Ushering in a Paradigm Shift

Global Housing Technology Challenge - India

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CEO, WRI India
28th July, 2018, Lucknow, India
The PMAY-U is committed to deliver 1.2 Crore houses by 2022...
Material consumption by the construction sector is doubling every decade

<table>
<thead>
<tr>
<th>Year</th>
<th>Material Type</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>Fossil Fuels</td>
<td>~1 bn tonnes</td>
</tr>
<tr>
<td>2007</td>
<td>Fossil Fuels</td>
<td>~2 bn tonnes</td>
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<tr>
<td>2017</td>
<td>Fossil Fuels</td>
<td>~4 bn tonnes</td>
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Material consumption

Infrastructure 50%

Others 25%

Real Estate 50%

Housing 75%

Affordable Housing 96%

With the large demand for affordable houses, this segment will account for the highest consumption of construction related materials – sand, soil, stone, limestone, metals, fossil fuels and biomass – approx. 1.5 billion tonnes currently.

Its adverse implications

- Environmental Pollution
- Construction delays
- Price fluctuations
- Illegal operations
- Labour uncertainty
- Resource depletion
- Landscape degradation
A technology transition is needed to …

- Reduce Pollution
- Speed up construction
- Reduce Costs
- Improve Labor conditions
- Conserve natural resources
Making technology transitions a success - Learnings from experience in India
The first LED lamp made in India, in 2010 was sold for INR 1200, a price unaffordable for most consumers.
Started in Puducherry in 2012

- **3 key partners** (the Puducherry Electricity Department (PED), Energy Efficiency Service Limited (EESL), and International Institute for Energy Conservation (IIEC))
- **Demand aggregation** that promoted economies of scale through Institutional Anchors
- **Sops for bulk procurement of LED bulbs** using a Standard Offer Program that treated energy efficiency as a commodity, similarly to renewable energy or conventional resources
- **Monitoring & Evaluation, Distribution and Marketing**
- **National level schemes/ promotion** and distribution of LED bulbs undertaken subsequently

Source: Shakti Sustainable Energy Foundation
Figure 4: Sales trends of CFLs, tube lights, incandescent bulbs, and LED bulbs

Source: ELCOMA
Electric Vehicles | Fuel Efficiency - Technology Transition

• GoI commits to India becoming a 100% EV Nation by 2030

• Creating demand – EESL has made 2 bulk orders of 10,000 EVs each

• Private players encouraged to join the market

• Support to R&D

• Financial support under FAME

• Financial commitment to develop the eco-system
Effecting a Paradigm Shift

**SUPPLY SIDE INTERVENTIONS**
- Facilitating sourcing and production of new technologies
- Facilitate global – local knowledge transfer
- Ease manufacturing and capital investment frameworks/taxes

**DEMAND CREATION**
- Create demand at scale through bulk purchase
- Raise consumer awareness and acceptability

**RESEARCH AND DEVELOPMENT (R&D)**
- Incentivize domestic R&D
- Simplify testing, compliances and certifications

**INFRASTRUCTURE**
- Incentives for setting up of new technology manufacturing plants
- Skilling and availability of labour

**SUSTAINABILITY CHECKS**
- Performance indicators for new technology evaluation and monitoring over time
Bringing about a Paradigm Shift in Housing Construction Technology
Hon’ble Minister, Mr Hardeep Singh Puri announced the intent to launch the Global Housing Technology Challenge at the World Urban Forum in Kuala Lumpur in February 2018.
The Challenge seeks to get the best construction technologies from around the world, which will:
• Deliver the maximum number of houses,
• Within the minimum time,
• At minimum cost, and
• In a sustainable manner

Quick, Cheap and Green
<table>
<thead>
<tr>
<th>Challenge Components</th>
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<th>2</th>
<th>3</th>
</tr>
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<tbody>
<tr>
<td><strong>Proven Demonstrable Technologies</strong></td>
<td>Induct appropriate established technologies through lighthouse projects</td>
<td><strong>Potential Technologies that need Acceleration</strong></td>
<td><strong>Grand Expo-Cum-Conference</strong></td>
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<td><strong>Potential Technologies that need Acceleration</strong></td>
<td>Support domestic technology developers by providing product development, incubation, acceleration, and market development support.</td>
<td></td>
<td>Platform for innovative construction technology promotion – opportunity to enter into business partnerships</td>
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<td><strong>Grand Expo-Cum-Conference</strong></td>
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Thank You.