



Decision Support for FMD Risk Management: Economywide Assessment Tools

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Presented to the Regional workshop

Harmonize the approach to determine socio-economic impacts of FMD

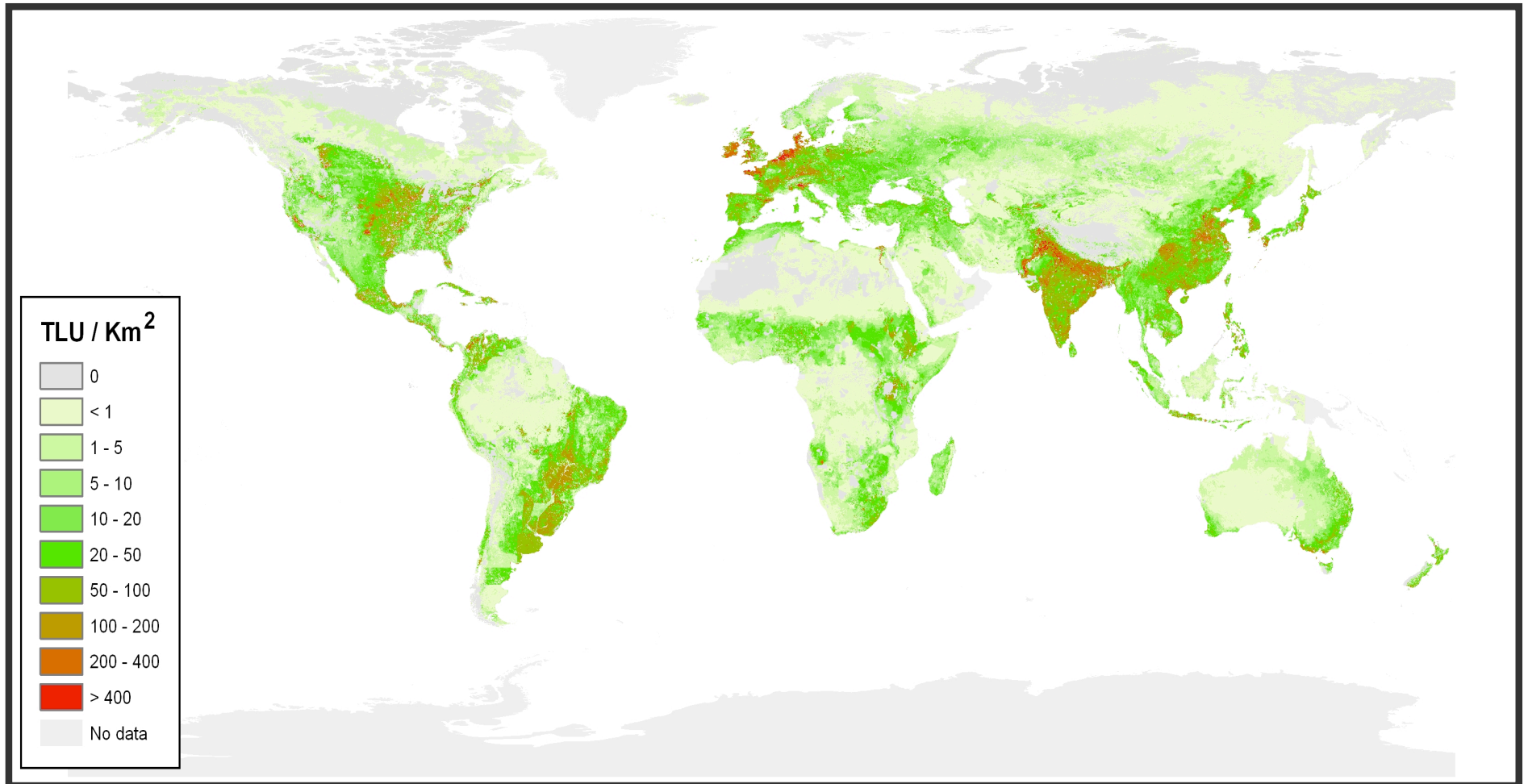
4 – 6 September 2012

Bangkok, Thailand

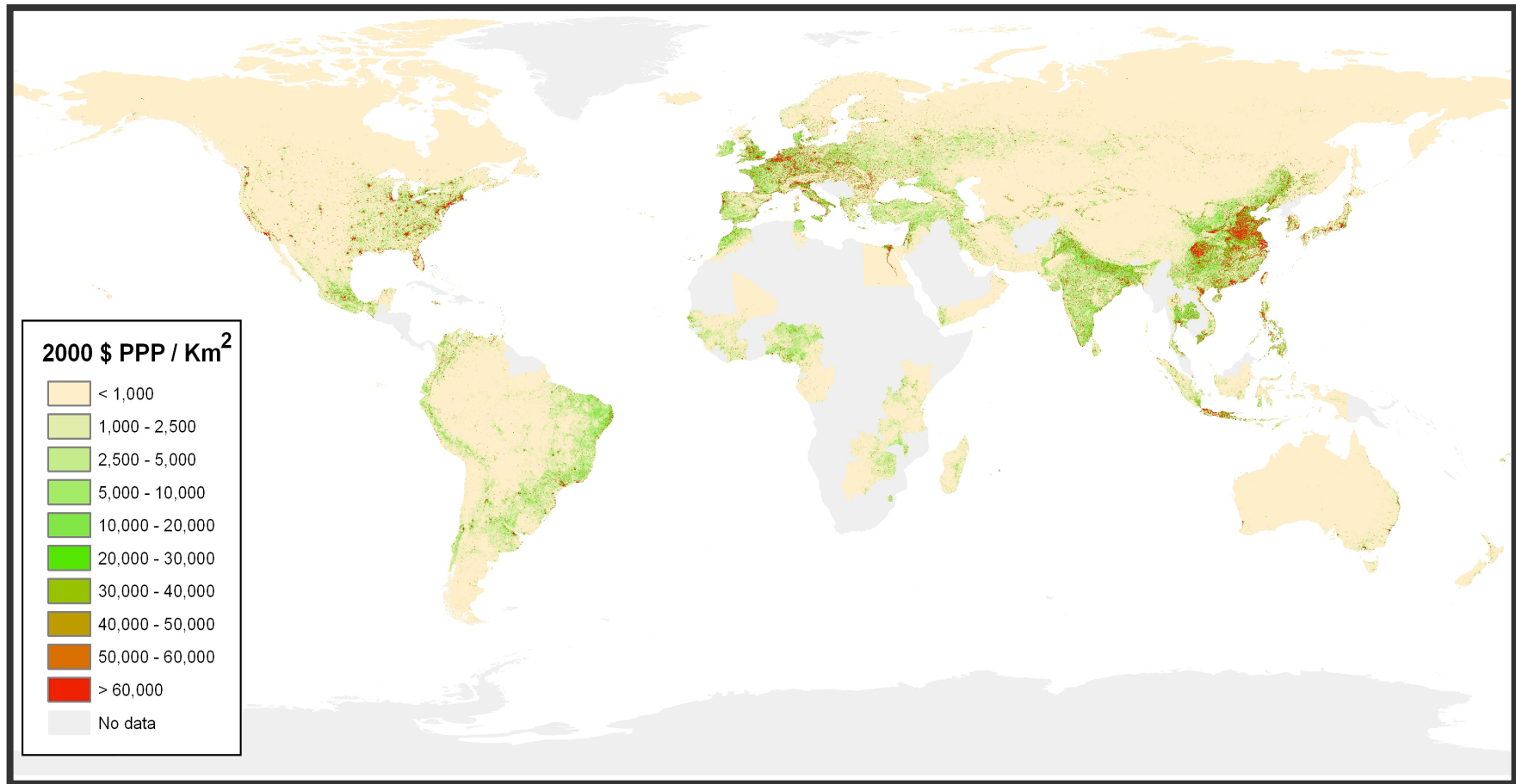
- Motivation – things to come
- Overview of Assessment Issues

Asia and Livestock

(Tropical livestock units per km²)



Expenditure on Meat (PPP\$/sqkm)





Regional Demand Trends

- Because of joint densities of animal and human populations, Asia is becoming a global epicenter of animal disease risk.
- Meanwhile, Asian emerging markets are driving a dramatic acceleration of the livestock sector.
- This trend is part of an overall change in the fundamental narrative of regional food security.

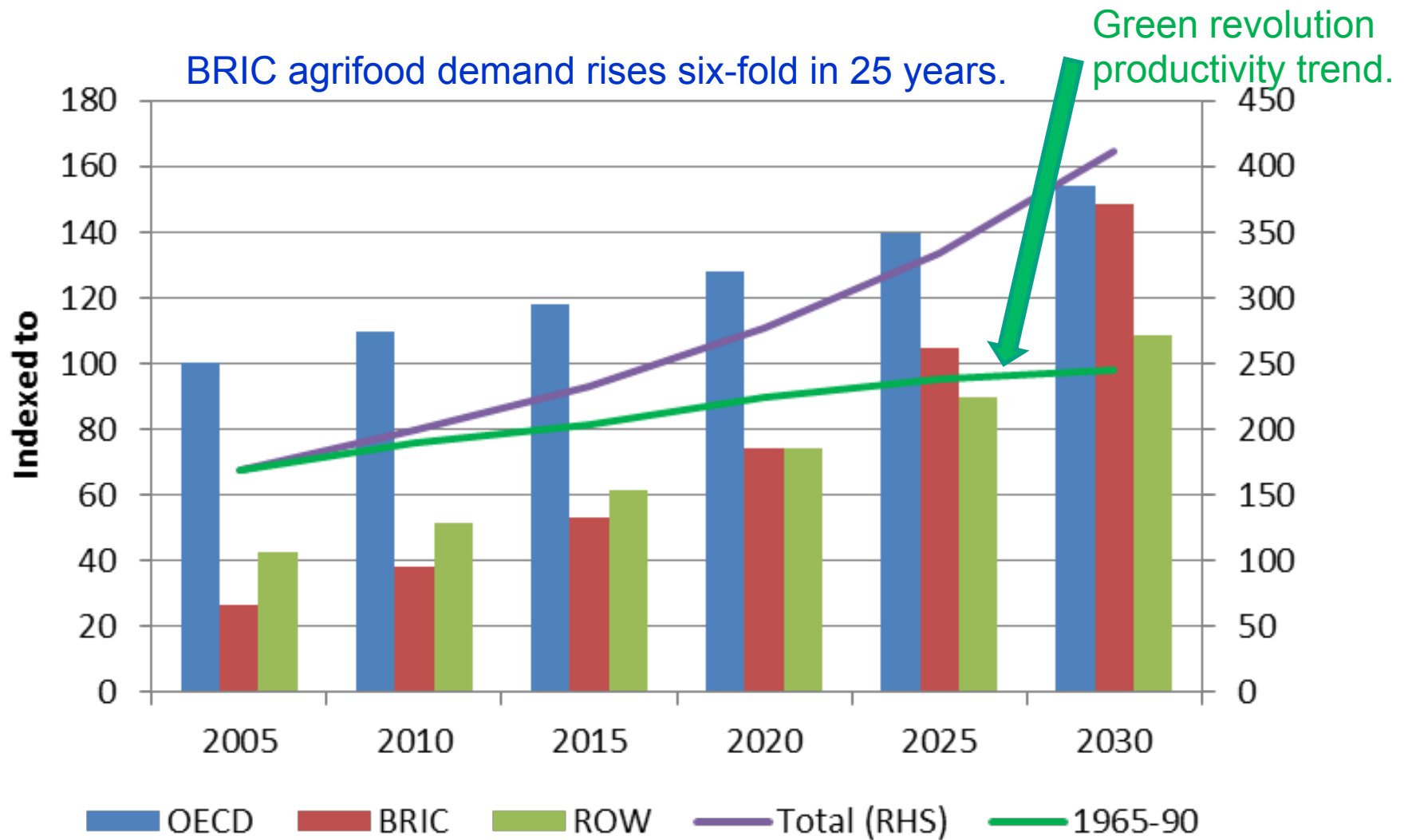
The Asian Food Security Narrative is Changing: From Basic Needs to Sustainability



September 4, 2012

Roland-Holst 6

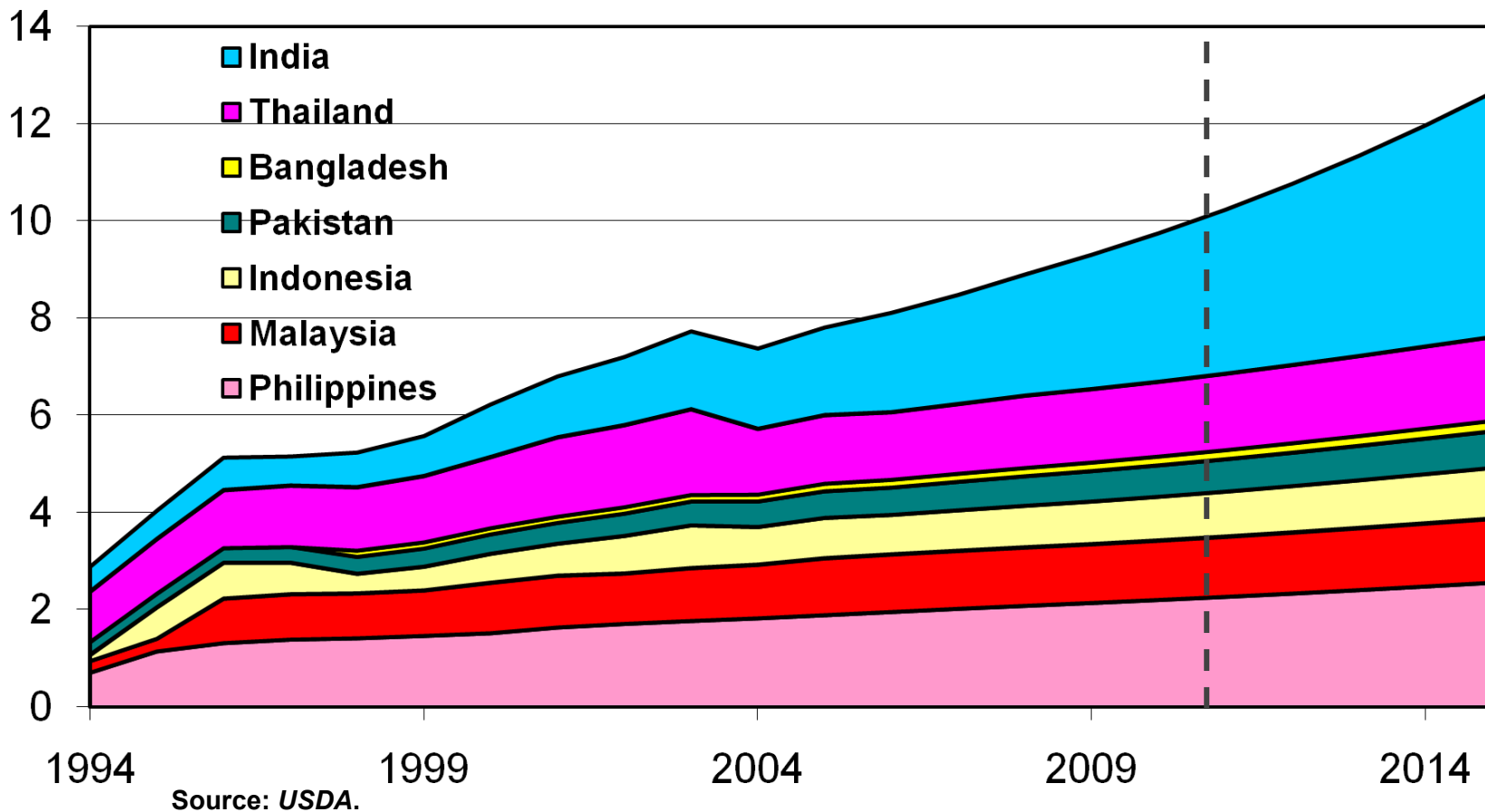
Global Agrifood Demand



Livestock as a Primary Driver of Trade and Growth

Asia Pork and Poultry Production

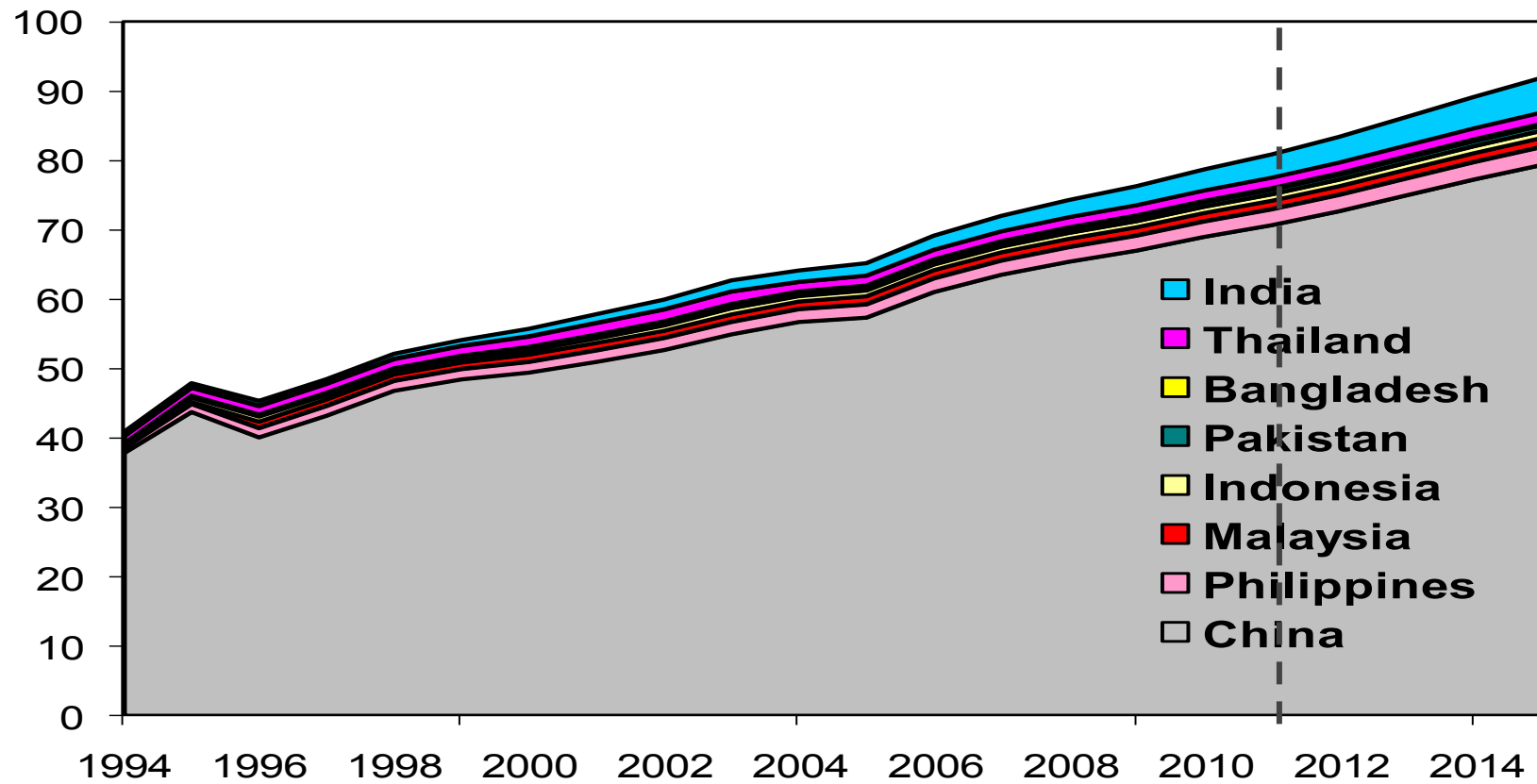
Million metric tons



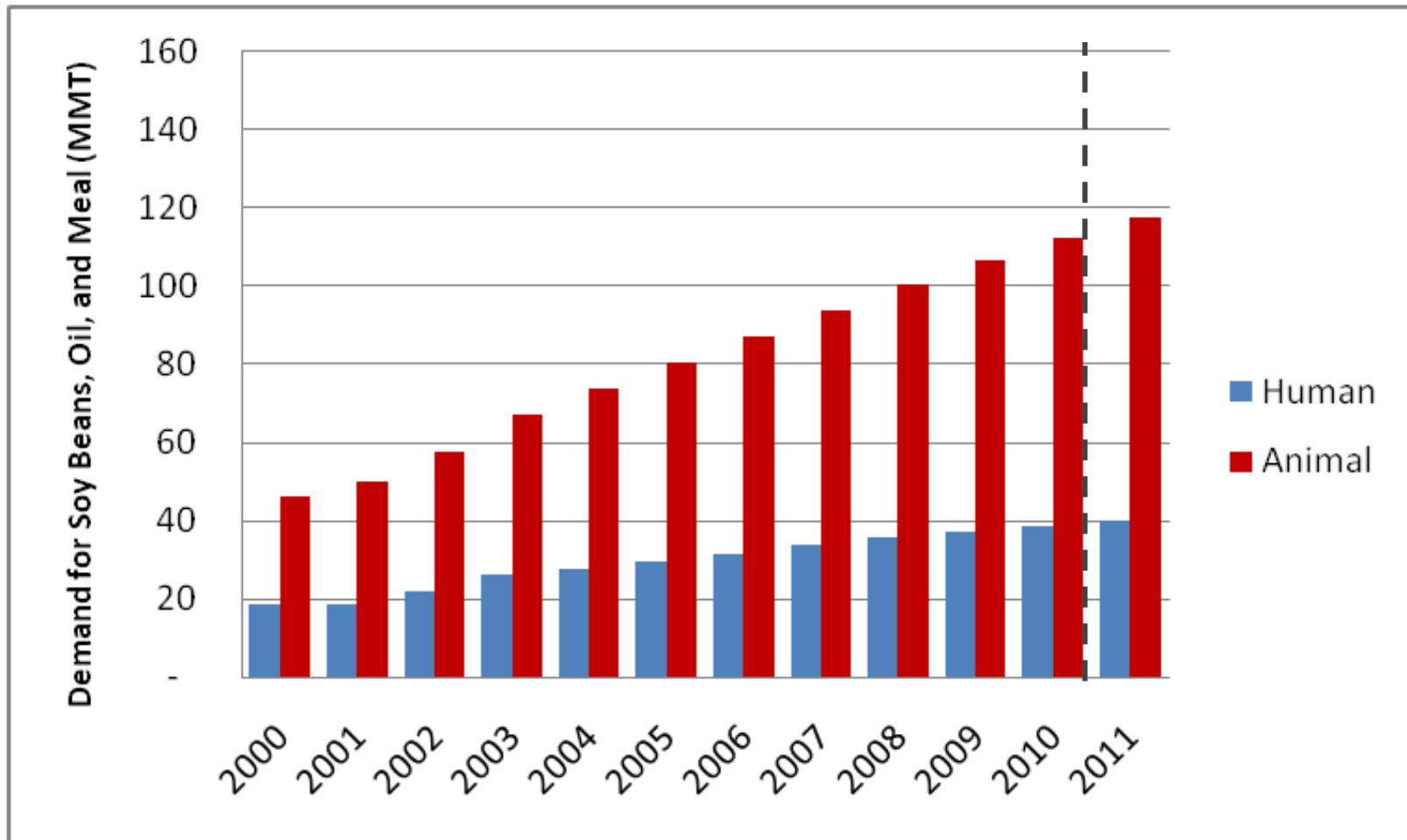
All Asia Pork and Poultry

Clearly, the impact of any imbalance in China's meat economy will fall on the price system.

Million metric tons



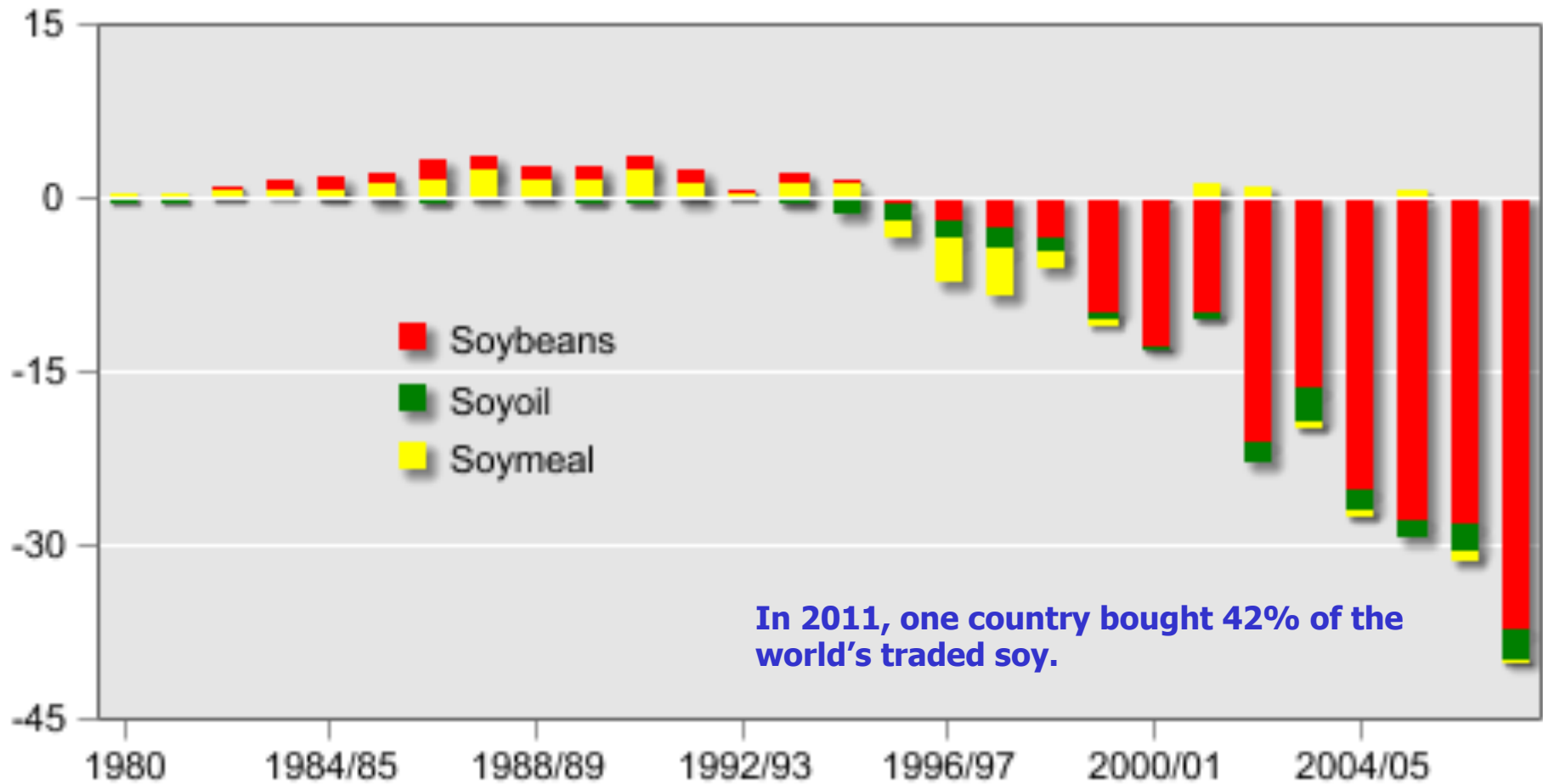
China Soy Demand



Source: *USDA*.

Trade: China's Soy Tsunami

Net trade in soy products (Million MT)



In 2011, one country bought 42% of the world's traded soy.

Source: USDA/ERS.

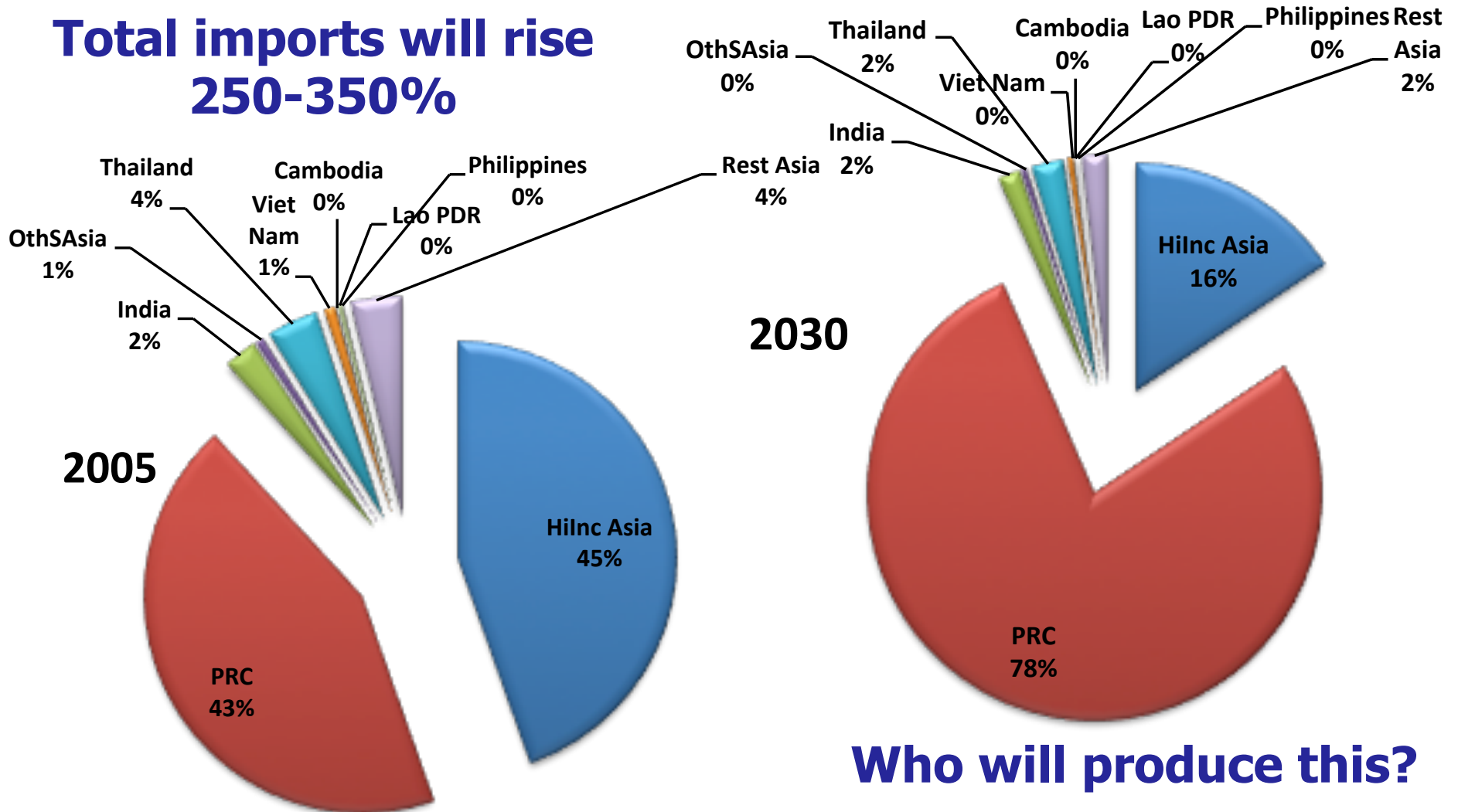


Demand-Driven Growth Opportunities in Asian AgriFood

- With 20 percent of population, 7 percent of world farmland, 5 percent of renewable fresh water, and the fastest growing middle class,
- China's Agrifood balances are beginning exert enormous influence on global trade
- If import trends continue, there will be significant opportunities to alleviate rural poverty at home and across the region.

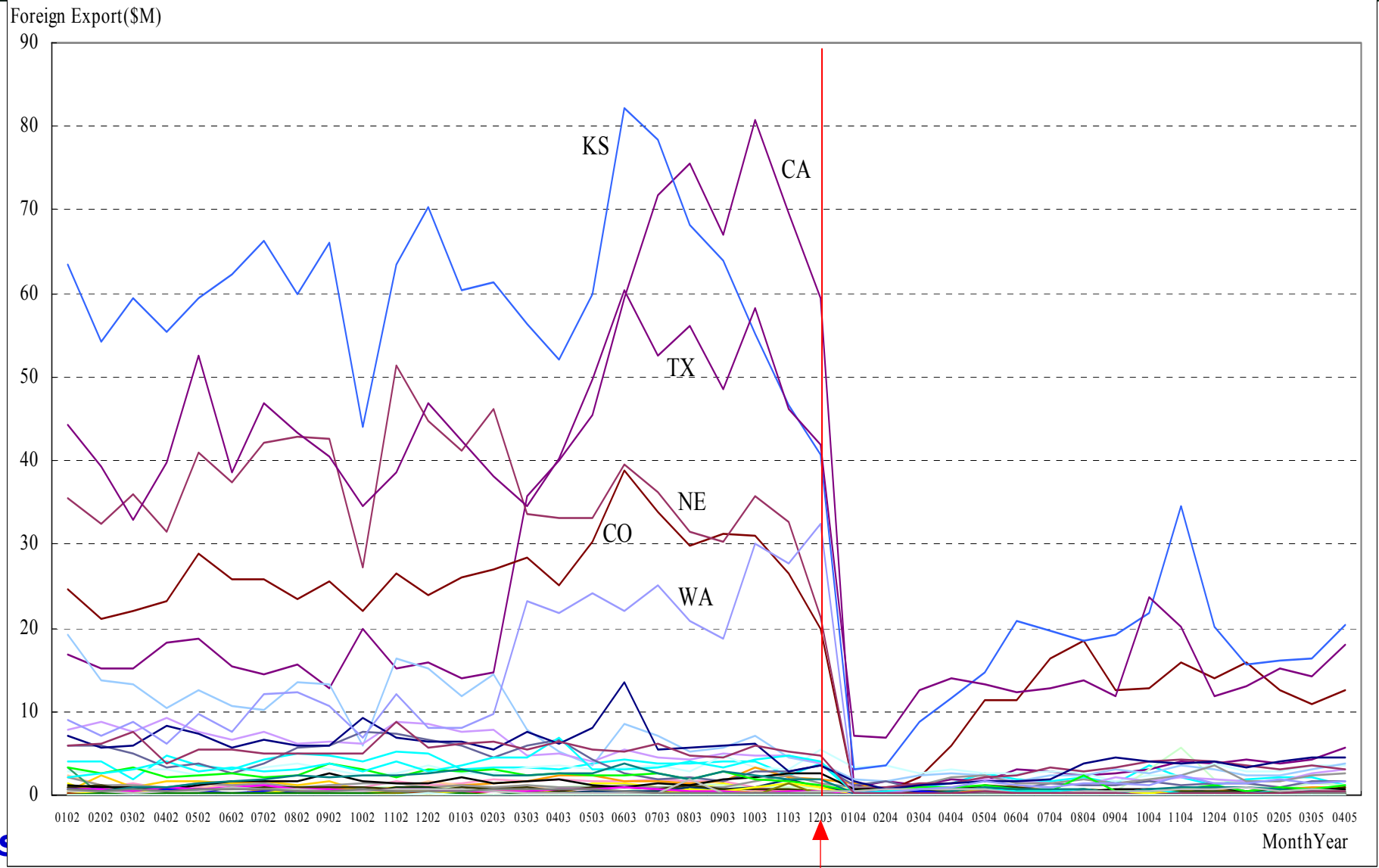
Shares of Asian Livestock Product Imports

Total imports will rise 250-350%



Who will produce this?

What can happen? US Beef Exports, 1/2002-4/2005





Globalization and Animal Disease Risk

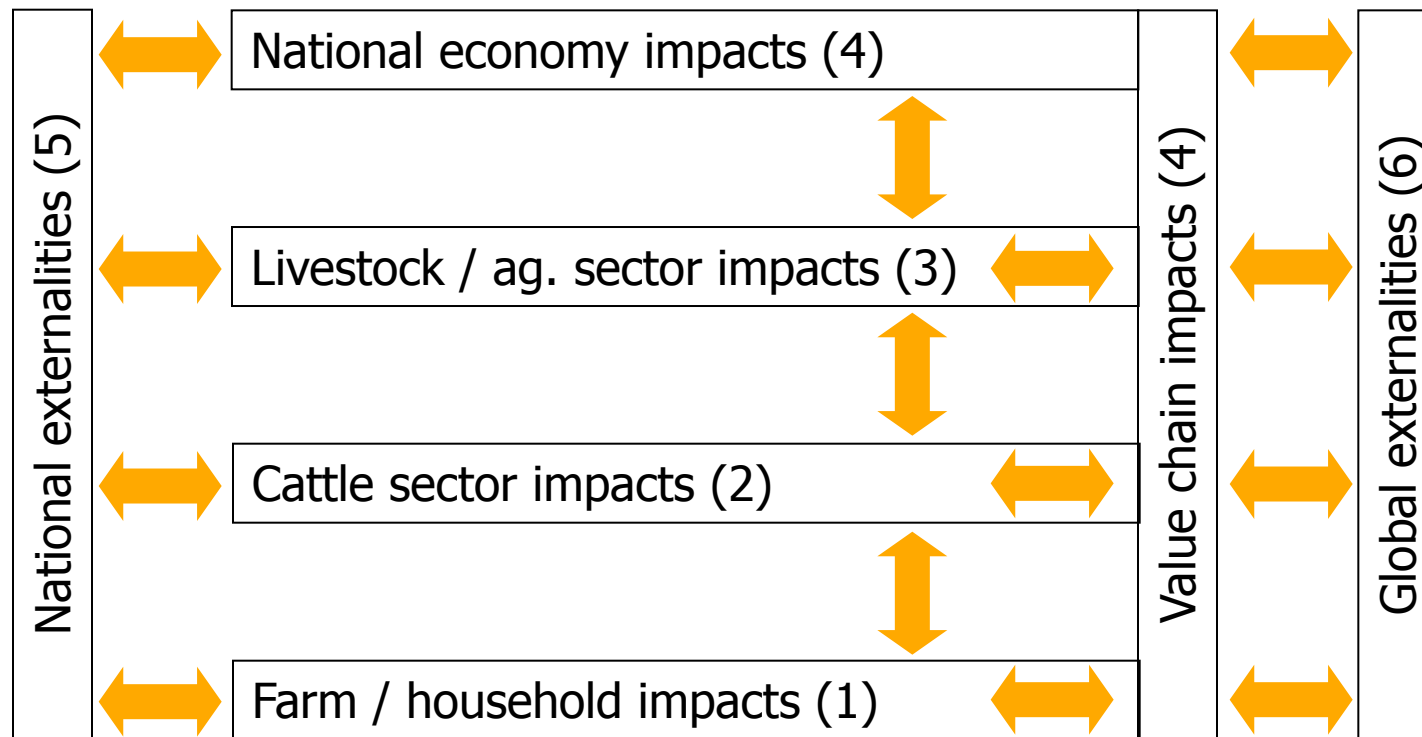
- These trends obviously increase the importance of FMD risk, both in terms of
 - absolute scale – very rapid growth, and
 - risk pathways – trade
- The same characteristics, however, raise the economic reward for effective risk management.
- Both trends justify more determined investment in evidence based FMD policy.



Economywide Assessment

- Traditionally, policy has focused on producer conditions/needs/costs.
- In developing countries, many of these are rural smallholders with limited public voice.
- An economywide assessment of FMD risk is needed to identify its fullest implications and the many stakeholder groups associated with them.
 - Consumers
 - Supply chain partners
 - Allied institutions – public health, trade, finance, etc.

What we want to capture: FMD Impact Pathways





Primary Characteristics

To adequately inform policy in this context, assessment tools must:

1. Have sufficient detail to identify leading stakeholder groups.
2. Capture economic linkages between groups to trace indirect impacts.
3. Include an aggregate consistency framework that identifies constraints and trade-offs.



Priorities for Economic Assessment

- Damage/cost assessment
 - Reach beyond production systems
 - Capture economywide and international spillovers
 - Expand stakeholder audience (private and public)
- Economic policy – raise the status of animal health policy in the larger context of economic development, poverty reduction, food security, etc.



Mellor Hypothesis :

Why Agriculture Matters for Economywide Growth

1. Increases in farm income and profitability, resulting in improved welfare of farmers and the rural poor
2. Declining food prices, benefiting poor rural and urban consumers, including small farmers who might be net purchasers of food
3. Lower urban cost of living/wages allow the industrial sector to reduce costs
4. Increases in the domestic demand for industrial output
5. Increasing competitiveness of both agricultural and industrial exports, with positive impact on hard currency earnings
6. Expansion of the domestic industrial sector, pulling "surplus" labor out of agriculture



Recommended Assessment Tools

- Social Accounting Matrix (SAM) Analysis – a static national economic impact assessment tool
- Computable General Equilibrium (CGE) Modeling – dynamic modeling of market interactions



SAM: A Tool for Economic Impact Assessment

- Economic activities have linkages, leading to a myriad of indirect effects that together often exceed direct effects
- Modern assessment tools strive to account for these “multiplier” effects to attain better understanding of longer-term, more inclusive stakeholder interests



Multi-Sectoral Development Analysis

- Macro policy is important, but so are economic structure and economic interactions.
- Indeed, linkages and indirect effects are often more important than the direct targets of policy.
- To improve visibility for policy makers and make appropriate recommendations, we need to understand these interactions.



CGE Models

- CGE models extend the SAM framework to simulate market activity
- They highlight the role of prices and scarcity in determining the incidence of economic impacts
- Generally, both techniques are used, SAMs for indicative analysis and CGEs for more detailed long term planning



Advantages

- Explicit treatment of spillovers
- Explicitly distributional – detailed composition of output, employment, income, and demand
- Linkage to a broad spectrum of other socio-economic issues – poverty, equity, fiscal policy, trade, rural-urban interaction, migration



Examples of CGE Applications

- Agricultural Policy
- Trade policy
- Tax policy
- Environmental regulation and reform
- Poverty and Inequality



Agricultural Policy

- The issue
 - What does agriculture contribute to the economy and what does the (domestic and international) economy contribute to agriculture
 - What are the detailed effects of agriculture policy?
- Why a CGE model?
 - Agriculture remains a dominant sector in China, the most important source of income for the poor, and will experience many transitions in the next generation
- Key insights
 - Agriculture can be a main driver for growth and poverty alleviation, but the composition of this growth will be very complex
 - Big contrast with partial equilibrium analysis

- The issue
 - Effect of changes in tariffs and other forms of industry assistance
- Why a CGE model?
 - Trade policy is the classic GE problem
- Key insights
 - For complex sectors like agriculture, it is a rich story about how the benefits and costs of trade policy are distributed.

- The issue
 - Effect of replacing wholesale sales tax with goods and services value added tax
- Why a CGE model?
 - Very complicated initial structure of taxes
- Key insights
 - Overall gains very small and
 - very sensitive to some key assumptions



Environmental regulation

- The issue
 - Effects of regulations such as:
 - pollution
 - Resource (water, fisheries, forestry) policy
- Why a CGE model?
 - Still emerging in a live policy debate
 - Energy and water, for example, key inputs to all production processes
- Key insights
 - Environmental policies have many indirect effects



Poverty and Inequality

- The issue
 - What is the real composition of income and growth effects?
- Why a CGE model?
 - Institutional detail is essential
 - Relative incomes are determined by relative prices
 - Constraints play a major role in incidence and distribution
- Key insights
 - Who are the winners and how can they be enlisted to support policy?
 - Who are the losers and how can they be compensated?



Data Requirements

- SAMs are built from extensive economic accounting data
- Usually available from official sources, but can be augmented by independent and more recent data when available
- CGEs require the same SAM data, in addition to information on resource use.



Capacity Requirements

- Both methods are technical and best supported by professional staff with university level economics training
- SAM
 - Multiplier methods are relatively easy to implement and interpret
 - They are limited in scope, however, to relatively simple comparative static scenarios
- CGE
 - Generally more complex technically
 - Much wider scope for policy simulation and impact assessment

Thank you!

