The influence of livestock-derived foods on the nutrition of mothers and infants in developing countries during the first 1,000 days

Delia Grace, Paula Dominguez-Salas and Silvia Alonso

Land O'Lakes/ILRI Animal Source Foods for Nutrition Impact workshop, Nairobi, 4 May 2017

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INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE

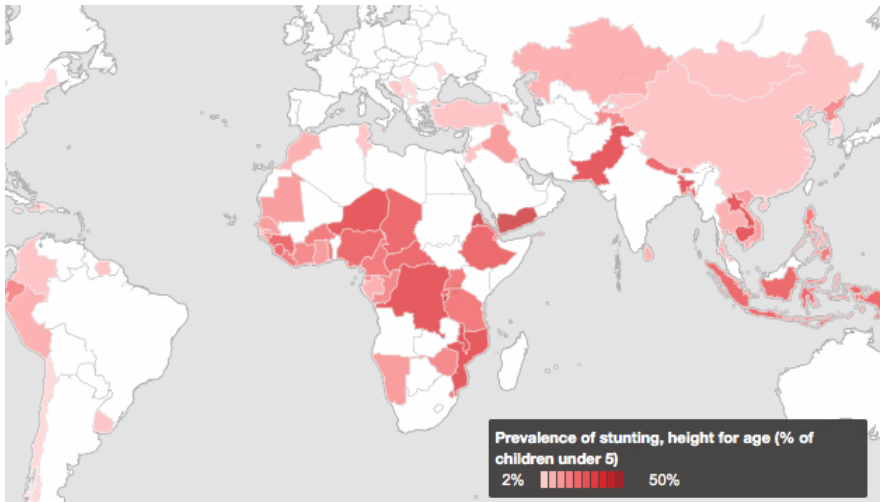
CGIAR RESEARCH PROGRAM ON Agriculture for Nutrition and Health

Why livestock products and the first 1,000 days?

- Stunting - a grave and persistent problem
- First 1,000 days key to growth & cognitive development

- Many attempts to address systemically
  - Nutrition specific
  - Nutrition sensitive

- Livestock-derived food (LDF)
  - High potential
  - High risk



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An upcoming report

Request from Chatham House (UK)

<u>Objective</u>:

*Synthesise best current evidence about the influence of livestock-derived foods (LDF) on the nutrition of mothers and infants (**first 1,000 days**) in **low and middle-income countries**, with a focus in Africa and Asia*

D Grace, P Dominguez, S Alonso, M Lannerstad, E Muunda, N Ngwili, M Khan, A Omar, E Otobo - ILRI, LSHTM, Chatham House

(To be released in July/August 2017)

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Content of the report

Six main chapters:

- Pathways
- Role of LDF in diets
- LDF interventions and nutrition outcomes
- livestock interventions and nutrition outcomes
- LDF and health impacts
- LDF and environmental impacts

Summary of available evidence (scientific literature), including one systematic literature review

Focus on 1,000 days but expanded due to limited literature

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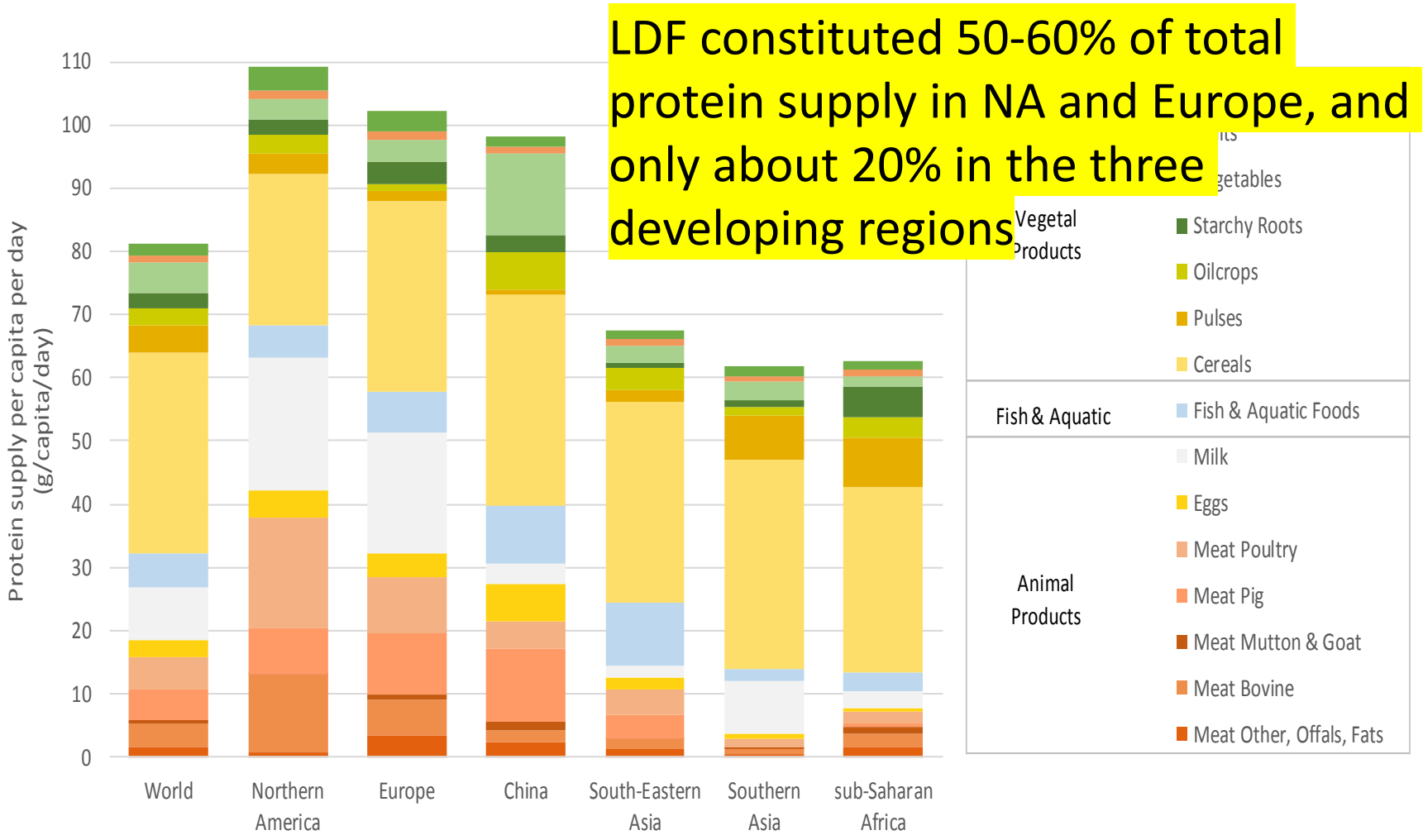
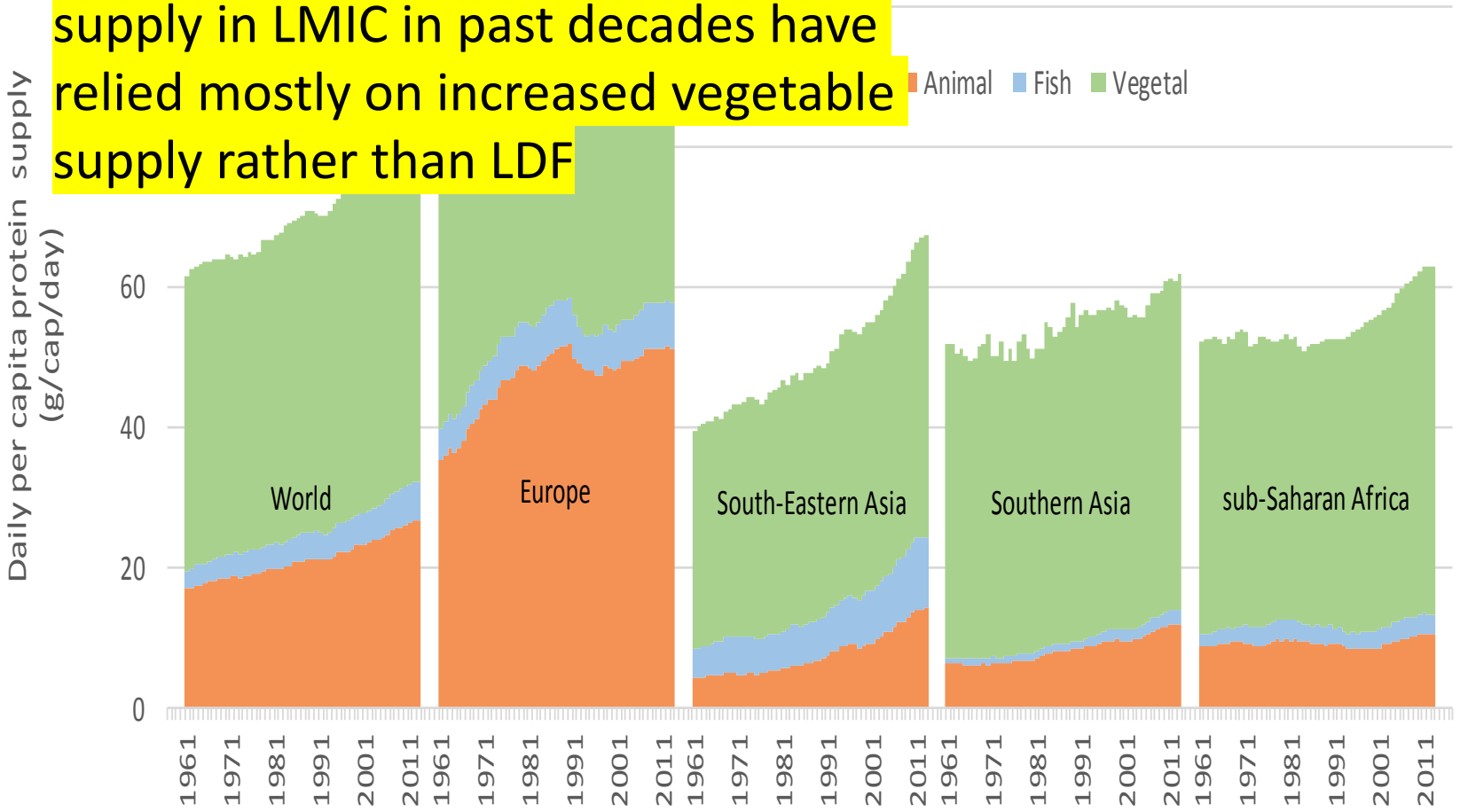
LDF and diets



Total protein supply per capita per (FAOSTAT)

Patterns

The increases in protein (and energy) supply in LMIC in past decades have relied mostly on increased vegetable supply rather than LDF



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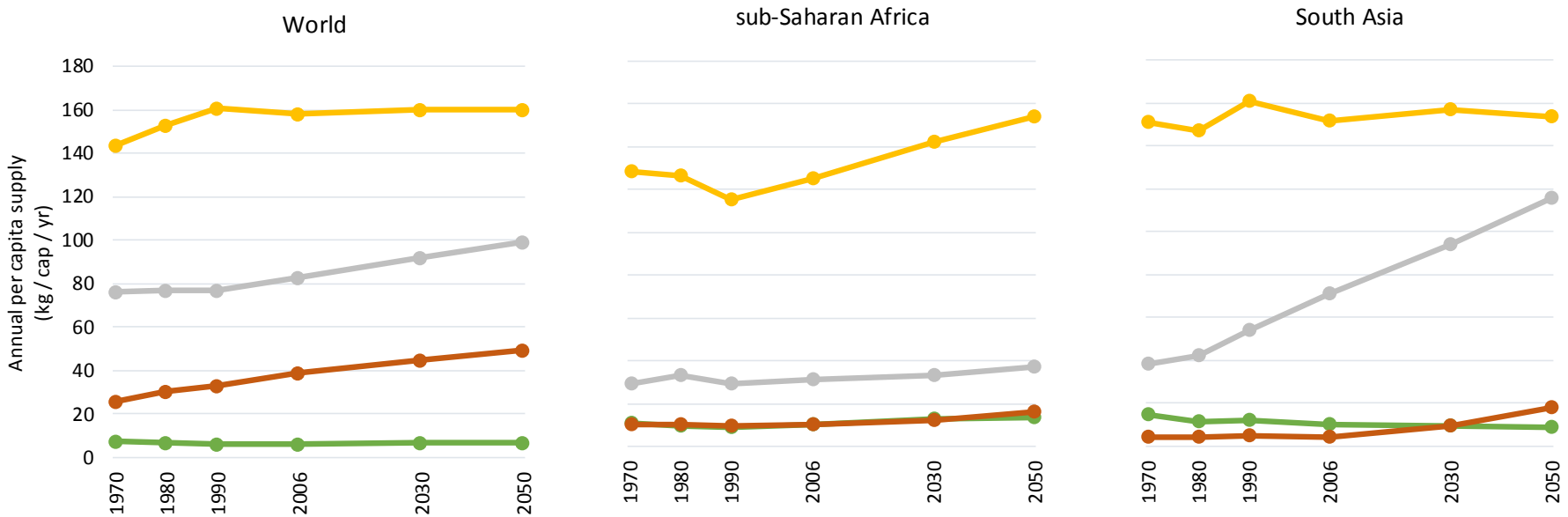
Predicted trends

Regional trends – greater role of LDF in LMIC (supply)

But not necessarily improved FOOD BASKETS

Under and overweight co-exist in LMIC



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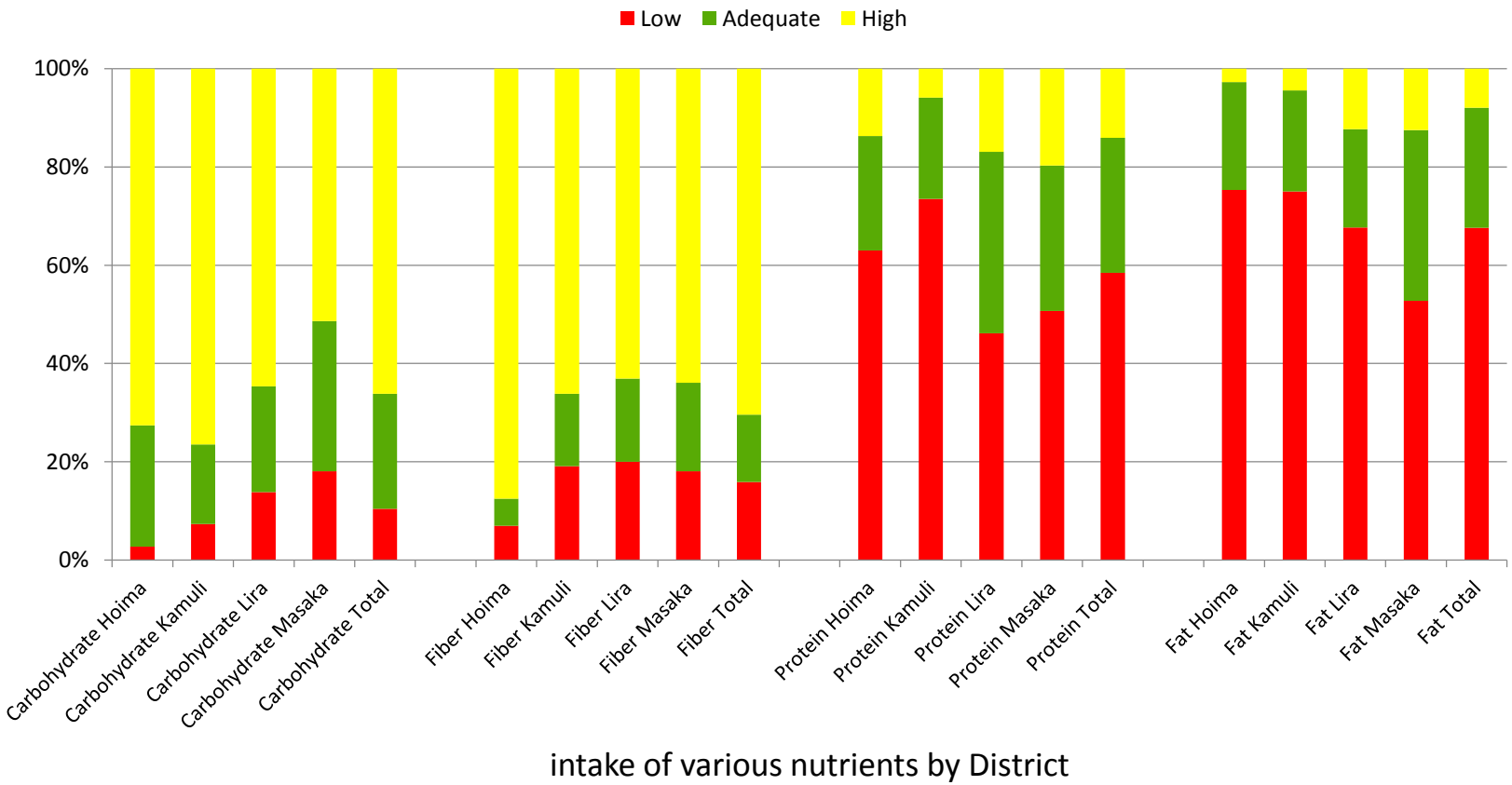
LDF in the first 1,000 days?

Limited availability of systematically collected data



intake of various nutrients by District

(Ouma et al, upcoming)

LDF in the first 1,000 days?

Limited availability of systematically collected data

DHS and localized surveys:

- **Mothers' education** positive predictor of dairy consumption by children <2 yr
- Higher **wealth** positively associated with amount of livestock products consumed
- Marked **regional differences**: milk in Southern Asia; eggs, meat or poultry in SE Asia
- LDF consumed before 6 months of age

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LDF and nutrition outcomes – current evidence base

Literature **scarce** (age, LMIC):

- 13 papers included out of 1,669) – only 3 covering 1,000 days (lactating women and infants)
- No studies in pregnant women, no poultry, …

Large **diversity** of studies: in their focus, approach, intervention, outcomes measured,….

Low quality – poor or sub-optimal study designs

LDF and nutrition outcomes

What we ***seem* to know**

- LDF (in general) has nutritional benefits in
- Children: Milk height; meat cognition

What we **don't know**:

- Context specific effect (LMIC) what amounts,
- What type of ASF
- Greater benefits for malnourished children?

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LDF and children - PRACTITIONERS

Considerations for practitioners:

- TYPE of LDF
- quantity to be given (small amounts *may* have little effect)
- length of time to observe effect (probably needs months/years)
- pre-existing diet may modify the effect
- safety and delivery considerations (meat/milk should be cooked well; source from smallholders)

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- **Livestock interventions and nutrition outcomes**
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Livestock interventions and nutrition

What we seem to know

- Agriculture interventions impact the pathways (LDF to nutrition), but not necessarily translate into nutrition outcomes
- **Livestock** interventions:
    - *DO* improve production, incomes, and expenditure,
    - *CAN* improve nutrient intake and diets, and
    - *MAY* improve nutritional outcomes in children and women
- More positive impact if interventions that target **broader types of "capital"** (beyond increased livestock productivity)
- Greater impact if coupled with **nutrition education** component and/or targeting **women**

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Livestock interventions and nutrition

What we don't know:

- 1,000 days (and beyond)
- Effect on nutrition outcomes (rarely targeted, and measured)
- Disaggregated effect of livestock interventions

What we need:

- **Nutrition-sensitive livestock interventions having explicit nutritional outcomes, with better experimental designs and robust monitoring and analytical methods to study impact**

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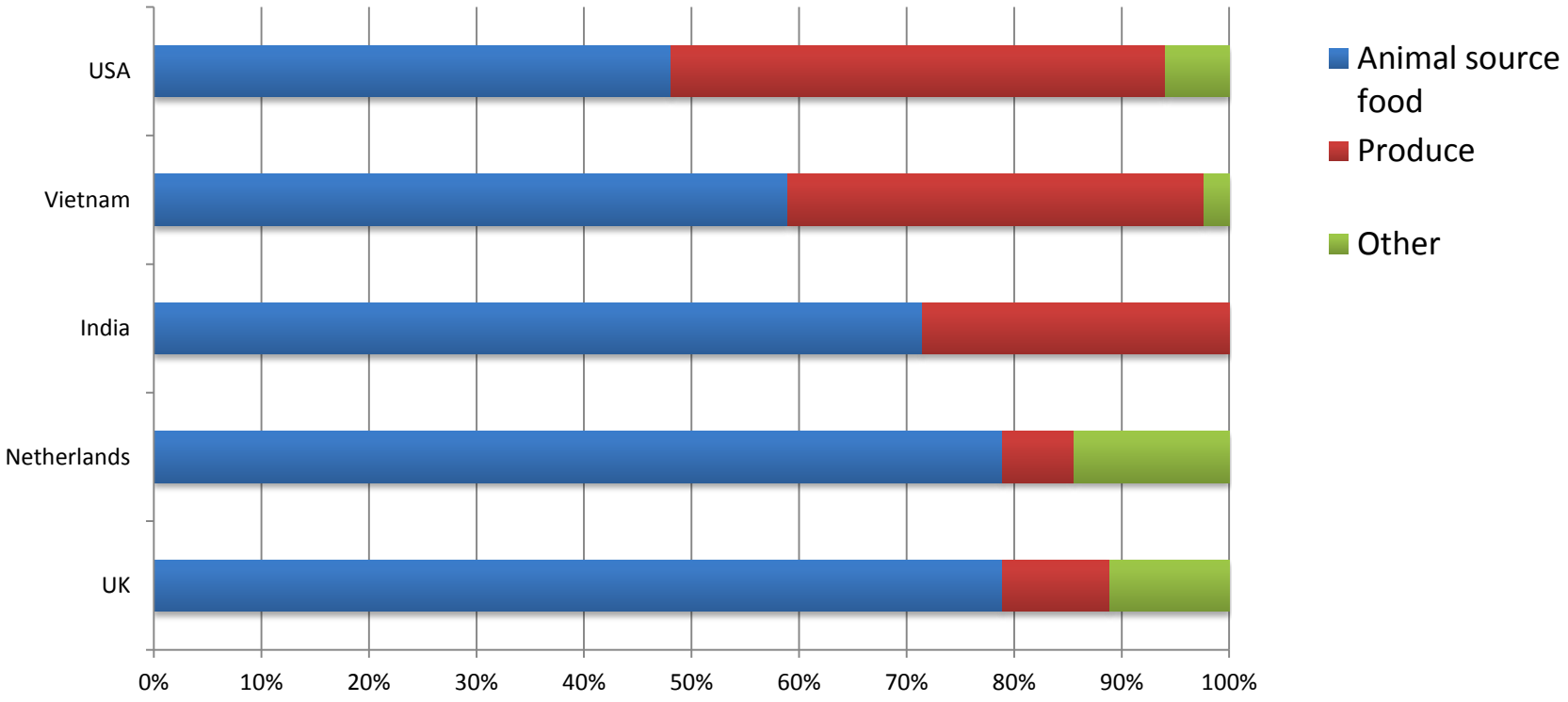
Pathways to negative health impacts

Different pathways to negative health impacts:

- Food-borne illness
- Toxins (mycotoxins)
- Antibiotics (residues, resistance)
- Food intolerance/allergens
- Overconsumption and NCD
- LDF production and emerging disease and pandemics (AI)

Foodborne illness



Proportion of foodborne disease cases attributed to consumption of different food types

Worldwide burden of food borne disease comparable to HIV/AIDS, malaria, TB

Children under five years bear a large amount of the FBD burden, and pregnant women have greater vulnerability to FBD.

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LDF, safety and nutrition in the first 1,000 days

- Diarrhoea a risk factor for stunting – perhaps 10-20%?
- Ingestion of faecal material on food or in the environment may contribute to environmental enteropathy leading to stunting
- Associations between aflatoxins and stunting
- Regulations aimed to improve food safety may decrease the availability and accessibility of foods for infants
- Food scares decrease consumption for all

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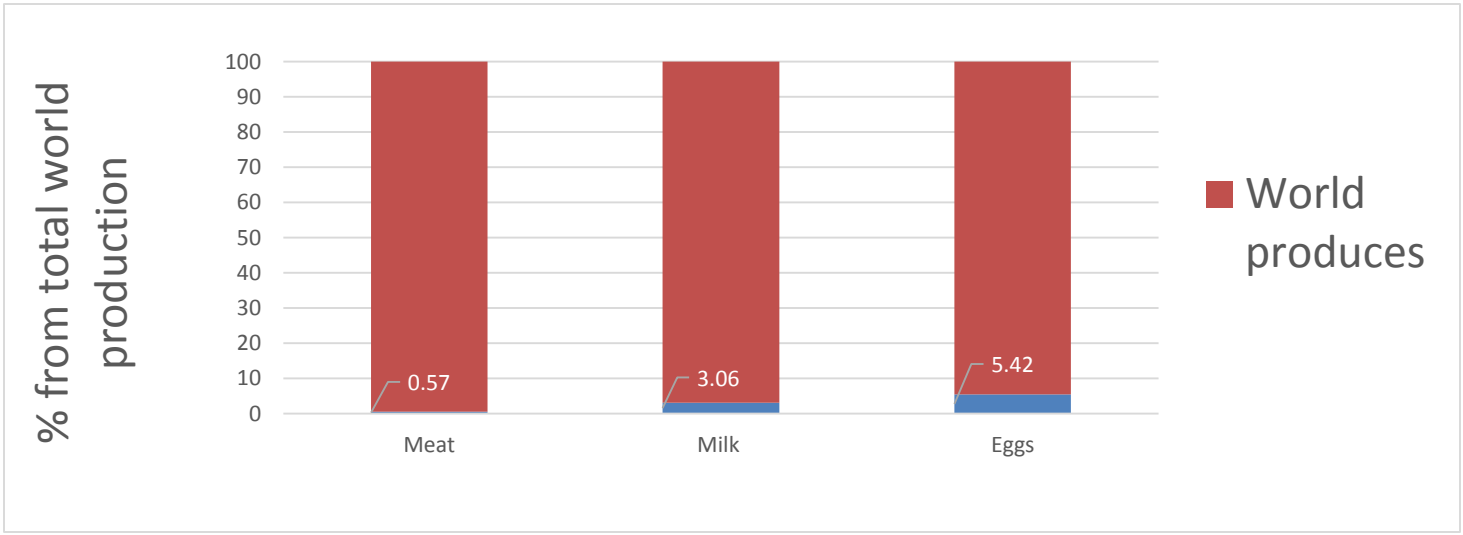
LDF diets and sustainability

- In general, LDF production has more adverse environmental effects than other food – there is high potential to limit this in LMIC
- Sustainability is a broad issue: environmental, social and economic aspects all must be considered and sometimes trade-off

LDF diets and sustainability



- Because first 1000 days require so little ASF, we can dramatically reduce the overall environmental impacts while **increasing ASF for first 1,000 days**
- Switch to healthier and more environmentally sustainable diets (Mediterranean) would decrease ASF consumption for those on a "standard American diet" while increasing consumption for those on the typical diet of rural and urban poor in LMIC

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Take-home messages

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