

DIRECTORATE OF ADVANCED STUDIES
EVENT CATALOGUE
2021

24TH SEMINAR OF DAS EVENTS CALENDAR – 2021

**GREEN INFRASTRUCTURE: INTERACTION AND
MANAGEMENT IN URBAN ECOSYSTEMS**



24th Seminar (Online through ZOOM) of DAS Events Calendar

**Green Infrastructure: Interaction
and Management in Urban Ecosystems**

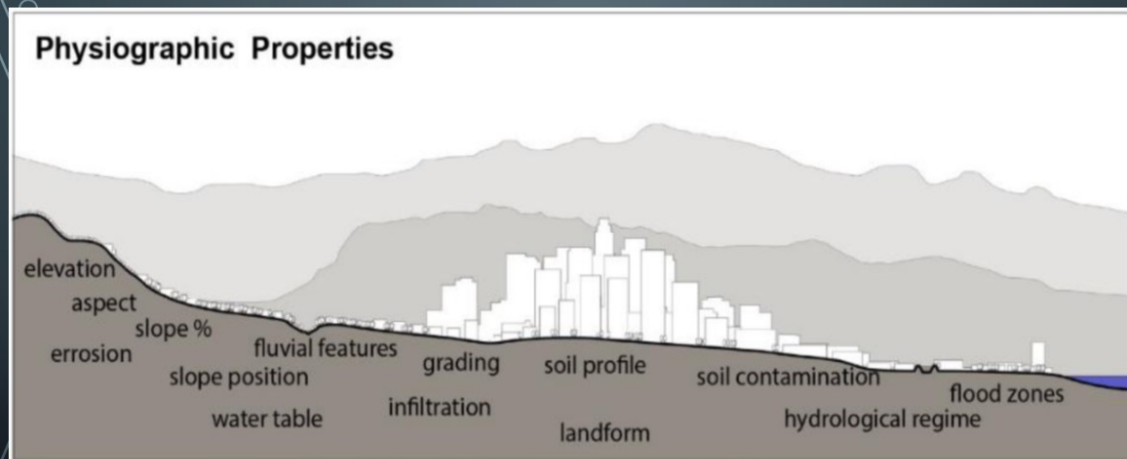
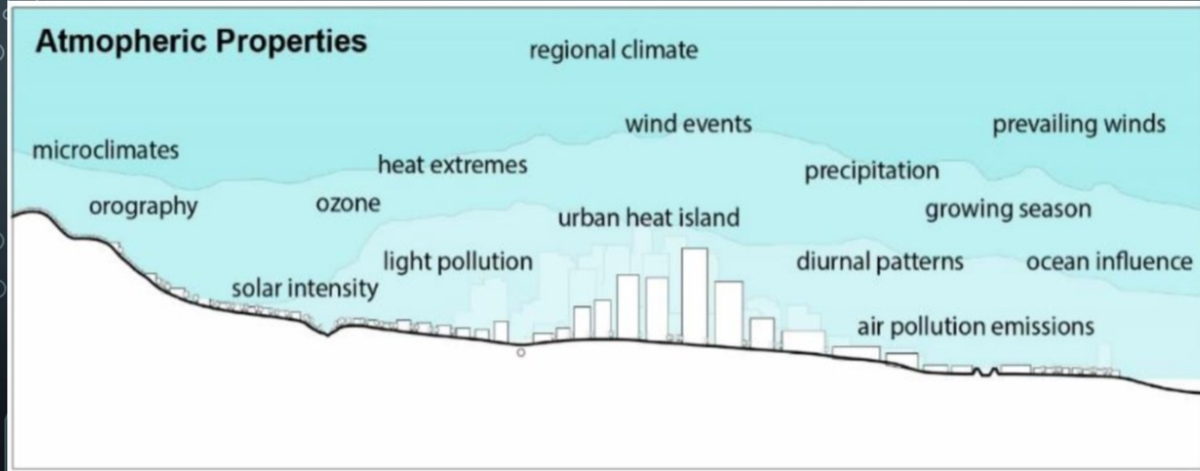
Presenter: Dr. Umer Habib
Lecturer, Department of Horticulture

Dated: Thursday, October 14, 2021 Time: 02:00 p.m. - PKT GMT+5
ZOOM Meeting ID: 955 408 3170 - Passcode: 67890

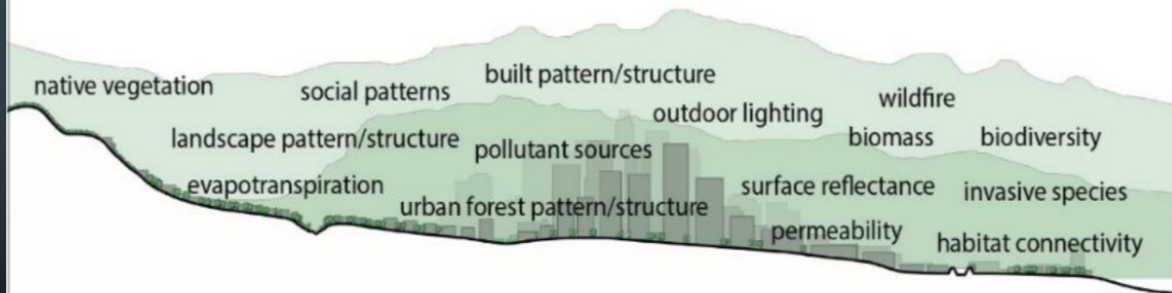
Organized By: Directorate of Advance Studies, PMAS-AAUR

ACTIVITIES

“Where people live at high densities, and where built structures and infrastructure cover much of the land surface.”



Landcover Properties



GREEN VS. GREY

An interconnected network of green space and other environmental assets that conserves the functions of the natural ecosystem and provides associated benefits to people.



Roadways and other paved surfaces



Utilities and Communications



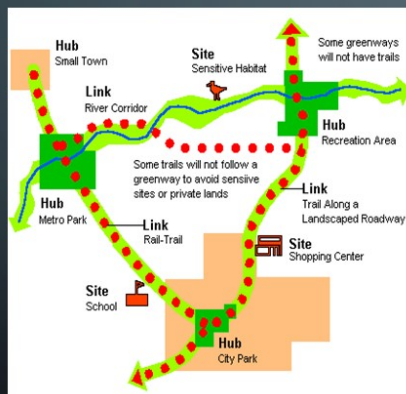
Treatment and disposal facilities

KEY ELEMENT OF GREEN INFRASTRUCTURE

- Maintaining the Urban Forest
- Preservation of Wildlife Habitat
- Preservation of Riverside Corridors for People and Nature
- Including Natural Filtration Systems such as this Urban Wetland or the installation of rain gardens

GREEN INFRASTRUCTURE NETWORKS

Green Infrastructure Networks Consist of *Hubs, Links and Sites*



- Link open spaces together to function as an ecological whole
- This enables them to better:
 - 1) remove pollutants from the air
 - 2) carry and filter stormwater runoff
 - 3) support diverse plant and wildlife species

Interconnected Networks

Wetlands
Woodlands
Waterways
Wildlife habitats
Parks
Greenways
Other open spaces

BENEFITS OF GREEN INFRASTRUCTURE

- Air Quality Improvement
- Microclimate Modification
- Stormwater Management
- Enriched Habitat and Biodiversity
- Recreational & Transportation Opportunities



TYPES OF GREEN INFRASTRUCTURE

- From flowering rooftop gardens to absorbent pavement to tree-lined streets, green infrastructure comes in many forms and can often hide in plain sight. Here are some common examples.

[Downspout Disconnection](#)

[Permeable Pavements](#)

[Green Streets and Alleys](#)

[Land Conservation](#)

[Green Parking](#)

[Rainwater Harvesting](#)

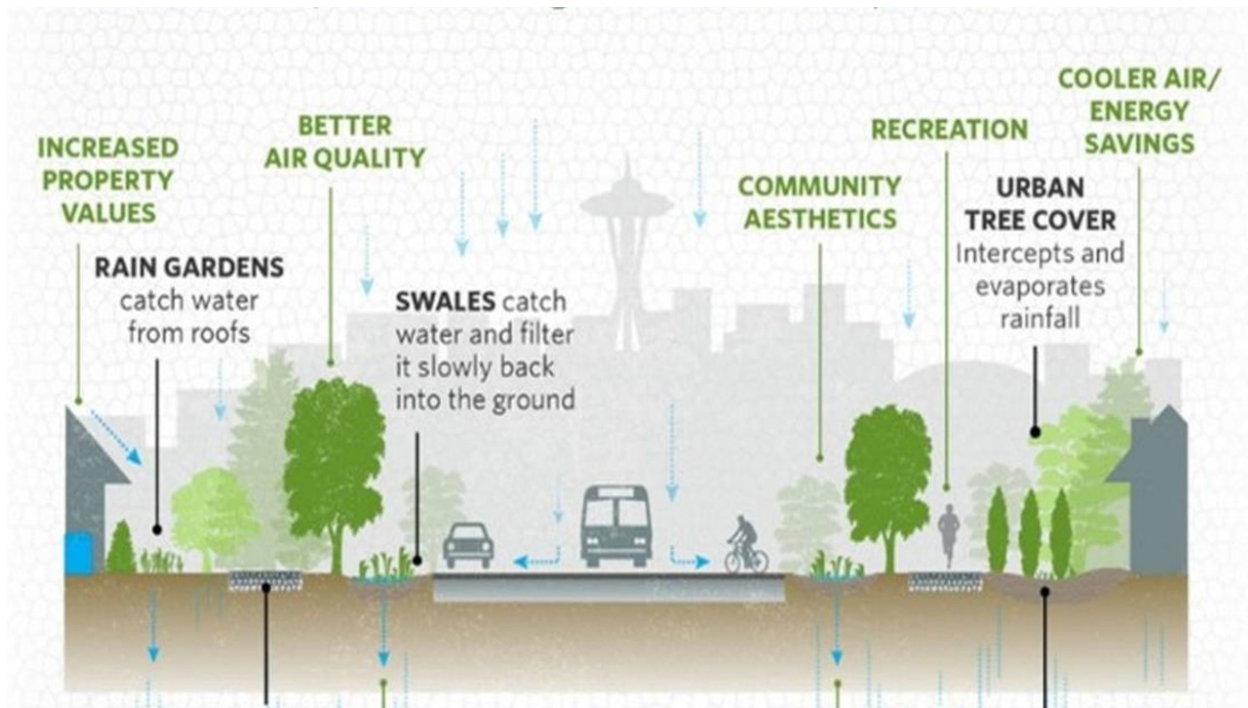
[Green Roofs](#)

[Rain Gardens](#)

[Urban Tree Canopy](#)

[Planter Boxes](#)

[Bioswales](#)



DOWNSPOUT DISCONNECTION

- Reroutes rooftop drainage pipes.
- You can use it to store stormwater and/or allow stormwater to infiltrate into the soil.
- Downspout disconnection could be especially beneficial to cities with combined sewer systems.



RAINWATER HARVESTING

- Reduce stormwater pollution by slowing runoff and collecting rainfall for later use.
- The variety of systems range from the backyard rain barrel and the commercial building cistern to ground level pits, aquifers and even nets that capture dew and fog.
- These types of systems have been implemented world-wide.



Rain Gardens



Planter Boxes

Bioswales



Permeable pavements



Green Parking



Green Alleys



Green Roofs



Land Conservation

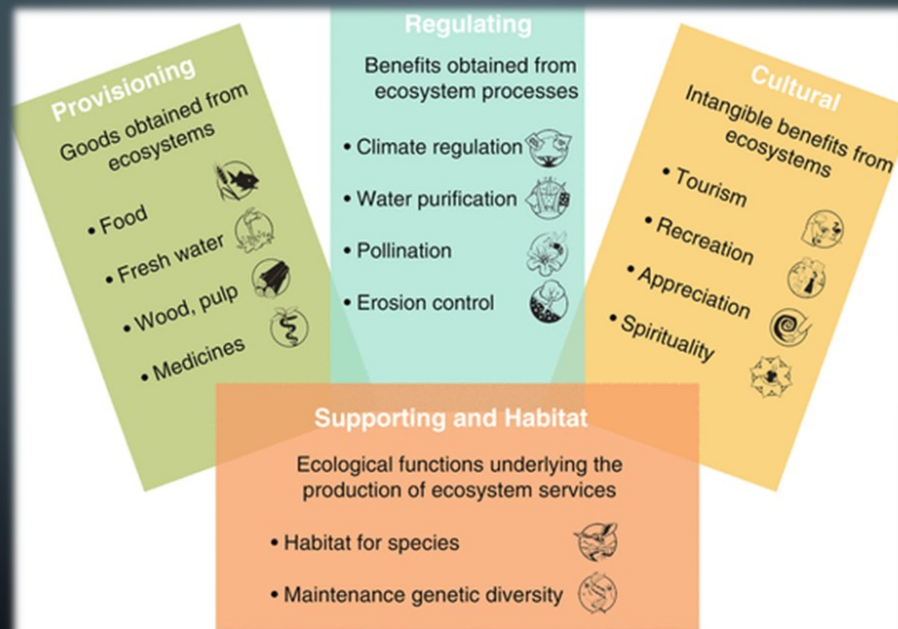


Urban Tree Canopy

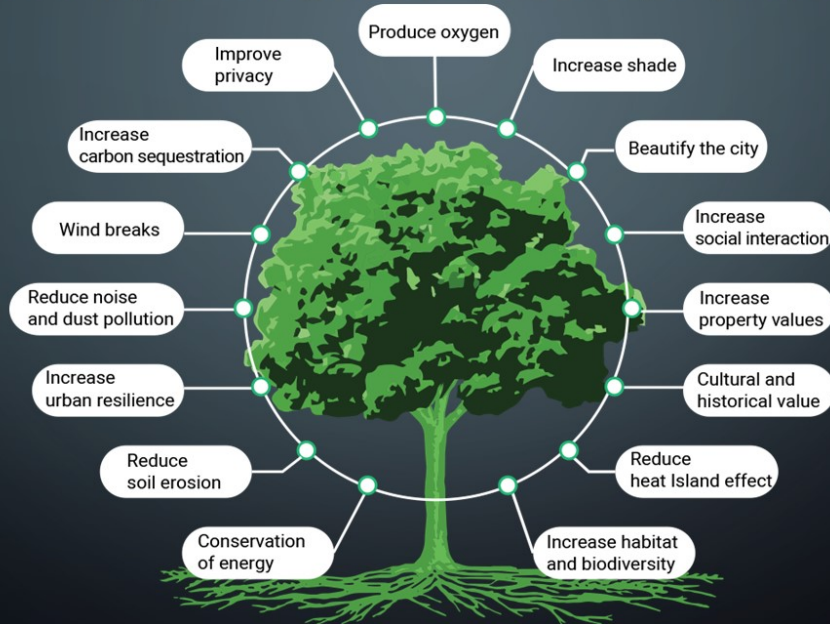


URBAN FORESTRY MANAGEMENT

- **Urban forests** are defined as “ecosystems composed of trees and other vegetation that provide cities and municipalities with environmental, economic and social benefits. They include street and yard trees, vegetation within parks and along public rights of way, water systems, fish and wildlife.”
- **Urban forestry** is defined as “a planned and programmatic approach of the development and maintenance of the urban forest, including all elements of green infrastructure within the community, in an effort to optimize the resulting benefits in social, environmental, public health, economic, and aesthetic terms, especially when resulting from a community visioning and goal-setting process.”



WHAT DOES THE URBAN FOREST DO FOR ME?

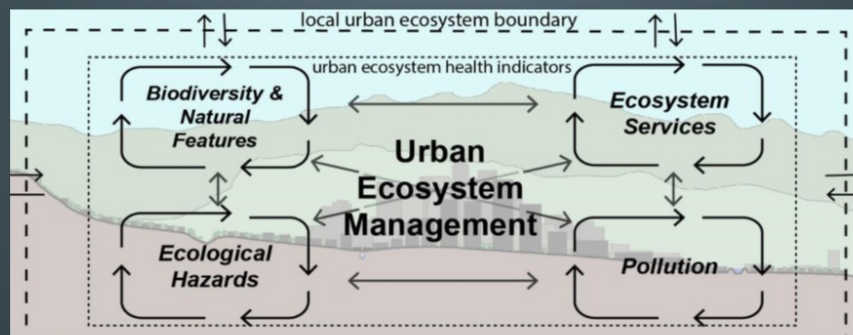


URBAN ECOSYSTEM MANAGEMENT

Diverse set of habitats, including

Green spaces, such as parks, urban forests, cemeteries, vacant lots, gardens and yards, campus areas, landfills.

Blue spaces, including streams, lakes, ponds, artificial swales, and storm water retention ponds.



Biodiversity & Natural Features		Ecosystem Services	
> habitat protection / enhancement	> edge effects	> urban forest benefits	> community enrichment
> habitat connectivity	> development footprint / land conservation	> stormwater mgmt.	> access to nature
> invasive species		> carbon storage	> local water supply
		> urban agriculture	> education
Ecological Hazards		Pollution	
> riparian flooding	> landslides	> soil contamination	> water pollution
> sea level rise	> extreme heat	> urban heat island	> noise
> wildfire	> drought	> toxic air pollution	> litter
> vegetation mortality			

A SYSTEMATIC APPROACH IS NECESSARY



- Observe
- Monitor
- Evaluate
- Prioritize
- Take Action

Critical Decisions
Careful Management