

# The Contribution of Agriculture to Nutrition: Thought Experiments and Experimental Thoughts

Patrick Webb

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**Feed the Future Innovation Lab**

For Collaborative Research on Global Nutrition



**USAID**  
FROM THE AMERICAN PEOPLE

“Chronic malnutrition rates have not declined significantly over the years despite increased income from high value crops.

New approach to resolution of problem is required.”



USAID/Update (Guatemala Portfolio Review 2013)



## So what do we do that is evidence-based?

- Scaling up evidence-based *targeted interventions*:  
“30 million fewer children under the age five would be **stunted**... representing **a 20% reduction.**”

Horton (2010)

- 10 known targeted nutrition interventions “could reduce **stunting by 20%.**”

Bhutta et al. (2013) Lancet Series



- Doubling per capita income is associated with reduced stunting of **14.8%**.

World Bank (2012)

- “A doubling of per capita income ***from agriculture*** is associated with a **21 percent** reduction in stunting.”

Webb and Block (2012)

*Proceedings of the National  
Academy of Sciences*



- “Up to **43% of observed growth faltering** [stunting] can be explained on the basis of ... **long-term intestinal lesions.**”

Lunn et al. (1991) *Lancet*

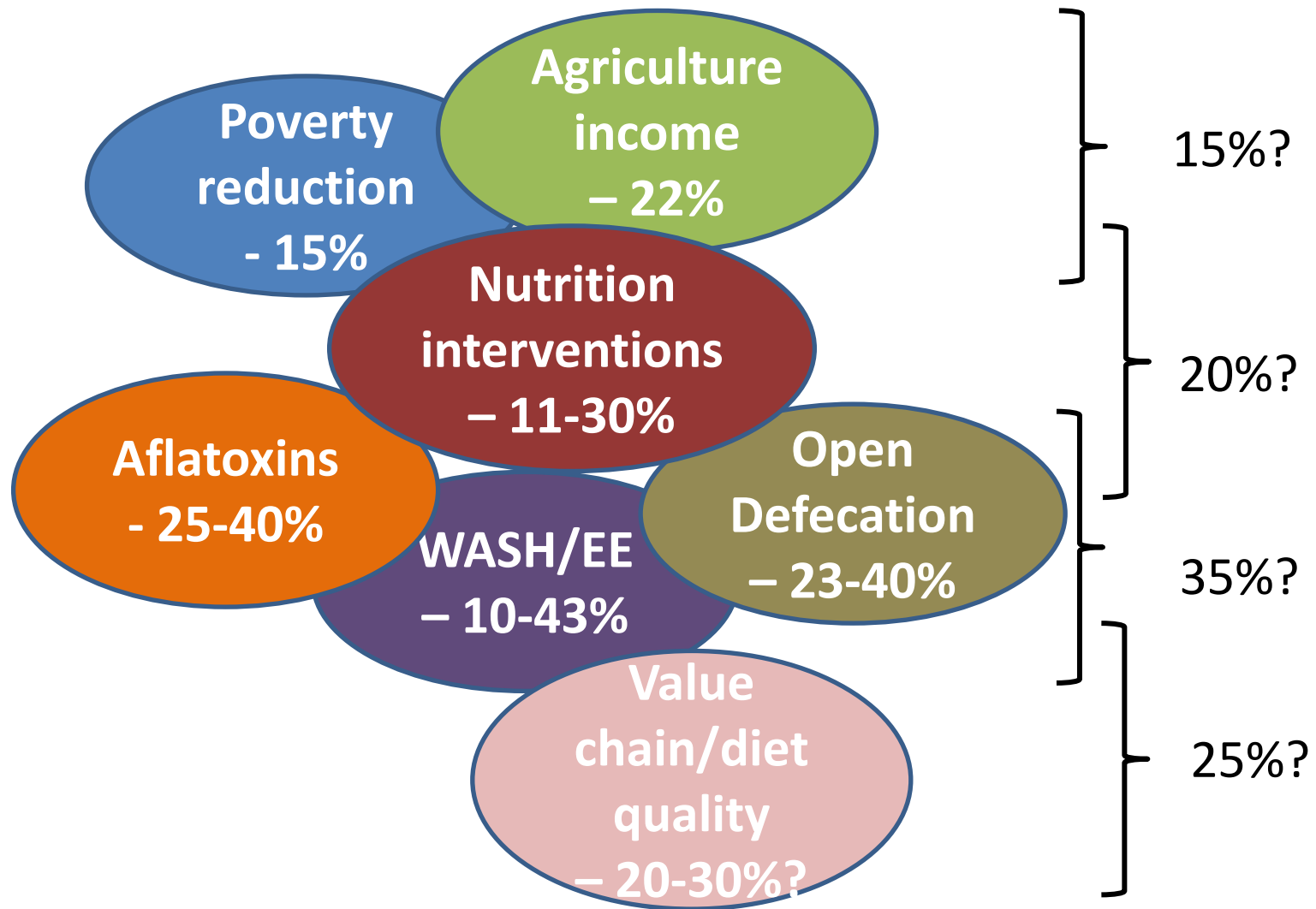
- **37% of stunting** explained by **aflatoxin levels.**

Gong et al. 2002. *Brit. Med. Jou.*

- “Best linear approximation to the true average causal effect of **village-level sanitation [on children's height]** is likely to be a large fraction of 0.45 (**45%**).

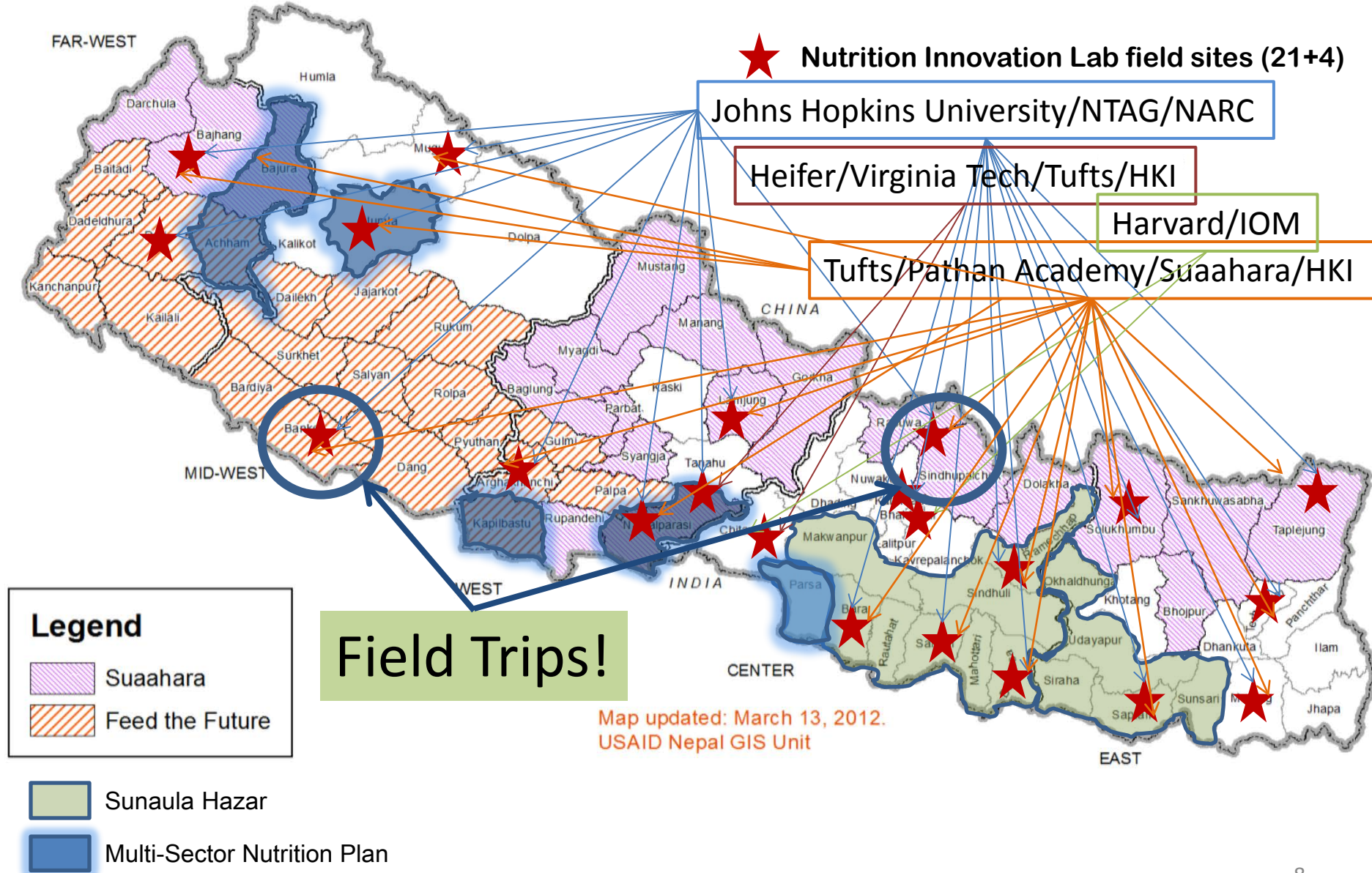
Spears (2013)





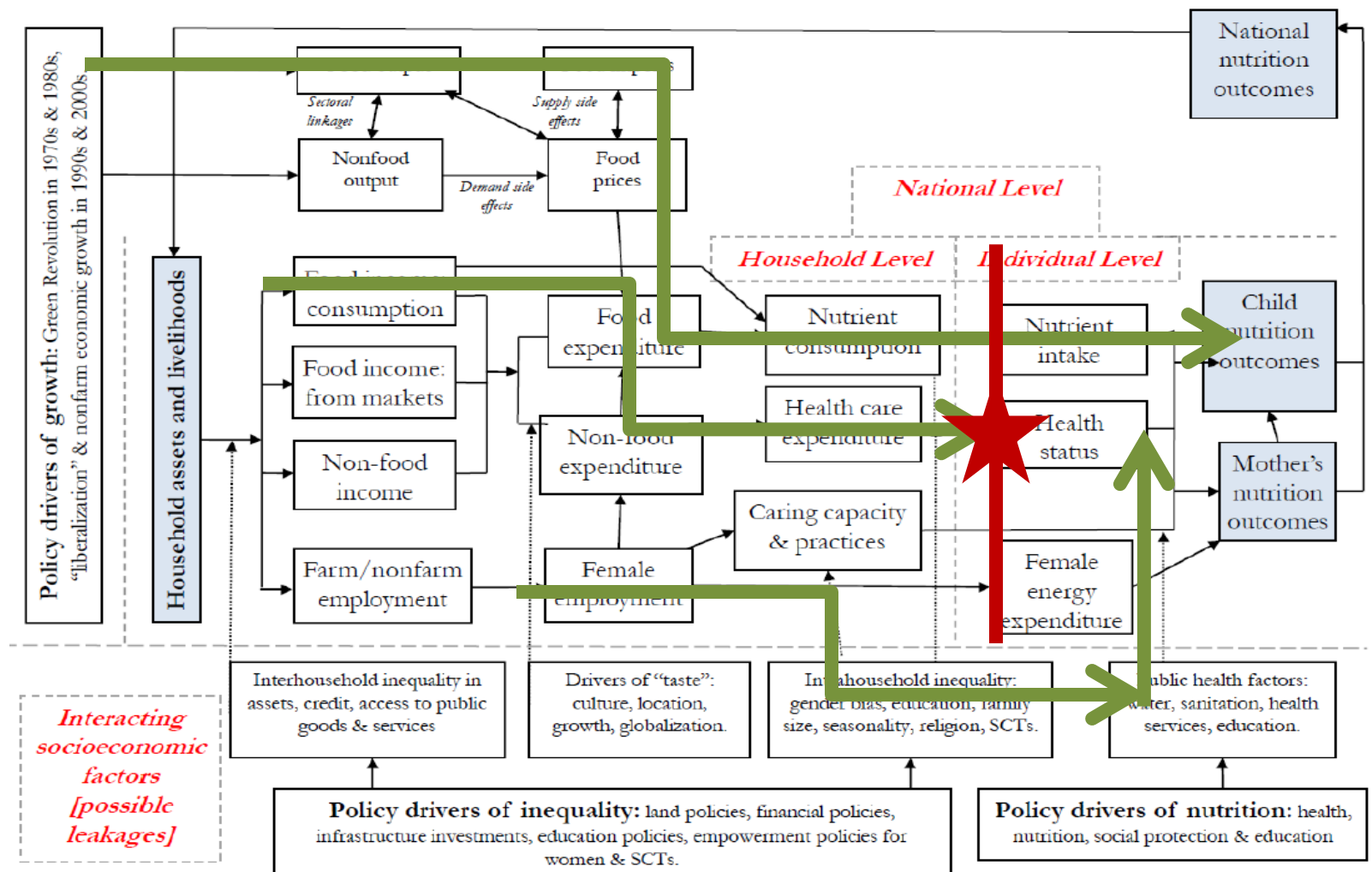
But...

- a) Optimal packages for nutrition impact unknown
- b) Translation from trials to scale poorly documented
- c) Cost-effectiveness of packages unmeasured



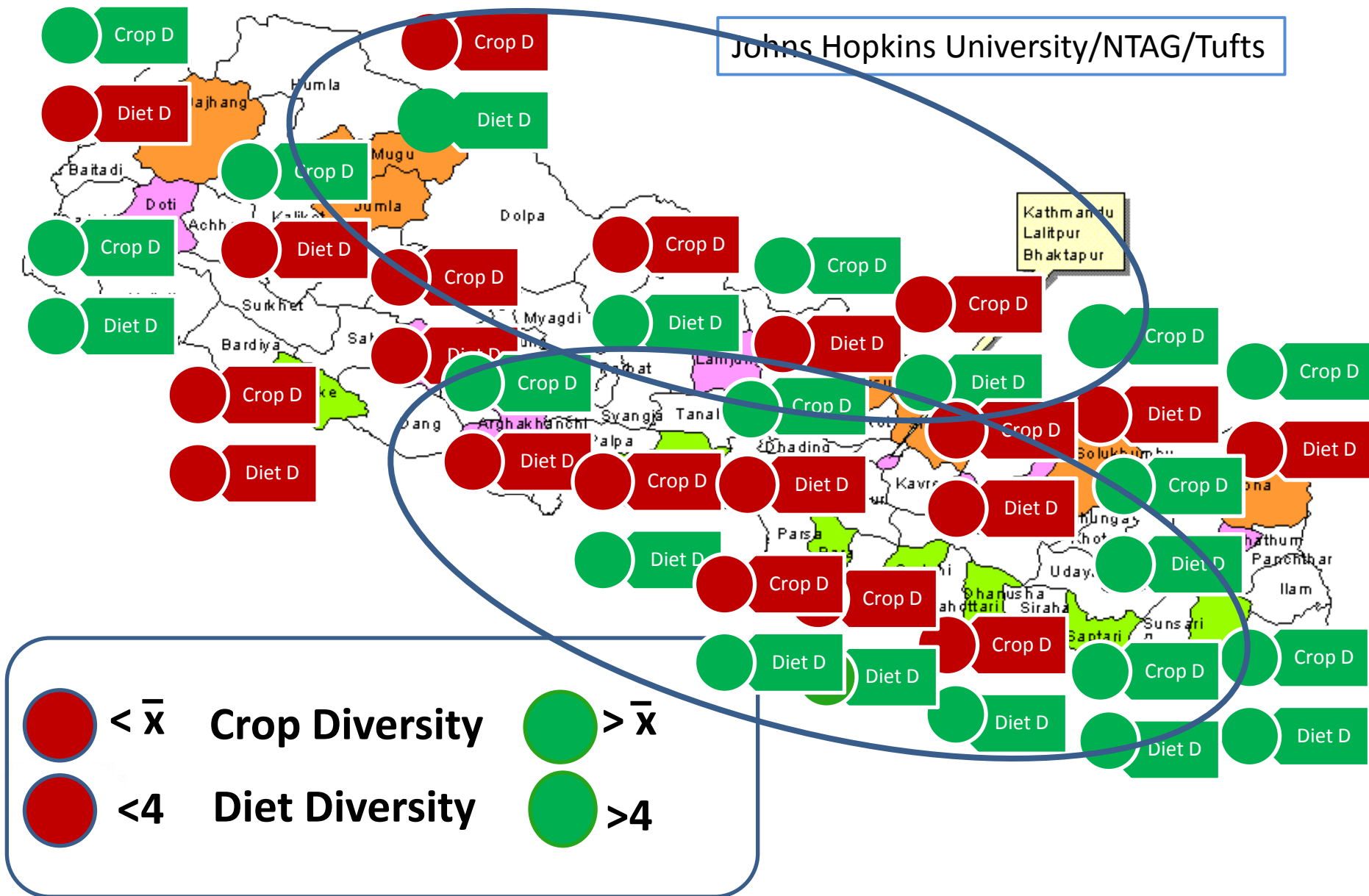
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# Agriculture-Nutrition Pathways

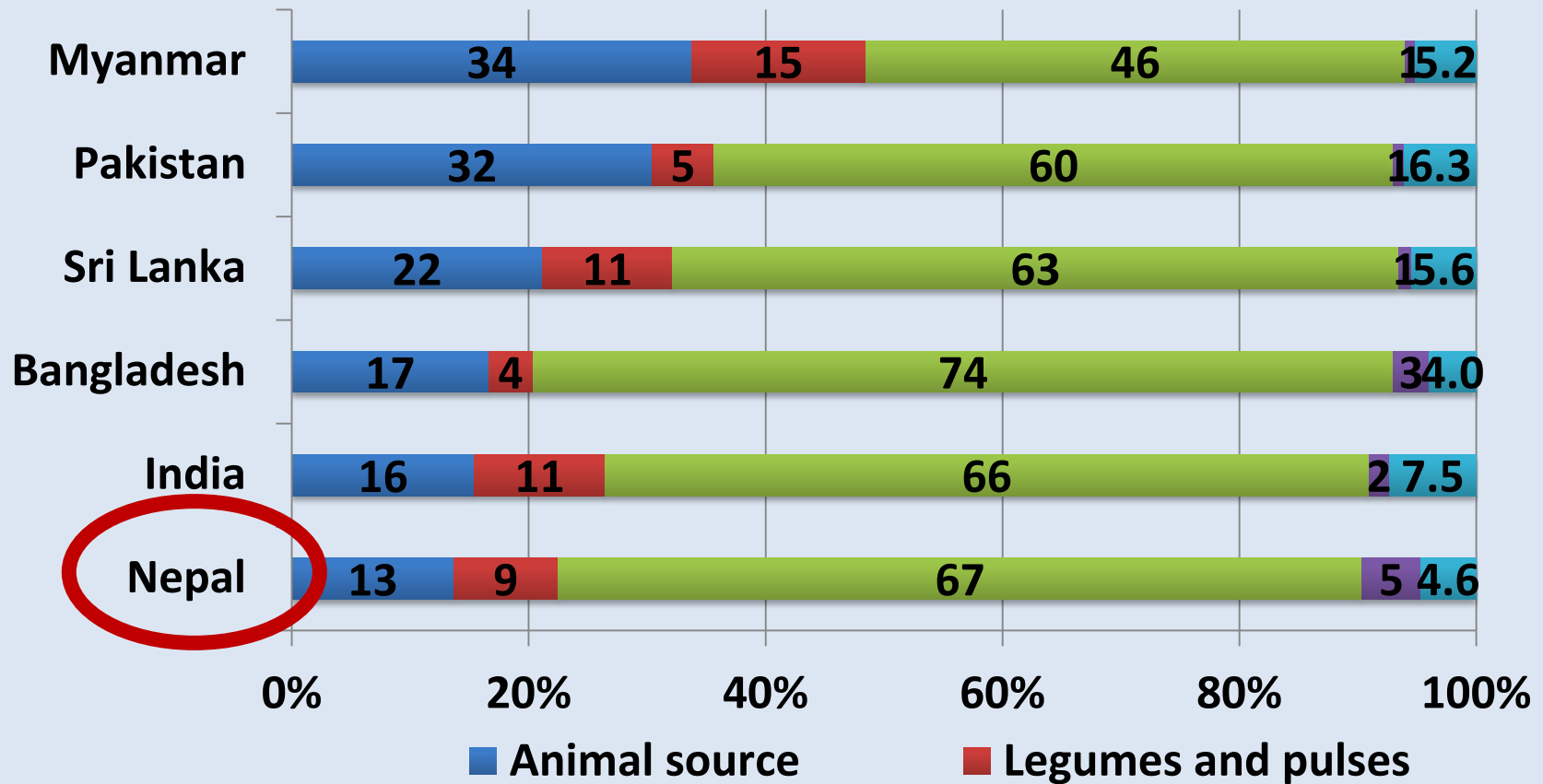


## Crop yields in Nepal and child nutrition (stunting), by district

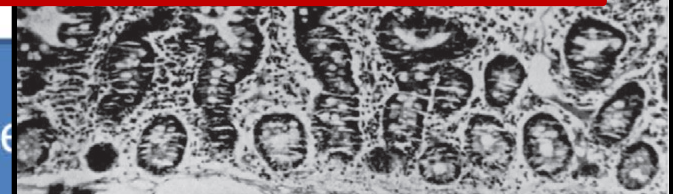
		Child nutritional status	
Crop Yields		Below average	Above average
	Below average	34	21
	Above average	5	15



### Percentage contribution to total protein



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## Policy & program mechanisms

- From Efficacy to Effect: What's Happening in Between?
- What bundle of agr/WASH/SBCC/value chain activity has real (measurable) impacts on nutrition?
- What combinations work most cost-effectively per unit of nutrition gained?
- Can we empirically measure quality of implementation and governance for nutrition impacts?

## Conclusions

- Nutrition labs offer unique research platform on which to build

**“Cost-efficacy of food and agriculture-based nutrition enhancing interventions has *not* been rigorously evaluated.”**

Pinstrup-Andersen (Nov 2014)  
ICN+22 prep meeting



## Many collaborators (Asia and Africa):



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