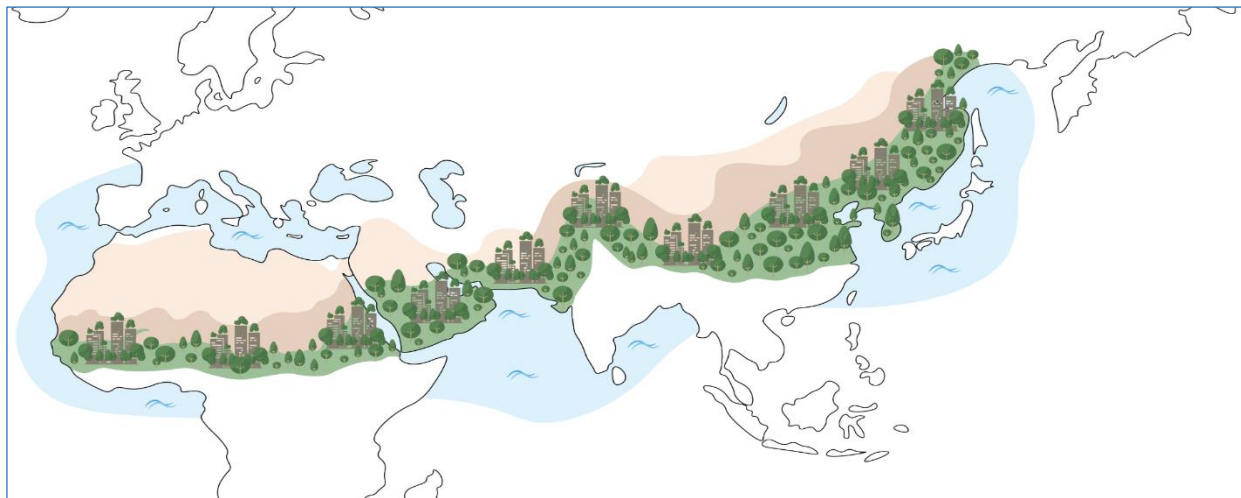


## The Great Green Wall of Cities

**Forests and agriculture in and around cities: nature-based solutions for increased resilience to global changes in dryland areas**



Landscape degradation and climate change are increasingly affecting urban and rural communities worldwide. Particularly in dryland areas, the consequent increased frequency of extreme climatic events such as floods, droughts, heat waves, cold spells, landslides, and extreme winds are putting at serious risk the livelihood of millions of people.

In 2007, the African Union launched the Great Green Wall (GGW) project to restore Africa's rural degraded landscapes and transform millions of lives in one of the world's poorest regions, the Sahel. Once complete, the Wall will stretch through 20 countries for over 8,000 km. The initiative aims to restore 100 million hectares of degraded land, sequester 250 million tons of carbon, boost sustainable small-scale farming and create 10 million jobs by 2030.

However, with the urban population expected to increase to 60% by 2030 and to 66% by 2050, focusing efforts in urban areas is crucial to ensure the success of any actions addressed to increase communities' resilience to the current and future effects of climate change on drylands. This is particularly true for Asia and Africa, where nearly 90% of the increase in urban population is expected to occur (with three countries India, China and Nigeria accounting for a third of this growth).

In fact, increasing urban populations imply increasing demands for food and basic services, posing major infrastructural, social, environmental, and economic challenges for sub-national governments. Nonetheless, the rapid expansion of cities often takes place without sufficient planning, resulting in unsustainable land use and overcrowded and unhealthy urban areas. Moreover, having lost over half of their tree cover, 40% of the world's major watersheds are at risk of erosion, forest fires and water stress, reducing their capacity to provide high quality water to cities.

The Great Green Wall of Cities Initiative aims at complementing and enhancing the transformative impact of the GGW in rural drylands by implementing actions and activities based on nature (i.e. nature-based solutions) addressed to improve the resilience of communities to the increasing effects of climate change in urban areas and connected rural hinterlands of Africa and Asia. In fact, on the positive side, the growing urban population is increasingly looking for improved standard of living, including higher quality in their diets and improved mental and physical health. This offers huge opportunities for the implementation of integrated nature-based solutions, which can increase resilience to climate change while playing a key role as primary source of food, ecosystems services, and public goods at different scales.

Multifunctional green infrastructure can help cities optimize the use of their spaces to respond to the effects of climate change and move towards a more sustainable and resilient model of urban development. As such, they represent a strategic solution providing multiple benefits, including climate adaptation and mitigation, food security, wellbeing and local economy.

Multifunctional green infrastructure in cities can include forests, trees agroforestry and sustainable agriculture practices. These can span from peri-urban forests, to urban parks, street trees, individual trees (including fruit and nut trees), trees in agricultural fields, community gardens, medium and large-scale farming areas that produce vegetables, pulses, rootcrops and open-field crops. These systems can help reduce the impact of urbanization on the surrounding natural environment, while regulating, supporting and provisioning food and ecosystem goods and services.

Trees and sustainable agriculture, in and near cities, mitigate climate change by capturing and storing atmospheric carbon dioxide and reducing GHG emissions from farm to fork. Shading and reduction of wind speed by trees also abates carbon emissions from power plants by lowering air conditioning and heating demands. Cities are also particularly susceptible to climate-related threats such as storms and flooding. Urban trees and agroforestry systems can help control runoff by catching rain in their canopies



and increasing the infiltration rate of precipitation. Well-maintained urban forests and agroforestry systems help buffer high winds, control erosion, and reduce drought. Forested watersheds supply high quality water to 90 % of the world's cities. One-third of the world's major cities, such as New York, Cape Town or Bogota rely on protected forests for their drinking water supply. Well-planned and managed agro-parks, which include trees and integrated production systems (horticulture and/or cereals; small to large), play a crucial role in improving availability and accessibility of sustainable and high-valued food to communities in and around cities. They also contribute to generate income for farmers, stimulating local economic development. Furthermore, trees, agroforestry systems and agriculture (e.g. community gardens) can contribute to recreational, social and educational purposes by facilitating community involvement at different levels. Finally, these can be an effective climate-resilience measure by increasing the efficiency in the use of land and water, and reducing food loss and promoting nutrient recycling (composting and reuse of organic wastes) and wastewater. Cities like Milan and Kigali have already started investing in such types of multi-functional agro-parks in and nearby cities to ensure communities can benefit from high-quality food.

By creating synergies between the Great Green Wall of cities and the GGW initiatives, urban and rural communities will benefit from multifunctional green infrastructure that integrates forestry and agriculture (including agro-forestry) to strengthen the overall resilience to climate change challenges and contribute to food security, nutrition and overall well-being of the dryland peoples.

### Scope

The Great Green Wall of Cities will create a series of “green nodes”, much as the towers of the Great Wall of China, and integrate these points of discontinuity in the wider mosaic of landscape restoration interventions in dryland areas and semi-arid regions of the world. These green nodes would provide benefits both to the cities and their connected rural hinterlands. The GGW of Cities would extend from Africa to other regions of the world, such as Central Asia and beyond, creating up to 500 000 ha of new urban and peri-urban forests and agriculture, including edible trees (orchards and nut trees) and agroforestry systems in city regions and restoring/maintaining a further 300 000 ha of existing forests.



## **Objective**

At least three city and their surrounding landscapes in 30 countries along the GGW of Cities develop and adopt an integrated and sustainable forestry and agriculture strategy and implement it on a substantive scale.

## **Expected outcome**

At least three cities and their surrounding landscape, in 30 countries along the GGW of Cities, are more resilient across the rural- urban interface developing and implementing integrated strategies to scale up multifunctional green infrastructures (agriculture and forestry) and natural resources management through multi-stakeholders engagement, from planning to the implementation.

## **Activities**

### ***Policy and planning***

- Assessment of current situation of urban and peri-urban forests and production systems: spatial and physical data as well legislative and planning documents will be obtained from inventories, aerial photography or other means.
- Mainstreaming multifunctional green infrastructure in urban and territorial planning, policies and strategies: this will be developed through participatory consultations and continuous stakeholder dialogues, to ensure participation of vulnerable groups such as women and youth.
- Planning, designing, planting and managing with people is strategic for identifying feasible actions and achieving long-term results both at local and global level.

### ***Capacity development***

- Capacity development - Institutional and individual capacity will be developed through training programmes on planning, forest management and sustainable production.

### ***Piloting and implementation***

- Planning and design of appropriate of urban and peri-urban multifunctional green spaces
- Selection of suitable species for the implementation of forestry, agroforestry and agriculture systems
- Development of nurseries



- Tree planting and establishment of new production sites
- Development of adaptive management plans for new and existing forests, agroforests and agricultural production systems in and around cities
- Monitoring and evaluation: forest and trees have a long life span, therefore is essential to put in place adequate M&E systems so that management plans can be progressively adapted.

#### ***Knowledge sharing and city-to-city cooperation***

- Research and Knowledge Management: an academic action-research cluster will support the various phases of the project and systematize lessons learned.
- Communications, city-to-city cooperation and advocacy: cities involved in the project would join the Tree Cities of the World network and The Milan Urban Food Policy Pact<sup>1</sup> to celebrate their success and share their experiences.

#### **Global Partners confirmed**

FAO, Kew Gardens, Arbor Day Foundation, C40, UN Habitat, Cities4Forests, SISEF, Stefano Boeri Architetti, Chinese Urban Forestry Research Centre

#### **Partners to be confirmed**

International Society for Horticulture Science, RUAF, Milan Urban Food Policy Pact, ICARDA

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<sup>1</sup> An international agreement on urban food policies “designed by cities for cities” <http://www.milanurbanfoodpolicypact.org/>