



HABITAT III POLICY PAPER FRAMEWORK

9 – URBAN SERVICES AND TECHNOLOGY

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(not edited version)





This Habitat III Policy Paper Framework has been prepared by the Habitat III Policy Unit 9 members and submitted by 31 December 2015. It has followed the Habitat III Policy Paper Framework template provided by the Habitat III Secretariat to all Habitat III Policy Units¹.

Habitat III Policy Units are co-led by two international organizations and composed by a maximum of 20 experts each, bringing together individual experts from a variety of fields, including academia, government, civil society and other regional and international bodies.

The composition of the Policy Unit 9 can be consulted at www.habitat3.org

¹ Note by the Secretariat: In specific cases slightly changes to the Habitat III Policy Paper Framework template have been accepted such as addition of executive summaries, introductions, bibliography, etc. However all frameworks have been adapted to the three basic expected accomplishments: challenges, priorities and implementation. The Habitat III Policy Paper Framework template can be consulted at: www.habitat3.org





Introduction

This paper outlines preliminary findings of Policy Unit 9 on Urban Services and Technologies. It features a checklist of the main challenges, priorities and actions for implementation² to be included in the final policy paper. The paper represents yet a rather scientifically biased perspective on urban services and technology. It needs in the next step to be based on a knowledge agenda which aims at the interaction of global (systems) knowledge on the one hand and local (tacit) knowledge on the other. This requires further elaboration in cooperation with local practitioners.

The emphasis on urban services and technology is placed on strengthening policies and institutional frameworks for expanding equitable access for all “urban users”. Urban user means the population of urban areas and people who frequent urban areas for all kinds of purposes (work, health, trade, education, leisure, visits, tourism etc.). Urban services are regarded as the key ingredients for the physical and mental well-being of the urban population and the users of urban areas. They are also the key ingredients for the economic development of urban areas as the “power houses” of nationwide economic development. They comprise of all service related areas as technical and educational services as well as social welfare, energy and clean water supply, sanitation and the various transport modes. They need to be regarded from a quantitative and qualitative point of view. The principles of subsidiarity and concomitant financing need to be taken into account.

Everyone should have access to basic affordable services. In this regard different national or regional starting points should be considered as well as differentiations between countries and sectors are needed. The provision of services can be for free, partly subsidized or on cost recovery basis. Living standards and the quality of life which shall be achieved through proper urban services need to be considered in their spatial, social and economic context. Promises of growth and limits of growth need to be taken into account.

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² Note by the Secretariat: This Policy Paper framework has followed the main expected accomplishments: challenges, priorities and implementation. Subsections suggested in the template have been partly followed and mainly divided by the Policy Unit members in two sections: a. Urban Infrastructure and basic services, including energy; b. Transport and Mobility.





1. Challenges: Identify challenges, including structural and policy constraints

a. Urban infrastructure and basic services including energy

Challenges, structural and policy constraints

Infrastructure is central to many of the key challenges facing cities and local governments around the world. According to a report by the McKinsey Global Institute, it is estimated that the world will require \$ 57 trillion in infrastructure investment to 2030 with the majority of investment needed in urban areas.¹ This is more than the current value of the world's existing infrastructure. This means that the majority of urban infrastructure worldwide is yet to be built and its related services yet to be developed. The following key challenges, structural and policy constraints have been identified:

- Urban infrastructure is highly vulnerable in technical terms i.e. appropriateness of technologies to the respective urban area, adaptability to increasing or shrinking demands, resilience to climate induced stress and natural disasters etc.
- Another major challenge for urban services is rooted in their direct relation to the provision of enormous funds and their proper transfer through transparent, accountable and legally sound procurement and delivery processes. This requires a global consensus on transparency, sound procurement procedures and quantitative and qualitative controls on delivery patterns.
- Given the long lifespan of infrastructure, decisions taken today will shape urban development trajectories for several decades. Therefore, future scenarios need to be considered and well understood. The scenarios need to be integrated into sustainable urban development planning and implementation measures.
- In many countries, increasingly more tasks related to basic public services are transferred to the responsibility of local authorities (principle of subsidiarity). However, this transfer of responsibilities does often not go hand in hand with the simultaneous transfer of political mandates, administrative structures, financial resources and room for local decision making. The provision of basic urban

¹ McKinsey Global Institute, 2013. *Infrastructure Productivity: How to save \$1 trillion a year.*



services requires the establishment of legal, economic and technical framework conditions. Cities also need leeway to consider and decide at the local level how they can accomplish these tasks within the relevant legal framework and the given resources.

- Cities consume around 75% of global primary energy and are responsible for 70% of global greenhouse gas (GHG) emissions. Local actors play therefore a major role in the energy sector. The decarbonisation of urban economies, urban living and urban transport requires a sharp turn in common energy production, distribution and consumption patterns. This cannot only be achieved through pricing systems but requires enormous investments of the global community in all fields of energy supply.
- Major transformations in the design, construction and operation of cities' infrastructure systems and services are required to achieve the Sustainable Development Goals. This includes buildings, energy, mobility, telecommunications, water, sanitation and waste management services. The inter-linkages between these systems need to be optimized.
- A system-wide perspective becomes particularly important as new infrastructure technologies evolve and become increasingly connected. For example, many cities are pursuing the simultaneous deployment of low- or zero-energy buildings, renewable energy technologies, the development of smart electrical grids, and the growing market uptake of electrically-chargeable vehicles as suitable for the urban environment. Individually these developments can generate opportunities for major reductions in energy use and emissions and improve resilience of urban systems. However, these elements are inter-linked and their co-evolution needs to be considered holistically if cities are to fully optimize the overall benefits of evolving urban infrastructure systems.² This requires the introduction of life-cycle-cost estimates prior to investment decisions.
- In order to manage urban development responsibly within our planet's finite natural resources, it is vital to develop integrated planning and coordination processes that overcome isolated sector approaches and initiatives. To this end, it is essential to develop inter-sectorial NEXUS solutions that identify synergies for increasing resource efficiency. Good approaches are emerging, particularly in the nexus between the water, energy and food industries, considering the efficient use and reuse of limited resources.

² World Business Council for Sustainable Development, 2014, The Urban Infrastructure Initiative, Final report



	<p>However, realizing such a holistic approach to urban infrastructure and services is rather complicated from a structural point of view because despite the city functioning as a “system of systems”, the management as well as the financing of the design, operation and maintenance of urban infrastructure and its services is still very much siloed. This requires further interaction of urban areas, exchange of experiences and good practices as well as failures and room to manoeuvre for urban governments, stakeholders and the civil society.</p>
b. Transport and Mobility	<p>The analysis of the current performance of urban mobility points to a number of challenges and highlights barriers and structural constraints for the provision of sustainable mobility in cities.</p> <p>Challenges</p> <ul style="list-style-type: none">• Cities are increasingly confronted to levels of traffic congestion which show counter effects to the benefits of agglomerations and impact negatively their attractiveness and competitiveness, as well as citizens’ wellbeing (e.g. health hazards, stress).• The lack of access to urban opportunities is worsening the effects of social inequalities. Poor people face very long commuting times. The affordability of transport services and road safety also are major issues, in particular for poor citizens.• These issues are particularly acute in developing countries, where existing transport infrastructures and services are insufficient to cope with the current demand for mobility, and where the demand for mobility is set to triple by 2050.• The use of the different modes of transport is not well balanced. Private motorized modes of transport are dominant in developed economies and absorb an extremely high proportion of energy in comparison to their transport effects. Urban areas in developing and transition economies increasingly embark in the trajectory of car dependency. Given current demographic trends, this would not only impact developing and transition economies but have a strong global impact, notably in terms of resource consumption and greenhouse gas emissions.• The number of casualties and fatalities due to urban traffic accidents, in particular in developing countries, is very high.



Structural and policy constraints

Barriers and structural constraints lay predominantly in the lack of political coherence, the prevalence of private motorized mobility and the lack of data:

- There often is no systemic perspective on urban mobility. The settlement structure which is increasingly characterized by urban sprawl creates unnecessary traffic. Transport and land use planning are usually not interconnected and coordinated. Modes of urban transport are often not sufficiently coordinated and interconnected and do not offer seamless mobility (multi modal mobility).
- In a number of countries, the competence for planning and procuring urban mobility services has been devolved to the local level, but neither were sufficient funds allocated nor has the competence to raise or decide on funding been devolved simultaneously.
- Public transport is often perceived by decision-makers as a cost and not as a means to create value for urban users and the local, regional and national economies.
- The user costs of private motorised transport modes do not reflect their full costs, notably due to the subsidization of fuel prices in many countries and the lacking internalisation of external costs.
- The appeal of private cars as element of social status is strong in fast developing economies (while it decreases significantly in some developed economies). In parallel the strengths of the lobby of the automobile industry remains important.
- The necessary appraisal of transport projects and options is made difficult by the lack of assessment frameworks (ex-ante, ex-post) and the difficulty and cost of collecting relevant data.



2. Priorities: Identify the policy priorities & critical issues for implementation of a new urban agenda	
<p>Define key transformations to achieve by policy priorities</p>	<p>Related to the key issues of PU 9 three key priorities deem essential:</p> <ol style="list-style-type: none"> 1. Basic urban services are the prerequisite for any improvements in personal, social and economic opportunities for urban users and socio-economic development at all levels. 2. Fossil fuelled and individual car-based transport needs to be regarded as a complementary means of transport and drastically downscaled in favour of eco-mobility (non-fossil fuel based public transport, cycling, walking). 3. Urban development policies need to take into account the increasing level of digitization and make best use of available knowledge, data and “smart” technological resources. Prior to investments in smart technologies careful planning and creation of synergies through data availability, processing and the calculation of life cycles costs is required.
<p>a. Urban infrastructure and basic services including energy</p>	<p>Key transformations to be achieved by policy priorities</p> <p>The sector wise key objectives are the following:</p> <ul style="list-style-type: none"> • Waste management Access to de-centralized waste management systems needs to be provided and a phasing out of unregulated disposal of waste strongly pursued (open burning, landfilling without ground water protection). Waste needs to be treated as a resource, and mechanisms of “circular economy” need to be established. • Energy Access to energy provision through low carbon and renewable energy sources and location adapted solutions (centralized, regionalized, local or quarter based solutions) needs to be provided with a focus on the synergy of various areas. The key objective is the decarbonisation of energy production, distribution and consumption. When addressing the resource efficiency, the target is



always to reduce the demand both for materials and energy. It is essential to manage the transition to sustainable energy supply and delivery.

- **Health**
Access to basic services with reliable operations/conditions and equilibrium between national, regional and local health services needs to be provided. The healthy living conditions in urban areas (air, water, soil, safety) need to be improved. The promotion of active travel (walking, cycling) is also to be considered. The cost efficiency of health services through urban concentration of services with cost saving effects needs further fostering.
- **Education**
Education needs to be utilized as a means for capacities to cope with the socio-economic challenges of a changing urban world. Education is also an access point to foster the development of secondary and small cities. This requires nationwide public education access for pre-scholar, primary and secondary education. Vocational training and basic university qualifications for a nationwide dissemination of professional expertise require further expansion.
- **Water and Sanitation**
The investment gap towards basic water and sanitation services (construction of basic infrastructure) needs urgently to be bridged. Once basic infrastructure is operational, water and sanitation systems need to be developed towards full cost recovery. In order to avoid waste of water and an unequal distribution of water resources, pricing systems in the agro and mining industry need to be introduced which reflect the water footprint.
- **Public Safety and Security**
Mixed and inclusive neighbourhoods need to be fostered as a precondition for safer and secure urban areas. Reliable emergency services need to be established on a professional and a complementary voluntary basis.



- Public Spaces, green infrastructures and urban ecology
High-rise and dense urban settlement structures need to go hand in hand with the quality of green spaces. Green infrastructures should be interlinked and provide space for a various urban ecology. Access to a variety of safe cultural, leisure and commercial (green) spaces through open and user oriented design along with any built structures needs to be provided. Non-segregated open spaces which are open for all urban users are essential; the privatization of public spaces needs to be avoided. The recognition of the street as an essential public space (30% of the cities surface) which support of social life and urban identity needs to be promoted.

Targets related to policy priorities

The Sustainable Development Goals provide the framework for the general policy objectives related to urban services and technology, namely the goals 3 (healthy lives), 4 (education), 6 water and sanitation), 7 (energy) and 9 (infrastructure). In addition to the SDGs the following important goals need to be considered:

- The rationale for sustainable urban services and technologies is to realize the physical foundation for a compact, resource efficient, socially inclusive, access-oriented and resilient urbanization.
- The access to basic services for all urban users requires a progressive increase of access at a provision level that fulfils at least basic needs.
- To this aim it is important to set up a legal framework and reliable mechanisms and procedures for service delivery at all demand levels. The legislation, funding and prioritization of basic services should take into account the long-term social, economic and environmental benefits.
- For the delivery of basic services the principle of subsidiarity³ needs to be considered. To establish direct linkages, local authorities need to be at least integrated in all central government policies which have an impact on the living at the local level.

³ The principle of subsidiarity implies a system of co-responsibility between institutions of governance at the central, regional and local levels, thus increasing the overall quality and effectiveness of the system of governance, while increasing the authority and capacities of sub-national levels.



b. Transport and
Mobility

Key transformations to achieve by policy priorities

Efficient mobility in cities creates economic opportunities and social integration, enables trade, and facilitates access to markets and services. In particular, public transport in cities creates value for citizens, businesses and public authorities that far exceeds the costs of its provision. Eco-mobility is one key to decrease cities' carbon footprint and to the successful implementation of the climate agreements made at COP21. Mobility also affects public health in cities through its impact on air quality and noise, the level of physical activity, and road safety.

Improving the quality of mobility in cities helps them improve their overall performance, strengthen their contribution to economic and social development, energy and climate change, and public health policies, thus strongly enhancing the ability of national governments to reach their policy objectives in these areas.

Against this background, it appears that mobility should be an integral part of the new global urban agenda and that the following objectives should be pursued as far as urban mobility is concerned:

- All citizens should have access to services and opportunities provided in urban areas.
- Urban mobility should support overall sustainability objectives through the delivery of resource-efficient, space-efficient, people-oriented, clean and safe mobility.
- Adequate funding should be secured for urban transport infrastructures and services through contributions from users and taxpayers but also indirect beneficiaries.
- Connectivity should provide for inter-city and urban-rural linkages; it should be provided at the level of metropolitan and urban areas, beyond the administrative boundaries of cities, through adequate collaboration between relevant entities.

Targets related to policy priorities

The Sustainable Development Goals framework contains a target which makes direct reference to enhancing urban access through expanding public transport (target 11.2):



	<p><i>“By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.”</i></p> <p>This needs to be pursued closely not only in view of the set objectives on access to safe, affordable, accessible and sustainable transport systems etc. but also to add the contribution of the transport sector to the climate objectives and the related decarbonisation to mitigate further climate change.</p>
<p>3. Implementation: Develop action-oriented recommendations</p>	
<p>a. Urban infrastructure and basic services including energy</p>	<p>Key actions at all levels of implementation</p> <p>A New Urban Agenda requires a long term vision, related policy amendments and a shift in priorities and related actions. A range of measures needs to be regarded as a prerequisite for change. In addition, it also requires a variety of immediate activities in order to generate a “momentum of change” with some “quick wins”. This shall also encourage all related parties to enter the “Agenda of Changes” as early as possible.</p> <p>Prerequisites for changes are:</p> <ul style="list-style-type: none"> - Establish policies at national, regional and local level to reduce climate change through mobility; - Combine local and national policies to ensure they are mutually reinforcing and not in conflict with each other; - See services and mobility better rooted at national, regional and local level; - Use a societal perspective to assess the costs and benefits of a policy or infrastructure; - Regard social innovations and institutional and administrative improvements rather than technological innovations as of paramount importance for policy changes; - Interlink urban development planning with transport planning and energy efficiency policies; - Re-distribute financial resources from activities that generate costs to society (e.g. inefficient use of energy) to activities that



- generate societal benefits (e.g. education, health services, clean water, access to mobility services);
- Promote a strong shift towards a more distributed low carbon and hybrid system of energy production in order to improve opportunities for renewables, lead to a more resilient and sustainable energy system and promote decarbonisation of energy production through locally and regionally available resources.
 - Empower local authorities to implement policies within their jurisdiction;
 - Develop local capacities within the framework of multi-level governance and the principle of subsidiarity;
 - Establish learning alliances between peers (local & national) to work on the transfer of basic measures;
 - Opt for open or standard interfaces as well as interoperable systems in order to avoid vendor lock ins.

The following measures are proposed to become a part of the New Urban Agenda:

Urban Services in general

- Promote a higher participation of local authorities in the allocation of finances for urban infrastructure and basic services as they can best advise on local needs and demands;
- Launch large scale investment programs to bridge the investment gap between “no basic infrastructure” to at least “basic infrastructure”;
- Establish cost recovery schemes on the basis of existing and functioning basic infrastructure systems;
- Renew existing infrastructure and incorporate a more resource efficient design and operation management;
- Reduce the demand of building energy consumption by traditional and new technologies including resource efficiency.

The sector-wise measures are the following:

- Waste management
 - Establish a balance of de-centralized waste management systems;
 - Establish mechanisms of “circular economy”, make use of informal sector patterns



- Facilitate urban mining and the reuse;
- Initiate awareness raising campaigns and sustainable consumption patterns;
- Reduce the waste proportion which needs to be deposited;
- Prohibit the cross border and cross regional export of hazardous waste;
- Establish extended producer responsibility schemes that include producers in the financing of urban waste management systems;
- Develop local waste prevention concepts that take into account the specific urban metabolism and focus on the most urgent waste streams with the highest cost saving potentials;
- Reduce the hazardousness of waste streams and recycling rates by better product design.
- Health
 - Ensure reliable operations/conditions for delivery of health services;
 - Improve healthy living conditions in urban areas (air, water, soil, safety) through transfer of peer experiences, local expertise and awareness;
 - Foster cost efficiency of health services through urban concentration of services.
- Education
 - Provide nationwide public education access for pre-scholar, primary and secondary education;
 - Expand vocational training and basic university qualifications for a nationwide dissemination of professional expertise;
 - Use educational effects as a means for secondary and small cities development.
- Water and Sanitation
 - Once basic infrastructure is operational, develop water and sanitation systems towards full cost recovery for large parts of urban areas;
 - Develop mechanisms to foster investments for the reduction of water losses;
 - Establish pricing systems for those parts of the population that can afford it;
 - Avoid free of charge extension of water and sanitation systems for real estate developments / establish 100% cost recovery for real estate developments through public-private contracts;



- Provide for appropriate technical solutions which can be handled on a cost recovery basis and allows for stepwise increase of environmental improvements;
- Establish a balance between public utilities and land use patterns;
- Introduce pricing systems in the agro industry which reflects their water footprint.
- Public Safety and Security
 - Establish reliable emergency services on a professional or voluntary basis;
 - Strengthen mechanisms of social control and public safety at neighbourhood level to complement centrally organized public safety;
 - Cater for mixed and inclusive neighbourhoods.
- Public Spaces, green infrastructures and urban ecology
 - Establish safe cultural, leisure and commercial spaces through open and user oriented designed green spaces along with any built structures;
 - Establish non-segregate open spaces which are open for all urban dwellers, avoid privatization of public spaces;
 - Add to any new building developments an increased quality of public and green spaces and interlink the system of green spaces to a green infrastructure;
 - Consider the street as an essential public space - stressed by movement and place qualities - to be developed as a warranty of public life.
- Energy
 - Manage the transition to sustainable energy production, distribution and consumption;
 - Provide energy-related advisory services by mandated agencies (local, regional or national level) and in cooperation with economic and social actors;
 - Combine building-related energy efficiency improvement (heating systems, insulation), decentralized energy production (solar, wind, geothermal, process or waste heat from industry, commerce and households) and efficiency through co-generation (district heating networks);
 - Consider increasingly different energy aspects jointly, as heat and electricity supply in conjunction with mobility;



	<ul style="list-style-type: none"> - Set renewable energy, in conjunction with co-generation and a complementary proportion of conventional energy as long as unavoidable as the future of electricity and heat supply; - Create opportunities for developing countries to leapfrog to renewable solutions for energy storage and warming water; e.g. solar power and local small scale smart grids in rural areas where conventional power lines do not exist; - Establish a balance between centralized and decentralized approaches for energy management; - Decentralize energy production in areas where quick wins are possible; - Integrate city system data for a better performance of individual supply and distribution systems; - Generate scalable and replicable solutions in order to create cost benefits and benefits in implementation and robust maintenance / easy to use systems.
<p>b. Transport and Mobility</p>	<p>Key actions at all levels of implementation</p> <p>The necessary inclusion of mobility in the New Urban Agenda could be achieved through the implementation of the following priorities and measures at different levels of government.</p> <ul style="list-style-type: none"> • Local governments <ul style="list-style-type: none"> - Coordinate mobility and land use planning policies; in particular, promote compact urban development, which reduces the need for travel but not the accessibility; - Prioritize sustainable modes of transport, by supporting public transport and non motorised transport, and manage the demand for private motorised transport (Sustainable Urban Mobility Plans); - Promote inter-modality and conceive infrastructures in consequence - Include the right for all to access urban opportunities into the design of urban mobility projects; - Develop formal structures of coordination between local authorities in order to deal with the organisation, planning and funding of mobility at the metropolitan level; - Engage with stakeholders and the public on mobility decisions; - Engage with the informal transport sector and involve it actively in the development of public transport projects; - Take advantage of large urban projects as catalysts for better organisation between players.



- **National governments**

- Establish legal framework and instruments that enable cities to use adequate funding for transport infrastructures and services; in particular cities should be able to capture a part of the value created by public transport for the funding of urban transport infrastructures and services;
- Develop an urban transport infrastructure fund at the national level, based on contributions from various sources, to support urban transport projects; access to such funding should be subject to a common appraisal procedure and could be conditioned to the implementation of an integrated mobility strategy (e.g. Sustainable Urban Mobility Plan);
- Empower local governments to carry out integrated strategies at the metropolitan and regional level, in order to better align mobility, economic and urban development policies;
- Establish vehicles standards and regulations (e.g. fuel taxes) to complement demand management efforts undertaken at the local level.
- Facilitate inter-modality at supra-local levels

- **International level**

- Help to develop capacities of local and national governments for the measurement of urban mobility outcomes; this is directly related to the implementation of SDG target 11.2:
- Better target and provide better direct access for local governments to funding and capacity building programmes for urban transport available at the international level;
- Help to enhance capacities of local and national governments for the adequate sharing of competences between local and national level regarding urban mobility (including funding aspects).



Conclusion	<p>In order to define and to implement the New Urban Agenda, a revised model of socio-economic governance is required. Such model is complex and requires the integration of elements of a very different nature. The model must guarantee economic sustainability, the optimal use of available resources and mechanisms for the active participation of the populations living in urban areas. This new agenda recognizes a strategic importance to sustainable urban development planning.</p> <p>It is necessary to reach a collective agreement on the role of sustainable urbanization within a wider agenda of sustainable development, according to the following findings and principles:</p> <ul style="list-style-type: none">• The urban world becomes highly differentiated; high technology applications and inadequately low provision of basic services take place at the same time and often physically side by side.• The dynamic forces of urbanization need to be used more effectively and efficiently in order to provide a more equal distribution of chances and opportunities for all users of urban areas.• The provision of the whole range of urban services remains the driver for social and economic development and the mental and physical well-being of the urban users. For an improved urban habitat, it requires adequate technologies, the generation of synergies between already existing technologies which makes use of an increasing level of digitization and data availability and a sustainable traffic system which reduces its environmental footprint towards full decarbonisation and provides access to mobility to all.• Sustainable urbanization is the sole paradigm to achieve a better habitat and use of resources for all users of urban areas as sustainability links social and economic development with environmental improvements (the triangle of sustainability) based on a set of inherent values, identity with quarters, cities and regions and the contribution and participation of people. <p>These principles, which hold for urban areas and their interdependences to rural areas, constitute an imperative for a sustainable urban development and its inter-urban and urban-rural ties. With the goal of sustaining the change of paradigm that is implicit in the above mentioned principles, five vectors of change have been identified in relation with precarious settlements.</p>
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Those vectors, which integrate elements that are closely related to each other, are the following:

1. To promote the creation of a legal framework and the development of government policies that give legitimacy to the right to land, housing, access to urban services and opportunities, without compromising environmental values;
2. To develop local economies that sustain processes of social production of habitat and community development;
3. To support knowledge and innovation, strengthening links between governments and universities and research centres;
4. To move towards a new model of sustainable habitat;
5. To disseminate good practices (and discuss failures) and their results.