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Zero waste sustainable Food systems: Scenarios for the cities of the future

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Wastes at household level constitute 53% of total losses in EU and 60% in the USA. It is clear that that people living in towns and large cities tend to produce more waste. Prevention of food losses and bio-waste valorization are quite inefficiently managed. Urban bio-waste, despite their high nutriment value, are marginally recycled and returned to farm soil and therefore, does not contribute to closing biogas- chemical cycles and to supporting sustainable food production. A foresight approach was used to i) identify high potential socio-technological innovations in food waste prevention and valorization and ii) extract research questions contributing to fostering and accompanying cities' breakthrough strategies towards zero waste sustainable food systems, specific to different urban settings worldwide. The exploration of three "food systems scenarios" in the context of "three urban scenarios" allows to highlight requirements and questions for the research which were grouped into five broad categories related to issues or types of impacts expected: i) society, ii) industries, food cycles and systems, iii) health and the environment (animal health, health public, safety and nutrition, environment), iv) technological processes, looping cycles and associated business models and finally v) the information and communications technologies (ICT), data processing and applied mathematics. High potential key measures and generic questions and perspectives for research on the link between cities and Zero waste sustainable food systems are discussed.