URBAN KNOWLEDGE AND POLICY TOWARDS 2036
OSLO, 25 APRIL, 2016

The Climate/ Environment/ Greening of Cities in the NUA

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The global urban context

Cities today occupy approximately only 2% of the total land, however:

"Cities are where the battle for sustainable development will be won or lost"
(HLP 2013)

Economy GDP

70%

Energy Consumption

> 60%

GHG emissions

70%

Global Waste

70%

World Urban Population 54.5%

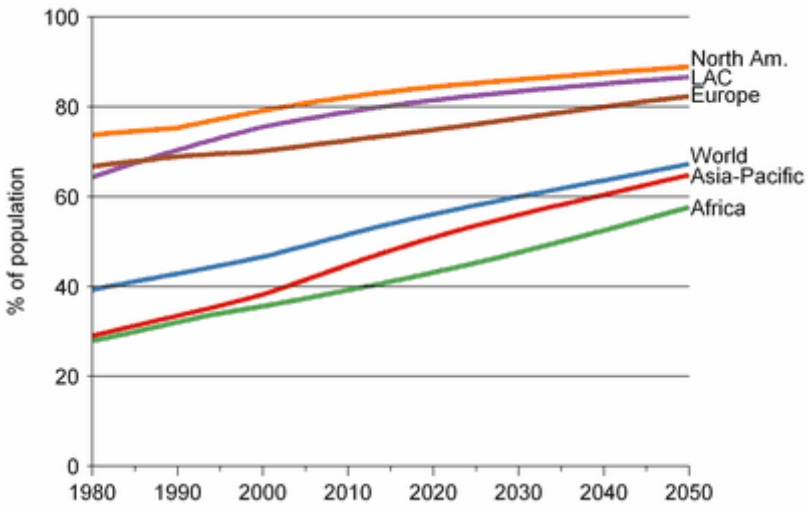
It is becoming clear that achievements on **sustainable development** will depend on **how we will manage and guide urbanization**

Cities need to prepare for growth

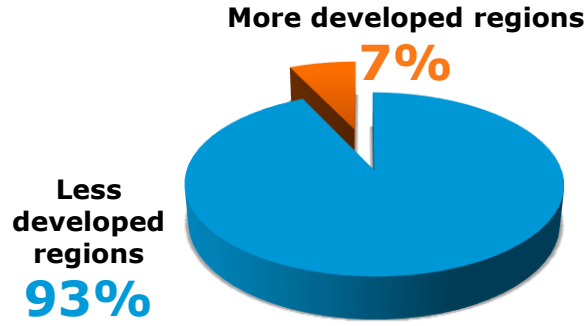
Massive **urban population growth** in the next decades

- Short-term, **reactive** approaches are **not enough** to manage growth
- Cities that prepare for urbanization challenges are more able to transform them into **opportunities**
- This entails **planning at a sufficient scale** so as to deal with challenges proactively

URBAN POPULATION, WORLD AND WORLD REGIONS, 1980-2050



PERCENTAGE GROWTH OF URBAN POPULATION BY REGION (2005-2020)



http://www.unescap.org/stat/data/syb2013/A.2-Urbanization.asp

Operational factors to maximize the advantages of the urbanization process

// Urban Rules and Regulations

The outcomes in terms of quality of an urban settlement is dependent on the set of rules and regulations and its implementation. Proper urbanization requires the rule of law.

// Urban Planning and Design

Establishing the adequate provision of common goods, including streets and open spaces, together with an efficient pattern of buildable plots.

// Municipal Finance

For a good management and maintenance of the city, local fiscal systems should redistribute parts of the urban value generated.

UN-Habitat's three legged approach towards sustainable urbanization

Today´s Challenges

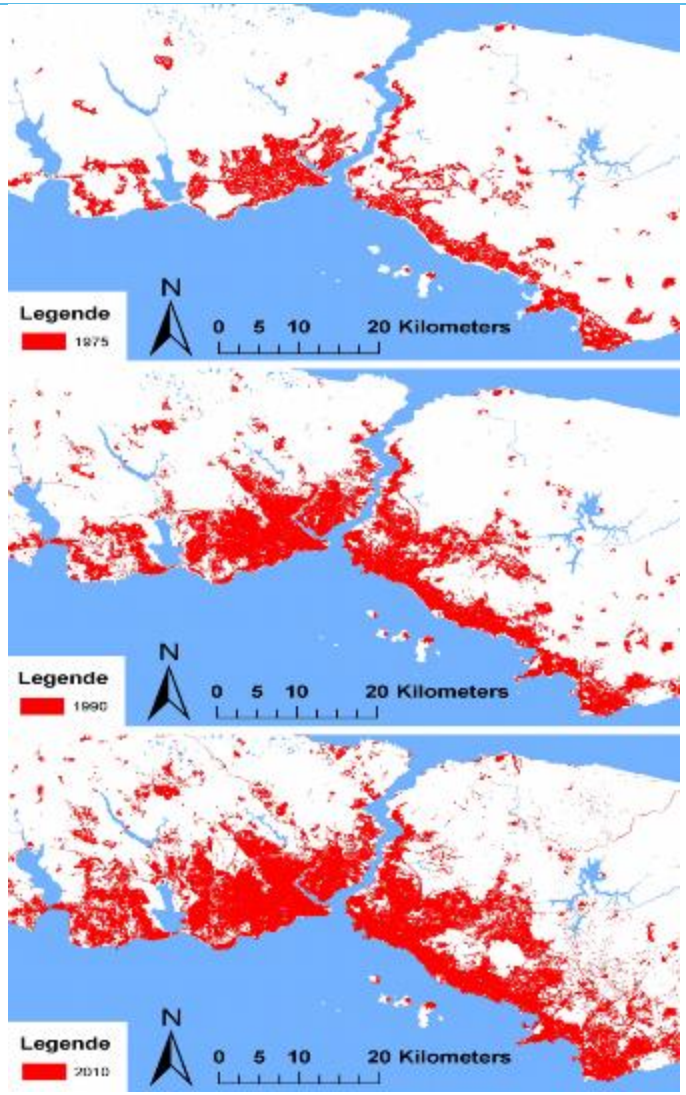
Urban Sprawl

Low-density , dispersed, single-use, car dependent built environments waste energy, land and other resources and divide people by race, ethnicity and income/wealth

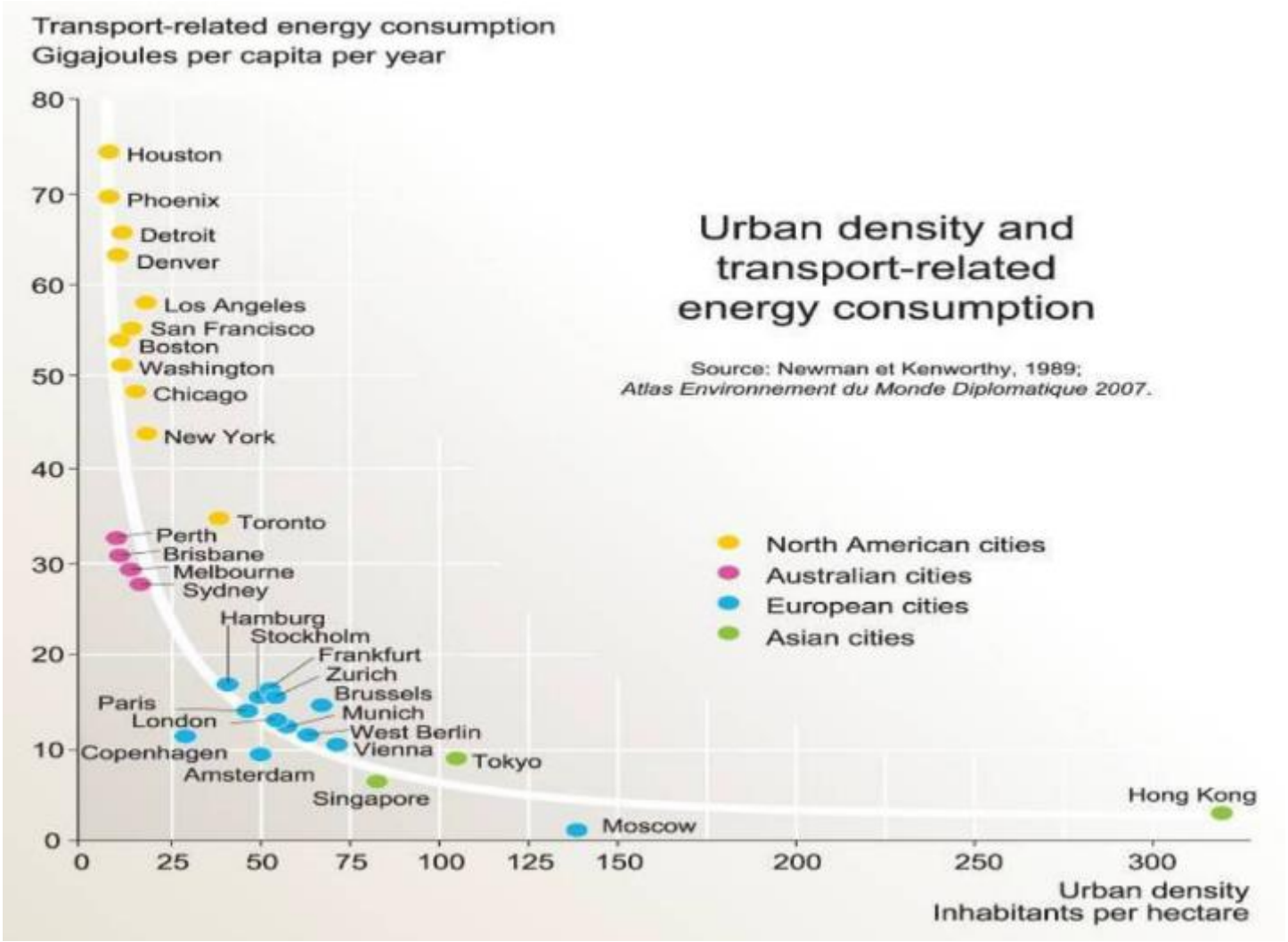
(*GRHS 2013 : Planning and Design for Sustainable Urban Mobility, citing Ewig, Burchell, Mukerjee and Tsai*)

Picture: Satellite Images of Istanbul, Turkey 1975, 1990 and 2010

http://www.livescience.com/14201-istanbul-urban-sprawl-space-image.html

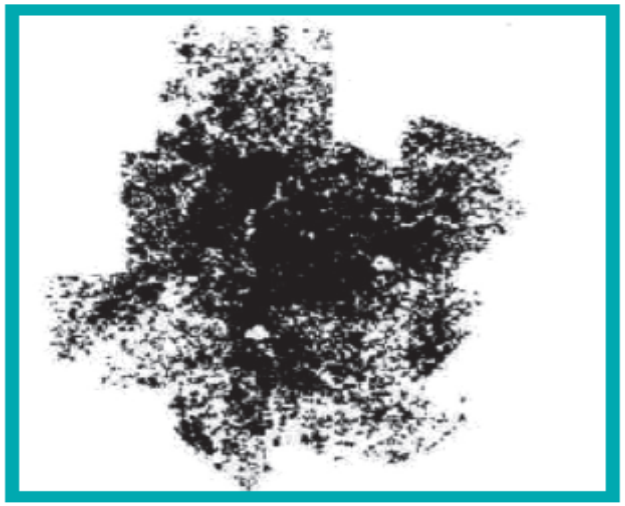


Urban Sprawl (contd.)



GRHS 2013 : Planning and Design for Sustainable Urban Mobility, citing Kenworthy, 1989, Lefevre 2009

Density and Transport Emissions



Atlanta	Barcelona
Population 5.25 million	Population 5.33 million
Urban area: 4280 km²	Urban area: 162 km²
CO_2 emissions 7.5 tonnes per hectare per year (public + private transport)	CO_2 emissions 0.7 tonnes per hectare per year (public + private transport)

GRHS 2013 : Planning and design for sustainable urban mobility, citing Lefevre, Newman and Kenworthy

For each 1% growth in the city-core instead of in the suburbs, approximately 5 million Mt of CO2 per capita are avoided.

Global Energy Consumption

High dependency on fossil fuels

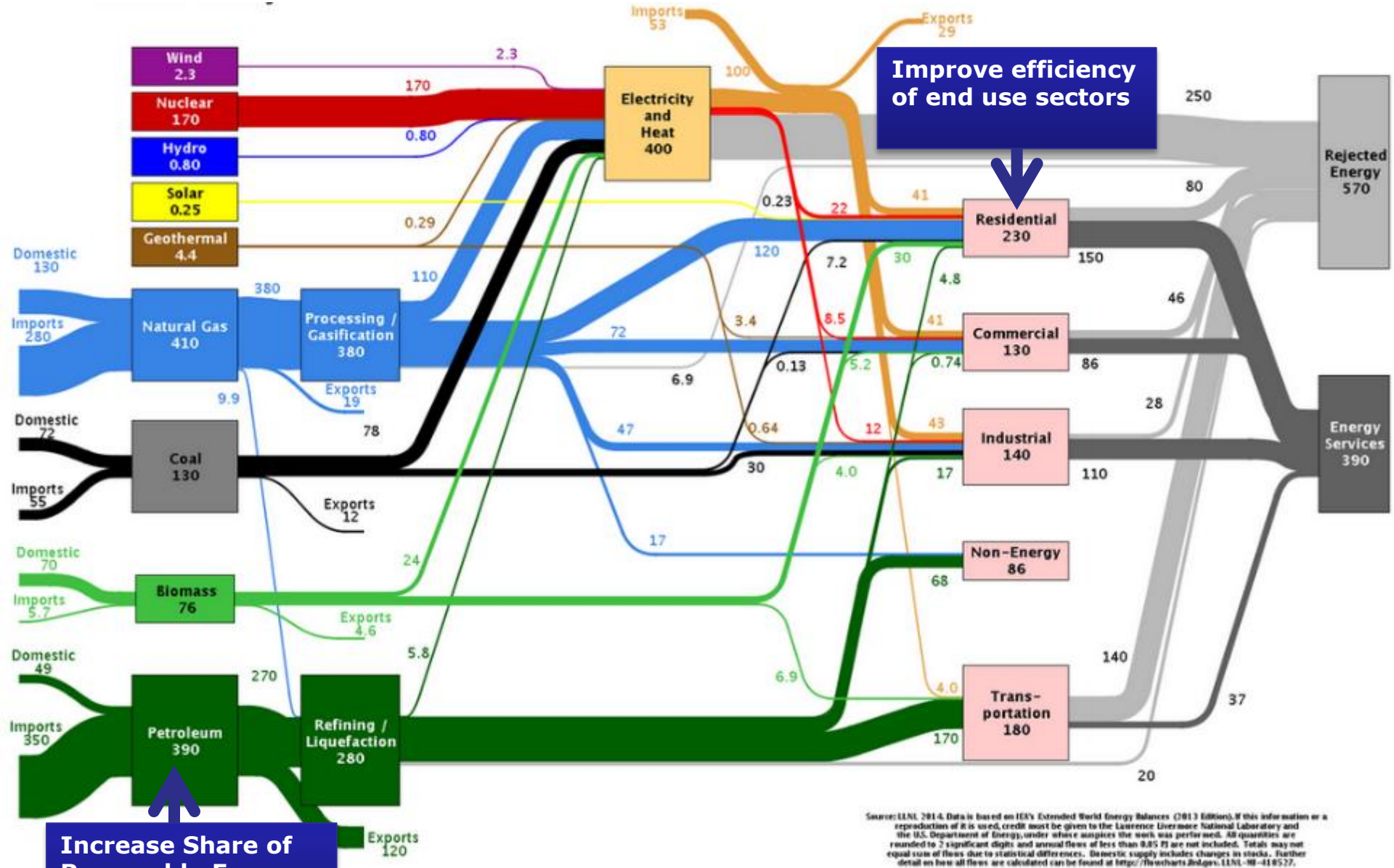
Fossil fuels supply over 80% of the primary energy globally. **In 2030 the World will need almost 60% more energy than in 2002 to meet its demand**

High energy use in urban sectors

Transport, residential and industry sectors account for nearly 90% **of the total energy use**.

Adapted from: IES, 2007

Example: Hungary Energy Flow (2011)



Source: LLNL 2014. Data is based on IEA's Extended World Energy Balances (2013 Edition). If this information or a reproduction of it is used, credit must be given to the Lawrence Livermore National Laboratory and the U.S. Department of Energy, under whose auspices the work was performed. All quantities are rounded to 2 significant digits and annual flows of less than 0.05 PJ are not included. Totals may not equal sum of flows due to statistical differences. Domestic supply includes changes in stocks. Further detail on how all flows are calculated can be found at https://flowcharts.llnl.gov. LLNL-MI-415527.

Greening Cities- Urban Planning related Strategies

SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable

The objective is to improve policies, plans and designs for:

- ensuring access for all to **safe and affordable housing**
- meeting people's needs for **basic services** including energy and water
- developing sustainable **public transport systems**
- creating a built environment that can **minimize the impacts of natural disasters**
- reducing the adverse environmental impact of cities by investing in **renewable energy**, managing **scarce resources**, and improving waste and **recycling** systems.
- Promote Small Scale/ decentralised / city managed power supply and distribution with renewables

Choosing an urban pattern to grow sustainably

Capture the advantages of mixed-use, compact patterns

Shanghai's compact, multi-functional central area is economically vibrant, accessible and cost-effective in terms of infrastructure and urban services (Right)

Work towards the right density

Although every city has to find its own right density, an average of 150p/ha would be a recommendable middle point between low density (Nouakchott, left) and overcrowding (Dhaka, right)

Define and enhance public green space

Seoul removed a motorway to create a public space that has improved economic activity and environmental conditions – and improved traffic conditions (Right)

Spatial Structure addressing Urban Growth

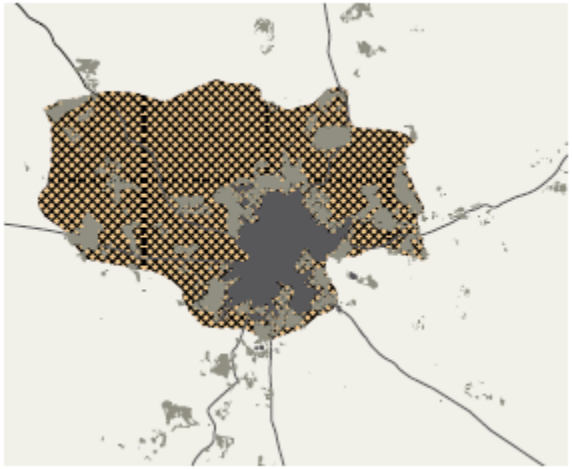
Planned City Extension

Capture the Advantages of Mixed Use, Compact Patterns

Intensification

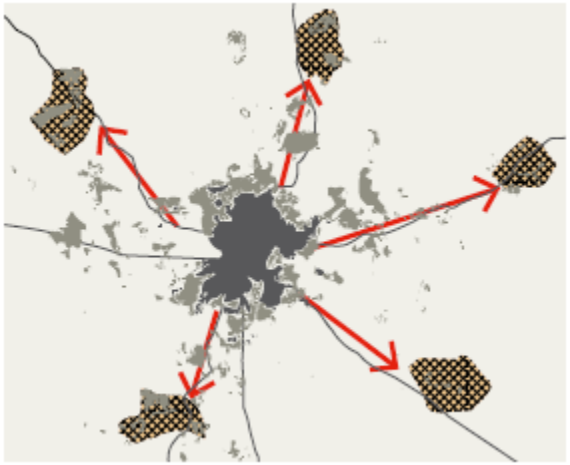
Densify existing build-up areas

Extension



Extend the city at the fringes of the build-up areas

Multiplication



Duplicate nodes by building satellite towns

Streets and Public Spaces

"The proportion of urban areas dedicated to streets and public spaces is a crucial feature of the spatial plans of cities. Indeed cities that have adequate street and public spaces and greater connectivity are more livable and productive."

Dr. Joan Clos, Executive Director, UN-Habitat

(Right: The New York City Grid plan in 1807)

Streets and Public Spaces : A UN-Habitat Study

	City	Total land area (Km2)		Total streets area (Km2)		Proportion of streets area (%)		Total streets lenght (Km)		Street density (Km/Km2)	
		Outer zone	Inner zone	Outer zone	Inner zone	Outer zone	Inner zone	Outer zone	Inner zone	Outer zone	Inner zone
1	Yerevan	1166	148	26	9	2.2	6.1	2544	893	2.2	6.1
2	Brussels	314	147	60	37	19.1	25.1	4750	2802	15,1	19,1
3	Bangui	106		6		6.0		500		4,7	
4	Copenhagen	1508	557	145	81	9.6	14.5	12440	7174	8,2	12,9
5	Addis Ababa	274	203	24	22	8.9	10.6	2541	2269	9,2	11,2
6	Accra	257		18		7.0		1780		6,9	
7	Athens	730	229	107	58	14.7	25.3	10529	5736	14,4	25,0
8	Nairobi	1023	238	39	20	3.8	8.5	3205	1703	3,1	7,1
9	Dakar	266	166	27	24	10.2	14.3	3561	3216	13,4	19,4
10	New York (Manhattan)	52		19		36.0		1188		22,7	

A well connected city with adequate street space and nos. of crossings makes for a resource efficient city .

Improving accessibility while reducing congestion and emissions

Reduce the need to travel through proximity

A mixed-use development near a transport can reduce per capita car usage

Prioritize public transport and NMT

After the pioneering work in Curitiba, Bus Rapid Transit integrated with NMT has been recognized as a successful approach

Electric Mobility

E-Mobility offers a zero-emission strategy when run on renewable energies. However, charging infrastructure is needed.

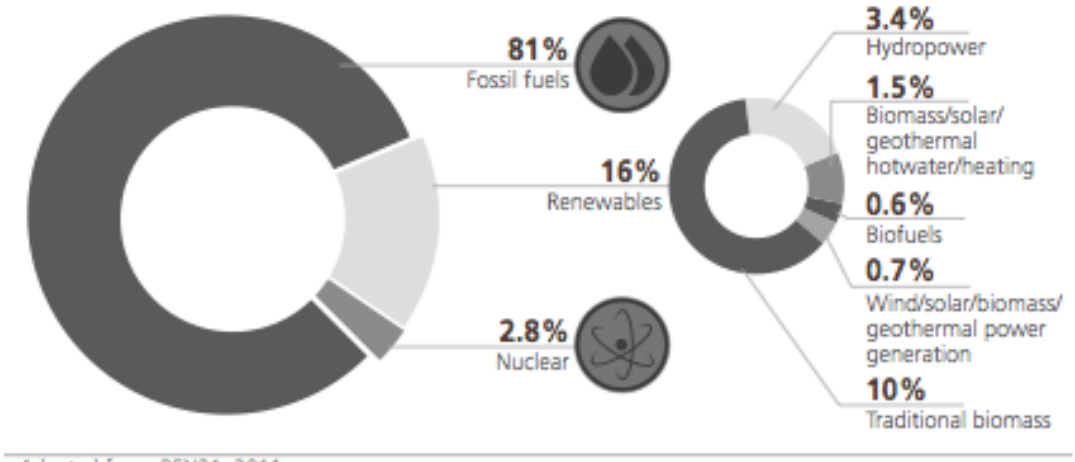
Energy Efficiency and Renewables

- Renewables account for **16 %** of the world's primary energy supply

- While energy efficiency initiatives reduce the amount of energy consumed, renewables offer alternative sources of energy, which are **less carbon intensive**

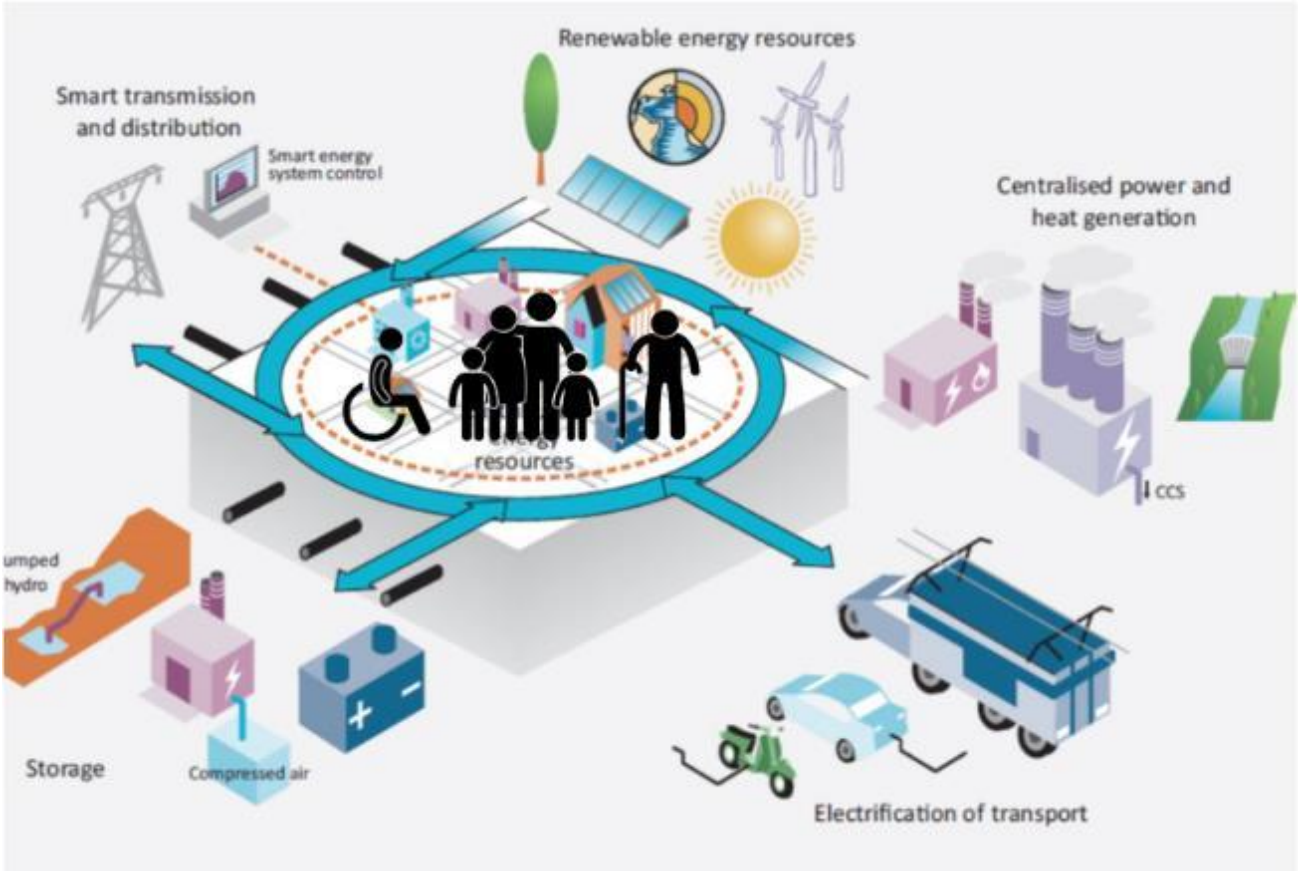
- Opportunity of **feed-in tariffs** for cities and local governments to consider electric utility feed-in policies and explore how to implement these policies

- **Urban design principles** that help envisioning a built environment that can be sustained on the basis of renewable energy sources



Adapted from: REN21, 2011a

Promoting the Wise City : Resource Efficiency and Inclusion

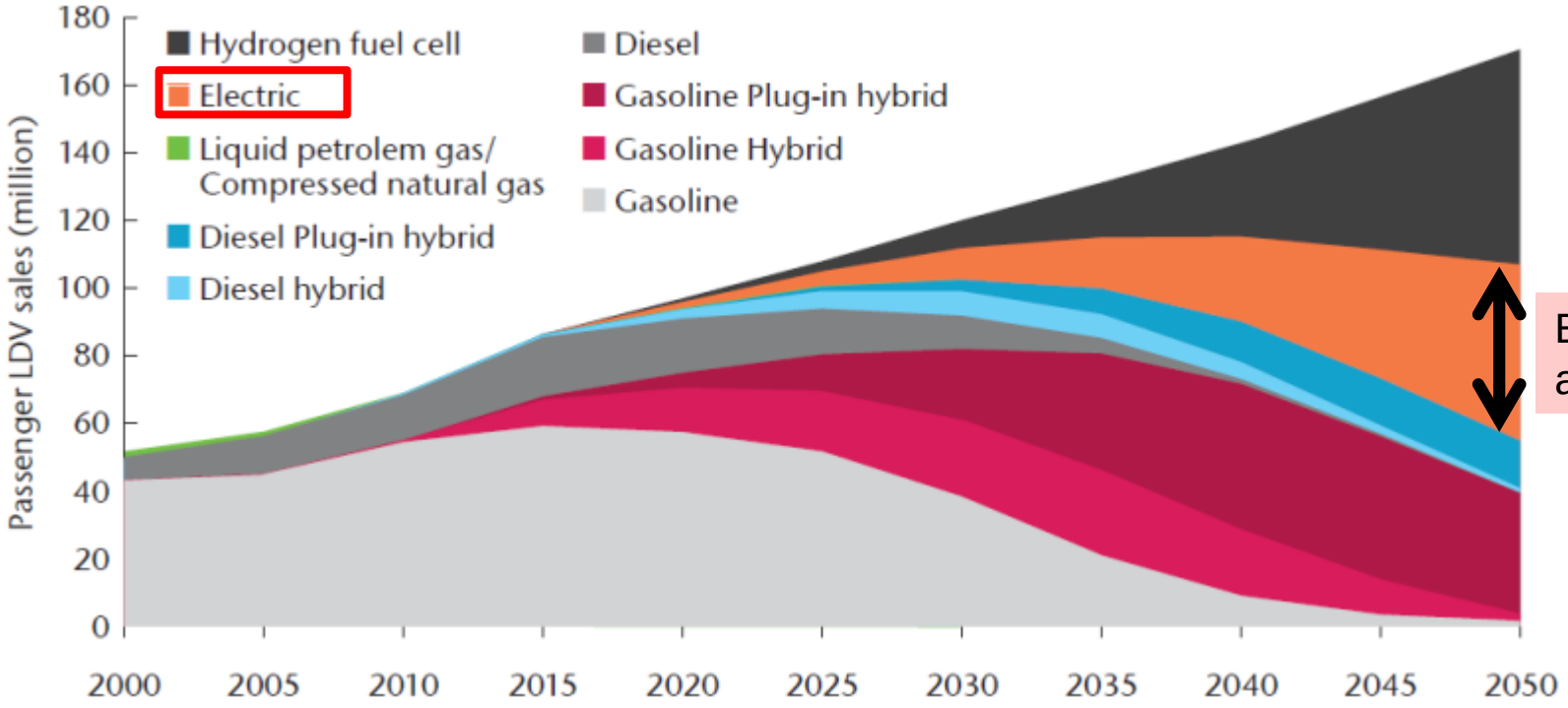


Adapted from International Energy Agency –ETP Perspective 2014

UN-Habitat's Urban Electric Mobility Initiative (UEMI)

Projections of Energy Source for Mobility
- Rationale for Urban Electric Mobility Initiative (UEMI)

International Energy Agency: Light-Duty Vehicle Evolution



Elect. Vehicles are on the rise

Source: http://www.nachhaltigwirtschaften.at/e2050/results.html/id6753

Urban Electric Mobility Initiative : UN Climate Summit 2014

Pledge between…

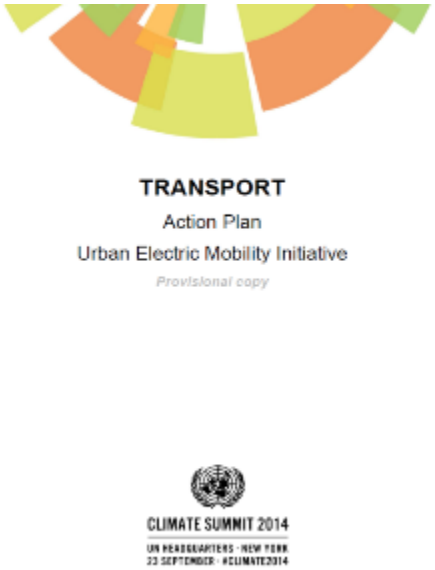
Supply Side & Demand Side

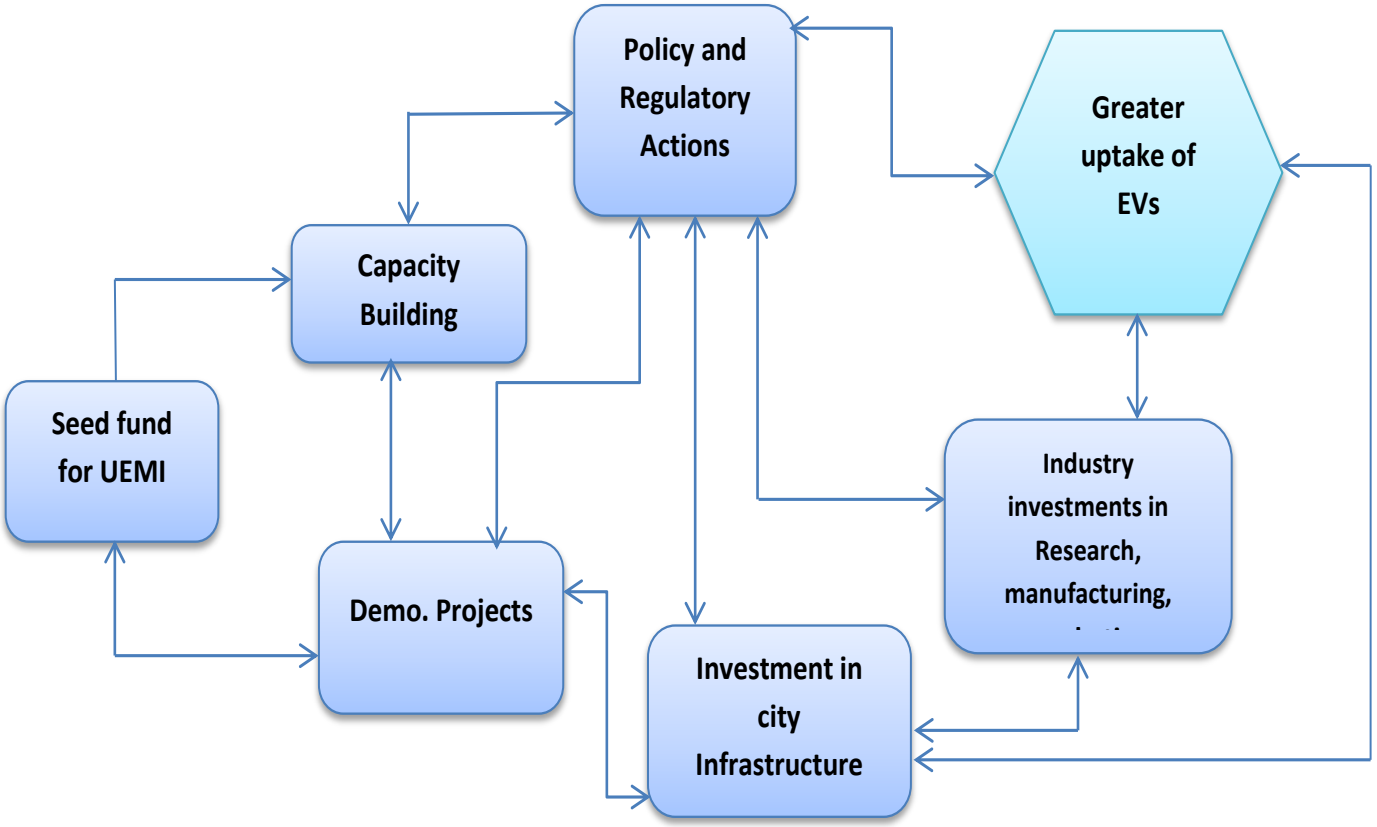
Industry :
"Increase the global market share of EV in cities to reach at least 30% by 2030."

Cities/ Governm.:
"By 2030, EVs will form 30% of the fleet of light duty vehicles (LDV), plying in their cities".

Multilateral Dev. Banks:
"Increase their investments to support cities in attaining the goal of 30% of the LDV fleet being comprised of EVs."

Operationalizing UEMI: Linking Investments, Knowledge and Policy Action Plan -UN Climate Summit 2014

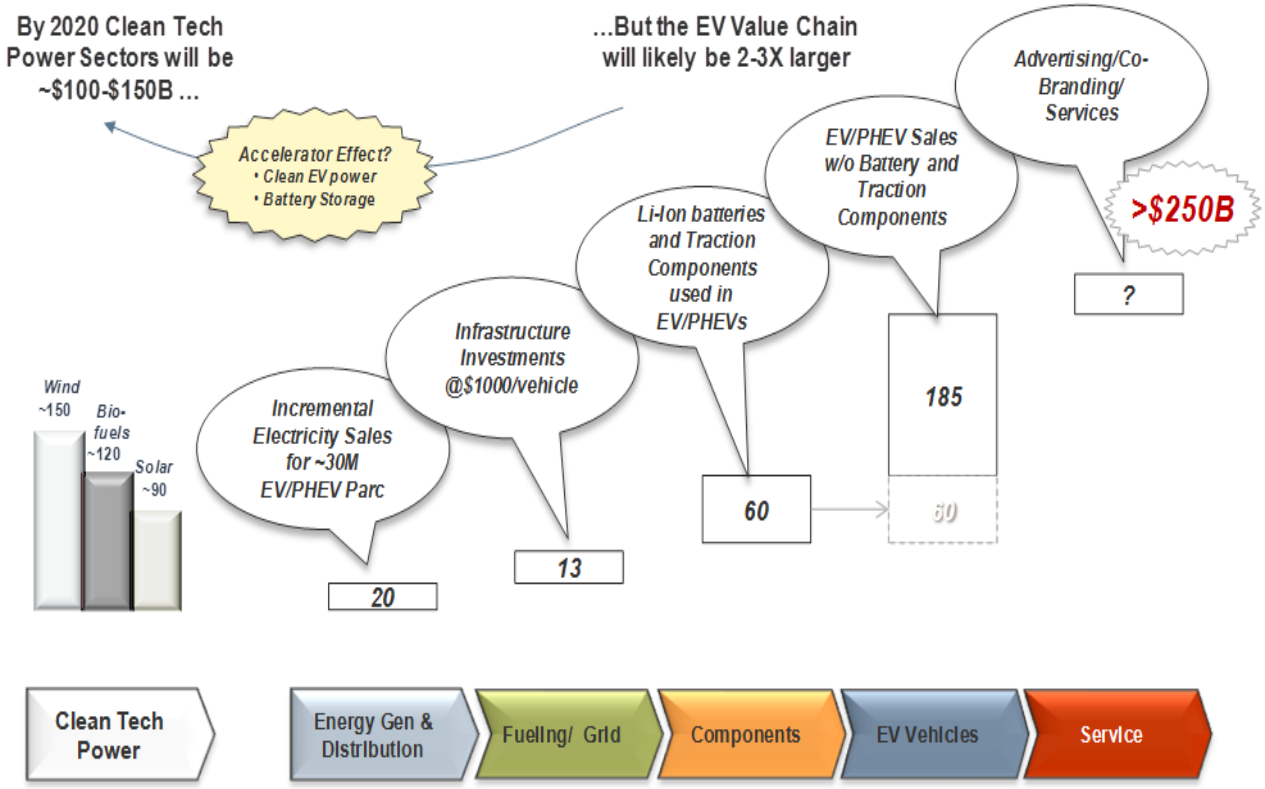




http://www.un.org/climatechange/summit/wp-content/uploads/sites/2/2014/07/TRANSPORT-Action-Plan-UEMI.pdf

The Urban Electric Mobility Programme Cycle

E-Mobility : The Green Business Case



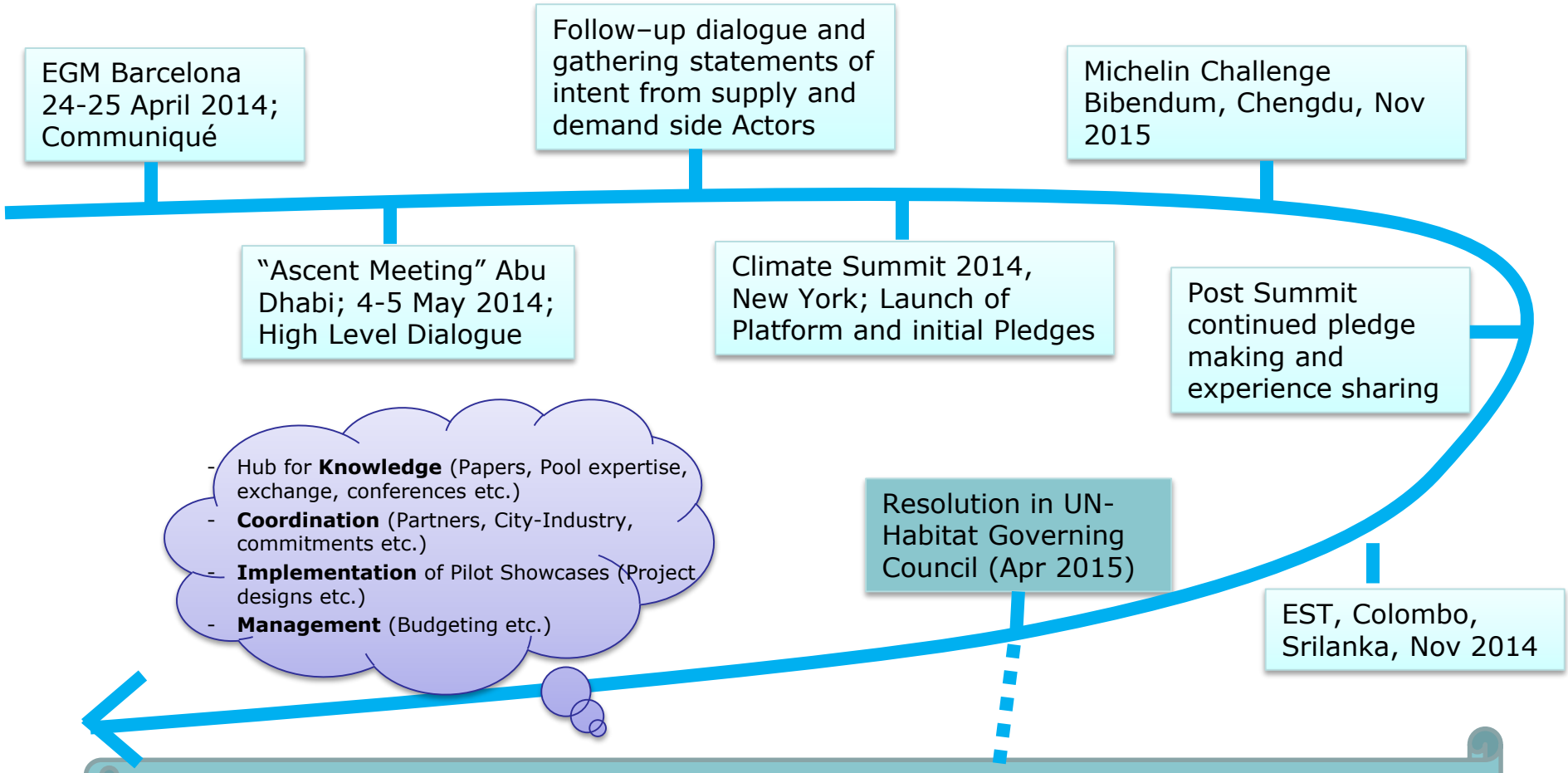
Gloal Value Chain of E-Mobility in 2020 – A World Bank Report

Electric Mobility Can Promote Low Carbon Economic Growth
Updated projections are needed ; Collaboration with other initiatives??

UEMI Actions

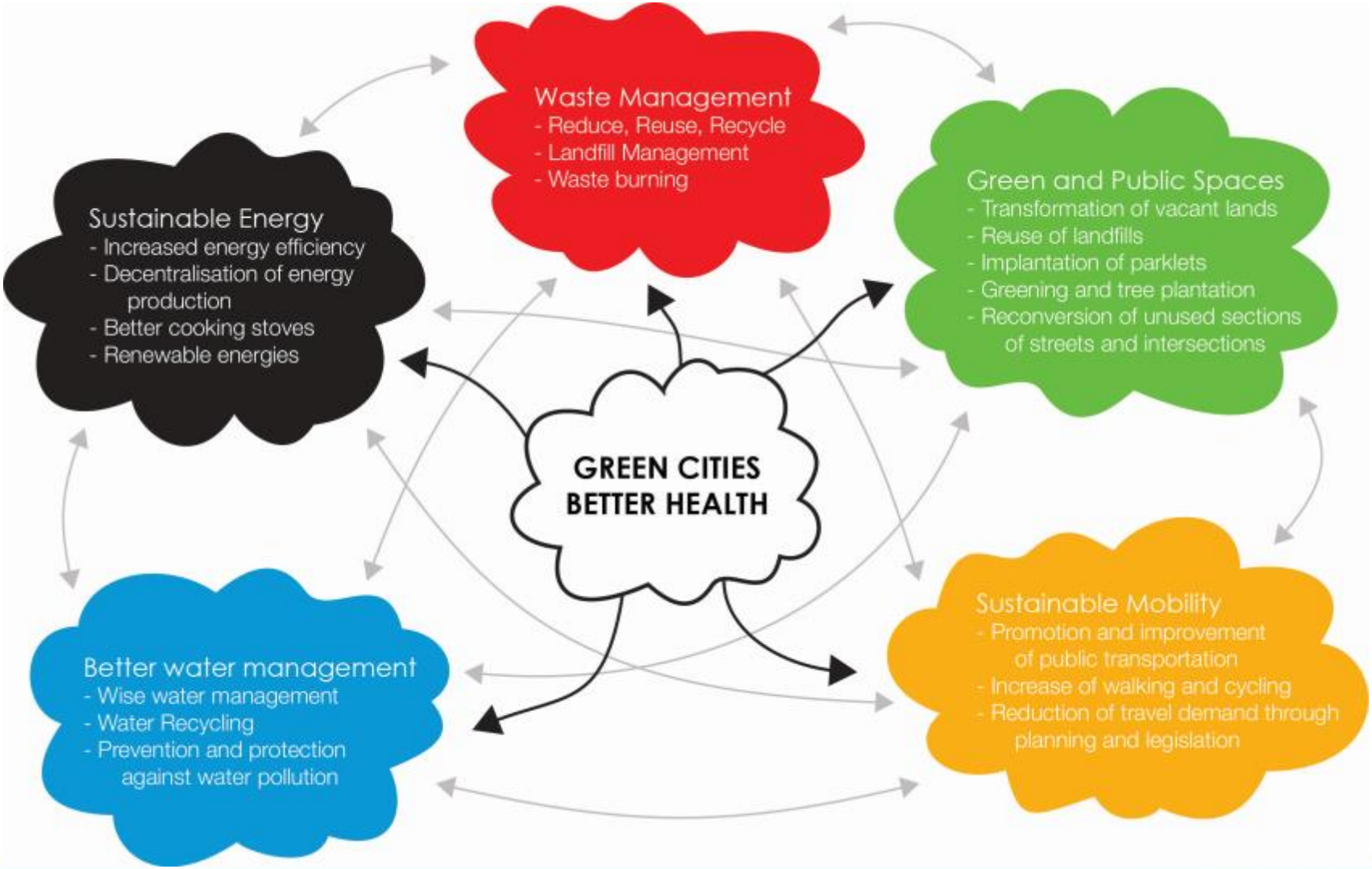
- Jointly working on implementation concepts for the integration of e-mobility solutions in a wider sustainable transport and sustainable urbanisation strategies (current case studies on cities in Brazil, India and China)

UEMI: Steps To Action-SOLUTIONS outcomes



"Encourages MS to support initiatives aimed at improving access to sustainable energy and mainstreaming energy efficiency and sustainable energy systems to support the UEMI, while promoting hybrid and electric mobility as a priority in conjunction with urban policies in support of compact city planning, energy and resource efficiency, making the transition to sustainable sources of energy and better public transport systems and facilities integrated with safe and attractive non-motorized transport options."

Green Cities / Better Health Through Resource Efficient Basic Services



New Urban Agenda – for Green and Healthy Cities

Green and Healthy Cities : Meeting the SDGs and Supporting Commitments at COP21

Urban Basic Services: Universal access to water, sanitation, energy and public transport, better waste management and good urban drainage; reduced air pollution and better environmental sanitation.

Urban Planning

- Compact cities : reduced energy and water transmission losses; lower infrastructure costs; reduced travel , closer access to services and reduced emissions/local air pollution.

Urban Legislation

- Legislation for mixed land use, higher densities, public spaces, parking policies (not a public good), metropolitan transport authorities; rain harvesting; waste management, tariffs for services,

Urban Economy

- Better municipal revenues through better service provision; Transit Oriented Development and land value capture; jobs in basic services (e.g public transport, decentralised energy generation); resource recovery from waste

Thank you for your attention!

UN HABITAT
FOR A BETTER URBAN FUTURE