

Urban wetlands make cities liveable



Ramsar Convention on Wetlands



**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future



World Wetlands Day
is made possible by the
Danone Fund for Water.





**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



World Wetlands Day 2018 – get involved!

Celebrated every 2 February to mark the adoption of the Ramsar Convention in Iran in 1971

Wetlands for a sustainable urban future, the theme for 2018 highlights the important role of urban wetlands in making cities liveable

Ways you can participate:

- Organize an event to educate others about the importance of urban wetlands
- Register and upload your event to www.worldwetlandsday.org
- Share the information materials on social media to raise public awareness about wetlands.



**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



Ramsar Convention on Wetlands: Working to reverse wetland loss and degradation

- First global environmental treaty; only one to focus on a single ecosystem
 - Adopted in Ramsar, Iran in 1971
- Parties commit to designating protected wetland Ramsar Sites, wise use of wetlands and cooperation on transboundary issues
- Number of Contracting Parties: 169
- Number of Ramsar Sites: 2,284
- Total surface area of Ramsar Sites: 220,673,362 ha (slightly larger than Mexico)
 - www.ramsar.org/sites-countries/the-ramsar-sites



Meeting Standing Committee 53, Gland, Switzerland
Photo: Ramsar Convention



**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



Ramsar Convention on Wetlands: Committed to sustainable development

Ramsar Convention's 4th Strategic Plan contributes to 16 different SDGs; many relating to urban development:

- **Goal 6:** Ensure water & sanitation for all
- **Goal 9:** Build resilient infrastructure
- **Goal 11:** Making cities inclusive, safe, resilient and sustainable
- **Goal 12:** Ensure sustainable consumption and production patterns
- **Goal 13:** Combat climate change
- **Goal 15:** Protect, restore and promote sustainable use of terrestrial ecosystems



Mangrove planting, Balanga City Wetland Park, Philippines

Photo: Ramsar Convention



**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



Ramsar Convention on Wetlands Wetland City Accreditation Scheme

- Voluntary accreditation scheme for cities
 - Stem loss of urban and peri-urban wetlands due to growing urbanization
 - Decision of Contracting Parties Resolution XII.10 adopted in 2015
 - Encourages cities to take deliberate actions to conserve, restore and wisely use urban wetlands
 - First eligible cities to receive a certification in 2018 accrediting them as a wetland city.



Wetland City Accreditation winners will be announced at the 2018 Ramsar Conference of Parties (COP) in Dubai.
Photo: ramsar.org



**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



Wetlands and cities: A long symbiotic relationship

- Earliest cities sprung up in the fertile Tigris & Euphrates floodplains
 - Benefits of agriculture, water supply, transport
- Wetland: a land area that is flooded with water, either permanently or seasonally
- Types of wetlands include:
 - Rivers & floodplains, marshes, peatlands
 - Mangroves, salt marshes, estuaries, coral reefs
- Urban and peri-urban wetlands:
 - Any wetlands found in or around cities, their suburbs and outlying areas



Wetlands in Kowloon, Hong Kong
Photo: urbanwetlands.org



**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable

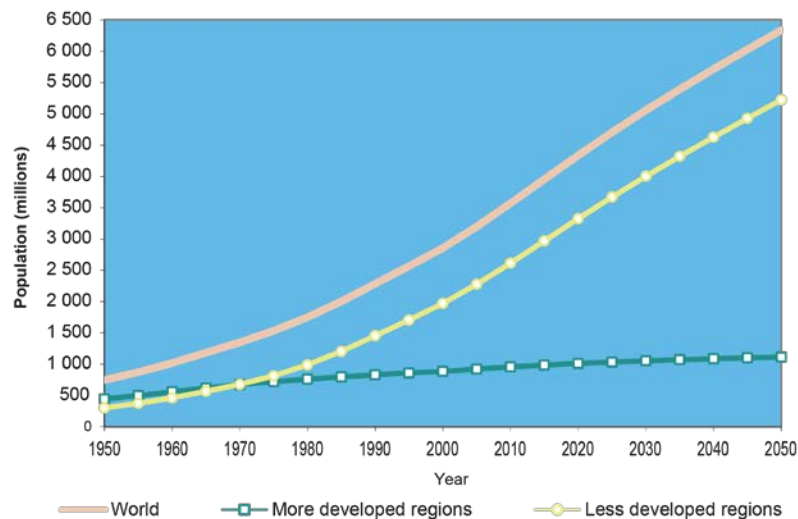


Wetlands and cities: On opposite trajectories

While cities are growing . . .

50% about 4 billion people live in urban areas today and by 2050 that number will reach 66%

World urban population, 1970-2016

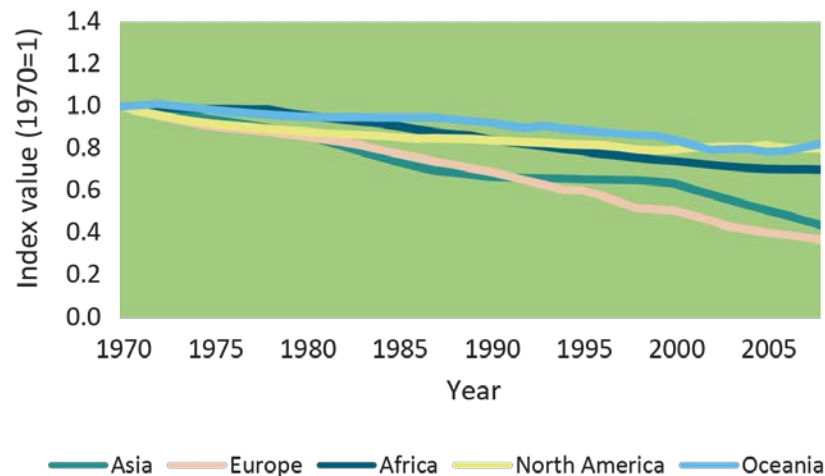


Estimated and projected urban populations of the world, the more developed regions and the less developed regions, 1950-2050

Wetlands are disappearing.

More than 64% of the world's wetlands have been lost since 1900.

Wetland Extent Index 1970-2008





**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



Wetlands and cities: the challenge

Retain & restore wetlands to make future cities liveable!

- The sustainability balancing act for urban planners:
 - Provide land for building, and basic services like water and waste removal while also
 - Preserving and restoring natural resources – including wetlands – for the long term
- Urban population rising 2.4% a year
 - number of mega-cities (more than 10 million inhabitants) will jump from 31 to 41 by 2030
- Huge opportunity: use urban wetlands to make cities more liveable.



Cardiff Wetlands, Wales, United Kingdom
Photo: Wikimedia Commons



**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



Urban wetlands make cities liveable by: **Reducing flooding**

- Wetlands act as giant sponges to lessen the impact of flooding.
 - Rivers, ponds, lakes and marshes soak up and store heavy rainfall, releasing it gradually over time
- Saltmarshes and mangroves act as a buffer against storm surges.
 - One kilometer of intact mangrove forest can reduce a storm floodsurge by up to 50cm
- Example: Hurricane Sandy
 - Wetlands avoided an estimated \$625 million in damage when this storm hit densely populated US east coast in 2012



San Jacinto Marsh near Houston, Texas, USA
Photo: goofreeephotos.com



**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



Urban wetlands make cities liveable by: Improving water quality

- Only 3% of water on the planet is fresh; most of this is frozen. Water is a scarce resource!
- Deep groundwater aquifers provide half of all drinking water, including water supply to:
 - 2 billion people in Asia
 - 380 million people in Europe
- Wetlands on the surface filter the water that seeps into these aquifers from above, helping to replenish the water supply.



Photo: Pixabay.com



**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



Urban wetlands make cities liveable by: Filtering and treating waste

- Silt-rich soil and abundant plants in wetlands act as filter for
 - Harmful toxins,
 - Agricultural pesticides and
 - Industrial waste
- Urban wetlands can also treat sewage cost-effectively
- Example: Nakivubo Swamp, Kampala, Uganda
 - 550 hectare urban wetland stretching from city's industrial center to Lake Victoria
 - Filters water and reduces contaminants
 - Water treatment worth \$US2 million per year



Wetland water treatment pond in Melitopol, Ukraine
Photo: Wikimedia Commons



**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



Urban wetlands make cities liveable by: Improving local air quality

- Wetlands radiate moist air thanks to their high water levels and lush plant life.
- They naturally cool the air in the local surroundings.
- Offer relief in both tropical cities and in climates where the air is extremely dry



Restored wetland landscape at London Wetland Centre
Photo: Wikimedia Commons



**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



Urban wetlands make cities liveable by: Providing green space for relaxation

- Urban wetlands offer stressed city dwellers the chance to decompress and encounter diverse plant and animal life.
- Studies confirm that interacting with nature improves our health.
- Example: Huangshan City, China; city of 1.4 million people
 - 7.5km bank of the Xin'an River in city center restored to natural wetland
 - Provides natural flood control plus
 - New green belt with park, botanical gardens and housing



Chen Bridge, Henan, China
Photo: Pixabay.com



**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



Urban wetlands make cities liveable by: Providing jobs to local residents

- Many types of fish spawn and breed in wetlands, making them popular fishing grounds.
 - 660 million people depend on fishing and aquaculture for their livelihoods worldwide
- Wetlands produce valuable goods to gather and process, often benefiting the poor.
 - Reeds and grasses for weaving
 - Wood for building
 - Medicinal plants and fruits
- Wetlands attract tourism, also a major source of employment.



Wetland fisherman, Nepal

Photo: Ramsar Convention, WWD Photo Contest



**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



Mismanaging urban wetlands: Makes cities prone to disasters

- At least 64% of wetlands have disappeared since 1900.
- Canalizing rivers can make floods more powerful.
- Dumping rubbish ruins natural green spaces.
- Clearing mangroves and mining coral reefs can expose city coastlines to storms.
- Burning or draining peatlands releases CO₂.



Los Angeles River, California, USA
Photo: Wikipedia



**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



Treating urban wetlands right: Integrate wetlands into policy and planning

- Plan for wetlands as a natural part of water infrastructure.
- Adopt policies to limit degradation, promote efficient water use.
- Example: Accra, Ghana
 - Fast growth threatening local wetlands
 - City responded with integrated measures
 - Enforcing building regulations
 - Creating green belts to control sprawl
 - Education programs for local residents
 - Designating two local wetlands as Ramsar Sites



Sakumono Lagoon Ramsar Site in greater Accra, Ghana
Photo: Wikimedia Commons



**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



Treating urban wetlands right: Preserve and restore urban wetlands

- Many cities are located in coastal areas and river floodplains where wetlands were once widespread.
- Actively restore wetlands – and their benefits.
- Example: London Wetland Centre
 - 40-hectare restored wetland on site of four old water reservoirs
 - Now home to wide range of wildlife including 180 bird species
 - Visitor Centre for wetland education



Grey heron at London Wetland Centre
Photo: Wikimedia Commons



**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



Treating urban wetlands right: Involve local residents in planning

- People often depend on local wetlands for their living; it's important to understand their views and get their buy-in
- Example: Stung Treng Ramsar Site, Cambodia
 - 14,600-hectare site with 21 villages and 10,000 people dependent on fishing
 - Home to several endangered species
 - Communities have restricted fishing in critical zones during spawning seasons, and larger fish are now returning



Putting up sign at Stung Treng Ramsar Site

Photo: Ramsar Convention



**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



Treating urban wetlands right: Reduce water consumption and harmful run-off

- As individuals avoid toxic materials that drain into wetlands
- As cities measure, then act to reduce water consumption
- Example: Quito, Ecuador
 - Detailed measurement of water use in 2012-14 with Cities Footprint Project
 - Aim: cut water footprint by 68% by 2032
 - Promoting ecological toilets, water-efficient appliances



Quito, Ecuador
Photo: Wikimedia Commons



**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



Treating urban wetlands right: Engage youth and community

- Join or organize a local wetland clean-up exercise
- Organise community based training on wetlands conservation and wise
- Example: Bolsa Chica Ecological Reserve, California
 - 356-hectare protected coastal wetland near Los Angeles
 - Non-profit conservancy holds 2 Public Service Days per month
 - Volunteers remove 10 tons of trash and debris every year



Clean-up of a Ramsar Site in Ghana, 2015
Photo: Ramsar Convention WWD Photo Contest



**World
Wetlands Day**

2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



Thank you!

Ramsar Convention on Wetlands

Rue Mauverney 28 | CH-1196 Gland | Switzerland

+41 22 999 01 70 | ramsar@ramsar.org



**World
Wetlands Day**
2 February 2018

Wetlands for a sustainable urban future

Urban wetlands making cities liveable



Sources

For urban population graph, projected percentage of people living in cities in 2050:

UN DESA Population Division: *World Urbanization Prospects: The 2014 Revision*, p. 25 and p. 1

<https://esa.un.org/unpd/wup/Publications/Files/WUP2014-Report.pdf>

For current (2016) urban population, annual growth rate and for percentage of people living in cities:

UN DESA Population Division: *The World's Cities in 2016 Data Booklet* (ST/ESA/SER.A/392), p.3, p.6 and p. ii

http://www.un.org/en/development/desa/population/publications/pdf/urbanization/the_worlds_cities_in_2016_data_booklet.pdf

For number of mega-cities today and in 2030:same source as above, p.2

For Wetland Extent Index:

Dixon, Lohb, Davidson, Beltramee, Freeman, Walpole: *Wetland Extent Index Trends*, http://www.ipbes.net/sites/default/files/Metadata_UNEPWCMC_Wetland_Extent_Trend_Index.pdf

For mangrove reduction of storm surges:

Keqi Zhang et al., *The role of mangroves in attenuating storm surges*, (abstract)

<http://www.sciencedirect.com/science/article/pii/S0272771412000674>

For damage avoided by wetlands during Hurricane Sandy:

Lloyd's Tercentenary Research Foundation: *Coastal Wetlands and Flood Damage Reduction – Using Risk Industry-based Models to Assess Natural Defenses in the Northeastern USA*, p.2

http://www.lloyds.com/~media/files/lloyds/corporate%20responsibility/ltrf/coastal_wetlands_and_flood_damage_reduction.pdf?id=10.7291/V93X84KH

For global freshwater resources:

World Business Council for Sustainable Development: *Water Fact & Trends*, 2009, p. 3

<http://www.wbcsd.org/Pages/EDocument/EDocumentDetails.aspx?ID=137>

For dependence on groundwater in Asia:

Institute for Global Environmental Strategies White Paper, Chapter 7: *Groundwater and climate change: no longer the hidden resource*, p.160

http://pub.iges.or.jp/modules/envirolib/upload/1565/attach/09_chapter7.pdf

For dependence on groundwater in the European population:

<http://ec.europa.eu/environment/water/water-framework/groundwater/resource.htm>

http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Population_and_population_change_statistics

For value of services performed by the Nakivubo Swamp:

Ramsar Convention: Briefing Note 6 - Towards the wise use of urban and peri-urban wetlands, p.6 <http://www.ramsar.org/sites/default/files/bn6.pdf>

For information on Huangshan City - Xin'an river wetland restoration:

UN Habitat: *Urban Development, Biodiversity and Wetland Management – Expert Workshop*, p.38

<http://mirror.unhabitat.org/downloads/docs/ExpertWorkshopWetlands.pdf>

For number of people dependent on the fishing industry:

Food and Agriculture Organization of the U.N.: *Fish Trade and Human Nutrition*, p.2

<http://www.fao.org/cofi/29401-083ff934c3ccfd8576005d8d0c19b04d6.pdf>

For the historical loss of wetlands since 1900:

N. Davidson: *How much wetland has the world lost? Long-term and recent trends in global wetland area*, Marine and Freshwater Research, 2014, 65 ,pp. 934 and 940

<http://dx.doi.org/10.1071/MF14173>

For information on Accra's integrated wetland planning:

Conventional on Biodiversity et al., *Cities and Biodiversity Outlook- Action and Policy*, p. 41 - <https://www.cbd.int/doc/health/cbo-action-policy-en.pdf>

For information on Wildfowl & Wetlands Trust (WWT) London Wetland Centre:

<http://www.wwt.org.uk/wetland-centres/london/>

For details of the Stung Treng Ramsar Site community-led conservation efforts:

<https://www.worldfishcenter.org/content/integrating-fisheries-management-and-wetland-conservation-stung-treng-ramsar-site-cambodia>

For information on carbon and water footprint mapping project in Quito:

Climate and Development Knowledge Network (CDKN): Cities Footprint Project

https://cdkn.org/project/carbon-and-water-footprint-assessments-andean-cities-phase-2/?loclang=en_gb

For Quito water footprint targets:

<http://explorer.sustainia.me/cities/planning-for-smaller-co2-and-water-footprints>

For general information on Bolsa Chica site:

<http://bolsachica.org>

For estimate of rubbish cleared from Bolsa Chica site by volunteers:

<https://www.egbar.org/wetlands-cleanup>