

22ND FEBRUARY 2023

URBAN GREENUP

DEVELOPING KPI AND DATA COLLECTION PROGRAM FOR THE NBS IMPLEMENTATION AND MONITORING

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URBAN GREEN UP

MONITORING IZMIR DEMO (KPIS)

İZMİR BÜYÜKŞEHİR BELEDİYESİ

EGE ÜNİVERSİTESİ 1955

İZMİR YÜKSEK TEKNOLOJİ ENSTİTÜSÜ İYTE

DemirEnerji

BitNet

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Quantitative KPIs - İzmir

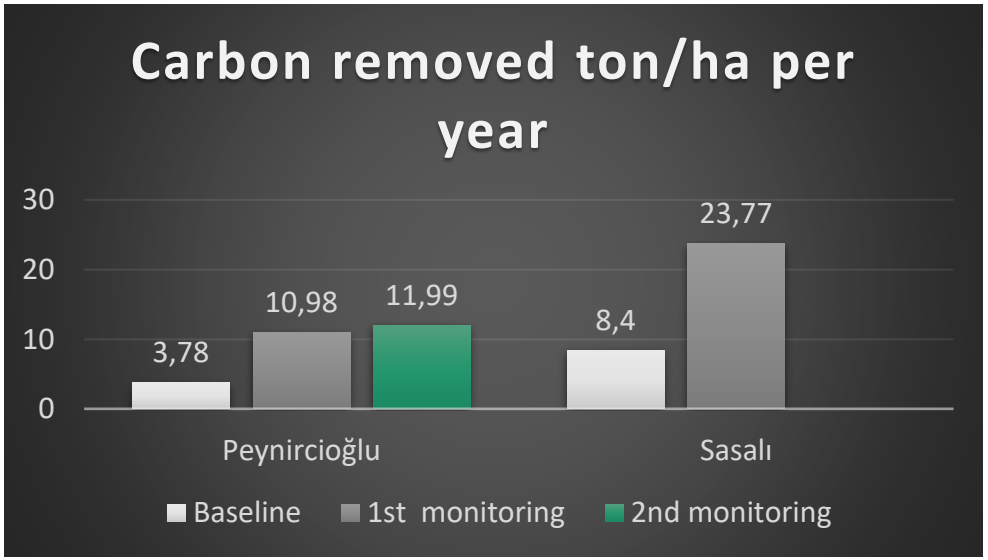
CH0102 Carbon Removed ton/ha

CH0410 Pollinator Species Increase

CH0502-CH0503 Mean Levels of PM2.5 and PM10

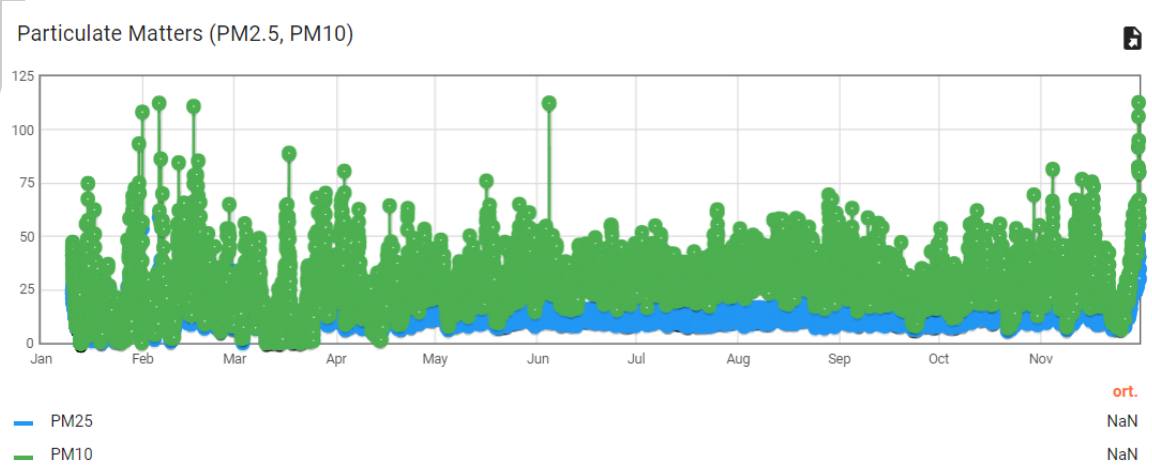
Carbon removed ton/ha per year

KPI: Urban vegetation has an important role in offsetting CO2 concentration by acting as a sink
Related NBS: Green shady structure, urban carbon sink, green parklets and new green corridor
Method: structural data of plants was collected from the field, estimations made on I-tree Eco v6 and canopy cover value.



Mean Levels of PM2.5 and PM10

KPI: Airborne particulate matter is associated with harmful effects on human cardiovascular and respiratory health. Particles ≤ 10 microns (PM10), and particularly the finer particles ≤ 2.5 microns (PM2.5)

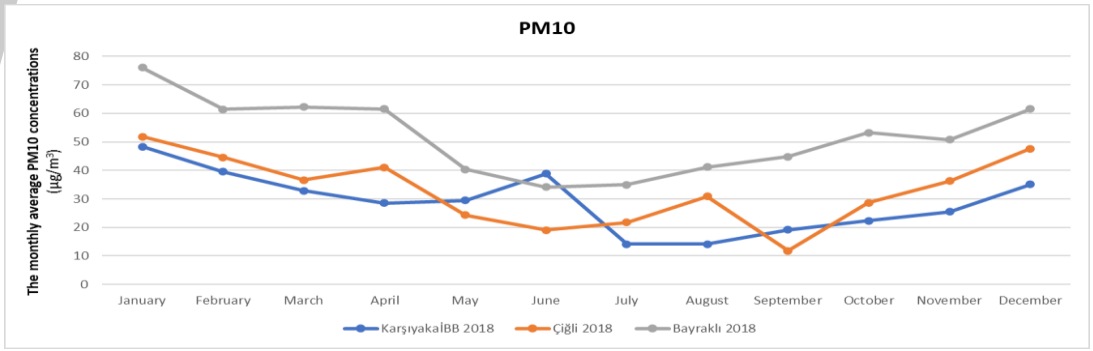


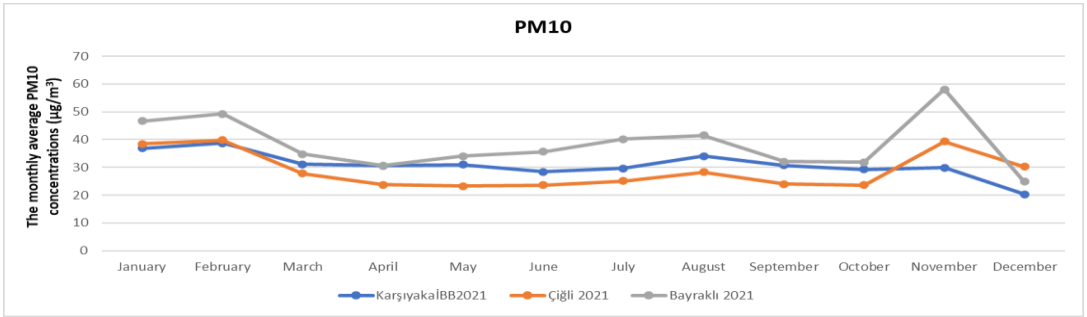
Vilayetler Evi Parking Lot (January 1th - November 30th 2022)

Mean Levels of PM2.5 and PM10

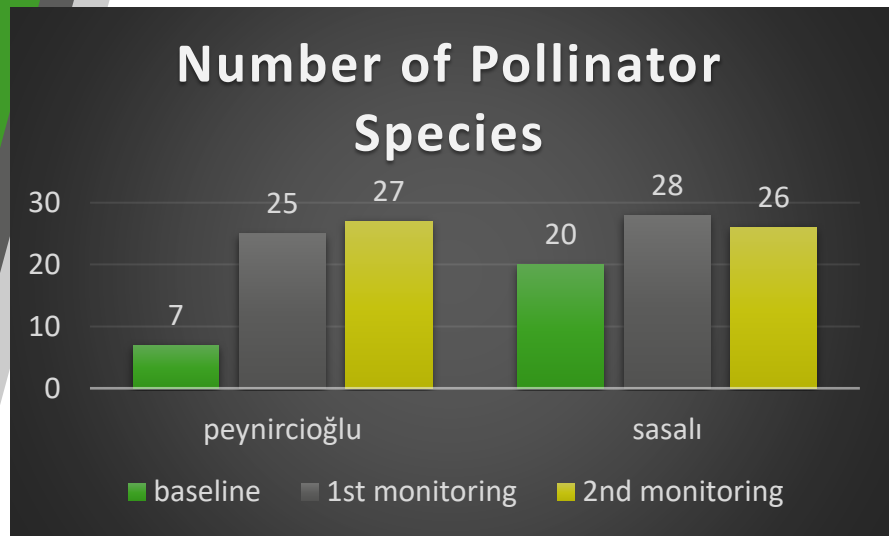
Related NBS: Green shady structure, urban carbon sink, green parklets and new green corridor, arborael areas, green fences

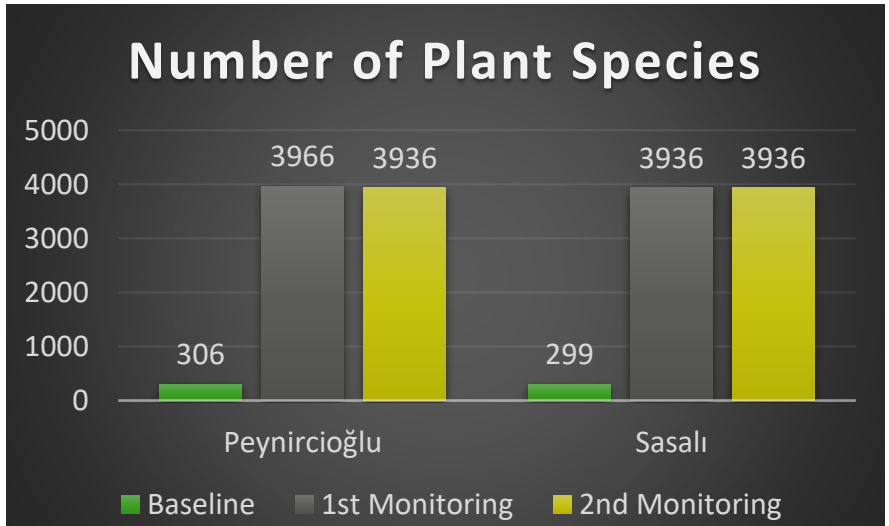
Method: Measure air concentrations of PM2.5 and PM10 at sampling points at a range of radii from NBS street tree/green wall locations both pre- and post-intervention. Compare these data to measurements taken at equivalent locations on equivalent stretches of road without street trees/green wall at a similar time of day on the same dates..

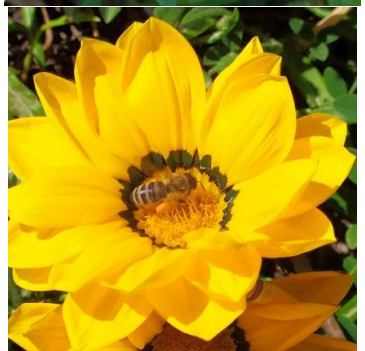




CH0410 Pollinator Species Increase







Modelling KPIs - İzmir

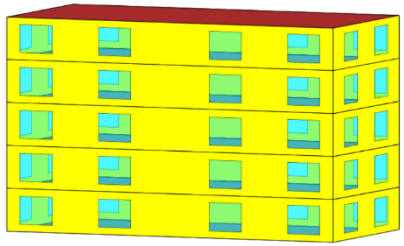
CH0109 Energy saving from reduced building consumption

CH0403 Green Space Accessibility

CH0109 Energy saving from reduced building consumption

KPI: Green Infrastructure can play a role in reducing energy consumption
NBS: Green façades, green roofs, arborael areas
Method: energy and carbon savings from reduced building energy consumption is obtained using a dynamic building energy performance software, TRNSYS.

Envelope	Layers	Thickness (m)	U (W/m^2K)
External walls	Plaster, brick, insulation	0.41	0.238
Roof	Plaster, brick, insulation	0.24	0.236
Floor	Concrete, gypsum mortar, insulation	0.23	0.341



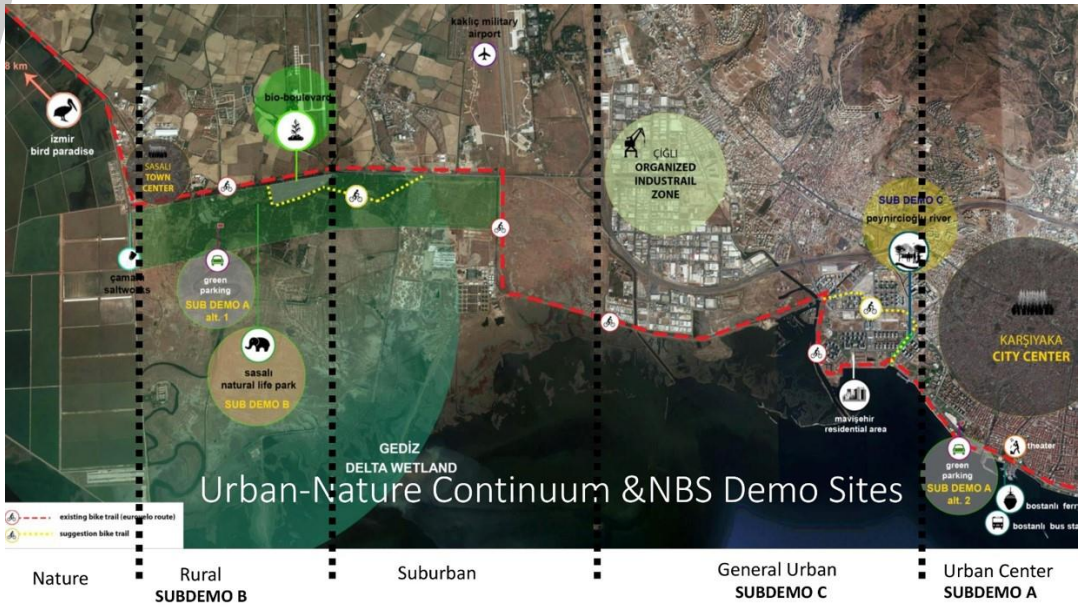
	Primary Energy Consumption		
	Heating (kWh/year)	Cooling (kWh/year)	Total (kWh/year)
Ex-ante	8473,40	52731,87	61205.27
Ex-post	8711,68	51705.80	60417,48
Change in energy consumption (%)	⇧ 2.81	⇩ 1.95	⇩ 1.29

Annual primary heating, cooling and total energy consumption of the building (for 2°C temperature drop).

CH0403 Green Space Accessibility

KPI: This social indicator evaluates the accessibility of urban green spaces for population in terms of total distance or time.

NBS: NBS involving green infrastructures, either horizontal or vertical



Socio Economic KPIs - İzmir

CH802 GREEN INTELLIGENCE AWARENESS (m/min)

Primary school studens – 400

University students and academics – 500

Local governments – 160

Others – 340

14 activities

NBS: Educational activities: Educational paths (A, C); Urban farming educational activities.

Socio Economic KPIs - İzmir

CH1002 Job Creation

Temporary Jobs	No of workers
Green route (including green fences, fruit walls, culvert works of Peynircioglu)	45
Parklets	5
Arboral areas (green shady structures)	8
Permanent Jobs	**No of workers**
Agricultural centre (inc. biochar production)	10
Water management department within the Agr. Centre	20
Total	88