System transformation areas: Buildings and Infrastructure

ACW/NDE FORUM
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Relevance of Buildings and Infrastructure
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• The building and construction sector accounts for almost one-third of total final energy consumption and 15% of end-use sector direct CO2 emissions, and its share of emissions rises to around 30% if indirect emissions from the electricity and heat used in the buildings are included.

• Climate technology and innovation including the new design, retrofitting and the redesign of existing infrastructure combined

• Nature-based Solutions (NbS) and grey infrastructure, has a key role to play to align energy efficiency and emissions reduction within the sector. **Smart solutions can ensure buildings and infrastructure are adapted for climate change and greater resilience and safety of the populations utilizing them.**

• Estimates show that the net benefit of investing in resilient infrastructure in low- and middle-income countries would amount to $4.2 trillion, which is a $4 in benefit for each $1 invested.
CTCN: Buildings and Infrastructure
Since its creation, the CTCN has achieved the following results on Buildings and Infrastructure at global level:

- **77 technical assistance projects** delivered totaling **15 million USD**
- **62 developing countries** received CTCN’s technical assistance, and **3 multi-country** technical assistance projects
- **50 projects** leveraged/boosted National Systems of Innovation and **27 on Digitalization**
- **Thousands** of stakeholders participated in capacity-building
By facilitating and strengthening the flow of know-how, experience, and solutions for low-carbon and climate resilient buildings and infrastructure, CTCN has delivered tangible changes in achieving national mitigation and adaptation goals by **piloting innovative and indigenous technologies and enhancing the regulatory framework**.

<table>
<thead>
<tr>
<th>Countries</th>
<th>Examples of the CTCN Technical Assistance</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burundi</td>
<td>Easily deployable water-filled flood barrier that can be used to prevent damage from flooding and to store water vapor-tight to ensure water availability in times of drought</td>
<td>Completed</td>
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<tr>
<td>Côte d’Ivoire</td>
<td>The identification of projects for the greening and resilience of the land and coastal areas of the Commune of Cocody, Abidjan</td>
<td>Completed</td>
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<tr>
<td>Zimbabwe</td>
<td>Development of Green Building Standards for Zimbabwe</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Eswatini</td>
<td>Strengthening the National Disaster Management Agency’s (NDMA) application of UAV and Remote sensing technology for vulnerability assessments and response planning</td>
<td>Completed</td>
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</tbody>
</table>
CTCN: Buildings and Infrastructure
Examples of Future Technical Assistances

- Net zero emission buildings and green infrastructure, green building materials
- Application of IoT for building management
- Digital public goods and community-based solutions and resource pricing.
- Climate Resilient Smart Cities
- Longer lead time based Early warning systems for drought, floods etc.
- Real time systems for monitoring and management of floods.
- Use of remote sensing and UAVs for Urban planning through nature-based solutions.
- Integrated Coastal zone management through nature-based solutions.
- Integrated water management systems and Smart water and waste-water networks.
TEC: Buildings and Infrastructure
As part of its work to support the implementation of Pre-2020 implementation and ambition, the TEC in collaboration with the CTCN organized (virtual) regional Technical Expert Meetings (TEMs) on Climate smart cooling solutions for sustainable building 2020

TEC Upcoming work

Explore the use of low carbon materials in buildings, green building codes and green zoning systems that promote energy efficiency and resilience

(Output: workshop on green building code in 2024)
1. The buildings sector represents one of the largest energy consuming sectors in most of the regional economies; it often consumes over one third of final energy in countries,

2. Benefits accrued are beyond reduction in emission, benefits, such as use of locally produced green building materials, reducing electricity loads, and transforming the roles of small and medium enterprises

3. Governments play role from leading in policymaking, regulations and standards that may incentivize sustainable financing, to supporting research and development of promising cooling technologies through partnership and collaboration.

4. Access to finance was identified as one of the main challenges to implementation of climate technologies, including smart cooling
Recommendations to COP21 (select)

The COP recommends Parties to:

1. Introduce policies, schemes and programmes that promote climate-smart cooling solutions for sustainable buildings
2. Introduce financial incentives schemes that encourage and facilitate the shift to innovative climate-smart cooling solutions
3. Promote initiatives on capacity-building and awareness-raising on climate-smart cooling solutions for both the supply and the demand side (producers and consumers of cooling services);
4. Stimulate usage of solutions that build on local knowledge and techniques;
5. Incentivize participation of the private sector

Full insights and recommendations: [https://unfccc.int/documents/267476](https://unfccc.int/documents/267476)