

**FOOD LOSS AND WASTE REDUCTION AND MANAGEMENT**  
**Zaragoza (Spain), 21-25 January 2019**

**PROGRAMME**

- 1. Introduction (1 hour)** (J.M. Gil)
  - 1.1. Food waste within sustainable food systems and healthy diets. What is the future of global food systems?
  - 1.2. Some introductory figures
  - 1.3. The problem of defining Food Loss and Food Waste
  - 1.4. The causes of Food Loss and Waste (FLW). Differences between developed and developing countries
  - 1.5. The main actors and their initiatives (FAO, WRI, EU, voluntary agreements, etc.)
  - 1.6. FLW hierarchies
- 2. FLW: a complex issue (3 hours)** (T. Quested)
  - 2.1. Mapping flows of food and resources (1 h)
  - 2.2. Key case studies from different actors in the food chain (1 h)
  - 2.3. Participants' brainstorming on FLW perceptions and solutions (1 h)
- 3. FLW assessment (8 hours)**
  - 3.1. Quantitative assessment
    - 3.1.1. Measurements and standards (4 h)
      - 3.1.1.1. FAO FLW analysis and measurement approaches, and actions (2 h) (M. Totobesola-Barbier)
      - 3.1.1.2. World Resource Institute Food Loss and Waste Protocol (3.1.1.2 and 3.1.1.3: 1 h) (T. Quested)
      - 3.1.1.3. The EU FUSIONS Quantification Manual (T. Quested)
      - 3.1.1.4. Discussion on quantitative measurements: what to measure and where (1 h) (M. Totobesola-Barbier, T. Quested)
    - 3.1.2. Methods and impact analysis (2 h) (M. Vittuari, F. de Menna)
      - 3.1.2.1. Life Cycle Assessment (LCA) and Life Cycle Costing (LCC)
      - 3.1.2.2. Hydric print
      - 3.1.2.3. Carbon-foot print
      - 3.1.2.4. Social impact
  - 3.2. Qualitative assessment (2 h) (J.M. Gil, R. Díaz)
    - 3.2.1. Participatory tools
    - 3.2.2. Collaborative multi-actor approach
    - 3.2.3. Behavioural analysis
- 4. Public and private interventions to reduce FLW (12 hours)**
  - 4.1. Prevention (3 h)
    - 4.1.1. Regulatory approaches: international and national strategies, laws and regulations (4.1.1 and 4.1.2: 1 h) (M. Vittuari)
    - 4.1.2. Market-based instruments and other socioeconomic incentives (M. Vittuari)
    - 4.1.3. Private initiatives and voluntary agreements (4.1.3 and 4.1.4: 1 h) (C. Reynolds)
    - 4.1.4. Persuasive approaches: public campaigns (C. Reynolds)
    - 4.1.5. Technological and logistic innovations (e.g. postharvest improvements, packaging, extending shelf-life, etc.) (1 h) (K. Waldron)
  - 4.2. Redistribution (2 h) (B. Cseh)
    - 4.2.1. Critical issues related to food redistribution: food bank infrastructure and logistics, food safety, market regulations, consumer rights, etc.
    - 4.2.2. The role of Food Banks and other social institutions
    - 4.2.3. EU Guidelines on food donation

- 4.2.4. Alternative approaches to food donation and redistribution. Countries comparison and open discussion
- 4.3. Valorization of food waste (3 h) (K. Waldron)
  - 4.3.1. Waste to resources: legislative barriers, technical options and sustainability considerations
  - 4.3.2. End uses
    - 4.3.2.1. Feed
    - 4.3.2.2. Food consumption
    - 4.3.2.3. Non-food products
    - 4.3.2.4. Bio-energy
- 4.4. Case studies (4 h)
  - 4.4.1. The Spanish national strategy “More food, less waste” as an example of voluntary agreement based approach (1 h) (A. Mendoza)
  - 4.4.2. Sustainable product design through innovation (0.5 h) (C. Reynolds)
  - 4.4.3. Waste reduction and circular economy (0.5 h) (M. Vittuari)
  - 4.4.4. Second opportunities for discarded food through redistribution and valorization including social components (0.5 h) (M. Barba)
  - 4.4.5. Collaborative network using IoT to redistribute food (0.5 h) (N. Baragaño)
  - 4.4.6. Open discussion on FLW solutions (1 h) (J.M. Gil, A. Mendoza, C. Reynolds, M. Vittuari, M. Barba, N. Baragaño, K. Waldron)

## 5. Practical work (11 hours)

- 5.1. Homework on FLW perception (time for discussion included in 2.4) (T. Quested)
- 5.2. Group work on FLW analysis in diverse food sectors (1 h introduction to the practical + 4 h working sessions + 2 h presentation of results and discussion)
  - 5.2.1. Introduction to the practical (J.M. Gil, T. Quested)
  - 5.2.2. Mapping out the food supply chain (C. Reynolds, J.M. Gil, T. Quested, R. Díaz)
  - 5.2.3. Identifying throughout the supply chain resources needed to grow, process and distribute food (C. Reynolds, J.M. Gil, T. Quested, R. Díaz)
  - 5.2.4. Identifying where and why food gets lost in the system (C. Reynolds, J.M. Gil, T. Quested, R. Díaz)
  - 5.2.5. Building strategies to reduce FLW (J.M. Gil, C. Reynolds, R. Díaz, K. Waldron)
- 5.3. LCA and LCC analysis of food waste (1 h presentation of tools + 2 h working sessions + 1 h presentation of results) (F. de Menna, M. Vittuari)