



Food and Agriculture
Organization of the
United Nations

MICRO GARDENS



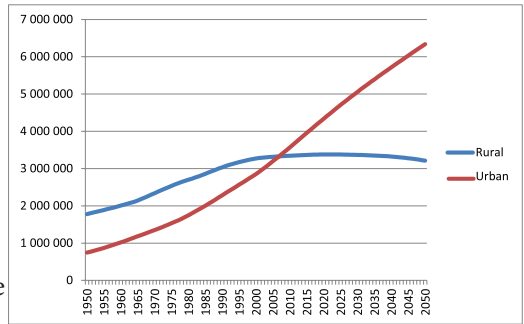
for food and nutrition security



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Towns and cities in the world's developing countries are growing on an unprecedented scale. By 2050, the total urban population in the poorest countries will increase more than three times over.

Around 815 million people suffer from chronic hunger and malnutrition, and more than half of them are in urban environments. Over 800 million people are suffering from overweight and obesity.



One of the main challenges is to meet the food and nutrition requirements of the expanding urban population. With microgardens, fresh and nutritious food is produced to help people meet their daily needs for a healthy diet. FAO/WHO recommends daily of 400 grams of fruit and vegetables.

What are microgardens?

Microgardens are small production units that can yield a wide range of vegetables, roots and tubers, and herbs in small spaces, such as balconies, patios and rooftops. They fit the urban context, where limited space and scarcity of water prevail.

Micro-gardening is a container-based growing system. The standard unit is a 1 m² custom-built table lined with polyethylene sheet, which can be adapted to materials available in different countries and cities.

Benefits of microgardens

Microgarden systems are designed to allow families to grow nutritious, fresh and safe vegetables, to help meet the needs for vitamins, minerals and plant proteins for a better and balanced diet. It can also be a source of income from the sale of small surpluses.

Microgardening allows integrating horticulture production techniques with environmentally friendly practices suited to cities, such as household waste management and rainwater harvesting.



Microgarden:

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A simple, low-cost technology to grow vegetables and herbs highly suited to small spaces.

A microgarden of 1 m² can produce 30 kg of tomatoes a year, 36 heads of lettuce every 60 days, 10 cabbages every three months, and 100 onions every four months.

Its principal assets are:

- simple and low-cost technology
- need little space
- quick results (harvest within 45 to 90 days)
- no chemical pest control
- purifies the air and recycles waste materials

Technologies

Microgardens illustrate the principles of sustainable production intensification and diversification, the “Save and Grow” approach, to produce more with less.

LESS	MORE
Space	More yield per unit of time and surface
Soil	
Water	More yield per unit of water
Pesticides	More diversity
Fertilizers	More people of the family can grow a microgarden - young and elderly, as well as disabled
Physical effort	

They integrate production technologies with household waste management, rainwater harvesting, improved nutrition and income generation.

Ideally, microgardens are filled with fertile soil. Alternatively, substrates can be used as a substitute, such as rice hulls, peanut shells, wheat husks, sand, wood shavings, coconut coir, or cotton seed hulls. Substrate culture will require mineral soluble fertilizers, which are often expensive and not readily available. A viable alternative is to make compost.

Compost

Compost can be made from kitchen waste. It enables to maintain the soil fertility of microgardens at no cost. From the garden to the kitchen and from the kitchen to the garden.

There are “ad hoc” composting bins, easy to manage, that can be used at individual household level.



Rainwater harvesting

Water resources are every day more scarcely and tap water is expensive in most cities. Rainwater is free and of excellent quality. A roof of 20 m² can collect 2 000 litres of water from each 100 mm of rainfall. That is enough water to grow two microgardens of 1 m² each.

Microgardens are a part of FAO's Programme for Urban and Peri-urban Horticulture (UPH), which is a key component of the Food for the Cities initiative. The programme helps governments and city administrations to optimize policies, institutional frameworks and support services for UPH, to improve production and marketing systems, and to enhance the horticulture value chain.



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