Towards Resilient Smart Cities

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Mirror to Urban India- Resources

- We are water and energy hungry country
 - Water <1,500 cum/capita/y already; need at least 2000
 - Most peninsular river basins in water scarce stage already (<1000 cum/capita)- mini water wars
 - Many rivers already polluted and impact downstream cities (Delhi>Agra)
 - Subsidies to those who have access(70%), contaminated ground water for rest(30%) Storage, filters give control to those who can afford.
 - Urban population without treated water access 89 million (2001)> 110 million (2011)
 - We hardly recycle urban water, even in water scarce cities
 - Class 1 & II cities 38,254 mld sewage- only one third treated.
 - 30% Energy imported
 - Space cooling going to be a major consumer: Peak energy demand shifting towards day
 - Public transport users very limited (Transit times increasing due to congestion)
 - Augmentation of water works from ever distant sources> more energy

Conservation the key :Need to get ready for resource scarcity, mini water wars, renewable options



Mirror to Urban India- Migration & Poverty

- Rural livelihood crisis
 - 12 ha of cultivable land/capita
 - More than 85% land holdings small & marginal(<2 ha) holding 46% land
 - 68% relying on rural livelihoods, accounting for 14% GDP
 - Skill poor migrants to find livelihoods (Demographic debt?)
 - 76% of youth farmers like to shift from farming (CSDS 2014)
- Urban livelihoods
 - 69% of urban workers Informal livelihoods (NSS 68th Round 2011-12)
 - Increasing mechanisation shrinking manual work
 - Migration expected to peak with environmental stress
- Basic service for poor
 - Only half the urban households have concrete roof houses
 - 22.5% do not have bathrooms
 - Only 65% use LPG/PNG

Meeting 600m+ urban population's demand over next two decades amidst agrarian crisis

Challenges and Options

Current

- 20th Century planning
 - Land use > Sprawls, LRHD, Low FAR still dominates
 - Myth of abundant
 - Resources Water- energy-waste management siloes
- City level Grids can meet demand
- ULB as service provider
- Limited role to clusters
- Private sector involvement at city scales (PPP)

Options

- Living with limited resources, 24X7> meet the needs
- Clusters/Colony and Cellular autonomy
- Micro enterprises to manage clusters
- Network informed planning
- Strengthening Water-energy-waste nexus
- Micro grids, recycling, generation
- ULB as enabler, manager, regulator
- Space for Clusters (roles, responsibilities)
- Private sector as innovator, disseminator from cluster upwards

Disruptive innovations: Hope for Resilience

- Miniaturisation
 - Handheld RO plants
 - Nano technologies for Sewage treatment
 - Wearable air conditioning systems
- Resource efficiency increased by orders of magnitude
 - Bulbs> Tube lights> CFL>LED
- Cars/Mobility as service (is no longer dream)
 - Autonomous driving cars (Google, Tesla)
 - Major reductions in number of vehicles needed
- ICT enabled governance
 - City apps for management, monitoring and control
 - Universal access to internet through better interface (Hindi Google speech recognition>>)
- Control over diseases
 - Quality of life through out lifespan
 - Vector borne disease free world
 - Gene therapy

Policies go through long periods of stability and short periods of dramatic reversals -Baumgartner & Jones 1991 Disruptive innovations in policies and praxis required > beyond 74th amendment

Cluster based planning and management



Indicative subsidiarity roles

	Stake		Stake
Cell level functions	holders	City level functions	holders
Roof rainwater recharging GW	es	Modelling, planning and governance	
Solid waste monitoring and reporting	oris	Mediation and support to cells	ate
Water supply monitoring, Ground water	erp	City level Ground water balance & quality	IVI
management	cro ent	management	L L
		ridded infrastructure investments and Capex	wit or

预览已结束,完整报告链接和二维码如下:

https://www.yunbaogao.cn/report/index/report?reportId=5_4756

