

# Urban Plantations Enhance Climate Resilience in the Kathmandu Valley

**SUMMARY:** The Kathmandu Valley has been facing environmental stress and climate change impacts. Rapid urbanization, loss of urban green ecosystems, urban floods and rising temperatures are big problems of all cities in the Valley. To restore ecological balance and improve climate resilience, the Urban EbA Project launched a community-based plantation initiatives at public schools, public urban open spaces, river banks and roadsides. The initiatives were led by municipalities with active participation of youth, students, women groups, red cross society, NGOs ensuring local ownership and sustainability. 10,437 saplings, consisting of 16 plant species and 5 shrub species, were planted. The plants are healthy with strong growth. Local urban communities now benefit from clean air, cool micro climates and improved aesthetics in their neighborhood.



Plantation at Sirutar-Biruwa Road, Suryabinayak Municipality

**CLIMATE DISRUPTION:** Weather pattern and climate of Kathmandu Valley have already changed; and that disruption has made cities in the Valley more vulnerable with pronounced impacts, such as rising temperatures and heat island stress, urban flooding, land slides, winter droughts and wild fires, among others.



Avenue after plantation at Balkot-Gamcha Road, Suryabinayak Municipality

**IMPACT STORY:** 10,437 tree saplings have been planted till the end of September 2025 over the past four years. Healthy and well-growing plants have created visible and lasting impacts in the Kathmandu Valley, transforming urban neighborhoods into green and healthy places to live, while fostering a strong sense of community ownership. Implemented through a participatory approach, the initiatives engaged municipalities, ward offices, youth, students, women groups and local residents in every stage of the plantation—from digging pits and preparing soil with manure to planting and protecting saplings with tree guards. This collaboration not only ensured technical quality and higher survival rates of the plants but also built local capacity for long-term care of plants. More than 25000 of urban residents benefit from the plantation resulting in clean air, cool microclimates, and improved aesthetics in urban neighborhoods. Beyond environmental improvements, the initiatives have strengthened social bonds, inspired youth to take leadership in environmental activities, who now see the plantations as shared assets for their climate resilience.

Key Benefits	Co-benefits	Beneficiaries	Supporting Conditions
<ul style="list-style-type: none"> <li>Contribute to urban cooling by reducing heat island effects.</li> <li>Prevent soil erosion.</li> <li>Create micro-ecosystems.</li> <li>Contribute to removal of CO2 from the air.</li> </ul>	<ul style="list-style-type: none"> <li>Improve community well-being by providing shade and clean air.</li> <li>Improve interactions between municipal authorities and local urban residents.</li> <li>Promote local plant species.</li> <li>Improve urban biodiversity.</li> </ul>	<p>More than 25,000 urban resident.</p>	<p>Strong municipal leadership and community engagement would support the plantation initiatives.</p>

Year	Plantation Sites in the Kathmandu Valley	Number of Plants
2022	Rudreshwar Temple road, KMC-7	120
	Balkumari Bishnuvir Community Forest, Madhyapur Thimi Municipality-3	300
	Jhaukhel Road, Changunarayan Municipality-3 (Phase-1)	200
2023	Jhaukhel Road, Changunarayan Municipality-3 (Phase-2)	250
	Araniko Highway, Madhyapur Thimi Municipality and Suryabinayak Municipality (Phase-1)	600
	Duwakot Road, Changunarayan Municipality-2 (Phase-1)	200
2024	Nikosera – Purano Thimi Road, Madhyapur Thimi Municipality	500
	Byasi-Jhaukhel Road, Changunarayan Municipality-3 (Phase-3)	400
	Katunje, Suryabinayak Municipality-5 (Phase-1)	250
	Duwakot Road, Changunarayan Municipality-2 (Phase-2)	500
	Hanumante River Corridor, Madhyapur Thimi Municipality-3	120
	Araniko Highway, Madhyapur Thimi Municipality (Phase-2)	200
	Chovar Dryport Area, Kirtipur Municipality-6	100
	Sainik Pratisthan – Chhaling Road, Changunarayan Municipality-5	500
	Nagarkot, Changunarayan Municipality-6	200
Falful Park, Budhanilkantha Municipality-6	200	
2025	Bagmati River Corridor, Gokarneshwor Municipality-5	150
	Shanti Danda, Changunarayan Municipality-6	135
	Sirutat – Biruwa Road, Suryabinayak Municipality-1	375
	Gamcha Road, Suryabinayak Municipality-4	375
	Duwakot Road, Changunarayan Municipality-2 (Phase-3)	375
	Chandeshwary, Tokha Municipality-2	600
	Nikosera – Bode Road, Madhyapur Thimi Municipality-9	197
	Katunje, Suryabinayak Municipality-5 (Phase-2)	100
	Godawari River Corridor, Suryabinayak Municipality-2	200
	Narayanachaur, Changunarayan Municipality-4	375
Shivapuri Nagarjun National Park Buffer Zone, Tokha Municipality-1,2,3	1000	
Malpokhari, Lalitpur Metropolitan City-4	375	
Lakuri Bhanjyan, Mahalaxmi Municipality-10	1540	



After Plantation at Bagmati River Corridor, Gokarneshwor Municipality



Nagarkot, Changunarayan Municipality

Hanumante River Corridor

# Methodology

The plantation initiatives followed a systematic methodology that ensured both technical quality and community ownership. Site assessments were first carried out in coordination with municipalities, ward offices, and local people to identify priority areas for plantation. After sites were selected, pits were prepared following plantation standards. Organic manure was applied a day in advance to enrich the soil. On the following day, saplings were planted with active participation of local people and municipality. Tree guards were installed where necessary to protect young plants from animals and human disturbances. Standing plants and tree guards were officially handed over to the concerned ward offices for protection and maintenance. Plants are currently under the care of ward offices.

## Maintenance Tips

### 1. Regular Watering

Plants should be watered twice a week during the first six months after the plantation.

### 2. Protection and Trimming

Remove weeds regularly by hand or use of tools. Make sure that tree guard is standing well and protecting it until the plant is self surviving. Depending on the plant species and growth rate, from fourth year onward, the plant should be trimmed every single year before the monsoon begins



Falful Park, Budhanilkantha Municipality-6



Chandeshwori, Tokha Municipality-2



Bagmati River Corridor, Gokarneshwor Municipality-5



Lakuri Bhanjyang, Mahalaxmi Municipality-10

## Kathmandu Valley Development Authority

Project: Urban Ecosystem-based Adaptation for Climate Resilient Development in the Kathmandu Valley, Nepal

