

Introduction of the IPC proposed broad thematic areas

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Resource use efficiency

- Identified as core theme in *Brasilia Consensus*
- Resource use efficiency: amount of natural resource engaged and noxious emissions generated per unit of product (service)
- Applies to a range of contexts both, in terms of demand for animal products and status of natural resources

Three proposed themes

1. Closing the efficiency gap in natural resource use
2. Restore value to grassland: supporting soil carbon, ecosystem health and productivity restoration with climate finance
3. Zero discharge: towards full recovery of nutrient and energy from animal manure

Proposed by the Interim Preparation Committee, for discussion.

Economic and Social elements to be addressed within the themes.

Closing the efficiency gap in natural resource use

- **Issue:** growth in the context of resource constraint
 - historically, agricultural R&D has focused on improving efficiency with which conventional inputs (labor, capital, land) are transformed into marketable outputs, not natural resources (water, biodiversity, soil)
 - productivity gains can be but are not necessarily associated with efficiency gains
 - the efficiency gap measures the “distance” between any producer and top performers in similar agro-ecological conditions

Closing the efficiency gap in natural resource use

- **Game Changer** : Increasing and volatile price of natural resources
- **Proposition**: Bridge the efficiency gap, rather than move the efficiency frontier

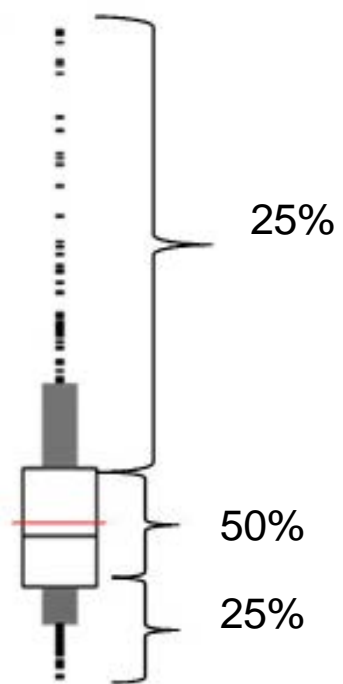
Closing the efficiency gap in natural resource use

- **Target:** market oriented production, especially in emerging countries
- **Entry points:**
 - Develop metrics of resource use efficiency - *Partnership on benchmarking and monitoring the environmental performance of livestock supply chains*
 - foster innovation (access to capital and technology) and adoption of efficient practices and technology (extension) , especially for small holders
 - improve animal health
 - strengthen price signals (removal of subsidies to NR use)
 - foster business opportunities, and financial benefits

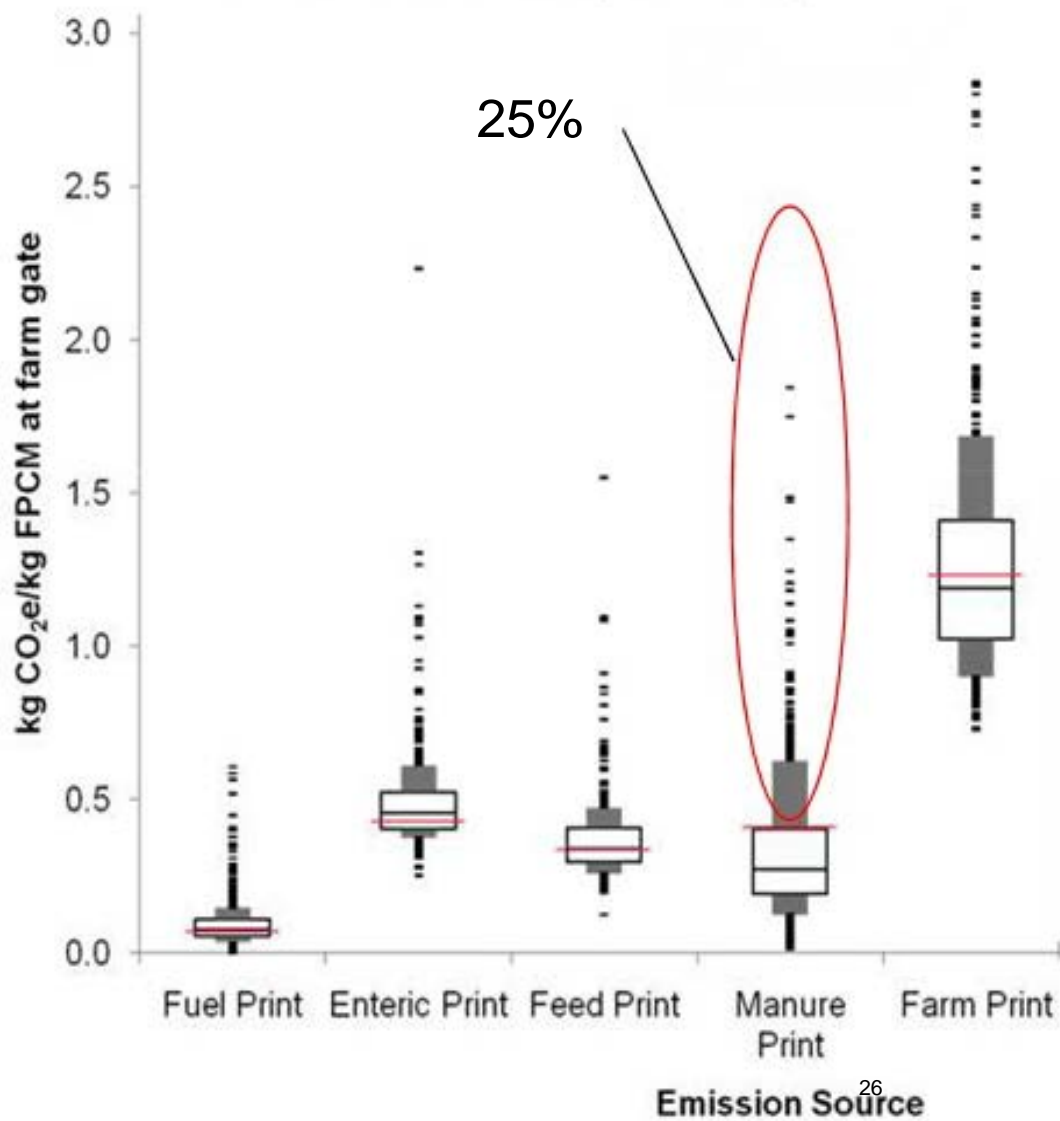
Closing the efficiency gap in natural resource use

- **Questions and challenges :**
 - *How to ensure that the process doesn't increase the livestock sector dichotomy?*
 - *Bridge the efficiency gap or move the efficiency frontier ?*

Variability means opportunities



National Farm Survey Summary



Restore value to grassland

- **Issue** : limited recognition of grassland and extensive systems value, despite their extent
 - improved range management can lead to an increase of soil carbon: average 0.81 to 0.13 tCO_{2-e} ha⁻¹ yr⁻¹ for moist and dry grasslands, respectively (IPCC, 2006)
 - strong synergies between productivity gains, climate change mitigation and adaptation and other environmental services
 - issues with permanence and saturation of sequestration
 - lack of understanding and neglect of pastoral communities

Restore value to grassland

- **Game Changers:**
 - pricing of environmental services (PES, carbon markets)
 - climate change
 - demography
- **Proposition:** grassland soil carbon restoration through better management systems: yield synergies between productivity gains, climate change mitigation and adaptation and other environmental services

Restore value to grassland

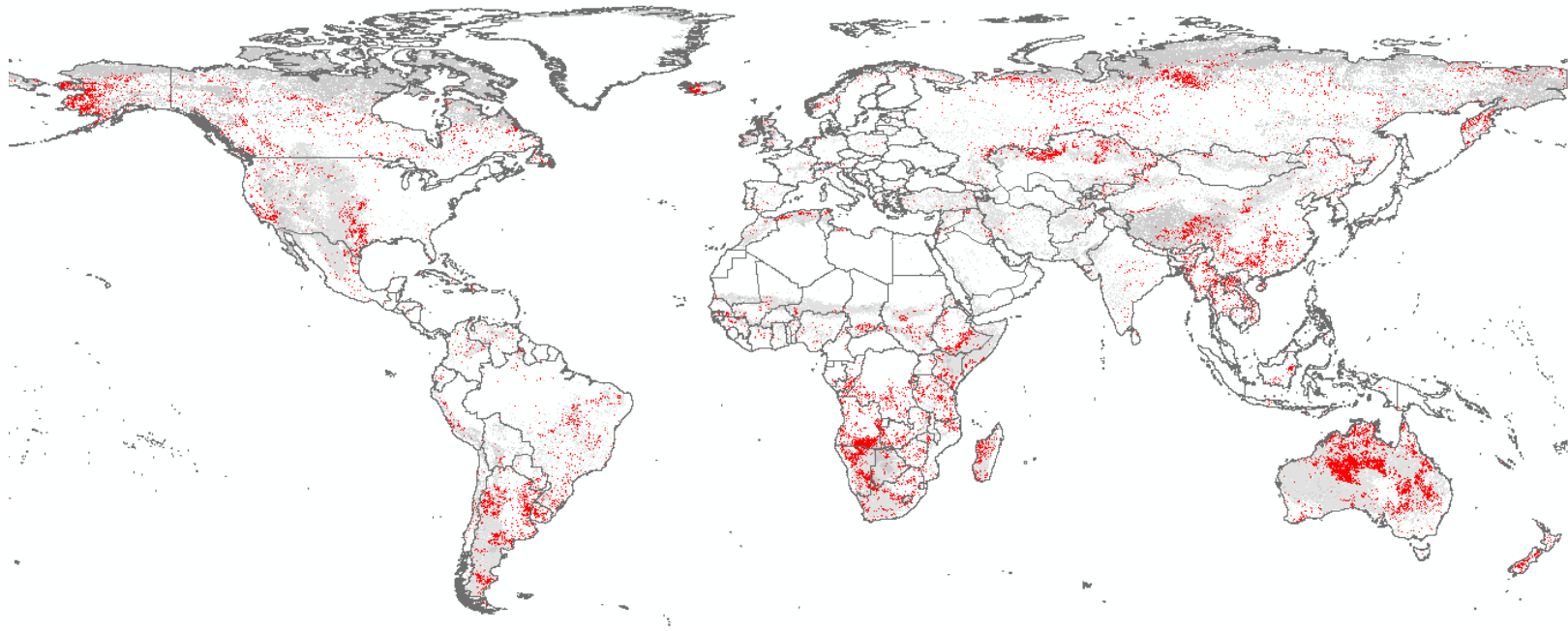
- **Target:** degraded grasslands receiving 300mm rainfall or more
- **Entry points:**
 - develop financial framework (e.g. REDD for pasture, dedicated c credit standard, or adaptation finance – Green Climate Fund),
 - develop methodologies for Monitoring Reporting Verification
 - develop climate change resilience strategies
 - identify institutional mechanisms for benefit sharing, stewardship and liability

Restore value to grassland

- **Questions and challenges:**

- *How to combine mitigation, adaptation, and productivity gains? Do we need an entry point for the business case?*
- *What is the prospect for C markets vs adaptation finance in the near future?*
- *How to ensure action has maximum effect on poverty alleviation and food security?*
- *How to reflect the diversity of systems and yet have an unified goal? Do we have enough information on current trends and issues?*

Degraded grasslands



*Satellite derived map using NDVI (Normalized Difference Vegetation Index) data from 1981 until 2003
Methods to obtain this map: NDVI is converted to NPP (net primary productivity) and corrected by Rain-Use Efficiency (correct the rainfall variability effect).
the trend in time (1981-2003) defines improvements (higher NDVI) or decline of the vegetation*

Towards zero discharge: recovery of nutrient and energy from animal manure

- **Issue:** Discharge of animal manure into the environment causes pollution of soils and water resources, as well as the emission of noxious gases
 - total amounts of nutrients in livestock excreta > synthetic fertilizers
 - 50 to 90 percent of the nutrients contained in feed are excreted in manure
 - manure management technologies and practices broadly developed but not adopted
 - nutrient and energy recovery: any activity that uses the nutrients or energy embedded in animal manure

Towards zero discharge: recovery of nutrient and energy from animal manure

- **Game Changer:** Obligation to reduce direct discharge of manure into the environment
 - pressure from local communities and peers & regulation
- **Proposition:** move towards zero discharge and recovery of nutrient and energy from animal manure

Towards zero discharge: recovery of nutrient and energy from animal manure

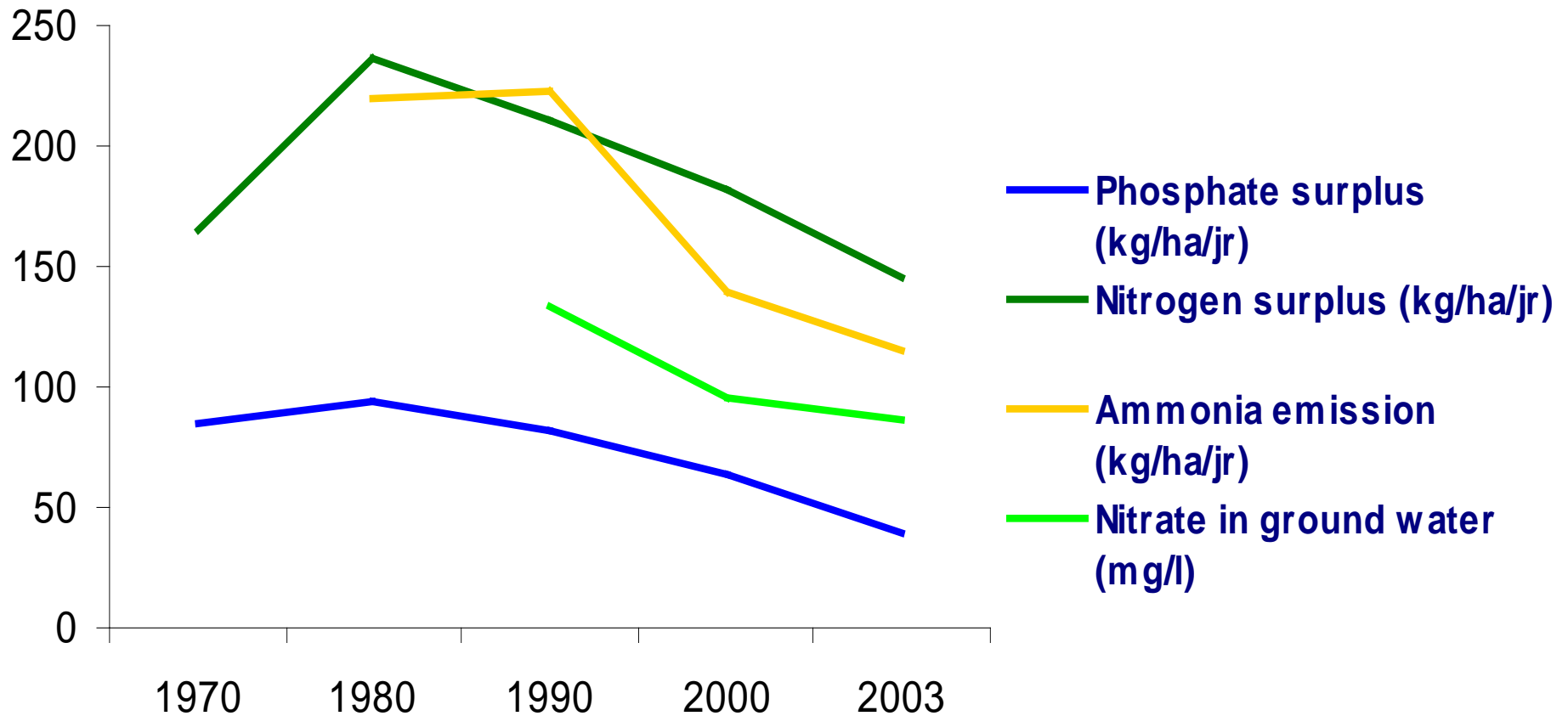
- **Target:** medium to large intensive production units
- **Entry points:**
 - ease the adoption of “end of the pipe” technical options (composting, anaerobic digestion): access to capital, extension
 - develop policies, e.g. spatial planning, required manure management plans, reduced fertilizers subsidies.

Towards zero discharge: recovery of nutrient and energy from animal manure

- **Questions and challenges:**

- *Is this proposition within reach? Does it require further targeting (species, regions) and related phasing ?*
- *Is there general agreement on the relative low R&D priority in this area?*
- *How to ensure that the process doesn't increase the livestock sector dichotomy?*

Change in nutrient emission - the Netherlands



Are these the right themes? Are they well formulated?

- Are they **relevant**?
- Do they **bring stakeholders together** on common objectives?
- Do they offer an appropriate thematic **focus for action** ?
- Does the GAA (multi-stakeholder process) have a **comparative advantage** in addressing them?
- Are there **other key themes** that should be considered?
- Are we satisfied with having **economic and social elements** addressed within “technical” themes?