

## Supplementary Material III. Final indicator set: Core and aspirational indicators

### Core indicators (n = 68)

#### 1. Socio-ecological Dynamics (n = 23)

##### 1.1 Social justice (n = 4)

1. Indicator name: Population rate at risk of poverty

Description: Percentage of city population living below the national poverty line (%) [disaggregated by gender/age/ethnicity/neighborhood]

2. Indicator name: Gender pay gap

Description: Difference between average earnings of men and women as a percentage of average earnings of men.

3. Indicator name: Beneficiaries of social assistance

Description: Percentage of the population served by social assistance programs (%) [disaggregated by gender/age/socioeconomic status/ethnicity/neighborhood]

4. Indicator name: Beneficiaries of food assistance in cash or kind

Description: Percentage of the population served by food assistance programs in cash or kind (%) [disaggregated by gender/age/socioeconomic status/ethnicity/neighborhood]

##### 1.2 Culture and tourism (n = 1)

5. Indicator name: Relative contribution of tourism to the municipality's economy (% of GDP)

Description: Percentage of tourism in the municipality composed of revenue generated by all tourism enterprises, their subsectors, and related activities in relation to the total GDP of the municipality (%)

##### 1.3 Housing (n = 2)

6. Indicator name: Housing costs

Description: Percentage of housing costs of the total disposable household income (%)

7. Indicator name: Beneficiaries of social housing

Description: Number of people living in social housing per 100,000 inhabitants (#/100,000)

##### 1.4 Education (n = 1)

8. Indicator name: Educational attainment level of the adult population (between 24 and 65 years old)

Description: Proportion of the population aged 25-64 disaggregated by the highest level of education attained (%)

##### 1.5 Environment (n = 0)

No indicators

##### 1.6 Biodiversity (n = 0)

No indicators

##### 1.7 Land use (n = 2)

9. Indicator name: Built-up land-use mix

Description: Shares of built-up area for different purposes (residential, industrial, commercial, etc.) of the total total municipality area (%)

10. Indicator name: Surface area designated for natural protection

Description: Share of areas designated for natural protection of the total municipality area (%)

#### **1.8 Demographics (n = 3)**

11. Indicator name: Population under 16 years old

Description: Percentage of population younger than 16 years old (%)

12. Indicator name: Population over 65 years old

Description: Percentage of population older than 65 years old (%)

13. Indicator name: Immigration rate

Description: Percentage of people born abroad registered in the census (%)

#### **1.9 Economy (n = 6)**

14. Indicator name: Municipality unemployment rate

Description: Percentage of unemployed working-age people out of the total population (%) [disaggregated by age/gender/ethnicity]

15. Indicator name: Gross domestic product (GDP) per capita disaggregated by sector

Description: Gross domestic product per capita of the municipality disaggregated by sector [e.g., agriculture, manufacturing, tertiary] (€/capita)

16. Indicator name: Distribution of employment by sector in the municipality

Description: Employment by sector as a proportion of total employment (%)

17. Indicator name: Income inequality (Gini coefficient/index)

Description: Degree to which the distribution of income among individuals or households within an economy deviates from a perfectly equal distribution (1-100)

18. Indicator name: Employment in the agri-food chain

Description: Employment across the agri-food chain disaggregated by agriculture, food industry, and services sectors [e.g., catering and hospitality] as a proportion of total employment (%)

19. Indicator name: Average household income

Description: Income per person per household (€/household)

#### **1.10 Health & Diet (n = 4)**

20. Indicator name: Average life expectancy at birth

Description: Average life expectancy at birth, disaggregated by age/gender (# years)

21. Indicator name: Public provision of health promotion programmes

Description: Number of health promotion programs offered by public entities per 100,000 inhabitants (#/100,000) [disaggregated by type, with specific focus on food-related programs]

22. Indicator name: Prevalence of Type 2 diabetes in the adult population

Description: Percentage of adults with Type 2 diabetes out of the total adult population (%) [disaggregated by age/gender/ethnicity/neighborhood]

23. Indicator name: Prevalence of obesity and overweight in adults and children

Description: Percentage of the population with obesity and overweight (%) Percentage of adults with Type 2 diabetes out of the total adult population (%) [disaggregated by age/gender/ethnicity/neighborhood]

## **2. Urban infrastructure and form (n = 13)**

### **2.1 Transport networks (n = 2)**

24. Indicator name: Length of bike network

*Description: Length of bike lanes and kilometers per 100,000 inhabitants (#/100,000)*

25. Indicator name: Access to public transport

*Description: Percentage of the population living within 0.5 km of public transport that operates at least every 20 minutes during peak hours (%)*

### **2.2 Food infrastructure (n = 5)**

26. Indicator name: Number of municipal and collective food processing and distribution infrastructures

*Description: Number of municipal and collective food processing and distribution infrastructures available [farmers' markets, consumer cooperatives, kitchens, community kitchens, collection centers, etc.] for local food producers in the municipal area per 100,000 inhabitants (#/100,000)*

27. Indicator name: (Potential) area for agriculture and livestock within the municipality adjusted for population density and total area

*Description: Percentage of (potential) area for agriculture and livestock available relative to the total size of the municipality, adjusted for population density (%)*

28. Indicator name: Proportion of agricultural area under certified organic farming

*Description: Proportion of agricultural area under certified organic farming in relation to the total agricultural area of the municipality (%)*

29. Indicator name: Number of certified organic farms

*Description: Number of certified organic farms by the national government and third parties per 100,000 (#/100,000)*

30. Indicator name: Number of community gardens (by type)

*Description: Number of community gardens (by type: formal/informal, municipal, etc.) per 100,000 inhabitants (#/100,000)*

### **2.3 Utilities (n = 2)**

31. Indicator name: Access to basic services

*Description: Percentage of households connected to running water, sewage, electricity, gas distribution network, and broadband internet (%)*

32. Indicator name: Access to basic health services

*Description: Percentage of the population with access to basic health services (e.g., health centers) within  $\leq 300$  m "walkable" or 15 minutes on foot (%) [disaggregated by age/gender/ethnicity/neighborhood]*

### **2.4 Design & planning (n = 2)**

33. Indicator name: Population density

*Description: Inhabitants per hectare (inhabitants/hectare)*

34. Indicator Name: Ratio between land and population growth

*Description: The amount of agricultural land, forests, and other semi-natural and natural lands affected by urban development and other land artificialization activities. It is calculated as the ratio between the land consumption rate and the population growth rate.*

### **2.5 Green spaces & parks (n = 2)**

35. Indicator name: Green area per capita

*Description: Green area (m<sup>2</sup>) per capita (m<sup>2</sup>/capita) (disaggregated by neighbourhood if possible)*

36. Indicator name: Proximity to green areas

Description: Percentage of inhabitants living within  $\leq 300$  m "walkable" or 15 minutes on foot of public green spaces (%) [disaggregated by age/gender/ethnicity/neighborhood and type (e.g., parks, urban gardens, etc.)]

### 3. Networked resource flows (n = 8)

#### 3.1 Energy (n = 2)

37. Indicator name: Per capita energy consumption

Description: Total final energy consumption per capita (kWh/capita/year)

38. Indicator name: Fuel poverty

Description: Percentage of households unable to afford the most basic levels of energy (%)

#### 3.2 Waste (n = 4)

39. Indicator name: Urban solid waste generated

Description: Production of municipal waste per capita (kg/capita/year)

40. Indicator name: Municipal waste recycling rate

Description: Proportion of recycled material in the municipality compared to total waste generated in the municipality (%) [disaggregated by type]

41. Indicator name: Municipal waste reused as soil conditioner and/or fuel

Description: Annual recycling rate of municipal waste (green and food waste) as soil conditioner and/or fuel (%) [by type of recycling]

42. Indicator name: Number of circular programs and initiatives addressing food loss and waste in the urban region

Description: Number of circular programs and initiatives addressing food loss and waste in the municipality per 100,000 inhabitants (#/100,000) [disaggregated by type, location, scale]

#### 3.3 Food flows (n = 0)

No indicators

#### 3.4 Water (n = 2)

43. Indicator name: Per capita water consumption

Description: Domestic water consumption ( $m^3$ ) per capita ( $m^3$ /capita)

44. Indicator name: Drought frequency

Description: Percentage of months with drought within the year (%)

### 4. Governance dynamics (n = 24)

#### 4.1 Actors & networks (n = 8)

45. Indicator name: Presence of an active multi-stakeholder food planning and policy structure

Description: Presence of an active multi-stakeholder food planning and policy structure (e.g., food policy councils; food partnerships; food coalitions) (Yes/No)

46. Indicator name: Level of multi-actor representation and integration in the active food planning and policy structure

Description: Proportion of governmental actors (disaggregated by department and scale) and non-governmental actors [disaggregated by civil society, private sector,

research] from different sectors of the agro-food system part of the food planning and policy structure (%) - If possible, further disaggregation [e.g., type of private sector actor, size, etc.]

47. Indicator name: Budget for the active multi-actor food planning and policy structure

Description: Amount of the budget available for the operation of the coordinating body, as well as personnel and time dedicated (depending on €/ # personnel/ etc.) [can be also disaggregated by contribution in kind from different municipal departments]

48. Indicator name: Sources of funding for the active multi-actor food planning and policy structure

Description: Percentage of different types of funding sources [from private, civil society, and/or public sectors] for the operation of the coordinating body relative to the total available budget (%)

49. Indicator name: Activity of the active multi-actor food planning and policy structure (I)

Description: Number of activities and projects implemented under the framework of the active multi-actor food planning and policy structure during the past year (#/type/100,000)

50. Indicator name: Activity of the active multi-actor food planning and policy structure (II)

Description: Number of meetings and events held under the framework of the active multi-actor food planning and policy structure and/or where the multi-actor structure has participated during the last 12 months per 100,000 inhabitants (#/type/100,000)

51. Indicator name: Presence of an active municipal inter-departmental body for food policy and program decision-making

Description: Presence of an active municipal inter-departmental body for food policy and program decision-making (e.g., inter-departmental food working group, food policy office, food team) (Yes/No)

52. Indicator name: Presence of inter-jurisdictional collaborations in the municipality for food policy development

Description: Presence of inter-jurisdictional collaborations in the municipality for food policy development (Yes/No)

#### **4.2 Public policies (n = 9)**

53. Indicator name: Presence of healthy and sustainable food as a key pillar in the urban sustainability strategy/climate change adaptation plan

Description: Presence of food as a key pillar in the urban sustainability strategy/climate change adaptation plan (Yes/No)

54. Indicator name: Presence of healthy and sustainable food as a key pillar in the municipal health strategy

Description: Presence of healthy and sustainable food as a key pillar in the municipal health strategy (Yes/No)

55. Indicator name: Presence of healthy and sustainable food as a key pillar in the social services strategy

Description: Presence of healthy and sustainable food as a key pillar in the social services strategy (Yes/No)

56. Indicator name: Presence of healthy and sustainable food as a key pillar in urban planning

Description: Presence of healthy and sustainable food as a key pillar in urban planning (Yes/No)

57. Indicator name: Presence of a municipal urban food policy or strategy and/or action plans

Description: Presence of a municipal urban food policy or strategy and/or action plans (Yes/No)

58. Indicator name: Existence of an emergency food supply/resilience plan for the municipality based on a vulnerability assessment

Description: Existence of an emergency food supply/resilience plan for the municipality (in response to disasters; vulnerabilities in food production, transport, and access; socioeconomic crises, etc.) based on a vulnerability assessment (Yes/No)

59. Indicator name: Presence of healthy and sustainable food in the sustainable procurement policy

*Description: Presence of healthy and sustainable food in the sustainable procurement policy (Yes/No)*

60. Indicator name: Presence of healthy and sustainable food as a key pillar in the integrated Urban Strategy

*Description: Presence of healthy and sustainable food as a key pillar in the city's integrated Urban Strategy (Yes/No)*

61. Indicator name: Existence of healthy and sustainable food policies targeting groups with specific social vulnerabilities

*Description: Existence of healthy and sustainable food policies targeting groups with specific social vulnerabilities (Yes/No)*

#### **4.3 Participation, transparency, and inclusion (n = 2)**

62. Indicator name: Representation of specific vulnerable groups in food governance bodies

*Description de indicador: Number (and percentage) of specific vulnerable groups (youth, women, migrants, low-income consumers/producers) participating in the active food planning and policy structure and other governance bodies [e.g., municipal interdepartmental governmental body] (# or %)*

63. Indicator name: Presence of a mechanism for collecting and analysing data on the urban food system

*Description: Presence of a mechanism for collecting and analysing data on the urban food system to monitor/evaluate and inform municipal policy formulation in the agri-food domain (Yes/No)*

#### **4.4 Finance (n = 5)**

64. Indicator name: Municipal budget dedicated to healthy and sustainable food

*Description: Percentage of the municipal budget dedicated to healthy and sustainable food (%). Includes all institutional projects and programs (e.g., social aid, food hygiene and safety, nutrition, etc.) from municipal departments. They do not necessarily have to be integrated into the urban food strategy or carried out under the active multi-actor food planning and policy structure.*

65. Indicator name: Municipal government budget allocated to the municipal urban food policy or strategy and/or action plans

*Description: Proportion of financial resources allocated to the municipal urban food policy or strategy and/or action plans compared to the total municipal budget (%)*

66. Indicator name: Commitment to sustainable public food procurement

*Description: Proportion of public food procurement from sustainable and ethical sources, and shorter supply chains (local/regional) (%)*

67. Indicator name: Municipal support for food markets or retail stores providing fresh food

*Description: Annual municipal investment in food markets or retail establishments providing fresh food to municipal residents, as a proportion of the total investment budget (or the most appropriate budget for the municipality) (%)*

68. Indicator name: Resources dedicated to urban strategies and action plans, and proportion of these resources dedicated to healthy and sustainable food

*Description: Percentage of municipal expenditure dedicated to various types of urban strategies (non-food) and the share within these dedicated to healthy and sustainable food relative to the total municipal budget (%)*

## Aspirational indicators (n = 30)

### 1. Socio-ecological Dynamics (n = 17)

#### 1.1 Social justice (n = 1)

1. Indicator name: Food insecurity prevalence

*Description: Percentage of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES) (%) [disaggregated by gender/age/socioeconomic status/ethnicity/neighborhood]*

#### 1.2 Culture and tourism (n = 1)

2. Indicator name: Tourism companies actively taking measures to source local, sustainable, and fairtrade food.

*Description: Percentage of tourism companies actively sourcing local, sustainable, and fairtrade food out of the total number of tourism companies (%)*

#### 1.3 Housing (n = 2)

3. Indicator name: Homeless population

*Description: Number of homeless people per 100,000 inhabitants (#/100,000) [disaggregated by age/gender/ethnicity/by neighborhood]*

4. Indicator name: Residential urban vulnerability

*Description: Proportion of the urban population living in slums, informal settlements, or inadequate housing [e.g., lacking a toilet room, less than 30 m<sup>2</sup>, or housing in dilapidated, poor, or deficient condition] (%)*

#### 1.4 Education (n = 1)

5. Indicator name: Participation in formal education for the promotion of healthy and sustainable diets

*Description: Percentage of students participating in formal education for the promotion of healthy and sustainable diets per year out of the total number of students (%) [disaggregated by levels/age/socioeconomic status/ethnicity/race]*

#### 1.5 Environment (n = 1)

6. Indicator name: CO2 emissions

*Description: Total CO2 emissions of the municipality in tons per capita per year (tCO2/capita/year) [disaggregated by sector, including agriculture, food industry, and other sectors of the agro-food chain if possible]*

#### 1.6 Biodiversity (n = 3)

7. Indicator name: Area dedicated to the recovery and conservation of agricultural biodiversity

*Description: Percentage of area dedicated to the recovery and conservation of agricultural biodiversity (%)*

8. Indicator name: Number of native species registered in the municipality

*Description: Number of native species (e.g., birds, butterflies, and vascular plants) registered in the municipality per area (#/km<sup>2</sup>)*

9. Indicator name: Number of types of crop varieties and livestock breeds

*Description: Number of crop varieties and livestock breeds per agricultural area of the municipality (#/km<sup>2</sup>)*

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| <b>1.7 Land use (n = 0)</b>                                                                                                                                                                                                                                                                                                                  |
| No indicators                                                                                                                                                                                                                                                                                                                                |
| <b>1.8 Demographics (n = 0)</b>                                                                                                                                                                                                                                                                                                              |
| No indicators                                                                                                                                                                                                                                                                                                                                |
| <b>1.9 Economy (n = 3)</b>                                                                                                                                                                                                                                                                                                                   |
| 10. Indicator name: Average income of agri-food system workers, including small producers<br>Description: Average annual income of workers in the food system, including small producers (€ per year) [disaggregated by age/gender/ethnicity]                                                                                                |
| 11. Indicator name: Household food expenditure on key food items<br>Description: Percentage of expenditure on key food items (fruits and vegetables, meat, dairy, cereals, legumes) out of total household expenditure (%)                                                                                                                   |
| 12. Indicator name: Cost of a healthy diet<br>Description: Minimum cost per person per day of a healthy diet (meeting minimum macronutrient and micronutrient requirements or dietary guidelines)                                                                                                                                            |
| <b>1.10 Health &amp; Diet (n = 5)</b>                                                                                                                                                                                                                                                                                                        |
| 13. Indicator name: Daily consumption of at least 5 servings of fruits and vegetables<br>Description: Percentage of the population consuming at least 5 servings of fruits and/or vegetables per day out of the total population (%) [disaggregated by age/gender/ethnicity/neighborhood]                                                    |
| 14. Indicator name: Consumption of fast food/(ultra-)processed food at least once a week<br>Description: Percentage of the population eating fast food/(ultra-)processed food at least once a week out of the total population (%) [disaggregated by age/gender/ethnicity/neighborhood, and whether the consumption is domestic or external] |
| 15. Indicator name: Per capita meat consumption (by type of meat)<br>Description: Average daily per capita meat consumption (kg of type of meat/per capita/per day) [disaggregated by age/gender/ethnicity/race/neighborhood]                                                                                                                |
| 16. Indicator name: Legume consumption per capita<br>Description: Average daily per capita legume consumption (kg/capita/day) [disaggregated by age/gender/ethnicity/neighborhood]                                                                                                                                                           |
| 17. Indicator name: Proportion of organic food consumption<br>Description: Percentage of organic food consumption out of total food consumption (%) [disaggregated by age/gender/ethnicity/neighborhood]                                                                                                                                     |
| <b>2. Urban infrastructure and form (n = 3)</b>                                                                                                                                                                                                                                                                                              |
| <b>2.1 Transport networks (n = 0)</b>                                                                                                                                                                                                                                                                                                        |
| No indicators                                                                                                                                                                                                                                                                                                                                |
| <b>2.2 Food infrastructure (n = 1)</b>                                                                                                                                                                                                                                                                                                       |



18. Indicator name: Food environment

*Description: Average distance from home location to retail points selling healthy, sustainable, and/or local/traditional food for different residential neighborhoods (or degree of access to healthy food retail points within 1 km, also known as "food deserts") [by neighborhood or socioeconomic status]*

#### **2.3 Utilities (n = 2)**

19. Indicator name: Proximity to basic services

*Description: Percentage of the population living close ( $\leq 300$  m "walkable" or within 15 minutes on foot) to all basic services, defined as: food supply and daily use products, educational centers, sports centers, and selective waste collection points (%) [disaggregated by age/gender/ethnicity/neighborhood]*

20. Indicator name: Access to sanitation facilities, food storage, and kitchen facilities

*Description: Percentage of vulnerable households without adequate food storage and kitchen facilities (%) [disaggregated by neighborhood/type of vulnerability/socioeconomic status/gender]*

#### **2.4 Design & planning (n = 0)**

No indicators

#### **2.5 Green spaces & parks (n = 0)**

No indicators

### **3. Networked resource flows (n = 9)**

#### **3.1 Energy (n = 0)**

No indicators

#### **3.2 Waste (n = 2)**

21. Indicator name: Annual volume of food losses and waste

*Description: Total annual volume of food losses and waste throughout the food supply chain per capita [from production to consumption] (tons/capita/year)*

22. Indicator name: Food Redistribution

*Description: Total annual volume of surplus food recovered and redistributed for direct human consumption per 100,000 inhabitants (kg/100,000)*

#### **3.3 Food flows (n = 4)**

23. Indicator name: Municipal food production by food group

*Description: Average production by food group per capita per year (kg/per capita/per year)*

24. Indicator name: Food consumption by food group

*Description: Average food consumption by food group per capita in a year (kg/per capita/per year) [disaggregated by age/gender/ethnicity/race/neighborhood]*

25. Indicator name: Local production and consumption of basic foods

*Description: Percentage of local basic foods consumed supplied within a 100 km radius of the urban area (considering availability and biophysical limits) (%)*

26. Indicator name: Ratio of food exports/imports

*Description: Volume of different types of food products imported [produced outside a 100 km radius of the urban area] compared to similar types of products produced in the municipality*

### **3.4 Water (n = 3)**

27. Indicator name: Proportion of water reused-recycled for peri-urban and urban agriculture

*Description: Percentage of wastewater (greywater) from the municipality safely used in urban agricultural production (%)*

28. Indicator name: Per capita water footprint linked to municipal food consumption

*Description: Total amount of freshwater used, both directly and indirectly, for supplying (across food chain activities) municipal food consumption (m<sup>3</sup>/capita)*

29. Indicator name: Water use by economic sectors

*Description: Water use by different economic sectors, including use in agriculture as a percentage of total water resources (disaggregated by source: surface water, groundwater, precipitation, etc.; water management techniques); and use in the agri-food industry and tertiary sector related to agri-food (%)*

## **4. Governance dynamics (n = 1)**

### **4.1 Actors & networks (n = 0)**

No indicators

### **4.2 Public policies (n = 0)**

No indicators

### **4.3 Participation, transparency, and inclusion (n = 1)**

30. Indicator name: Citizen participation in environmental, public health and cultural associations

*Description: Proportion of population participating in environmental, public health and cultural associations, NGOs, etc. (%)*

### **4.4 Finance (n = 0)**

No indicators