

# Livestock Research Contributions to the SDGs

*Starting with the End in Mind:  
Real-world evidence for real-world solutions*

*Jimmy Smith, ILRI Director General*

Centre for Tropical Livestock Genetics and Health 2017 Annual Meeting,  
Edinburgh, 26–29 September 2017



LIVESTOCK ARE ESSENTIAL  
TO ACHIEVING THE SDGS—  
which are now the currency  
of development  
across the *whole* world

# ILRI and CGIAR contributions to the SDGs



Reduced poverty

Improved food and  
nutrition security for  
health

Improved natural  
resource systems and  
ecosystem services

ILRI's mission is  
to improve food and nutritional security  
and to reduce poverty in developing countries  
through research for  
efficient, safe and sustainable  
use of livestock —  
ensuring *better lives through livestock*.

# SUSTAINABLE DEVELOPMENT GOALS

1 NO POVERTY



2 ZERO HUNGER



3 GOOD HEALTH AND WELL-BEING



4 QUALITY EDUCATION



5 GENDER EQUALITY



6 CLEAN WATER AND SANITATION



7 AFFORDABLE AND CLEAN ENERGY



8 DECENT WORK AND ECONOMIC GROWTH



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



10 REDUCED INEQUALITIES



11 SUSTAINABLE CITIES AND COMMUNITIES



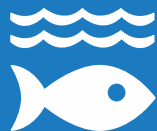
12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



14 LIFE BELOW WATER



15 LIFE ON LAND



16 PEACE, JUSTICE AND STRONG INSTITUTIONS



17 PARTNERSHIPS FOR THE GOALS



SUSTAINABLE DEVELOPMENT GOALS

4 LIVESTOCK PATHWAYS  
HELP MEET  
ALL THE SDGS

with partnerships  
at the centre  
of each



## ECONOMIC GROWTH



## EQUITABLE LIVELIHOODS



## NUTRITION AND HEALTH



## SUSTAINABLE ECOSYSTEMS

1 NO  
POVERTY



8 DECENT WORK AND  
ECONOMIC GROWTH



# PATHWAY 1: Economic Growth

9 INDUSTRY, INNOVATION  
AND INFRASTRUCTURE



# Livestock build global and national economies

- The livestock sector contributes an average of 40% of the agricultural GDP of developing countries—and that percentage is growing
- The market value of animal-source foods in Africa in 2050 is estimated at USD151 billion
- Livestock value chains provide large numbers of jobs



# Livestock build household economies

Region (definition of 'smallholder')	% production by smallholder livestock farms					
	Beef	Chicken meat	Sheep/goat meat	Milk	Pork	Eggs
<b>East Africa</b> (≤ 6 milking animals)				60-90		
<b>Bangladesh</b> (< 3ha land)	65	77	78	65		77
<b>India</b> (< 2ha land)	75	92	92	69		71
<b>Vietnam</b> (small scale)					80	
<b>Philippines</b> (backyard)		50			35	

1 NO POVERTY



10 REDUCED INEQUALITIES



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# PATHWAY 2: Equitable livelihoods

4 QUALITY EDUCATION



5 GENDER EQUALITY



# Livestock provide livelihoods

- 70% of the world's rural poor rely on livestock for important parts of their livelihoods.
- Of the >750 million poor livestock keepers in the world, about two-thirds are rural women.
- >100 million landless people keep livestock.
- For the vulnerable, up to 40% of benefits from livestock keeping are non-market, intangible benefits, mostly insurance and financing.
- In the poorest countries, livestock manure comprises over 70% of soil fertility amendments.
- Many poor people are employed in local informal livestock product markets.
- 90% of animal products are produced and consumed in the same country or region.
- Over 70% of livestock products are sold 'informally'.



SKINNER



SKINNER

# Livestock provide livelihoods for women

Animals are one of the few household assets women can control



2

ZERO  
HUNGER



3

GOOD HEALTH  
AND WELL-BEING



# PATHWAY 3:

## Nutrition and health

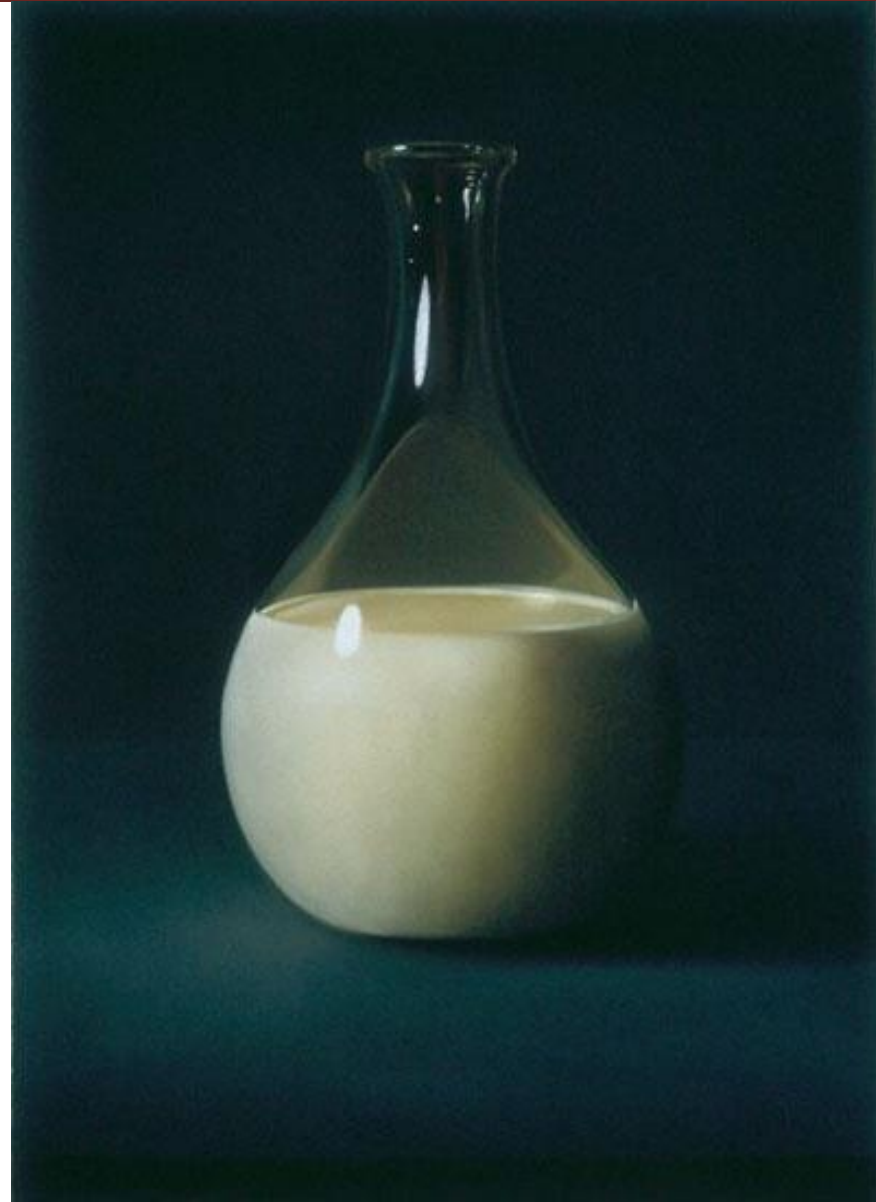
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RESPONSIBLE  
CONSUMPTION  
AND PRODUCTION



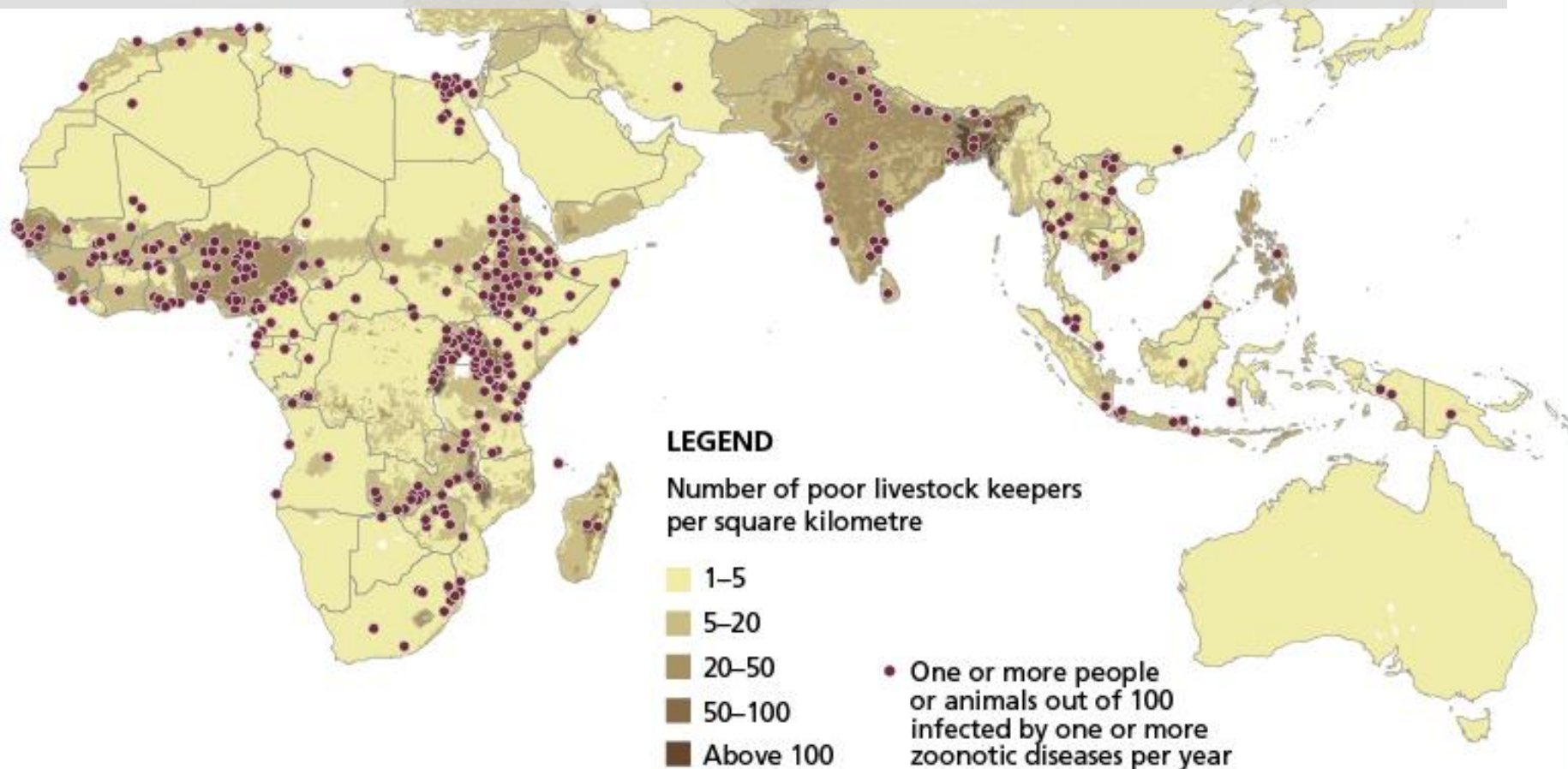
# Animal-source foods provide essential nutrients

- Globally 13% of calories and 28% of protein
- Vitamins  
e.g. B12 only available in animal-source foods
- Minerals  
e.g. calcium, iron, zinc, iodine
- Consuming just one egg a day for 6 months reduces stunting in children



# Livestock and other animals are a source of (zoonotic) diseases transmitted to humans

Unlucky 13 zoonoses sicken 2.4 billion people, kill 2.2 million people and affect more than 1 in 7 livestock each year



6 CLEAN WATER  
AND SANITATION



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# PATHWAY 4: Ecosystem health

11 SUSTAINABLE CITIES  
AND COMMUNITIES



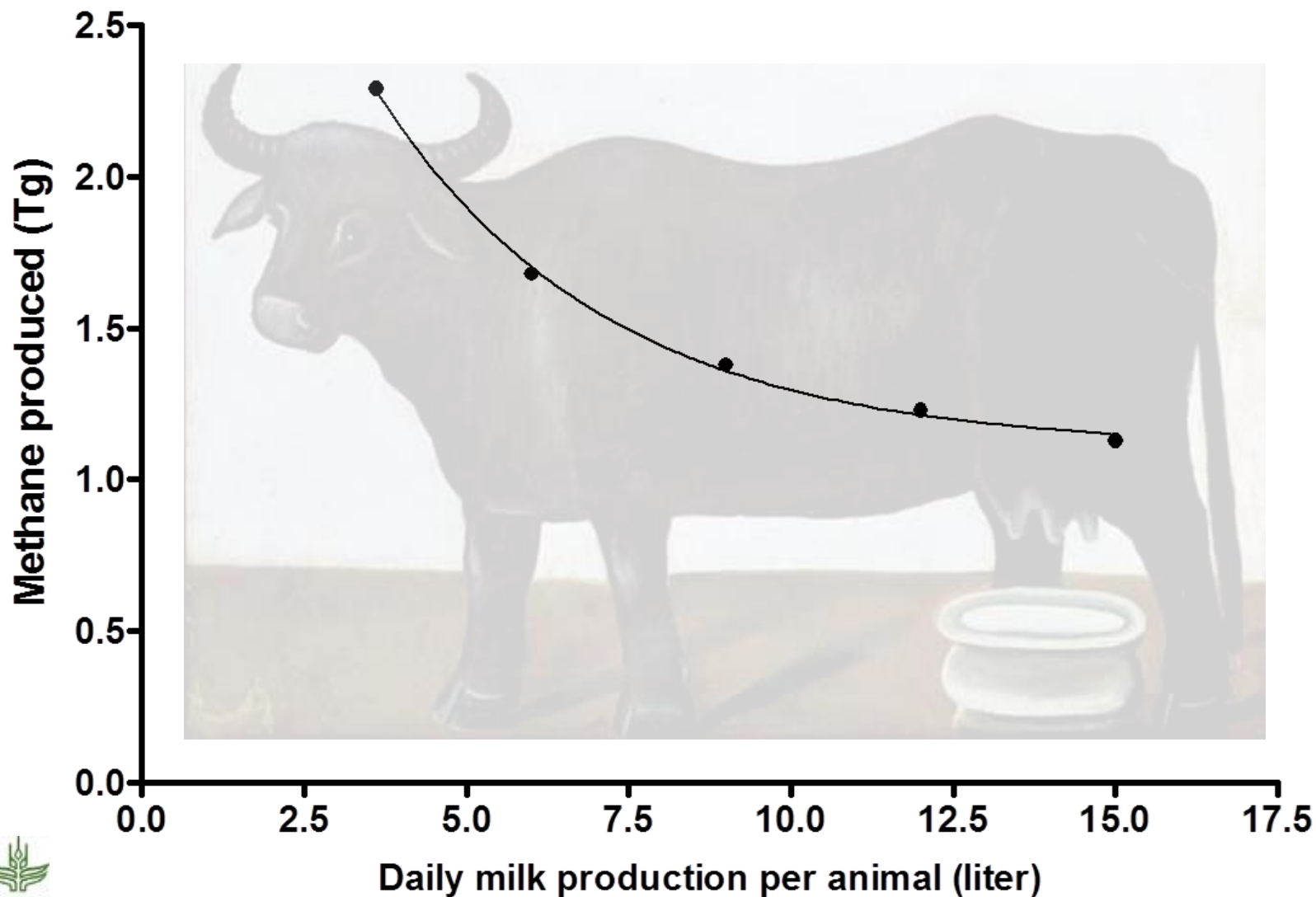
13 CLIMATE  
ACTION



14 LIFE  
BELOW WATER



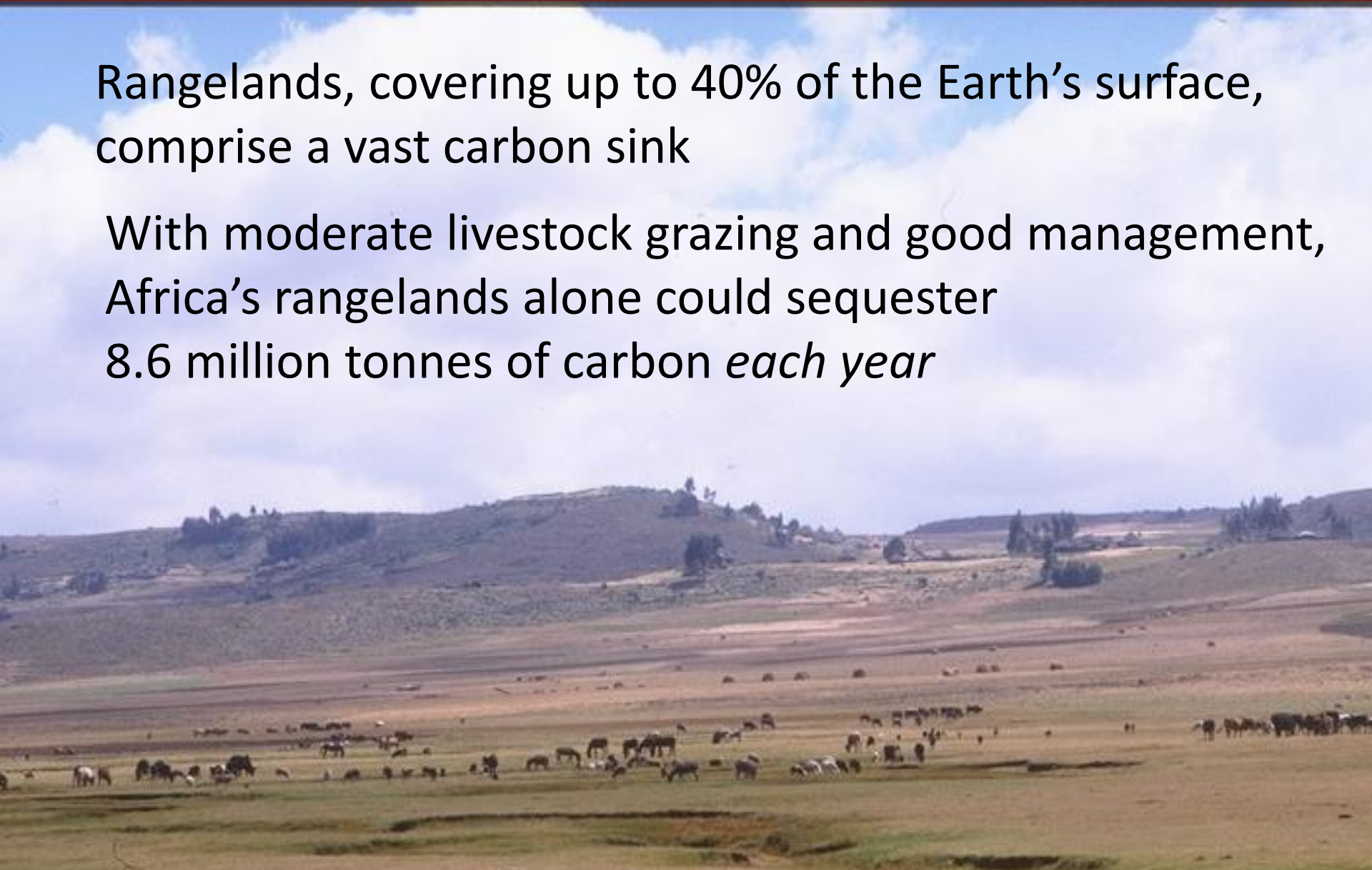
# Production of the greenhouse gas methane falls as animal productivity rises



# Rangelands are a vast carbon sink

Rangelands, covering up to 40% of the Earth's surface, comprise a vast carbon sink

With moderate livestock grazing and good management, Africa's rangelands alone could sequester 8.6 million tonnes of carbon *each year*



DELIVERING LIVESTOCK RESEARCH  
'WITH THE END IN MIND'

1 NO POVERTY



8 DECENT WORK AND ECONOMIC GROWTH



# PATHWAY 1: Economic Growth

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE





# PATHWAY 1: Economic Growth



Advanced bovine immunology research resulted in an infection-and-treatment method of immunization that prevents the disease East Coast fever in cattle, which occurs in 11 countries of Africa, annually killing 1 million animals and costing the region \$300 million.



# PATHWAY 1: Economic Growth



Can today's  
state-of-the-art  
genetics,  
immunology  
and health research  
be employed to spur  
economic growth

?



# PATHWAY 2: Equitable livelihoods



1 NO POVERTY



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## PATHWAY 2: Equitable livelihoods

4 QUALITY EDUCATION



5 GENDER EQUALITY



Development of a thermostable version of the current effective vaccine against sheep and goat plague ('peste des petits ruminants'), can improve the livelihoods of hundreds of millions of poor people by preventing the morbidity and mortality of some 30 million animals annually, with losses valued at \$1.2 billion each year.

1 NO POVERTY



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## PATHWAY 2: Equitable livelihoods

4 QUALITY EDUCATION



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Can the new gene,  
genomics and vaccine  
sciences and technologies  
be used to develop  
'scale-neutral' solutions  
that help ensure a transition  
to more equitable livelihoods

?

2

ZERO  
HUNGER



3

GOOD HEALTH  
AND WELL-BEING



# PATHWAY 3:

## Nutrition and health

12

RESPONSIBLE  
CONSUMPTION  
AND PRODUCTION



## PATHWAY 3: Nutrition and health

International research teams used state-of-the-art models to determine the first-ever global assessment of the extent of use of antimicrobial drugs.

Worldwide livestock antimicrobial consumption is expected to rise 67% between 2010 and 2030.

## PATHWAY 3: Nutrition and health

Can today's  
genetics and health research  
come up with new means  
of preventing animal diseases,  
thereby enhancing the  
responsible and fair use  
of antimicrobials in livestock  
production systems

?

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# PATHWAY 4: Ecosystem health

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BELOW WATER





New technologies in animal nutrition, breeding and health led to a 63% reduction in the total carbon footprint per unit of milk in the US over a 60-year period.

Similar feasible improvements in animal feeds, health and husbandry in South Asia are expected to reduce mixed dairy farming greenhouse gas emissions by 38%.



## PATHWAY 4: Ecosystem health



What kinds of  
technology  
breakthroughs  
could deliver further  
significant efficiency gains  
while also reducing  
the carbon footprint of  
animal agriculture still further

?

IMPERATIVES FOR  
CONDUCTING LIVESTOCK RESEARCH  
‘WITH THE END IN MIND’

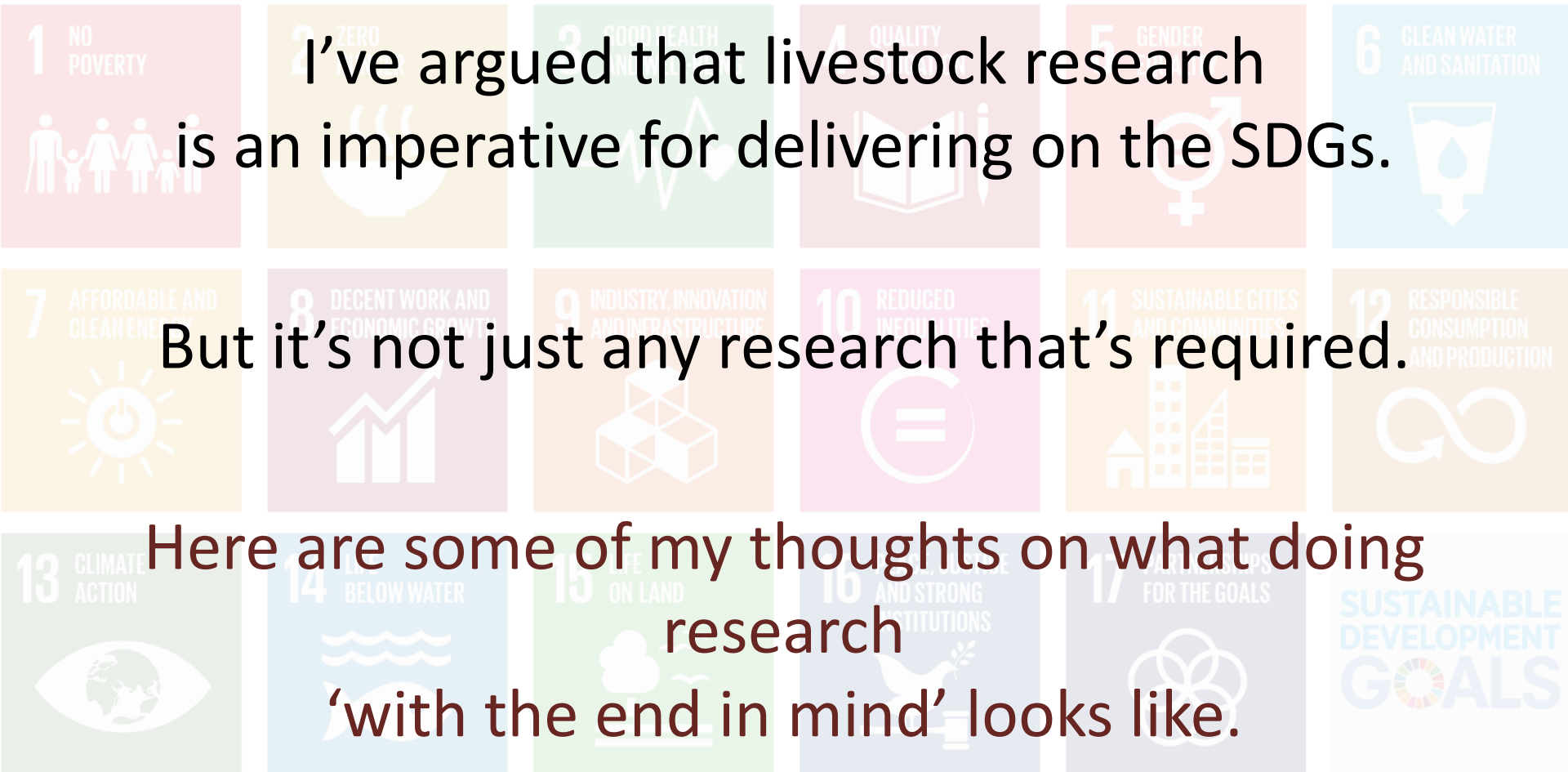
So research is an imperative—  
but not just any research

# SUSTAINABLE DEVELOPMENT GOALS

I've argued that livestock research  
is an imperative for delivering on the SDGs.

But it's not just any research that's required.

Here are some of my thoughts on what doing  
research  
'with the end in mind' looks like.

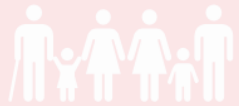


# 1 Deliver solutions for today as well as tomorrow

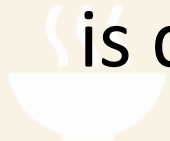
## SUSTAINABLE DEVELOPMENT GOALS

Demonstrate that research  
is delivering results over the:  
short  
medium  
longer  
terms

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SUSTAINABLE DEVELOPMENT GOALS

## 2 Conduct research with the future in mind

# SUSTAINABLE DEVELOPMENT GOALS

The developing world's livestock systems are in big transition and transformation.

Our research solutions should ensure that today's smallholder producers contribute to tomorrow's sustainable livestock systems.



### 3 Ensure research is informed by the evolving smallholder context

## SUSTAINABLE DEVELOPMENT GOALS

2 Understand the context in which research-based interventions will be used and the trajectories smallholders are taking.

Put smallholders at the centre of our research for development: Transforming *smallholder agriculture* is key to meeting the SDGs.

SUSTAINABLE  
DEVELOPMENT  
GOALS

## 4 Avoid disciplinary insularity

# SUSTAINABLE DEVELOPMENT GOALS

Tackle livestock development challenges from the perspectives of 'whole systems'.

Change what we do to ensure that our research complements and adds value to other research components.

SUSTAINABLE  
DEVELOPMENT  
GOALS

# 5 Avoid blanket solutions

## SUSTAINABLE DEVELOPMENT GOALS

Take account of important trade-offs as well as potential synergies.

Tailor solutions to reflect the diversity of how farm animals worldwide are raised and how their products are processed, sold and consumed.

SUSTAINABLE  
DEVELOPMENT  
GOALS

## 6 Harness the diverse priorities of our diverse investors

Different donors have different priorities and ambitions—*e.g. upstream, mid-stream or downstream; technical, biological or social; community-based, institutional or political.*

While serving the specific interests of donors, let's harness this diversity to ensure that it adds up to holistic solutions covering short- to medium- to long-term interventions.

# SUSTAINABLE DEVELOPMENT GOALS

17 PARTNERSHIPS  
FOR THE GOALS



ILRI is delighted to be working  
in this productive partnership  
providing real-world evidence  
for real-world solutions  
for achieving the SDGs

SUSTAINABLE  
DEVELOPMENT  
GOALS

*better lives through livestock*

ilri.org

ILRI thanks all donors and organizations who globally supported its work through their contributions to the **CGIAR system**

*Patron: Professor Peter C Doherty AC, FAA, FRS*

*Animal scientist, Nobel Prize Laureate for Physiology or Medicine—1996*

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