

# Linking UN-HABITAT, the Ramsar Convention, urban wetlands and ecosystem services



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# Wetlands & humans are intrinsically linked

## So what?

Is this co-existence still sustainable?

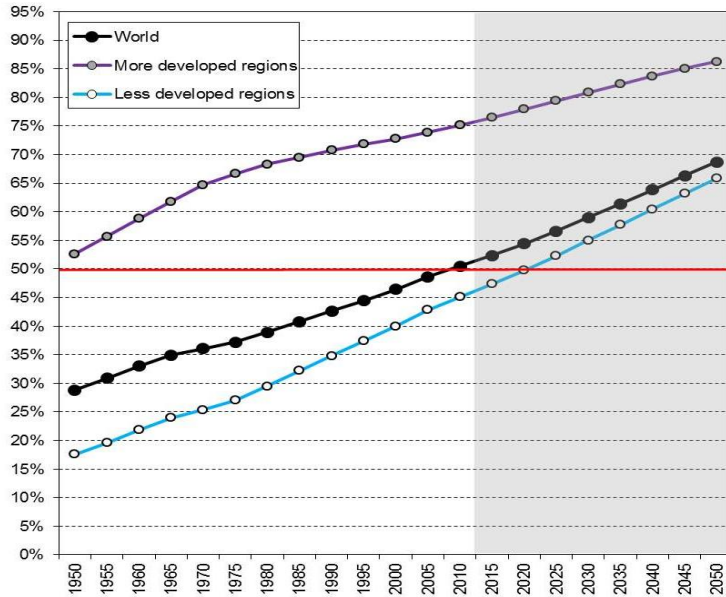
- What is the issue?
- How have intergovernmental organisations worked together to address a common concern?
- How has the science been used to inform policy making (and thus implementing solutions)?
- The future?



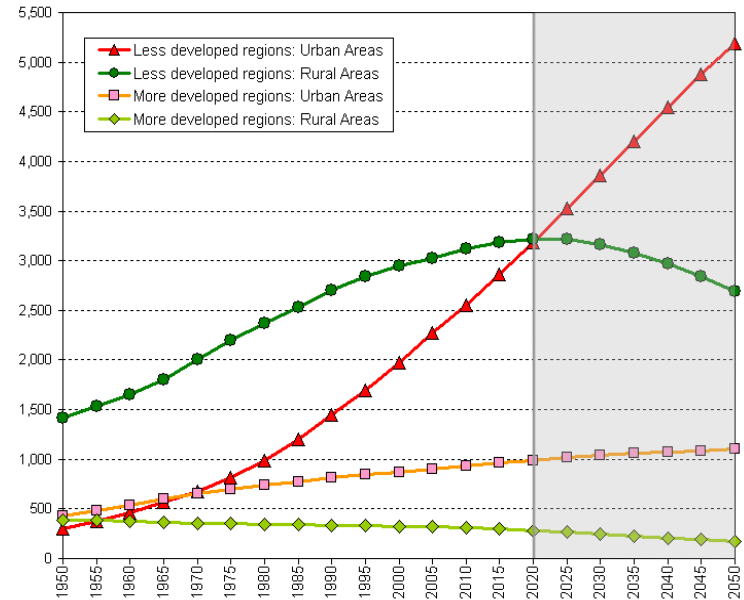
# Urbanisation is increasing

## The Anthropocene is the age of *Homo urbanus*

The world, and especially developing countries, are becoming increasingly urban



Percentage of population residing in urban areas



Urban and rural population by development region (millions)

Source: United Nations (2011)

# Unsustainable urbanisation is a critical driver behind wetland ecosystem loss and degradation

## Direct Pressures

	%
Habitat loss / urban expansion	82.5
Pollution	78.9
Loss of biodiversity	54.4
Deforestation	40.4
Infilling / draining wetlands	38.6
Unplanned/ informal settlements	36.8
Poor air quality	26.3
Water demand	21.1
Alien / invasive species	17.5
Loss/reduction in urban & peri-urban agriculture	15.8
Soil erosion	15.8
Habitat fragmentation	14.0
Climate change	14.0
Agricultural intensification	14.0
Impacts from leisure, recreation and tourism	10.5
Lack of maintenance of urban trees	10.5
Flood risk reduction	8.8
Loss of soil surface / hard standing	8.8
Natural hazard exposure	8.8
Over-exploitation	8.8
Fire	7.0
Mining / extractive industrv	5.3

## Indirect pressures

	%
Poor sanitation and waste disposal	56.1
Institutional failings	40.4
Lack of understanding/ awareness	38.6
Lack of green open space	31.6
Lack of economic investment / resources	31.6
Lack of clear vision/plan	28.1
Loss of understanding of cultural, traditional importance	8.8
Socio-economic uplift for local community	7.0



Source: McInnes (2012) – Unpublished report to UN HABITAT



# Unsustainable urbanisation is a critical driver behind reduced human well-being and increased poverty

- Loss and reduction in ecosystem services
- Increases in water scarcity
- Decreases in resilience to disasters
- Increases in infectious diseases, mental health and psychosociological illnesses and infant mortality
- Lack of sanitation
- Reduced economic potential



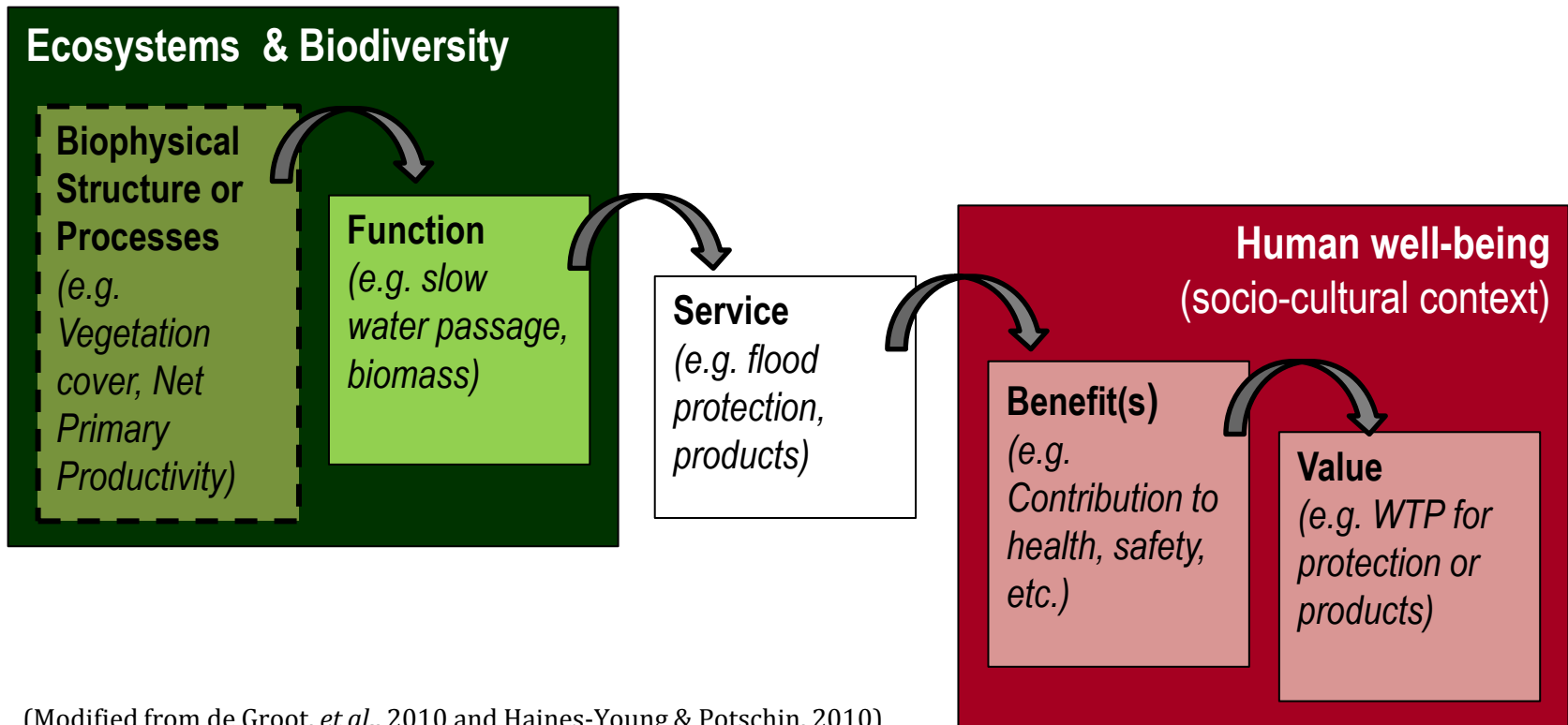
Source: © UN-HABITAT/Julius Mwelu

# Unsustainable urbanisation and ecosystem services

Understanding the links between ecological processes, ecosystem functioning and human well-being

Ecological process

Human well-being



(Modified from de Groot, *et al.*, 2010 and Haines-Young & Potschin, 2010)

# UN-HABITAT

The United Nations Human Settlements Programme, UN-HABITAT, is the United Nations agency for human settlements. It is mandated by the UN General Assembly to promote socially and environmentally sustainable towns and cities with the goal of providing adequate shelter for all.

UN-HABITAT's strategic vision is anchored in a four-pillar strategy aimed at attaining the goal of *Cities without Slums*. This strategy consists of:

- Advocacy of global norms
- Analysis of information
- Field-testing of solutions
- Financing



# The Ramsar Convention

The Convention on Wetlands (Ramsar, Iran, 1971) – called the “Ramsar Convention” – is an intergovernmental treaty that embodies the commitments of its member countries to maintain the ecological character of their Wetlands of International Importance and to plan for the “wise use”, or sustainable use, of all of the wetlands in their territories.

- Not part of the United Nations
- Works extensively with other MEAs and the “biodiversity-related cluster” of treaties and agreements
- Has a Memorandum of Cooperation with SWS (July 2011)



CONVENTION ON WETLANDS  
CONVENTION SUR LES ZONES HUMIDES  
CONVENCIÓN SOBRE LOS HUMEDALES  
(Ramsar, Iran, 1971)



# Sustainable urbanisation and intergovernmental institutions

## Understanding the links between adequate shelter for all and wetlands



# Sustainable urbanisation and intergovernmental institutions

## Understanding the links between adequate shelter for all and wetlands



- Mandated by the Meeting of the Conference of the Contracting Parties (COP)
- Collaborated through workshops involving Ramsar's Scientific and Technical Review Panel
- Developed guidelines and principles
- Drafted (and adopted) Resolutions
- Developing projects on the ground

# Urban Biodiversity, Ecosystem Services and Wetlands-Based Adaptation in Cities

UN HABITAT project aimed at consolidating disparate initiatives into a cohesive programmatic whole.

- Literature review
- Selection of case studies (57)
- Analysis of case studies
- Integration with Ramsar's guidance and principles
- Development of a strategy to leverage UN HABITAT's comparative advantage ⇒ *Policy and Practical Implementation*

# Urban Biodiversity, Ecosystem Services and Wetlands-Based Adaptation in Cities

Key issues considered:

- The state of the science
- Understanding linkages among (direct and indirect) pressures, response options and ecosystem services
- Visibility of ecosystem services (29 case studies)
- What is meant by 'biodiversity'?
- Assessment across regions, population size and economic development



# Urban Biodiversity, Ecosystem Services and Wetlands-Based Adaptation in Cities

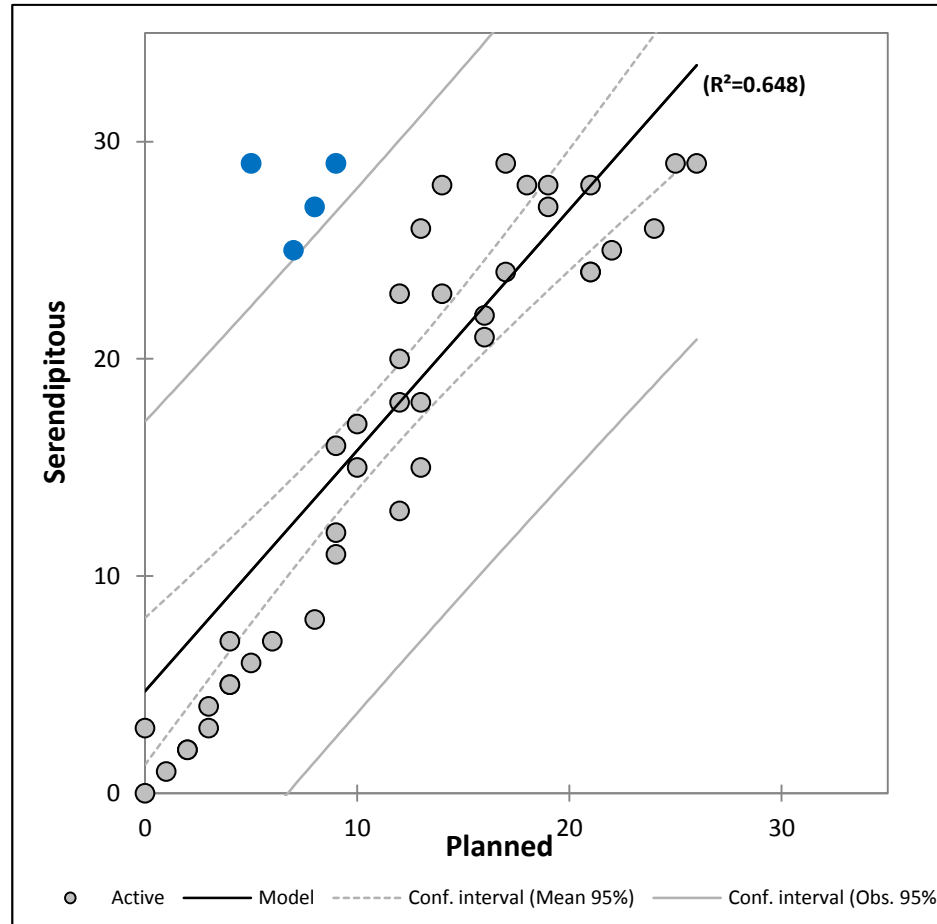
## Assessment of ecosystem services

- Identified from the case study narrative
- Searched on key words and phrases
- Identified both 'planned' and 'serendipitous' ecosystem services

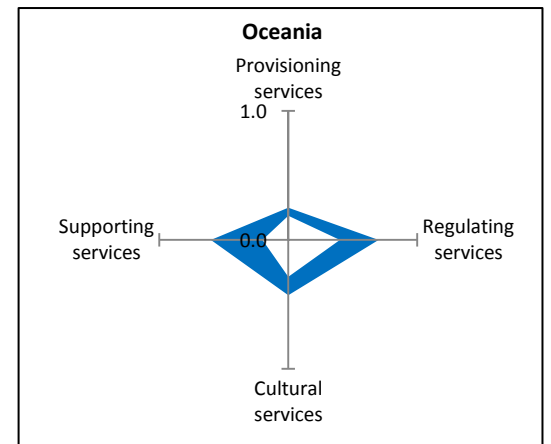
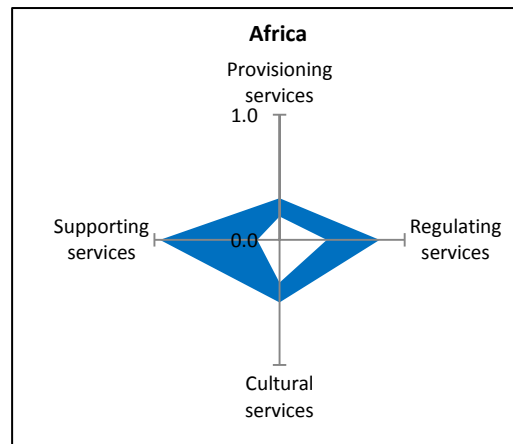
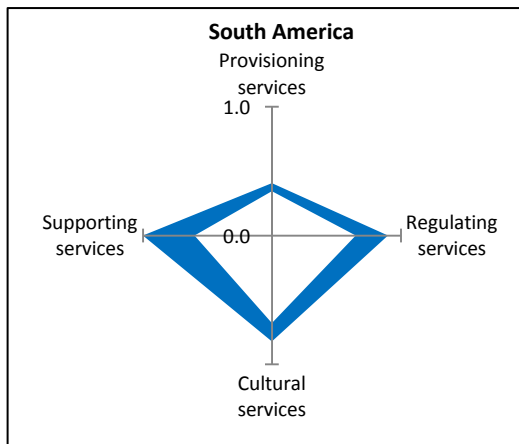
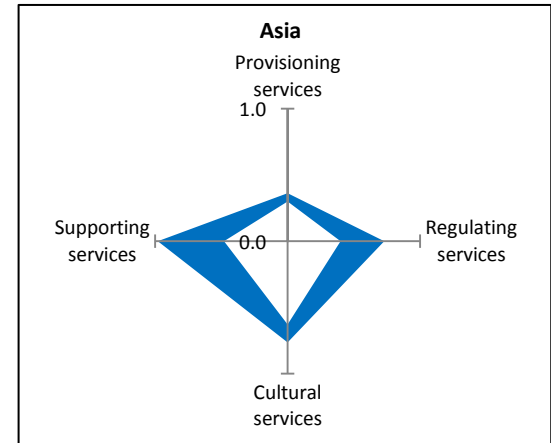
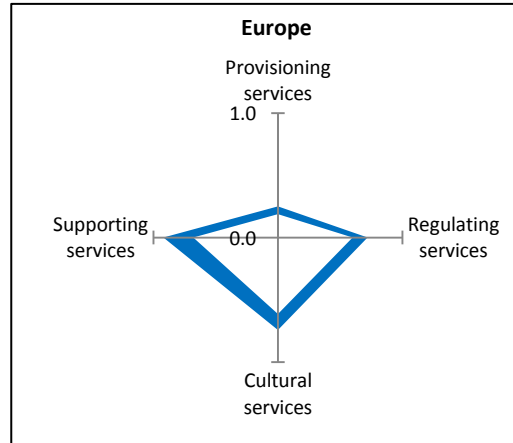
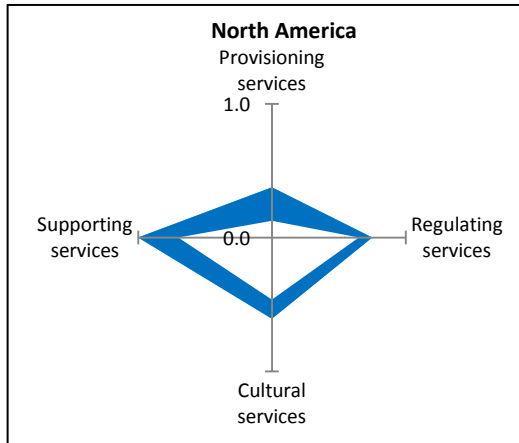
# Urban Biodiversity, Ecosystem Services and Wetlands-Based Adaptation in Cities

Type	Planned service	n	%	Type	Serendipitous service	n	%
C	Educational activities and opportunities	26	89.66	R	Local climate regulation/ buffering of change	29	100.00
S	Supports a variety of all life forms	25	86.21	R	Acts as a source for pollination of other areas	29	100.00
C	Picnics, outings, touring	24	82.76	C	Educational activities and opportunities	29	100.00
P	Sustenance for humans (e.g. fish, molluscs)	22	75.86	S	Supports a variety of all life forms	29	100.00
R	Water purification/waste treatment or dilution	21	72.41	S	Storage, recycling, processing, etc. of nutrients	29	100.00
C	Nature observation and nature-based tourism	21	72.41	R	Soil, sediment and nutrient retention	28	96.55
C	Important knowledge and research systems	21	72.41	R	Water purification/waste treatment or dilution	28	96.55
R	Soil, sediment and nutrient retention	19	65.52	C	Aesthetic and “sense of place” values	28	96.55
R	Flood control, flood storage	19	65.52	S	Sediment retention	28	96.55
C	Aesthetic and “sense of place” values	18	62.07	R	Flood control, flood storage	27	93.10

# Urban Biodiversity, Ecosystem Services and Wetlands-Based Adaptation in Cities

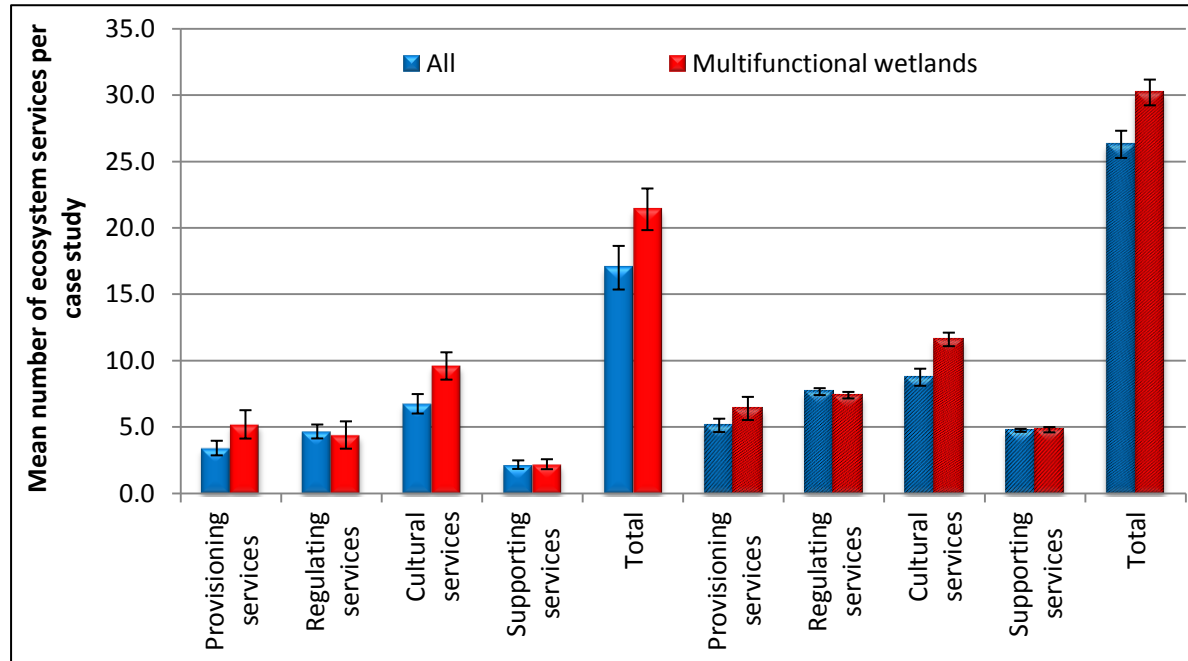


# Urban Biodiversity, Ecosystem Services and Wetlands-Based Adaptation in Cities



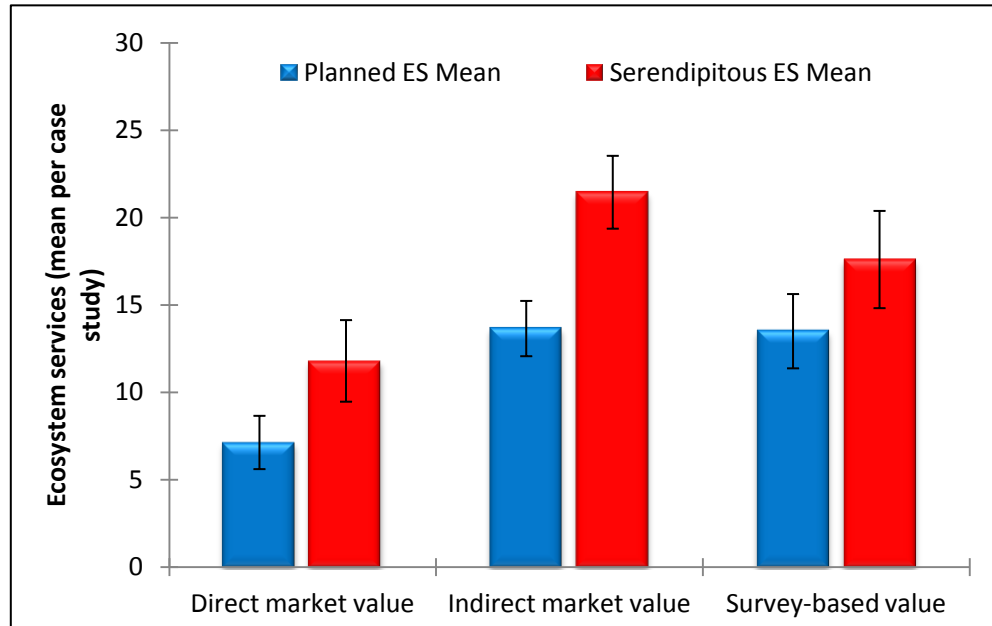


# Urban Biodiversity, Ecosystem Services and Wetlands-Based Adaptation in Cities



Mean number of ecosystem services delivered by all response options and by multifunctional wetlands as a response. (Note: Planned ecosystem services in solid colour; Serendipitous ecosystem services hatched. Standard error bars shown).

# Urban Biodiversity, Ecosystem Services and Wetlands-Based Adaptation in Cities



Mean number of ecosystem services per case study by value method (Note: standard error bars shown). Based on categories in De Groot, *et al.*, (2006).

# Urban Biodiversity, Ecosystem Services and Wetlands-Based Adaptation in Cities

Analysis of ecosystem services – key observations

- Undervaluing the response options
- Failure to recognise the multiple benefits (recognition gap)
- Supporting services are poorly recognised
- Multifunctional wetlands provide significantly more ecosystem services (despite the failure to recognise them)
- Ecosystem services with an indirect market value are more likely to have a larger recognition gap

# Urban Biodiversity, Ecosystem Services and Wetlands-Based Adaptation in Cities

## Urban biodiversity and ecosystem services

- Urban biodiversity operates at the three usual levels.
- Dichotomy between urban biodiversity and protected species/areas
- It is often the non-iconic or common species which drive the delivery of ecosystem services.
- Need to consider all trophic levels.
- Not an excuse to forget about the iconic, but a need to consider other elements of biodiversity as well.



**NOT EITHER / OR, BUT BOTH**



# Urban wetland ecosystem services

## Common urban wetland ecosystem services associated with urban biogeochemical cycles

Ecosystem service	Potential magnitude	Current level of uncertainty
C sequestration	Low	Low
Net GHG emissions	Moderate	High
Local cooling	High	Moderate
Stormwater mitigation	High	Moderate
Water quality mitigation	High	High
Air quality mitigation	Low	High
General human health	Moderate	Moderate

(Source: Pataki et al., 2011)

- Primarily dependent on non-iconic biodiversity
- Varying levels of uncertainty

# Urban Biodiversity, Ecosystem Services and Wetlands-Based Adaptation in Cities

So is the “science” effectively informing decision-making?



*“We’re making progress. I just got a firm MAYBE.”*

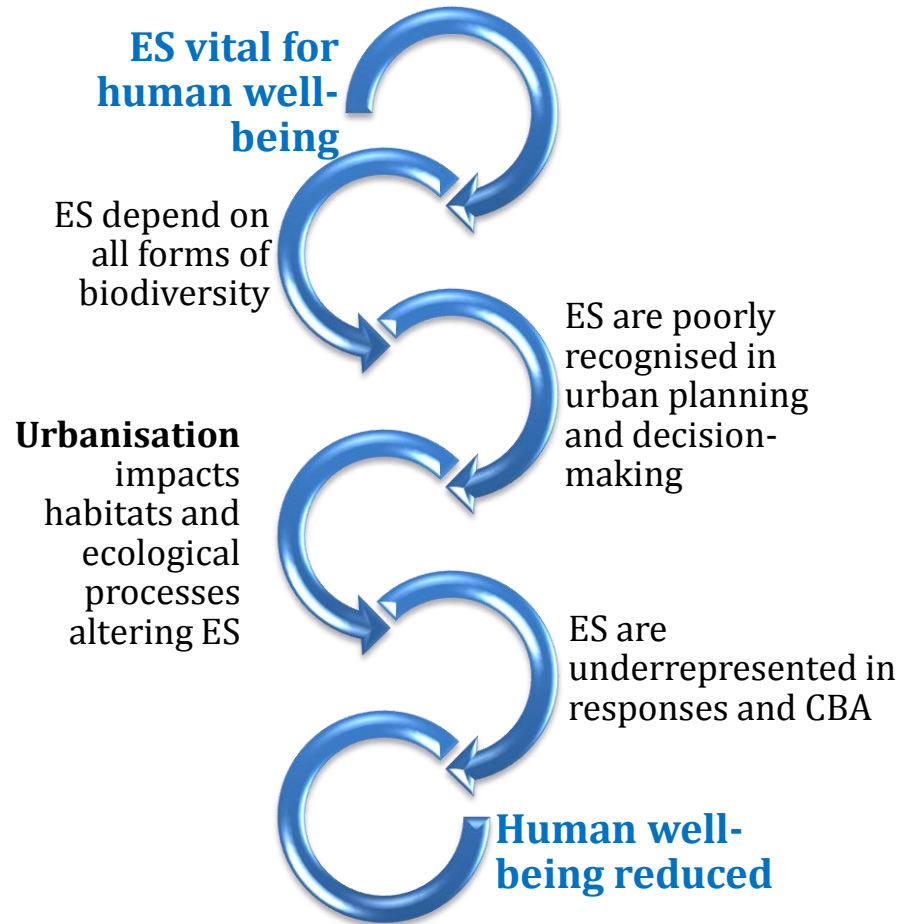
# Urban Biodiversity, Ecosystem Services and Wetlands-Based Adaptation in Cities

## So is the “science” effectively informing decision-making?

- There is much good wetland science available
- There is a need to integrate the science better in urban planning and decision-making
- There are some fundamental barriers to overcome
  - Recognition of the value of ecosystem services
  - Understanding the role of biodiversity
  - Making the linkages between biodiversity, ecosystem services and human well-being
- Development of guidance and demonstration projects

# Urban Biodiversity, Ecosystem Services and Wetlands-Based Adaptation in Cities

So is the “science” effectively informing decision-making?



# Urban Biodiversity, Ecosystem Services and Wetlands-Based Adaptation in Cities

**Intergovernmental organisations co-operating to understanding the links between adequate shelter for all and the wise use of wetlands**

**UN HABITAT**  
FOR A BETTER URBAN FUTURE





# The future . . . .



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