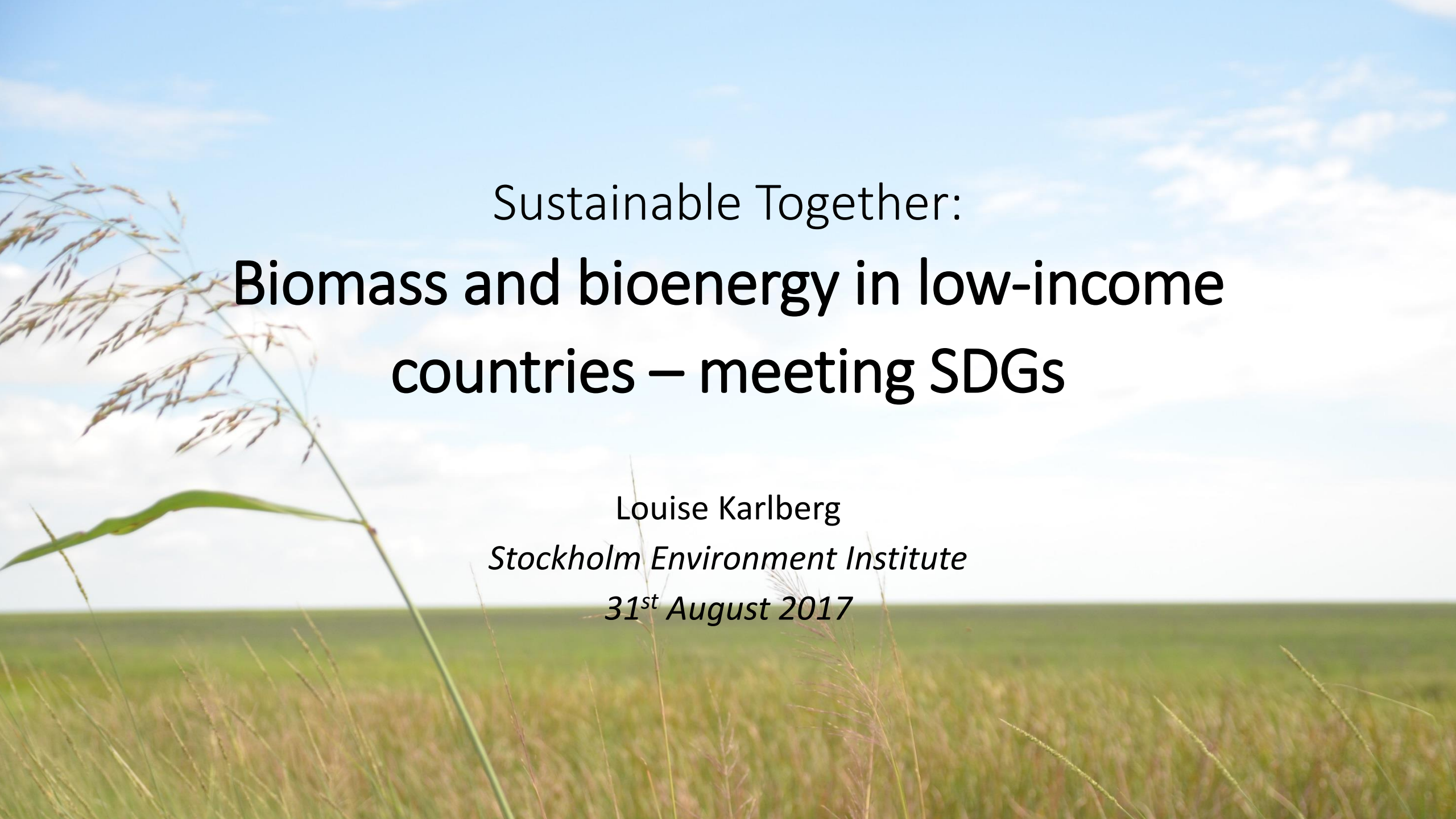


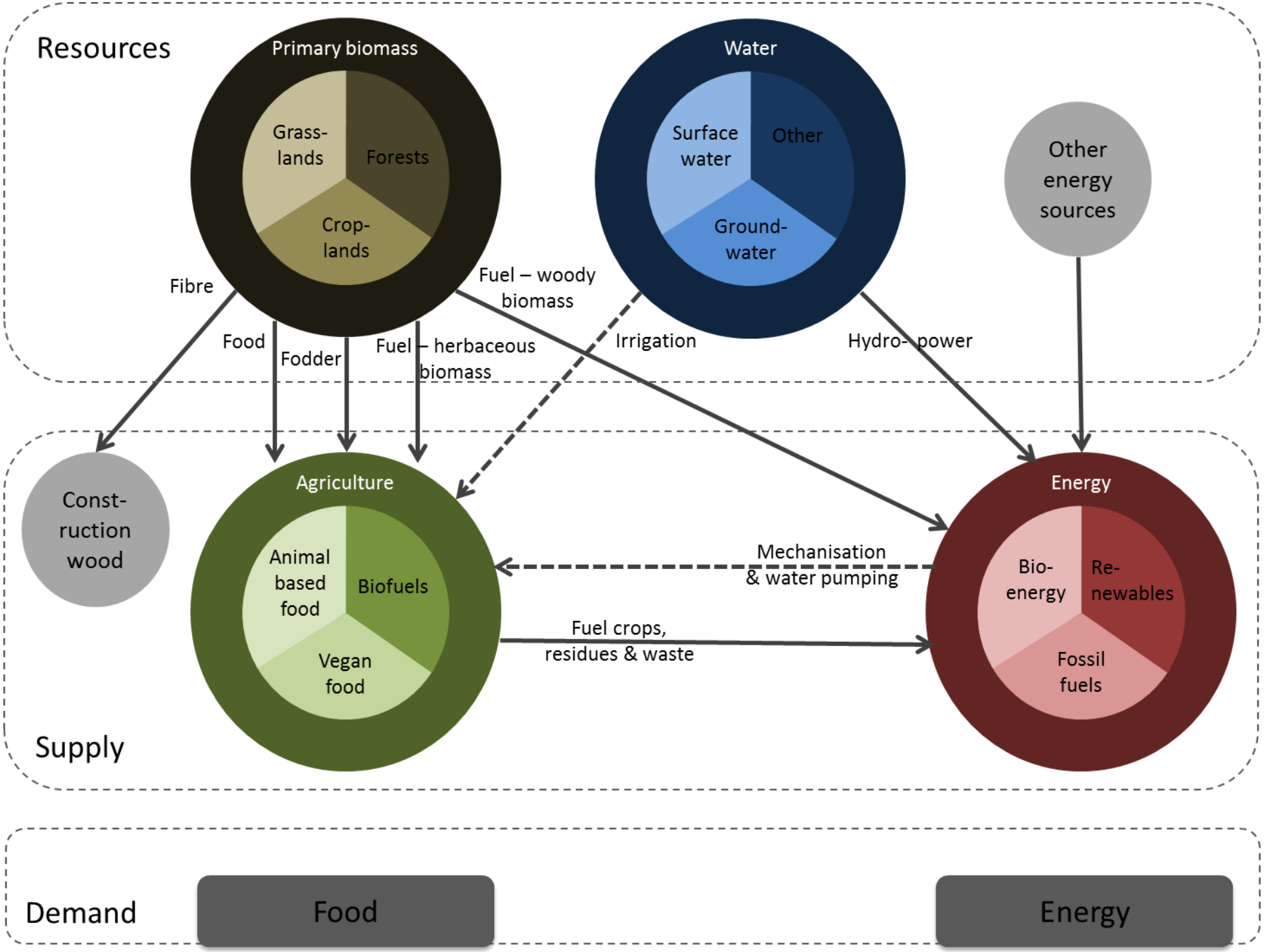
Sustainable Together:

Biomass and bioenergy in low-income countries – meeting SDGs

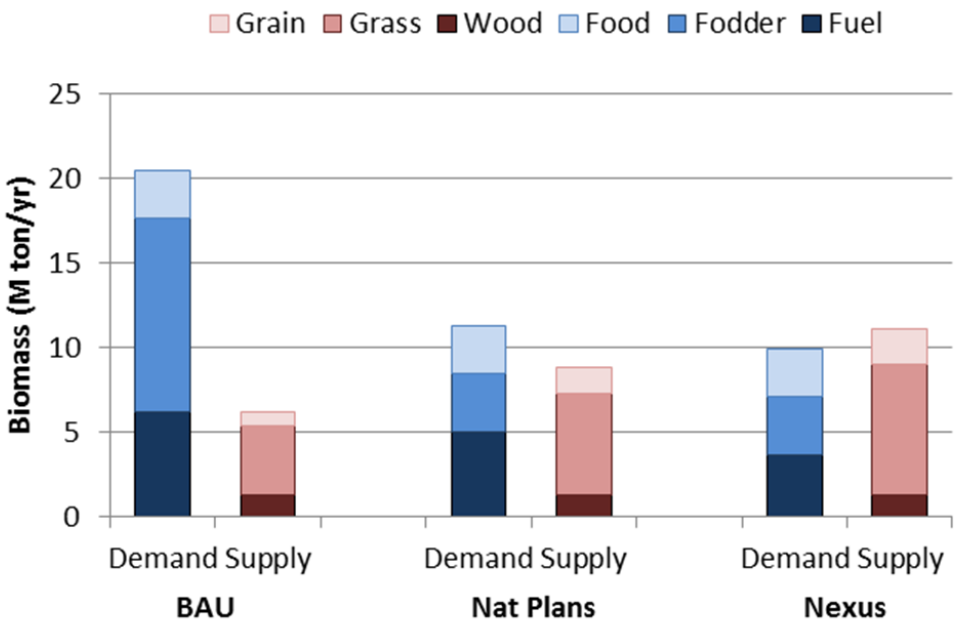
Louise Karlberg

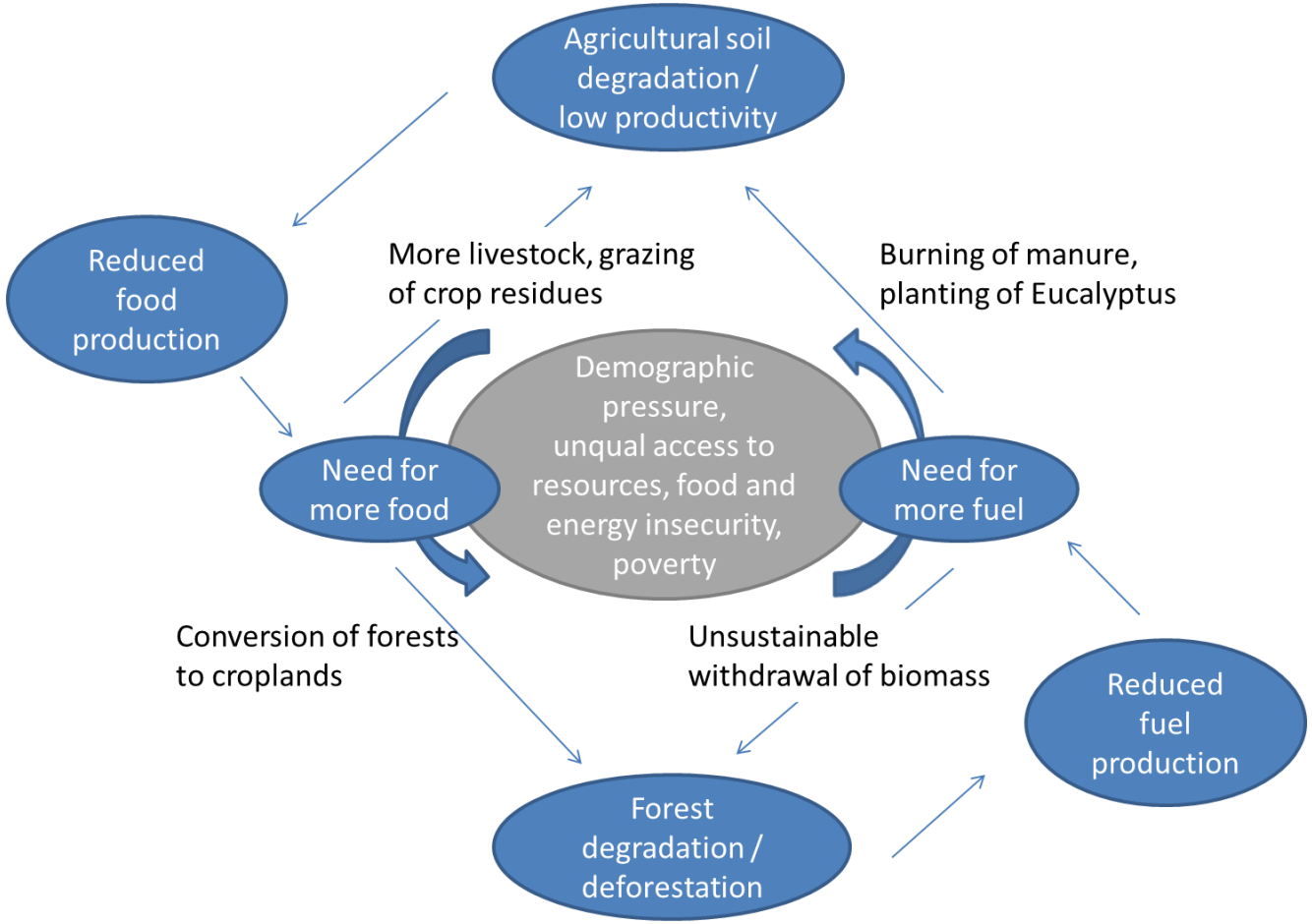
Stockholm Environment Institute

31st August 2017


Resources
Primary biomass
Grass-lands
Forests
Crop-lands
Water
Surface water
Other
Ground-water
Other energy sources
Fibre
Food
Fodder
Fuel – herbaceous biomass
Fuel – woody biomass
Irrigation
Hydro- power
Const-ruction wood
Agriculture
Animal based food
Biofuels
Vegan food
Energy
Bio-energy
Re-newables
Fossil fuels
Mechanisation & water pumping
Fuel crops, residues & waste
Supply
Demand
Food
Energy

Vicious cycles: an example from Ethiopia





Bringing it all together: an example from Rwanda

Biomass **demand**:

- 3.2 Mton fuelwood (for direct use)
- 1.5 Mton fuelwood for charcoal prod. (0.226 Mton)
- 0.1 Mton construction wood

Total demand: 4.8 Mton out of which **4.2 Mton** is stemwood and branch wood

Sustainable **supply**:
3.2 Mton

Gap: 0.9 Mton = **21%**

Source: Drigo et al 2013

Some key variables	Unit	Rwanda
GDP (2013)	US$	639
Population (now)	million	11.8
Population 2030	million	17.8
Population density	cap/km^2	477
Size of the country	Mkm^2	0.026
Cropland area	%	75.3
Forest area	%	18.4
Annual precipitation	mm/yr	1212
Average crop productivity (maize)	ton/ha	2.3
Electricity generation	MW	110
Access to electricity	%	11

Adapted from SRC

Conclusions

- Biomass is a key component in the current energy systems and is likely to remain like that in large parts of the world in the near future
- In many low-income countries demand exceed supply, which tends to result in unsustainable use
- Bioenergy use impacts on water
- Potential to contibute positively to meeting several of the SDGs
- Warrants substantially more attention