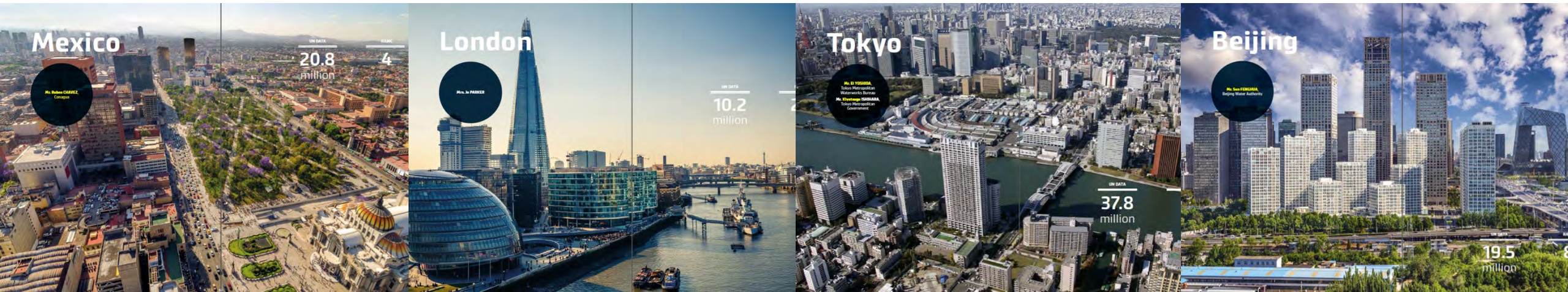


City – Basin dialogue in the Context of Megacities



Megacities Alliance for Water and Climate (MAWAC)

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November 10th 2020

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- B. Other Key Stakeholders for Other Water Activities in Megacities
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United Nations
Educational, Scientific and
Cultural Organization



Intergovernmental
Hydrological
Programme

I. The Megacities Alliance for Water and Climate

Megacities Alliance for Water and Climate (MAWAC)

MAWAC is an international collaboration platform of the world's megacities. It aims to strengthen megacities' capacity to implement global standards and agreements, by promoting trans-disciplinary exchange, and the adoption of integrated approach through international cooperation, thus driving towards a paradigm shift in urban water management and climate change adaptation.

- 55% of the world's population reside in city in 2018. By 2050, 68% is projected to be urban.
- Around one in eight live in 33 megacities with more than 10 million inhabitants. By 2030, the world is projected to have 43 megacities, most of them in developing regions.

Current Contact

| Latin America | Asia & Africa | Europe, North America | Africa |
|-----------------------|-------------------------|-----------------------|--------------|
| <u>Bogota</u> | <u>Bangkok</u> | <u>Istanbul</u> | <u>Lagos</u> |
| <u>Buenos Aires</u> | <u>Ho Chi Minh City</u> | <u>London</u> | |
| <u>Lima</u> | <u>Jakarta</u> | <u>Los Angeles</u> | |
| <u>Mexico City</u> | <u>Karachi</u> | <u>New York</u> | |
| <u>Rio de Janeiro</u> | <u>Lahore</u> | <u>Paris</u> | |
| <u>Santiago</u> | <u>Manila</u> | | |
| <u>Sao Paulo</u> | <u>Mumbai</u> | | |
| | <u>Wuhan</u> | | |

*Working Group Focal Point



| Time | Some past events |
|-------------------|--|
| 1-4 December 2015 | UNFCCC COP 21 First International Conference on "Water, Megacities and Global Change" (EauMega 2015) Launch the initiative, signature of the Declaration of the Megacities Alliance for water and climate by UNESCO-IHP, ICLEI and ARCEAU-IdF |
| June 2016 | 22nd session of the IHP Intergovernmental Council Establish the MAWAC Working Group consisted of 11 megacities |
| October 2016 | WaterLinks Forum Proposition of establishing the regional platform for MAWAC |
| October 2016 | Habitat III Launch of the publication "Water, Megacities and Global Change" |
| November 2016 | UNFCCC COP 22 Signature of the "Marrakech Declaration of Global Alliances for Water and Climate"; launch of the publication "Eau, mégapoles et changement global" |
| June 2018 | Launch of Partnership Project between SIAAP and MMDA of Manila |
| May 2019 | Regional Conference for Latin America and the Caribbean Signature on the principal framework of MAWAC-LAC Alliance |
| October 2019 | World Cities Day UNESCO Metropolitan "ECO-RISE" R2020 Colloquium |
| December 2019 | UNFCCC COP 25 One UN for Climate-Compatible Cities PCCB Second Capacity Building Hub |
| January 2020 | ChangeNOW 2020 Program for Cities and Regions |
| February 2020 | World Urban Forum 2020 UNESCO Cities Platform: urban solutions for global challenges |
| June 2020 | Webinar - Urban Solutions: Learning from cities' responses to COVID-19 |
| July 2020 | Webinar - COVID-19 Implication on Water Management in Megacities: Impacts, Reactions, and Lessons |
| August 2020 | World Water Week Urban Water Resilience Under COVID-19: What happens next? |



II. Role of Basin in MAWAC Strategic Global Framework (upcoming)

Strategic Global Framework

Megacities Alliance for Water and Climate

Vision: Water secure megacities where communities are **prosperous**, **resilient** to the effects of **climate change**, and able to **develop** sustainably, while preserving the **environment**.

Mission: MAWAC is an **international collaboration platform** of the world's megacities, committed to adapting to the **international global agendas on water and climate** towards the sustainable megacities and water secure urban communities for all.

Water Secure Megacities

4 Key Stakeholders

- Decision Maker
- Utility and Operator
- Academia
- **River Basin Authority**

3 Intervention Scales

- Service scale
- City-Metropolitan scale
- Basin scale

- **Pillar 1:** Water and sanitation management for human well-being
- **Pillar 2:** Water-climate related hazards
- **Pillar 3:** Ecosystem
- **Pillar 4:** Water for socio-economic development

Water Management

- **Driver 1:** Water governance
- **Driver 2:** Data and information
- **Driver 3:** Cooperation
- **Driver 4:** Financing
- **Driver 5:** Science, technology and innovation (STI)

Stakeholder: River Basin Authority

River basin authority in some contexts is the umbrella entity **undertaking basin-wide water resources management**, in response to stakeholders' demands or legal requirements and transboundary cooperation, such as monitoring, data collection, and co-ordination, planning and stakeholder engagement.

RBO or RBA are getting more involved in the various urban-related water aspects, and are increasingly valued by city level management.

Emerging innovative and integrated solutions, such as **natural-based solution** and **source-to-sea approach** obtain n international recognition

Strategic Global Framework

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Water Management

3 Intervention Scales

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- City-Metropolitan scale
- **Basin scale**

- **Driver 1:** Water governance
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- **Driver 4:** Financing
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Intervention Scale: Basin Scale

| | |
|------------------------|---|
| Aim/Target | Ensure coherence between urban water and basin management |
| Sub-Target | <ul style="list-style-type: none"> • Protect the quantity and quality of water resources • optimizing the interface between urban water and activities beyond the urban boundaries • Prepare for extreme events and impact of climate change • Develop source-to-sea approach |
| Related Pillars | Pillar 1, 2, 3, 4 |
| SDGs | SDG 6.5.2, 14.1, 13.1, 3.9, 11, 15.6, 16.3, 17.9, 17.7 |

III. Survey from MAWAC Working Group

Response from **Ho Chi Min City** (Viet Nam), **Istanbul** (Turkey), **Karachi** (Pakistan), **Lagos** (Nigeria), **Lima** (Peru), **Mexico City** (Mexico)

Collected by 23rd October 2020

A. Key Stakeholders for Water Resource and Basin Management in Megacities, Roles and Responsibility

B. Other Key Stakeholders for Other Water Activities in Megacities

C. Adoption of Integrated Water Resource Management (IWRM) in Megacities

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| Megacity | Connected Basin |
|------------------|---|
| Karachi | Indus River basin |
| Lagos | (blank) |
| Mexico | Xochimilco Sub basin Mexico City sub basin La Compañia River Sub basin Texcoco Sub basin |
| Istanbul | European side: Alibey, Büyükçekmece, Sazlıdere, Terkos and Istrancalar. Asian side: Elmalı, Ömerli, Darlık, Kabakoz, Isaköy and Sungurlu. Outside the city: Melen catchment area. |
| Jakarta | Several river basins in Jakarta connected to other cities surrounding Jakarta |
| Ho Chi Minh City | Sai Gon – Dong Nai basin |
| Lima | The city of Metropolitan Lima uses water from the basins of three rivers: Rímac, Chillón and Lurín. These basins play a fundamental role as a source of water supply for human, agricultural and energy consumption |

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Key Stakeholders in water activities

— — Water Resource Management & River Basin Development

| | Karachi | Lagos | Mexico City | Istanbul | Jakarta | Ho Chi Min City | Lima |
|---------------------------|--|---|--|---------------------------------------|--|---|-------------------------------|
| Water Resource Management | Sindh Irrigation Department, Government of Sindh | Lagos State Water Regulatory Commission | National Water Commission (CONAGUA) | Ministry of Agriculture and Forestry; | Water Resources Office, DKI Jakarta Province | under Dept. Natural Resources and environment (DONRE): Environmental Management Division (EMD), Office of Mineral & Water Resource Management (OMWRM) and HCMC Environmental Protection Agency (HEPA) | National Water Authority- ANA |
| River Basin Development | | | Mexico's City Water System | | | Water and Sewerage Administration (ISKI) | |
| | | | National Water Commission (CONAGUA); Water of the Valley of Mexico Basin Agency | | | | |

Key Stakeholders for River Basin Development (1/2)

| | River basin development | Roles and Responsibility |
|--------------------|--|---|
| Karachi | Irrigation Department, Government of Sindh | Distribute equitable water to all the competing users, maintaining the quality of water |
| Lagos | - | - |
| Mexico City | National Water Commission (CONAGUA) | <ul style="list-style-type: none"> - Prepare special programs of an interregional and inter-basin nature in matters of water; - Define the technical guidelines for the management of national waters, basins, works and services, to be considered in the preparation of programs, regulations and decrees of closures and reservation; - Prepare water quantity and quality balances by hydrological regions and basins; |
| | Water of the Valley of Mexico Basin Agency | <ul style="list-style-type: none"> - Know and agree on the regional water policy by basin - Formulate and propose the Water Program (s) by hydrological basin or by aquifer, update them and monitor their compliance - Preserve and control water quality, as well as manage hydrological basins - Prepare of hydrological balances by hydrological regions and hydrological basins in quantity and quality of water |

Key Stakeholders for River Basin Development (2/2)

| | River basin development | Roles and Responsibility |
|-------------------------|---|--|
| Istanbul | Ministry of Agriculture and Forestry | River Basin Action Plans are prepared by Ministry of Agriculture and Forestry for throughout the country |
| | Water and Sewerage Administrations (iSKi) | Special provision may be specified by Water and Sewerage Administration with more strict measures. Accordingly the action plans are prepared and submitted to Ministry for approval. |
| Jakarta | Water Resources Office | Supervise and coordinate public works and spatial planning in the sub-affairs of water resources, sub-affairs of drinking water, sub-affairs of wastewater |
| Ho Chi Minh City | Sai Gon Dong Nai river committee | River Basin Organizations for water resources planning on the basis of major river basins - the Sai Gon-Dong Nai river basin |
| Lima | Council of Water Resources of CUENCA | Institutional spaces for dialogue, where stakeholders related to water management in the basins discuss their problems in order to reach consensus, making agreements and committing to the implementation of actions in their respective basins |

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Key Stakeholders in water activities

— — Development of drinking water and wastewater infrastructure & Operation and maintenance of urban water and sanitation systems

| | Karachi | Lagos | Mexico City | Istanbul | Jakarta | Ho Chi Min City | Lima |
|--|--|--|---|--|--|--|---|
| Drinking water and wastewater | Karachi Water & Sewerage Board (KW&SB) | Lagos Water Corporation | National Water Commission (CONAGUA) | Water and Sewerage Administration (ISKI) | Drinking Water Company DKI Jakarta (PALYJA); Regional Environmental Agencies, DKI Jakarta | The Sai Gon Water Supply Company (SAWACO) Ho Chi Minh city urban drainage company limited (UDC) | Ministry of Housing, Construction and Sanitation (SEDAPAL) |
| Operation of water and sanitation system | | Lagos State Wastewater Management Office | Mexico's City Water System Water Commission of Mexico State Municipal operating agencies | | | | Technical Organization of the Administration of Sanitation Services (OTASS) |
| | | | National Water Commission (CONAGUA) | | | | |
| | | | Mexico's City Water System Water Commission of Mexico State Community water committees | | | | |

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Key Stakeholders in water activities

— Regulatory Authority to Water and sanitation Services & Water Concession

| | Karachi | Lagos | Mexico City | Istanbul | Jakarta | Ho Chi Min City | Lima |
|------------------|--|---|--|--|-------------------------------------|--|--|
| Water Regulation | No | Lagos State Water Regulatory Commission | National Water Commission (CONAGUA) Mexico's City Water System; Water Commission of Mexico State; Municipal operating | Ministry of Health; Ministry of Environment and Urbanization; Ministry of Agriculture and Forestry; Water and Sewerage Administrations (iSKi) | Health Office, DKI Jakarta | Dept. Natural Resources and environment (DONRE), following to People's Committee of HCMC | National Superintendency of Sanitation Services-SUNASS |
| Water Concession | Sindh Irrigation Department, Government of Sindh | - | National Water Commission (CONAGUA) | Ministry of Agriculture and Forestry Water and Sewerage Administrations (iSKi) | Water Resources Office, DKI Jakarta | Department of Agricultural and Rural Development (DARD) belong to the People's Committee The Ministry of Agricultural and Rural Development (MARD) ; Department of Industry (DI) | Rimac Hydraulic Sector User Board |

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Key Stakeholders in water activities

— — Protection against Water-related Hazards

| | Karachi | Lagos | Mexico City | Istanbul | Jakarta | Ho Chi Min City | Lima |
|--|--|-----------------------------|--|---|-------------------------------------|---|--------------------------------|
| Protection against Water-related Hazards | Karachi Water & Sewerage Board (KW&SB) | Office of Drainage Services | National Water Commission (CONAGUA) Ministry for Civil Protection | Ministry of Environment and Urbanization Metropolitan Municipality; Water and Sewerage Administration (ISKI) | Regional Disaster Management Agency | Ho Chi Minh city disaster, research and rescue Board, belong to Department of Agricultural and Rural Development (DARD) | Local and regional governments |

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Adoption of Integrated Water Resource Management (IWRM) in Megacities

Overview

| | Karachi | Lagos | Mexico City | Istanbul | Jakarta | Ho Chi Min City | Lima |
|---------------|---------|------------------|------------------|----------------|---------|------------------|----------------|
| IWRM Approach | On Plan | (no information) | (no information) | Adopted | On Plan | (no information) | Adopted |

Adoption of Integrated Water Resource Management (IWRM) in Megacities

Istanbul and Lima (adopted)

IWRM adopted in Istanbul

The regulations set by Ministry of Environment and Urbanization, Ministry of Agriculture and Forestry and Ministry of Health are in place for the integrated approach. These are ready and are in implementation stage.

| | |
|---------|--|
| Driver | Related ministry and its provincial office have the sanction, for cases not comply with the regulations. |
| Context | Non-governmental organization are active in the complaint mechanism, if it is not comply with the regulations. |

IWRM adopted in Lima

With the promulgation of the Water Resources Law 29338 (March 31, 2009) and its regulations (March 23, 2010), IWRM is established in the country as a management philosophy, indicating that the use of water must be optimal and equitable, based on its social, economic and environmental value, by river basin and with active participation of the organized population.

It also creates the **National Water Resources Management System (SNGRH) in order to articulate the actions of the state**, to conduct the processes of integrated management and conservation of water resources in the basins. At the head of this system, he places the **ANA (National Water Agency)** and gives it the task of leading it and building IWRM in the country.

| | |
|---------|---|
| Driver | National Water Authority, Water Resources Council |
| Context | The basin water resources councils are made up of representatives of local and regional governments, user organizations, the Academy, peasant communities, professional associations, the Water Administrative Authority. |



IV. Key Initiatives and Plans for MAWAC

Upcoming Major Activities and Projects

Megacities Alliance for Water and Climate (MAWAC) | Second International Conference “Water, Megacities and Global Change”



Nov 2020 - Feb 2021

Establishment of Regional Platforms

- Latin America and the Caribbean (MAWAC-LAC)
- Europe and North America (MAWAC-ENA)
- Asia and the Pacific (MAWAC-ASPAC)

Dec 7-11 2020

Pre-Conference



Youth participation
New call for papers, call for side events , call for partnership
Webinar series

Dec 2021

**Second International Conference
“Water, Megacities and Global Change”**

- First Assembly of MAWAC
- Mayor Congress
- Regional Session

Upcoming Major Activities and Projects

16 Megacities Monographies – 2016, 2019



Contribution of 33 authors from around the world.

Available: English, French, Spanish

View full version:

<https://en.unesco.org/mawac/resources>

2016

Habitat III: Launch of the 15 Megacities Monographies Publication

2019

16 Megacities Monographies (new : Kinshasa)

Ongoing Publication during 2020 and 2022

New Water Monographies – 2020-2022



624 indicators in 3 Comparative Dimensions

Megacity Profile, Water Supply, Wastewater

| Type of data | Scenarios | | |
|------------------|--------------|-------------------|--------------|
| | Minimum ① | Intermediary ② | Optimum ③ |
| Megacity Profile | 23 | 38 | 50 |
| Water Supply | 59 | 102 | 135 |
| Wastewater | 45 | 67 | 105 |
| Total | 127 | 207 | 290 |

MDPI Joint Special Series 2020-2021

UNESCO electronic publication of the Proceedings

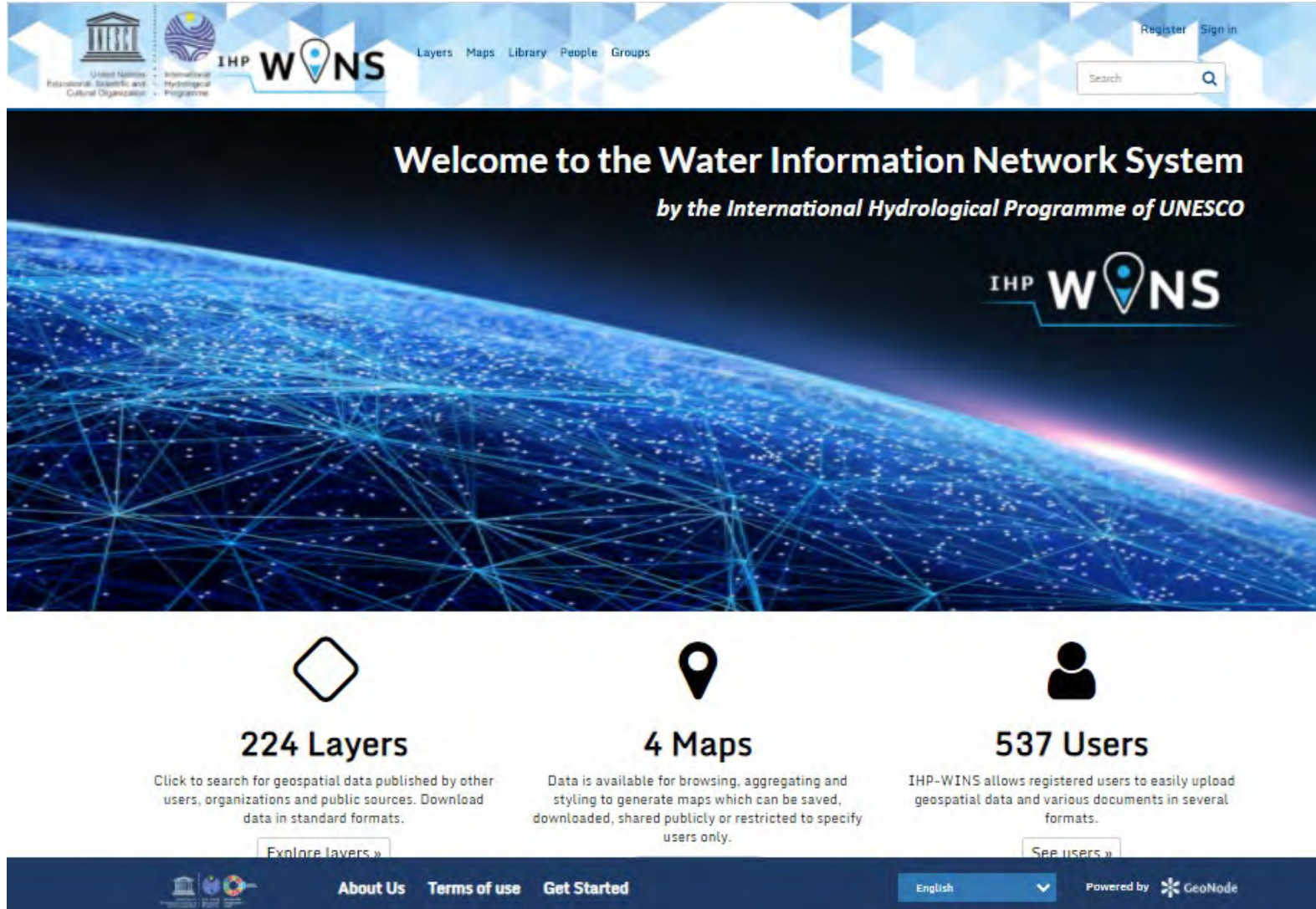


434 papers received from 1057 authors of more than 70 countries.

146 papers selected to be presented

MAWAC Digital Infrastructure

UNESCO IHP-WINS: Water Information Network System



The screenshot shows the homepage of the IHP-WINS website. At the top, there is a navigation bar with the UNESCO and IHP logos, the text 'IHP WINS', and links for 'Layers', 'Maps', 'Library', 'People', and 'Groups'. There are also 'Register' and 'Sign in' buttons and a search box. The main content area features a large blue graphic of a globe with a network of lines and dots. The text reads: 'Welcome to the Water Information Network System by the International Hydrological Programme of UNESCO'. Below this, there are three key statistics: '224 Layers' (with a diamond icon), '4 Maps' (with a location pin icon), and '537 Users' (with a person icon). Each statistic includes a brief description and a button to explore further. The footer contains 'About Us', 'Terms of use', 'Get Started', a language dropdown set to 'English', and 'Powered by GeoNode'.

WINS is an open access and free participatory platform for sharing, accessing and visualizing water-related information, as well as for connecting water stakeholders.

As a user-friendly and interactive tool, WINS allows to access to various types of information (maps, reports, graph, etc.) covering the entire water cycle, ranging from groundwater to urban water through gender issues, from local to global scale.

DANURBIS

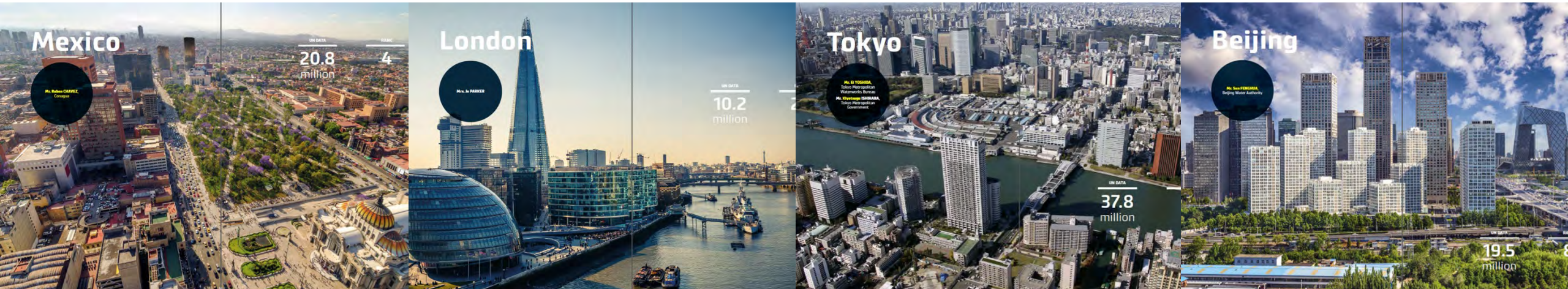
UNESCO & The Council of Danube Regions and Cities address the issue of drinking and wastewater infrastructure and supply in the cities located in the Danube river basin to identify the critical aspects and compare the different approaches in the cities with a view of sharing best practices.



| General information | |
|---|---|
| Name of the city | Budapest |
| Country | Hungary |
| Year of establishment of the city | 1873 (Date of merging Buda, Pest and Óbuda) |
| Climate Min,max, Avg temperature: | AVG:11-12 ; Min: -35; Max: 41,9 |
| Subject to natural disasters (storms, earthquakes, flooding) | water base, cultural heritage, built environment |
| Population | 1.757.618 |
| City Area | 525 km ² |
| Average Population Growth | 2001-2011: -0,28%; 2011-2015: +0,41% |
| Expected effects of climate change on the city/Region on aggravated risks and water resources | heatwaves, droughts, flash-floods |
| Water | |
| Precipitation, mm and repartition between rainy and dry seasons | Spring: 134mm; Summer: 158 mm; Autumn: 133 mm; Winter: 110 mm |
| Sources of water, Surface: catchment location and raw water quality issues | - |
| Sources of water, Groundwater: catchment location and raw water quality issues | Szentendre island, Csepel island, Margaret island; raw water issues on Csepel island; |

Work together through joint and concerted cooperation to carry out common projects and research along the basin of River Danube regarding water management & security, urban planning and cooperation.

Thank you very much



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