The Hong Kong
Institute of Architects
香港建築師學會

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By post & email
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Dear Mr. YAU,

The Hong Kong Institute of Architects' Comments and Suggestions on the Development of Nature-based Solutions Guidelines

The Nature-based Solutions (NbS) Guidelines present a comprehensive and technically robust framework for integrating nature-based solutions into Hong Kong's urban development, particularly in the San Tin/Lok Ma Chau area. The document synthesizes international best practices with local considerations, offering clear design principles, performance metrics, and case studies. However, to ensure the guidelines are both visionary and pragmatically implementable, several key aspects warrant further refinement.

Technical Strengths and Innovations

The guidelines excel in their structured approach to NbS design, particularly through the three-tiered framework (macro, meso, micro scales) and the integration of IUCN Global Standards. This ensures alignment with global best practices while addressing Hong Kong's unique challenges, such as limited space, high-density development, and climate vulnerabilities. The emphasis on performance metrics—such as biodiversity units, carbon sequestration, and permeable surfaces—provides a measurable foundation for evaluating NbS success. Digital monitoring tools (e.g., LiDAR, eDNA) are a forward-thinking addition, leveraging Hong Kong's technological capabilities to track ecological gains.

The inclusion of local case studies, such as the Tung Chung Eco-Shoreline and Long Valley Nature Park, demonstrates practical applications of NbS in Hong Kong's context. These examples not only illustrate design principles but also highlight the potential for NbS to address multiple objectives, such as flood resilience, urban cooling, and biodiversity enhancement.

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Suggestions for Improvement and Implementation:

1. Implementing Nature-based Solutions (NbS) in Hong Kong through a multi-scale, integrative approach:-

a. Multi-Level Masterplanning (MACRO, MESO, MICRO)

i. Hong Kong's vulnerability to climate risks (e.g., typhoons, heat islands) demands systemic NbS integration. Holistic integration of interventions aligning NbS across territorial (MACRO), district (MESO), and site-specific (MICRO) scales shall be ensured to address interconnected challenges like stormwater management, biodiversity loss, and air quality between ecosystems, infrastructure, and urban design. For example, watershed management at the MACRO level could inform localized flood-resilient designs (MICRO). MICRO-level green roofs/walls in high-rises could complement MESO-level urban forests in district parks.

ii. Cross-departmental collaboration (e.g., Planning Department, Drainage Services, Environmental Protection) is critical to avoid fragmented implementation.

b. "NbS Maps" for Territorial/District Interventions by the Government in MARCO & MESO scales

i. Data-Driven Planning: Mapping blue (e.g., rivers, coastlines) and green (e.g., parks, green corridors) infrastructure helps prioritise and integrate interventions.

ii. Visual spatial mapping tools like NbS maps can enhance community buy-in by illustrating co-benefits (e.g., recreation, cooling effects).

iii. Maps shall account for climate change impact and projections (e.g., sea-level rise) to ensure long-term relevance.

iv. NbS maps will provide regulatory clarity with targeted green coverage ratios and permeable surfaces at MARCO & MESO scales and will set and elevate NbS baselines.

v. GIS and participatory mapping may be deployed to overlay NbS opportunities with socio-economic data.

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c. Two-Tier Requirements for MICRO-Level Building Design

i. Two-tier requirements - obligatory and recommended can be considered for implementing integrative NbS between different building developments at the MICRO scale.

ii. Streamlined approval processes or incentives for the obligatory or recommended requirements respectively can be considered to alleviate implementation barriers.

iii. Financing Mechanisms: Explore public-private partnerships (PPPs) and green bonds to fund NbS, leveraging Hong Kong's financial sector.

iv. Community Co-Design can be promoted to engage residents in co-creating NbS to foster stewardship. The NbS guidelines may include recommendations or guidelines for facilitating co-design workshops.

2. Regulatory and Statutory Alignment

While the guidelines are technically sound, they could better suggest how NbS align with Hong Kong's existing regulatory framework. For instance, integrating NbS into the Environmental Impact Assessment Ordinance (EIAO) and Hong Kong Planning Standards and Guidelines (HKPSG) would streamline approvals and avoid conflicts with conventional infrastructure standards which favors hard engineering.

3. Site-Specific Adaptability

Hong Kong's diverse landscapes—from steep slopes to reclaimed land—demand tailored NbS solutions. The guidelines could expand on design adaptations for challenging sites, such as:

- **Vertical greening and rooftop ecosystems** for high-rise-dominated areas.
- **Phytoremediation techniques** for contaminated or landslide-prone sites.
- **Hybrid eco-dykes** for flood protection in vulnerable zones.

4. **Cost-Benefit**

To justify NbS investments, the guidelines should include localized cost-benefit analyses comparing NbS with conventional solutions (e.g., eco-shorelines vs. concrete seawalls). Highlighting long-term savings (e.g., reduced maintenance, enhanced property values) would strengthen the business case.

5. Stakeholder Engagement, Community Co-Creation and Community-Centric Design

While the guidelines acknowledge multi-stakeholder collaboration, a more structured engagement framework would enhance implementation. For example:

- **Early-stage workshops** with planners, ecologists, and district councils to align NbS with regional goals.

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- **Community co-creation** could be deepened by participatory design process (e.g. design of pocket parks) and Community-Centric Design addressing social needs (e.g., cooling shade, recreational space).
- **Iterative feedback loops** with maintenance teams to address operational challenges.
- **Digital participatory tools** (e.g., interactive maps) to foster transparency and public trust.

Recommendations for Implementation

- **Pilot Projects:** Test guidelines in small-medium-scale projects (e.g., within San Tin Technopole) to refine metrics and build stakeholder confidence.
- **Training Programs:** Collaborate with HKIA and universities to train architects/engineers on NbS design and monitoring.
- **Policy Advocacy:** Work with the government to update planning standards and building codes to incentivize NbS through mechanisms like bonus plot ratios.

Conclusion

The Nature-based Solutions Guidelines are a significant step toward sustainable urban development in Hong Kong. By addressing regulatory alignment, site-specific adaptations, cost-benefit transparency, and balanced stakeholder engagement, they can evolve from a technical manual into a transformative tool for resilient, ecologically integrated design. The architect's role will be pivotal in translating these principles into context-sensitive, implementable solutions.

Yours Sincerely,

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