



green
alliance...

How to transform the future of food?

Julie Hill , Associate

Green Alliance

'The nutrient cycle demands action on the least glamorous and electorally appealing aspects of environmental policy – soil management, farming systems, the treatment of sewage sludge... The nutrient cycle is not getting the attention it deserves'

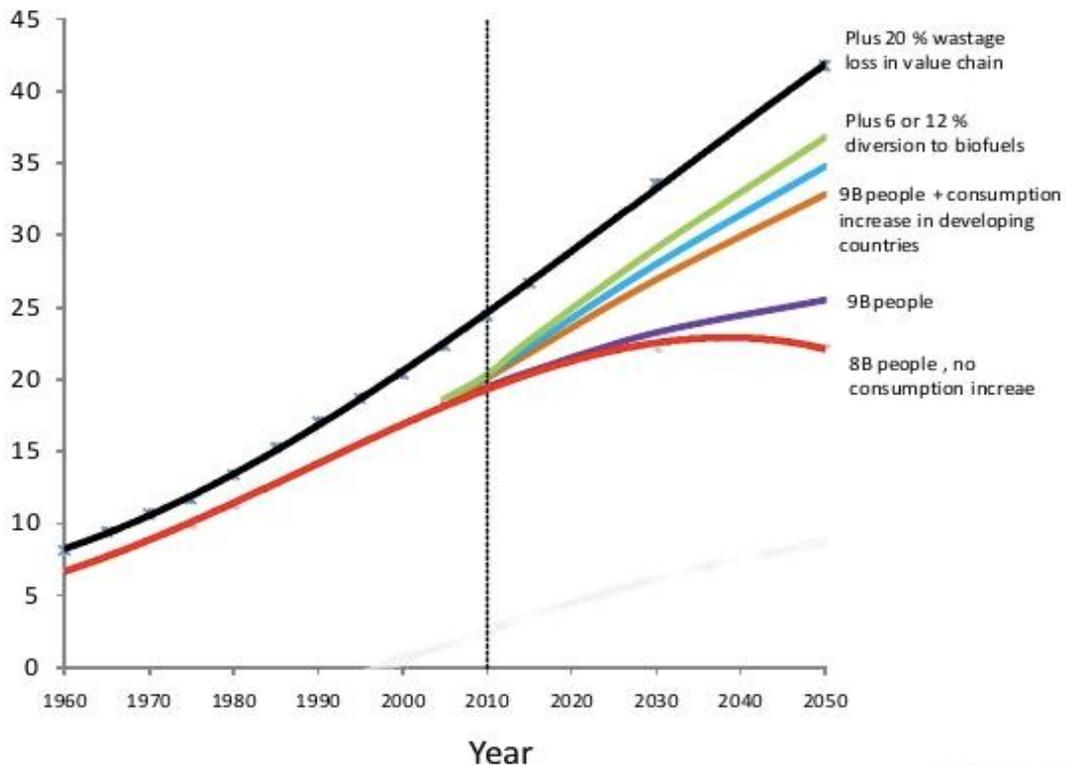
Ian Christie, University of Surrey, in the 2007 Green Alliance Report 'the nutrient cycle: closing the loop'.

'As with the recycling of metals, there is significant market failure in that the environmental externalities of producing phosphate, and of dealing with waste nutrients, are not factored into market prices'

Hislop and Hill in the 2011 Green Alliance Report 'Reinventing the Wheel – a Circular Economy for Resource Security'.

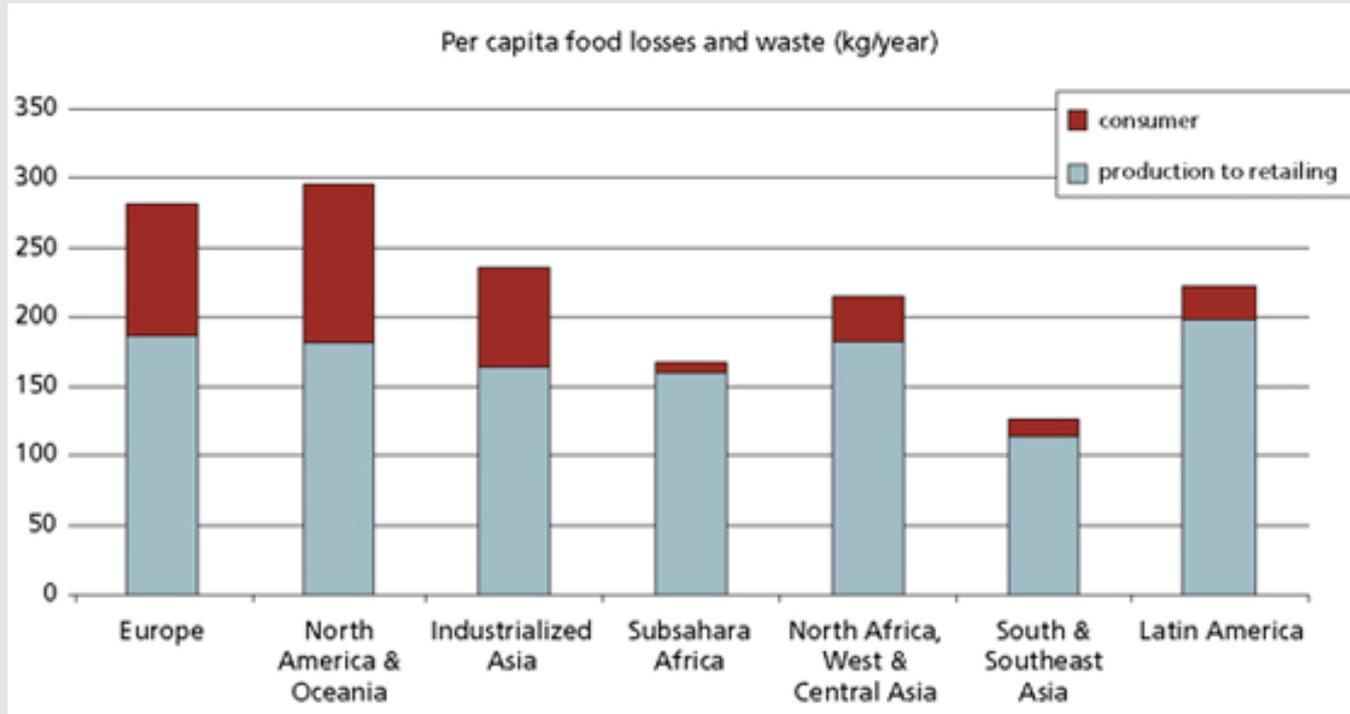
Food demand scenarios 1960 to 2050

green
alliance...





1. Stop Food Waste



“green alliance...”

www.fao.org 2016: 'Roughly one third of food produced in the world for human consumption every year – c.1.3 billion tonnes – gets lost or wasted'.

The food waste problem in the UK



Estimated total UK post farm-gate food and drink waste is around 10 million tonnes per year, 60% of which could have been avoided. This has a value of over £17 billion a year, and is associated with around 20 million tonnes of greenhouse gas (GHG) emissions.

Pre-farm gate waste is still being estimated...

Food Loss Waste Protocol





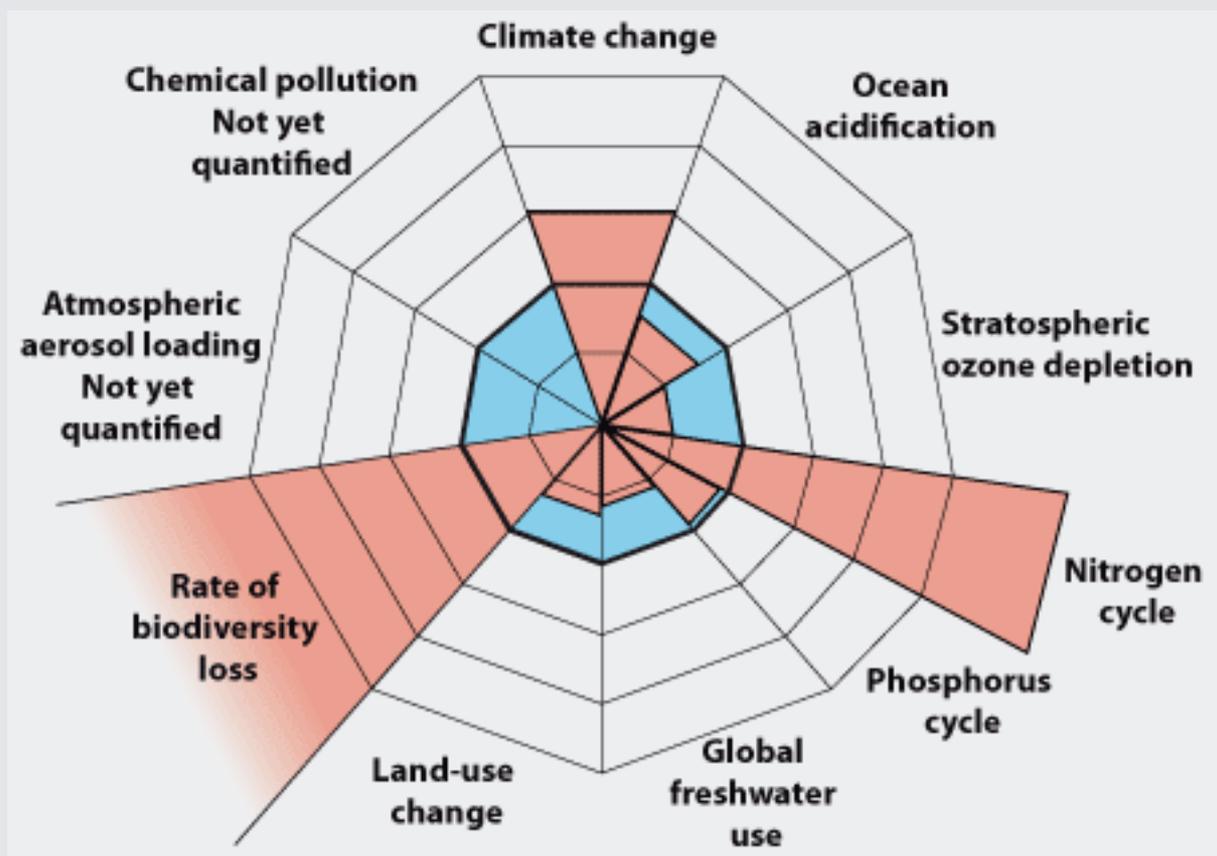
2. Land use policy that meets diverse needs

- Food for a growing population
- Fuel and materials as well
- Protection of water supplies (quantity and quality)
- Preserve and enhance biodiversity
- Flood alleviation and climate change adaptation
- Play a part in climate change mitigation

3. Close the loop for nutrients

Why close the loop?

- All artificial fertilisers are energy intensive to make – Secondary sources could save emissions
- Eutrophication is a global problem – closing loops should be seen as key to ‘precision agriculture’, reducing pollution, reducing costs of water treatment, and greater re-use of water.
- Phosphorous is finite as a primary resource, but readily available as a secondary resource.
- Waste nutrients have value (if the market functions properly)



Policy Principles for Closing the Loop (Lloyd, in Green Alliance, 2007)



- Use of nutrients already in the economy would take priority over manufacture and import of additional nutrients
- Nutrients would be transferred between producers and users because of their value
- Soils would be explicitly recognised as part of the national nutrient resource bank
- Innovation in re-use and recycling should be supported, but over-use discouraged.
- Information on nutrient stores and transfers would be gathered to establish the size of the nutrient surplus.

Establishing Value - A Stable Supply?



- Sewage sludge most abundant source – EU estimates could meet 20% of current annual demand of 975,000 tonnes imported P
- Anaerobic digestion or composting of food wastes another source, but capture rate still low (of 10m tonnes of 'post-farm gate' food waste in UK, only 1.8m tonnes recycled).
- At least 4m tonnes of above is 'unavoidable' food waste, so plenty of potential, even with better waste prevention. Digestate is 15% less by mass than feedstock; P of 0.2-1.5 kg per tonne

A stable supply – the challenges



- Quality – the constant challenge of secondary materials
- A more flexible and transportable product
- Impact of waste regulations
- Predictable cost of production

A stable market – the challenges

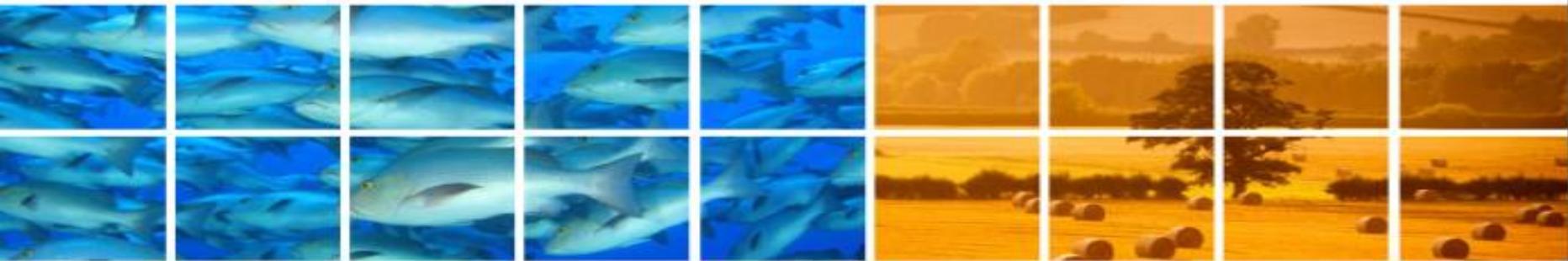


- Public perceptions of use on food crops
- Right nutrients in right place at right time
- Customer perceptions of supply security
- Price/contract structure geared to customers' needs (in particular, relative to primary product alternative)

A stable market – possible instruments?



- Blending mandates – issues of enforcement?
- Recycling credits
- Primary materials levy – recycled to promote innovation in secondary resource use?
- Voluntary off-take agreements – but need careful contracting to avoid failing under price pressure
- Cross-compliance measures under CAP
- Public sector procurement requirements (an under-used tool)



Food Futures



from business as usual
to business unusual



Contact:

Julie Hill , Associate

jhill@green-alliance.org.uk

www.green-alliance.org.uk

or

Julie.Hill@wrap.org.uk

www.wrap.org.uk