Infrastructure Asset Management for Sustainable Development – Supporting local (and central) governments

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- Building data and information system
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- Climate vulnerability assessment tool
- Process tool for building enabling environment

**Part II: Opportunities for you to engage**
- Participate in online learning activities
- Contribute to global repository of Asset Management Action Plans
- Join IAM network of local governments
- Request technical assistance
What is Infrastructure Asset Management (IAM)

- What are infrastructure assets?
  - Infrastructure assets are physical things of value that provide a public service to the community
  - Public infrastructure assets are essential to the delivery of basic public services and are owned or managed by the local or central government

- What is infrastructure asset management?
  - Infrastructure asset management refers to the coordinated series of activities that monitor and maintain these things of value
  - Infrastructure asset management involves balancing risk, cost, opportunities and performance to fully and effectively realize the value of an asset over its entire lifespan
Why do we care about Infrastructure Asset Management?

- It is estimated that the realization of over 90 percent of the Sustainable Development Goals is directly or indirectly linked to infrastructure.
- Undermaintained infrastructure can lead to an annual 2 percent loss in GDP.
- Up to 85 percent of life cycle cost occur after the construction phase.
Who implements infrastructure asset management at the local level? It’s a multistakeholder effort...

<table>
<thead>
<tr>
<th>Level</th>
<th>Asset management tasks</th>
<th>Roles</th>
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| Operational| • Respond to operations and service requests  
• Conduct maintenance  
• Conduct inspections | • Supervisor  
• Operator  
• Mechanic  
• Technician |
| Tactical   | • Develop capital plans  
• Optimize maintenance plans | • Director  
• Manager  
• Engineer |
| Strategic  | • Allocate budget for capital and operating expenses  
• Endorse infrastructure investment plans | • Mayor  
• City director  
• City council or committee  
• Chief Accounting Officer |
Part I: Toolkits in the UN Handbook on Infrastructure Asset Management

- Asset Management Diagnostic Tool
- Asset Management Action Plans (AMAP)
- Building data and information system
- Emergency response AMAPs
- Climate vulnerability assessment tool
- Process tool for building enabling environment
UN IAM Toolkits: (1) Asset Management Diagnostic Tool

- Comprehensive assessment of current needs and challenges – the Asset Management Diagnostic Tool offers a simple way to do this
- The main aim of the Diagnostic Tool is to measure and raise governments’ awareness of asset management techniques.
- Only the first step towards better asset management and should be followed by a concrete plan of action

**Diagnostic Tool process**

**Part 1: Self-assessment**
- Focal person appointed by organization to coordinate responses with assessment team.
- Assessment team sends Part 1 to Chief Administrative Officer or equivalent within organization.
- Organization completes Part 1.

**Part 2: On-site assessment**
- Assessment team arranges visit to organization through focal point.
- Assessment team reviews Part 1 with organization.
- Assessment team interviews key stakeholders.

**Part 3: Evaluation**
- Assessment team sends Part 2 findings to organization for review.
- Assessment team completes evaluation, recommends interventions and lays out next steps.
- An ‘asset management profile’ prepared and provided by assessment team to organization.

**Which local government officials participate in the assessment? Some examples…**

- **Bangladesh**
  - Secretary
  - Accounts Officer
  - Medical Officer
  - Slum Development officer

- **Nepal**
  - Finance Chief
  - Revenue Chief
  - Information Officer
  - Internal Auditor

- **Tanzania**
  - Valuer
  - Town Planner
  - City Engineer
  - City Water Engineer

- **Uganda**
  - Town Clerk
  - Municipal Engineer
  - Chief Finance Officer
  - Environmental Officer
  - Senior Procurement Officer
Part 1: Self-assessment

- Diagnostic Tool consists of a cover sheet and a questionnaire
- The cover sheet provides us with basic information on the local land area, population and the local officials involved in asset management
UN IAM Toolkits: (1) Asset Management Diagnostic Tool

2 Part 2: On-site Assessment

- Understanding and defining requirements
- Life-cycle decision-making
- Asset management enablers
- Conducting Interviews

3 Part 3: Evaluation

Diagnostic Tool results graphs

Chart A: Overall results

Chart B: Summary results

Chart C: Understanding and defining requirements
UN IAM Toolkits: (2) Building Data and Information System

Steps to build the foundation of an efficient asset information system:

- **Step 1**: Assemble asset management information team
- **Step 2**: Establish asset register hierarchy
- **Step 3**: Plan data collection
- **Step 4**: Collect data
- **Step 5**: Validate Data
- **Step 6**: Establish asset register
- **Step 7**: Maintain & Update
UN IAM Toolkits: (2) Building Data and Information System

Asset information feedback cycle

1. Improved asset register database
   - Greater understanding of data requirements for achieving desired outcomes
2. More useful and effective information and insights
3. Improved decision-making
4. Better outcomes in the community

KPI to evaluate the performance of assets

1. **Asset consumption ratio**
   \[ \text{Asset consumption ratio} = \frac{\text{Sum of depreciated replacement costs (DRC) of assets}}{\text{Sum of current replacement costs (CRC) of depreciable assets}} \]

2. **Asset sustainability ratio**
   \[ \text{Asset sustainability ratio} = \frac{\text{Sum of capital expenditure for replacement or renewal of assets}}{\text{Sum of depreciation expenses}} \]

3. **Asset renewal funding ratio**
   \[ \text{Asset renewal funding ratio} = \frac{\text{Net present value (NPV) of planned capital investments}^*}{\text{NPV of required capital investments}^*} \]
   *on renewals and/or replacements over 10-20 years
UN IAM Toolkits: (3) Asset Management Action Plans (AMAP)

Asset management action plan (AMAP) steps

- **Step 1**: Establish asset management policy and/or framework
- **Step 2**: Identify stakeholders and set performance goals for priority asset
- **Step 3**: Review current asset management methods and technologies
- **Step 4**: Identify improvements to close gaps and meet goals
- **Step 5**: Formulate and implement actions to improve asset performance

Guidance from Asset Management Diagnostic Tool
UN IAM Toolkits: (3) Emergency Response AMAP

How assets can enable health and emergency response services

- **Energy and utilities**
  - Energy production such as hydro-electric dams, electrical transmission and distribution

- **Food**
  - Ablutions, markets

- **Transportation**
  - Local road networks, bus stations and transportation hubs

- **Government**
  - Local government offices, public buildings

- **Health**
  - Hospitals and clinics, sanitation and garbage collection

- **Water**
  - Treatment plants, distribution networks and pumps (such as wells), sanitary sewage collection and treatment, dams

- **Safety**
  - Streetlighting, police buildings

- **Testing, treatment for infected patients, case management, safe disposal of medical waste**

- **Handwashing equipment and facilities; eradication of disease vectors (mosquito, flies)**

- **Ensuring safe movement and maintaining peace; effective distribution of food and social protection support**

How to strengthen preparedness and response to public health emergencies within asset management systems
How to turn an AMAP into an Emergency Response AMAP

Improve coordination within and among local governments

- Identify and document new emergency response roles played by asset managers and record responsibilities
- Communicate emergency operations and maintenance with neighbouring jurisdictions and local authorities to execute collaborations across multiple localities

Protect the safety of frontline asset managers and operators

- Document new safety procedures or protocols for performing day-to-day asset maintenance or operations functions
- Identify important roads and transport corridors to clear and maintain to safely move essential workers, residents and commodities across the municipality

Support and guide local asset managers through different emergency response phases

- Identify national public health emergency response resources that can close gaps in local action
- Connect local emergency funding needs with national emergency response resources

Key elements of emergency operation plans and procedures
UN IAM Toolkits: (4) Climate and Infrastructure

Climate Change Hazards

- Storm Surge
- Wild Fire
- Drought
- Landslides

Impacts of Climate Change on Infrastructure

- Asset Loss
- Equipment Failure
- Loss of Service
- Degraded Service
UN IAM Toolkits: (4) Climate Vulnerability Assessment Tool

1. Which climate hazards are likely to affect your community?
2. How does it impact your community?
3. How vulnerable are you to those impacts? (Function of exposure and adaptive capacity)

- Define the relationship between a climate hazard and your municipal services, using a consistent and logical structure:

[climate hazard] impacting [service area, asset] resulting in [consequence]
UN IAM Toolkits: (4) Climate Vulnerability Assessment Tool

4 Which climate impacts are likely to have the most severe consequences?

- Risk Evaluation Factor include:
  - Public Safety
  - Service Interruption
  - Financial implications
  - Environmental Harm
  - Asset Damage

5 Consider the big picture. Given your community’s goals, which climate risks warrant response efforts now?

- Likelihood x Consequence = Urgency

Risk level interpretations:
- Low risk: moderate risks are of sufficient importance to consider adaptation actions but may not be adequately incorporated into longterm asset plans.
- Moderate risk: high risks will require adaptation actions to mitigate the potential for significant consequences. These risks should not simply be accepted as part of routine operations.
(6) Key conditions (central and local) for establishing and sustaining an enabling environment for infrastructure asset management

Designing an enabling environment

- Central government: access to more detailed, structured and realizable asset information to guide their asset management policy and planning
- Local government: regularly updated inventory of their assets that includes their **conditions, value, and risk to guide lifecycle and portfolio management**
- Central government: more structured, standardized process to allocate infrastructure funding to the local levels
- Local government: better data on asset condition and other measures to support capital investment planning, and can create evidence-based lists of prioritized projects
- Central government: better view of the differences in financial capacity and expectations across the local government sector
- Local government: better knowledge of their short- and long-term financial positions, and can evaluate the impact of investment decisions on their financial positions and indicators
- Central government: support projects and efforts that target underlying resource and capacity challenges in local government
- Local government: improved organizational culture and asset management practices according to their own objectives, capacity and pace
- Central government: policies and guidance that realign incentives away from short-term decision making at local level
- Local government: remain transparent on asset management progress, or lack thereof, and ensure asset management needs are addressed in the budget
Part II: Opportunities for you to engage

- Participate in online learning activities
- Contribute to global repository of Asset Management Action Plans (AMAPs)
- Join IAM network of local governments
- Request technical assistance
Participate in online learning opportunities

1. Synchronous online learning
   - Online Solutions Dialogues: a 3-part virtual workshop series for regional audiences in Africa, Asia-Pacific and Latin America and the Caribbean
     - Used new tools for promoting online interactivity
     - Simultaneous interpretation
     - Post workshop assignments for certification
   - More than 2500 registered participants

2. Asynchronous online learning
   - A self-paced, ‘offline’ alternative to live workshops, providing more in-depth instruction and targeting a broader audience
   - In partnership with UN Institute for Training and Research (UNITAR) and Columbia University and now Coursera
   - Based on contents of the Handbook – 8 modules, 1 per chapter
   - Participants can receive up to two UN Certificates of Completion

3. Hybrid learning
   - UN workshop on IAM in South-East Europe (Dec 2021)
     - Four-day workshop with an innovative hybrid format in which participants were on-site in Belgrade, Serbia and instructors were both online and on-site
     - On-site expert consultants guided participants in completing interactive assignments
   - Local government officials finalized the Asset Management Action Plans (AMAP)

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Contribute to global repository of Asset Management Action Plans

- More than 150 AMAPs available online
  - Over 100 of which was designed during the pandemic in the crisis management setting
  - Continued monitoring efforts on implementations in the field, which feeds back into future guidance
- Strengthening the future linkage of the SGI fair, and ensuring the policy feed into related field
Join IAM network of local governments

• Quarterly editions with the latest news and insights on IAM from the UN system and beyond

✓ Featured interviews with experts on IAM

✓ Successful experiences of sustainable IAM practices implemented around the world

✓ Accessible, online, and free
Apply for UN technical assistance to support infrastructure asset management at local and national levels

- Toolkits / policy guidance (national and local)
- In-country diagnostics (local)
- Customized workshops (local)
- Implementation support (local)
- Training of trainers (national)
- Enabling environment support (national)

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Technical assistance and country-level support

• Our work has received support from the UN Peace and Development Fund (UNPDF) to scale up our activities for a 3-year period

• Project countries include Uganda, Tanzania, Kenya, The Gambia, Bangladesh, Nepal, Lao PDR, Peru and Costa Rica

• Additional projects in Tanzania, Somalia, and Uganda
Questions?

Please visit: bit.ly/UN-IAM

or contact: IAMH@un.org