IDENTIFYING THE CONNECTIONS OF LIVEABILITY IN UDAIPUR, INDIA USING THE ARCGIS APPLICATION MATRIXGREEN

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A LIVEABLE CITY

Blue-green infrastructure + Multifunctional spaces = Ecosystem services

Biodiversity = Quality of life

Healthy population
A CONNECTED CITY
AN ECOSYSTEM SERVICE PERSPECTIVE

- Stormwater regulation
- Food production
- Carbon circle
- Recreation
- Renewable energy
- Clean water
- Green structures
- Health
- Stormwater regulation
WHAT IS MATRIXGREEN?

Input data:

• Geographical background data (biotopes, habitats etc.)
• Profile species data
  • Habitat requirements
  • Dispersal patterns

CONNECTIVITY
The connections and relations between green/blue/social areas of similar kind (e.g. habitats).
**FOR WHAT CAN IT BE USED?**

**MatrixGreen** can be used for:

- Identifying isolated segments in the landscape/city in terms of connectivity (component analysis)
- Identifying patches that are centrally situated within the network (betweenness centrality analysis)
- Reconnecting a fragmented landscape

![Ecological and social connectivity analyses](image)
PILOT PROJECT
UDAIPUR - RAJASTHAN, INDIA
AN ECOSYSTEM SERVICE PERSPECTIVE
Several neglected shrines with poor capacity to provide value to the city – but with great potential.

Several flourishing shrines with high ecological and cultural values.
THE URBAN NETWORK OF UDAIPUR

Connectivity framework:

- Patches with no more than 150m distance from each other are connected via links

Legend

Walled City of Udaipur
Udaipur Today – Working Green Space
Udaipur Today – Not working Green Space
Links – 150m Edge-to-Edge

Fragile urban ecological network → Robust and connected ecological network
THE URBAN NETWORK OF UDAIPUR

Connectivity framework:

- Any patch within the component can be reached from any other patch within the component – but not from patches outside the component.
Connectivity framework:

- Patches with high BC-scores are situated in such a way that most of the links between any two patches in the landscape pass through these patches.
THE URBAN NETWORK OF UDAIPUR

By creating ecosystem services hotspots in the existing structures of the city, potential for biodiversity and connectivity will increase, supporting a liveable and resilient urban environment.
FEEDBACK FROM CLIENTS
SMART AND HOLISTIC CITY PLANNING

Provide a system perspective on landscapes and cities

Lay the foundation for a holistic city and landscape development

Visualize resilience/lack of resilience in ecological systems

Enable smart, sustainable city and landscape planning

The analyses are transparent and easy to understand

The maps are being used by municipality planners as an indicator to how certain areas should be maintained/developed

The analyses help to explain the complexity of nature to the decision makers in a pedagogic and scientific way
THANK YOU!
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