'Nature & The City'

The Global Parliament of Mayors involves contributions from many experienced organizations. This Working Paper brings together a broad knowledge base, meant to inspire reflection during the Inaugural Convening and upon aspirations. What do Cities mean today in the context of climate change? What can they achieve together? . This Paper is intended as input for discussion, and dives deeper into the theme of Cities and climate change challenges. After exploring some of the ins and outs of environmental issues in urban areas, we investigate some of the ways in which Cities could support nation-states in taking concrete action to tackle this key global challenge. The Paper ends with a number of suggestions for actions and policies, which may be discussed and amended by Mayors during their Inaugural Convening.

Cities account for around 70% of global energy consumption and energy-related greenhouse gas emissions,[1] and are the venue of major emissions reductions opportunities. Cities depend on their environment – for food, for water, for resources – yet a healthy environment also depends on cities. Extreme weather has already ravaged them around the world. Projections of the future effects of a changing climate on cities, ranging from physical devastation to loss of life to resource depletion, as well as the capacity of cities to directly address these risks at the city level, have made the relationship between the city and the environment a key area of action.

In other words, in order to successfully tackle climate change, the involvement of cities is crucial.

The COP21 negotiations and the resulting Paris Agreement on Climate Change have created momentum, which if properly seized, offers the realistic prospect that runaway climate change can be prevented. The period 2017-2020 will be crucial in determining whether the

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[1] The Intergovernmental Panel on Climate Change (IPCC) estimates that in 2010, urban areas accounted for 67–76% of global energy use and 71–76% of global CO_2 emissions from final energy use. See: Seto and Dhakal, 2014. Chapter 12: Human Settlements, Infrastructure, and Spatial Planning.

ambitious goal identified in Paris, of limiting global temperature rise to 1.5 degrees Celsius above the pre-industrial average, can be realized. The world needs to reduce emissions by 2020 in order to retain global temperature increase under this threshold by the end of the century. Cities are already collaborating and delivering meaningful action to reduce their carbon emissions, adapt to meet the worst effects of a warming planet and create sustainable, liveable and equitable urban environments.

However, there is no time to waste, and much more needs to be done. The Agreement itself is not nearly enough. There is still a gap in leadership and action, and cities can and are bridging this.

Just like nations, cities need to develop their economies and infrastructure in line with what is needed to prevent global temperatures rising beyond 1.5 degrees, and to adapt to the inevitable consequences of the global warming that is now already happening – the aspiration of the Paris Agreement.

Cities contribute significantly to climate change.

Air pollution levels are so severe in Paris that the Mayor has been granted powers from the government to implement emergency traffic bans. Nations should not wait for their biggest cities to reach such critical levels of pollution before affording them broader authority.
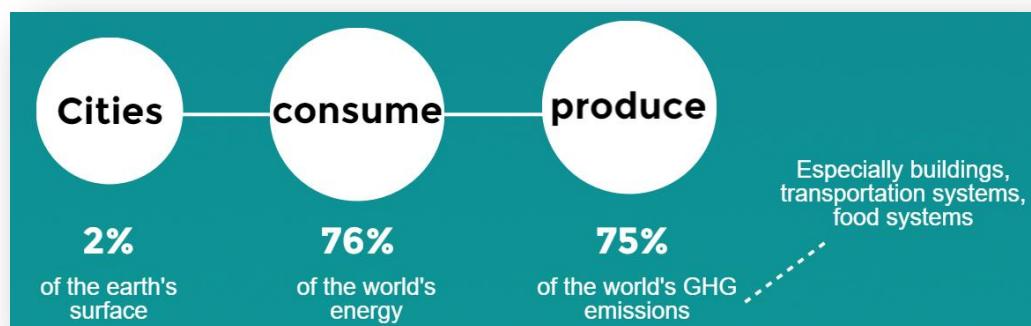
Cities are particularly vulnerable to the effects of climate change and therefore have a significant stake in addressing these issues. Mayors are already dealing with the consequences of climate change in their cities – heat waves, water shortages, air pollution. Cities are often located along coasts, and many major metropolises are located in deltas and low-lying coastal regions, making them vulnerable to flooding. Beyond water and weather, air quality within cities is impacted by the high concentration of industrial, commercial, transport, electricity-generating, and residential activities. Urban heat islands are a third concern for cities; the loss of vegetation and permeable surfaces, as well as the absorption of heat by concrete and other building materials, means that cities tend to be warmer than surrounding suburban and rural areas.[i] Furthermore, the interconnected nature of city systems, such as food and transport, means that disruptions within one aspect of the city due to extreme weather events can cause cascading disruptions elsewhere.

Cities are uniquely positioned to address climate change – or inadvertently lock in systems that exacerbate it.

The United Nations estimates that by 2050, approximately 70% of people will live in cities.[ii] How cities develop in the coming years will set the pattern for the whole of humanity. If mayors get it wrong, we can't prevent runaway climate change. The shift to a fully low carbon economy will require decisive policy, regulation, civic engagement, and consumer action on a global scale. From keeping $22 trillion of fossil fuel assets in the ground, to phasing out all internal combustion engine vehicles from roads within 14 years, tackling climate change will reshape our world and our cities like never before.

C40 Cities Climate Leadership Group and the Stockholm Environment Institute published research at the end of 2015 showing that bad urban policy decisions in the next 5 years alone could lock-in almost a third of the remaining global safe carbon budget.

We know that cities are also a key part of the climate solution. From the rollout of fleets of electric buses in Chinese cities, the moves by European, South American and Indian cities to ban the most polluting cars from city centres, to dedicated low-carbon districts in cities worldwide, we are taking bold actions to cut emissions and prepare for the worst effects of a warming planet.

Mayors have also seen first-hand that climate action brings significant benefits to our communities, such as improved public health, cleaner air, faster economic growth, and more equity. The most successful cities of the future will be those that are first to transition to low carbon development. Foresighted Mayors are creating compact, dense cities, with high mobility based on mass transit, cycling and walking. Unplanned urban sprawl or resource-intensive urban development can lock in inefficiencies or high resource usage and costs for decades to come.[iii]

There is no trade-off between climate action and development: delivering on the Paris Agreement will help us all implement the 2030 Sustainable Development Agenda, and vice-versa.

If cities plan well and avoid sprawl, sustainability, equity and a good quality of life for all urban citizens can be achieved. If the right policies are introduced, urbanization represents a great opportunity for creating sustainable, livable, and dynamic cities.[iv]

The framework: Mitigation, adaptation, and resilience

Current policies and initiatives regarding the city and the environment tend to fall roughly into three categories: those aimed at *mitigating* risks related to climate change; those aimed at *adapting* to climate change; and those (most recently) aimed at bolstering the *resilience* of the city as a whole. By one definition, "Urban Resilience is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience".[v] A study by the Rockefeller Foundation and Arup found that seven dimensions broadly unite conceptions of resilience: reflectiveness, resourcefulness, robustness, redundancy, flexibility, inclusiveness, and integration.[vi] Resilient cities, for example, have infrastructure that encourages social inclusivity and integration, is robust enough to fail safely rather than catastrophically, and has multiple (redundant) back-up systems.

Although mitigation and adaptation are more directly linked to climate change and the city, the concept of resilience begins with the premise that environmental policy is one cornerstone of a full package of interrelated initiatives that can bring multiple benefits. In a resilient city, environmental policy aims to not only reduce a city's GHG emissions, but also improve overall quality of life and health, and to develop infrastructure that is not only energy efficient and robust, but also socially inclusive.

The GPM and its Members recognize this concept as a key foundation of their city's environmental policies.

Based on the Resilient Cities Framework developed by the Rockefeller Foundation and Arup for the 100 Resilient Cities Initiative (www.100resilientcities.org)

Trends and developments on the topic of the city and the environment range from policy proposals and toolkits, to coalitions of cities cooperatively addressing climate change and the environment, to a plethora of green initiatives already underway in individual cities.

Coordinated efforts can significantly benefit cities.

A major reason that mayors were able to be influential in Paris is because they have been working together for over a decade. They now have a well-organized, passionate, collective voice. Mayors have demonstrated a propensity to work together, in healthy competition, leveraging each other's ideas and testing them in their own cities in order to accelerate action on climate change.

A number of global networks of cities have been recently established to tackle specific issues such as climate change (ICLEI, C40), security (European Forum for Urban Security, Mayors

for Peace, Strong Cities Network), and resilience (100 Resilient Cities). Supported by these networks, Member Cities have taken significant, concrete actions to reduce greenhouse gas emissions, laying out comprehensive programs and integrated approaches to achieve their targets.

The GPM recognizes that to deal with the global challenge of climate change, such cooperation and transnational networks are required.

The GPM is not acting in competition with existing city networks, but rather aims to unite their members, promote their efforts, share practices, support their objectives, accelerate success on the road maps, and strengthen the voice of cities on the international scene.

The GPM positions its work as an opportunity for cities to share best practices, facilitate new forms of finance, or set joint procurement standards that foster economies of scale.[vii]

The experience of city networks supporting the GPM in engaging Mayors is key. For instance, C40's activities range from showcasing lead city mayors, providing direct communications support, setting up city diplomacy initiatives such as the Clean Bus Declaration, and helping mayors 'make the case' for climate action. In 11 years, C40 cities have delivered more than 10,000 climate actions, and 30% of those actions have been delivered through city-to-city collaboration. C40 has grown to be a noted voice on the international climate stage.

The climate summit for local leaders, held in Paris on 4 December 2015, brought together city leaders from the world to discuss how they could jointly contribute to reaching the COP21 goals. The Declaration was presented at the COP21, showing how cities work well together, and can bind themselves to targets that are more concrete than the targets of national governments.

On the regional level, clustering with other regional cities can allow smaller cities that lack the economic power to support environmental or social development, to leverage the combined power of the cluster.[viii] Networking with cities that face similar problems regardless of geographic location, i.e., C40's Connecting Delta Cities Network, pools knowledge and resources.[ix]

The GPM and its Members stand behind concrete actions.

Several actions and policies have been put forward and taken up by cities members of networks such as C40, which itself supports the GPM.

The GPM and its Members support these roadmaps and getting cities on pathways in order to comply with the goal of limiting global temperature rise to 1.5 degrees Celsius above the pre-industrial average. In line with C40 objectives, technical assistance and direct support must be provided, in order to:

- close the emissions gap (i.e. between what is needed for a 1.5C world and current national commitments);
- demonstrate the feasibility of low-carbon development; and

- help implement national commitments and raise their ambition ahead of the next two key UNFCCC moments of 2018 (when countries will review their collective effort against the global goals of the Paris Agreement) and 2020 (when it takes effect).

This can be delivered through a combination of support including - city advisers; peer to peer knowledge sharing; city outplacements; technical assistance; access to project finance; GPC emissions data; data sharing; best practice sharing; and city exchanges. Some ideas are introduced below, further showcased through a number of examples set by cities.

Using research and peer-to-peer sharing model

Networks help cities replicate, improve and accelerate action –catalysing delivery by facilitating peer-to-peer knowledge exchange, benchmarking, and competition between mayors. The areas in which emission reduction is greatest could be identified – may it be in buildings and energy supply, urban planning and development, transportation and waste…

Financing the change and climate action

One of the most important questions for cities is how to finance these changes – it is a major barrier. Without access to finance, cities cannot deliver their infrastructure visions or achieve the 1.5 degree goal. All the angles of finance barriers should be addressed by entities like the GPM, including city capacity and knowledge, technical assistance, governmental barriers, and city enabling environments. Finance is becoming a cross-cutting aspect of city networks' action, city diplomacy, measurement & planning, and regions. It should be noted that not all levers come at similar implementation costs, and some cities may have greater access to finance than others. There may be value in going after 'quick wins' in the short term.

Knowledge and networks gathered from its Members could enable the GPM to develop the influence of cities within their national governments, by reporting or searching out funding opportunities from national governments.
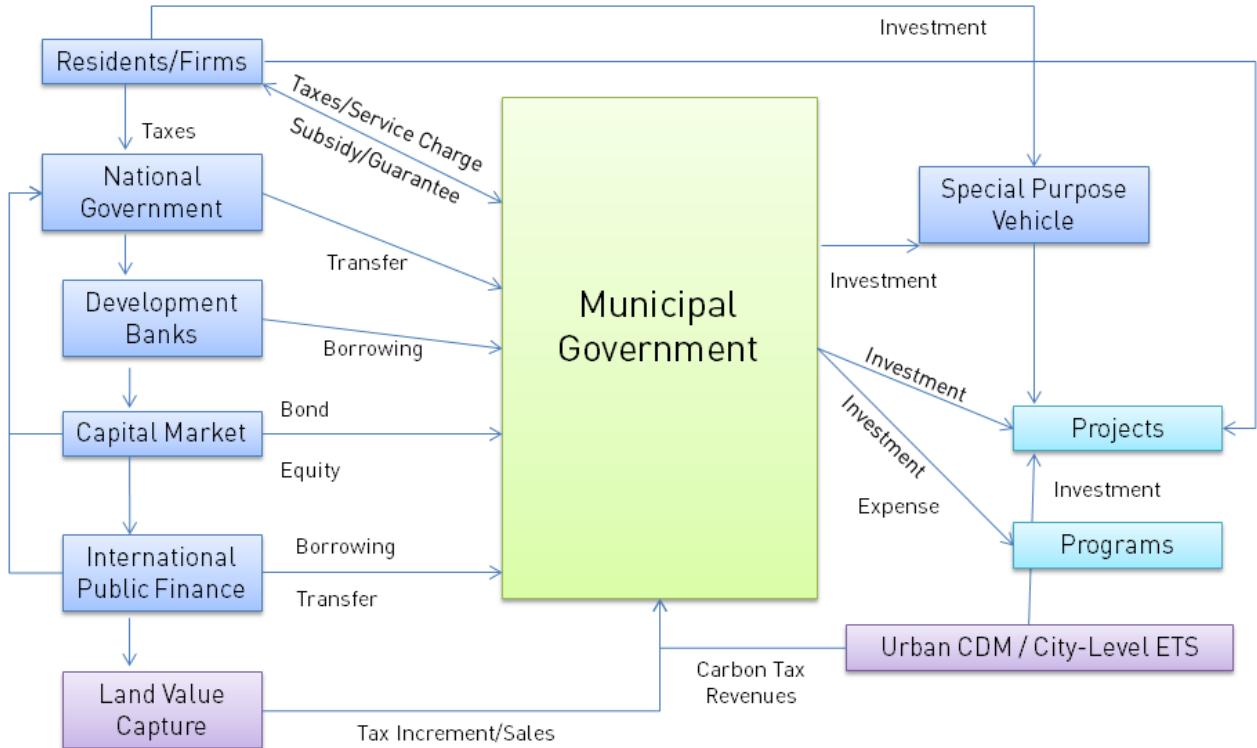
Funding opportunities for cities (Urban Climate Change Research Network, 2015)[x]

Assessing the national and local context

Every city is unique. First, it is relevant to keep in mind that differences between developed and developing world cities translate into different types of programs or actions. For example, developing a net zero building program for a city like New York (which has extensive pre-existing building stock) would look dramatically different from a greenfield city in China. Second, developing a sustainable relationship with the surrounding environment and effectively preparing for climate extremes entails developing a detailed assessment of each city's local conditions. Third, local actions take place in the broader (inter)national context that can either empower or slow down city-level action. Most cities implementing climate plans find themselves constrained by fiscal and policymaking limitations (e.g., jurisdictional conflicts)..[xi]

Engaging local stakeholders

Part of knowing your local context is knowing the local stakeholders who can help bring about the success or failure of goals. Collaboration and stakeholder engagement, from the earliest planning stages to implementation and long-term usage, are critical to accelerate action and for successful policy. Pooling local knowledge and instigating local change regarding climate risk adaptation and mitigation, as well as overall city resilience, is a two-way street: input from civil society and industry is critical at the planning stages, while output, i.e. changes to transportation systems, affect inhabitants and industry's experiences and behaviors.

Several actions that have proven useful and efficient can be put forward by the GPM. Examples abound on how local stakeholder engagement can improve support and education, for example by backing bottom-up initiatives to start community gardens or raising awareness about behaviors regarding food waste.[xii] Integrated planning that reaches across levels of government and as well as local stakeholders can help ensure success by engaging key groups.[xiii] Consulting experts from local industry, for example, brings local stakeholders into the planning phases.[xiv] Consulting across levels of government should consider local government bodies located in regions adjacent to the city in addition to national governments.[xv]

We know how the physical shape of cities itself can encourage or discourage the behavior of citizens and industry; for example, bicycle lanes beget cycling and plug-in points for electric cars encourage consumers to buy them.[xvi]

Urban design and planning

Urban design and planning are a key means through which policy-makers can set the basis for long-term development and infrastructure, with infrastructure investments and resulting development patterns potentially impacting the city for 50 years or longer.[xvii] Forward-thinking regarding the city and environment requires integrating climate mitigation and/or adaptation strategies into urban design and planning.

Dense cities with mixed-use development tend to have lower emissions than sprawling cities where city systems such as water and transport must cover a relatively large area.[xviii] Decisions regarding land use and zoning are two key means of encouraging dense, mixed-use development. In addition, integrating land use decisions into planning transportation and water infrastructure can have multiple long-term benefits, for example: protecting these systems (i.e., by placing them in areas less likely to be affected by flooding); reducing energy costs (i.e., by encouraging density which increases walkability); and fostering a more inclusive city (i.e., by reducing limited transportation access in poor areas). Finally, cities can also re-examine policies that inadvertently encourage sprawl, such as tax incentives for single-family or single-use buildings that encourage spread-out development.[xix] It is also important to highlight the need for removing archaic zoning or building laws that are currently on the books. For instance, some zoning laws actually prohibit the development of greener, more sustainable cities.

These ideas can be gathered by the GPM and openly shared and matched with its Members.

Leading by example and creating incentives

Beyond decisions and words, change can also occur through direct intervention by the city, which ought to lead by example in advocacy and knowledge dissemination, and in action, such as in retrofitting government buildings to increase energy efficiency or through fossil fuel divestment..[xx]

Urban infrastructure

As the world becomes urban, infrastructural investments are inevitable for many cities, and decisions made now will set patterns not only for local development within cities but also for

global GHG emissions and energy consumption that will mark the success or failure of reigning in climate change.[xxi]

Critical urban systems that are both vulnerable to climate change and serve as possible points of intervention in reducing a city's GHG emissions include water, food, waste, transportation, and energy systems.

Approaching planning of all city systems from the perspective of energy efficiency is critical to reducing overall greenhouse gas emissions. While energy efficient options are available in all of a city's systems, the focus of energy efficiency often revolves around three of the highest contributors to a city's emissions: buildings, transportation, and industry.[xxii]

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Increasing knowledge, involving stakeholders, and engaging the community are key to making urban infrastructure and systems robust and resilient.

GPM Member Cities have a lot to share and learn from each other on the road to a 1.5 degree world.

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With respect to transportation, we know how green transport can improve air quality, reduce congestion, increase social inclusivity, improve safety, and encourage dense development, all the while saving money in emissions and operating costs.[xxiii] Several policies or strategies can be envisaged by city governments. For example: integrating climate risk reduction, transport planning, and land use decisions are some of the methods cities can use to reduce greenhouse gas emissions and increase resilience.[xxiv] Next, transport planning can foster dense development – which in turn incentivizes walking and biking – and can increase social mobility in the city by ensuring denizens are well-connected to green transport options. Two examples of green transportation strategies are bus rapid transport (BRT) systems or high parking charges in combination with low bus fares.[xxv]

The GPM and its members are a source of knowledge when it comes to the variety of policies that can encourage building retrofits, key to energy efficiency. For example, property tax deductions for low-carbon buildings[xxvi] or considering building efficiency in property assessments[xxvii] are two incentives to encourage private action. Here again, stakeholder and public engagement can increase success: bringing the knowledge of local construction companies into the policymaking process or engaging owners and tenants can foster knowledge and action.[xxviii]

An adequate supply of food and potable water is fundamental for the city, yet water and food systems will be strained by burgeoning urban populations even as they are increasingly threatened by climate change. Food and water systems are vulnerable to extreme weather events, either through direct impact (i.e., damage of water treatment facilities) or through cascading problems caused by a breakdown in a city's infrastructure such as transport or electricity that impacts the delivery of food and water.[xxix] Urban policies can push for stricter building requirements – for instance through green building certifications (Green Globes, BREEAM, LEED, etc.). In Boston, for example, any new construction or retrofits over 10,000 square feet must be LEED certified.

A plethora of ideas is available and could be made accessible through connections between City Members – among which:

- At the planning stage, creating committees that cross policy silos by bringing together climate, food, water, and urban planning on one committee to help integrate food and water resilience into urban planning.[xxx]
- Documenting the supply chains and transportation routes of food entering the city, assessing points of vulnerability in urban infrastructure, creating stores of emergency food supplies, or encouraging community gardens are examples of actions that can prepare urban food systems for climate stresses.[xxxi]
- Supporting peri-urban agriculture[xxxii] and creating policies that encourage infield rather than greenfield development (building in areas that have already been built up rather than expanding over green areas).[xxxiii]
- Increasing energy efficiency and health of water systems through investments in anaerobic reactors, eliminating high-energy water supply and treatment systems, and recovering biogas from wastewater.[xxxiv]

Model of systems and resources where action can be taken (McKinsey)
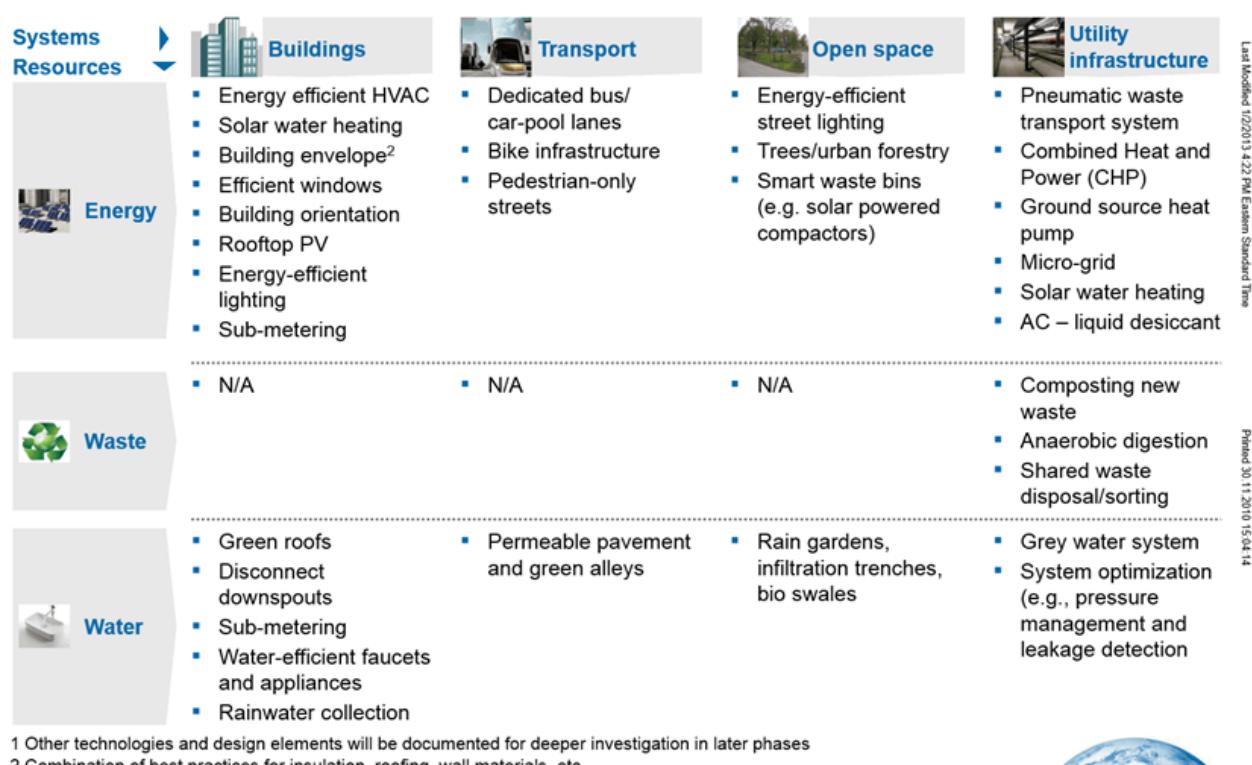
Beyond words and teaming up, concrete action must be taken as part of our roadmaps to a 1.5 degree world. Ideas can be translated into concrete policies and actions behind which the GPM and its Members will stand.

GPM Mayors could decide to stand behind concrete objectives and action points lined up by city networks, such as C40. Not all can apply to all cities, and some may be divided into short-term levers such as developing a green building policy, and long-term levers such as all buildings being net zero.

Inspiring initiatives by cities

GPM Members and other cities have initiated exemplary, local initiatives addressing the environmental aspects with a mix of good practices. Strong in this experience, cities can lend impetus to these existing projects.

Our first highlight goes to the City of The Hague, host of the GPM Inaugural Convening in 2016, which has been taking efficient and logical steps in each area. A special budget, an energy fund, has been created and is allocated to energy saving projects. A climate fund was set up to compensate the city's CO_2 emissions, and invests to develop climate projects in The Hague. Worth mentioning is also a revolving fund dedicated to the sustainable renovation of residential buildings. With the New Boulevard Scheveningen project, the Municipality has combined a major climate change mitigation project (protecting the city from flooding) with a makeover of the resort, supporting economic vitality.

Rotterdam and Ho Chi Minh certainly agree that 'twin cities' systems or city-to-city networking are an excellent way to pool resources and to show how cities can foster and export their country's knowledge and other assets.[xxxv] Ho Chi Minh created an institutional body to develop a plan for administering climate resilience work following discussions with other cities in C40's Connecting Delta Cities Network. Rotterdam assisted Ho Chi Minh City in securing funding from the Dutch government as well as technical know-how from Dutch organizations for Ho Chi Minh's Climate Adaptation Strategy. Due to assistance from the city of Rotterdam, Ho Chi Minh city has moved from planning to

implementation: the city has now established pilot districts for applying its Strategy and is designing flood control measures.

Also in China, Nanjing has deployed in no time the world's second largest electric vehicle fleet as a means of public transportation. The city has built up the largest and most centralized charging station for the EV fleet serving the Games, in an extremely short time period.

Dar es Salaam knows how informal settlements and water management are at a crossroads.[xxxvi] Rainfall has been decreasing annually and the timing of the rainy season has changed in Tanzania's largest city, which experienced a drought in 2006 that affected food and water supply. This resulted in malnutrition and disease. And as a coastal city, its vulnerabilities to flooding and extreme weather remained – especially compounded by 70% of the population living in unplanned or informal settlements without access to basic services. Water supply, drainage, and maintenance of water infrastructure are therefore an area of concern in Dar es Salaam. In spite of the challenge to procure funding for further initiatives, concrete steps have been taken focused on installing infrastructure in informal settlements, especially for water management, while developing local engagement in the planning and maintenance of this infrastructure.[xxxvii] The provision of land or property licenses were part of this effort, next to tree planting to protect exposed coastal areas. Finally, land and water conservation efforts resulted in the city banning sand excavation in critical areas.

On the same continent, Cape Town shows us knowledge gathering and community engagement in action.[xxxviii] The residential sector uses 37% of the city's electricity, mostly for water heating. A program designed to encourage the use of solar rather than electric water heaters found that the most common barrier to change was consumers' lack of trust in suppliers. Cape Town responded by establishing standards for competence and customer service, vetting suppliers, and accrediting those that met the requirements. Direct marketing, social media, advertising, and an informational website spread further awareness of solar heaters and listed accredited providers. Increasing electricity tariffs created a further incentive to switch to solar heaters. Following the initiative, 5,729 solar water heaters were installed within 21 months. Energy use was reduced by approximately 15.0 GWh, saving residents around $2.2 million in utility bills and reducing the amount of coal burned. Solar water heater installation is estimated to have created 158 jobs and contributed $7.7 million to the local economy.

Let us stay in South Africa, where Johannesburg has embarked on a journey to becoming a 'people-centered city'. Its 'Corridors of Freedom' involve transport-orientated development and equity. The shape of the future city will consist of well-planned transport arteries – the Corridors of Freedom – linked to interchanges where the focus will be on mixed-use development. Joburgers will then not have to use private motorized transport but can opt for the alternative means, which include cycling, bus lanes and pedestrian walkways.

On the other side of the planet, Melbourne is showing us one way to set up a renewable energy project at city-level with various stakeholders. Thirteen major institutions (including neighboring city councils, banks, the University) have formed a consortium that will sign an agreement to purchase a large chunk of their electricity from a new large-scale renewable energy project – they would not be able to afford it on their own indeed, and city stakeholders have otherwise no control over electricity generations.

Copenhagen's climate adaptation planning included the adoption of the Cloudburst Management Plan (2011), one of the world's most ambitious Climate Adaptation Strategies. In 20 years, all areas of Copenhagen should be secured against extreme rain. Elected as the Copenhagen Climate Resilient Neighborhood, St. Kjeld's District in Outer Østerbro will have its streets, main squares and buildings transformed based on climate change mitigation objectives.

Paris, being too big to fail at reaching climate adaptation targets, has made steps to tackle air pollution – such as by closing the Champs Elysées to cars once per month, stepping up its drive against diesel cars by banning them all by 2020, or piloting three smart 'trees' that monitor air pollution and reduce fine dust and nitrous oxides almost 300 times more efficiently that normal trees. Paris' dynamic Green City Solutions team is now on speaking terms with the French government. Furthermore, 20 EU Mayors including Paris, Copenhagen, and Madrid have started a coalition, building their political influence at a higher level by calling for stricter regulations tackling air pollution.

Our world tour ends in Central and South America. First stop in Mexico City – the world's most polluted city (UN, 1992) has taken steps to shake this title. Thanks to 'ProAire', a series of comprehensive programs deployed over the last two decades, the city has recorded impressive reductions in local air pollution as well as CO2 emissions. Mexico City's results show how nothing is impossible: a 7.7m tonnes reduction in carbon emissions was recorded in just four years (2008 to 2012), beating a 7.0m tonnes target. To make further progress, the city recognizes it needs to get the public on board, and has dedicated more resources to education programs and public awareness campaigns.

Rio de Janeiro has recently taken stock of risks and challenges – from extreme weather and traffic congestion, to the World Cup and the Olympics. But since 2010, this C40 city has been building resilience. In particular, in order to respond to climate hazards and manage services in a more connected and responsive way, Rio created a control room – the Center of Operations. For example, it includes the coordination of garbage trucks through GPS, so that these can be re-purposed in case of an emergency. The Centre was built in record time and through a partnership with IBM and Oracle. It is at the service of Rio's citizens who have seats reserved inside, and remains one of the world's most cutting-edge centers of its kind.

Taking concrete action: GPM Cities as Green Crusaders

Drawing upon The Hague Declaration (2016) and the insights presented by our partners and expert organizations at the Global Parliament of Mayors (GPM), a number of concrete action points or policies were identified and are suggested below.

These suggested actions can be used by Mayors as a basis for discussion on the occasion of their Parliament's Inaugural Convening. Mayors could amend and reflect upon these – and while the choice of some cities will not be for everyone, the point is that it is doing something new that others can evaluate and learn from. During and after the Inaugural Convening of the GPM in The Hague, Member Cities could decide to support these policies, based on their specific needs and circumstances.

Cities assess, incentivize, reshape, lead change by example

- Members of the GPM will recognize the importance to meet the UN Sustainable Development Goal 11b: "By 2020, [to] substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels".

- GPM Members could support **SDG 11** – "Making cities inclusive, safe, resilient and sustainable", **13** – "Take urgent action to combat climate change and its impacts", **12** – "Ensure sustainable consumption and production patterns", **6** – "Ensure availability and sustainable management of water and sanitation for all", **7** – "Ensure access to affordable, reliable, sustainable and modern energy for all", and **9** – "Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation". Members may decide to support to the targets relevant to their policies and prerogatives, such as:
  - ❖ 11.2: 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, older persons, newcomers in isolated neighborhoods.
  - ❖ 11.6 – By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.
  - ❖ 11.a – Support positive economic, social and environmental links between urban, per-urban and rural areas by strengthening local, national and regional development planning.
  - ❖ 11.b – By 2020, implement integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and

develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels.

- ❖ 12.5 – By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.
- ❖ 13.2 – Integrate climate change measures into urban policies, strategies and planning.

- GPM Member Cities may support each or some of these goals' underlying targets as part of an action plan to reduce/avoid greenhouse gas emissions. This is also in line with the Paris Agreement target to prevent global temperatures rising by more than 1.5 degrees above the pre-industrial average.

- Mayors may call upon national and regional governments to provide additional resources to city governments to enable them to achieve this aim.

- GPM Members can choose to send a yearly progress report on sustainability progress to the Secretariat, .

- The GPM is an opportunity for cities to share best practices and greening initiatives, identify ideas to change behaviors, facilitate new forms of finance, or set joint procurement standards that foster economies of scale.

- GPM Members can commit to sharing solutions they have identified to be efficient in making progress of the environmental road map, in line with the Paris Agreement and the SDGs. In particular, solutions to gain support and increase education, with the aim to foster community engagement – for example by backing bottom-up initiatives to start community gardens or raising awareness about behaviors regarding food waste. But also adaptation strategies into urban design and planning that encourage or incentivize green behaviors (e.g., bicycle schemes, plug-in points, taxes), densification of the city with smart zoning and land use decisions for transportation and water infrastructure, etc.

- To become lower energy cities, Member Cities can choose to opt for strategies that will include objectives at lower levels of specificities, such as: Achieve a 20% reduction in CO_2 emissions per capita from a 2005 base by 2030.

- Member Cities that assess their efforts and programs as successful can report to the GPM yearly with a Mayor Brief.

[i] Rosenzweig, C., W. Solecki, P. Romero-Lankao, S. Mehrotra, S. Dhakal, T. Bowman, and S. Ali Ibrahim. "ARC3. 2 Summary for City Leaders Climate Change and Cities: Second Assessment Report of the Urban Climate Change Research Network," 2015. http://ntrs.nasa.gov/search.jsp?R=20150023490.

[ii] United Nations, *World Urbanization Prospects*, 2014, http://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html

[iii] "Cities and Climate Change: National Governments Enabling Local Action." Policy Perspectives. OECD and Bloomberg Philanthropies, November 2014. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.486.8188&rep=rep1&type=pdf; Zenghelis, Dimitri, and Nicholas Stern. "Climate Change and Cities: A Prime Source of Problems, yet Key to a Solution." *The Guardian*, November 19, 2015, sec. Cities. https://www.theguardian.com/cities/2015/nov/17/cities-climate-change-problems-solution; Rosenzweig, C., W. Solecki, P. Romero-Lankao, S. Mehrotra, S. Dhakal, T.

Bowman, and S. Ali Ibrahim. "ARC3. 2 Summary for City Leaders Climate Change and Cities: Second Assessment Report of the Urban Climate Change Research Network," 2015. http://ntrs.nasa.gov/search.jsp?R=20150023490.

iv "Cities and Climate Change: National Governments Enabling Local Action." Policy Perspectives. OECD and Bloomberg Philanthropies, November 2014. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.486.8188&rep=rep1&type=pdf.

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