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URBAN DETERMINANTS OF ONE HEALTH

One Health 4 Cities

The Urban Determinants of One Health were developed through a multidisciplinary effort (part of the local URBACT group in Lyon). They cover human, animal, and plant health, as well as environmental health (air, soil, water, built environment). The tool identifies urban components that may influence these determinants. This tool provides a framework for analysing urban territories from a One Health perspective and supports urban planning and management while taking all dimensions of health into account.

URBAN COMPONENTS
Mobility, road infrastructures, etc.
Roads (including high-traffic roads)
Rail networks
Soft transport routes (pedestrians, scooters, cyclists)
Tunnels and bridges
Black corridors (areas without lighting)
Brown, green and blue corridors
Parking areas/car parks
Electric charging stations
Carpooling/car sharing area
Accessibility for people with reduced mobility
Surface public transport (stops, lines, park-and-ride facilities)
Metro stations, train stations
Metro tunnels
Underground ventilation points
Buildings and infrastructure
Residential buildings (houses, apartment buildings)
Tertiary and commercial buildings (offices, shopping centres)
Industrial buildings, warehouses, logistics platforms
Green roofs and walls (including green balconies)
Waste land
Construction sites
Educational sites: nurseries, daycare centres, schools, colleges, high schools, universities, research centres
Hospitals and health centres, veterinary establishments
Public services (post offices, etc.)
Commercial areas
Restaurants and bars
Cultural facilities (concert halls, cinemas, theatres, museums, etc.)
Mineralised public spaces / Paved (squares, etc.)
Markets
Urban waste / waste management
Public and private lighting (including illuminated advertising, LED signs)
Technical infrastructure and networks
Underground networks: drinking water, sanitation (wastewater), heating, gas, electricity
Telecommunications networks: fibre optics, mobile phone masts, relay towers
Manhole covers
Ground and surfaces
Impermeable ground (asphalt, concrete)
Areas with degraded or compacted ground
Polluted sites and soils
Green swales and rainwater management systems
Flood-prone or vulnerable areas
Green spaces and vegetated environments
Public green spaces (parks, gardens, squares)
Green recreational areas (small plots, courtyards, brownfield sites)
Urban wasteland
Hedges
Shared gardens, family gardens, urban orchards, community vegetable gardens
Dog parks
Green walls, balconies and roofs (in connection with buildings)
Blue spaces and water management
Fountains
Water bodies
Artificial ponds
Wetlands
Rivers
Retention basins, swales, ditches

ENVIRONMENTS
Air quality
Concentration of air pollutants
Weather parameters: (temperature, humidity, wind speed and direction)
Concentration of airborne biological particles (pollen, spores, bacteria, fungi, and viruses)
Water quality (surface and groundwater)
Stable physical and chemical composition (pH, conductivity, dissolved oxygen)
Low chemical and microbiological pollutant load
Self-purification capacity
Urban soil structure and composition
Composition: balanced proportion of mineral particles (clay, silt, sand) and organic matter
Contaminant levels: low presence of heavy metals, hydrocarbons and persistent organic pollutants
Infiltration capacity and permeability
Natural pollutant filtration capacity
Soil pH: suitable value promoting nutrient availability and biological activity
Optimal humidity
Health of the built environment
Seasonal thermal comfort
Acoustic comfort
Indoor air quality
Lighting quality (suitable natural and artificial light)
Composition of materials
Structural safety
Hygiene and waste management
Accessibility
Water quality

HEALTH DETERMINANTS FOR HUMANS, PLANTS AND ANIMALS
Human health
Lifestyle / environmental exposure
Access to nature
Area of accessible natural spaces
Quality of accessible natural areas
Accessibility of natural areas to all members of the public
Sleep/biological rhythms
Noise / quiet environment
Social interactions
Physical/sports activity
Access to active transport
Access to sustainable transport
State of health
Mental health
Non-communicable diseases
Urban stress
Infectious diseases
Social inequalities
Level of education
Access to health information
Language or cultural barriers
Vulnerable populations
Resilience and prevention
Health prevention
Social justice
Environmental justice
Animal health
Animal health - wildlife
Species diversity
Genetic diversity
Natural reproductive capacity
Introduction or proliferation of invasive species
Quality and availability of natural habitats
Availability of food resources
Status and protection of species (protected species, regulatory measures)
Animal behaviour and welfare
Regulatory framework and territorial management of human-wildlife coexistence
Animal health – domestic and local animals (e.g. educational farms, etc.)
Accessibility and availability of veterinary care
Vaccination and prevention of infectious diseases
Mental and social well-being
Access to physical activity and safe spaces
Land management policies and social recognition
Plant health
Plant diversity (indicator of the stability and resilience of a plant ecosystem. Greater diversity makes systems more resistant to disease, pests and climate change).
Plant development and growth (directly dependent on vital resources (light, water, space, temperature). If these conditions are limited or stressful, the plant becomes weak and vulnerable).
Physiological state and vitality (This factor directly reflects the plant's ability to function properly, fight off attacks and maintain its vital functions).
Soil characteristics (Soil is the main source of life for plants. Its fertility, structure and quality determine the availability of nutrients, water and root development).
Urban environmental constraints (Urban factors (pollution, heat, confinement) are major abiotic stresses for plants. They alter photosynthesis, respiration, or growth cycles).
Quality of plant selection (Selecting unsuitable species can lead to planting failures, increased vulnerability to disease, and poor ecological functioning).
Management and monitoring practices (Maintenance and monitoring influence disease prevention, water stress, appropriate pruning, etc. Inappropriate management can cause imbalances).
Ecological structure and connectivity (Plant health at the population level depends on their ability to disperse, regenerate and interact within a coherent ecological network).

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About the Network

This document was created within the scope of the One Health 4 Cities network (2023-2025). The One Health 4 Cities network aims to promote the integration of the One Health approach into urban strategies and projects. It develops tools that empower decision-makers and operational teams to increase the positive impact of urban projects on the well-being and health of people, animals and the environment.

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