

## Low carbon cities and behavioral change

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### ***Urban/city at nutshell and behavioral changes***

Almost half of the world population lives in urbanized areas. Cities generate a large share of global GDP, consume a high share of global commercial energy, and emit a large share of global carbon dioxide (CO<sub>2</sub>) emissions already. In the future, the CO<sub>2</sub> emissions per capita in cities of developed countries is already high and will resist to decline while additional 1.8 billion new urban dwellers- most of them from developing countries- will be added in next 25 years who would demand more energy per capita and demand to emit more than before. Therefore, great challenges lie on to find how to develop low-carbon cities or to re-orient existing cities towards low carbon pathways. However, the scientific and policy responses to urban energy and carbon management challenges have been inadequate and wrongly placed. They are fragmented, follow reductionism approach (in sectoral fashion), ignore urban as a single unit, lack integration of urban system, and overlap/mismatch urban governance. Three things are urgent towards low-carbon cities: (1) better integration of urban system- infrastructure and activities (2) technological advancements to improve efficiency and effectiveness, and (2) behavioral shift to make rational choices and lifestyle changes in cities. It is important to note that the first and second are necessary but, for deep-cuts, utterly not sufficient without the third.

### ***Limitation of current debate***

Individual behavior of urban dwellers matters for carbon emissions through energy saving, less material consumption, choice of public transport over private transport, and how one choose to live in their physical space (houses, offices etc) amongst others. However, there are several limitations on current debate on behavioral change towards low carbon cities:

- The vision of low carbon city in next 100 year is unclear – the acceptable and desirable form of low carbon city solely depend on our envisioned behavioral change
- Existing discussions focus on incremental change; such conventional way is not sufficient
- Behavioral change discussions are often technology dominated, price-tagged, top-down and lacks psychology, various attributes of personal choice associated with individuals' irrationalities to the price signals
- Behavior change process in cities will be non-linear with surprises; current discussions lack the critical mass of change-agents needed and the tipping points for accelerated changes
- Behavioral shift and levers for change has to be dramatically different in post-modernized nations, rapidly developing nations and less developed nations (generality vs. specificity)

### ***Who to lead change?***

Current debates on low carbon cities and urban carbon management are largely municipal government-centric. Such municipal government-centric approach is necessary but not sufficient since that capacity and relevance of municipal government to lead the required changes are limited. Governments of multiple levels are key actors to induce behavioral changes in cities through setting-up operational framework (educational, awareness, technology, economics and regulation). Businesses can play role in by shaping choices, providing alternatives and promoting green businesses in cities. Citizen groups have role to play by campaigning to make rational choices and creating awareness and media to educate and inform public and put political pressures to act. In essence, a multi-level governance of urban carbon is necessary based on local circumstances and based on what wedges of influences are available to whom to make realistic changes.