



GLOBAL AGENDA FOR SUSTAINABLE LIVESTOCK

# DAIRY ASIA: TOWARDS SUSTAINABILITY

## Manure is a valuable resource

Theun Vellinga, Wageningen University  
Project Leader



CLIMATE AND CLEAN AIR COALITION  
TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS



common objective

practice change

practice change

integrated manure management

reduce SLCPs  
(methane)

Reduce efficiency gap  
Waste to worth

**Livestock and Manure Management Component)**



# Integrated Manure Management

Collection

Treatment

Storage

Application



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## Drivers of the manure “problems”

- Increase in livestock numbers
- Change in character:  
intensive use of limited land resources
- Change in scales:  
smallholders increasing in numbers, elsewhere in size  
and development of large scale operations
- Getting footloose:  
at small/medium and large scale farms
- Shifting to liquid manure systems
  
- (Liquid) manure is hard to manage:  
variable, high water contents, mechanisation required



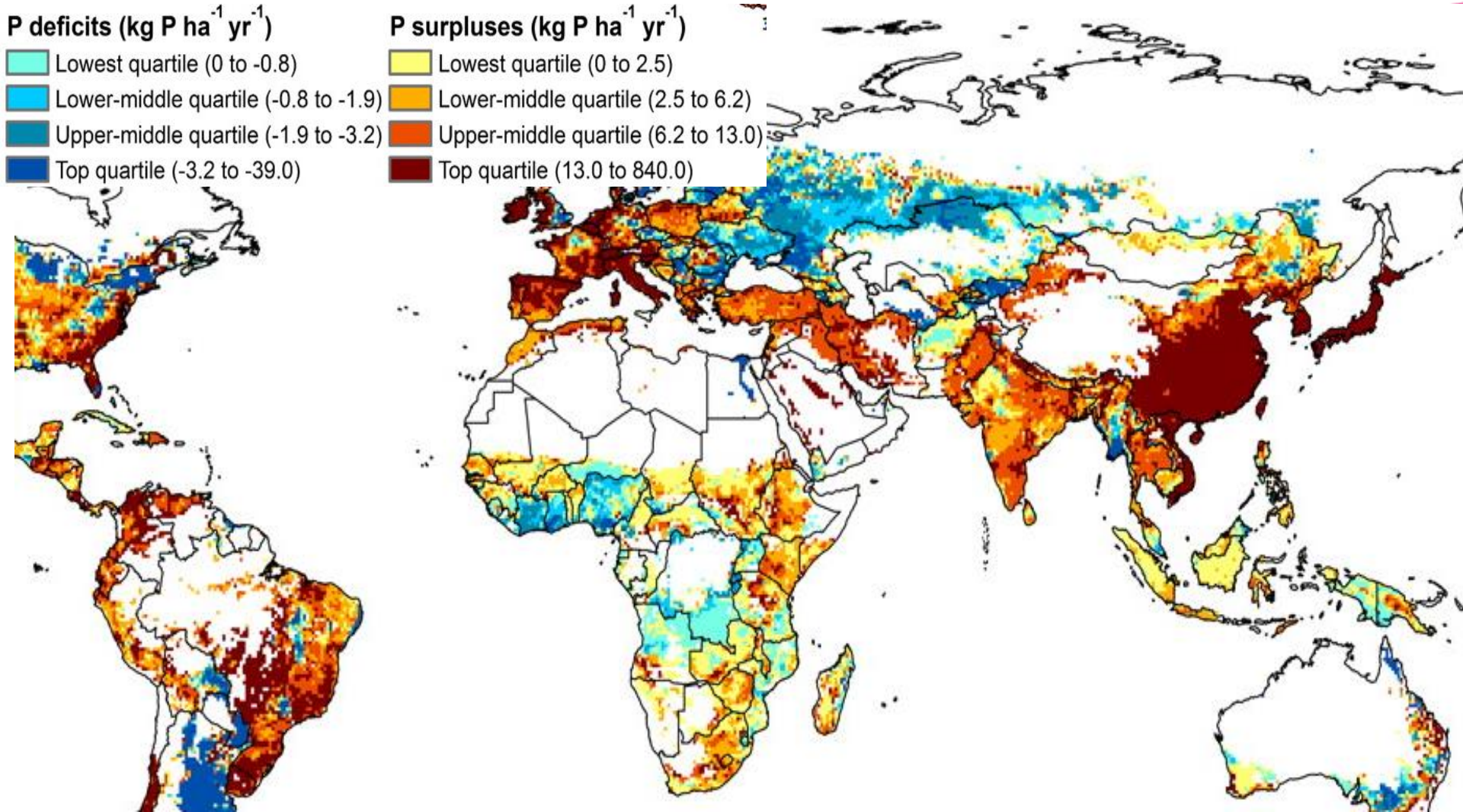
# Dislocated resources and depleting P stocks

**P deficits (kg P ha<sup>-1</sup> yr<sup>-1</sup>)**

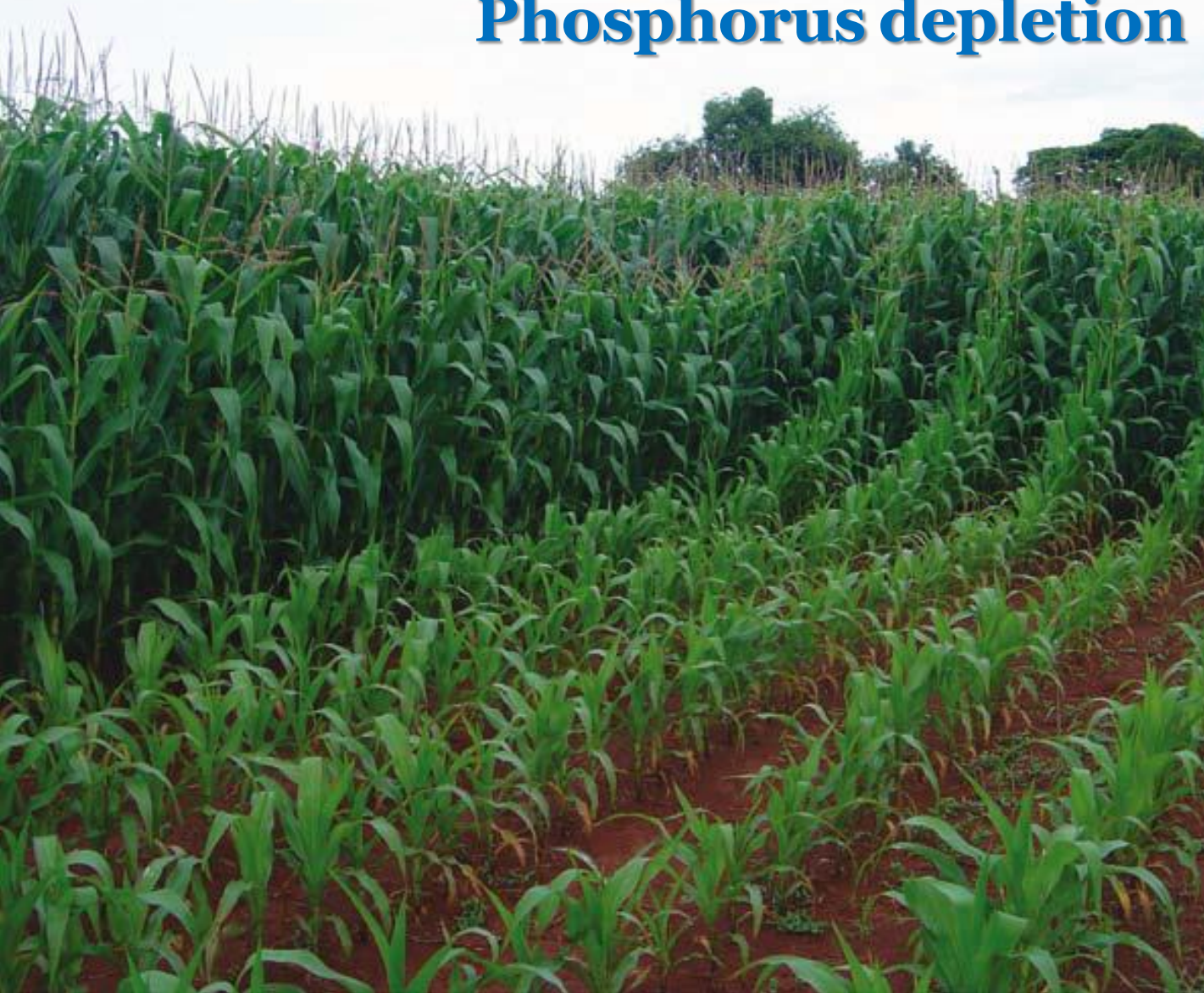
- Lowest quartile (0 to -0.8)
- Lower-middle quartile (-0.8 to -1.9)
- Upper-middle quartile (-1.9 to -3.2)
- Top quartile (-3.2 to -39.0)

**P surpluses (kg P ha<sup>-1</sup> yr<sup>-1</sup>)**

- Lowest quartile (0 to 2.5)
- Lower-middle quartile (2.5 to 6.2)
- Upper-middle quartile (6.2 to 13.0)
- Top quartile (13.0 to 840.0)

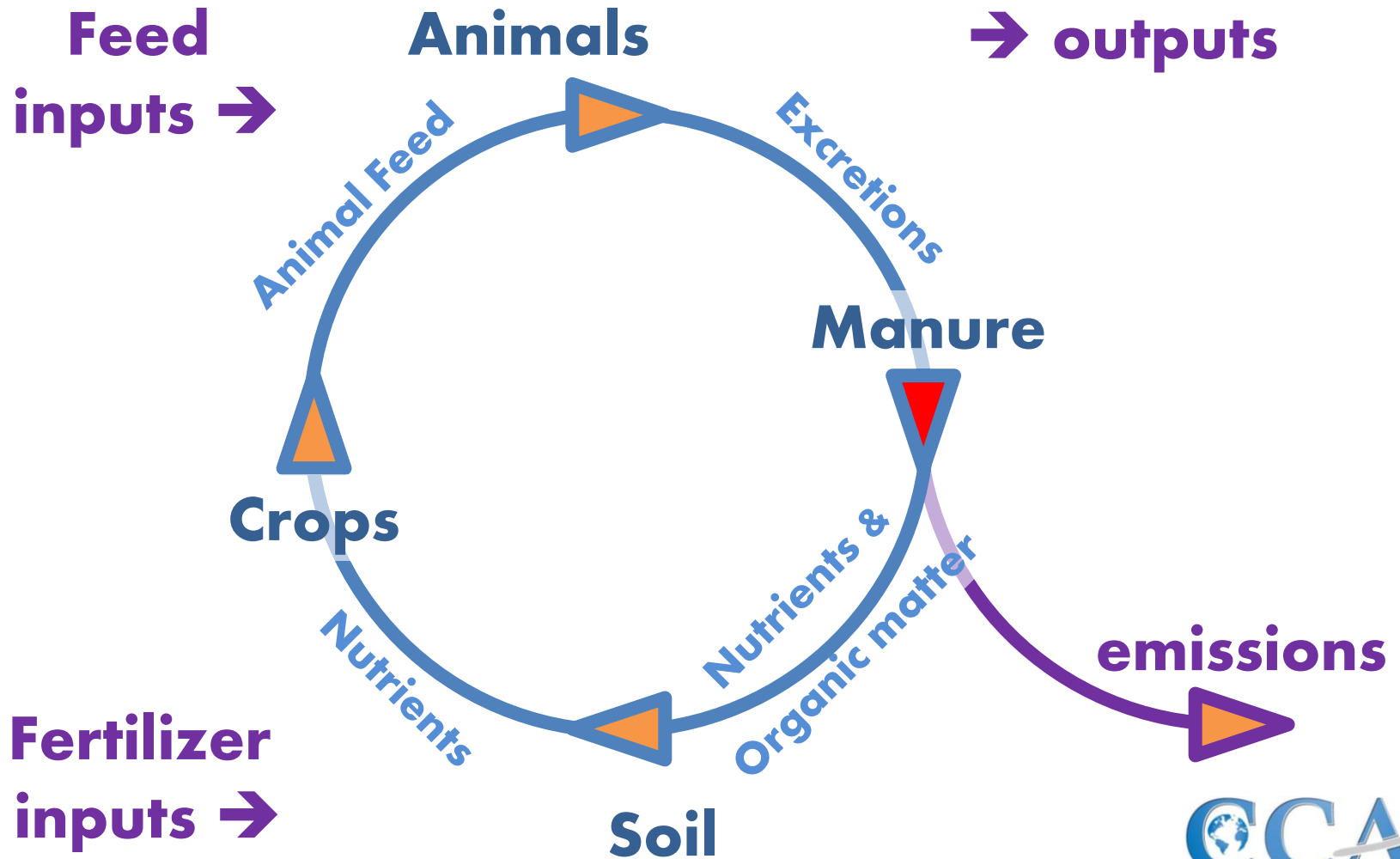


# Phosphorus depletion

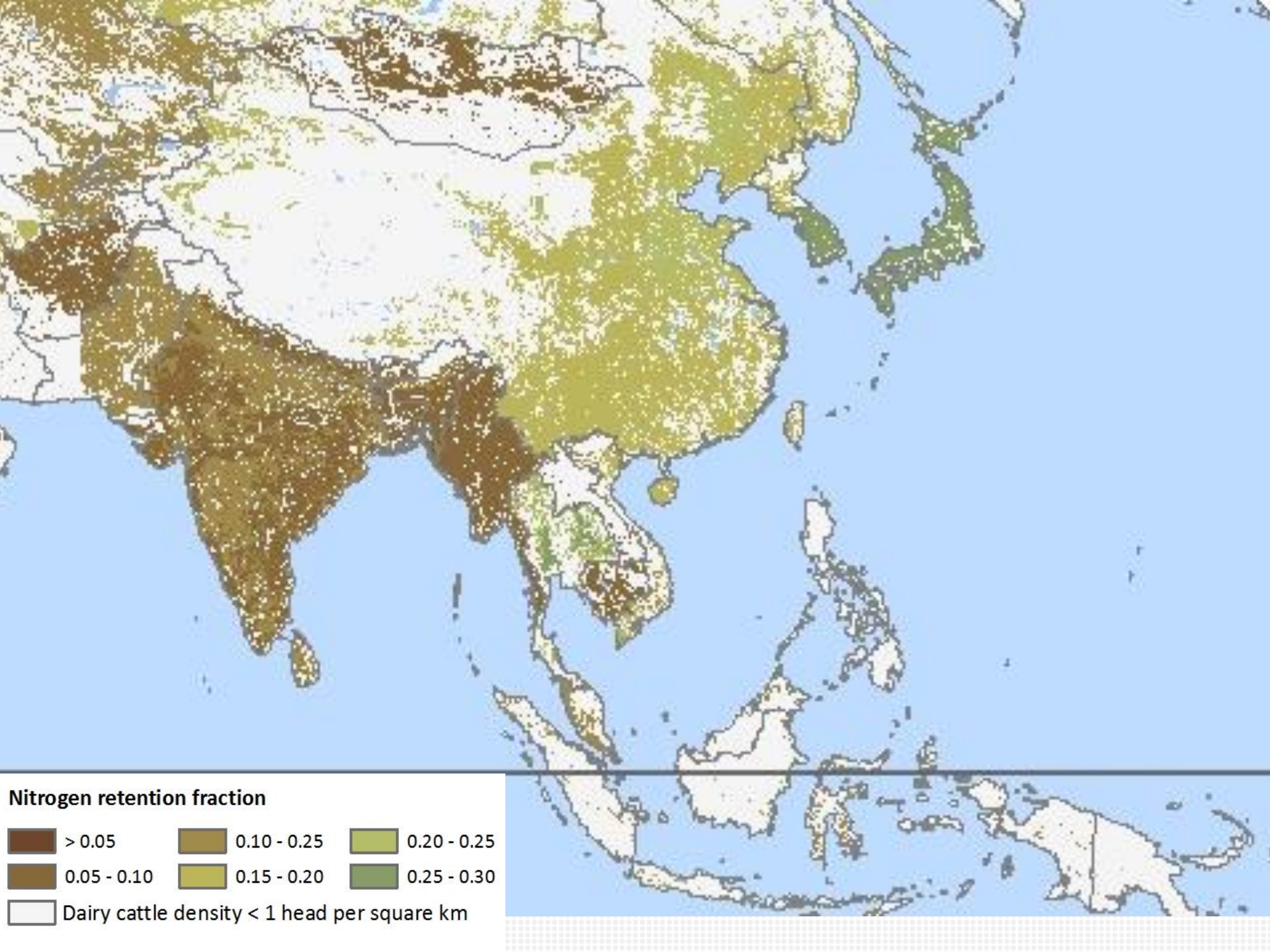


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# Nutrient cycling principle at farm scale



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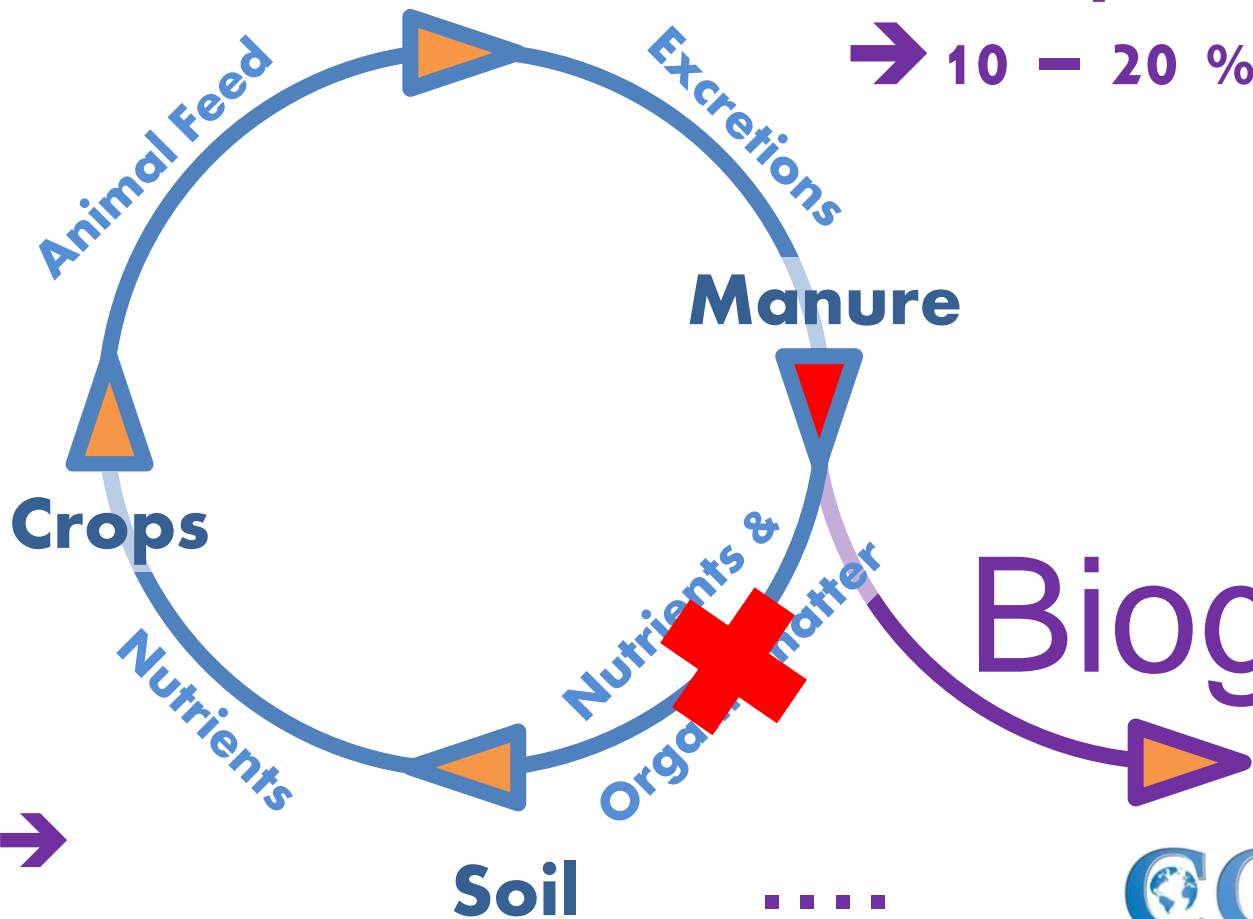
# Cycle principle

inputs →

Animals

→ Outputs

→ 10 – 20 %



inputs →

Soil

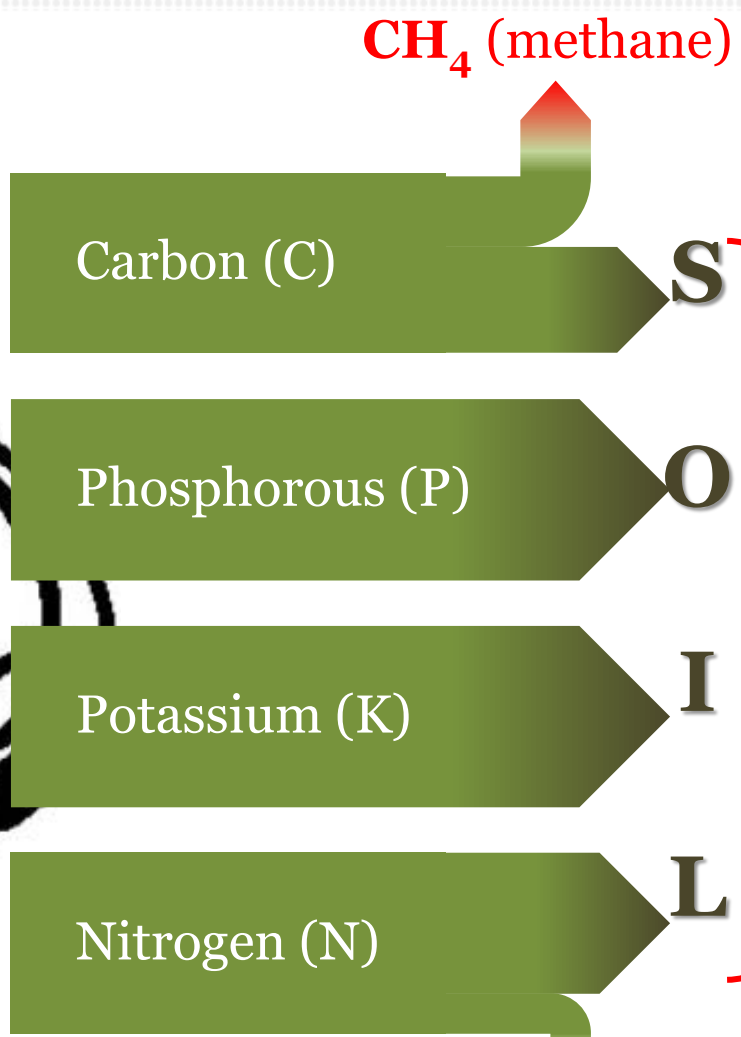
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Biogas!





D  
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&  
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$\text{CH}_4$  (methane)

Anaerobic Digestion

→ Biogas

Digestate

$\text{NO}_x/\text{NH}_3$  (emissions)



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## Global needs and assessment study (thanks to SEI)

- Manure is utilised poorly by farmers, 40 – 60 % does not use dung, urine flows away.
- Main barriers for (small) farmers: awareness, knowledge, labour and investment opportunities
- Awareness of the value of manure is limited, this also holds for local extension and policy makers
- Policies are mainly driven by biogas, public health, pollution, *almost never by the fertilizer value* coordination is often lacking
- Commercial credit suppliers not interested



# The strategic Framework paper about manure

The strategy recommends (i) undertaking strategic analysis (including policy and institutional analyses, cost effectiveness of manure management practices and preparation of investment guidelines) of manure management practices; (ii) enhanced public and private investment in farm-level data collection, analysis and feedback systems; (iii) scoping, documentation and dissemination of good practices of manure management; (iv) promoting good legislation to prevent discharge of dairy farm manure (including liquids) to surface waters; (v) facilitating enhanced coordination among scientists from various fields to encourage the integration of animal, soil and plant components; (vi) development of pilot/ demonstration farms (incorporating appropriate levels of technology); and (vii) designing and implementing appropriate training courses on nutrient budgets and improved manure management practices.



## Improving manure management requires:

- Stimulate investments in on farm hardware and in developing the enabling environment
  - combining the energy and fertilizer value
- Development of stimulating policies
- A smallholder approach: long term
  - Tailoring hardware to low budget solutions
  - Education, training
  - Credit supplies
- A footloose (large scale) dairy enterprise approach:
  - Development of feed and manure strategy plan



# Livestock and Manure Management Component

## Opportunities for Practice Change, (planned)

- Bangladesh: *Development of National Policy and Action Plan for Integrated Manure Management in Livestock Systems*  
Bangladesh Livestock Research Institute (BLRI)
- Viet Nam: *Improved manure management through increased utilization of manure including bio-slurry*  
SNV and the Department of Livestock Production (DLP)
- Link to Dairy Asia to develop a Manure Management Program (an offer)



# Manure is like money

Accumulated it's a problem

Well spread it's a blessing

You need it

to keep the system going!

Don't waste it!



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