Beef & Coal

The Key Drivers of Australia's High Nitrogen Footprint

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Riding on the Sheep's Back & Sitting on the Mine Car

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Objectives

- Assess the Nr loss driven by food and energy consumption and production in Australia using the N-Calculator model;
- Benchmark Australia's performance of Nr loss against other countries;
- Explore the driving forces and mitigation strategies for the Australia's N footprint.

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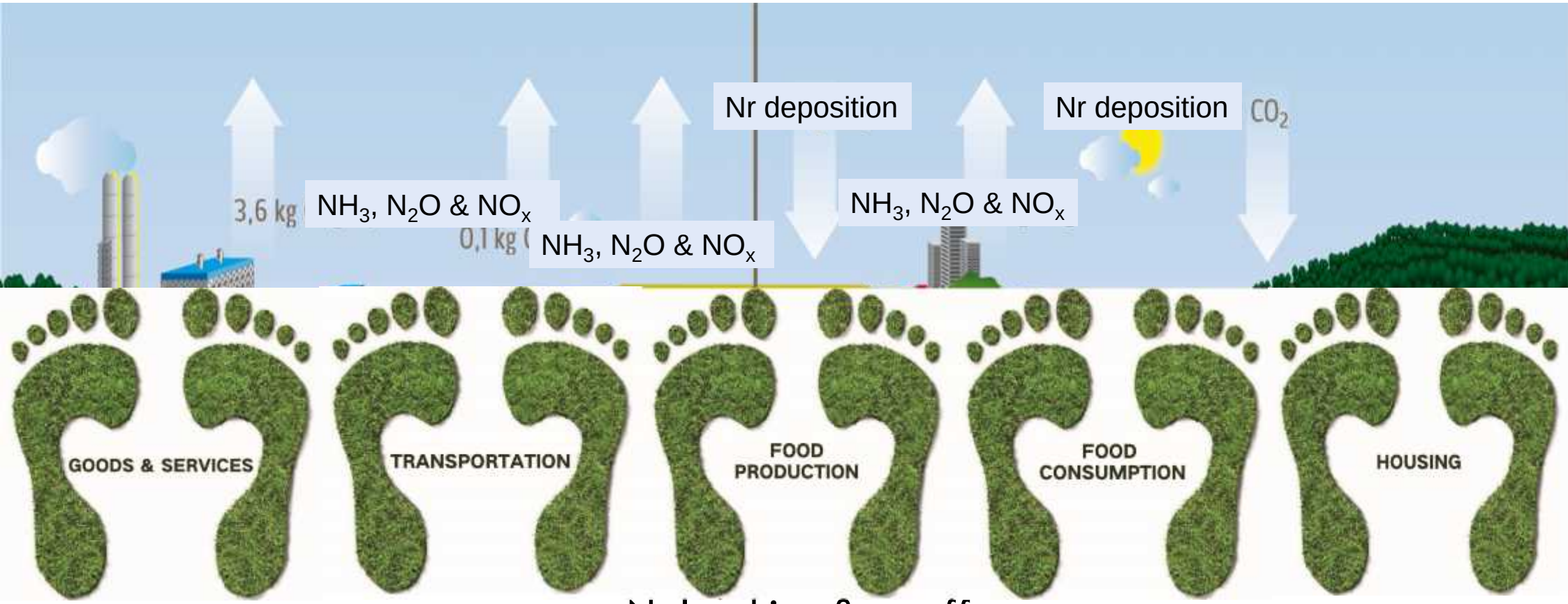
The Nitrogen Dilemma

NOURISHED HALF OF WORLD'S POPULATION

THE NITROGEN CASCADE

Nitrogen Footprint

A **nitrogen footprint** is the amount of reactive nitrogen released to the environment as a result of an entity's resource consumption.



Nr leaching & runoff

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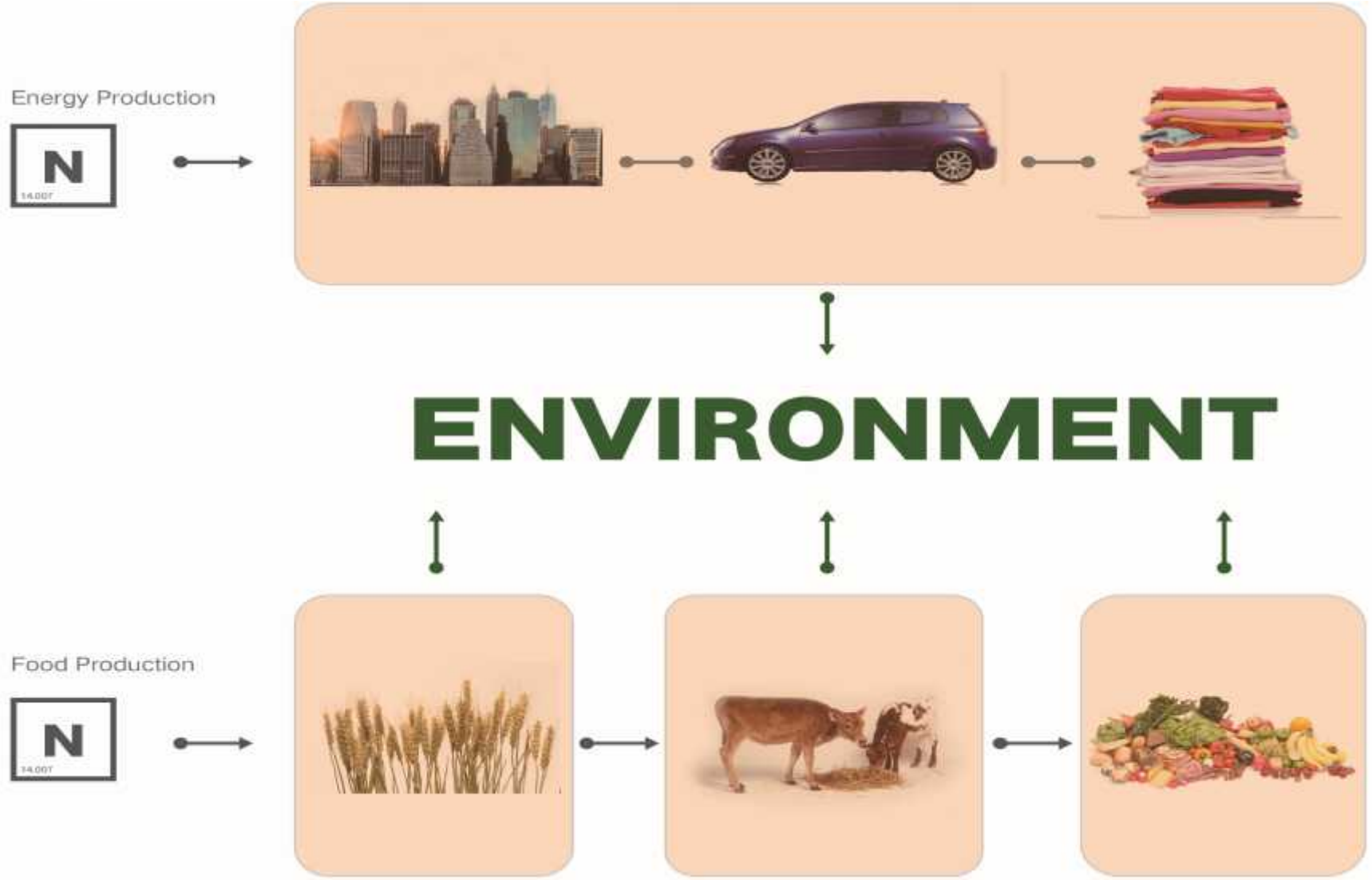
Methodology



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Data source

International data

Sik
ifa INTERNATIONAL FERTILIZER ASSOCIATION
IPNI
FAOSTAT

Australia's governmental data

VICTORIA State Government | Environment, Land, Water and Planning
Australian Bureau of Statistics
Department of Energy & Climate Change
CLIMATE CHANGE AUTHORITY
Australian Government
Department of Agriculture and Water Resources
ABARES
ACT Government
Environment and Planning

Industry data

Dairy Australia
mla
WATER SERVICES ASSOCIATION OF AUSTRALIA
AUSTRALIAN EGG CORPORATION LIMITED
AUSTRALIAN Pork
AUSTRALIAN CHICKEN MEAT FEDERATION INC.

Published articles & Consultation

ELSEVIER
SCIENTIFIC REPORTS
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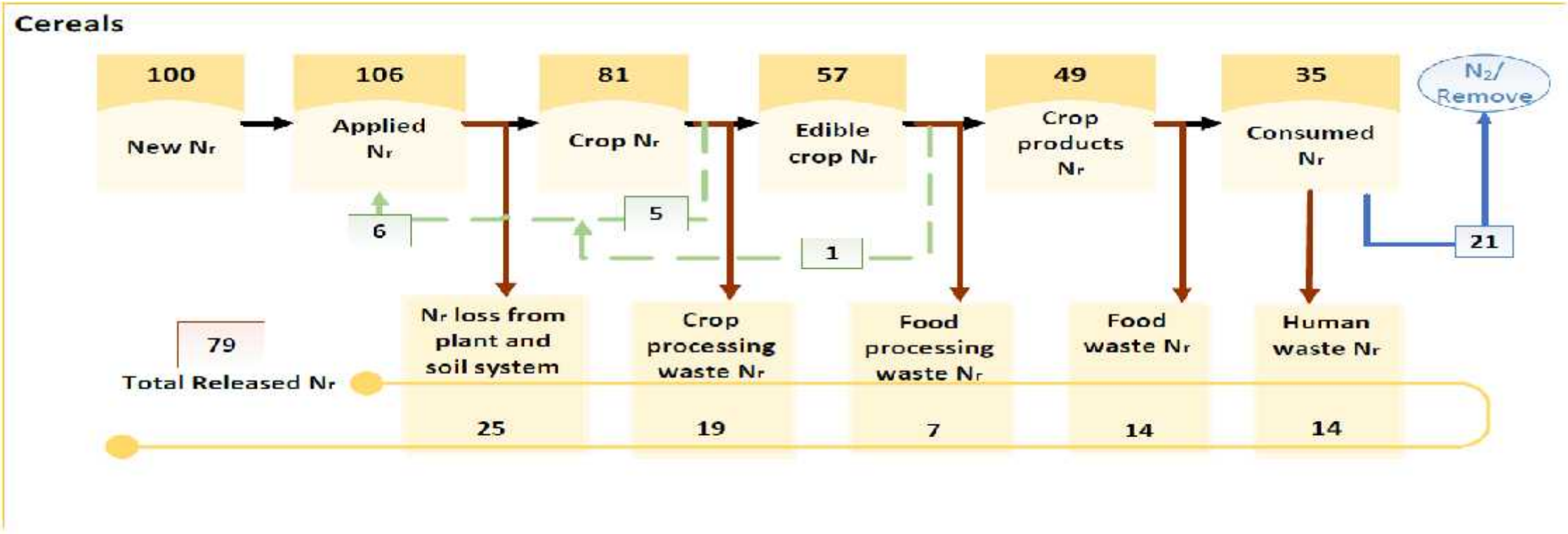
Nr Flow Along the Entire Food Production & Consumption Chain



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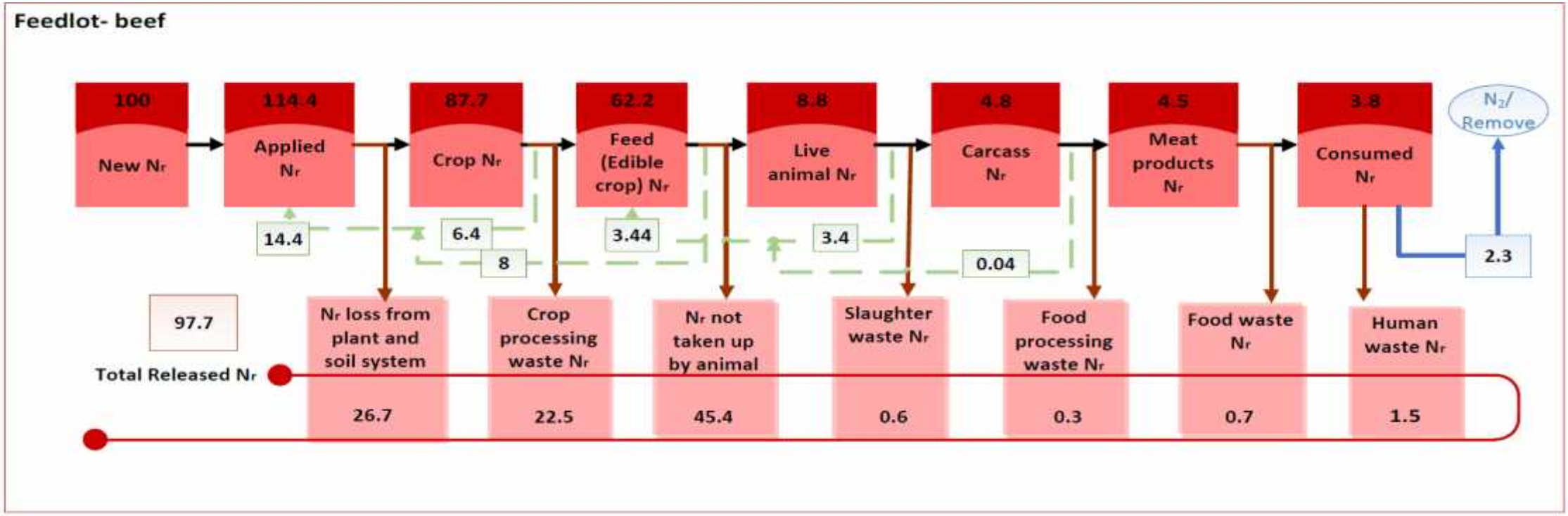
Nr Flow Along the Entire Food Production & Consumption Chain



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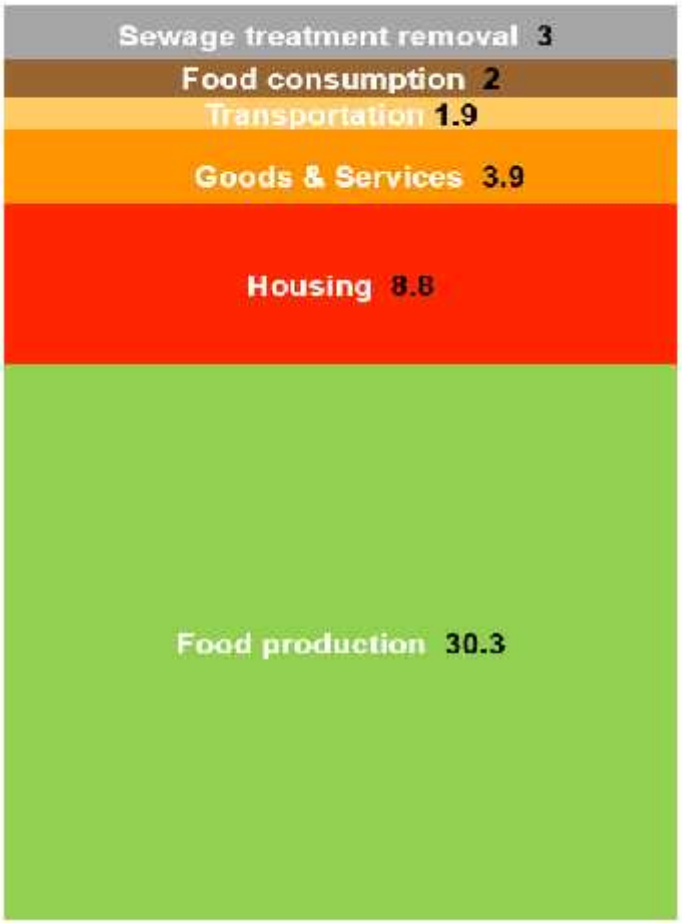
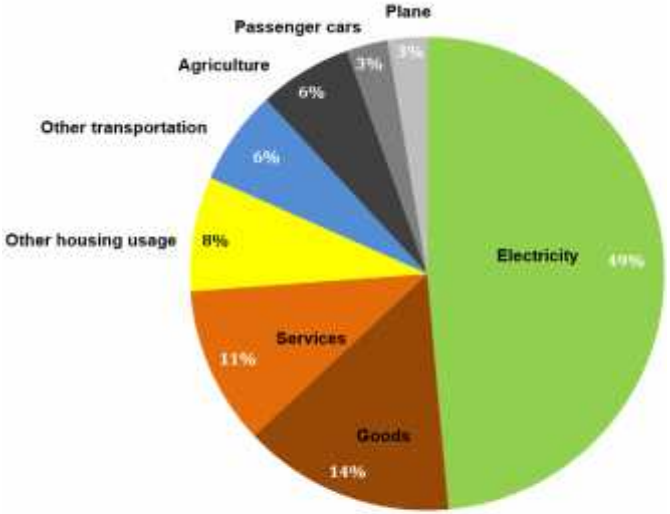
Food Production N Footprint

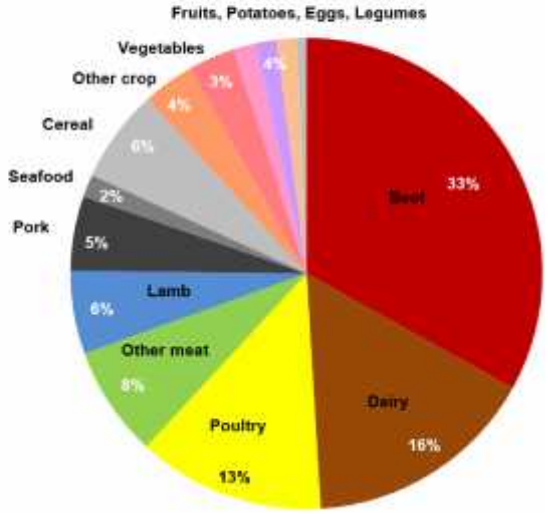
Products											
	Cereals	Legumes	Potatoes	Vegetables	Fruits	Seafood	Poultry	Egg	Dairy	Pork	Beef
	VNFs										
Australia	1.8	1.2	4.9	8.0	9.4	1.9	4.0	4.8	5.0	5.5	13.4
	×										
	Nitrogen consumption										
Australia	0.86	0.13	0.08	0.11	0.04	0.21	0.10	0.78	0.94	0.27	0.77
	=										
	Nitrogen footprints										
Australia	2.43	0.28	0.47	1.03	0.42	0.60	0.52	4.57	5.68	1.79	11.10

Virtual N factors (VNFs; kg N loss (kg consumed N)$^{-1}$), N consumption (kg N capita^{-1} yr^{-1}) and N footprints (kg N capita^{-1} yr^{-1}) for major food categories in Australia.

Australian total N footprint in 2011







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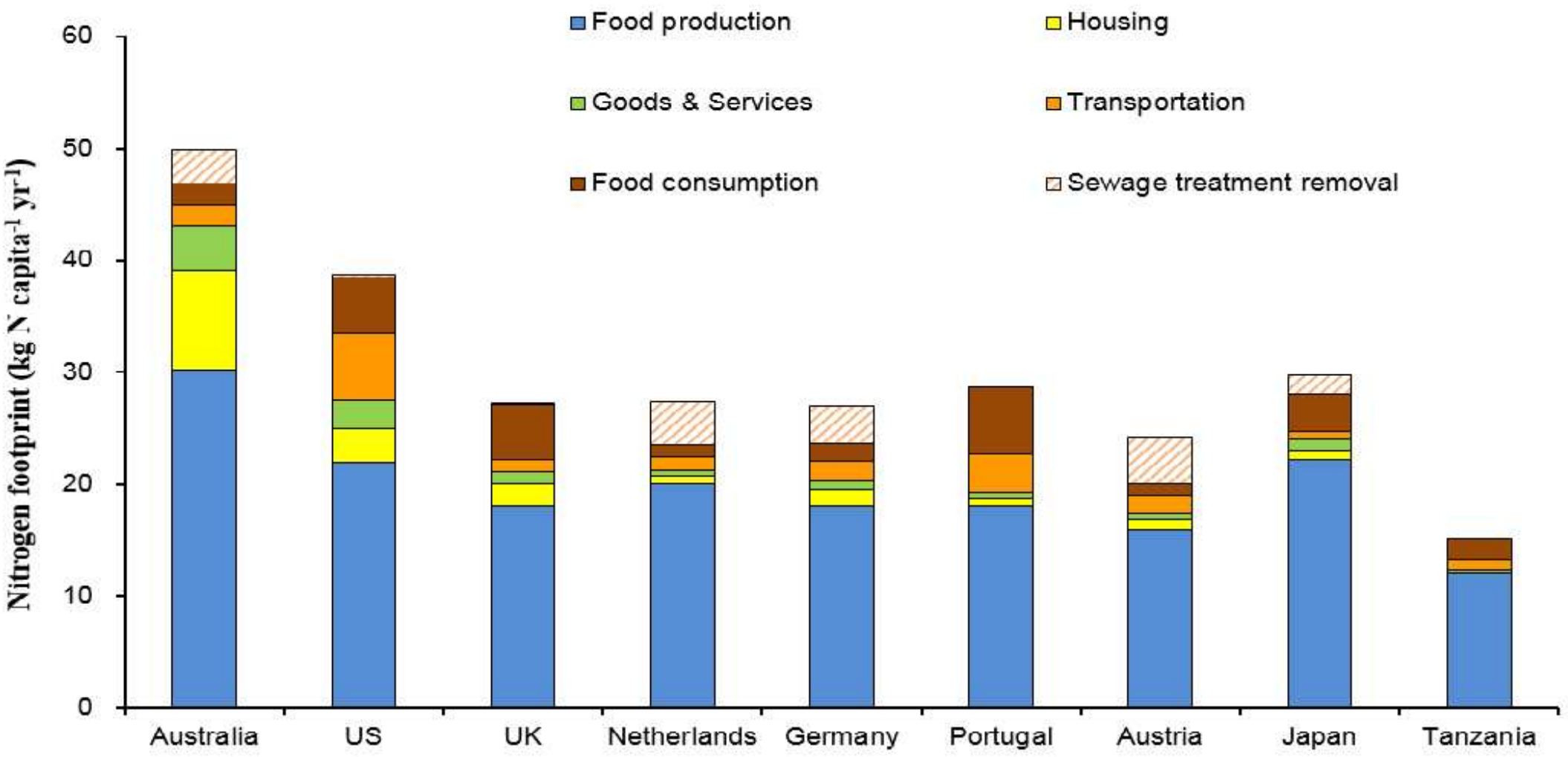
Benchmark Australia's Performance



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Beef Production & Consumption

90%

Farm land for grazing on native pastures, occurring mostly in the arid and semi-arid zones (ABS).

35%

Adult cattle slaughtered and produced approximately 2.34 million tonnes cwt of beef (ABS).

70%

Australians eat about 100g of protein per day, 70% of which comes from meat and dairy(FAO).

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Coal & Electricity Generation

70%

The electricity generated from coal during 2012-2013 (e.g., 43% in the US and 29% in the UK)

400%

Australia emits about 7.5 kg N capita^{-1} from electricity generation in 2011 which doubled and quadruple for the US and the UK

13%

Coal has averaged more than 13 % of Australia's total exports over the last five years

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N Footprint Reduction Strategies

ENERGY & OTHERS

Reduce Energy Use

Public Transportation

Renewable Energy

N Offsets

FOOD

Sustainable Food Production

Wise Food Choices

Reduce Food Waste

Expand Composting & Recycle Foodwaste

Improved Sewage Treatment

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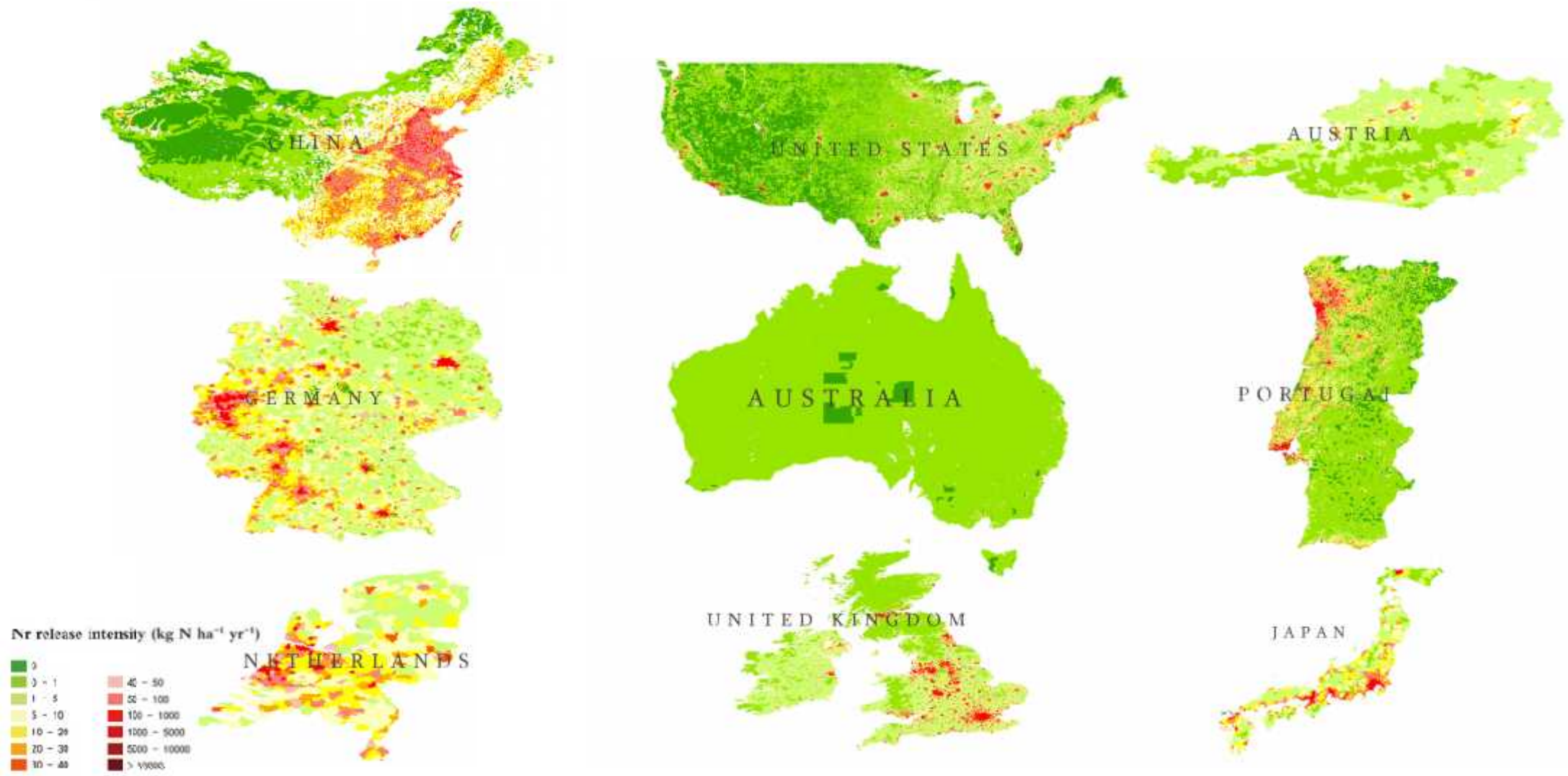
Spatial Comparisons of National Nr Release Intensity for Settlement Area



Thanks

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