The role of green cities on food security and human well-being

Guido Santini,
Programme Coordinator,
Plant Production and Protection Division
and Green Cities Initiative, FAO

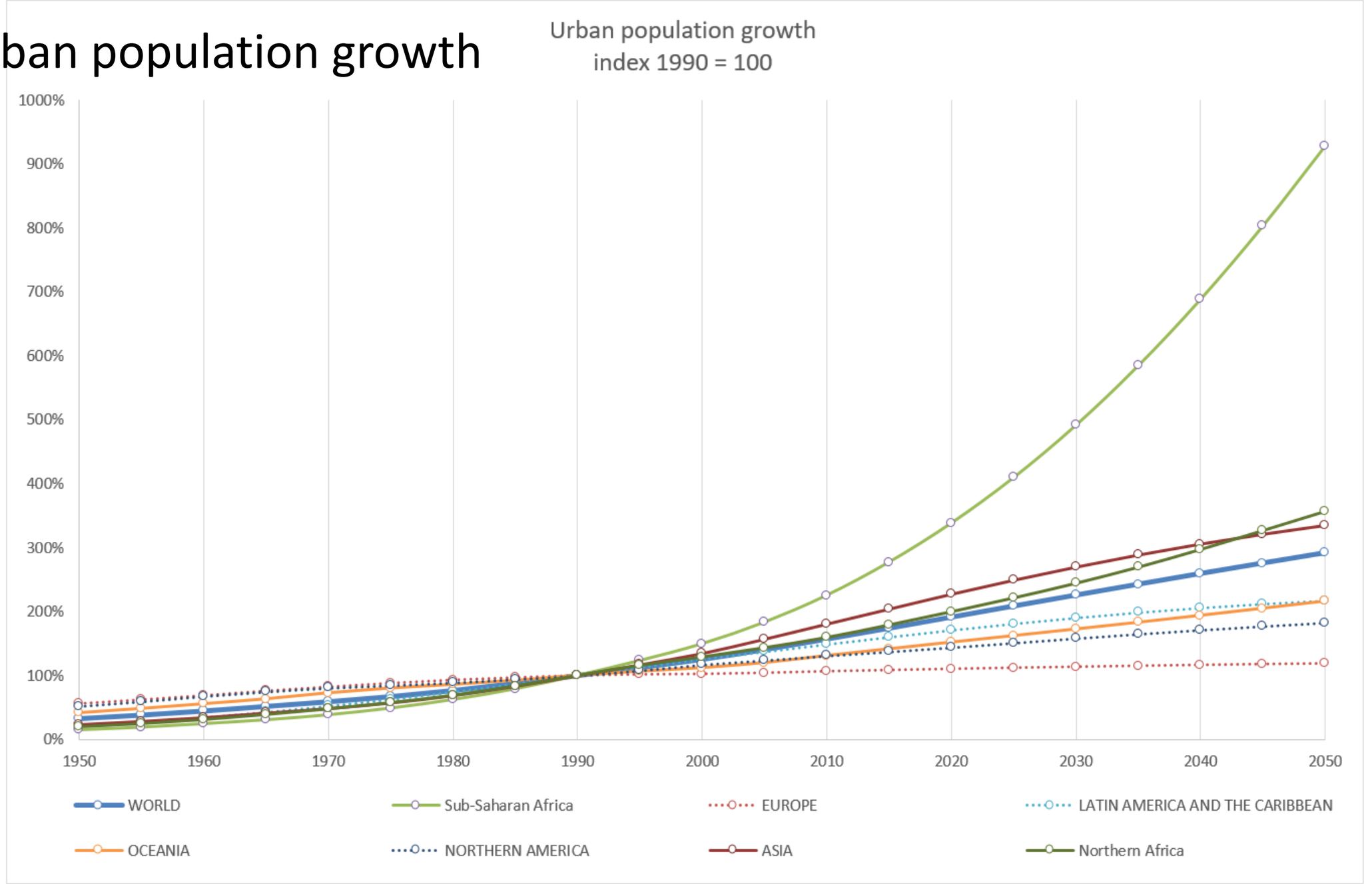
GLOBAL SYMPOSIUM ON SOIL SEALING AND URBAN SOILS

Healthy soils for healthy cities

Projection 2025 - *Department of Economic and Social Affairs, 2018*

Urban population growth

In Sub-Saharan countries, as well as in Asia, North Africa and Oceania, ne and bigger cities emerged, increasing the needs in infrastructure



Impact of growing cites

70%

World food supply consumed by cities

70%

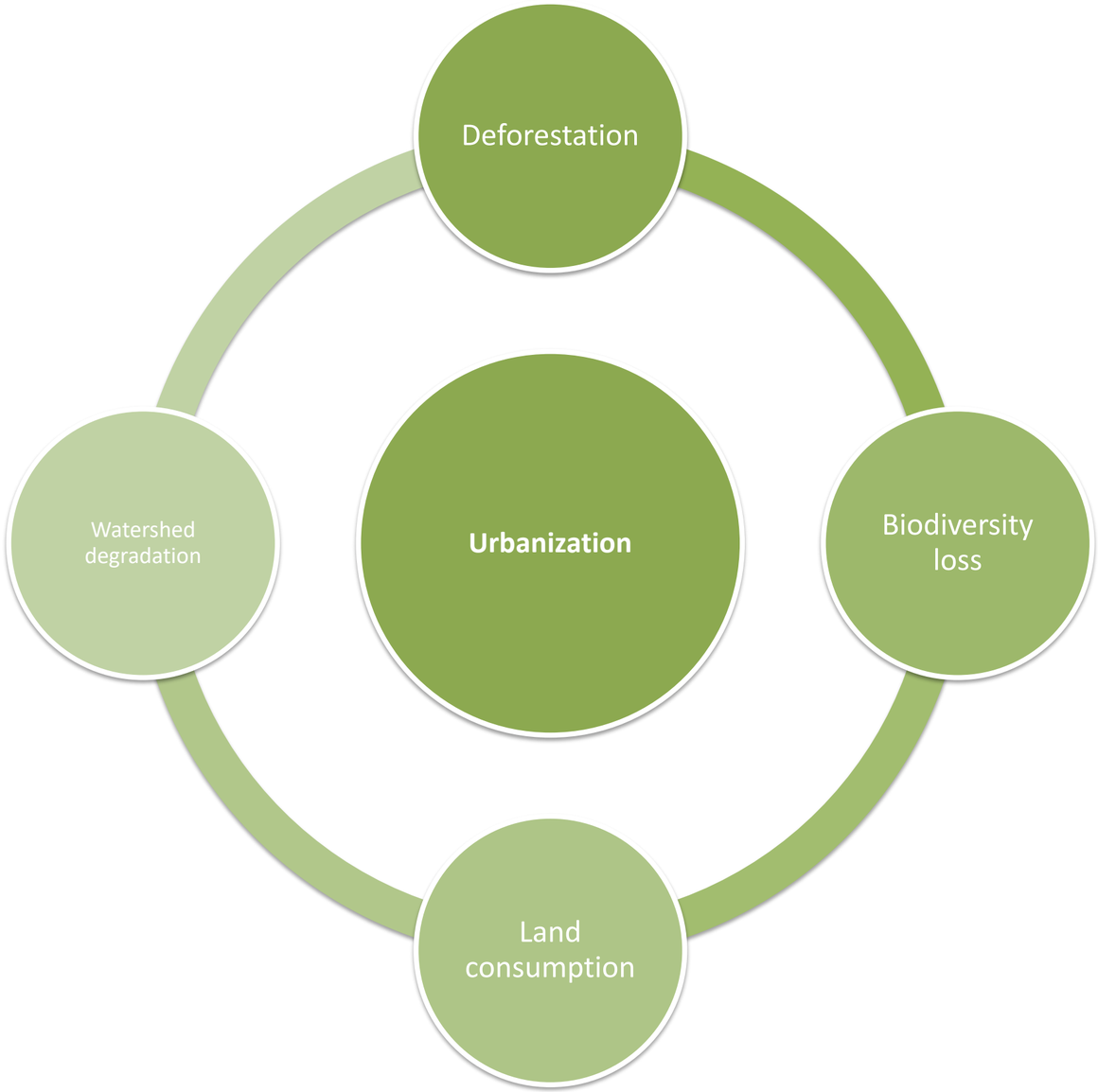
Greenhouse gas emissions produced by cities

80%

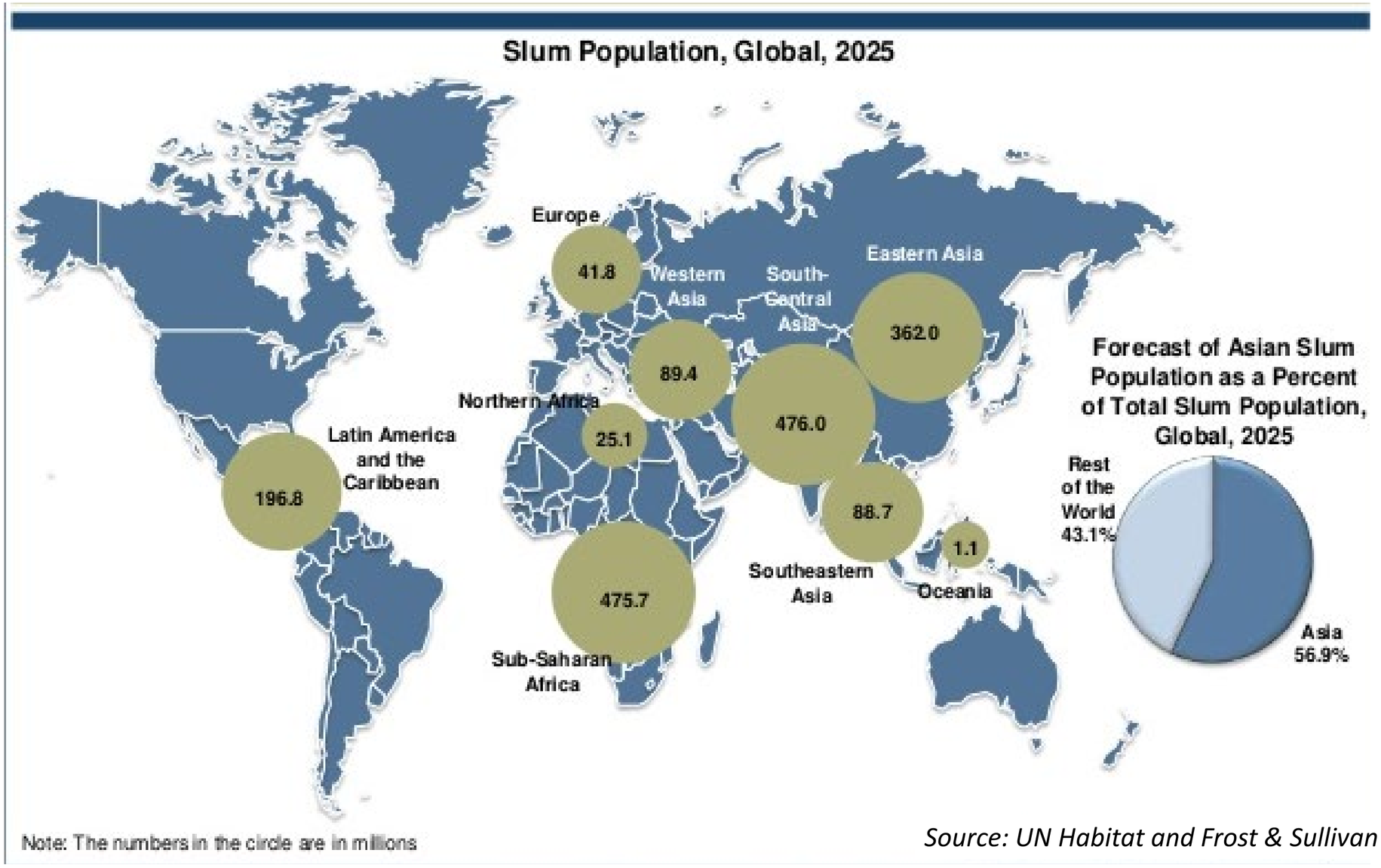
Total global energy absorbed by cities

70%

Global waste produced by cities



Slums concentrate poverty



Source: UN Habitat and Frost & Sullivan

Risk and vulnerability to multiple shocks

- By il **2050**, **2,5 billion** people in more than **70 % of cities** face increasing climate shocks and stresses
- **Floodings** will affect **275 million people** worldwide should temperatures increase by 2030
- The **agriculture** and **food** sectors are expected to be most affected by climate change
  - By 2050, **2.5 billion people** in over 1,600 cities will experience a decline in agricultural production.
- **COVID-19** pandemic has further affected the functionality of food systems
- **Ukraine crises** is a further threat for food systems

Food and Agriculture Organization of the United Nations

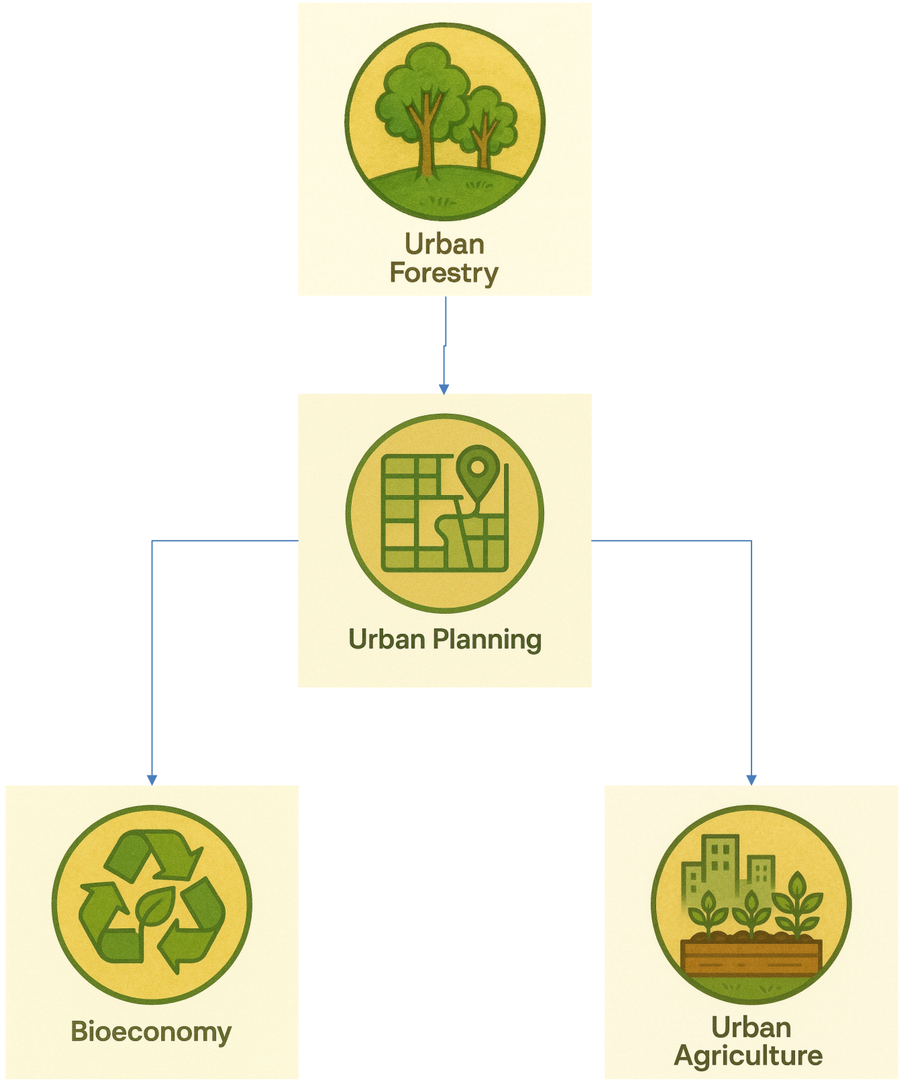
FAO GREEN CITIES INITIATIVE

GCI mission

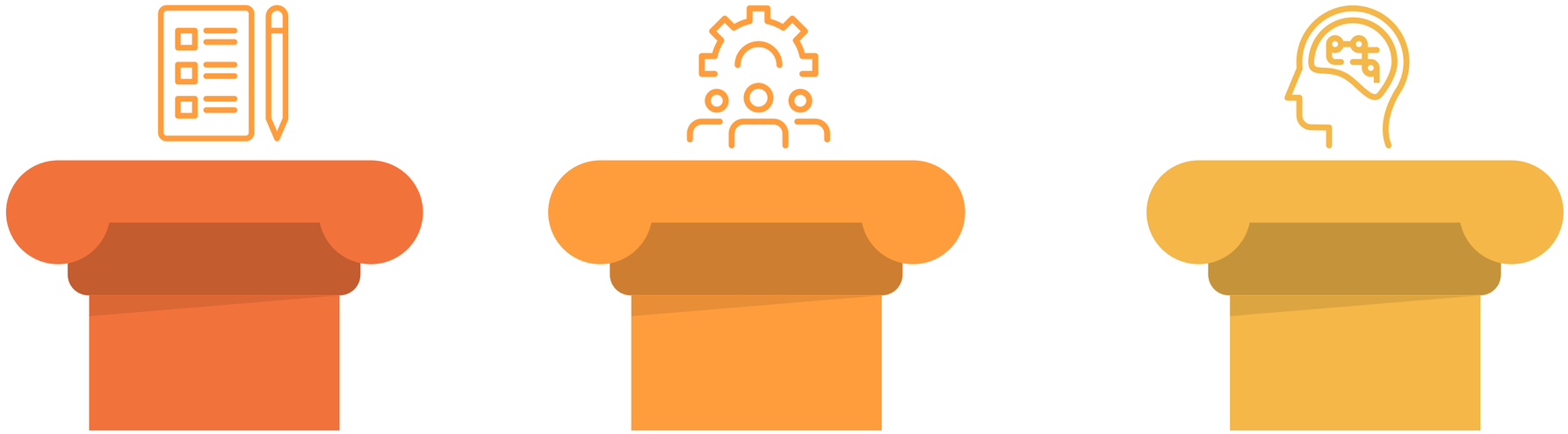
- The mission of the Green Cities Initiative is, by **2030**, to make a tangible impact on the health and well-being of people in **1 000** cities by actively addressing urbanization challenges

- This will be achieved by strategically integrating urban and peri-urban **forestry**, urban **agriculture** and **bioeconomy** into the fabric of urban life

Multifunctional green spaces



The GCI has 3 interconnected pillars that operate at multiple levels



Knowledge management

- Community of practice
- City-to-city learning
- Partnership
- Evidence and Data analysis

Capacity development

- Technical and policy assistance
- Access to grant sand financial incentives
- On-the-ground projects
- Governance

Awareness-raising

- Global Advocacy
- Recognition and celebration
- Measuring and monitoring progress

Some examples

- Kampala (Uganda) crop cultivation and tree-planting along riverbanks, enhancing agricultural outputs and green spaces.
- Yaoundé (Cameroon) prevention of food loss and application of sustainable waste management practices in urban gardening.
- Abidjan (Côte d'Ivoire) transformation of food waste into valuable resources like animal protein and biofertilizers.
- Eenhana (Namibia) implementation of an urban forestry greening project, including tree-planting, the setting up of nurseries, and awareness-raising activities.

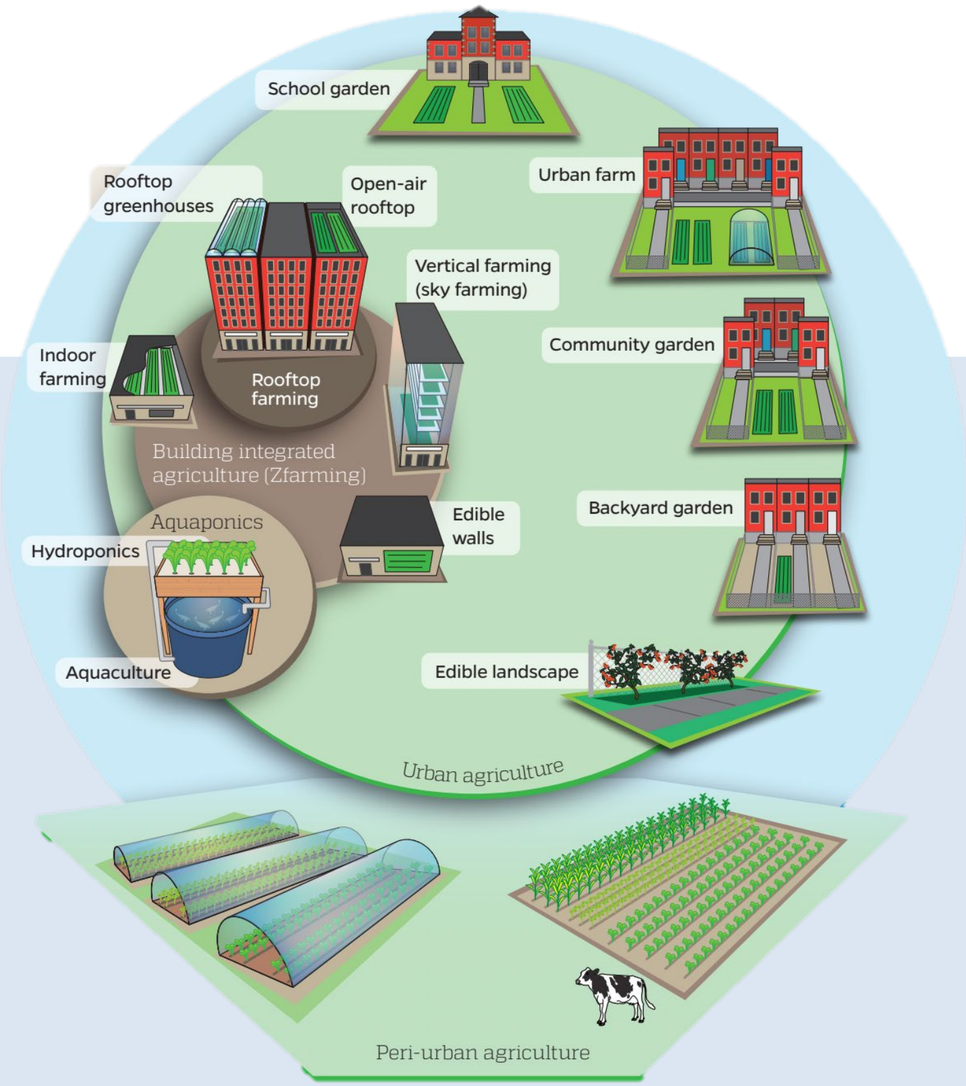
The role of urban and periurban agriculture (UPA) for food security and human well-being

FAO GREEN CITIES INITIATIVE

DEFINING URBAN AND PERI-URBAN AGRICULTURE

- Fruit and vegetables, high value crops with short growth cycles.
- Ranging from a simple pot on a balcony to an automated controlling system in a large greenhouse.

- Location
- Type of production
- Scope and function
- Landownership, legality
- Scale
- Individual vs. collective
- Degree of market orientation
- Professional vs. subsistence or hobby activity
- Integration with other production activities or services



R. Santo, A. Palmer and B. Kim, 'Vacant lots to Vibrant Plots: A review of the benefits and limitations of urban agriculture', Johns Hopkins Center for a Livable Future, May 2016

Typologies and categories of UPA

- Home-based gardening
- Community-based and other shared gardening
- Commercial farming (crop production, livestock and fisheries)
- Institutional food growing (schools, etc.)

Multiple scopes and benefits

- Boosts **supply of fresh produce**
- Optimizes use of **scarce resources in small plots**
- Improves **access to nutritious food**
- Promotes **nutrition education**
- **Low** start-up **costs** and **short production cycles**
- Creates **employment,** mainly **women-led for food and income**
- Fosters **social inclusion** and **cohesion**
- Contributes to **circular economy** and **urban metabolism**

UPA in numbers

Est. **800 million** people worldwide are involved in UPA (1996)

266 million urban households are involved in crop production in developing countries

40-50% of urban dwellers in **African** and **Latin American** countries are engaged in UPA

Global farm area of > **60 million ha** within cities

60% of irrigated crops within a **20km** from cities

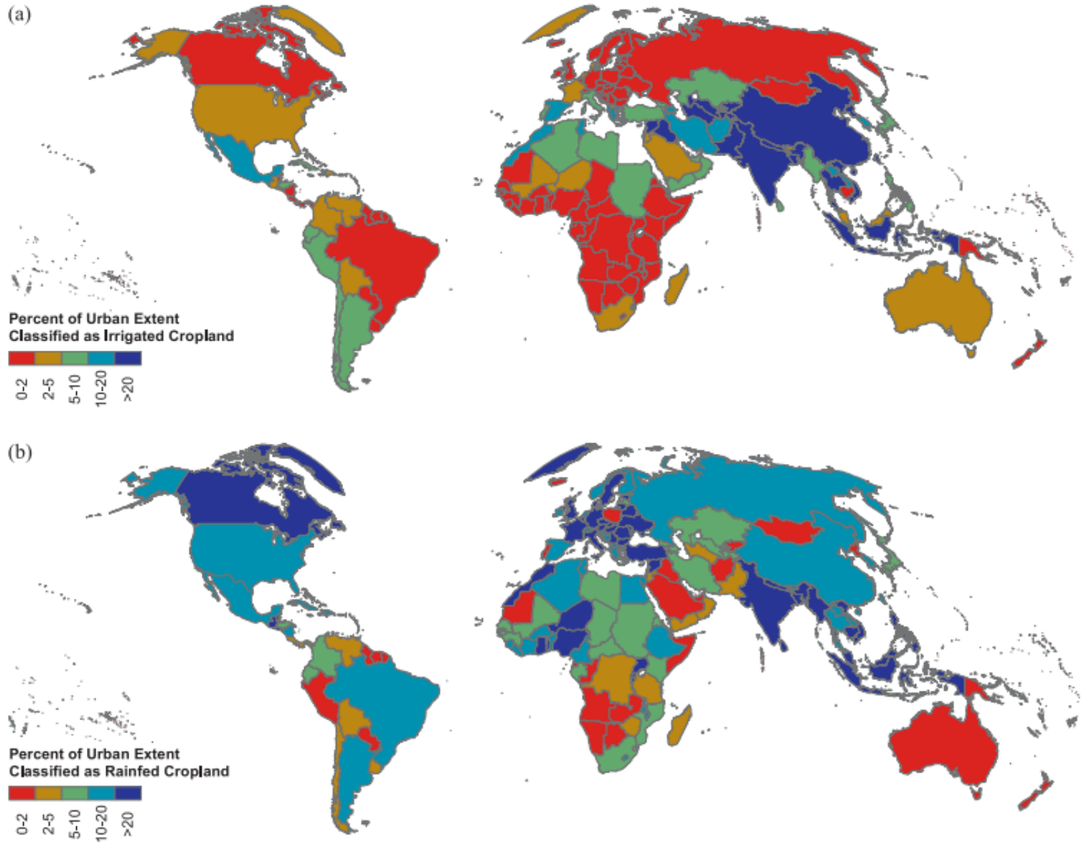


Figure 2. Percent of urban land area classified as irrigated (a) or rainfed (b) croplands by country.

Examples from cities

- Protecting peri-urban land in agricultural parks: **Valencia**, **Fuenlabrada**, **Barcellona**, **Milano**
- Land banks providing access to land and training for young urban farmers, e.g. **Vitoria-Gasteiz** e **Saragozza e Rosario** (Argentina):

- **Paris (Parisculteurs)**: **1**00 ha of urban agriculture for "greening" in 2020, including roofs and green roofs
- **Almere** (Paesi Bassi): urban planning of 4,300 ha of urbanisation, 50% of which is UPA
- **Torino**: territorial strategic plan, "Torino Metropoli 2025".
- **Baltimore (USA)** e **Dar es Salaam (Tanzania):** UPA in strategic urban development plan and land use zoning
- **Seattle (USA)** and **Hamburg (Germany)** included urban agriculture in their strategic urban development plan and land use zoning

Implications and challenges of UPA

- Access to **land**, quality **soils** and safe **water**, competition with other uses
- UPA goes **unrecognized** in agricultural policies and **urban planning,** strong overlooked urbanization pressure.
- **Informality**: Growers often operate **without permits**. No public assistance or oversight in many cities.
- UPA can carry health and **environmental risks**: overuse and misuse of **pesticides**, and careless use of **wastewater**
- Access to appropriate **agricultural inputs**
- **Low market integration**






Focus on Access to Land and Soils

Why it matters

- Productive land and **healthy soils** are the foundation of sustainable urban agriculture
- Secure **land tenure** encourages investment in soil improvement and long-term planning

Key challenges

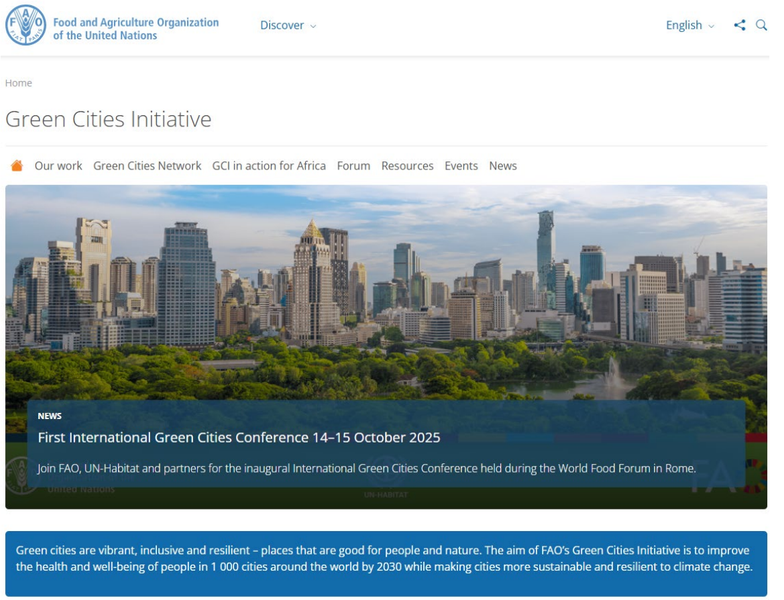
- **Competition for land**: urban expansion, real estate, and infrastructure often take priority over food production
- **Soil contamination**: heavy metals, industrial waste, and waste disposal threaten food safety and human health
- **Soil sealing**: paved and built-up areas reduce availability of fertile soil for cultivation
- **Fragmented or temporary access**: short-term leases and insecure tenure discourage investment in soil care

Opportunities for Urban Agriculture & Green Cities

- **Integrating urban agriculture in city planning** to secure space for sustainable food production (**zoning**)
- **Promoting circular and regenerative practices** (composting, wastewater reuse, renewable energy)
- **Encouraging multi-functional green spaces** (agro-parks, gardens) that link food, recreation, and ecosystem services
- **Governance:** partnership, multi-stakeholder dialogues, **beyond the city boundaries**
- **Scaling innovations and partnerships** to connect food systems with health, environment, and economy
- **Promote short supply chains,** producer associations and networks, **ensuring competitiveness in the market**

The FAO Green Cities Initiative webpage

https://www.fao.org/green-cities-initiative/en/



UPA Sourcebook

Main report:
https://www.fao.org/documents/card/en/c/cb9722en

Main report

Annex with the 6 in-depth case studies :
https://www.fao.org/documents/card/en/c/cb9734en

Case studies

Thank you

guido.santini@fao.org