

Carbon footprinting and carbon labelling in agriculture.

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Seminar „ICT and rural areas“, Brussels, 10 February 2011

CARBON FOOTPRINTING AND CARBON LABELLING IN AGRICULTURE.

- » Is there scope for the introduction of carbon footprinting and carbon labelling into rural development?
- » How can ICT contribute to this?

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» Berlin based “think-do” tank

Creating win-win partnerships for the accelerated transition to a low carbon society

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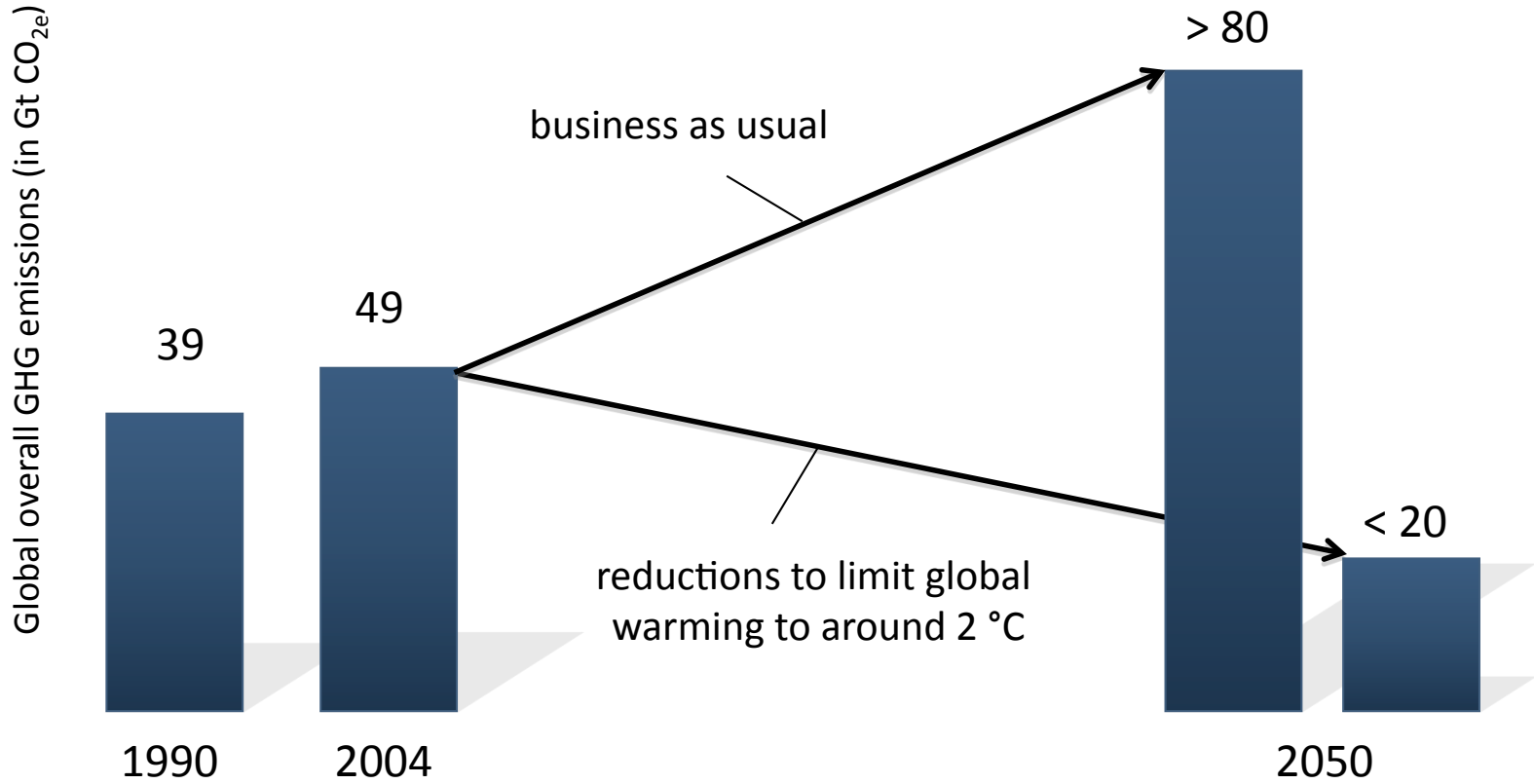


PCF World Forum



Carbon Footprinting Basics.

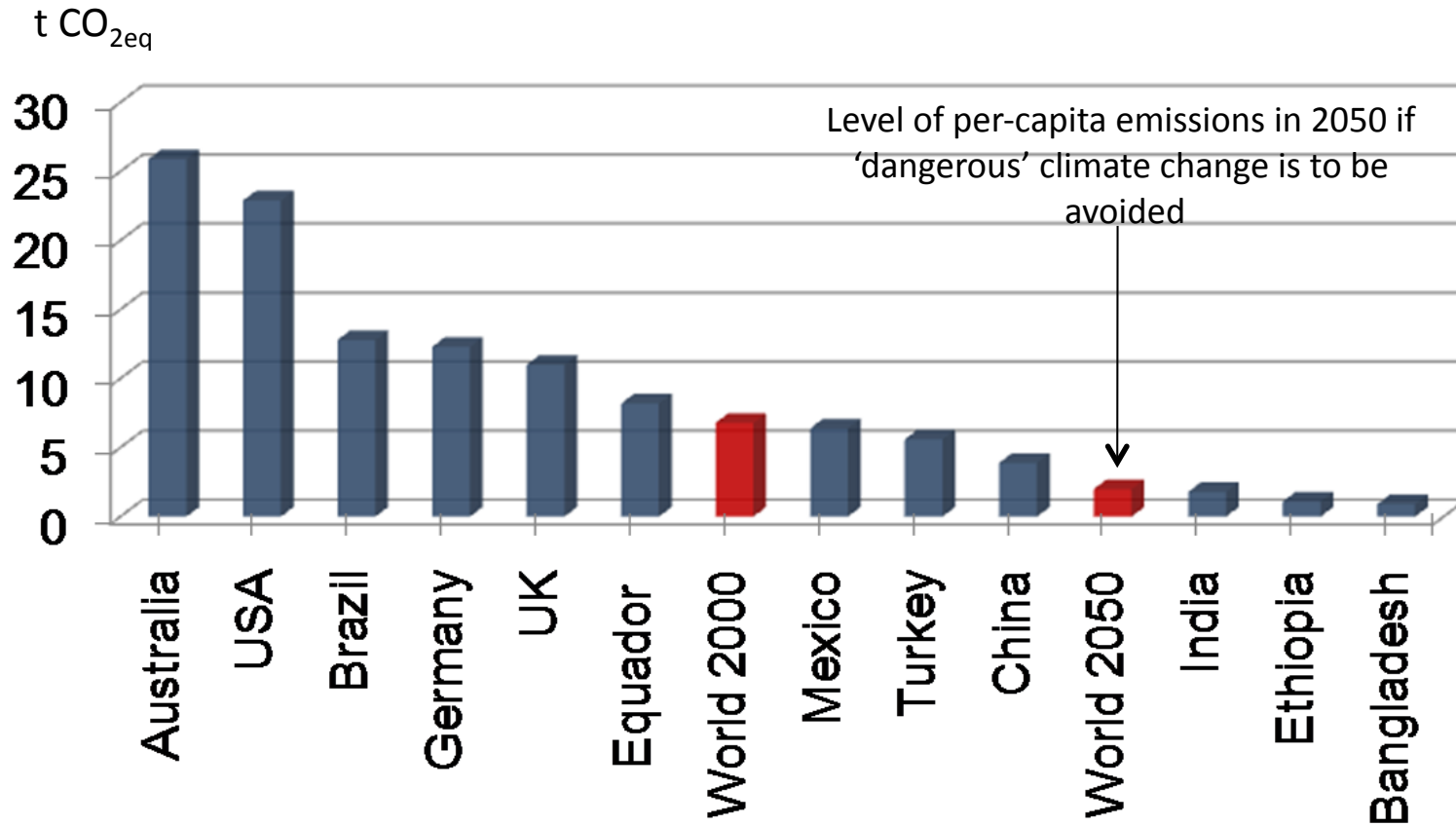
AVOIDING 'DANGEROUS' CLIMATE CHANGE.



Source: IPCC 2007, Stern 2008

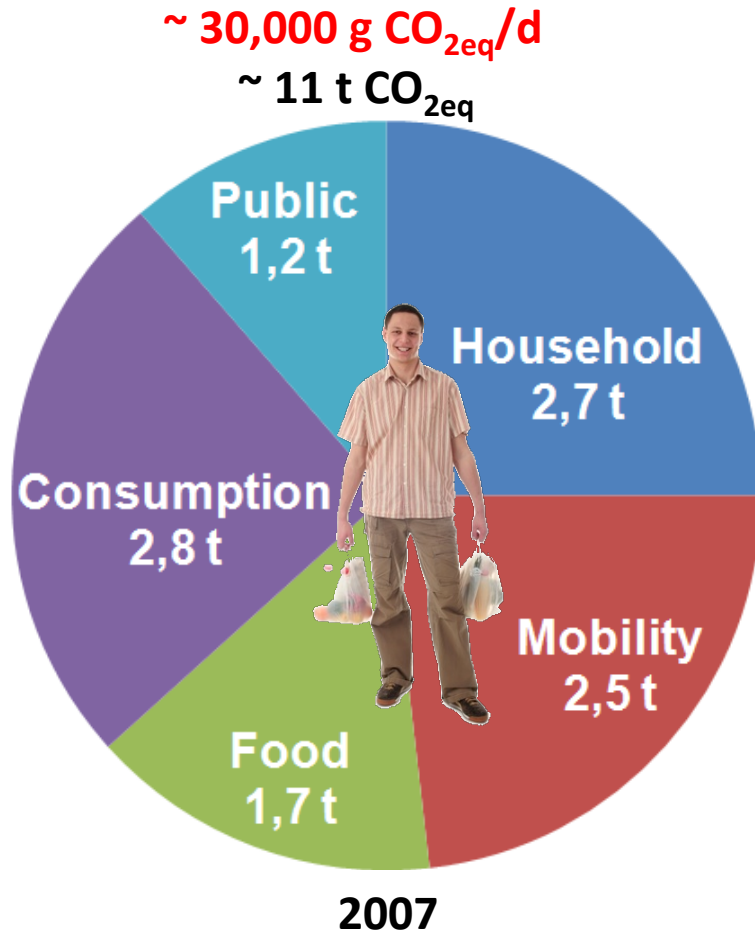
PER-CAPITA EMISSIONS IN 2000 (SELECTED COUNTRIES)

COMPARED TO 2050 REQUIREMENT.

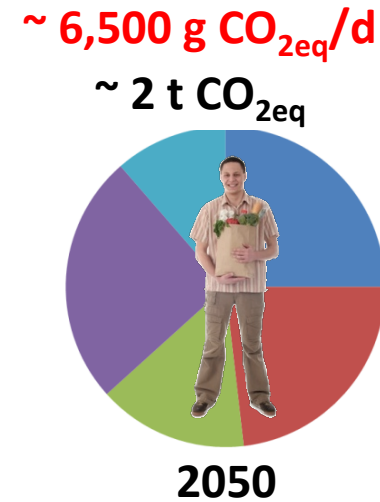


Source: WRI

THE CHALLENGE OF REDUCING PER-CAPITA EMISSIONS.

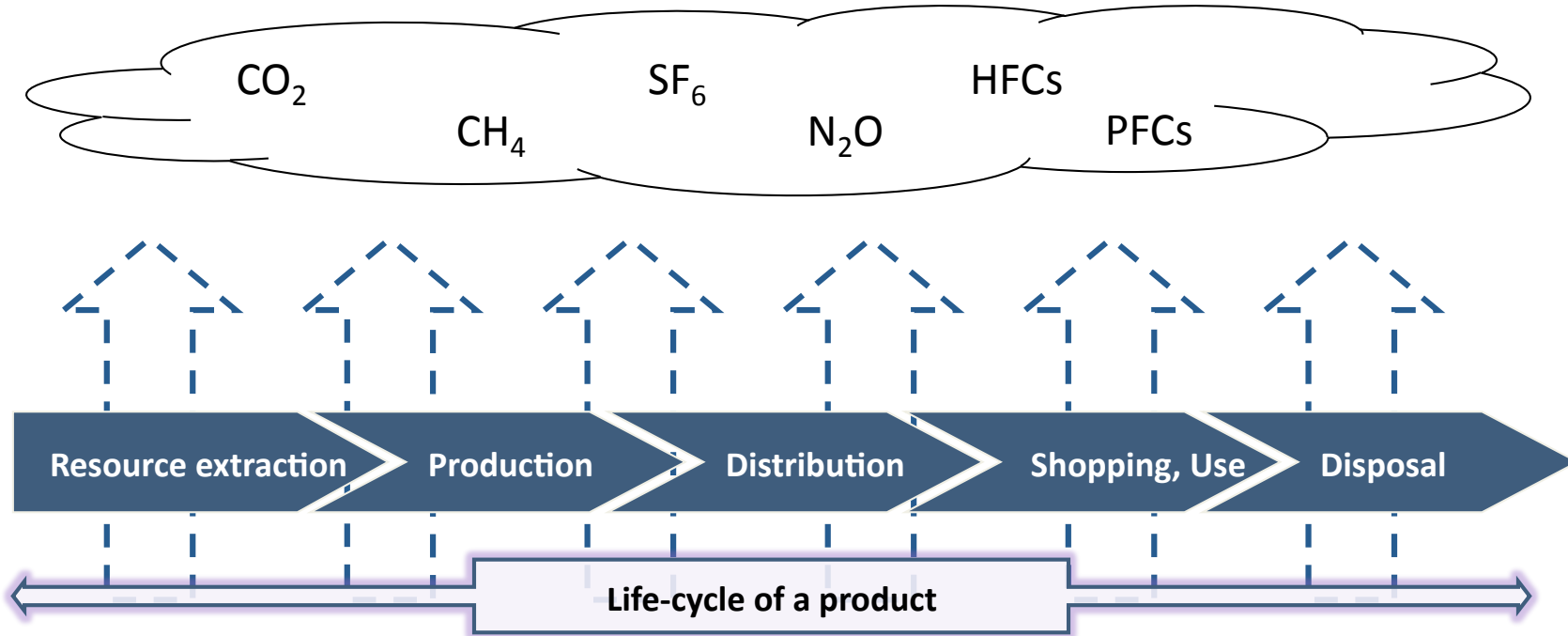


Consumer products and food alone contribute more than 40 % to the per-capita footprint of close to 11 t CO_{2e}



Source: UBA 2007

PRODUCT CARBON FOOTPRINT.



The **Product Carbon Footprint** describes ...

... the sum of greenhouse gas emissions accumulated during the full life cycle of a product (good or service) in a specified application.

OBJECTIVES FOR INVESTIGATING A PRODUCT

CARBON FOOTPRINT.

- » Create transparency in the value chain with respect to upstream and downstream processes and the players involved,
- » Increase awareness of the greenhouse gas emissions along the value chain and identify emissions-intensive phases in particular,
- » Identify areas where there is potential for reducing emissions (for example, by optimizing the process chains),
- » Come up with ideas for the (further) development of a climate strategy,
- » Analyze and evaluate how relevant greenhouse gas emissions are in comparison to other impacts that a product has on the environment.

» You cannot manage what you do not measure !

Source: Lesson's Learned, PCF Pilot Project, 2009.

COMMUNICATION IS AN IMPORTANT DRIVER.

- » How can consumers best identify climate compatible consumption options?
- » How can companies best inform about the climate credentials of their offers?



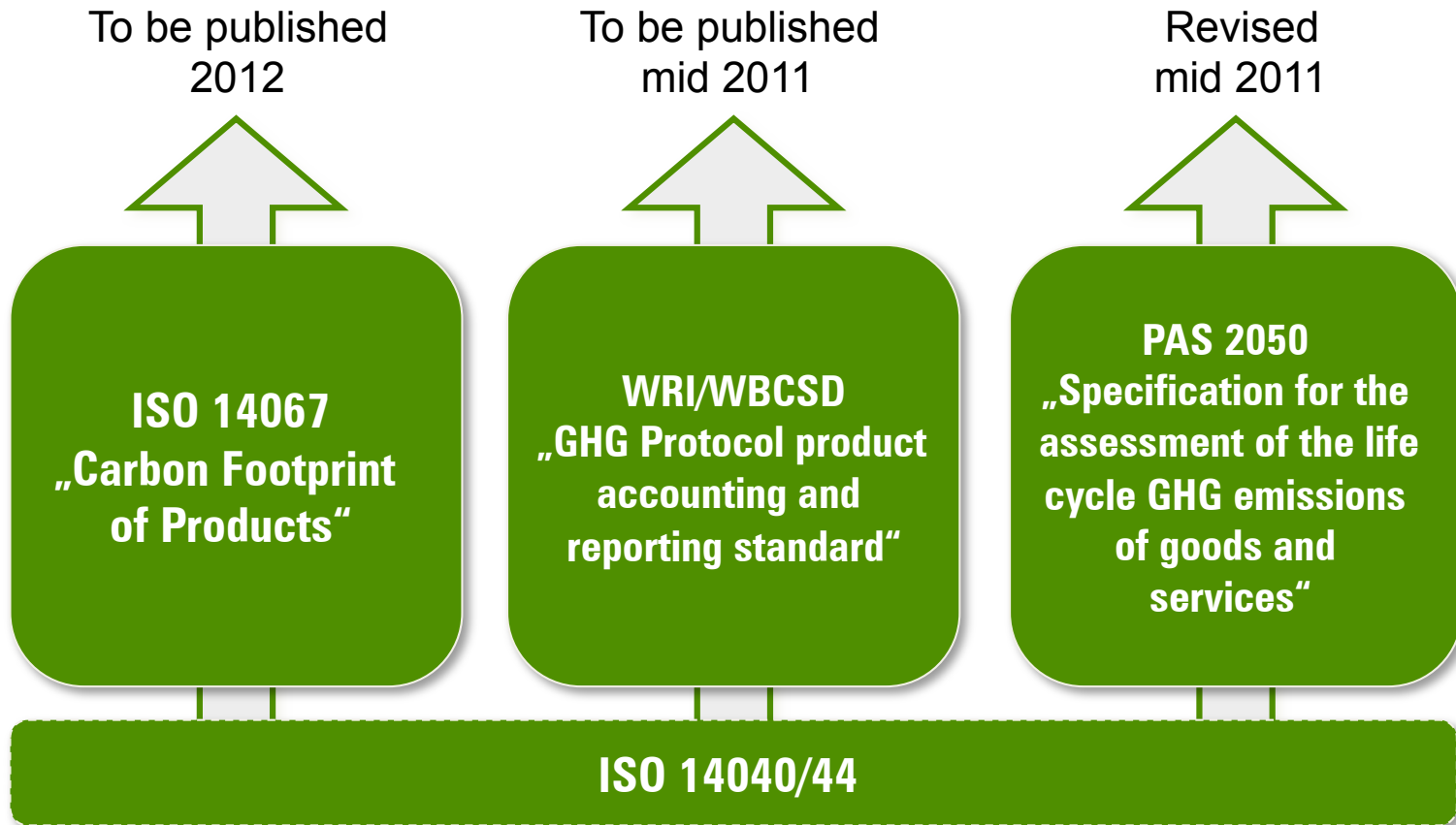
- » **Multitude of approaches under way to address these challenges**

SIGNIFICANT METHODOLOGICAL ISSUES STILL OPEN: MAIN EMPHASIS FOR INTERNATIONAL HARMONISATION OF METHODOLOGIES.

- » Approach to other impact categories?
- » Data sources?
- » Energy mix?
- » Electricity from renewables?
- » Allocation (recycling)?
- » Carbon storage?
- » LULUCF?
- » Air transport and climate change (RFI)?
- » Handling of variable supply chains?
- » Definition of the use phase?
- » Product Category Rules?

Approaches and Developments.

STANDARDS FOR PCF UNDER DEVELOPMENT.



FOOD RELATED „METHODS“ UNDER DEVELOPMENT (EXAMPLES).

- » European Food SCP Round Table
- » Dutch Horticulture Carbon Footprint protocol
- » Sustainability Consortium: Food, Beverage, and Agriculture Sustainability Measurement and Reporting Standard (FB&A SMRS)
- » The GHG Protocol for the Agricultural Sector
- » Product category specific efforts



QUANTIFICATION AND CRITERIA BASED

APPROACHES. (APPROXIMATIONS)

» Quantification based (e.g. „Carbon Labelling“)

- > French Environmental Labelling Scheme
- > Japanese Carbon Footprint System
- > French retailer Casino
- > Carbon Trust Carbon Reduction Label



» Criteria-based (e.g. „Climate Seals“)

- > Swedish Climate Certification System
- > Blue Angel/ EU Eco Flower
- > ISCC
- > REDcert



COMMUNICATING PRODUCT CARBON FOOTPRINTS.



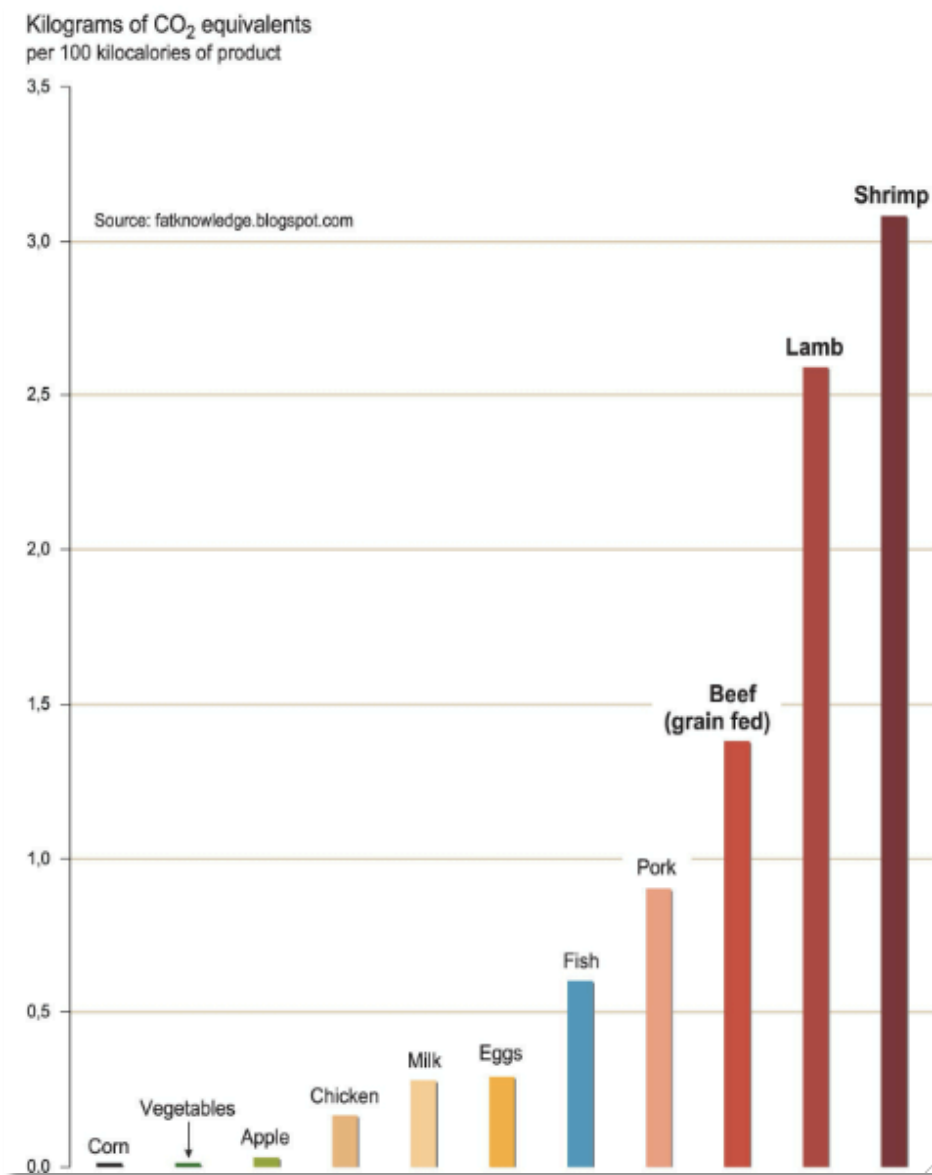
- » Use of label with aggregated gram figure in communication not recommended
 - > Still large methodological uncertainties and room for interpretation
 - > Relevance for user limited (e.g. for use phase emissions)

- » Product Carbon Footprinting is the basis for credible communication and can contribute to climate conscious consumption
 - > Context needs to be provided
 - > Relevance must be ensured
 - > Uniform standards are key

Carbon Footprinting and Agriculture.

Carbon Footprinting and Agriculture

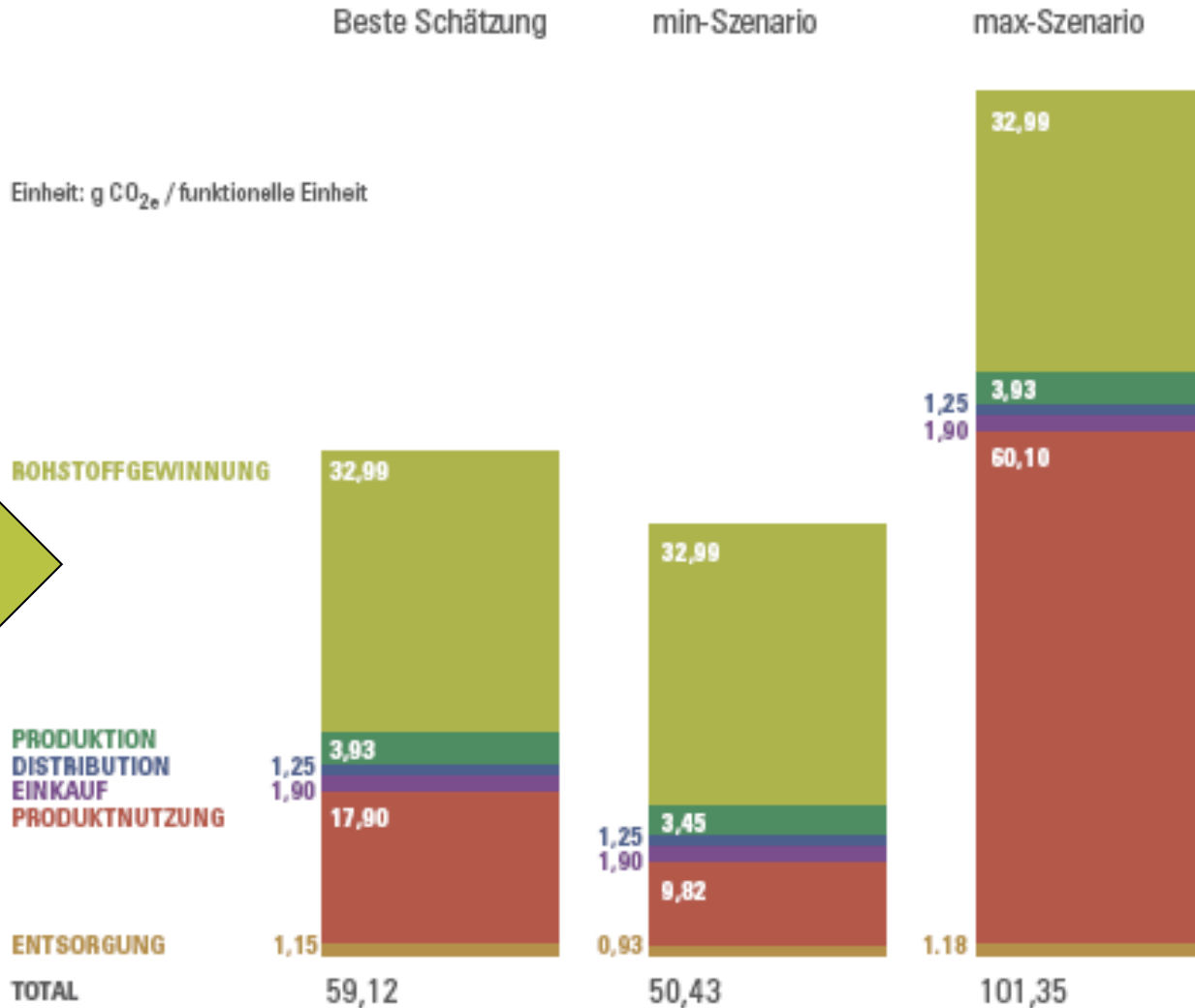
EMISSION ESTIMATES FOR DIFFERENT FOOD CATEGORIES.



Source: WDR 2010

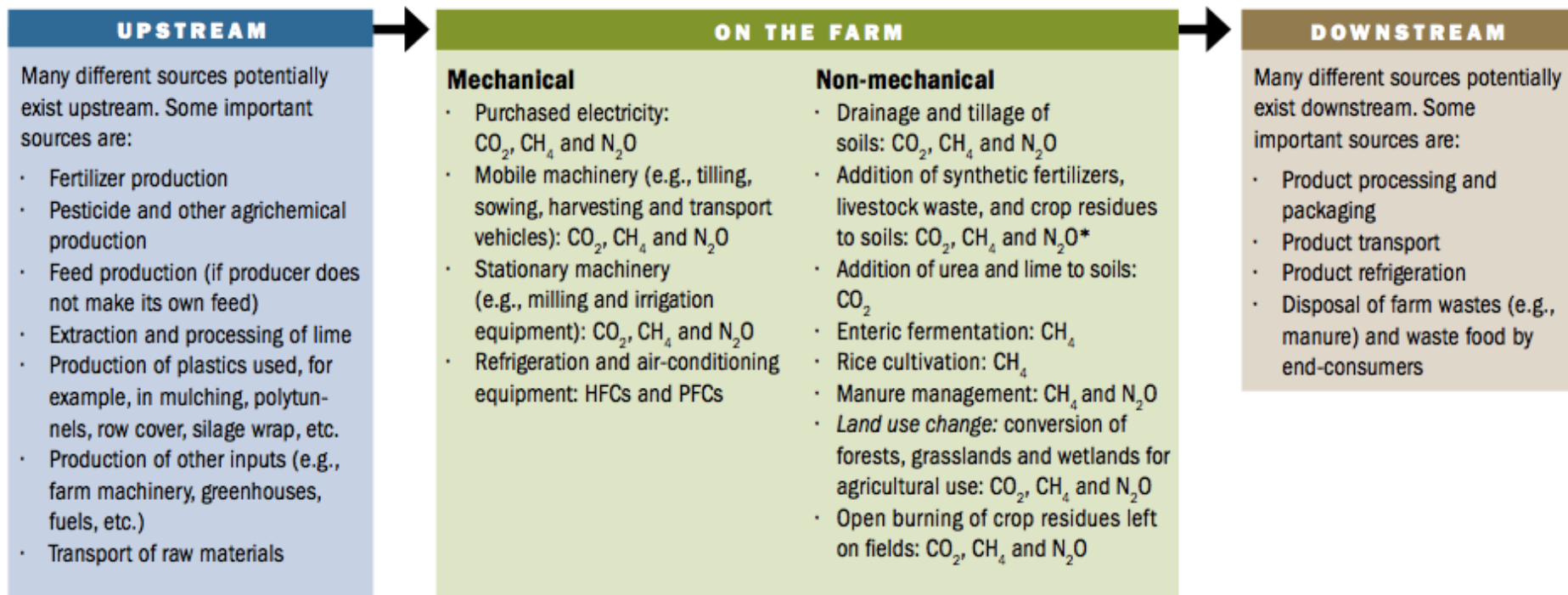
Carbon Footprinting and Agriculture

EXAMPLE: PRIVAT COFFEE RARITY MACHARE, TCHIBO. (PCF PILOT PROJECT GERMANY, 2009)



Agriculture

EMISSION SOURCES ASSOCIATED WITH AGRICULTURE.



Source: Working Paper, Corporate Greenhouse Gas Inventories for the Agricultural Sector: Proposed Accounting and Reporting Steps, WRI, 2011.

IT IS NOT JUST ABOUT CARBON...

- » Eutrophication
- » Biodiversity
- » Water
- » Depletion of biotic resources
- » ...

- » **But: „carbon“ is a good start to build metrics, tools and systems**

ICT and GHG Management in Agriculture.

CONSIDERATIONS FOR INTRODUCING CARBON FOOTPRINTING IN AGRICULTURE.

- » Agriculture important factor in global GHG emissions
- » International measurement standards/ protocols currently created
- » Applications of direct carbon/GHG labelling at best premature
- » GHG measurement important management and capacity building tool for the whole value chain

DATA NEEDS.

- » Carbon management and data at farm level
 - > Fertiliser use
 - > Use of pesticides
 - > Release of methane (CH₄)
 - > Release of nitrous oxide (N₂O)
 - > Direct and indirect land-use change
 - > CO₂ emissions from combustions
 - > Yields
 - > ...
- » Research and development
 - > Data on land-use and land-use change
 - > Models for methane and nitrous oxide releases

CHALLENGES FOR CARBON FOOTPRINTING AT FARM LEVEL.

- » Data availability limited
- » Data acquisition unusual and with efforts
- » Lack of knowledge on agricultural processes that lead to GHG emissions (e.g. N₂O release)

PERSPECTIVES FOR CARBON FOOTPRINTING AT FARM LEVEL.

- » Data capture and distribution
 - > Quantification and information exchange along value chains
- » Sensors for weather and soil conditions, land-use, water availability and use, which enable
- » decision support systems for farmers
 - > Management/ decision making at farm level (e.g. fertilizer use according to weather and soil conditions)
- » Certification („Chain of Custody“)

OUTLOOK.

- » Direct applications of carbon labelling premature
- » Integrating aspects of carbon footprinting however of broader interest
 - > increase data and model availability at farm level for „climate smart“ decision making (e.g. application of fertiliser)
 - > reduce burden to collect and transfer carbon footprint information in the value chain (e.g. tracking of fuel and electricity use)
 - > improve general farm management and thereby reduce GHG emissions (increase soil carbon, yields)
- » Research and development and in particular ICT-based showcases linked to international measurements frameworks necessary also on larger scale
- » **Potential role of ICT in rural areas/ agriculture in relation to GHG emissions should be investigated further.**

RESULTS REPORT AVAILABLE ONLINE.



Project Results Report

Product Carbon Footprinting – The Right Way to Promote Low Carbon Products and Consumption Habits?

Experiences, findings and recommendations from the
Product Carbon Footprint Pilot Project Germany



Logo: **ASSESSED** CO2 footprint www.pcf-project.de

deutsch | english

AT A GLANCE
BACKGROUND
PLATFORM INITIATORS
CORPORATE PARTNERS
PRESS
NEWSLETTER
RESULTS
CONTACT
LINKS

AT A GLANCE

Goods and services and their **consumption** account for a major share in overall GHG emissions. Gaining a better understanding of these **emissions** as well as of pathways for their **reduction** is of premier importance – in the supply chain as well as with consumers. The **Product Carbon Footprint (PCF) Project** develops approaches for systematically assessing and communicating implemented and intended emission reductions. Participating companies jointly support the promotion of climate compatible consumption. Common international standards for the assessment and communication of product related carbon emissions are sought.

BERECHNET
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PCF World Forum

Talking **with** each other...

...not **about** each other

Joint platform set up to foster and facilitate dialogue between **international initiatives on product carbon footprinting.**

In particular on how to **assess, reduce and communicate** the impact of **goods and services on the climate.**



Zukunftsmarkt Klimaschutz:
Trends, Chancen und Herausforderungen in der Vermarktung klimafreundlicher Angebote.

Von Großbritannien lernen?
CO₂-Kennzeichnung für Produkte in Deutschland.

Von Großbritannien lernen?
CO₂-Kennzeichnung für Produkte in Deutschland.

First PCF World Forum Summit 2009
International Approaches to Product Carbon Footprinting and Carbon Labelling
The Road Ahead for Business

2nd PCF World Summit 2009
Product Carbon Footprinting: On the Road to Harmonisation?
Business Responses to Diverging Approaches

3rd PCF World Summit
17-18 March 2010 Berlin
Sector Approaches to Product Carbon Footprinting
Frontrunners in managing and reducing value chain GHG emissions

4th PCF World Summit
20-21 October 2010 Berlin
Carbon Footprinting: From Standardisation to Communication
Advancing GHG emission reductions in the value chain

Einladung zum ersten Dialogforum am Donnerstag, den 10. Mai 2007 in Berlin

Einladung zum 2. Dialogforum am Freitag, den 12. Oktober 2007 in Berlin

Einladung zum 2. Dialogforum am Freitag, den 12. Oktober 2007 in Berlin

Berlin, 26-27 February 2009

Berlin, 23-24 September 2009

Deloitte



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www.pcf-world-forum.org



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PCF World Forum

- » Dialogue Forum „Low Carbon Food - Quo Vadis?“
 - > Initiatives, developments and perspectives in low carbon food production
 - > 31 March 2011, Berlin, Germany
- » 5th PCF World Summit „Implementing the International PCF Standards: Building Credibility in Carbon Footprint Information.“
 - > Forum of international initiatives in carbon footprinting
 - > 7-8 April 2011, Zurich, Switzerland
- » **www.pcf-world-forum.org**

Get in touch!

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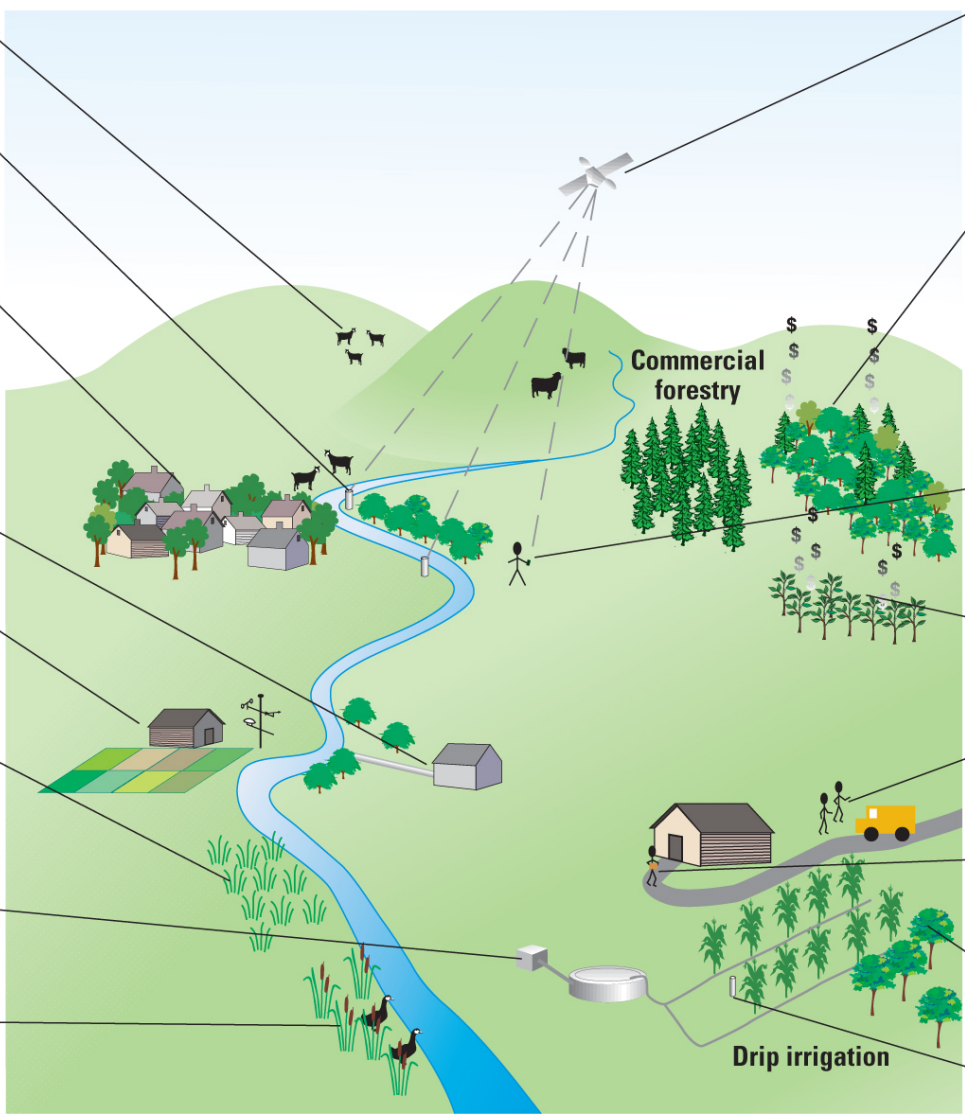


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ICT and GHG Management in Agriculture

AN IDEAL CLIMATE-SMART AGRICULTURAL LANDSCAPE OF THE FUTURE. (WDR 2010)

- Rangeland**
with hardy varieties of livestock
- Physical monitoring systems**
 - measure available water
 - provide flood and other natural disaster warnings
- Traditional communities**
self regulate groundwater and grazing in response to carbon credit incentives: farmers use soil and water conservation techniques; plant natural windbreaks; establish buffer zones and fallow land to provide habitats for biodiversity
- Conveyance**
to direct stormwater to recharge aquifers
- Research station**
finds new ways to adapt crops and management techniques to new climatic conditions
- Conservation tillage and intercropping**
used to grow rain-fed crops
- Biochar** made from crop residue sequesters carbon and fertilizes the soil
- Pump** accesses groundwater for dry years and automatically shuts off when safe extraction is exceeded
- Planned reserves**
to allow species movement in response to climate change



- Remote sensing systems**
 - measure species movement
 - monitor safe extraction of water
 - provide early warning for floods, droughts and landslides
 - detect deforestation
- Original forest ecosystem**
 - investors receive income based on carbon stored in soil and biomass
 - indigenous communities receive income for verifying that deforestation is avoided and biodiversity preserved
 - planned reserves to allow species movement in response to changing climate
- Farmer receives SMS messages** from remote sensing system with alerts about excess water consumption, crop water stress, etc.
- Tea plantation**
pays forest conservation fund for pollination and soil preservation services provided by the forest
- Private and public advisory services** help farmers adopt new agronomic developments
- Skilled employees**
store, process and pack products for direct contracts with markets
- Carbon credits** encourage farmers to intersperse crops with trees that provide habitat biodiversity
- Water monitors**
measure soil moisture

Source: World Development Report 2010.

Product Carbon Footprint (PCF) Project.

PCF PILOT PROJECT – PARTNERS.



PCF PILOT PROJECT – CASE STUDIES.

