Improving nutritional outcomes in agriculture interventions

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Lunch time Conference External Cooperation Infopoint.

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International Cooperation and Development

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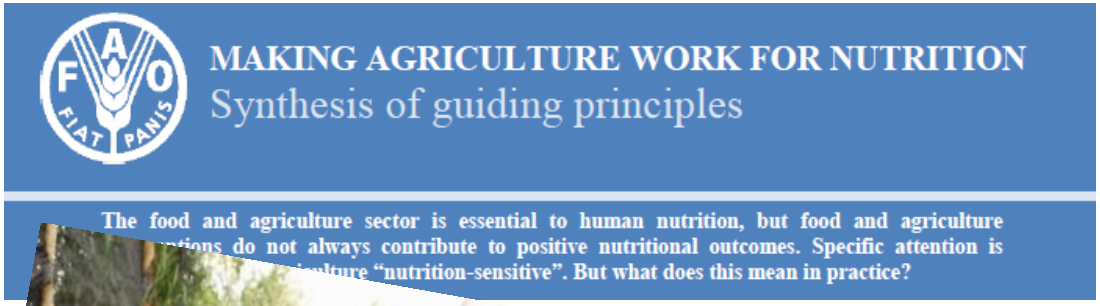
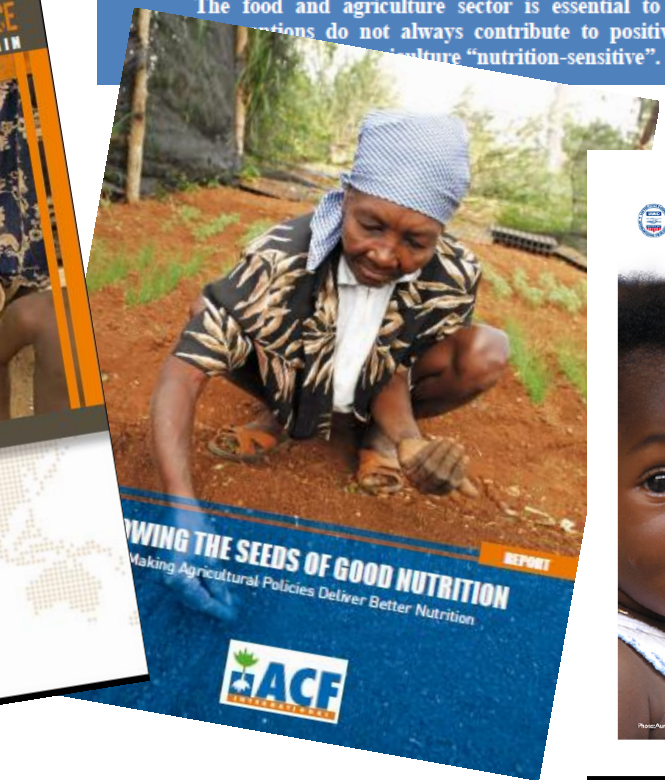
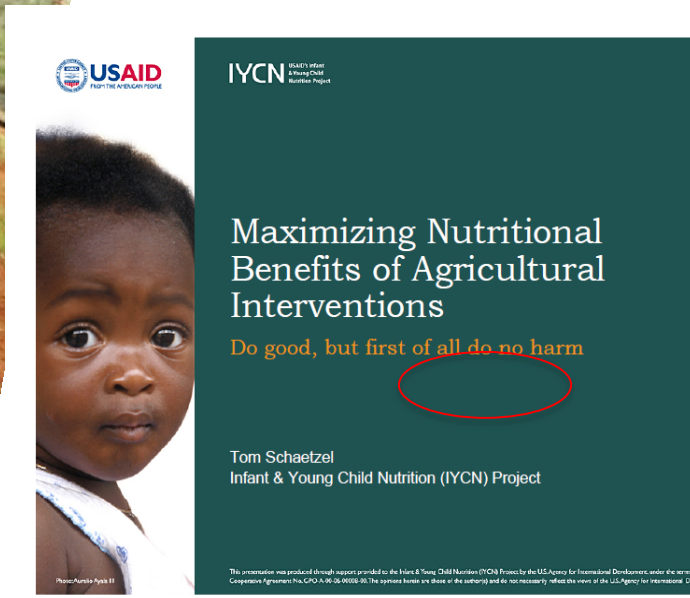
Context : to develop a Nutrition Sensitive Agriculture

To eradicate maternal and Child undernutrition. (Ruel et al, the Lancet 2013). Scaling Up Nutrition 2010, SUN initiative ; IFPRI, Agriculture for Nutrition and Health. Program FAO, …. …







How to promote nutrition-sensitive agricultural interventions ?

- Many complex linkages between agriculture and nutrition. (Fan S, Pandya-Lorch R, eds, 2012)
- No clear evidence: (*Masset et al*, 2012)
- Action Against Hunger - ACF idea 2013 : using the Hippocratic oath : the **do No Harm** principle → Cirad/ACF study. With. A. Alpha, A. Bichard.

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Objectives

- 1. To Identify the different risks led by agricultural policies or projects (Agricultural Development Interventions / ADI)

- 2. To draw recommendations for ADI' designers to assess *ex ante* impacts and to mitigate the possible drawbacks of their actions.

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Methodology:

- Starting from recent reports (Webb 2013; World Bank, 2013; ACF 2013), conference presentations (Headey 2013; Hoddinott 2012), books (Fan and Pandya-Lorch 2012), and scientific papers (Masset et al. 2012; Ruel I, 2013) on ag-nut linkages. **backward snowball methodology**
- Interviews with economists, nutritionists, researchers and developers (NGO, FAO, Government)

→ identification of 170 documents. Very few about **explicit** negative causality (except: Von Braun and Kennedy 1986; 1994). + when negative impact on a key variable of nutrition (food consumption, health, environment) is clearly addressed → **81 documents analysed**.

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Main results

- Conceptual diagram of impact pathways from ADI to nutrition
- 6 main risks identified income / availability / prices / women_status/ health/exclusion.
- Recommendations : few precautionary principles to avoid drawbacks.

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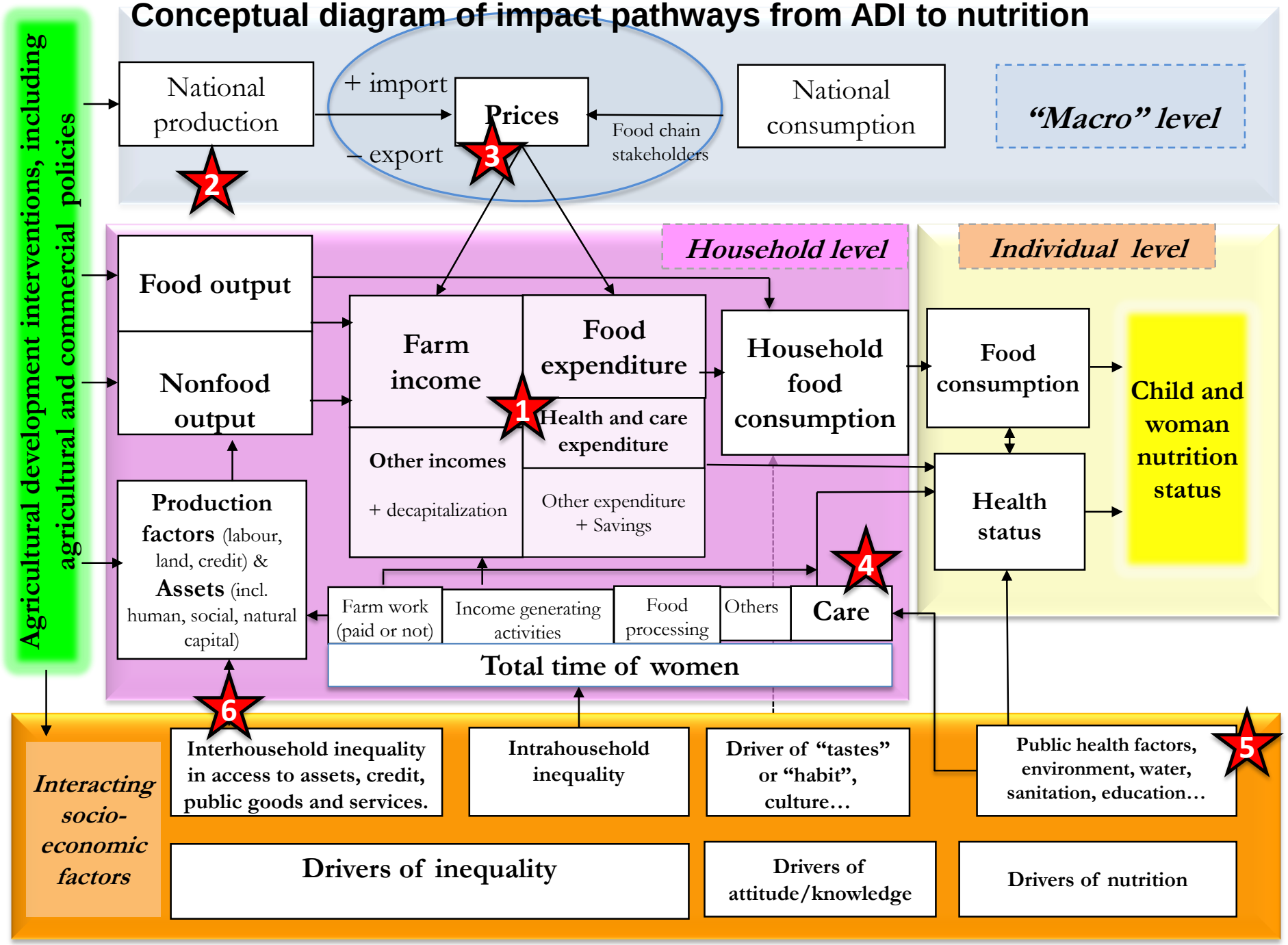


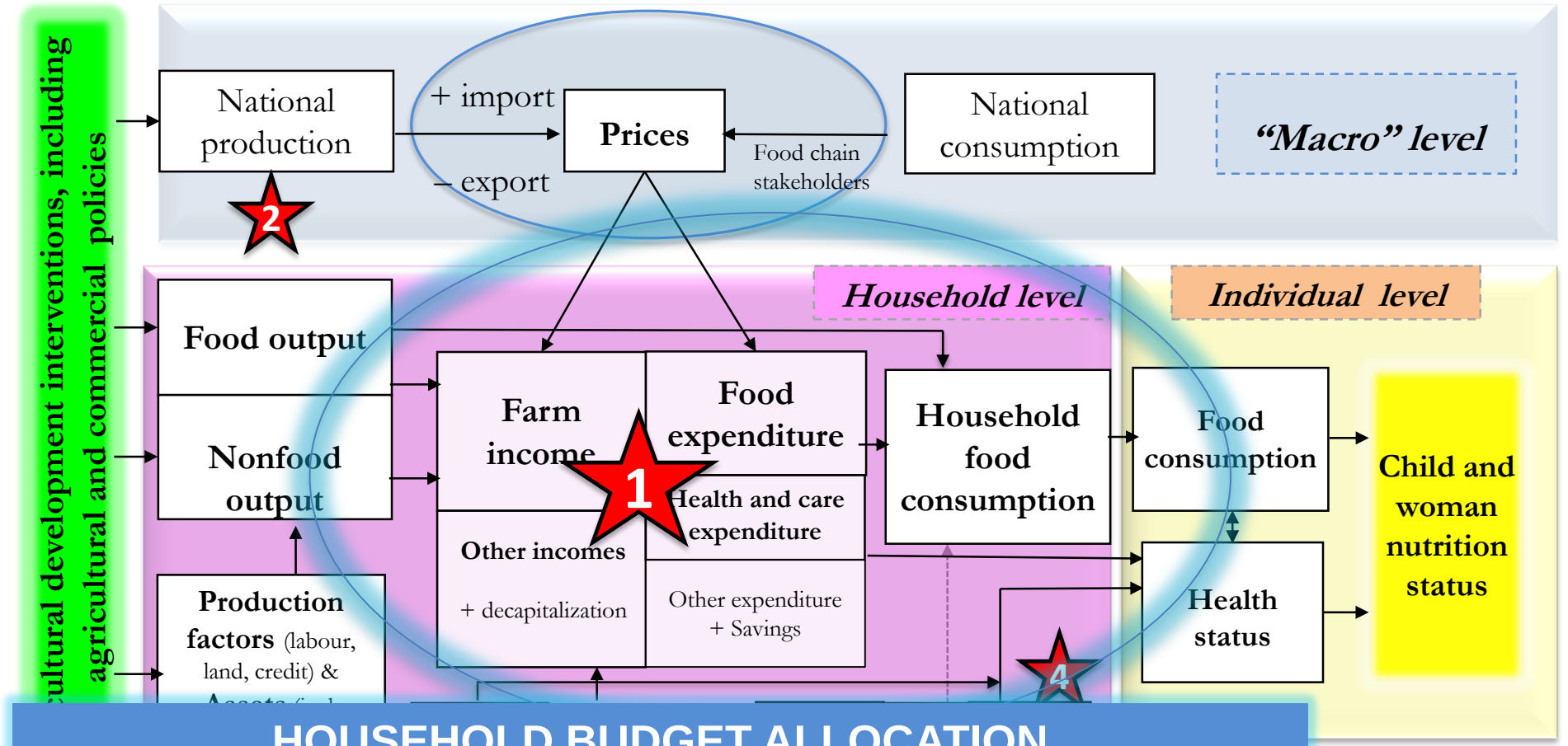
Source : Authors adapted from Headey *et al,* 2011

Risk nr 1: An average farm income rise might lead to a worsening of nutrition if associated with a:

- A change from food subsistence to cash crop system and no compensation of the nutritional quality by commercial system.

Ex : the sale **of milk,** India (Bhagowalia, Headey, and Kadiyala 2012), Rwanda (Pimkina et al. 2013), or Ethiopia (Hoddinott, Headey, and Dereje 2013).

- A rise of instability and seasonality. Specialization is a source of income risk (Kenya, Niemeijer and Hoorweg 1994).
- A change in income control and in uses (risk 4)



HOUSEHOLD BUDGET ALLOCATION
WHO DECIDES ? TO BUY WHAT ?
FOOD ? WHAT KIND OF PRODUCTS ? HEALTH SERVICES ?

→ Assess ex ante the uses of extra incomes.

→ Better chance to be used for Food Nutrition Security if * controlled by women, * diverse food items are available and affordable on the local markets

m Headey *et al*, 2011

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Risk nr 2 : mismatch in food availabilities and diversity : macro and “meso” levels.

1) India enigma : Green revolution : no famine any longer, increase in staple production but very small reduction in prevalence of undernutrition (Deaton & Drèze, 2010)

- Hidden hunger: iron density in food fell & prevalence of anaemia (iron deficit) of women rose from 57% to 73% from 1970 to 1990 (Welch and Graham, 1999).
- Legume availability fell from 23 kg in 1961 to 12 kg/year/inhabitant in 2003. (Dorin and Landy, 2009).

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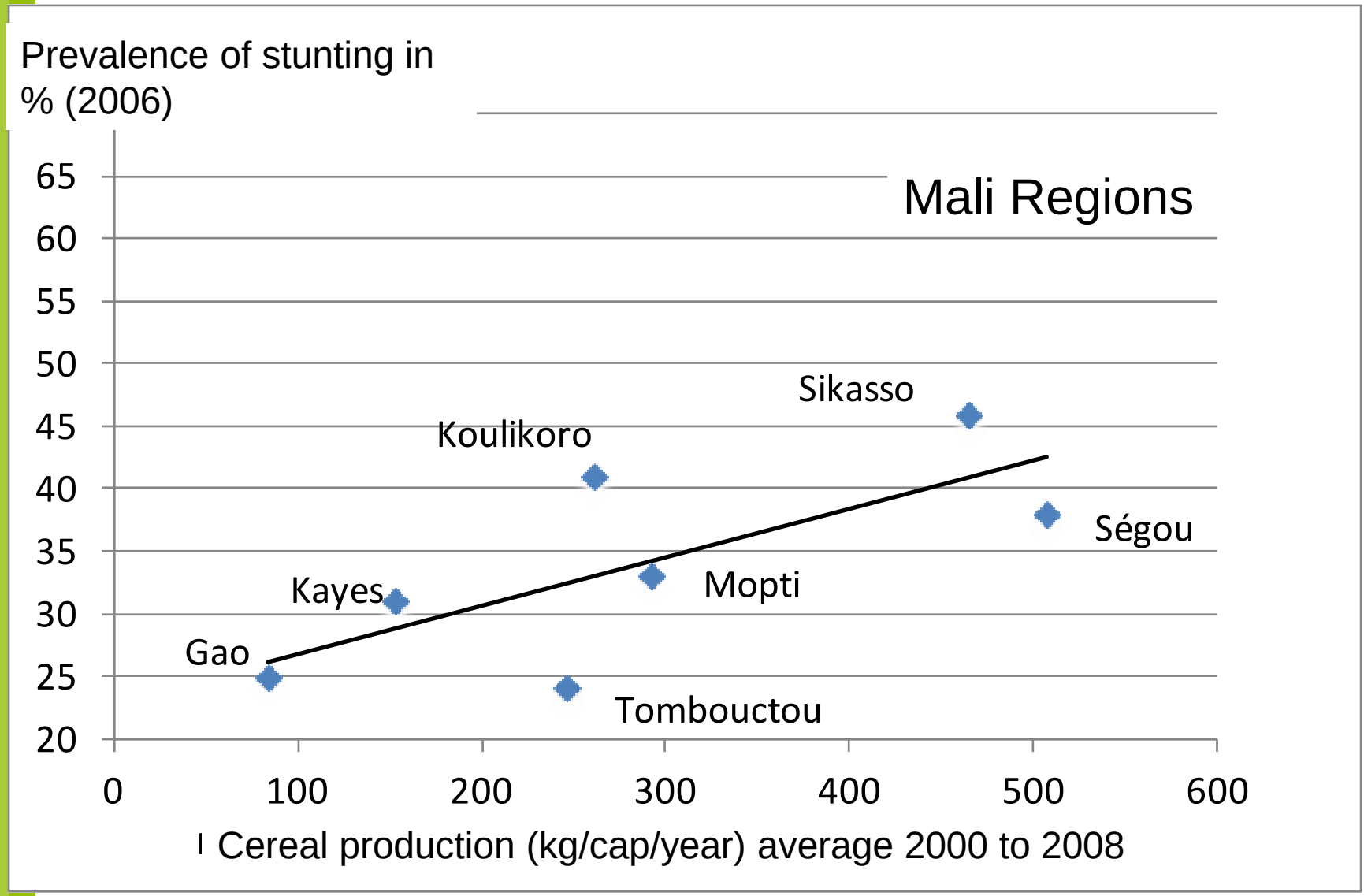
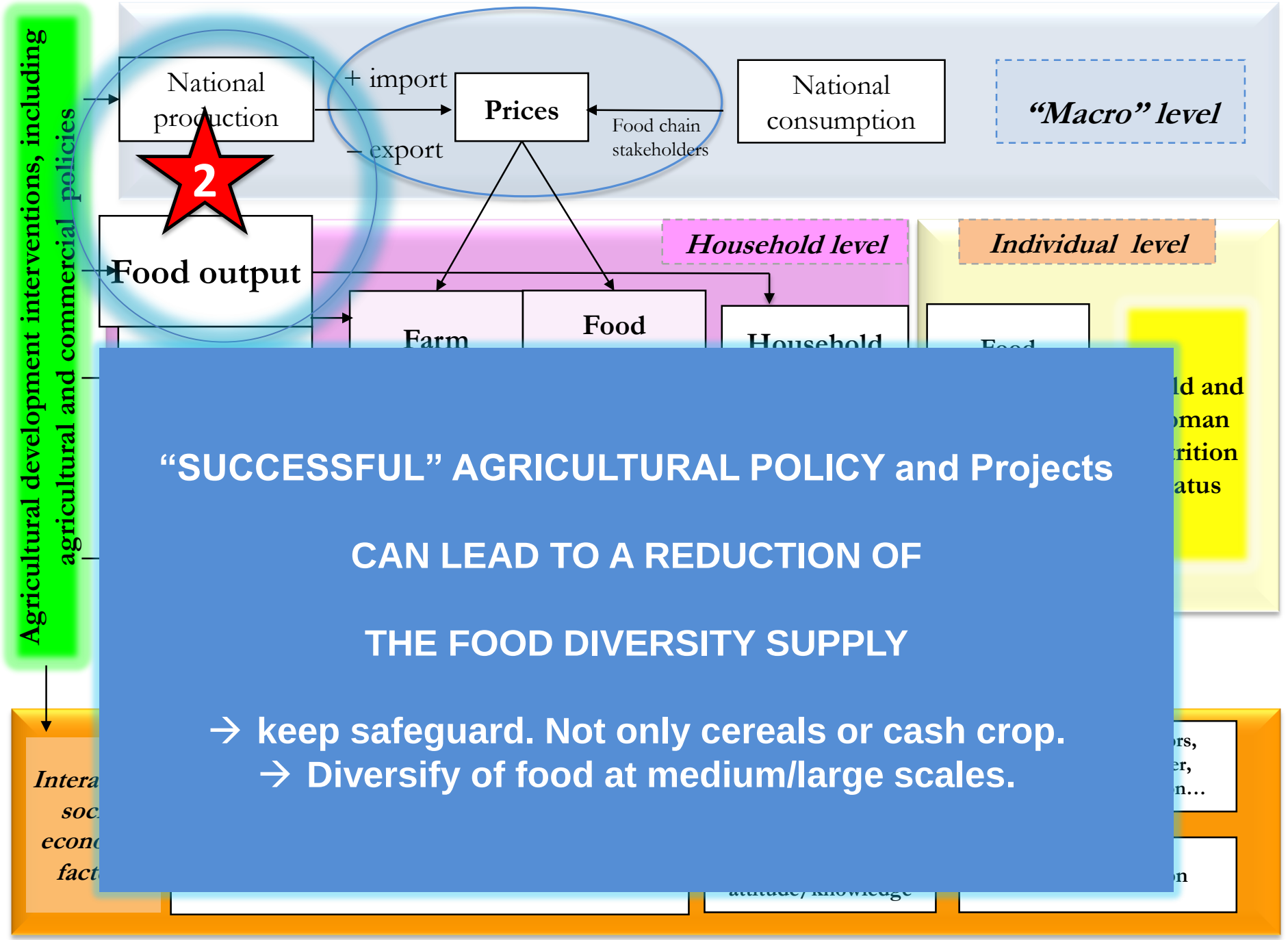
2) The Sikasso Paradox



Source : Dury, Bocoum, 2012. Le paradoxe de Sikasso (Mali).



Source : Authors adapted from Headey *et al,* 2011

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Risk nr 4: Deteriorating Women' status

- **Loss of power to decide**: Introduction of new cash crops + extension services

  Ex rice Senegambia; (Carney and Watts, 1991)

- **Increased workload for women**
  - Health risk for mothers
  - Decrease of care for women and children

  Ex: **Burkina Faso**. Large hydro-agricultural schemes vegetable production. Wasting ++ <=> female labor ++ (Parent *et al*. 2002).

  Mali : Motorization → increase in the area farmed, → increase in "female" labor : sowing, weeding, … and harvesting (Girard and Dugué 2009). Another explanation of the Sikasso Paradox according to experts.

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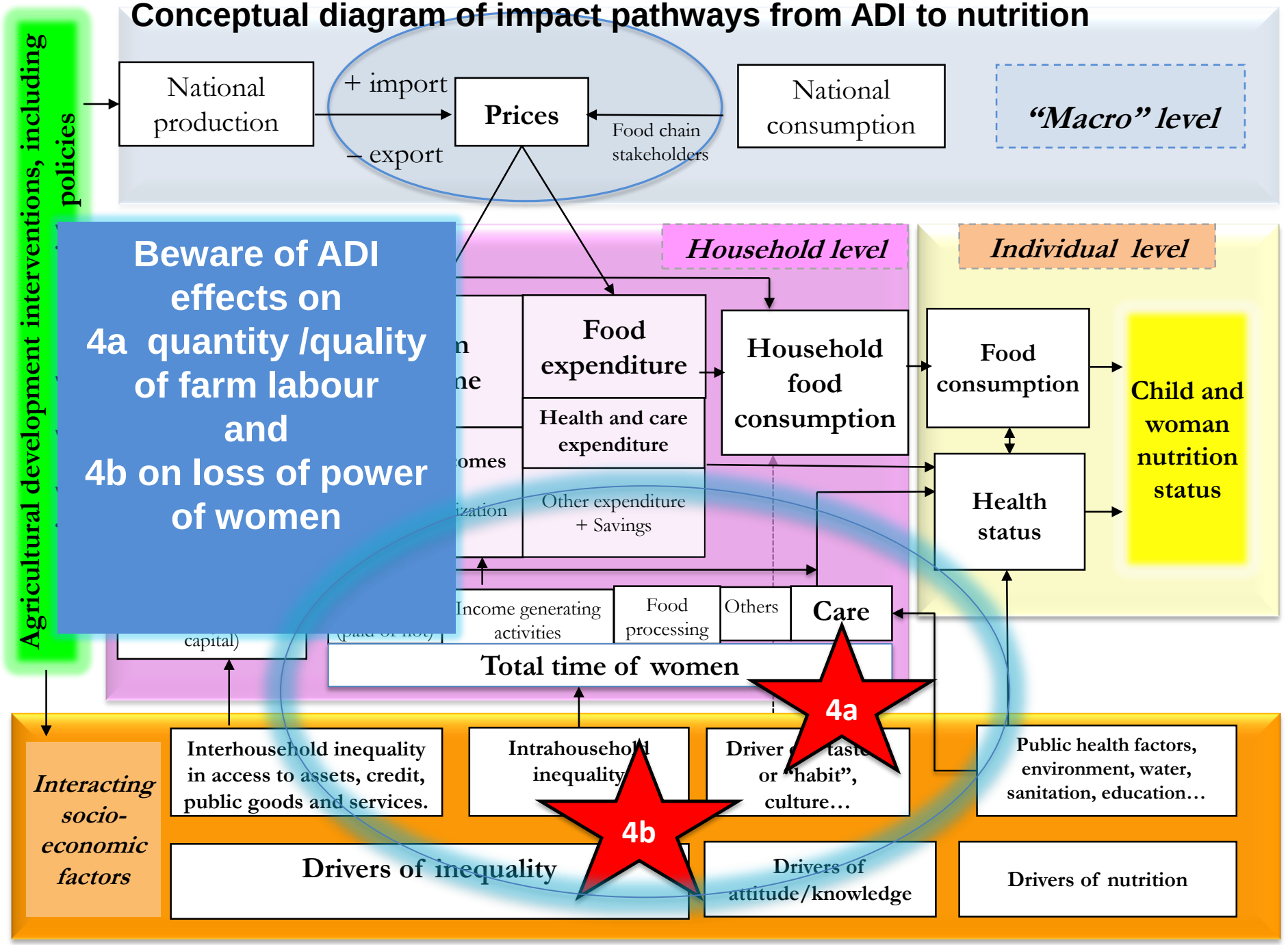

Source : Authors adapted from Headey *et al,* 2011

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Risk nr 5: Health and environmental degradation

- **Risks of zoonosis associated with livestock farming**. (Randolph et al. 2007).
- **Risks linked to aflatoxin in maize-groundnut systems.** 85-100% of children in the Guinea Golf (Khlangwiset, Shepard, and Wu 2011).
- **Risks associated with exposure to pesticides**
- **Risks associated with irrigation** → Rift Valley Fever / Diarrheal diseases
- **Market gardening and diarrhoeal diseases in urban areas**

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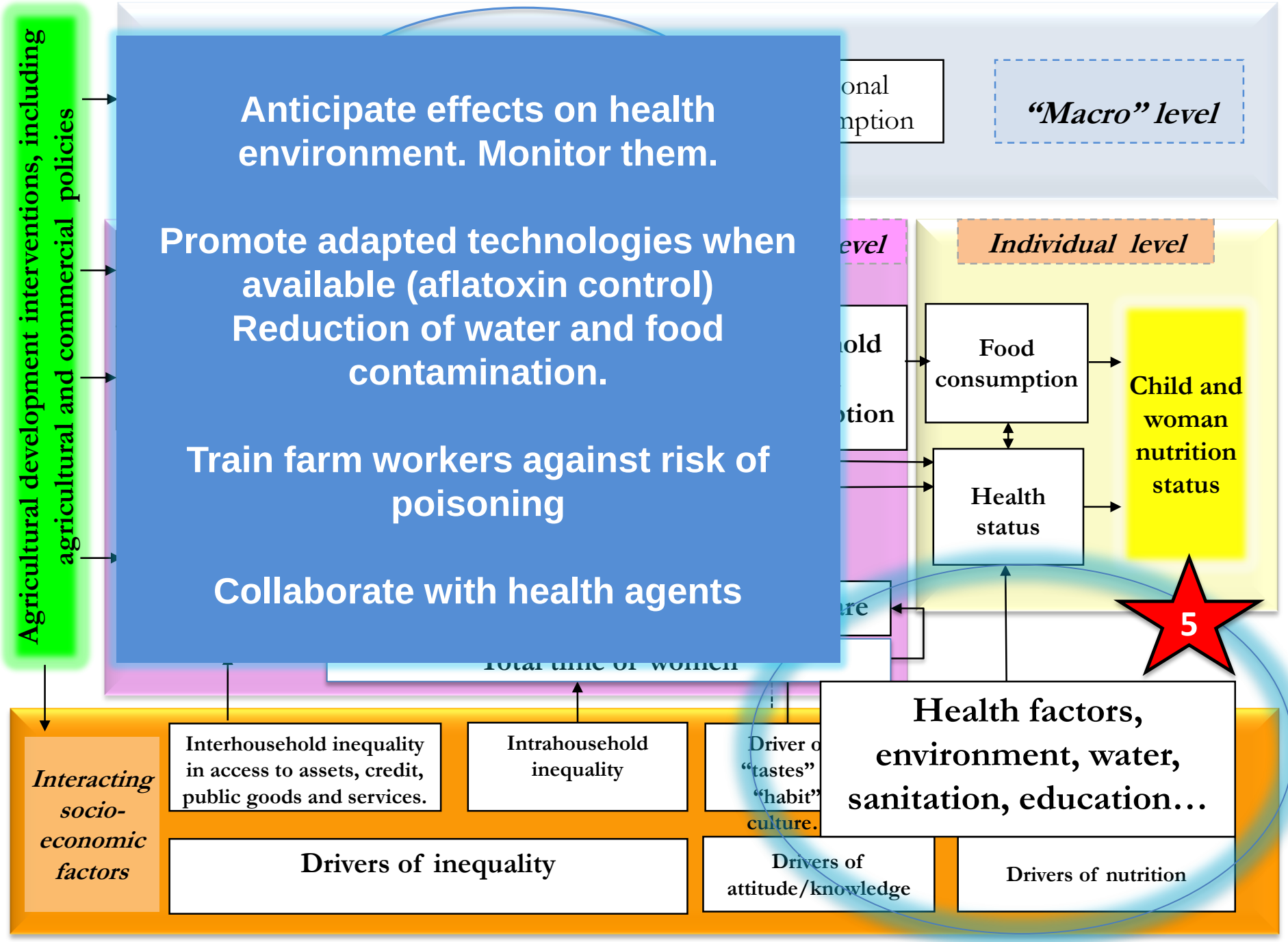

Source : Authors adapted from Headey *et al,* 2011

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Risk nr 6: worsening inequalities

Partial or total exclusions, created or amplified by ADIs. producers not directly targeted by an intervention who lose access to resources (land, forest, water, work, or sale opportunities, etc.)

- **Land acess inequalities :** Malawi (Millard, Ferguson, and Khaila 1990). Lang Grabbing,(Ansoms 2013).
- **Inequalities linked to salaried work in farms**
  - South Africa : commercial farms <=> higher prevalence of chronic malnutrition in children (Labadarios 2000).
  - United States (Nichols, Stein, and Wold 2014) and Turkey (Simseka and Korukb 2011), worst nutritional status of the children of seasonal agricultural workers compared to the rest of the population
  - Chili (Bain, 2010). F&V sector. Labor management→ rise of vulnerability ++.

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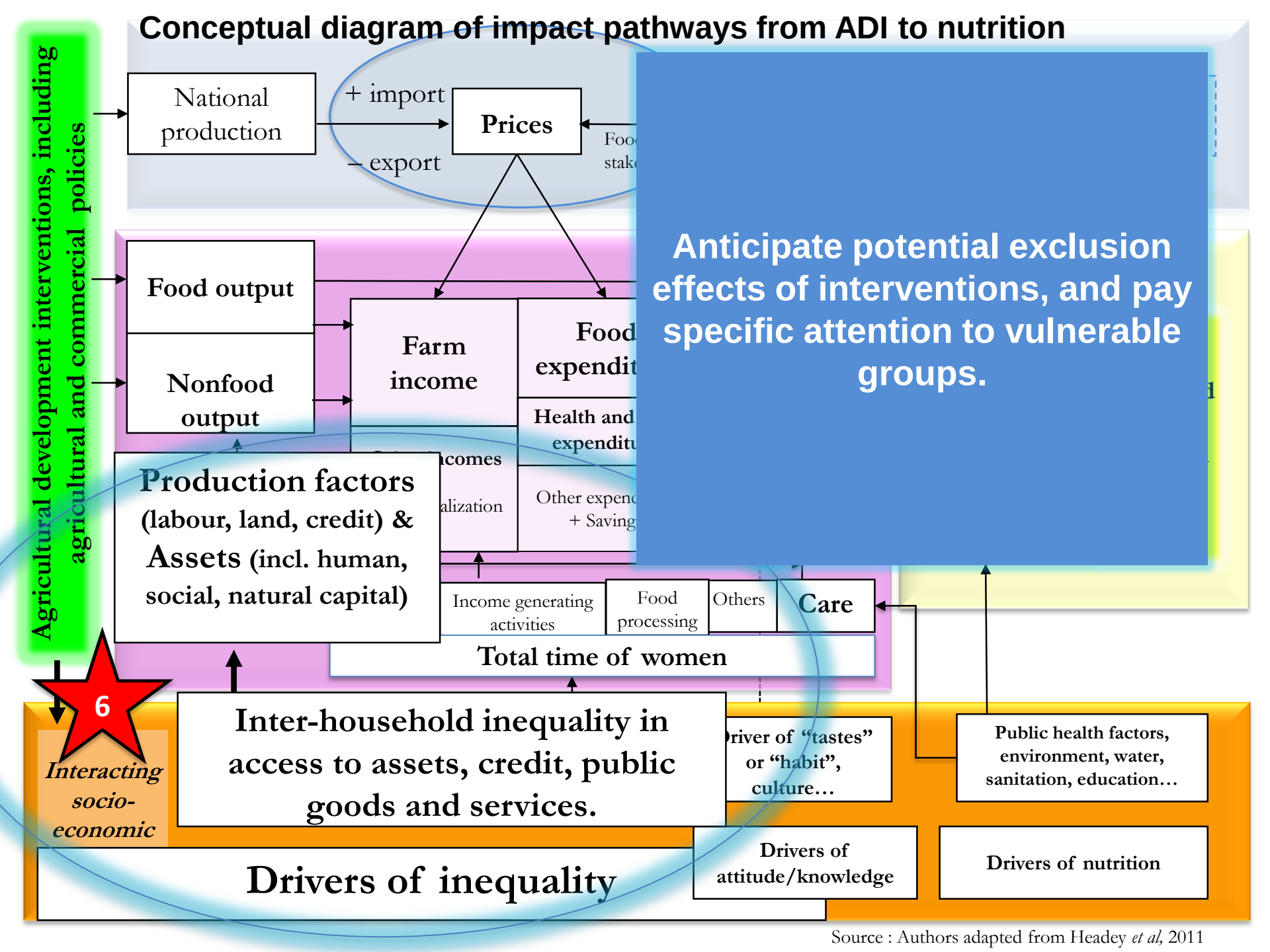
Conceptual diagram of impact pathways from ADI to nutrition



Source : Authors adapted from Headey *et al,* 2011

Precautionary guidelines for intervention

Identify and keep track of nutritional risks at the ADI design stage and throughout the life span of the intervention,

- Promote diversification to prevent risks linked to specialization of farming systems and incomes,
- Promote food diversity to prevent risks linked to food diet simplification,
- Encourage practices with low labor requirements,
- Encourage practices enabling women to preserve and strengthen their autonomy (power of decision over time and income allocation),
- Set in place good practices known to enable a reduction in health risks,
- Anticipate potential exclusion effects of interventions, and pay specific attention to vulnerable groups.

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Research perspectives

- Ongoing **measurement** with appropriate methodology of the impact of each factor at different level/link of the diagram (*Journal of Development Studies*, *special issue* 8, 2015). Lourme Ruiz, Burkina Faso. On going doctoral work.
- But.. only at the level of the farm households. Very little is known about linkages between ADI and food and nutrition security of **urban dwellers** → need for conceptual models. Inclusion of exchanges, long marketing chain, retroactions. The existing diagram needs adaptation.
- The pathways between ADI and undernutrition are under the process of clarification. What about the connection between large ADI and **over-nutrition** ? Same questions? what about transition places where **under and over-nutrition** co-exist?
- Interactions between **agricultural policies and food policies → i**mpact on food and nutrition.

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Thank you !

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To read:

Dury S, Alpha A, Bichard A, 2014. Identifier et limiter les risques des interventions agricoles sur la nutrition, ACF. *Moisa Working paper .* 2014-1. Montpellier: 20 p. *http://www1.montpellier.inra.fr/bartoli/moisa/bartoli/download/moisa2014_pdf/WP_1_2014.pdf*

English version : What risks do agricultural interventions entail for nutrition? , *Working Paper Moisa* n° 2014-3. Mai. Montpellier: 14 p http://www1.montpellier.inra.fr/bartoli/moisa/bartoli/download/moisa2014_pdf/WP_3_2014.pdf

Pascal P, ACF. 2014. "Avant tout, ne pas nuire" Identifier les risques des interventions agricoles sur la nutrition afin de les éviter ou les réduire *Les notes de la C2A Coordination Sud*. N° 20 : 4 p.

http://www.coordinationsud.org/wp-content/uploads/20.-Note-C2A-20-FR.pdf

Pascal P, ACF. 2014. "First, do no harm": Identifying the risks of agricultural interventions to avoid or reduce them. *C2A Notes Coordination Sud,* 20: 4 p.

http://www.coordinationsud.org/wp-content/uploads/20.-Note-C2A-n-20-ANG.pdf

Dury S, Alpha A, Bichard A, 2015. The negative side of the Agricultural–Nutrition impact pathways: a literature review. *World Food Policy. 2 (1): forthcoming.*

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To watch:

In French : https://vimeo.com/120670833

In English : https://vimeo.com/140055016