

# Critical Habitat Mapping for a Transboundary Pipeline

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# Presentation Purpose

- Share how GIS can meet the biodiversity information challenges in large infrastructure projects for assessment against lenders' policies and standards.

# Project Context

- 1300 km pipeline
- Gas Bridge to Europe, Turkey to Austria
- Compliance with EU Habitats and Birds Directives, PS6, EBRD PR6 and EIB Statement of Environmental and Social Principles and Standards

## Parties Involved

- Client
- In-country engineering companies
- In-country biodiversity contractors
- ESIA contractor/ biodiversity specialists

# GIS Role

- Supports standards across boundaries
- Understanding biodiversity data links with other data types
- Analysis
- Map Output
- Focus

## Key Challenges

- Datasets volume
- Version control
- Finding the right level of complexity



# Critical Habitat Criteria (PS6, 2012)

- 1. Endangered species
- 2. Endemic/ restricted range species
- 3. Migratory/ congregatory species
- 4. Threatened ecosystems
- 5. Areas associated with key evolutionary processes

## Information Scope

- Species
- Habitats/ ecosystems
- Sites

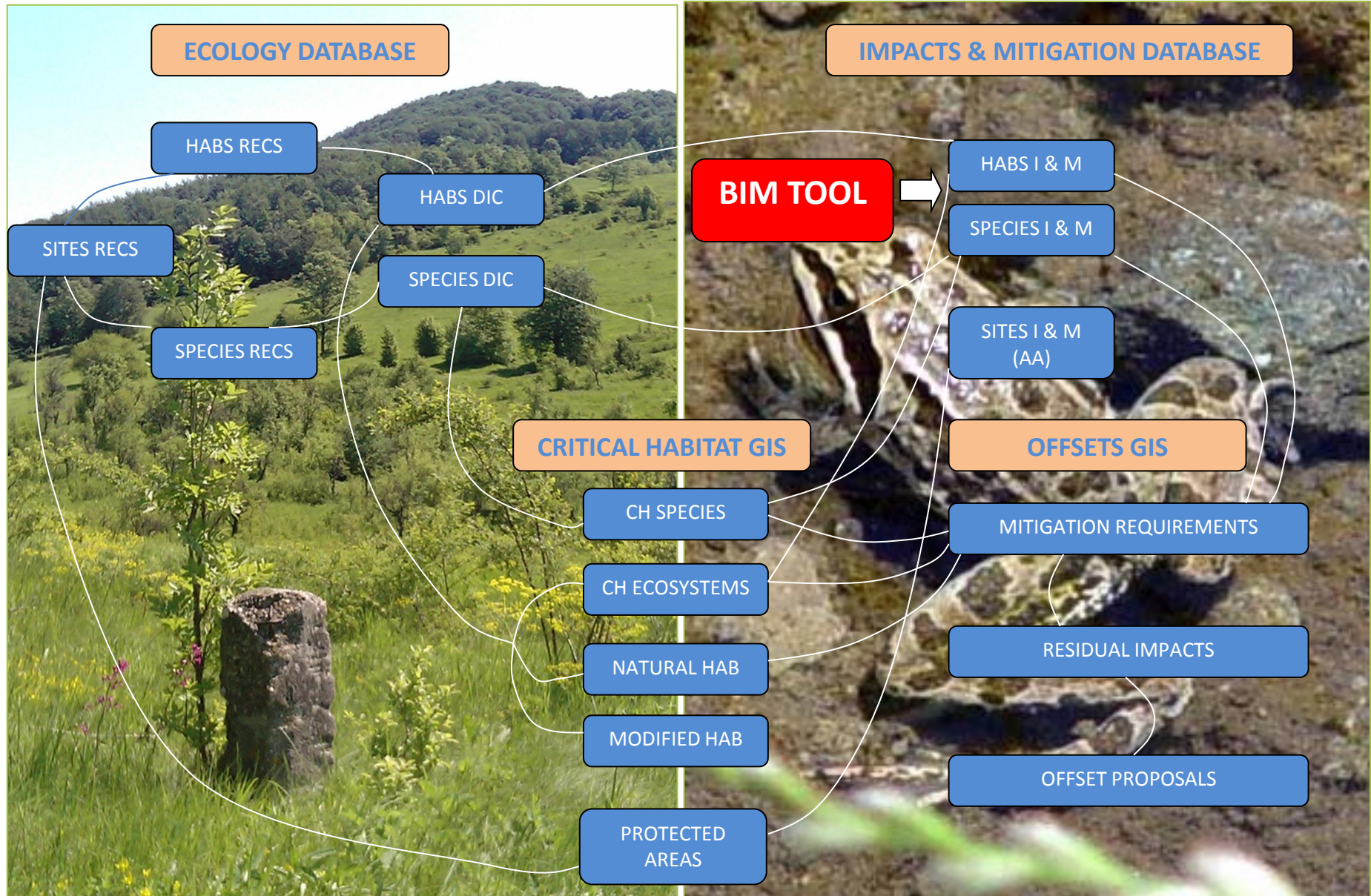
# Inputs

- Project surveys
- Secondary data
- Receptor status data
- Engineering & project data

# Outputs

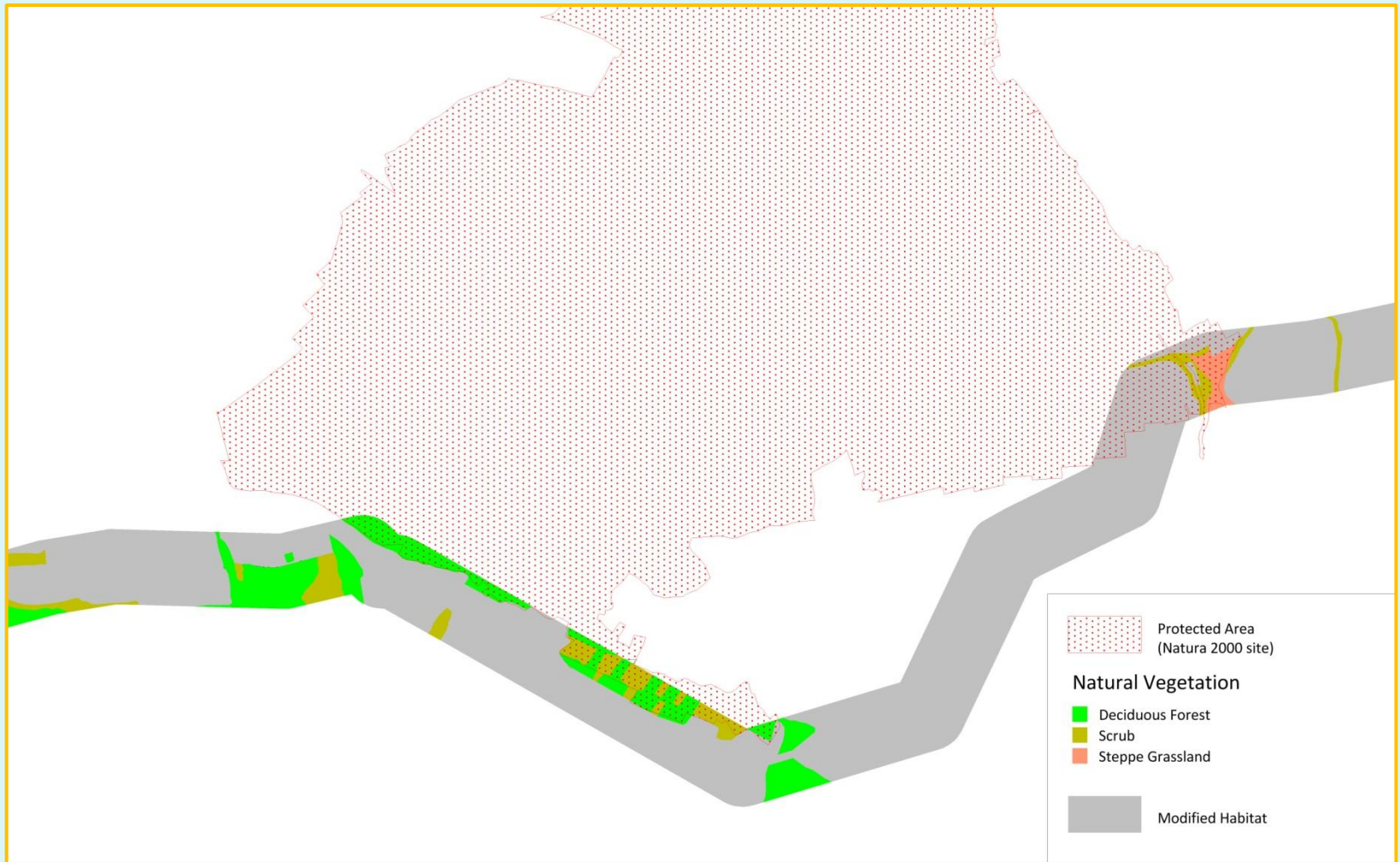
- Critical Habitat Assessments
- Appropriate Assessments
- Details of impacts, mitigation measures, offsets

# GIS and Database Relationships





# GIS output example – natural and critical habitat



# Biodiversity Impacts and Mitigation (BIM) Tool

Impacts and Mitigation

**Habitat Receptor**

Pannonic salt steppes and saltmarshes

**Location**

Felső-kiskunsági szikes puszta SCI

**1 Presence/Absence in Survey Corridor**

Present  
Absent

**2 Impact Sources (choose one)**

(Clearance) Reduced area occupied by vegetation type (temporary/ permanent)  
(Excavation) Altered soil conditions causing changes in vegetation  
(Excavation) Erosion and loss of soil cover  
(Excavation) Deposition of excavated materials/ burial of vegetation  
(Operation) Maintenance and management of vegetation for cleared strip on R

**3 Is receptor exposed to this project impact at this location?**

☒ Yes  
☐ No

**Receptor Characteristics**

**4 Sensitivity**

☒ High  
☐ Unknown  
☐ Low

**5 Vulnerability**

☐ High  
☒ Unknown  
☐ Low

**6 Resilience**

☐ High  
☐ Unknown  
☒ Low

**7 Mitigation Options**

Tree/shrub clearing timing constraint (months)  
Accelerated construction  
Accelerated reinstatement  
Alternative plant positioning during construction  
Turf reinstatement  
Topsoil replacement  
Subsoil replacement at surface  
Seed saving and re-sowing in situ  
Seed saving, ex-situ conservation, replanting  
Re-seeding special seed mix without seed saving  
Micro-topography re-construction  
Wetland creation/ restoration  
Watercourse restoration  
Grassland restoration  
Tree planting, general  
Tree planting, site species specific  
Other woodland creation/restoration  
Special grassland management post restoration

**Add**  
**Remove**

**Mitigation Requirements**

Mitigation measures are required for this impact source as the impact is likely to be significant

**Selected mitigation measures for this impact**

Accelerated reinstatement  
Turf reinstatement  
Special grassland management post restoration

**8 Click to capture mitigation measures**

(9 Not used for habitat receptors)

**10 Potential Significance After Mitigation**

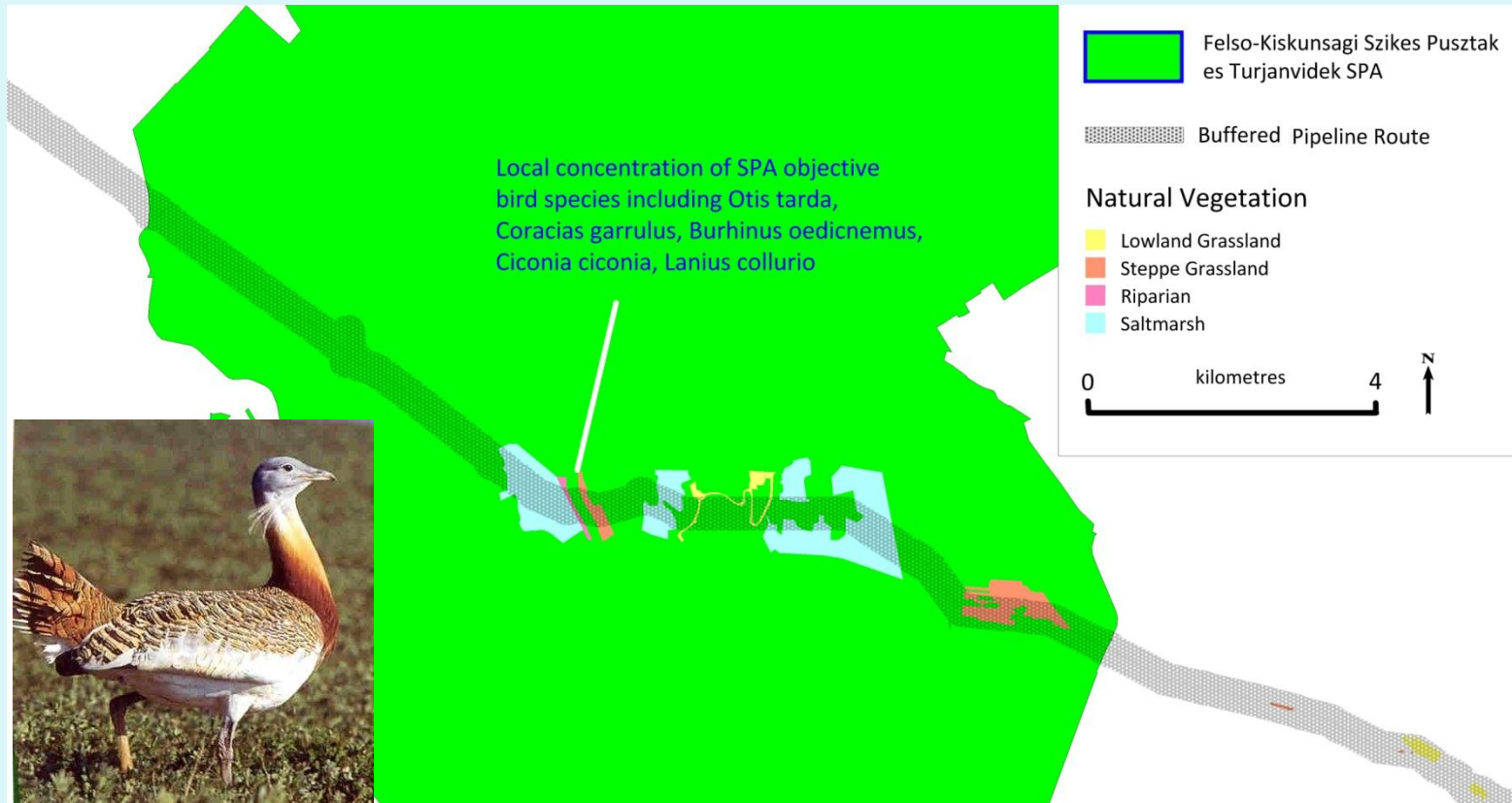
☐ High  
☐ Uncertain  
☒ Low or negligible

**11 Mitigation details/ rationale (free text)**

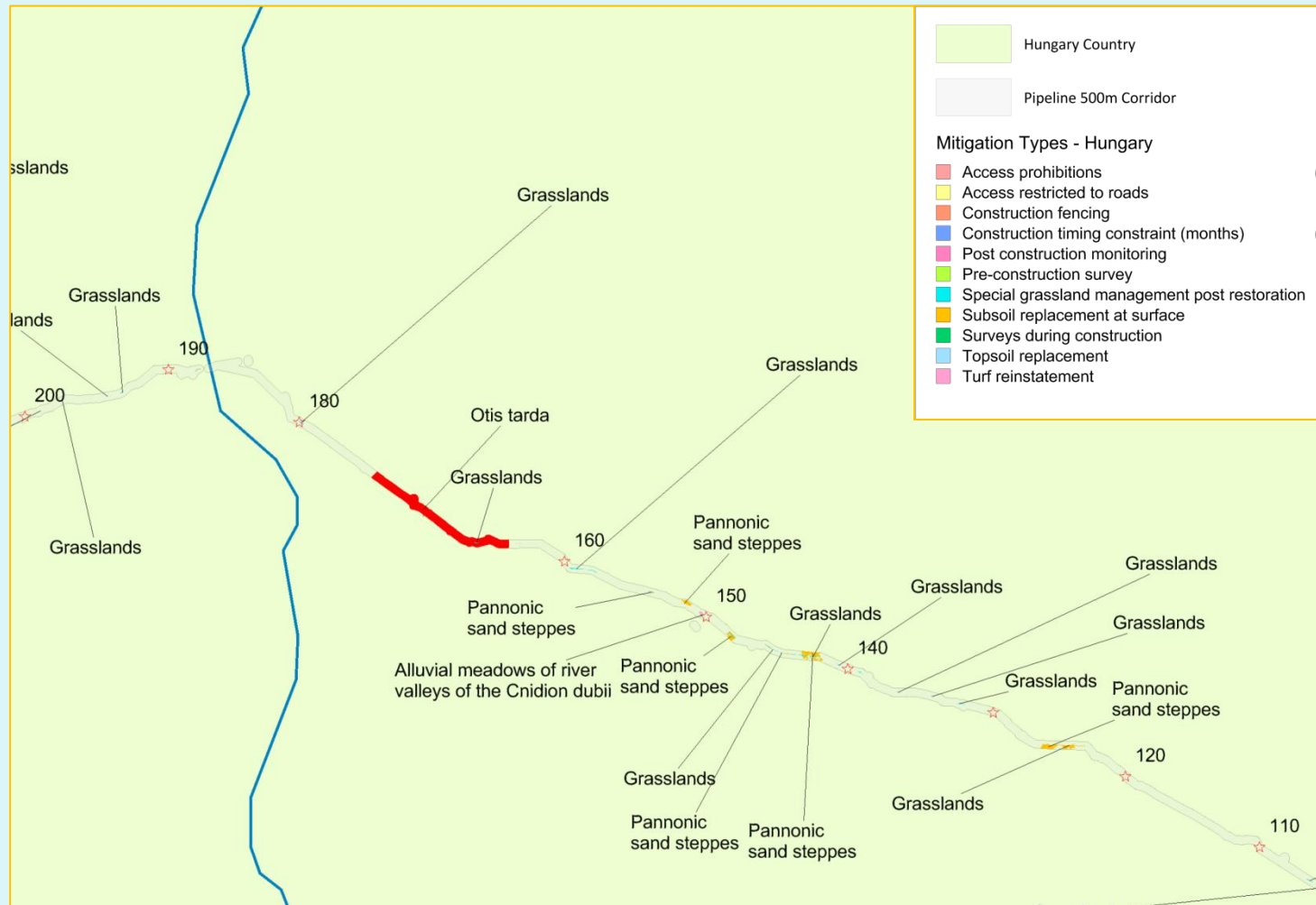
Control invasive species for 10 years post construction

**12 Finished**

# GIS output example – sites, habitats, species



# GIS output example – mitigation measures



# Key Conclusions

Biodiversity GIS required to:

- Capture baselines
- Evaluate against project datasets, critical and natural habitat
- Link to impacts, mitigation & offset assessments
- Track data and decisions through project life cycle