (1998) have recommended 306 indigenous species for Kathmandu. This includes 66 trees, 80 shrubs, 42 climbers, 87 herbs, and 31 orchids. However, this is not an exhaustive one. Perhaps, the idea behind this is to gradually minimise the import of exotic and costly species, which is welcoming. However, this is practically difficult due to the lack of fundamental research on our indigenous species, and the individual's established choice for ornamental flowers. Hence, unless the Department of Plant Resource-a rightly poised organisation comes up with better recommendation backed up by genuine research, the exotic species are bound to be added. Table 3 gives 46 such seasonal species having better potential of city beautification.

Kathmandu valley, located at the subtropical region of Nepal, is more or less suitable for the growth of a number of species ranging from Tropical to Sub-

Table 2: Plants at few traffic islands of Kathmandu city

Tripureshwor	Thapathali	Pulchouk	Jawalakhel
<i>Cycas revoluta</i>	<i>Agave</i> sp.	<i>Agave</i> sp.	<i>Agave</i> sp.
<i>Caryota</i> sp	<i>Araucaria</i> sp.	<i>Cuphea lyssofolia</i>	<i>Araucaria</i> sp.
Unknown shrub	<i>Beaucarnea recurvata</i>	<i>C. ignea</i>	<i>Bougainvillea glabra</i>
	<i>Cuphea lyssofolia</i>	<i>Duranta repens</i>	<i>Cryptomeria japonica</i>
	<i>C. ignea</i>	<i>Ficus elastica</i>	<i>Cuphea lyssofolia</i>
	<i>Cupressus torulosa</i>	<i>Gravillea robusta</i>	<i>C. ignea</i>
	<i>Cycas revoluta</i>	<i>Hibiscus syriacus</i>	<i>Cupressus torulosa</i>
	<i>Duranta repens</i>	<i>Homalocladium platycladium</i>	<i>Cyperus</i> sp.
	<i>Homalocladium platycladium</i>	<i>Mangifera indica</i>	<i>Duranta repens</i>
	<i>Ophiopogon jaburan</i>	<i>Nephrolepis cordifolia</i>	<i>Yucca aloifolia</i>
	<i>Phoenix</i> sp	<i>Ophiopogon jaburan</i>	<i>Ficus elastica</i>
	<i>Thrinax</i> sp.	<i>Pyracantha crenulata</i>	<i>Monstera deliciosa</i>
		<i>Thuja</i> sp.	<i>Philodendron bipinnatifidum</i>

Table 3: Seasonal flowers potential for beautifying Kathmandu

SN	Species	Flowering period											
		J	F	M	A	M	J	J	A	S	O	N	D
1	<i>Jacobinea carnea</i>							+	+	+			
2	<i>Beloperone guttata</i>				+	+	+	+	+	+	+	+	+
3	<i>Dorotheanthus bellidifformis</i>						+	+	+				
4	<i>Celosia cristata</i>						+	+	+	+			
5	<i>Gomphrena globosa</i>							+	+	+	+	+	+
6	<i>Anthemis nobilis</i>						+	+	+				
7	<i>Bellis perennis</i>	+	+	+	+	+							+
8	<i>Calandula officinalis</i>	+	+	+	+	+							+
9	<i>Callistephus chinensis</i>							+	+	+			
10	<i>Centaurea cyanus</i>			+	+	+	+						
11	<i>Chrysanthemum coccineum</i>								+	+	+	+	
12	<i>Chrysanthemum morifolium var hybrida</i>									+	+	+	
13	<i>Coreopsis pubescens</i>						+	+	+	+			
14	<i>Gaillardia pulchella</i>						+	+	+	+	+	+	+
15	<i>Gerbera jamesonii</i>							+	+	+	+	+	+
16	<i>Helicbrysum bracteatum</i>			+	+	+	+	+					
17	<i>Rudbeckia bicolor</i>						+	+	+				
18	<i>Rudbeckia birta</i>							+	+	+	+		
19	<i>Tagetes erecta</i>							+	+	+	+	+	+
20	<i>Tagetes patula</i>						+	+	+	+	+	+	+
21	<i>Zinnia elegans</i>			+	+	+	+	+	+				
22	<i>Impatiens balsamina</i>									+	+	+	
23	<i>Cupbea hyssopifolia</i>				+	+	+						
24	<i>Cupbea ignea</i>				+	+	+						
25	<i>Dianthus barbatus</i>			+	+	+	+						
26	<i>Dianthus caryophyllus</i>			+	+	+	+	+					
27	<i>Euphorbia millii</i>									+	+	+	+
28	<i>Lathyrus odoratus</i>		+	+	+								
29	<i>Coleus blumei</i>					+	+	+	+	+	+	+	+
30	<i>Linum grandiflorum</i>						+	+	+				
31	<i>Codeia amoena</i>							+	+	+	+		
32	<i>Feschscholzia californica</i>	+	+	+	+	+							
33	<i>Papaver orientale</i>			+	+	+							
34	<i>Phlox drummondii</i>	+	+	+	+	+	+						+
35	<i>Primula malacoides</i>	+	+	+	+								+
36	<i>Primula obconica</i>	+									+	+	+
37	<i>Primula vulgaris</i>			+	+								
38	<i>Nigella damascena</i>				+	+							
39	<i>Ranunculus asiaticus</i>			+	+	+							
40	<i>Petunia hybrida</i>						+	+	+	+	+		
41	<i>Verbena hybrida</i>						+	+	+	+	+		
42	<i>Viola tricolor</i>		+	+	+	+	+						
43	<i>Brassica oleracea</i>			+	+	+	+	+					
44	<i>Lobularia maritima</i>				+	+	+						
45	<i>Venedium fastuosum</i>							+	+	+			
46	<i>Cyclamen sp.</i>	+	+										

alpine. Not only, it supports the growth of both eastern to western elements of the Himalaya. The photograph below is showing Mango-a typical Tropical fruit tree and Cedar-a typical western Himalayan timber tree growing together in front of the Narayanhiti Royal Palace speaks itself of the truth. This gives an indication that even such species, no matter whether they come from the east or west or from tropical to Sub-alpine have potential for making green avenues in Kathmandu. Such a climatic flexibility presents a great opportunity for developing urban forestry in Kathmandu. This opportunity should not be waited.



Mango, a Tropical fruit tree is providing canopy to Cedar a western Himalayan element in front of the Southern gate of the Narayanhiti Royal Palace, Kathmandu

Why is not urban forestry in Kathmandu developed?

The present work has identified the following obstacles to the urban forestry in Kathmandu- the same possibly holds true to other urban areas:

- **Inadequate management by the Municipalities:** The Tinkune phenomenon is its exemplary citation. (On the way to airport from Baneshwor, there is a piece of barren triangle-shaped land (see map), which is called Tinkune in Nepali. During the last SAARC Summit 2003 held in Kathmandu, beautiful gardens were built overnight in that place surprising the entire Kathmanduits. Even more surprising was the vanishing of those gardens in no time. It all happened as if it were a magic). Also, inability to continue financial resource is its main hindrance.
- **Low priority (or no priority?) of the government:** As yet, the government has not given a due priority to city beautification. It should be known to all that only the political will can face lift the city. The Mandala of Maitighar is its best example.
- **Lack of clear-cut responsibility:** The roadside habitats belong to the Department of Roads. Uncertainties prevail amongst other interested agencies whether or not to develop green avenues in other's land. Whereas, the Department lacks the technical expertise in urban forestry.
- **Lack of open spaces:** The acute shortage of land in the core areas of Kathmandu city is one of the greatest obstacles. Never ever, the city planners thought of keeping open spaces for the public recreation. Whatever left in the form of *Guthi* (public property or that of the religious shrines) by the Malla dynasty, have either been occupied by unknown individuals, government offices, golf course or by the Army. The huge areas near airport, the Tundikhel, Chhauni, Guheshwori are some to name with. And nothing for the Nepalis living in the Capital city. The kids and youths have no place for playing and exercising, the senior citizens are bound to have their morning walk in the narrow lanes full of household wastes.
- **Lack of silviculture management:** Whatever trees planted along the roadsides or on parks, were never attended for. It would be a great surprise to apprehend if they were watered once they were planted, which is done mostly in the rainy season. Needless to say, there is a sheer lack of silvicultural management of the existing trees, with regard to pest control, pruning, manuring, etc.
- **Lack of genuine research:** There is a lack of genuine researchers and/or workers in urban

forestry in Nepal. Plant identification-a basis for selection and prioritisation of plants for urban forestry has remained a challenge so far. The morphological characters of related ornamental species cited in literatures vary thus making the worker confused.

Strides and measures

Below are given some thoughts that could help make our cities including Kathmandu beautiful through the introduction of plants:

- The prevailing thought that urban forestry is just planting trees along the road habitats, is erroneous. Such erroneous thinking is probably one of the prime reasons why we failed to establish green avenues in any urban areas of Nepal. As greenery should come through the combination of suitable trees, shrubs, herbs and even short and tall grasses, there must exist a coordination of knowledge of competent professionals such as botanists, foresters, soil scientists, city planners, landscape architect, gardeners, etc. This is reemphasised by the changing thought that urban forestry is also an opportunity to bring forest ecology into the city. This is yet another unique opportunity for us to pursue an integrated approach.
- The Municipalities must prioritise urban forestry as a part of urban planning; and explore financial resources from the interested business houses, NGOs, individuals, etc. A code of conduct must be implemented to ensure greenery in the public premises.
- The beautification of Kathmandu city (and also other urban areas) should be done in a single package divided into three categories: i) the core areas of the city, ii) suburban areas and the iii) fringe areas. Due to the limitation of land in the city core areas there are limited opportunities whereas the other two have obviously more. Therefore, landscape planning should also be done to the latter.
- Once confirming the sites, there remain few possibilities to carry out the city beautification works; one by the Municipalities themselves. The other is to call upon the prospective business houses, NGOs of Kathmandu to sponsor for developing a certain portion of the wasteland into a park, or to sponsor planting and managing the roadside trees at a given length. As some sponsors have already stepped in-a welcoming move, there is a greater possibility for others to join. The former

proposition may initially look a bit costly, but the aesthetic, as well as the functional values of roadside plants in sequestering carbon and dust screening will reward the investment of the Municipalities by many folds.

- Local youth clubs and/or civil society should be mobilised to protect the garden or roadside trees. In market places, the other possibility is to solicit individual (mostly shopkeepers) ownership of trees. If so desired, the owners could place sponsorship tag(s) in front of the tree without much distracting the passersby.
- Our present survey and that of Bhattarai and Malla (1998) have clearly indicated that there is no dearth of species to be used for beautifying Kathmandu. What is strictly needed is the proper selection of trees for roadside plantation and their maintenance. This could be done if expertise were pooled from different institutions to make a multidisciplinary team, which could advise upon pertinent matters. But, as it stands, it has not yet happened. The current look of the city proves it.
- The Tinkune phenomenon gives a vulnerable and queer message: Beautification could be achieved but could also be put in stake of disappearance. In order to deconstruct this beautification practice, impediments identified in urban aesthetics should be kept in view as outlined in the foregoing paragraphs and steps be mooted upon. Therefore beautification of the city must rest upon the concept of urbanisation strategy of the authorities. Otherwise Kathmandu City would never be beautified. In other words, unless serious

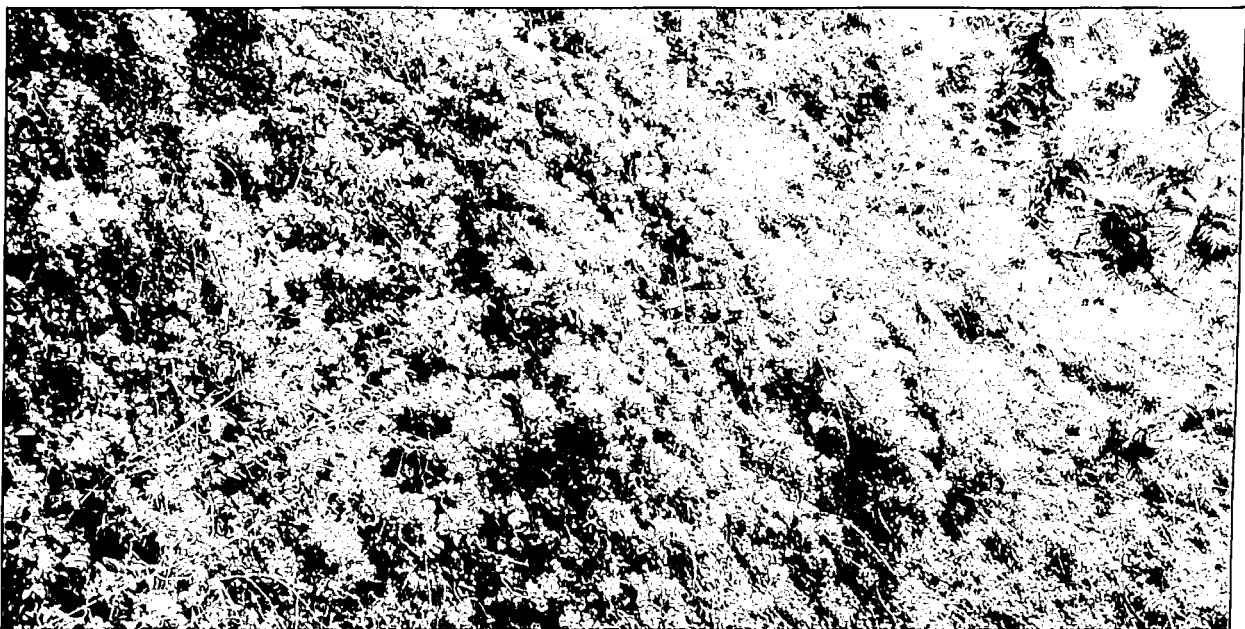
commitment is taken, the Kathmanduites will always have to live in a city as ugly as this. Retention of *status quo*, or taking up initiatives is up to the concerned authorities, whosoever they are.

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This avenue maintained by the Everest Hotel, Baneshwor is giving us a message to make other areas as beautiful as this.