NbS-34 POLLINATOR HABITATS AND CORRIDORS

Pollinators play a critical role in biodiversity conservation, urban farming, and regenerative agriculture, while also contributing to wildlife corridors and mitigating human-wildlife conflicts.
Pollinator habitats and corridors, ranging from wildflower strips in urban parks and green roofs to grassed waterways in agricultural lands, serve as habitat linkages, enhance ecological connectivity, and support species migration.
Southeast Asia is home to diverse pollinators, including native bees (e.g., Apis cerana and stingless bees), butterflies, moths, beetles, flies, and birds like sunbirds. These pollinators not only sustain ecosystems but also boost crop productivity and maintain forest regeneration, essential in tropical and equatorial climates. Practical NbS include urban pollinator gardens, rehabilitated forest edges, and integrated landscape management to create pollinator corridors between agricultural fields and forest reserves. By supporting biodiversity hotspots, promoting ecosystem services, and facilitating coexistence with wildlife (e.g., linking elephant migration paths with biodiverse landscapes), pollinator-focused NbS offer social benefits such as food security, education, and aesthetic value, while providing technical and economic gains like improved yields and climate resilience.

LANDSCAPES SUPPORTED

EbA (ECOSYSTEM-BASED APPROACHES)

- ECOLOGICAL CONNECTIVITY
- AGROECOLOGY
- HABITAT RESTORATION
- CLIMATE-SMART AGRICULTURE
- INTEGRATED LANDSCAPE MANAGEMENT
- URBAN BIODIVERSITY ENHANCEMENT
- WILDLIFE CORRIDOR DEVELOPMENT

MAIN PROBLEMS ADDRESSED

- BIODIVERSITY LOSS
- FOOD SECURITY

ECOSYSTEM SERVICES AND ACTIONS

SUPPORTING

- **Biodiversity Support**: Provide habitats and corridors for pollinators, maintaining species diversity and ecological interactions.

REGULATING

- **Pollination Regulation**: Enhance crop pollination and natural vegetation growth, improving ecosystem productivity.

PROVISIONING

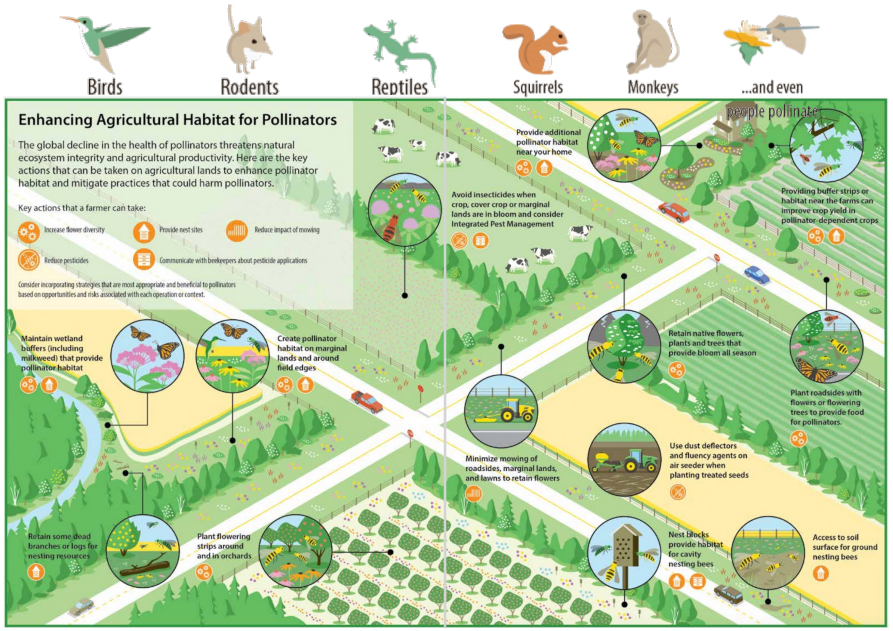
- **Agricultural Yield Improvement**: Support higher yields of pollinator-dependent crops, enhancing food security and farmer livelihoods.

SOCIAL BENEFITS

- **Community Engagement**: Create opportunities for education and participation in pollinator-friendly practices and urban greening.
- **Aesthetic and Recreational Value**: Enhance the visual appeal and recreational potential of green spaces through pollinator-attracting flowers and vegetation.

NbS-34 POLLINATOR MODULES AND CORRIDORS

Pollinator Park Pathway



Enhancing Agricultural Habitat for Pollinators. *Source: Technical Guide for Preserving and Creating Habitat for Pollinators on Ontario's farms*

PROJECT'S CHALLENGES & RISKS

- **Habitat Fragmentation**: Urbanization and agricultural expansion may disrupt the connectivity of pollinator corridors, reducing their effectiveness.
- **Pesticide Use**: Widespread use of chemical pesticides and herbicides in Southeast Asia poses significant risks to pollinator health and survival.
- **Climate Sensitivity**: Changes in temperature and precipitation patterns can affect the flowering cycles of plants and the activity of pollinators, reducing their mutual benefits.
- **Invasive Species**: Introduction of non-native plant or animal species may outcompete native flora and fauna, disrupting local pollinator ecosystems.

NbS co-BENEFITS AND THEIR INDICATORS

- **Biodiversity Conservation**
  Increased diversity of native pollinator species, measured by species richness and abundance surveys.
- **Agricultural Productivity**
  Enhanced crop yields in farms near pollinator corridors, monitored by harvest data.
- **Climate Resilience**
  Improved resilience of ecosystems through pollination of climate-adaptive plant species, assessed by vegetation health indices.
- **Community Engagement**
  Greater participation in pollinator conservation initiatives, tracked through community-driven projects.
- **Urban Aesthetic and Liveability**
  Visually appealing green spaces in urban areas.
- **Education and Awareness**
  Increased awareness of pollinator importance, gauged by the number of educational campaigns and outreach events conducted.

COST ANALYSIS

- **Direct Costs**
  Initial establishment costs for native plantings, habitat modules range from $5k to $10k/ha.
- **Indirect Costs**
  Maintenance costs, including vegetation management and monitoring, may be around $500 to $1,000 /ha/year.
- **Time Horizon**
  Projects typically span 10–20 years, with a discount rate of 5–7% for long-term ecological benefits.
- **Direct Benefits**
  Increased crop yields from enhanced pollination services can generate valuable benefits in agricultural contexts.
- **Indirect Benefits**
  Ecosystem services like biodiversity conservation and community well-being contribute to societal value.
- **Risk Assessment**
  Potential failure due to habitat fragmentation or invasive species incurs financial for mitigation efforts.

REFERENCES:

Philippines Pollinator Initiative.

Singapore's Nature Ways.

China, Hong Kong, Kadoorie Farm and Botanic Garden.

IMPLEMENTATION OPPORTUNITIES:

Philippines, Central Luzon Agricultural Zone.
Indonesia , Jambu and Riau Provinces.
Singapore's expanding of Nature Ways into urban core.
Mekong River Delta Region's ecosystems.
Thailand, Chiang Mai's urban green roofs and urban farming lands.