

# Risk Management for PAH in Smoked Fish

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# The Situation

- Traditional fish smoking results in high PAH in smoked fish, thus exposing consumers to PAH health risks



**The Chorkor Smoker**

## PAH levels in smoked fish on informal markets in Ghana

PAH	Range (µg/kg)	EU ML (µg/kg)
Benzo(a)pyrene	12 - 110	2
PAH4	270 - 800	12

# Risk Mitigation?

- Options to reduce the level of PAH in the product **post-processing** are not sustainable and cannot be applied to all smoked products



**Whole smoked  
dry herring**



**Scaled smoked  
herring**

	Whole	Scaled
BaP ( $\mu\text{g}/\text{kg}$ )	60	8
PAH4 ( $\mu\text{g}/\text{kg}$ )	395	78

# A Viable Option

- **Prevention** of high occurrence of PAH is the viable option for addressing the concern
- Since PAH occurrence in smoked products is invariably linked to **kiln design** and **type of fuel** used, **improved smoking kilns** are required to address the problem
  - FTT-Thiaroye demonstrated to satisfy these requirements



# Brief on Risk Assessment Approach

- Margin of Exposure (MOE) approach
  - Recommended by JECFA
- $MOE = \frac{\text{Dose producing cancer in animals}}{\text{Human Exposure}}$
- $\text{Human Exposure} = \frac{\text{PAH Conc.} \times \text{Qty of Fish Eaten}}{\text{Body Weight}}$
- If MOE is **less than 10,000** there is a concern for potential adverse effects on consumer health

**Table 2: Margin of Exposure for PAH in smoked-dry herring**

<b>Product Source</b>	<b>BaP MOE</b>	<b>PAH4 MOE</b>
Market	3500	300
Chorkor	4200	600
Metal drum	6100	1700
FTT	1,300,000	170,000

# Risk Management

- National **working** policy on reduction of PAH in smoked products
- Promotion of use of improved kilns based on scientific evidence
- Public education on PAH health risks (risk communication) to aid acceptance of improved kilns and their products
  - Use of culture-sensitive language important
  - Messages used should not unnecessarily kill the business of hardworking processors and traders, majority of them women
- Use of a participatory approach
  - Government to take the lead
  - Involvement of (artisanal) fish processors
  - Support of civil society organisations

Thank You