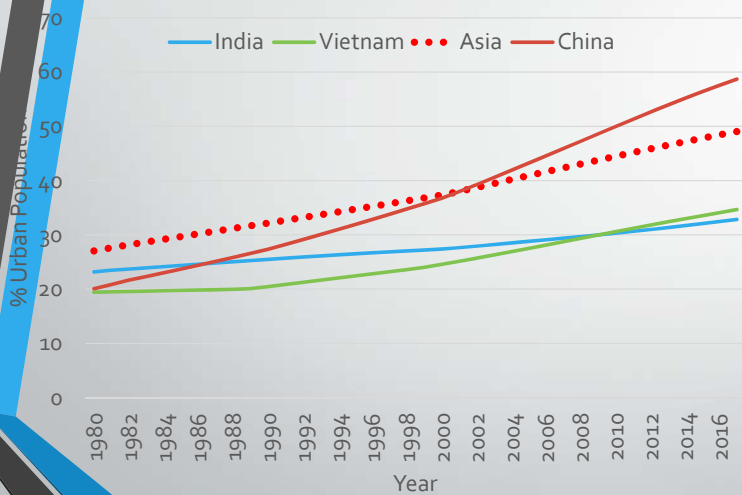


# Low Carbon and Resilient Urban Food Lifestyles

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## Asia is Rapidly Urbanizing with Implications for Ecological Foot-print from Food Consumption



FAOSTAT, 2018

- India and China to add nearly 681 million urban dwellers by 2050 (UN, 2018)
- Same lifestyle and standard of life in urban vs rural areas
- Urban areas can have favorable carbon footprint especially with improvements in energy and transportation systems (IISD, 2009).
- However, little has been done in terms of how urban areas produce and consume food as more and more food comes to urban areas from far-flung places.
- E.g. 100 Smart Cities Program of India hardly touches food component.

# Growing Food in Urban Areas?

- Making cities food self-sufficient could be either impractical or do not provide much environmental benefits unless drastic changes are made in urban architecture.
    - Space constraints: Much of the past urban architecture is locked-into traditional designs with little or no space to spare for growing food. New urban architecture is not doing much either.
    - Water shortages: Many urban areas in Asia suffer from quality supply of water especially during summer.
    - Energy shortages: Growing food in urban areas can put additional pressure on urban energy needs (water pumping, lighting etc.)
    - Urban micro-climate: Warming, shade, pollution etc...
    - Urban institutions: urban institutions are only good in ornamental horticulture
- Vertical farming?**

# Connected Ecological Farming Architecture as a Practical Alternative

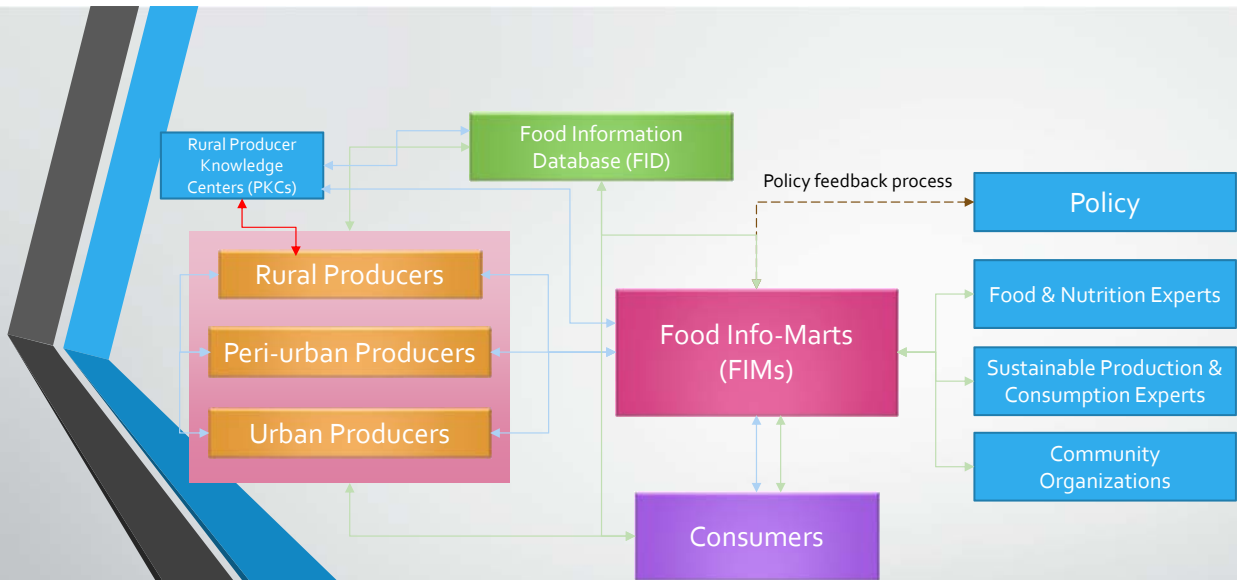
- Connected ecological farming architecture aims at enabling food production and consumption based on sharing of robust information and material resources on the following elements of urban food choices:
  - Understanding urban food flows:
    - What food is in demand, from where it comes and how it is grown? (**Quinoa vs local millets??**)
  - Understanding food substitution:
    - What food could be substituted with food from peri-urban and near-rural farming?
    - What food can be grown in the current urban setup by urban households (e.g. vegetables and microgreens)?
  - Understanding reliable food access & options:
    - How to improve access to ecologically sustainable food choices to urban households?

## Objectives

- **Overall objective:** To reduce the environmental impacts of urban food consumption by promoting 'Connected Ecological Farming'
- **Specific objectives:**
  - To enhance sustainable food production and consumption in near-rural, peri-urban and urban areas
  - To strengthen the information and material resource linkages between urban households and rural and peri-urban food producers
  - To develop a Ecological Debt Index (EDI) that showcases the debt of today's urban households to a future household
  - To build capacities of urban households on sustainable and healthy food choices
  - Share the experiences of the project for long-lasting impacts at the sub-national and national level

## Main Activities

- Establish Food-Info-Marts (FIMs)
- Establish information channels (provide supply and demand information to producers through knowledge centers and mobile applications)
- Establishing resource circulation channels (i.e. nutrient recycling facilities)
- Develop a decision support system for Connected Ecological Farming called Ecological Debt Index
- Education and capacity building (training on home gardening, storage, healthy cooking etc.)
- Policy advocacy and awareness generation of broader public



**From Farm to Plate (life cycle approach)**

- Food Info-Channels (FICs)
- Food Resource Channels (FRCs)
- Policy Feedback Processes



# The Process

- Randomized Control Trial (RCT) with four groups (30 households per group)
  - Control group (no treatment)
  - FIM only
  - FIM + training
  - FIM + Training + adopted a practice (e.g. growing food in urban areas)
- Data collection for EDI
  - Baseline survey
  - Regular data collection (monthly) using log-sheets
  - End-of-the-project survey

# Salient Aspects to be Looked Into

- Change in food-related lifestyle choices
  - Evidence for change to low carbon food choices
  - Evidence for reduction in food waste?
  - Change in the amount of food bought from restaurants and other food outlets
  - Impact of food shifts on the nutrition of households
- Change in non-food lifestyle choices
  - Any evidence for reduction in water consumption, reduction in GHG from transportation, energy consumption etc. (self-reported)

Is there any change in willingness to pay for environmentally healthy choices?

# Outcomes and Outputs

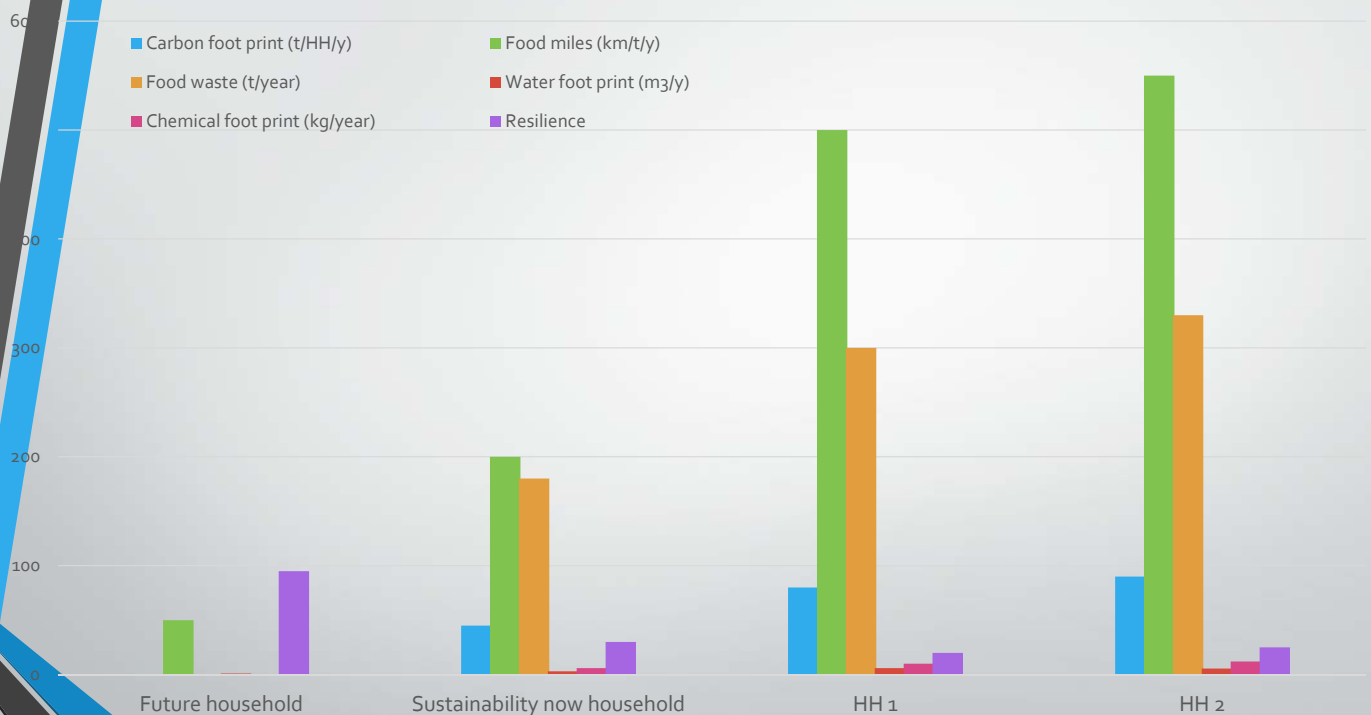
- Outcomes
  - Reduction in ecological foot print of urban households (GHG emission reduction, reduction in food waste and other waste, and adoption of environmentally sustainable lifestyles)
  - Greater access to ecologically sustainable and healthy food
  - Influence urban environmental policies to accommodate food-related solutions
- Outputs
  - Food-info marts
  - Ecological Debt Index
  - Deeper understanding on urban food choices
  - Research papers, reports and policy briefs

# What is Ecological Debt?

- Ecological debt is defined as the debt accrued to individual households for satisfying their lifestyle choices away from environmentally sustainable lifestyles.
- **Ecological debt index** is the difference in the environmental footprint of a household with that of a reference household.
- Two reference households are to be profiled in this project:
  - **Future household:** that embodies an ideal household that puts the environment ahead of them and strives to achieve a zero ecological debt depending on the access factors at that time.
  - **Sustainability now:** household is one that follows all accessible environmental practices to keep their environmental footprint minimum.

# The Ecological Debt Index

- **Carbon footprint:** Energy and other forms of carbon emissions from resources used in production, transport, storage and sale.
  - **Food miles:** Considers the distance travelled by the food from producer to consumer. Shorter the food miles the better it is for the environment. Promoting locally produced food would significantly reduce the food miles.
  - **Food waste:** Asia accounts significant amount of food waste both in shelves and at consumers end. Reduced food waste means avoided emissions and reduced opportunity cost for those who are affected by such waste.
  - **Water footprint:** water consumed in production and consumption of food. While pumping water is an energy intensive process, use of excess water puts pressure on limited water resources and has resilience implications.
  - **Agrochemical footprint:** Chemical fertilisers, pesticides which consumes huge energy in production and also leave residues polluting soils and water crossing the threshold levels
- Resilience:** Measures the resilience gained by both the producers and consumers because of project interventions.



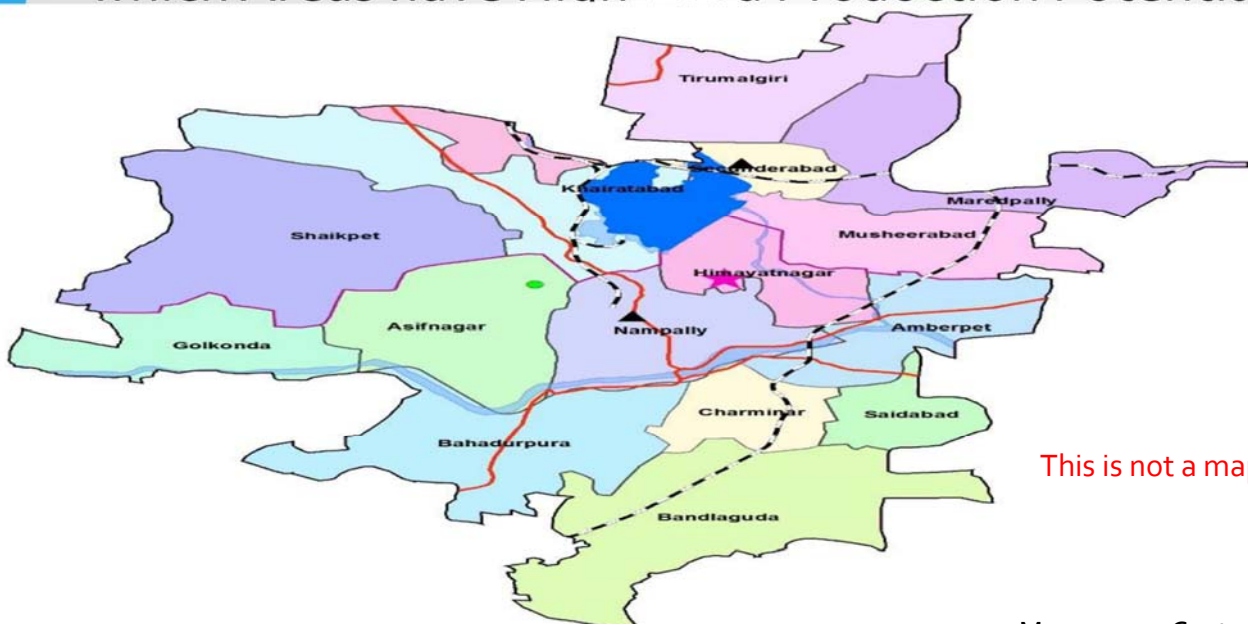
# Comparing Current Households with Future Reference

## HH



Dummy data

Which Areas in Hyderabad has high Ecological Debt, which Areas have High Food Production Potential,



This is not a map of EDI!

Map source: Govt of Telangana





Thank You

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