



Università  
degli Studi  
di Ferrara

**E** DIPARTIMENTO  
DI ECONOMIA  
E MANAGEMENT

# Food waste at consumer level: the ECOWASTE4FOOD project

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# FOOD LOSS & FOOD WASTE

Production

Post – harvesting

Processing stages

Distribution

Retail

Consumption



FARMING



POST HARVESTING



PROCESSING



DISTRIBUTION



RETAIL



CONSUMER

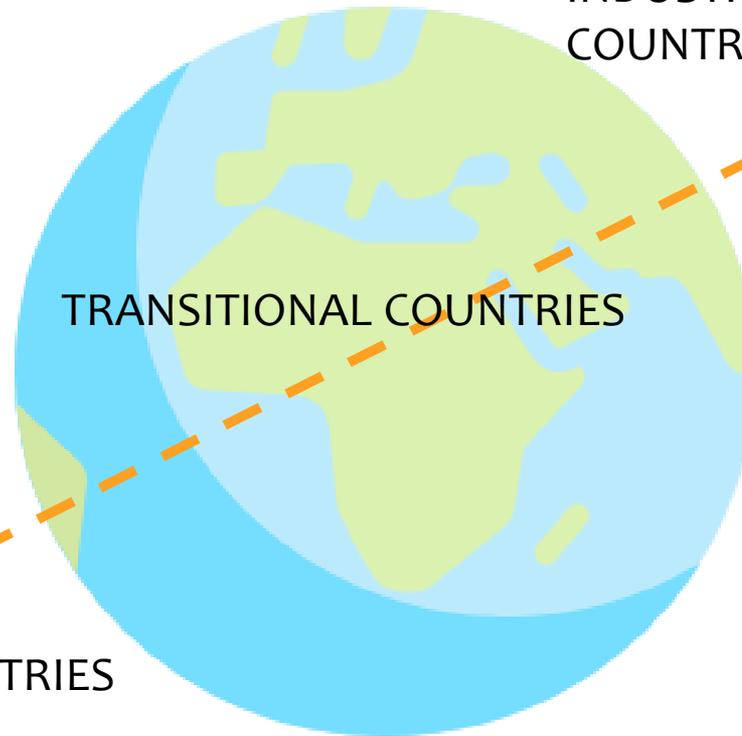


# DEVELOPING & DEVELOPED COUNTRIES

LEVEL OF DIVERSIFICATION OF DIET – LEVEL OF URBANIZATION

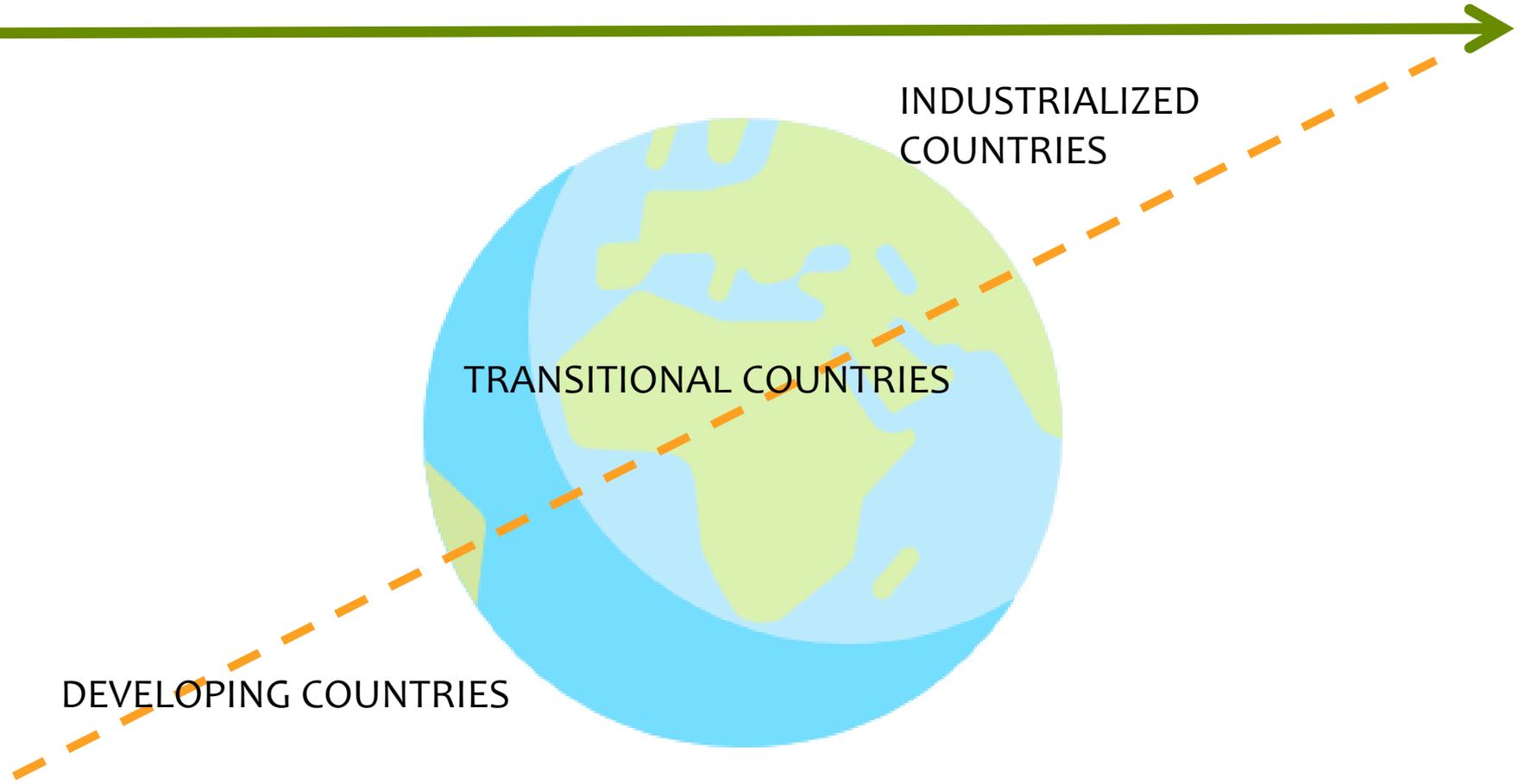


INDUSTRIALIZED  
COUNTRIES



TRANSITIONAL COUNTRIES

DEVELOPING COUNTRIES

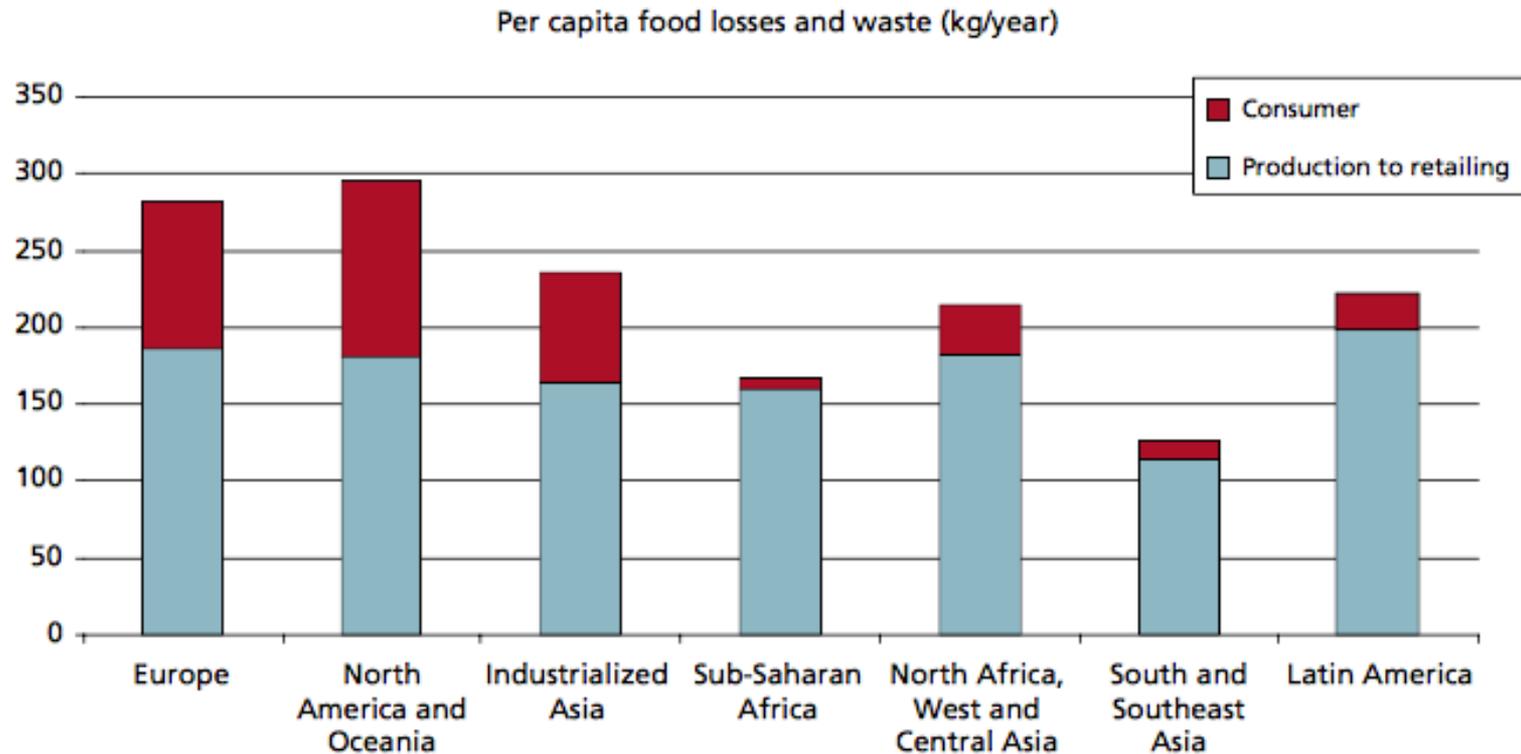


LEVEL OF POST-HARVEST AND SUPPLY CHAIN TECHNOLOGY



# “FOOD WASTE AT CONSUMER LEVEL IN DEVELOPED COUNTRIES IS AS HIGH AS TOTAL FOOD PRODUCTION IN SUB-SAHARAN AFRICA (230 MILLION TON)”

FAO, SIK (2011)



FAO, SIK (2011)



# FOOD AVAILABILITY



**HUMAN  
CONSUMPTION**



**SURPLUS FOOD**



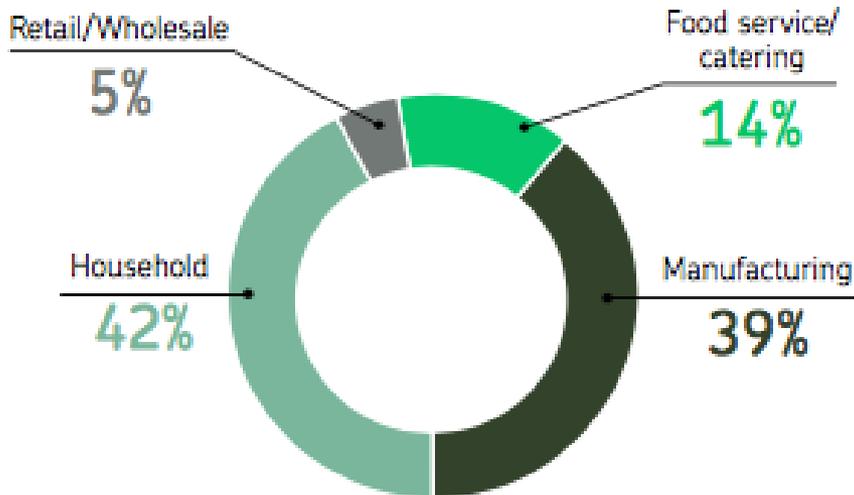
**FOOD REFUSE**



**FOOD WASTE**



# THE DIMENSION OF FOOD WASTE IN EUROPE



**42% + 14% = 56%**  
of TOTAL FOOD WASTE

BARILLA CENTER FOR FOOD AND NUTRITION (2001)

- Total amount: 89 million tonnes, 179 kg per capita per year
- Household: 38 million tonnes, 76 kg per capita per year
- Catering service: 13 million tonnes, 25 kg per capita per year

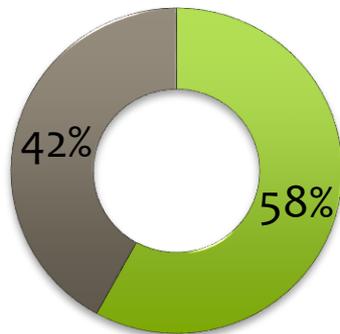
# THE DIMENSION OF FOOD WASTE IN ITALY



## SURPLUS FOOD

=

6 MILLION TONNES PER YEARS



■ PRODUCTION, FOOD PROCESSING, DISTRIBUTION, CATERING

■ CONSUMER

Stage of the FSC	Percentage
FARMING	2,8 %
PROCESSING	0,4 %
DISTRIBUTION	2,5 %
CATERING	4 %
CONSUMER	8 %



**LOW-MEDIUM FUNGIBILITY**

# THE “VALUES” OF SURPLUS FOOD IN ITALY

Stage of the FSC	Million € /per year
FARMING	1.000
PROCESSING	300
DISTRIBUTION	1.900
CATERING	2.800
CONSUMER	6.800
<b>TOTAL</b>	<b>12.600</b>



**EUR 220 X**



## SURPLUS FOOD

=

17,4% OF ANNUAL FOOD CONSUMPTION



93 % WASTE

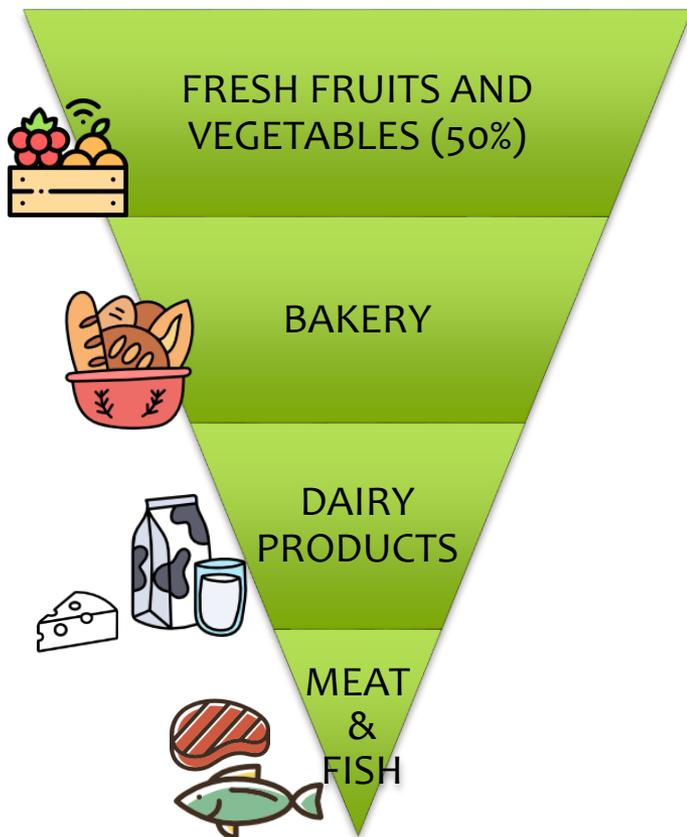
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16 % OF ANNUAL FOOD CONSUMPTION



7 % HUMAN CONSUMPTION

# WHAT FOODSTUFFS ARE BEING WASTED? WHY?



- Water activity/ perishability
- Price
- Lack of awareness/ knowledge
- Difficulties to understand the food label (“**best before**” and “**use by**”)
- Family composition/ size/ income
- Culture/ Country of origin
- Wrong planning of purchase
- Over-generous portions
- Lack of acceptance of the “doggy bag”
- Extrinsic/ intrinsic motivations



# FERRARA: PARTNER OF AN EUROPEAN PROJECT



WHAT

**ECOWASTE  
4 FOOD**  
Interreg Europe



European Union  
European Regional  
Development Fund



HOW

EXCHANGE OF “**GOOD PRACTICES**” AND IMPROVE OF  
PUBLIC POLICES IN ORDER TO PROMOTE  
**ECO-INNOVATIONS TO REDUCE FOOD WASTE**



**WHERE:** Catalonia (Spain)  
**WHAT:** Educational Project at school  
**RESULTS:** Food wastage in school dining rooms decreased by 35% and the generation of waste was reduced by 50%

**WHERE:** South Ostrobothnia (Finland)  
**WHAT:** Free Mobile App to sell restaurants' surplus portions at a 30-70% discount  
**RESULTS (since 2016):** saved over 200k meals and 80k tons of food



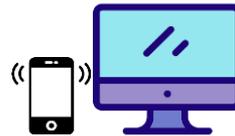
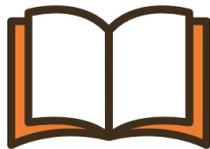
**WHERE:** Devon (England)  
**WHAT:** Free Mobile App to share consumers' surplus food  
**RESULTS (2016):** Over 190k users; over 250k items shared (49 tonnes of food)

## REGIONAL & LOCAL AUTHORITIES



## EDUCATIONAL PROGRAMMES

## COOPERATION MECHANISM



## FOOD WASTE REDUCTION



**“You waste life when you waste good food”**  
Katherine Anne Porter



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