# Biodiversity and urban planning

**Dr. Sergiu MIHUT**
**U.S.I. SRL**
**Cluj-Napoca, Branului no.5**
**smihut2000@yahoo.com**

Biodiversity Seminar
Cluj-Napoca 10.03.2010

## Urban environment

*-Front line of antropic vs. nature*
*-Citadel of humans where nature is only "tolerated"*
*-Distorsion of Biodiversity indexes*
*-Pinnacle of environment alteration*
*-Modified Ecological conditions (air/water/soil/underground)*
*-Altered evolution & adaptation processes*
*-Huge pressure of pathological agents*
*-Tentacles spread within global ecosystem matrix*

## Permanent human pressure

-*Build* more & higher
-*Less green areas (European norm 26 sqm)*
-*Better connectivity*
-*More complex infrastructure of utilities*
-*Wider impermeable structures*
-*Increasing number of pollutants*

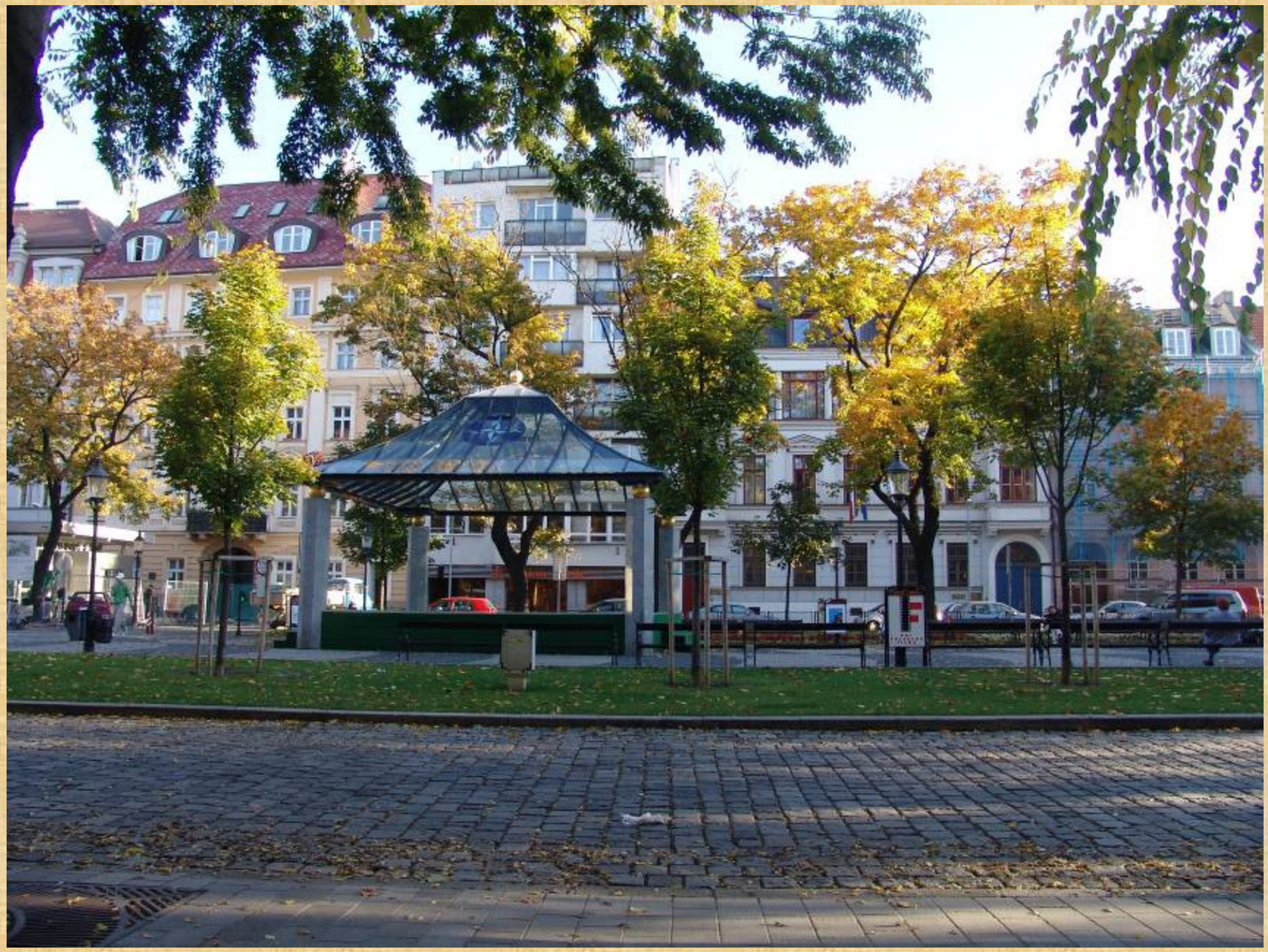

## Punctual initiatives to improve urban environment

*Why?*
Because we need comfort and security

*Standardized (European) system for urban environment assessment (EEPA)*
-55 indicators, some dedicated to biodiversity (related) issues

Suitability of urban environment **FOR** humans

Laws, regulations norms, etc.

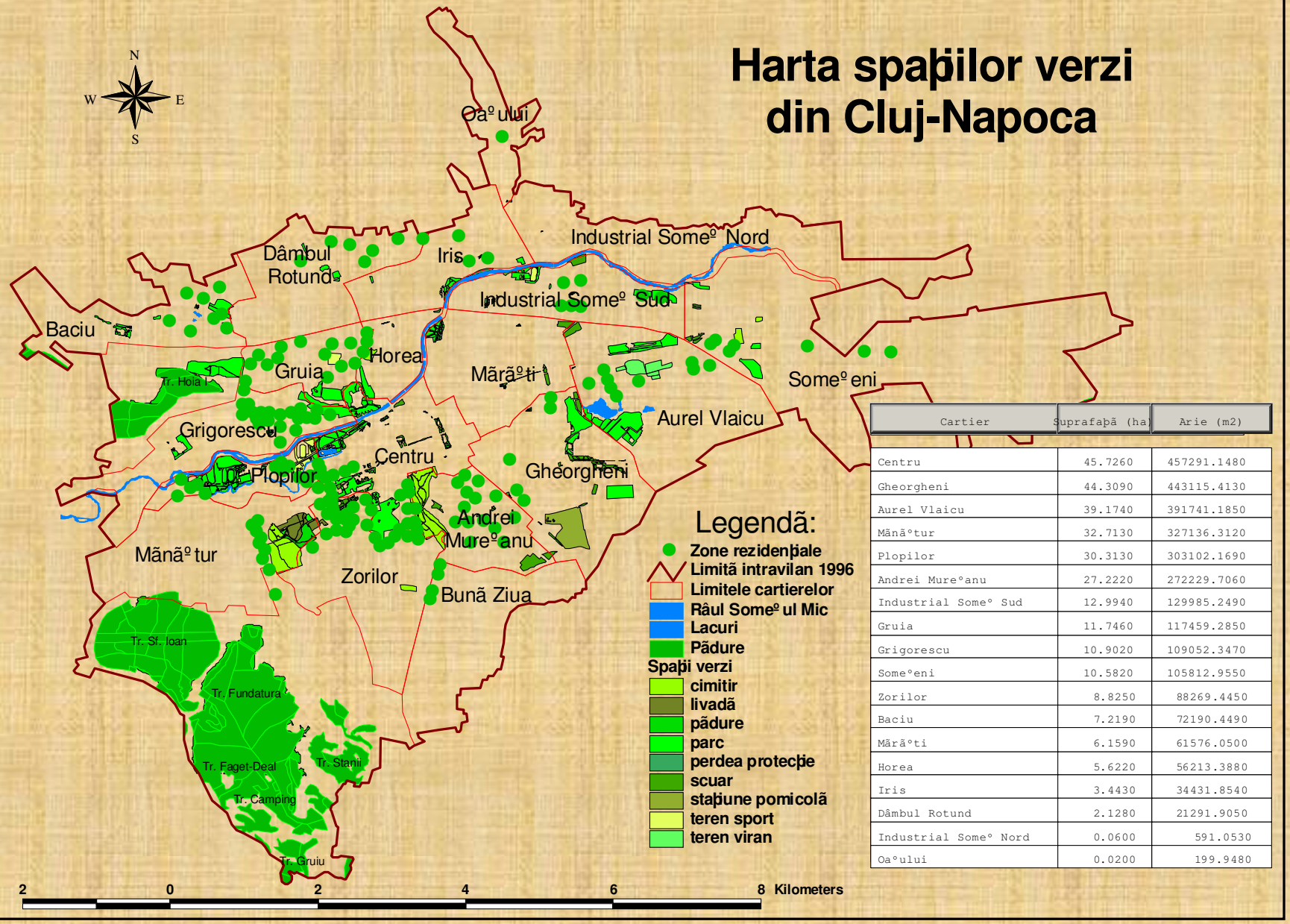


**Case Study I –***Local Action Forum for Urban Biodiversity Monitoring & Conservation*
*CFMCB Canada Embassy Grant - 2004*

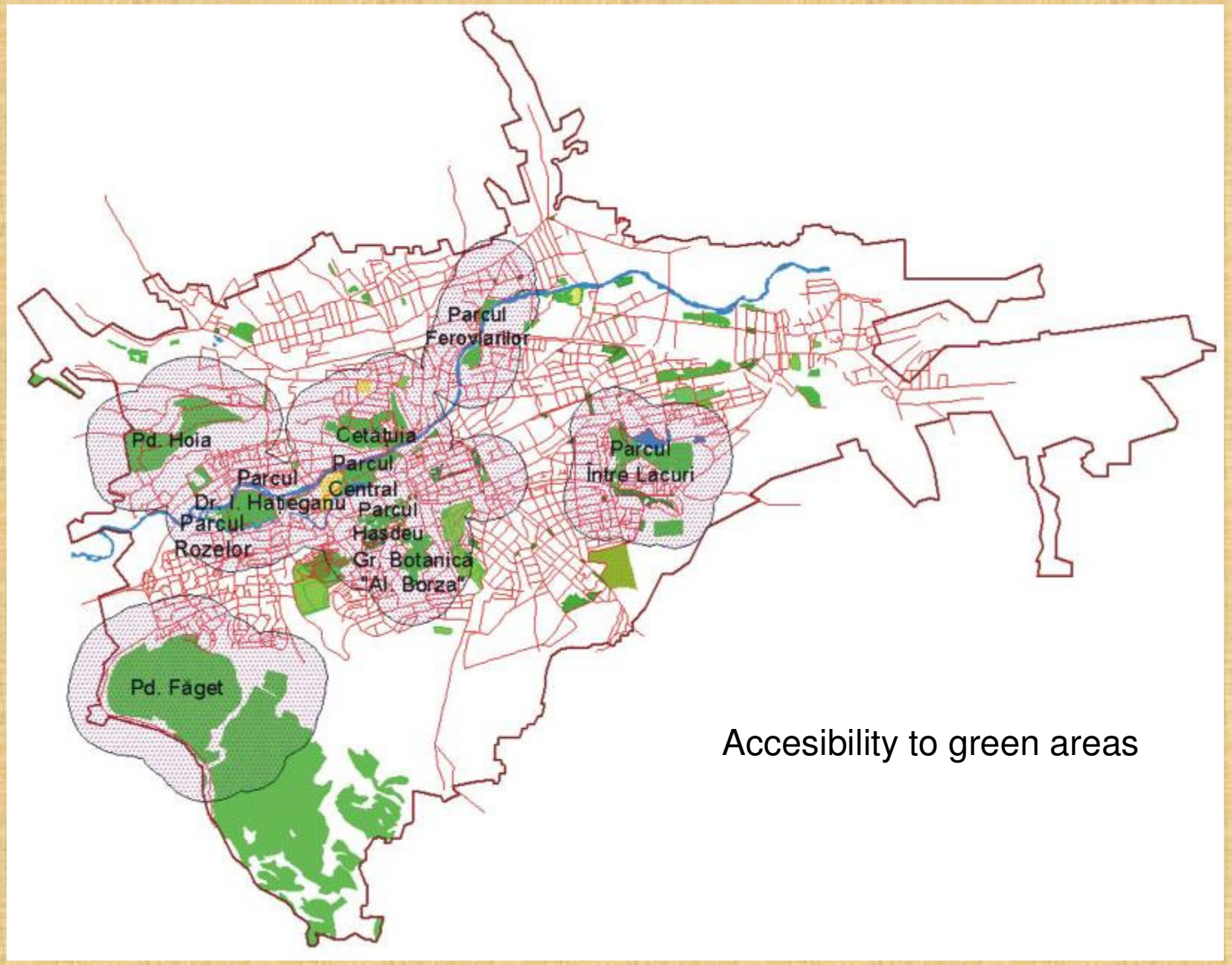
*-Direct actions*
*-Education*
*-Evaluation*



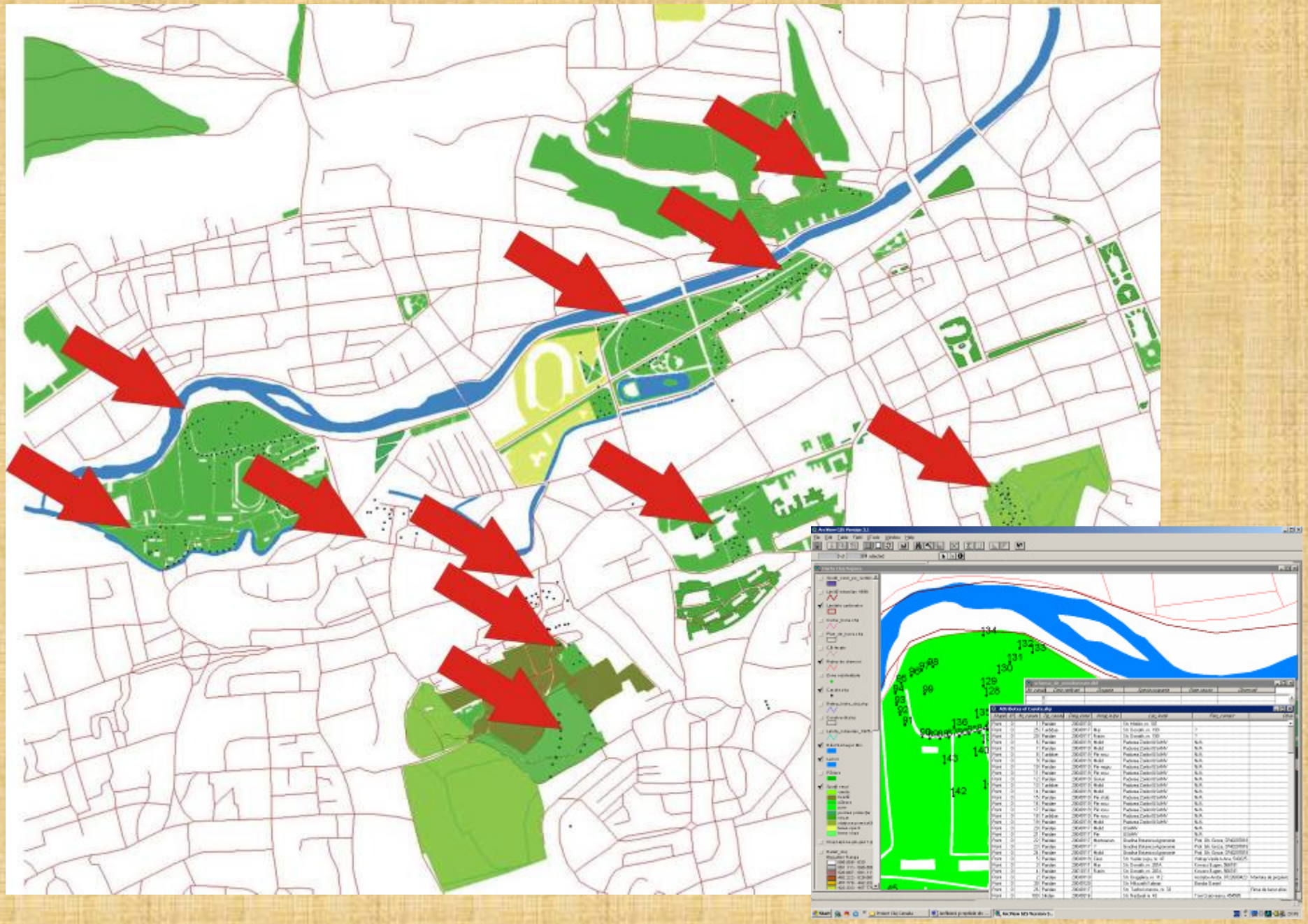
# Harta spaþiilor verzi din Cluj-Napoca




| Cartier | Suprafaþã (ha) | Arie (m2) |
|---|---|---|
| Centru | 45.7260 | 457291.1480 |
| Gheorgheni | 44.3090 | 443115.4130 |
| Aurel Vlaicu | 39.1740 | 391741.1850 |
| Mãnãºtur | 32.7130 | 327136.3120 |
| Plopilor | 30.3130 | 303102.1690 |
| Andrei Mureºanu | 27.2220 | 272229.7060 |
| Industrial Someº Sud | 12.9940 | 129985.2490 |
| Gruia | 11.7460 | 117459.2850 |
| Grigorescu | 10.9020 | 109052.3470 |
| Someºeni | 10.5820 | 105812.9550 |
| Zorilor | 8.8250 | 88269.4450 |
| Baciu | 7.2190 | 72190.4490 |
| Mãrãºti | 6.1590 | 61576.0500 |
| Horea | 5.6220 | 56213.3880 |
| Iris | 3.4430 | 34431.8540 |
| Dâmbul Rotund | 2.1280 | 21291.9050 |
| Industrial Someº Nord | 0.0600 | 591.0530 |
| Oaºului | 0.0200 | 199.9480 |

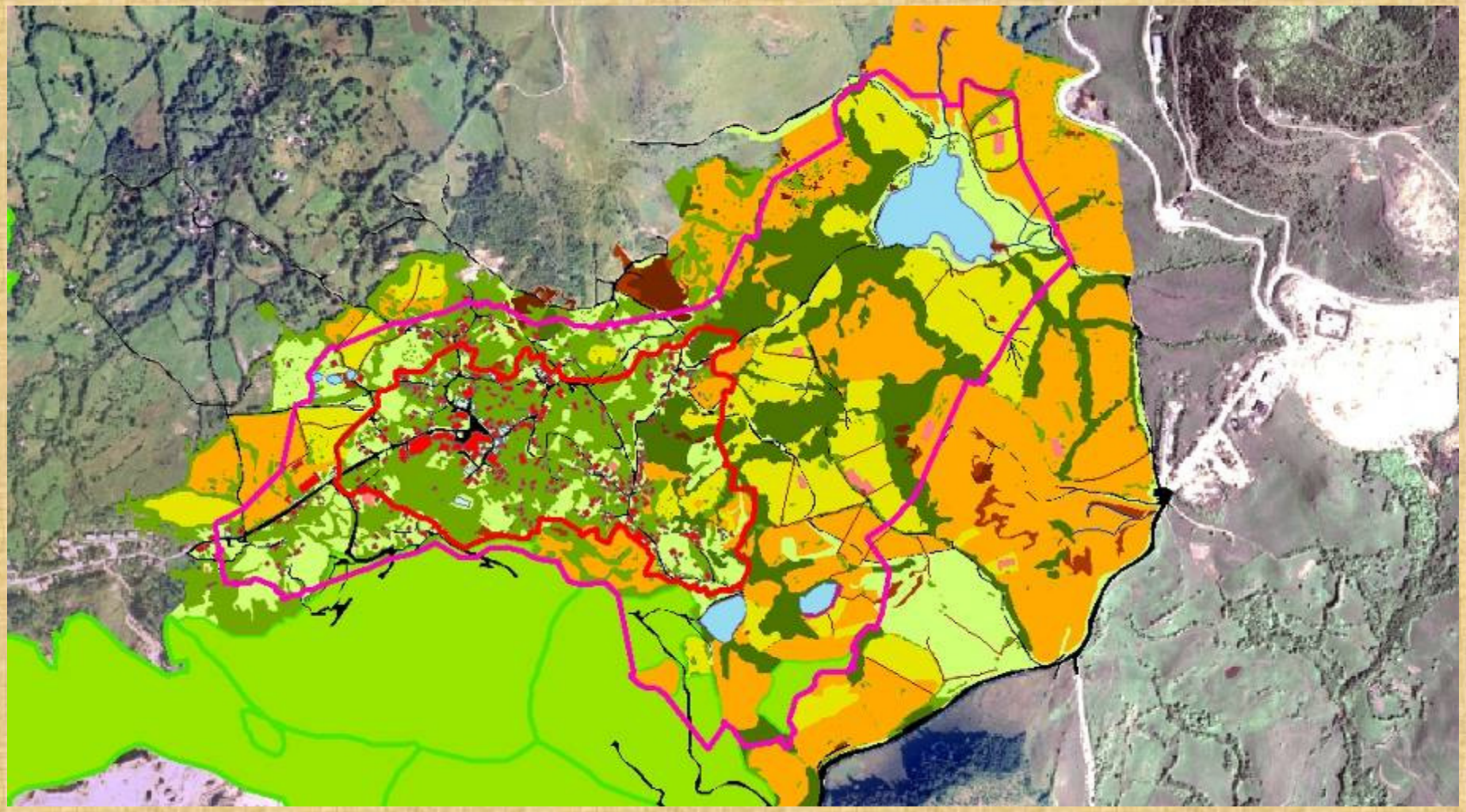



Accesibility to green areas



## **Case Study II –***Urban Revitalisation & Regeneration in Rosia Montana*

*-Better Planning (Model?)*
*-Direct activities*
*-Evaluation*



## 10 Steps

- *Inventory of plants*
- *Selection of plant species (decorative, resilience, ecological value, services)*
- *Identification of beneficial fauna species*
- *Definition of ecological niches for fauna species*
- *Set up a System of ecological niches for fauna, using suitable plant species*
- *Individualisation of architectural features supporting ecological niches*
- *Identification of suitable areas for urban regeneration*
- *Design of a network for biodiversity enhancement in urban area*
- *Proposal of the program of direct activities*
- *Monitoring & evaluation with the participation of the local community*

# 1. Inventory of plant species

- *Number of allohtonous species*
- *Approx 400 plant species*
- *34 trees*

## *2.* Selection of plant species (decorative, resilience, ecological value, services)

- *Trees: Abies alba, Larix decidua, Quercus sp., Malus sp., Populus sp., Salix sp. Fagus sylvatica, Ulmus minor, Morus nigra, Sorbus sp., Acer sp., Tilia sp.*
- *Bushes: Taxus baccata, Spirea sp., Carpinus sp., Corylus avellana, Crataegus sp., Rosa sp., Cornus sp*
- *Herbaceous: Telekia speciosa, Dianthus sp., Lilium martagon, Iris sp., Vinca sp.*

**++ 100 species**

## 3. Identification of beneficial fauna species

- *Butterflies*
- *Passerinae*
- *Herpetofauna*
- *Mustelids*
- *Bats*

## 4. Definition of ecological niches for fauna species

GIS Layers & Database

Butterfly Gardens
Insect Hotels

## 5. Set up a System of ecological niches for fauna, using suitable plant species

# 6. Individualisation of architectural features supporting ecological niches

## Economical Advantages

1. Effective edging structure
2. Reference points in territorial management/planning
3. Supplementary/alternative pool of wood resources
4. Supplementary/alternative source of products
5. Temporary shelter
6. Windscreen
7. Crop supporting structure
8. Bio-filtering structure
9. Structure diminishing soil erosion
10. Alternative source of income (tourism, sports, hunting, etc.)
11. Aesthetic function

## Ecological Advantages

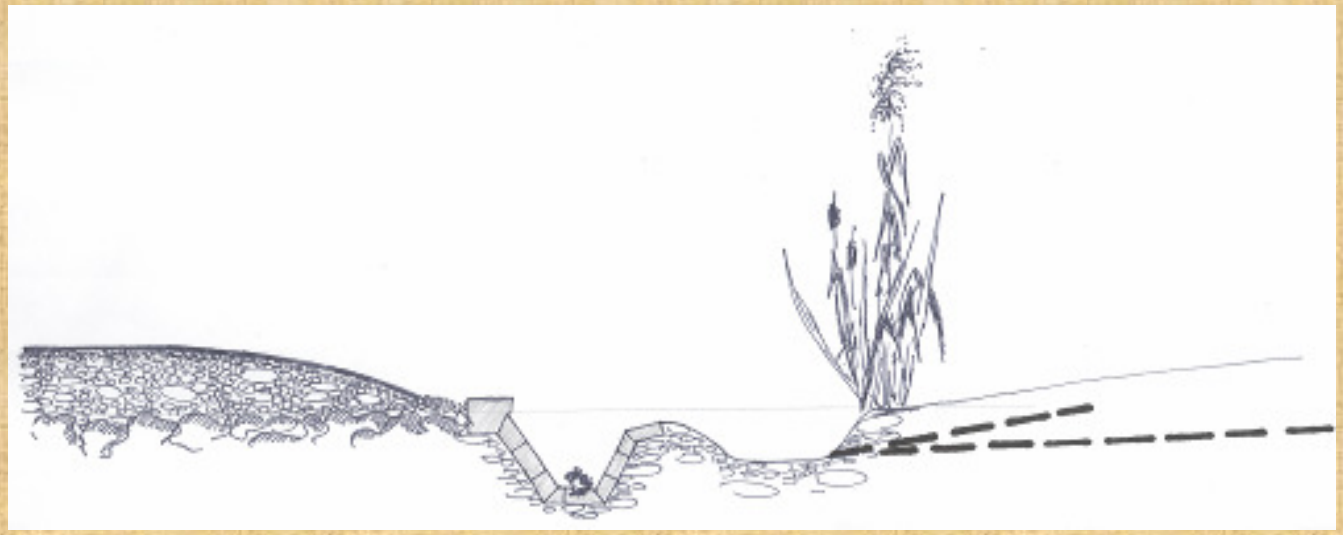
1. High value among ecological corridors
2. Balancing factor
3. High variety of ecological niches
4. Effective migration/erration routes
5. Accumulation areas for biodiversity
6. Humic production
7. Limitation of soil erosion
8. Buffer areas in hidric balance
9. Buffer areas in thermic balance especially for riparian habitats
10. Ecotone habitats inducing high biodiversity indexes
11. Alternative source of nectar
12. High didactic value

# 7. Identification of suitable areas for urban regeneration

GIS Layers & Database

# 8. Design of a network for biodiversity enhancement in urban area

Individual projects



# *Polders*

# 9. Proposal of the program of direct activities

Actions

# 10. Monitoring & evaluation with the participation of the local community


104

**Sergiu MIHUT**
**U.S.I. SRL**
**smihut2000@yahoo.com**