To what extent are dietary shifts a potential lever to reduce greenhouse gas emissions? A simulation study

Gabriel Masset, Florent Vieux, Mathieu M. Maillot, Nicole Darmon

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STREET FOOD AND ITS EFFECT ON SOCIETY AND CUSTOMER SATISFACTION IN MALANG CITY, EAST JAVA, INDONESIA

B. Freytag-Leyer[1], D. Yusuf[2]

[1]Department of Nutritional, Food and Consumer Sciences, University of Applied Sciences Fulda, Fulda, Hesse, Germany

[2]Faculty of Food Technology and Nutrition, Surya University, Banten, Indonesia

Background and objectives: In developing countries, street food vending is a very important sector to generate income. Street food vendors have an important function in society. Especially people with low income have the chance to buy adequate food. To evaluate street food vendors, socio-economic profiles of the street food vendors were compiled and the customer satisfaction of street food was gathered.

Methods: After pretests a questionnaire with 17 closed questions was used for the street food vendors and a questionnaire with 22 closed questions for their customers in Malang City. 35 street food vendors and 245 customers responded between August to October 2010.

Results: The results showed that there was an increase in the level of welfare at the vendors´street food over time. This trend was characterized by an increased average income per month and an increase of buying some consumer goods, such as motorcycle, home, furniture, and television. The customers were satisfied with the location and price of street food as being tasty. There was a stromg correlation between customer satisfaction and location, price, tasty and food safety (34 %). The level of customer satisfaction was about 66 %.

Conclusions: The survey showed that the local government should consider to support street food vendors beyond providing capital or funding for their venture. Rather training programs, cheap sources of materials, and good selling location should be provided. Supporting street food vending therefore helps many small businesses which are important in a globalized economy.

Key words: street food, vendors, customers.

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TO WHAT EXTENT ARE DIETARY SHIFTS A POTENTIAL LEVER TO REDUCE GREENHOUSE GAS EMISSIONS? A SIMULATION STUDY

G. Masset[1], F. Vieux[1], M. Maillot[1], N. Darmon[1]

[1]UMR NORT (Nutrition, Obésité et Risque Thrombotique) INRA1260, INSERM 1062, Aix-Marseille Université , France

Background and objectives: Food-related greenhouse gas emissions (GHGE) contributing around 30% of EU emissions, dietary changes may represent a major lever to achieve the 80% GHGE reduction target set by the EU 2050 roadmap. However, few studies assessed the GHGE reduction potential of dietary changes. Our aim was to simulate the maximum GHGE reduction achievable through dietary changes only, and the effect of fulfilling nutrient recommendations on the reduction potential.

Methods: A mean observed diet was derived from 1,142 women participating in the French INCA2 survey. Diet-related GHGE were estimated based on GHGE values collected in the literature for 73 widely consumed foods. Linear programming was then used to simulate three dietary changes scenarios which aimed to minimize diet-related GHGE while (i) keeping the energy intake constant; (ii) keeping weight intake constant; (iii) reaching all French nutrient recommendations. Scenarios' social acceptability was ensured by imposing maximum food quantities based on reported intakes. Nutritional adequacy of reported intakes and scenarios was assessed using the mean adequacy ratio (MAR).

Results: The observed diet's GHGE were 3,478g CO2eq/d; the MAR was 76%. GHGE were reduced by 82% in scenarios (i) and (ii). This was achieved by: (i) reducing diet weight shifting towards more energy dense foods; (ii) shifting towards low GHGE foods and lowering energy intake. These shifts led to poor nutritional adequacy, with MAR of 50% (i) and 29% (ii). Introducing the nutrient recommendations in scenario (iii), i.e. reaching a MAR of 100%, led to a much weaker GHGE reduction of 39%, mainly achieved through reduced content of meats and increased content of plant-based foods, dairy products and fish.

Conclusions: Dietary changes can help reducing GHGE but the potential is limited by nutrient needs. Further reduction of diet-related GHGE must be achieved through improvements in the food supply chain.

Key words: greenhouse gas emissions; food choices; sustainable diet.